# Draft Environmental Impact Statement/ Draft Environmental Impact Report

## for the East San Fernando Valley Transit Corridor

August 2017


Metro

Prepared by the
U.S. Department of Transportation
Federal Transit Administration

and the Los Angeles County
Metropolitan Transportation Authority

# Draft Environmental Impact Statement/ Draft Environmental Impact Report

for the
**East San Fernando Valley Transit Corridor**

prepared by the
**U.S. Department of Transportation**
**Federal Transit Administration**

and the
**Los Angeles County**
**Metropolitan Transportation Authority**

pursuant to:

National Environmental Policy Act of 1969, § 102 (42 United States Code [USC] § 4332); Federal Transit Law (49 USC Chapter 53); 49 USC § 303 (formerly Department of Transportation Act of 1966 § 4[f]); National Historic Preservation Act of 1966, § 106 (16 USC § 470f); Clean Air Act (42 USC § 7401 et seq.); 49 Code of Federal Regulations (CFR) § 622.101; 23 CFR Parts 771 and 774; 40 CFR Parts 1500-1508; Executive Order 11988 (Floodplain Management); Executive Order 12898 (Environmental Justice); California Environmental Quality Act (CEQA), Public Resources Code § 21000 et seq.; and the State of California's CEQA Guidelines, California Administrative Code, § 15000 et seq.

FTA may issue a single Final Environmental Impact Statement and Record of Decision document pursuant to (PL) 114-94 and 23 U.S.C 139(n)(2) unless FTA determines statutory criteria or practicability considerations preclude issuance of the combined document pursuant to Section 139.

8/24/17

Leslie T. Rogers
Region IX Regional Administrator
Federal Transit Administration

Date

8/24/17

Phillip A. Washington
Chief Executive Officer
Los Angeles County
Metropolitan Transportation Authority

Date

DRAFT ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT REPORT

LEAD AGENCIES: Federal Transit Administration, U.S. Department of Transportation, and Los Angeles County Metropolitan Transportation Authority

STATE CLEARINGHOUSE NO. 2013021064

TITLE OF PROPOSED ACTION: East San Fernando Valley Transit Corridor


ABSTRACT: The Los Angeles County Metropolitan Transportation Authority (Metro) proposes to implement transit improvements in Los Angeles County, along the Van Nuys Boulevard corridor within the Cities of Los Angeles and San Fernando, from the Sylmar/San Fernando Metrolink station to the Van Nuys Metro Orange Line station. As a result of the project's Alternative Analysis completed in December 2012, the following six alternatives are analyzed further in this Draft Environmental Impact Statement/Environmental Impact Report, and include the No-Build Alternative, Transportation Systems Management (TSM) Alternative, two Bus Rapid Transit (BRT) alternatives, and two rail alternatives:

- No-Build Alternative
- TSM Alternative
- BRT Alternatives
    - Alternative 1 – Curb-Running BRT Alternative
    - Alternative 2 – Median-Running BRT Alternative
- Rail Alternatives
    - Alternative 3 – Low-Floor Light Rail Transit (LRT)/Tram Alternative
    - Alternative 4 – LRT Alternative

All build alternatives (Alternatives 1 through 4) would operate over 9.2 miles, either in a dedicated bus lane or guideway (6.7 miles) and/or in mixed-flow traffic lanes (2.5 miles), from the Sylmar/San Fernando Metrolink station on the north to the Van Nuys Metro Orange Line station on the south, with the exception of Alternative 4, which includes a 2.5-mile segment within Metro-owned railroad right-of-way adjacent to San Fernando Road and Truman Street and a 2.5-mile underground segment beneath portions of the City of Los Angeles communities of Panorama City and Van Nuys.

This report is a combined Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR), satisfying the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). This Draft EIS/EIR defines the alternatives studied and describes each alternative's associated potential transportation and environmental impacts, capital costs, and potential funding sources. Potential areas of impact include transit, traffic, parking, land use/neighborhoods, land acquisition, displacement and relocation, equity and environmental justice considerations, visual quality, air quality, climate change, noise and vibration, geology, soils and seismicity, exposure to hazardous substances, water resources, biological resources, energy resources, safety and security, historic, archaeological and paleontological resources, community facilities and parklands, construction impacts, and other CEQA determinations. Mitigation measures for the impacts of the alternatives are also identified. The information contained in this document will be used by the Metro Board of Directors to make a decision on whether to implement the project and to select, from among the alternatives under consideration, a locally preferred alternative in conjunction with the Federal Transit Administration for implementation.

Comments on this Draft EIS/EIR must be received by October 10, 2017, and can be submitted in writing, and by email to:

Mr. Walt Davis, Project Manager
East San Fernando Valley Transit Corridor
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza, MS-99-7
Los Angeles, CA 90012
Email: DAVISWA@metro.net
Phone (213) 922-3079

Additional written comments and/or questions concerning this document should be directed to:

| | | |
|---|---|---|
| Mr. Walt Davis, Project Manager<br>East San Fernando Valley Transit Corridor<br>Los Angeles County Metropolitan Transportation Authority<br>One Gateway Plaza, MS-99-7<br>Los Angeles, CA 90012<br>Phone (213) 922-3079 | Mr. Raymond Sukys, Office of Planning and Program Development<br>Federal Transit Administration Region IX<br>201 Mission St., Suite 1650<br>San Francisco, CA 94105<br>Phone (415) 744-3133 | Ms. Mary Nguyen, Environmental Protection Specialist<br>Federal Transit Administration Region IX<br>Los Angeles Metropolitan Office<br>888 S. Figueroa St., Suite 2170<br>Los Angeles, CA 90017<br>Phone (213) 202-3960 |

If braille assistance or translation in another language is required, please call (323) 466-3876 between 8 a.m. and 5 p.m. Monday through Friday. Metro's TDD line is (800) 252-9040. Individuals with hearing or speech impairment may use the California Relay Service 711 + Metro phone number.

# Table of Contents

# List of Appendices

# List of Tables

# List of Figures

# ES.1 Introduction

The East San Fernando Valley Transit Corridor Project is a vital public transit infrastructure investment that would provide improved transit service along the busy Van Nuys Boulevard and San Fernando Road corridors serving the eastern San Fernando Valley. The proposed project would extend from the Sylmar/San Fernando Metrolink Station on the north to the Metro Orange Line on the south and provide area residents, businesses, and transit-dependent populations with improved mobility and access to the regional transit system. Figure ES-1 shows the regional Los Angeles County Metropolitan Transportation Authority (Metro) transit lines expected to be operational by the year 2040 and illustrates how the East San Fernando Valley Transit Corridor Project would improve access to the regional system.

In addition to mobility benefits, the East San Fernando Valley Transit Corridor Project would provide the project area with transportation, economic, land use, and environmental benefits. The analyses presented in this Draft Environmental Impact Study/Environmental Impact Report (Draft EIS/EIR) documents the impacts to the environment that could occur due to the project, as required by federal National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) regulations. It also illustrates how improved mobility to and from the project area has the potential to boost economic development and improve social justice by providing better access to employment, educational and health facilities, and activity centers. Improved transit connectivity and service would also increase transit ridership, which in turn could result in environmental benefits due to reduced vehicle trips, reductions in vehicle miles traveled, less roadway congestion, and improved air quality.

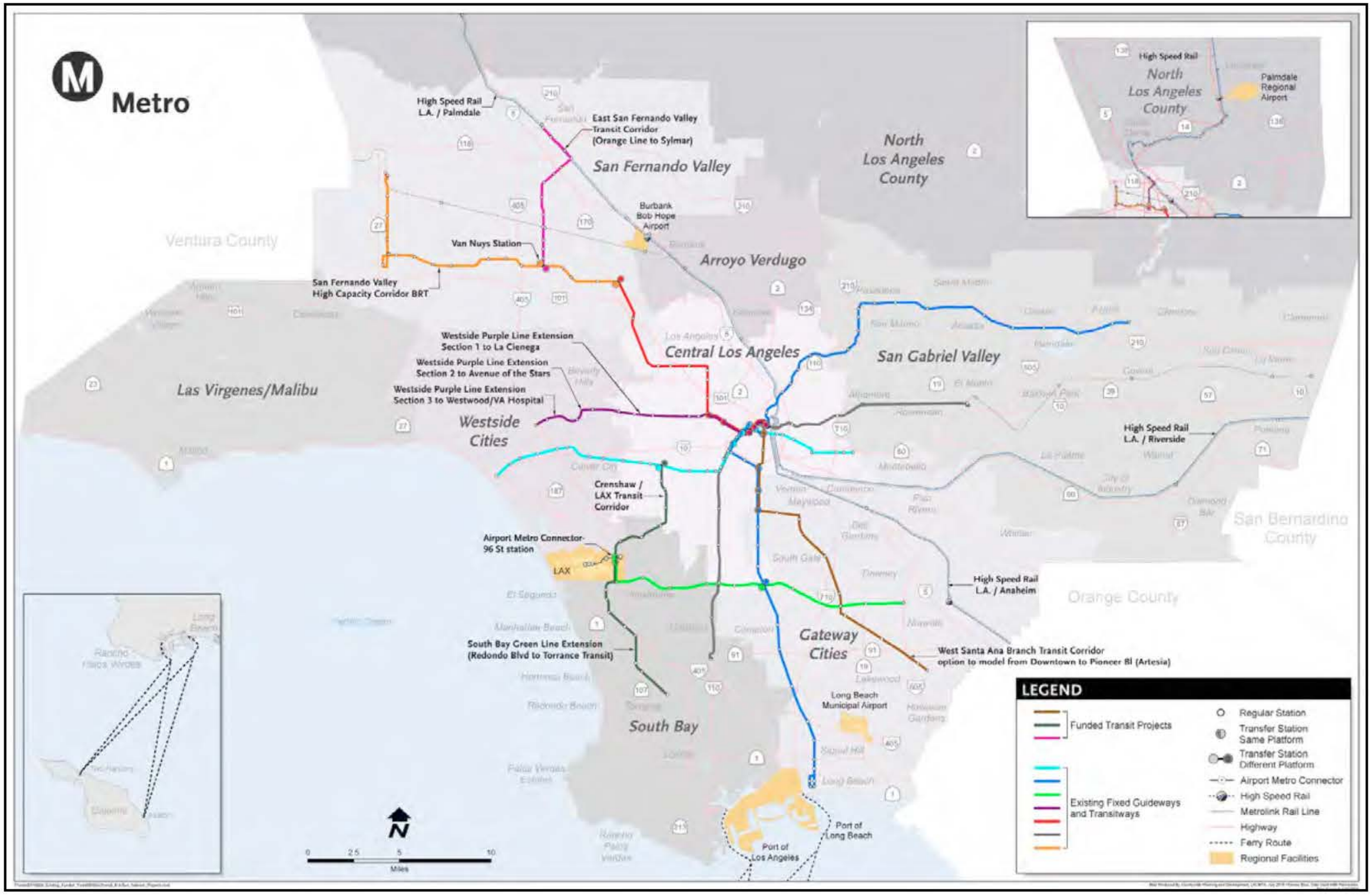
The East San Fernando Valley Transit Corridor Project is included in the Southern California Association of Governments (SCAG) 2016-2040 Regional Transportation Plan /Sustainable Communities Strategy (RTP/SCS), adopted in April 2016. The RTP/SCS also outlines several projects in and around the project area aimed at maximizing the effectiveness, safety, and reliability of Southern California's transportation system.

Project milestones for the East San Fernando Valley Transit Corridor Project include:

- Publication of the Draft EIS/EIR
- Public review and comment on the Draft EIS/EIR (45 days following publication)
- Publication of the Final EIS/EIR – Release of the Final EIS/EIR document is based on the condition that funding is available to allow for construction of the project within three years after issuance of the Record of Decision (ROD)
- Metro Board of Directors approves a project and adopts a Mitigation Monitoring and Reporting Program (MMRP) and CEQA Findings

**Table of Contents**

## Figure ES-1: Existing and Proposed Regional BRT and Rail Lines




Source: Metro, 2016.

- California Environmental Quality Act (CEQA) Notice of Determination (NOD)
- Federal Transit Administration (FTA) approves Record of Decision (ROD). Following the Federal ROD, the proposed project can proceed to final design, construction, and operation. The schedule of these milestones will be refined as the project nears the end of the state and federal mandated environmental review process.

# ES.2 Purpose and Need

## Purpose

The East San Fernando Valley Transit Corridor Project would provide new service and/or infrastructure that would improve passenger mobility and connectivity to regional activity centers, increase transit service efficiency (speeds and passenger throughput), and make transit service more environmentally beneficial via reductions in greenhouse gas emissions.

The purposes of the proposed project are summarized as follows:

- Improve mobility in the eastern San Fernando Valley by introducing an improved north-south transit connection between key transit hubs/routes;
- Enhance transit accessibility/connectivity for residents within the study area to local and regional destinations;
- Provide more reliable transit service within the eastern San Fernando Valley;
- Provide additional transit options in an area with a large transit-dependent population, including the disabled, high-transit ridership; and
- Encourage modal shift to transit in the eastern San Fernando Valley, thereby improving air quality.

## Need

The following mobility challenges within the project study area will continue to grow if no action is taken, due, in large part, to continued population growth, which increases the demand for transit service along the Van Nuys Boulevard corridor, a corridor that already has high population density and transit-dependent persons who rely on transit for daily transportation, including commuting:

- **Mobility challenges resulting from increased roadway congestion, affecting study area bus service** - Based on the Metro travel forecast model, the number of congested roadway segments (a portion of the roadway located between two intersections) in the study area is expected to increase from 126 to 162, a 29 percent increase in the AM peak hour and from 103 to 159, a 54 percent increase in the PM peak hour. Average speeds on these segments are expected to decrease by up to 12 miles per hour (mph) during the AM and PM peak hours. The increase in congested segments will result in lower vehicle speeds and increased travel delay in the study area, reducing mobility. Based on travel projections from the Metro model, the number of study intersections currently operating at LOS E or F along the Van Nuys Boulevard corridor will more than double by the year 2040.

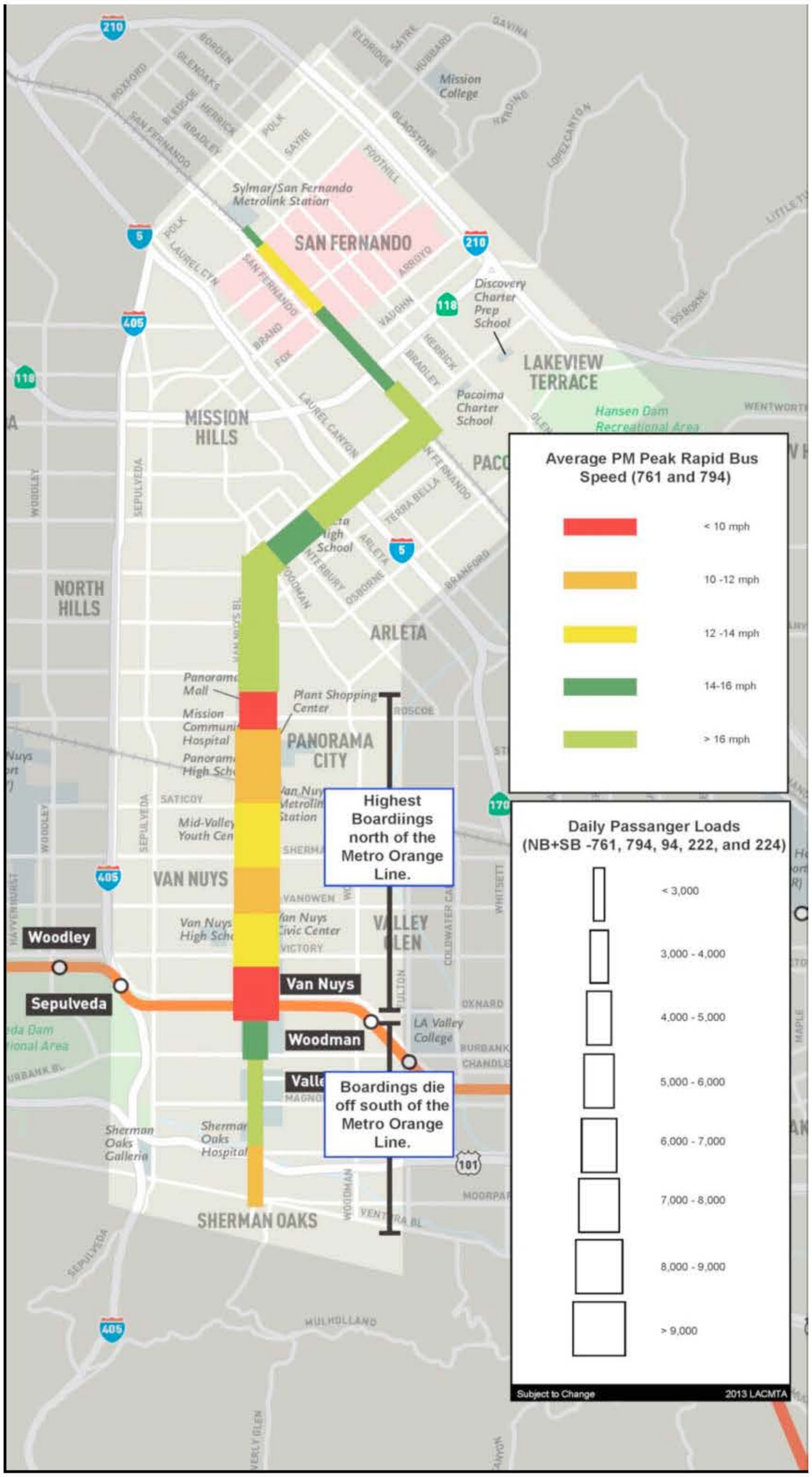
Photo ES-1 shows typical existing congested conditions along the corridor.

Photo ES-1: Existing Congestion on Van Nuys Boulevard Corridor


Source: Metro, 2016.

- **Increasing travel demand** - According to the Metro model, the person-trip distribution for the project study area indicates that a high number of travel trips tend to be localized to the communities within the area. Approximately 50 percent of the trips stay within the study area, with a large portion of trips occurring between the northern communities of the City of San Fernando and Pacoima and the southern communities of Mission Hills and Panorama City. These southern communities have a higher number of activity centers that include Kaiser Permanente Hospital, several high schools, and the Panorama Mall. A significant proportion of the overall study area trip distribution is to and from the Van Nuys Civic Center area, as demonstrated in Figure ES-2, constituting approximately 52 percent of all study area trips. These general trip trends are expected to remain similar in 2040 and show a high attraction of trips between the central study area and the Civic Center area. Because of the centralized trip patterns, transit accessibility and connectivity are integral to study area resident travel needs, especially to those who are transit dependent (35 percent). A total of 10 percent of households do not own a car and the average adult poverty ratio is 2.26 persons per acre compared to 1.08 per acre for Los Angeles County. These residents rely on Metro and City of Los Angeles Department of Transportation bus services for work and non-work trips within the study area and the greater Los Angeles County area. By 2040, the trip pattern is expected to remain similar, with a high number of trips (approximately 50 percent) staying within the study area. Local trips will remain a significant contributor to traffic and transit trends. Therefore, providing enhanced transit connections and accessibility to surrounding destinations is critical for residents that rely on public transit.
- **Transit service performance and reliability is decreasing due to increased** congestion - The existing bus service along the study area corridors does not meet the Metro on-time performance goal of 80 percent. This is directly correlated to levels of roadway congestion and related vehicular speeds, which together reduce the mobility of area bus riders. As congestion continues to increase, the reliability of bus service for riders will also worsen, because further congestion will further decrease bus speeds.

Figure ES-2: Existing Bus Boarding Distribution for Van Nuys Boulevard Corridor




Source: Metro, 2016.

- **Large transit-dependent population and expected growth in ridership -** The Van Nuys Boulevard corridor has the seventh highest total transit boardings on the Metro Bus system. This corridor is served by Rapid Line 761 and Local Line 233, which have combined passenger boardings that are the second highest in the San Fernando Valley, with the Metro Orange Line boardings at a slightly higher number. Sepulveda Boulevard and San Fernando Road also have some of the highest total boardings of all transit corridors in the San Fernando Valley. The demand in passenger boardings is constituted by both transit dependent and discretionary riders. The overall population density and the transit dependent population density are both more than twice as high in the study area as in the urbanized area of the County as a whole. The study area average of 0.53 zero-vehicle households per acre is 77 percent higher than the 0.30 County average. The study area average transit dependent population of 7.04 persons per acre is more than 100 percent higher than the 3.21 County average. The study area average of 2.26 adult persons below the poverty line per acre is over two times the 1.08 County average. Although population density and transit dependent population characteristics are expected to stay the same or improve slightly, study area population is expected to increase by almost 12 percent by the year 2040, and area employment will increase by approximately 15 percent. With the increase in population and employment growth, it is likely that there will be an increase in bus crowding (Photo ES-2).

**Photo ES-2: Existing Bus Crowding**

Source: Metro, 2016.

- **Exceeding air quality criteria pollutant standards within the study area -** Standards for many of the criteria pollutants monitored within the east San Fernando Valley have been exceeded multiple times during each of the previous three years of collected data (2010 – 2012). The traffic analysis indicates that travel speeds, vehicular delay, and congestion will worsen by 2040. This will result in increased gas consumption, and vehicle emissions in the study area. The increase in delay at the study intersections is expected to increase vehicle emissions and fuel consumption.

# ES.3 Alternatives Considered

The following six alternatives include the No-Build Alternative, Transportation Systems Management (TSM) Alternative, two Bus Rapid Transit (BRT) alternatives, and two rail alternatives are evaluated in this Draft EIS/EIR:

- No-Build Alternative
- TSM Alternative
- BRT Alternatives
    - Alternative 1 – Curb-Running BRT Alternative
    - Alternative 2 – Median-Running BRT Alternative
- Rail Alternatives
    - Alternative 3 – Low-Floor Light Rail Transit (LRT)/Tram Alternative
    - Alternative 4 – LRT Alternative

All build alternatives (Alternatives 1 through 4) would operate over 9.2 miles, either in a dedicated bus lane or guideway (6.7 miles) and/or in mixed-flow traffic lanes (2.5 miles), from the Sylmar/San Fernando Metrolink station on the north to the Van Nuys Metro Orange Line station on the south, with the exception of Alternative 4, which includes a 2.5-mile segment within Metro-owned railroad right-of-way adjacent to San Fernando Road and Truman Street and a 2.5-mile underground segment beneath portions of the City of Los Angeles communities of Panorama City and Van Nuys.

## No-Build Alternative

The No-Build Alternative represents projected conditions in 2040 without implementation of the project (Figure ES-1). No new transportation infrastructure would be built within the project study area, aside from projects that are currently under construction or funded for construction and operation by 2040. These projects include highway and transit projects funded by Measure R and specified in the current constrained element of the *Metro 2009 Long-Range Transportation Plan* (LRTP) and the 2016 Southern California Association of Governments (SCAG) *Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS). Existing infrastructure and future planned and funded projects assumed under the No-Build Alternative include:

- Existing Freeways – Interstate 5, and Interstate 405, State Route 118, and U.S. 101;
- Existing Transitway – Metro Orange Line;
- Existing Bus Service – Metro Rapid and Metro Local Service;
- Los Angeles Department of Transportation Commuter Express, and DASH;
- Existing and Planned Bicycle Projects – Bicycle facilities on Van Nuys Boulevard and connecting east/west facilities; and
- Other Planned Projects – Various freeway and arterial roadway upgrades, upgrades to the Metrolink system and the proposed California High-Speed Rail Project.

This alternative establishes a baseline for comparison to other alternatives in terms of potential environmental effects, including adverse and beneficial environmental effects.

# TSM Alternative

The TSM Alternative emphasizes transportation systems upgrades, which may include relatively low-cost transit service improvements such as increased bus frequencies and minor modifications to the roadway network. Additional TSM Alternative transit improvements that may be considered include, but are not limited to traffic signalization improvements, bus stop amenities/ improvements, and bus schedule restructuring.

The TSM Alternative could include enhanced operating hours and increased bus frequencies for Rapid Line 761 and Local Line 233. Under this Alternative, the Metro Rapid Line 761 and Metro Local Line 233 bus routes would retain existing stop locations (see Figure ES-3). It would not change the existing bus operations on San Fernando Road, including those of Metro Local Line 244 and Metro Rapid Line 794. This alternative would add 20 additional buses to the existing Metro Local 233 and Metro Rapid 761 bus routes. These buses would be similar to existing Metro 60-foot articulated buses (shown in Photo ES-3), and each bus would have the capacity to serve up to 75 passengers (57 seats x 1.30 passenger loading standard). Buses would be equipped with transit signal priority equipment to allow for improved operations and on-time performance.

It should be noted that modifications were made in December 2014 to one of the primary Metro bus routes operating on Van Nuys Boulevard after this project analysis was already underway. Metro Rapid Line 744 was added connecting Pacoima in the east to Northridge in the west, and traveling for a large portion of the route (north-south) along Van Nuys Boulevard, and replacing the Metro Rapid Line 761. For the purposes of this study, the evaluation was based on the routes (Metro Rapid Line 761 and Metro Local Line 233) that were already in place in 2012 when the transportation modeling for this study began.

**Photo ES-3: Example of Metro 60-Foot Articulated Bus**


Source: Metro Transportation Library and Archives, 2015.

Figure ES-3: TSM Alternative


Source: STV, 2014.

The existing Metro Division 15 Maintenance and Storage facility (MSF) located in Sun Valley would be able to accommodate the 20 additional buses with the implementation of the TSM Alternative. Operational changes would include reduced headway (elapsed time between buses) times for Metro Rapid Line 761 and Metro Local Line 233, as follows:

- Metro Rapid Line 761 would operate with headways reduced from 10 minutes to 8 minutes during peak hours (7 a.m. to 9 a.m. and 4 p.m. to 7 p.m. on weekdays) and from 17.5 minutes to 12 minutes during off-peak hours.
- Metro Local Line 233 would operate with headways reduced from 12 minutes to 8 minutes during peak hours and from 20 minutes to 16 minutes during off-peak hours.

# BRT Alternatives

## Alternative 1 – Curb-Running BRT Alternative

Under the Curb-Running BRT Alternative, the BRT guideway would incorporate 6.7 miles of existing curb lanes (i.e., lanes closest to the curb) along Van Nuys Boulevard between San Fernando Road on the north and the Metro Orange Line on the south. This alternative would be similar to the Metro Wilshire BRT Project with a dedicated bus lane that could operate 24-hours a day or only during peak periods. The lanes would be dedicated curb-running bus lanes for Metro Rapid Line 761 and Metro Local Line 233, and for other transit lines that operate on short segments of Van Nuys Boulevard. In addition, this alternative would incorporate 2.5 miles of mixed-flow lanes, where buses would operate in the curb lane along San Fernando Road and Truman Street between Van Nuys Boulevard and Hubbard Avenue for Metro Line 761. Metro Line 233 would continue north on Van Nuys Boulevard to Lakeview Terrace. These improvements would result in an improved Metro Rapid Line 761 (hereafter referred to as 761X) and an improved Metro Local Line 233 (hereafter referred to as 233X). The route of the Curb-Running BRT Alternative is illustrated in Figure ES-4.

From the Sylmar/San Fernando Metrolink station:

- Metro Rapid Line 761X would operate within roadway travel lanes on Truman Street and San Fernando Road.
- At Van Nuys Boulevard, Metro Rapid Line 761X would turn southwest and travel south within a curb-running dedicated bus lane along Van Nuys Boulevard.
- The alternative would continue to be curb running along Van Nuys Boulevard until reaching the Metro Orange Line Van Nuys station where Metro Rapid Line 761X service would be integrated into mixed-flow traffic.
- Metro Line 761X would then continue south to Westwood as under existing conditions, though it should be noted that in December 2014 the Metro Rapid Line 761 was re-routed to travel from Van Nuys Boulevard to Ventura Boulevard, and then to Reseda Boulevard, while a new Metro Rapid Line 788 travels from Van Nuys Boulevard through the Sepulveda Pass to Westwood.

Metro Local Line 233X would operate similar to how it currently operates between the intersections of Van Nuys and Glenoaks Boulevards to the north and Van Nuys and Ventura Boulevards to the south. However, Metro Local Line 233X would operate with improvements over existing service because it would utilize the BRT guideway where its route overlaps with the guideway along Van Nuys Boulevard.

Figure ES-4: Alternative 1 – Curb-running BRT


Source: KOA and ICF International, 2014.

Transit service would not be confined to only the dedicated curb lanes. Buses would still have the option to operate within the remaining mixed-flow lanes to bypass right-turning vehicles, a bicyclist, or another bus at a bus stop.

The Curb-Running BRT Alternative would operate in dedicated bus lanes, sharing the lanes with bicycles and right turning vehicles. However, on San Fernando Road and Truman Street, no dedicated bus lanes would be provided. The Curb-Running BRT Alternative would include 18 bus stops.

## Alternative 2 – Median-Running BRT Alternative

The Median-Running BRT Alternative consists of approximately 6.7 miles of dedicated median-running bus lanes between San Fernando Road and the Metro Orange Line, and would have operational standards similar to the Metro Orange Line. The remaining 2.5 miles would operate in mixed-flow traffic between the Sylmar/San Fernando Metrolink Station and San Fernando Road/Van Nuys Boulevard. The Median-Running BRT Alternative is illustrated in Figure ES-5.

Similar to the Curb-Running BRT Alternative, the Median-Running BRT (Metro Rapid Line 761X) would operate as follows from the Sylmar/San Fernando Metrolink station:

- Within mixed-flow lanes on Truman Street and San Fernando Road.
- At Van Nuys Boulevard, the route would turn southwest and travel south within the median of Van Nuys Boulevard in a new dedicated guideway.
- Upon reaching the Van Nuys Metro Orange Line Station, the dedicated guideway would end and the Rapid Line 761X service would then be integrated into mixed-flow traffic.
- The route would then continue south to Westwood, similar to the existing route. Similar to Alternative 1, it should be noted that in December 2014 the Metro Rapid Line 761 was re-routed to travel from Van Nuys Boulevard to Ventura Boulevard, and then to Reseda Boulevard, while a new Metro Rapid Line 788 travels from Van Nuys Boulevard through the Sepulveda Pass to Westwood.

Metro Local Line 233 would operate similar to existing conditions between the intersections of Van Nuys and Glenoaks Boulevards to the north and Van Nuys and Ventura Boulevards to the south. Rapid Bus stops that currently serve the 794 and 734 lines on the northern part of the alignment along Truman Street and San Fernando Road would be upgraded and have design enhancements that would be Americans with Disabilities Act (ADA) compliant. These stops would also serve the redirected 761X line:

1. Sylmar/San Fernando Metrolink Station
2. Hubbard Station
3. Maclay Station
4. Paxton Station
5. Van Nuys/San Fernando Station

Along the Van Nuys Boulevard segment, bus stop platforms would be constructed in the median. Seventeen median stations and four curb bus stops would be included.

Figure ES-5: Alternative 2 – Median-running BRT


Source: KOA and ICF International, 2014.

# Rail Alternatives

## Alternative 3 – Low-Floor LRT/Tram Alternative

The Low-Floor LRT/Tram Alternative would operate along a 9.2-mile route from the Sylmar/San Fernando Metrolink station to the north to the Van Nuys Metro Orange Line station to the south. The Low-Floor LRT/Tram Alternative would operate in a median dedicated guideway for approximately 6.7 miles along Van Nuys Boulevard between San Fernando Road and the Van Nuys Metro Orange Line station. The Low-Floor LRT/Tram Alternative would operate in mixed-flow traffic lanes on San Fernando Road between the intersection of San Fernando Road/Van Nuys Boulevard and just north of Wolfskill Street. Between Wolfskill Street and the Sylmar/San Fernando Metrolink station, the Low-Floor LRT/Tram would operate in a median dedicated guideway. It would include 28 stations. The route of the Low-Floor LRT/Tram Alternative is illustrated in Figure ES-6.

The Low-Floor LRT/Tram Alternative would operate along the following route:

- From the Sylmar/San Fernando Metrolink station, the Low-Floor LRT/Tram would operate within a median dedicated guideway on San Fernando Road.
- At Wolfskill Street, the Low-Floor LRT/Tram would operate within mixed-flow travel lanes on San Fernando Road to Van Nuys Boulevard.
- At Van Nuys Boulevard, the Low-Floor LRT/Tram would turn southwest and travel south within the median of Van Nuys Boulevard in a new dedicated guideway.
- The Low-Floor LRT/Tram would continue to operate in the median along Van Nuys Boulevard until reaching its terminus at the Van Nuys Metro Orange Line Station.

Based on Metro's *Operations Plan for the East San Fernando Valley Transit Corridor Project,* the Low-Floor LRT/Tram Alternative would assume a similar travel speed as the Median-Running BRT Alternative, with speed improvements of 18 percent during peak hours/peak direction and 15 percent during off-peak hours.

The Low-Floor LRT/Tram Alternative would operate using low-floor articulated vehicles that would be electrically powered by overhead wires, as in the example shown in Photo ES-4. This Alternative would include supporting facilities, such as an overhead contact system (OCS), traction power substations (TPSS), signaling, and a maintenance and storage facility (MSF).

Because the Low-Floor LRT/Tram Alternative would fulfill the current functions of the existing Metro Rapid Line 761 and Metro Local Line 233, these bus routes would be modified to maintain service only to areas outside of the project corridor. Thus, Metro Rapid Line 761 (referred to as 761S with reduced service) would operate only between the Metro Orange Line and Westwood, and Metro Local Line 233 (referred to as 233S with reduced service) would operate only between San Fernando Road and Glenoaks Boulevard. It is most likely that this area would continue to be served by a neighboring bus line or that the 233S route is modified, so that it is not serving such a limited geographic area. Metro Operations would make such modifications based on observation of the line's performance and feedback from the communities it serves. It should be noted that in December 2014 the Metro Rapid Line 761 was re-routed to travel from Van Nuys Boulevard to Ventura Boulevard, and then to Reseda Boulevard, while a new Metro Rapid Line 788 now travels from Van Nuys Boulevard through the Sepulveda Pass to Westwood and provides peak period freeway express service.

# Figure ES-6: Alternative 3 – Low-Floor LRT/Tram


Source: KOA and ICF International, 2014.

Photo ES-4: Examples of Low-Floor LRT/Tram Vehicle Types


Portland Streetcar Tram Vehicle/Siemens S70 Low-Floor LRT Vehicle on Portland's MAX System


San Diego Trolley Siemens S70 Low-Floor LRT Vehicle/Stadler Variotram in Munich, Germany

Stations for the Low-Floor LRT/Tram Alternative would be constructed at various intervals along the entire route. There are portions of the route where stations would be closer together and other portions where they would be located further apart. With the Low-Floor LRT/Tram Alternative, 28 ADA compliant stations are proposed.

## Alternative 4 – LRT Alternative

Similar to the Low-Floor LRT/Tram Alternative, the LRT would be powered by overhead electrical wires; however, it is relevant to note the onboard commuter load capacities for Alternatives 3 and 4. A low-floor and high-floor LRT vehicle have different load capacities, 100 versus 133, respectively. Using the San Diego Trolley low-floor vehicle as an example, their 90-foot low-floor vehicle has a commute/load capacity of 100 persons. Additionally, aisles are narrower and include step(s) to get to some/many seats. Additionally, seats above 'trucks' have less leg room. The low floor combined with the area dedicated to the trucks/wheels and the longer cab areas result in reduced capacity. For comparison, Metro's 90-foot high-floor model has a commute/load capacity of 133 passengers, and is the vehicle type that would likely be used for Alternative 4 (shown in Photos ES-5 and ES-6).

Photo ES-5: Example of Metro 90-Foot LRT Vehicle

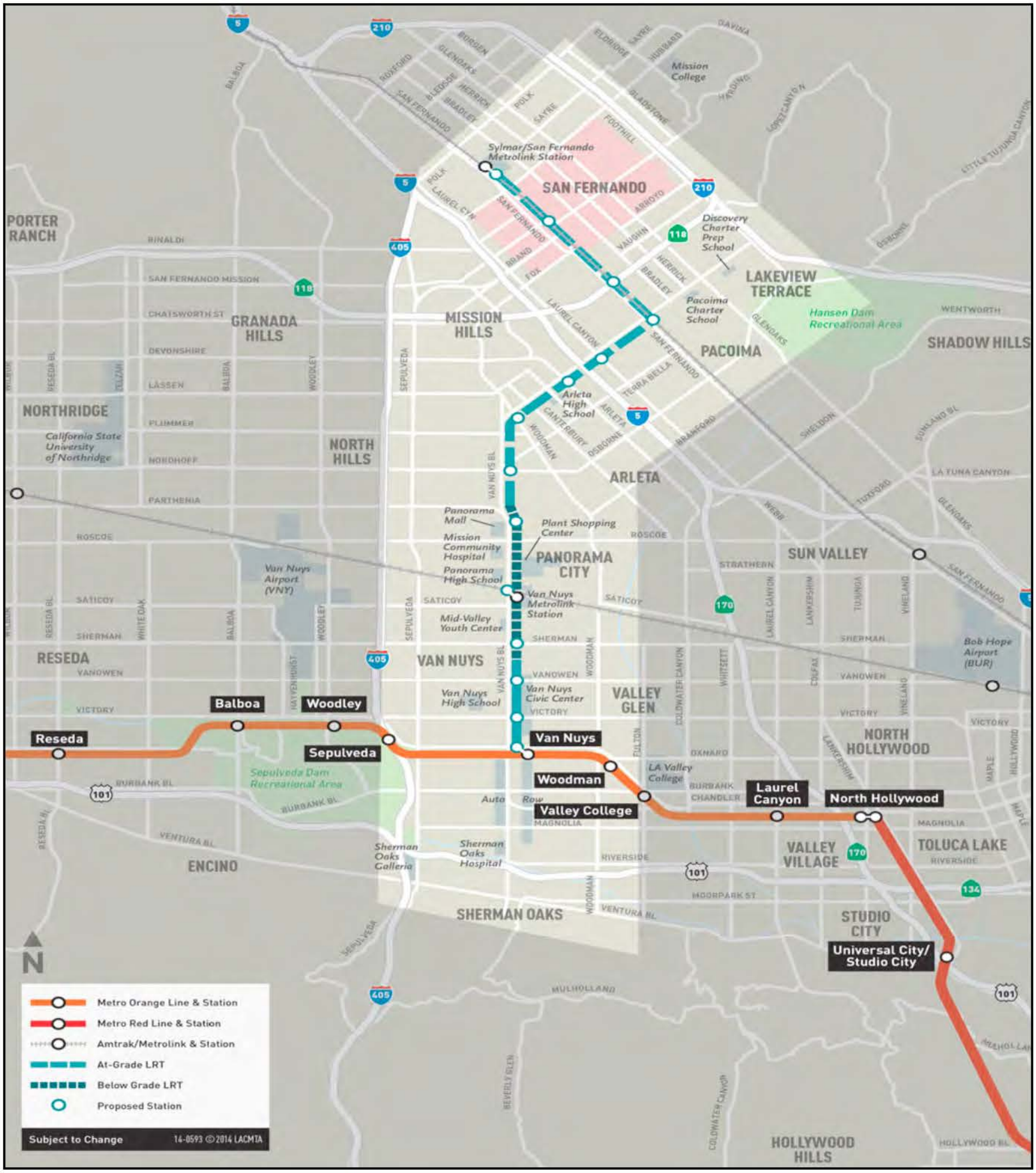
Source: Metro, 2016.

Photo ES-6: Metro LRT Vehicle

Source: Metro, 2016.

Under Alternative 4, the LRT would travel in a dedicated guideway from the Sylmar/San Fernando Metrolink station adjacent to San Fernando Road south to Van Nuys Boulevard, from San Fernando Road to the Van Nuys Metro Orange Line Station, over a distance of approximately 9.2 miles (Figure ES-7). The LRT Alternative includes a segment in exclusive right-of-way through the Antelope Valley Metrolink railroad corridor, a segment with semi-exclusive right-of-way in the middle of Van Nuys Boulevard, and an underground segment beneath Van Nuys Boulevard from just north of Parthenia Street to Hart Street.

## Figure ES-7: Alternative 4 – LRT




Source: KOA and ICF International, 2014.

The LRT Alternative would be similar to other street-running LRT lines that currently operate in the Los Angeles area, such as the Metro Blue Line, Metro Gold Line, and Metro Exposition Line. The LRT would travel along the median for most of the route, with a subway of approximately 2.5 miles in length between Vanowen Street and Nordhoff Street. On the surface-running segment, the LRT Alternative would operate at prevailing traffic speeds and would be controlled by standard traffic signals.

Stations would be constructed at approximately 1-mile intervals along the entire route. There would be 14 stations, three of which would be underground at locations near Sherman Way, the Van Nuys Metrolink station, and Roscoe Boulevard. Entry to the three underground stations would be provided from an entry plaza and portal. The entry portals would provide access to stairs, escalators, and elevators leading to an underground LRT station mezzanine level, which, in turn, would be connected via additional stairs, escalators, and elevators to the underground LRT station platforms

Similar to the Low-Floor LRT/Tram Alternative, the LRT Alternative would require a number of additional elements to support vehicle operations, including an OCS, TPSS, communications and signaling buildings, and a MSF.

# ES.4 Comparison of Alternatives

Physical and operating characteristics of alternatives evaluated in this Draft EIS/EIR are summarized in Figure ES-8. The environmental effects of the alternatives are summarized in Table ES-1. The selection of criteria to evaluate the alternatives is based on their effectiveness in providing transit improvements that meet the project objectives, as reflected in the project purpose and need, while taking into account each alternative's environmental impacts, including effects on project area circulation and access, safety, property acquisition, and displacement, as well as the operating performance of each alternative and cost. The criteria are listed below.

- Travel and Mobility Benefits and Impacts;
- Regional Connectivity;
- Cost-Effectiveness;
- Environmental Benefits and Impacts;
- Economic and Land Use Considerations;
- Community Input; and
- Financial Capability.

## Summary of Environmental Impacts

In compliance with NEPA and CEQA guidelines, this Draft EIS/EIR studied potential environmental consequences associated with construction and operation of the Alternatives described above.

## Figure ES-8: Comparison of Alternatives

EAST SAN FERNANDO VALLEY TRANSIT CORRIDOR PROJECT

**COMPARISION OF ALTERNATIVES**

| CONSIDERATIONS * | NO BUILD | TSM | CURB RUNNING BRT Alternative 1 | MEDIAN RUNNING BRT Alternative 2 | MEDIAN RUNNING TRAM Alternative 3 | MEDIAN RUNNING LRT Alternative 4 |
|---|---|---|---|---|---|---|
| LEFT-TURN RESTRICTIONS AT CERTAIN INTERSECTIONS | – | – | – | ✓ | ✓ | ✓ |
| STREET PARKING RESTRICTIONS | – | – | ✓ | ✓ | ✓ | ✓ |
| FUTURE BIKE LANE RESTRICTIONS | – | – | ✓ | ✓ | ✓ | ✓ |
| REDUCES CURRENT SIDEWALK WIDTHS | – | – | – | ✓ | ✓ | ✓ |
| TRAVEL LANES IN EACH DIRECTION | 3 | 3 | 2 | 2 | 2 | 2 |
| POTENTIAL REAL ESTATE ACQUISITION | – | – | – | – | ✓ | ✓ |
| REQUIRES NEW RAIL MAINTENANCE STORAGE FACILITY (MSF) | – | – | – | – | ✓ | ✓ |
| **2040 OPERATIONAL CHARACTERISTICS *** | | | | | | |
| AVERAGE SPEED (MPH) | 11.3 | 11.3 | 13.4 | 15.0 | 13.1 | 19.2 |
| TRAVEL TIME (MINUTES) | 49 | 48 | 41 | 37 | 42 | 29 |
| CAPITAL COSTS IN 2014 $ (APPROXIMATE) $170 MILLION CURRENTLY IDENTIFIED | – | $ 35.2 M | $294 M | $402 M | $1.3 B | $2.67 - $2.79 B |
| CAPACITY PER VEHICLE | 75 | 75 | 75 | 75 | 266 | 400 |

*SUBJECT TO CHANGE

Source: Metro, 2015.

Due to the highly urbanized nature of the project area, potential environmental impacts pertain primarily to the built environment. Over 20 categories of environmental impacts were evaluated. Environmental impact categories where at least one alternative would have a substantial adverse effect or significant impact remaining after mitigation are discussed below under unavoidable substantial adverse effects/significant impacts remaining after mitigation. Table ES-1 summarizes effects/impacts, mitigation measures, and impacts remaining after mitigation associated with each alternative.

## Unavoidable Substantial Adverse Effects/Significant Impacts

At least one of the alternatives (see Table ES-1) would have unavoidable adverse effects/significant impacts on the following environmental resources:

**Traffic and Bicycle Facilities:** The build alternatives, Alternatives 1 through 4, would result in reductions in roadway capacity due to the conversion of existing motor vehicle lanes to accommodate the BRT and rail alternatives. As a consequence, significant traffic impacts could occur at 16 to 32 study intersections, depending on the alternative. Mitigation measures such as lane configuration changes that would increase capacity of the roadways or restrictions in allowable turning movements, were considered infeasible due to right-of-way (ROW) constraints or secondary effects to upstream and downstream locations. Since no feasible mitigation measures exist that would reduce these impacts below the level of significance, impacts would be significant and unavoidable. Additionally, existing bicycle lanes on Van Nuys Boulevard would be removed and future bicycle lanes designated for implementation along Van Nuys Boulevard would not be feasible under the build alternatives, which would conflict with the City of Los Angeles Bicycle Plan. Therefore, impacts on bicyclists and bicycle facilities would remain significant.

**Community and Neighborhood:** The unavoidable significant adverse impacts described above due to removal of bicycle lanes would also be considered a significant adverse community and neighborhood impact. Additionally, under Alternatives 3 and 4, construction and operational impacts on social and community interactions due to business displacements, and operational visual impacts on sensitive viewers would be significant after implementation of proposed mitigation measures.

**Visual and Aesthetics:** Alternatives 3 and 4 would result in potentially significant impacts to the visual environment within the project corridor. The visual changes in communities along the project corridor due to the introduction of new vertical structures affecting scenic views of the surrounding mountains and foothills would result in an adverse effect under NEPA and a significant impact under CEQA after mitigation.

**Air Quality:** Construction of Alternatives 1 through 4 would result in localized PM10 and PM2.5 emissions during construction that would exceed local thresholds. Even with implementation of mitigation measures, emissions thresholds would be exceeded and impacts would remain significant during construction.

**Safety and Security:** Implementation of Alternative 1 would result in impacts, after mitigation, on bicycle safety due to the removal of existing bike lanes. In addition, Alternatives 2 through 4 would result in impacts, after mitigation, on pedestrian sidewalk safety due to narrowing of sidewalks, bicycle safety due to the removal of existing bike lanes, and potential impacts on emergency vehicle response time due to turn restrictions and the increased congestion resulting from the removal of mixed-flow travel lanes.

More information regarding the proposed project's environmental impacts is provided in Chapter 3, Transportation Impacts and Mitigation, and Chapter 4, Environmental Analysis, Consequences, and Mitigation. All impacts and mitigation measures associated with each alternative are summarized below in Table ES-1.

# ES.5 Issues to Be Resolved and Areas of Controversy

## Areas of Controversy

Public comments submitted during the scoping period expressed concerns regarding the issues listed below. Please note that these comments are meant to provide a synopsis of the top trending themes. A detailed description of the comments received during the scoping period is provided in Appendix CC, the Final Scoping Report.

- A strong preference by the public for LRT, despite the high cost, which is viewed as the best mode of transit, with higher carrying capacity and better mobility benefits;
- A feeling among some community members that the San Fernando Valley is not receiving its fair share of investment in rail, compared to other parts of the county;
- Concerns expressed about the effects on local businesses of removing on-street parking along Van Nuys Boulevard;
- Concerns about economic impacts on adjacent businesses during project construction;
- Concerns over the loss of traffic lanes to accommodate the project and increased congestion in the motor vehicle lanes due to the project;
- Strong opposition to extending the project limits south of the Metro Orange Line, by community members south of the Metro Orange Line;
- Concerns about the location of the maintenance facility and potential impacts on the surrounding community;
- Concerns that BRT would be slower, carry fewer people, and have limited benefits compared with LRT;
- Concerns that LRT is too expensive and BRT can provide almost the same level of benefits at a much lower cost;
- Concerns about any potential elimination of existing Metro Local and Rapid bus routes and stops;
- Strong support for inclusion of bicycle lanes as part of this project, and opposition to their removal; and
- Concerns about fare increases to pay for this project.

# Issues to Be Resolved

## Operating Characteristics of Alternative 3 within Downtown San Fernando

If Alternative 3, the Low-Floor LRT/Tram Alternative is selected as the preferred alternative, Metro would continue to coordinate with the City of San Fernando regarding mutually agreeable operating characteristics, such as operating the alignment within a median/dedicated guideway on San Fernando Road and developing an appropriate design that is compatible and appropriate for this multi-modal corridor. Potential operating and design issues to be considered include transit, automobile, and pedestrian access and safety issues as well as pedestrian bridge implementation, lane removal, tree removal, OCS pole installation, and tram station designs and locations.

## Connection with Metro Orange Line

The Metro Orange Line intersects the southern terminus of the alignment (shown in Photo ES-7). Currently, the Metro Orange Line is a BRT that operates in a dedicated right-of-way with an average of 30,000 boardings per day. The Metro Orange Line Van Nuys Station is also a major transfer point. In planning this project, special consideration should be given to how this project intersects with the Metro Orange Line and how to best facilitate transfer to/from both services.

**Photo ES-7: Existing Metro Orange Line Connection with Van Nuys Boulevard**

Source: KOA, 2015.

## Uncertainties and Opportunities with California High Speed Rail

California's High-Speed Rail (CAHSR) Project is in the planning phase, and could potentially include a segment near or within the proposed project study area (Figure ES-9). If the CAHSR alignment plans progress with a preferred alignment in the vicinity of the proposed project area, coordination with the California High-Speed Rail Authority would continue to occur to ensure that the CAHSR Project does not conflict with this planned proposed project.

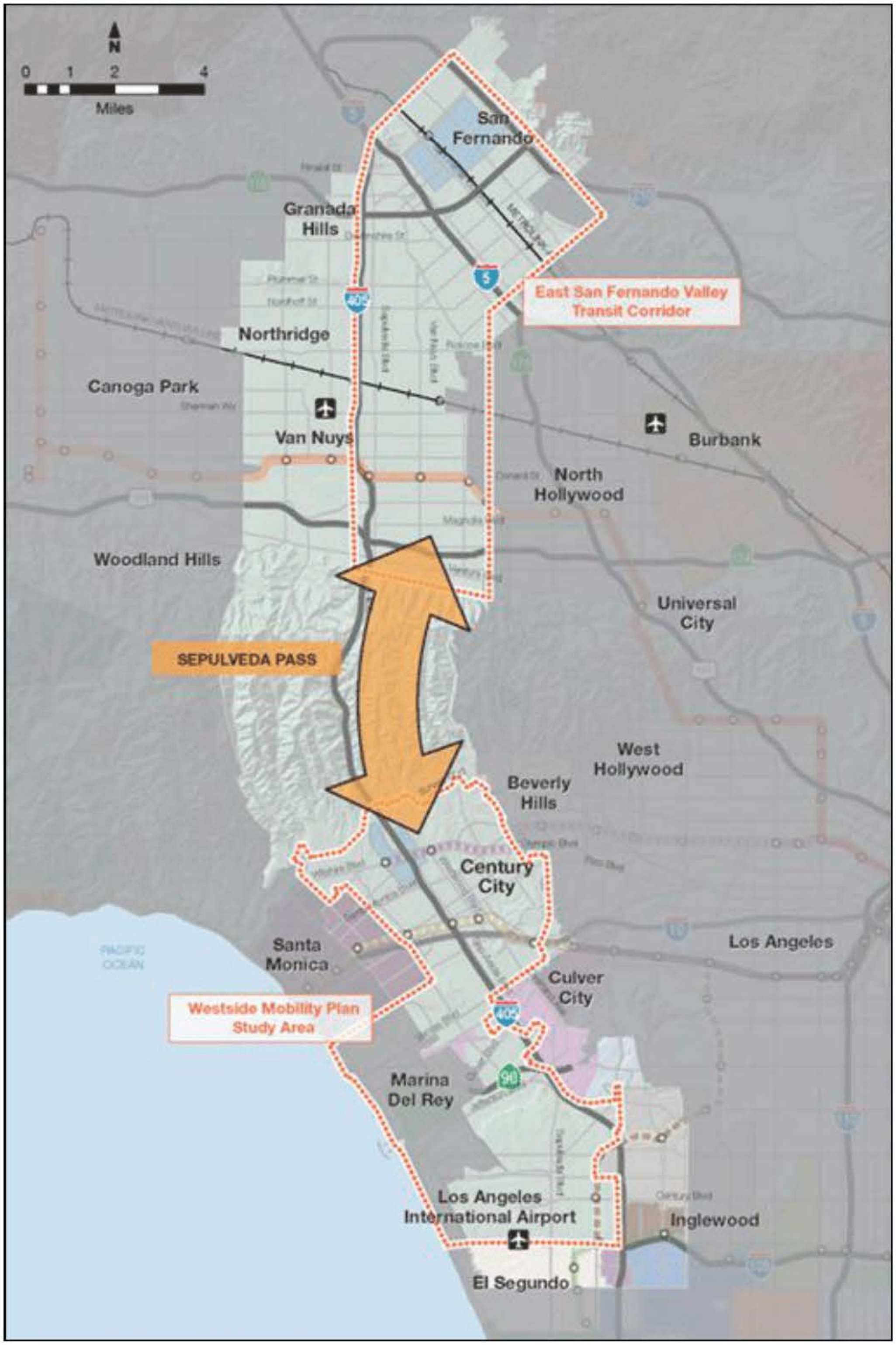
### Figure ES-9: Possible California High Speed Rail Planned within the Study Area


Source: State of California High Speed Rail Authority, 2016.

## Uncertainties and Opportunities with Sepulveda Pass Transit Project

Along with planning for this proposed project, Metro is also studying how best to provide improved transit service through the Sepulveda Pass connecting the San Fernando Valley and the Westside (e.g. Westwood, Brentwood, West LA, Culver City). Selection of a preferred alternative for the East San Fernando Valley Transit Corridor Project will recognize the Sepuleveda Pass Project and consider any potentially feasible and advanatagous points for connecting the two corridors (Figure ES-10).

Figure ES-10: Sepulveda Pass Transit Connection




Source: Metro, 2016.

## Bus Shelters and City Bus Shelter Advertising Contracts

Any proposed changes to the existing bus shelters (Photos ES-8) and benches as part of the proposed project would need to be coordinated and approved in consultation with the City of Los Angeles. Since the City has an exclusive contract with a bus stop advertising company and proposed project changes would have to be coordinated per the City's contract.

**Photo ES-8: Bus Shelter/Bus Shelter Advertising**

Source: Google Maps, 2016.

## Specific Effects on Landmark Palm Trees in the Civic Center

One of the most noticeable visual elements along the Van Nuys Boulevard corridor is the dual row of palm trees in the Van Nuys Civic Center portion of the corridor (Photo ES-9). The impact assessment for the median-running BRT and both LRT alternatives indicated that the guideway requirements would require the removal of some portion of these trees. It is Metro's intent to hold focused community urban design and station area meetings during final design of the project to obtain input on the re-planting of the trees. The community will be informed during the meetings about drought-tolerant California native plants and trees that could be considered for sun protection/shade as part of the landscaping plan that would be developed during final design.

**Photo ES-9: Landmark Palm Trees along Van Nuys Boulevard in the Van Nuys Civic Center**

Source: Metro, 2016.

## Specific Effects on Mature Trees in the City of San Fernando's Downtown

One of the most noticeable visual elements along San Fernando Road through downtown San Fernando is the mature street trees on each side of the street (shown in Photo ES-10). The impact assessment for the Low-Floor LRT /Tram Alternative indicated that the guideway requirements would require the removal of some portion of these trees. It is Metro's intent to hold focused community urban design and station area meetings to obtain input on the re-planting of the trees with final design of the project. The community will be informed during the meetings about drought-tolerant California native plants and trees that could be considered for sun protection/shade as part of the landscaping plan that would be developed during final design.

**Photo ES-10: Mature Trees along San Fernando Boulevard in Downtown San Fernando**

Source: Metro, 2016.

## Pedestrian Safety Improvements at Nearby Schools

A number of private and public schools are either adjacent to or near Van Nuys Boulevard and the San Fernando Road corridors (Photos ES-11 through ES-13). The Metro Board will need to consider whether additional pedestrian safety measures are warranted, beyond Metro's current pedestrian safety program.

**Photo ES-11: San Fernando Middle School**


Source: Google Maps, 2016.

**Photo ES-12: Arleta High School**

Source: Google Maps, 2016.

**Photo ES-13: Panorama High School**


Source: Google Maps, 2016.

## Specific Effects of Project on Left Turns into Businesses

Alternatives 2, 3, and 4 would eliminate some mid-block, or outside of intersection left-turns into properties on Van Nuys Boulevard. There are businesses throughout the corridor where delivery trucks access the business via a left turn (Photo ES-14). A formal outreach effort would be established to work with the businesses on a new access plan that would continue to provide access while being compatible with the operation of a median-running alternative, should one be the selected alternative.

**Photo ES-14: Truck Making a Left Turn along Van Nuys Corridor**


Source: Metro, 2016.

# Project Funding

## Capital Funding Sources

Metro's approved 2009 LRTP reserved $170.1 million for the project, which is the present worth in 2014 dollars, escalated to the year of expenditure. The following combination of federal, state, and local revenue sources are eligible sources of funding for the East San Fernando Valley Transit Corridor Project:

- **Federal Sources**
  - Congestion Management and Air Quality (CMAQ)
  - Regional Surface Transportation Program (RSTP)
  - Other future FTA funding
- **State Sources**
  - Regional Improvement Program (RIP)
  - Traffic Congestion Relief Program (TCRP)
  - Cap and Trade
- **Local Sources**
  - Measure R Sales Tax
  - Local Agency Funds
  - Proposition A Sales Tax
  - Proposition C Sales Tax

## 2016 Transportation Sales Tax Ballot Measure

Los Angeles County is expected to grow by 2.4 million people by 2057. Metro is updating its Long Range Transportation Plan (LRTP) to enhance mobility and quality of life for Los Angeles County to position the region for future growth and meet transportation needs. The foundation for the updated LRTP is a transportation sales tax ballot measure which provides a vision, through nine categories of funding for the variety of transit related infrastructure and programs needed to build and operate a balanced multi-modal transportation system. Specifically, the potential ballot measure identifies major highway and transit projects evaluated and sequenced based on performance metrics approved by the Metro Board of Directors at its December 2015 meeting. The potential ballot measure also includes projects identified by staff that are necessary to improve and enhance system connectivity; promote bicycling and walking; support Americans with Disabilities Act (ADA)/paratransit services for the disabled; discounts for students and seniors; investments to fund bus and rail operations; ongoing system maintenance and repair, including repair of bridges and tunnels; and funds for repair and enhancement of local streets and roads. To fund these projects and programs, the Metro Board agreed, at its June 2016 meeting, to place a measure on the ballot in November 2016 that would augment Measure R with a new half-cent sales tax, and extend the current Measure R tax rate to 2057.

In March 2016, the Metro Board released the draft Potential Ballot Measure Expenditure Plan for public review. The draft Plan anticipates approximately $120+ billion (year of expenditure (YOE)) over a 40+ year period. It relies on the following funding assumptions: a ½ cent sales tax augmentation to begin in FY18; an extension of an existing ½ cent sales tax rate beyond the current expiration of Measure R in 2039; with a combined one cent sales tax sunset in the year 2057 and a partial extension for ongoing repairs, operations, and debt service. The draft Expenditure Plan currently identifies the East San Fernando Valley Transit Corridor Project for a total of $1.33 billion in funding, including $810 million of potential ballot measure revenues and $520 million of funding from other LRTP revenues. The project as defined in the draft Expenditure Plan would be a high-capacity transit project, mode to be determined, that connects the Orange Line Van Nuys Station to the Sylmar/San Fernando Metrolink Station with a minimum of 14 stations over 9.2 miles.

### LRTP Priority Projects

In order to accelerate a project in the LRTP, the funds must be available and the Metro Board must approve an amendment to the 2009 LRTP. Metro is currently working to update the LRTP, which will include the approval of the East San Fernando Valley Transit Corridor Project, its new schedule and its new funding. When this occurs and the new dates of construction are known, if warranted, a supplemental environmental analysis will be conducted.

## ES.6 Next Steps

- Draft EIS/EIR Comment Period – A 45-day comment period will begin with publication of the Notice of Availability of the Draft EIS/EIR.
- Metro Board adopts the Locally Preferred Alternative – The Metro Board of Directors may choose to select a Locally Preferred Alternative (LPA) in the spring of 2017.
- Upon adoption of the LPA, the Metro Board may initiate the Final EIR. FTA's approval to initiate the Final EIS may be contingent upon having funding in place. The Metro Board must obtain funds to allow the initiation of a Final EIS as described above in Issues to be Resolved.

## ES.7 Summary of Environmental Consequences and Mitigation Measures

Metro is committed to satisfying applicable federal, state, and local environmental regulations and to applying reasonable mitigation measures to reduce adverse effects and significant impacts. Measures to mitigate potential effects and impacts for the project alternatives are identified in this Draft EIS/EIR. Metro Board of Directors authorizes the completion of the Final EIR when they approve a project alternative, the Board will also adopt a Mitigation Monitoring and Reporting Program (MMRP), which lists all of the committed mitigation measures and CEQA Findings. Upon approval of the proposed project, these mitigation measures will become part of the proposed project, and will be considered binding under CEQA.

Table ES-1, below, provides a summary of all the impacts and mitigation measures associated with each alternative.

Table ES-1: Summary of Environmental Impacts and Mitigation Measures

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| **Transportation, Transit, Circulation, and Parking** | | | | | | | |
| Construction | **Transit:** It's expected that the minor improvements under the TSM Alternative would not require lane or road closures or detours that could adversely affect transit operations.<br><br>**Traffic:** Construction would be temporary and short in duration. No road closures would be required.<br><br>**Parking:** Construction would be very limited in scope and short in duration. It's anticipated few if any parking spaces would be affected.<br><br>**Pedestrian and Bicycle Facilities:** Construction would not require removal of existing bike lanes or narrowing of sidewalks. | **Transit:** Construction would occur in phases, within separate work zones, over an approximately 18-month period.<br><br>**Traffic:** Temporary lane and street closures may be required for limited periods of time.<br><br>**Parking:** From 7 a.m. to 7 p.m., on-street parking would be removed within each construction work zone. On-street parking would be permanently removed to accommodate operation of Alternative 1 (However, nighttime parking and off-peak parking may be considered).<br><br>**Pedestrian and Bicycle Facilities:** Existing bicycle lanes along Van Nuys Boulevard would be removed during construction. Pedestrian routes would be lengthened where minor intersections would be temporarily closed during construction. | Alternative 2 would result in greater impacts (due to a longer construction period of approximately 24 months) than to those that would occur under Alternative 1. | **Transit and Traffic:** Alternative 3 would be constructed over a period of approximately 4 years and would result in temporary lane or street closures. Due to the magnitude and duration of construction, impacts would be significant under CEQA and adverse under NEPA<br><br>**Parking and Pedestrian and Bicycle Facilities:** Impacts would be the same as those that would occur under Alternatives 1 and 2. | **Transit and Traffic:** Construction of Alternative 4 could take up to 5 years. The impacts would be greater than those that would occur under Alternative 3.<br><br>**Parking and Pedestrian and Bicycle Facilities:** Impacts would be the same as those that would occur under Alternatives 1 to 3. | **TSM Alternative:** None required.<br><br>**Alternatives 1 through 4:**<br>**MM-TRA-1:** To ensure potential impacts to pedestrian and bicycle facilities are minimized to the extent feasible, the Traffic Management Plan and Traffic Control Plans shall include the following:<br>• Bicycle detour signs shall be provided, as appropriate, to route bicyclists away from detour areas with minimal-width travel lanes and onto parallel roadways.<br>• Sidewalk closure and pedestrian route detour signs shall be provided, as appropriate, that would safely route pedestrians around work areas where sidewalks would be closed for safety reasons or for specific construction work within the sidewalk area. In addition, the project contractor shall ensure appropriate "Open During Construction," wayfinding, and promotional signage for businesses affected by sidewalk closures are provided and access to these businesses is maintained.<br><br>**Alternatives 2 through 4:**<br>A Traffic Management Plan (TMP) will be developed and implemented by the construction contractor in coordination with Metro, Los Angeles Department of Transportation (LADOT), and the City of San Fernando. The TMP shall include requirements for changeable message signs, when they should be placed (how far in advance of construction) and where they should be placed (how far outside of the construction zone).<br>**MM-TRA-4:** The Traffic Management Plan shall require Metro to communicate closures and information on any changes to bus service to local transit agencies in advance and develop detours as appropriate. Bus stops within work areas shall be relocated, with warning signs posted in advance of the closure, and warnings and alternate stop notifications posted during the extent of the closure.<br>**MM-TRA-5:** The TMP shall consider including the following typical measures, and others as appropriate:<br>• Schedule a majority of construction-related travel (i.e., deliveries, hauling, and worker trips) during the off-peak hours; | **TSM Alternative:**<br>**CEQA:** Beneficial; no impacts<br>**NEPA:** Beneficial; no adverse effects<br><br>**Alternatives 1 and 2:**<br>**CEQA:** Significant (bicycle facilities)<br>**NEPA:** Adverse (bicycle facilities)<br><br>**Alternatives 3 and 4:**<br>**CEQA:** Significant (transit, traffic, bicycle facilities)<br>**NEPA:** Adverse (transit, traffic, bicycle facilities) |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | • Develop detour routes to facilitate traffic movement through construction zones without significantly increasing cut-through traffic in adjacent residential areas;<br>• Where feasible, temporarily restripe roadways including turning lanes, through lanes, and parking lanes at the affected intersections to maximize the vehicular capacity at those locations affected by construction closures;<br>• Where feasible, temporarily remove on-street parking to maximize the vehicular capacity at those locations affected by construction closures; In these areas where street parking is temporarily removed in front of businesses, the contractor shall provide wayfinding to other nearby parking lots or temporary lots, with any temporary parking secured well in advance of parking being removed in the affected area.<br>• Where feasible, place station traffic control officers at major intersections during peak hours to minimize delays related to construction activities;<br>• Assign a Construction Relations team inclusive of a manager, senior officers, and social media strategist to develop and implement the Metro Board's adopted Construction Relations model. The team will conduct the an outreach program to inform the general public about the construction process and, planned roadway closures and anticipated mitigations through community briefings in public meeting spaces and use of signage (banners, etc.);<br>• Develop and implement a program with business owners to minimize effects to businesses during construction activities, including but not limited to signage, Eat, Shop, Play, and promotional programs;<br>• Consult and seek input on the designation and identification of haul routes and hours of operation for trucks with the local jurisdictions and Caltrans. The selected routes should minimize noise, vibration, and other effects;<br>• To the extent practical, maintain traffic lanes in both directions, particularly during the morning and afternoon peak hours;<br>• Maintain access to adjacent businesses via existing or temporary driveways throughout the construction period; and<br>• Coordinate potential road closures and detour routes with local school districts. | |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| Operation | **Transit:** The TSM Alternative would improve bus headways and result in an increase of 466 daily transit trips on Van Nuys Boulevard.<br><br>**Traffic:** The TSM Alternative would not cause the levels of service (LOS) at study intersections to worsen by a measurable amount.<br><br>**Parking:** No parking would be removed under the TSM Alternative.<br><br>**Pedestrian and Bicycle Facilities:** The TSM Alternative does not propose any physical or operational changes to pedestrian and bicycle facilities. | **Transit Impacts:** Alternative 1 would result in improved bus headways and an increase of 2,970 daily transit trips.<br>**Traffic Impacts:** Alternative 1 would result in significant LOS impacts at 16 of the 73 study intersections in the AM or PM peak hours due to conversion of the curb lane to dedicated BRT lane. Vehicle miles traveled (VMT) and vehicle hours traveled (VHT) would be higher than the TSM Alternative and Alternative 3 but lower than Alternatives 2 or 4.<br><br>**Parking:** All on-street parking spaces along Van Nuys Boulevard would be prohibited from being used from early morning to early evening to accommodate operation of the BRT. Adequate replacement parking exists on adjacent streets or in off-street parking.<br><br>**Pedestrian and Bicycle Facilities:** Existing bicycle lanes on Van Nuys Boulevard would be removed and future bicycle lanes designated for implementation along Van Nuys Boulevard would not be feasible under Alternative 1. Pedestrian routes would be lengthened where minor intersections would be closed. Remaining pedestrian crossings would be improved with enhanced design and safety features. | **Transit Impacts:** Alternative 2 would result in improved bus headways, faster bus speeds, and an increase of 2,969 daily transit trips.<br><br>**Traffic Impacts:** Alternative 2 would result in significant LOS impacts at 24 of the 73 study intersections in the AM or PM peak hours. Average vehicle speeds would slightly improve over the No-Build Alternative. VMT and VHT values would be greater than those under the TSM Alternative and Alternative 1, but would not be greater than Alternatives 3 and 4.<br><br>**Parking:** All 1,140 on-street parking spaces would be removed. Impacts would be the same as those that would occur under Alternative 1.<br><br>**Pedestrian and Bicycle Facilities:** Impacts would be the same as those that would occur under Alternative 1. | **Transit Impacts:** Alternative 3 would result in improved headways and travel times, and an increase of 8,452 daily transit trips. Local bus service along Van Nuys Boulevard would be replaced by Low-Floor LRT/Tram service.<br><br>**Traffic Impacts:** Alternative 3 would result in significant LOS impacts at 16 (under Existing plus Alternative 3 scenario) or 32 (under future Alternative 3 scenario) of the 73 study intersections in the AM or PM peak hours. Average vehicle speeds would slightly improve over the No-Build Alternative. This alternative would also result in reductions in VMT and VHT although these reductions would not be as great as those that would occur under the BRT alternatives and Alternative 4.<br><br>**Parking and Pedestrian and Bicycle Facilities:** All 1,140 on-street parking spaces and 15 adjacent cross-street spaces would be removed. Impacts would be the same as those that would occur under Alternatives 1 and 2. | **Transit Impacts:** Alternative 4 would result in improved headways and travel times, and an increase of 8,604 daily transit trips.<br><br>**Traffic Impacts:** Alternative 4 would result in significant impacts at 20 of the 73 study intersections in the AM or PM peak hours.<br><br>**Parking:** A total of 902 on-street parking spaces and 528 off-street parking spaces would be removed.<br><br>**Pedestrian and Bicycle Facilities:** Impacts would be the same as those described for Alternatives 1 to 3. | **TSM Alternative:** None required<br><br>**Alternatives 1 through 4:**<br>**MM-TRA-2:** Additional visual enhancements, such as high visibility crosswalks that meet current LADOT design standards, to the existing crosswalks at each proposed station location shall be implemented to further improve pedestrian circulation.<br>**MM-TRA-3:** To further reduce potential non-adverse and less than significant pedestrian impacts, Metro shall prepare a community linkages study that would document preferred pedestrian access to each station, general pedestrian circulation in the immediate vicinity of the station, and potential sites for connections to nearby bus services. The purpose of this study would include ensuring sufficient circulation, access, and information important to users of the transit system. The results of the study shall be implemented through coordination between Metro and the local jurisdictions of the City of Los Angeles and the City of San Fernando.<br>The following general mitigation measures is proposed to reduce or minimize potential impacts to bicycle facilities as a result of implementation operation of Alternative 1: | **TSM Alternative:**<br>**CEQA:** Beneficial; no impacts<br>**NEPA:** Beneficial; no adverse effects<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Beneficial; less than significant impact; significant (traffic; bicycle facilities)<br>**NEPA:** Beneficial; no adverse effect; adverse (traffic, bicycle facilities) |
| Cumulative Impacts | Since the TSM Alternative would not result in adverse impacts, it would not contribute to any significant cumulative transit, traffic, parking, and pedestrian or bicycle facilities impacts. | Given construction would be temporary, resulting in short-term lane, road, or sidewalk closures within individual work zones, construction of Alternative 1 would not contribute to significant cumulative traffic or parking impacts. Operational effects of Alternative 1, combined with traffic from future growth and development, would result in increased delay at a number of study intersections in the corridor. The removal of bicycle lanes could result in significant cumulative lane impacts if other planned or proposed projects would also remove lanes or preclude development of future planned lanes. | Cumulative impacts would be slightly greater (traffic impacts at study intersections) than those that would occur under Alternative 1. | Cumulative impacts would be slightly greater (traffic impacts at study intersections) than those that would occur under Alternatives 1 and 2. | Cumulative impacts would be slightly greater than the other build alternatives (Alternatives 1 to 3). | See mitigation measures above. | **TSM Alternative:**<br>**CEQA:** No impacts<br>**NEPA:** No adverse effects<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact; significant (traffic; bicycle facilities)<br>**NEPA:** No adverse effect; adverse (traffic; bicycle facilities) |

| Affected Resource | Effects/Impacts TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| **Land Use** | | | | | | | |
| Construction | **Division of an Established Community:** This alternative proposes no new transportation or infrastructure improvements. It would not introduce physical barriers that would divide the existing communities surrounding the project corridor.<br><br>**Conflict with Local Land Use Plans:** Construction activities would not conflict with applicable land use plans or habitat conservation plans environmental policies.<br><br>**Incompatibility with Adjacent or Surrounding Land Uses:** The minor construction activities that could occur under this alternative would not be inconsistent with local plans or incompatible with existing land uses. | **Division of an Established Community:** Construction could require temporary road, lane, and sidewalk closures, which could reduce pedestrian and vehicle mobility and access within and between local communities throughout the study area. However, these temporary closures are not expected to substantially divide or diminish access to existing communities or neighborhoods.<br><br>**Conflict with Local Land Use Plans:** Construction activities would not conflict with applicable land use plans or habitat conservation plans environmental policies.<br><br>**Incompatibility with Adjacent or Surrounding Land Uses:** Construction activities along the alignment could result in temporary nuisance impacts (e.g., noise, air quality impacts) on nearby land uses. Additionally, construction staging areas would be established near the project alignment and used for equipment and material storage. | **Division of an Established Community:** Impacts would be the same as the impacts anticipated to occur under Alternative 1.<br><br>**Conflict with Local Land Use Plans:** Impacts anticipated to occur under this alternative would be the same as impacts described for Alternative 1.<br><br>**Incompatibility with Adjacent or Surrounding Land Uses:** Impacts would be the same as impacts described for Alternative 1. | **Division of an Established Community:** Lane and street closures could be greater in number than both BRT alternatives, due to the construction of additional infrastructure (e.g., OCS, dedicated guideway). However, these temporary closures are not expected to substantially divide or diminish access to existing communities or neighborhoods.<br><br>**Conflict with Local Land Use Plans:** Impacts would be potentially greater in extent than the impacts described for Alternative 1 and 2 due to the more extensive construction under this alternative compared to Alternatives 1 and 2.<br><br>**Incompatibility with Adjacent or Surrounding Land Uses:** Impacts would be greater in extent than the impacts that would occur under Alternatives 1 and 2. | **Division of an Established Community:** Impacts would be greater in extent than the impacts described for Alternative 3, due to the greater construction impacts along the subway portion of the alignment.<br><br>**Conflict with Local Land Use Plans:** Impacts would be the same as the impacts described for Alternatives 1, 2, and 3.<br><br>**Incompatibility with Adjacent or Surrounding Land Uses:** Impacts would be the same as the impacts described for Alternative 3. | **TSM Alternative:** None required<br><br>**Alternatives 1 through 4:** Please see other sections (e.g., 4.8 the Noise and Vibration, 4.6 and Air Quality) sections of this table below, for the list of Noise and Vibration and Air Quality measures, respectively, measures to mitigate potentially significant adverse construction impacts on sensitive land uses near proposed construction activities. | **TSM Alternative:**<br>**CEQA:** No impacts<br>**NEPA:** No adverse effects<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| Operation | **Division of an Established Community:** This alternative would operate entirely within existing transportation corridors and would not introduce physical barriers that would divide the existing communities surrounding the project corridor.<br><br>**Conflict with Local Land Use Plans:** The TSM Alternative would involve transportation system upgrades, and would not conflict with local land use plans goals and policies.<br><br>**Incompatibility with Adjacent or Surrounding Land Uses:** Under the TSM Alternative, Metro Rapid Line 761 and Local Line 233 bus routes would retain existing stop locations, and the existing stops | **Division of an Established Community:** Alternative 1 would operate entirely within existing transportation corridors, and would not introduce physical barriers that would divide the existing communities surrounding the project corridor. By providing improved bus transit service, this alternative would increase mobility and connectivity within the eastern San Fernando Valley area.<br><br>**Conflict with Local Land Use Plans:** Alternative 1 would be consistent with or supportive of many of the goals and policies of the applicable jurisdictions along the project corridor. However, Alternative 1 could also result in significant adverse traffic impacts at some locations where a | **Division of an Established Community:** Impacts would be the same as the impacts anticipated to occur under Alternative 1.<br><br>**Conflict with Local Land Use Plans:** Impacts would be slightly greater in extent than the impacts anticipated to occur under Alternative 1. Significant traffic impacts could occur at 24 of the 73 study intersections versus 16 of 73 study intersections under Alternative 1. Therefore, Alternative 2would conflict with local land use plan policies or objectives to reduce congestion<br>**Incompatibility with Adjacent or Surrounding Land Uses:** Impacts would be the same as the impacts anticipated to occur under Alternative 1. | **Division of an Established Community:** Impacts would be slightly greater than those described for Alternatives 1 and 2. Notwithstanding turn and pedestrian crossing restrictions, given that the Alternative 3 alignment would be located along existing roadways and the fact that pedestrians and vehicles could still cross the alignment at specified locations throughout the corridor, this alternative would not divide an established community.<br><br>**Conflict with Local Land Use Plans:** Impacts would be slightly greater in magnitude than the impacts described for Alternatives 1 and 2. | **Division of an Established Community:** Impacts would be the same as the impacts described for Alternative 3.<br><br>**Conflict with Local Land Use Plans:** Impacts would be the same as the impacts described for Alternative 3.<br><br>**Incompatibility with Adjacent or Surrounding Land Uses:** Impacts would be the same as the impacts described for Alternative 3, with the exception of the subway portion of the alignment. Alternative 4 would also require right-of-way acquisition of commercial properties and some vacant land near the proposed stations. | **TSM, Alternatives 1 and 2:** None required<br><br>**Alternative 3 and 4:** Please see Section 4.8 –the Noise and Vibration section of this table below for a list of measures to mitigate potential operational noise and vibration impacts to sensitive land uses. | **TSM Alternative:**<br>**CEQA:** No impacts<br>**NEPA:** No adverse effects<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Significant and unavoidable (conflict with local land use plans related to traffic congestion)<br>**NEPA:** Adverse effect (conflict wit local land use plans related to traffic congestion) |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | along San Fernando Road would remain unchanged. In addition, this alternative would not require the construction or expansion of an MSF, as the existing Metro Division 15 facility would be able to accommodate the 20 additional buses needed for this alternative. Therefore, development patterns would not be affected, and incompatible land uses would not occur as a result of this alternative. | reduction in the number of mixed-flow travel lanes is necessary to accommodate a dedicated BRT lane. The localized traffic impacts under Alternative 1 would conflict with the congestion reduction goals and policies of local plans. Additionally, while bicycle lanes along Van Nuys Boulevard would not be possible under this alternative, the ability for bicyclists to access areas in the project corridor would be retained, and the project would achieve other local planning goals of reducing reliance on the automobile and increasing transit ridership.<br><br>**Incompatibility with Adjacent or Surrounding Land Uses:** While there would be some modifications to the project corridor (e.g., changes in bicycle lanes and turning movements), the project corridor is an existing transportation route with ongoing bus transit service; therefore, the proposed BRT operations would be compatible with existing land uses. Under this alternative, 18 stations would be located in areas that contain primarily commercial and residential uses. Stations would include aesthetic enhancements, such as landscaping and canopies, which would be compatible with adjacent and surrounding land uses. | | **Incompatibility with Adjacent or Surrounding Land Uses:** While there would be some modifications to the project corridor (e.g., changes in bicycle lanes and tuning movements), the project corridor is an existing transportation route with ongoing bus transit service, and therefore, proposed Low-floor LRT/Tram operations would generally be compatible with existing land uses. This alternative would require an OCS that would not conflict with adjacent and surrounding uses. Under this alternative, 28 stations would be in areas that are primarily commercial and residential. Stations would include aesthetic enhancements, such as landscaping, canopies, and artwork, which would be compatible with adjacent and surrounding land uses. Construction of a new MSF would be required and would generally be compatible with adjacent and surrounding land uses. This alternative would also require TPSSs, which would be typically placed approximately every 1.0 to 1.5 miles. To ensure compatibility with adjacent and surrounding land uses to the extent feasible, the majority of potential TPSS locations would be located near potential stations or the maintenance facility options. | | | |
| Cumulative Impacts | During construction and operation, the TSM Alternative would not conflict with land use plans or policies, would not divide an established community, and would not be incompatible with nearby land uses; therefore, the TSM Alternative would not contribute to any significant cumulative land use impacts. | During construction, with the implementation of a Traffic Management Plan and a Construction Phasing and Staging Plan, temporary effects and impacts would be further reduced. As a consequence and because impacts would be temporary, the proposed project combined with other related projects in the study area, are not expected to result in significant cumulative construction impacts/effects under CEQA and NEPA.<br>During operation, the proposed project and other related projects in the area that generate | Impacts would be slightly greater (due to additional traffic impacts) than those described for Alternative 1. | The cumulative impacts would be slightly greater than those described for Alternatives 1 and 2. The proposed project and potential related projects in the area that would generate traffic that could result in significant cumulative traffic impacts, which would conflict with local plans and policies. Under operation, the proposed and related projects could result in a significant land use impact with respect to conflicts with local land use plans and incompatibilities with adjacent and surrounding land uses. | The cumulative impacts would be the same as those described for Alternative 3. | Please see Section 4.6 Air Quality and Section 4.8 Noise and Vibration for a list of mitigation measure to mitigate potential air quality and noise and vibration impacts. | **TSM Alternative:** None required. No impact under CEQA and no adverse effect under NEPA.<br>**Alternatives 1 through 4:** Significant under CEQA and Adverse under NEPA. (Operation) |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | additional traffic could cumulatively conflict with local land use plan goals and policies to reduce congestion, a potentially significant impact under CEQA. | | | | | |
| **Economic and Fiscal Impacts** | | | | | | | |
| Construction | The TSM Alternative would require no parcel acquisitions and consequently construction would result in no adverse economic or fiscal impacts or effects. | This alternative would require no parcel acquisitions. Other than potential minor economic impacts on local businesses due to reduced visibility (due to sign blockage) and diminished access resulting from temporary sidewalk or lane closures, loss of on-street parking during construction, and permanent removal of on-street parking to accommodate the Alternative 1 alignment, no adverse fiscal and economic impacts would occur. | Adverse economic and fiscal impacts would be limited to potential impacts on local businesses due to reduced visibility (e.g., sign blockage) and diminished access resulting from sidewalk or lane closures, loss of on-street parking during construction, and permanent removal of on-street parking spaces to accommodate the Alternative 2 alignment. | Alternative 3 could also result in potential minor economic impacts on local businesses due to reduced visibility and diminished access resulting from sidewalk or lane closures, loss of on-street parking during construction, and permanent removal of on-street parking spaces. Parcel acquisitions for the guideway, stations, TPSS, and MSF are summarized in tables 4.3-9 through 4.3-11 in this EIS/EIR. | Alternative 4 could also result in potential minor economic impacts on local businesses due to reduced visibility and diminished access resulting from sidewalk or lane closures, loss of on-street parking during construction, and permanent removal of on-street parking spaces. Parcel acquisitions for the guideway, stations, TPSS, and MSF are summarized in tables 4.3-12 through 4.3-14 in this EIS/EIR. | **TSM Alternative, Alternatives 1 and 2:** None Required.<br><br>**Alternatives 3 and 4:**<br>See traffic measures above. | **TSM Alternative, Alternatives 1 and 2:**<br>**CEQA:** No impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 3 and 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| Operation | The TSM Alternative would result in no adverse operational economic or fiscal impacts. | Operational economic and fiscal impacts would be limited to the potential indirect impacts on local businesses due to diminished access that could occur where on-street parking would be removed to accommodate the Curb-Running BRT Alternative. No other adverse operational economic and fiscal impacts would occur. | Operational impacts would be the same as those described above for Alternative 1. | Operational economic and fiscal impacts would be limited to the potential indirect impacts on local businesses due to diminished access that could occur where on-street parking would be removed to accommodate the Alternative 3 – Low Floor LRT/Tram alignment. No other adverse operational economic and fiscal impacts would occur. | Operational economic and fiscal impacts would be limited to the potential indirect impacts on local businesses. No other adverse operational economic and fiscal impacts would occur. | **TSM Alternative, Alternatives 1 and 2:** None Required.<br><br>**Alternatives 3 and 4:**<br>None required. Also, see Traffic mitigation measures identified above and Communities and Neighborhoods mitigation measures below for a list of measures to mimize impacts on local businesses.<br>. | **TSM Alternative, Alternatives 1 and 2:**<br>**CEQA:** No impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 3 and 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| Cumulative | The TSM Alternative would not require acquisition of properties and consequently would not result in direct adverse effects that could contribute to cumulative adverse economic and fiscal impacts. | This alternative would not require acquisition of properties and consequently would not result in direct adverse effects that could contribute to cumulative adverse economic and fiscal impacts. The indirect economic and fiscal effects due to Curb-Running Build Alternative would be minimal and can be further reduced with implementation of mitigation measures; therefore, the Curb-Running Alternative would not contribute to any significant adverse cumulative fiscal and economic impacts. | The Median-Running BRT Alternative would not require acquisition of properties and consequently would not result in direct adverse effects that could contribute to cumulative adverse economic and fiscal impacts. | Alternative 3, in conjunction with related projects that require the acquisition of parcels and result in the long-term loss of income-generating jobs and tax revenue, could result in adverse cumulative economic and fiscal impacts under NEPA. However, the related projects identified within the study area do not include any other major public infrastructure projects that would result in permanent loss of tax revenue or jobs. Because of the more localized nature of a Low-Floor LRT/Tram system, compared with a more regional serving LRT, it is not expected that this alternative would generate significant cumulative growth inducement impacts. | The cumulative impacts would be the same as those described for Alternative 3, with the execption being that Alternative 4 has a greater potential to be growth inducing due to its higher carrying capacity, faster average speed, and generally higher per capita transit ridership | **TSM Alternative, Alternatives 1 through 4:** None Required. | **TSM Alternative, Alternatives 1 and 2:**<br>**CEQA:** No impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 3 and 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| **Communities and Neighborhoods** | | | | | | | |
| Construction | The TSM Alternative may include minor bus stop and roadway improvements as well as operational enhancements to the existing bus system. The limited extent of physical improvements would likely have no or very minimal impacts. | **Mobility and Access Impacts:** Temporary sidewalk, lane, and possibly road closures, and removal of parking on Van Nuys, San Fernando Road, and their cross streets could reduce pedestrian, bicycle, and vehicle mobility during construction. These closures, as well as traffic pattern disruptions, could reduce public access to annual community festivals and events, as well as decrease access for emergency vehicles and a delay in response times.<br><br>**Social and Economic Impacts:** Social and economic impacts would be minimal. Construction jobs would be temporary. Construction activities may decrease accessibility to businesses and some consumers may avoid the area. Land use patterns or physical division of communities would be short-term and not substantial. However, noise, dust, odors, and traffic delays may cause temporary inconvenience during construction.<br><br>**Physical Impacts:** Visual impacts could occur due to temporary removal of vegetation from some areas. Public safety and security may be temporarily affected. | Construction impacts would be the same as those for Alternative 1. | With the addition of OCS, TPSSs, and an MSF, construction impacts for Alternative 3 may be more extensive than those described for the BRT alternatives.<br><br>**Social and Economic Impacts:** Construction may require additional permanent right-of-way acquisitions and the permanent displacement of businesses. Displaced businesses would be relocated to nearby properties, which may temporarily affect local business viability while customers become accustomed to accessing new locations. Additionally, these locations may be psychologically or socially disruptive to neighborhood residents or visitors, and may cause public controversy among community members and business owners. However, this would not divide an established community. | Alternative 4 would require the most extensive construction of the four build alternatives because of the subway portion of the alignment. Alternative 4would include construction of OCS, TPSSs, and MSF structures. The types and level of significance of the impacts would be the same as those described for Alternative 3. | **TSM Alternative:** None required<br><br>**Alternatives 1 through 4:** Please see the Transportation, Transit, Circulation, and Parking; Visual Quality and Aesthetics; Air Quality; Noise and Vibration; and Safety and Security sections of this table for a list of mitigation measures to minimize construction impacts on communities and neighborhoods.<br><br>In addition, the following measure is proposed for Alternatives 3 and 4:<br>**MM-CN-1:** A formal educational and public outreach campaign shall be implemented to discuss potential community and neighborhood concerns, including relocations, visual/aesthetics changes, and fare policies, and to communicate information about the project with property owners and community members. | **TSM Alternative:**<br>**CEQA:** Less than significant or beneficial impacts<br>**NEPA:** No adverse effects or beneficial effects<br><br>**Alternatives 1 and 2:**<br>**CEQA:** Less than significant<br>**NEPA:** No adverse effect<br><br>**Alternatives 3 and 4:**<br>**CEQA:** Less than significant; significant (social and community interactions due to business displacements)<br>**NEPA:** No adverse; adverse (social and community interactions due to business displacements) |
| Operation | **Mobility and Access Impacts**<br>The TSM Alternative is expected to result in beneficial changes to existing mobility and access to businesses and community resources with enhanced bus frequencies. Emergency vehicle access would benefit due to reduced traffic congestion. However, with the limited physical and operational improvements in the TSM Alternative, community mobility would likely deteriorate due to traffic congestion from regional growth in the future. The TSM is not expected to result in substantial social and economic changes, though a small number of jobs would be created. The | **Mobility and Access Impacts**<br>Mobility would be enhanced and access to businesses and community resources would be improved.<br>**Social and Economic Impacts**<br>This alternative would not be expected to induce substantial population or business growth in existing communities and neighborhoods. Enhanced transit service and increased pedestrian traffic near proposed stations could stimulate the local economy by facilitating access to local businesses. Additional transit services would be expected to | Operational impacts would be the same as those described in Alternative 1, with exceptions noted below.<br><br>**Mobility and Access Impacts**<br>The Median-Running BRT alternative would require restrictions on motor vehicle movement (left turns). Modifications to pedestrian movements and sidewalk widths would not significantly interfere with pedestrian access. Bicycle access and safety impacts would be the same as those for Alternative 1. | Operational impacts would be the same as those described for Alternative 1, with the exceptions noted below.<br><br>**Mobility and Access Impacts**<br>Restrictions on motor vehicle movement (left turns) at unsignalized intersections and daytime curbside parking prohibition along Van Nuys Boulevard and San Fernando Road would present an inconvenience for vehicles traveling along the project corridor. This alternative would maintain pedestrian and bicycle access to the project corridor, though minor changes to | Operational impacts would be the same as those described for Alternative 1, with the exceptions noted below.<br><br>**Mobility and Access Impacts**<br>Under this alternative, vehicle movements and parking would be maintained along San Fernando Road and Truman Street, and restrictions on vehicle movements and loss of parking on Van Nuys Boulevard would be inconvenient, but access would be maintained. Pedestrian movement and sidewalk width modifications would not be | See mitigation measures listed in the Transportation, Transit, Circulation, and Parking; Visual Quality and Aesthetics; Noise and Vibration; and Safety and Security sections of this table that would be implemented to minimize operational impacts on communities and neighborhoods. | **TSM Alternative:**<br>**CEQA:** Less than significant or beneficial impacts<br>**NEPA:** No adverse effects or beneficial effects<br><br>**Alternatives 1 and 2:**<br>**CEQA:** Significant impact (bicycle access and safety)<br>**NEPA:** Adverse effect (bicycle access and safety)<br><br>**Alternatives 3 and 4:**<br>**CEQA:** Less than significant; significant (social and community interactions from business displacements, visual impacts on sensitive viewers); |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | alternative would have minimal physical impacts and would operate within existing transportation corridors. | enhance community cohesion and interaction and result in a long-term overall improved quality of life for communities and neighborhoods in the project area.<br><br>**Physical Impacts**<br>Alternative 1 would not result in substantial changes to land use patterns. This BRT alternative would be consistent with existing bus operations and land use patterns, although it may indirectly affect development by encouraging housing, employment, and commercial development in the area. Operation would not result in physical intrusions, but could create security concerns at station areas. Changes to traffic patterns may cause an initial increase in accidents, and the removal of existing Class II bike lanes would increase potential for bicycle and bus conflicts. | **Physical Impacts**<br>A barrier fence along the length of the alignment would be installed to prevent pedestrian crossings of the BRT guideway, which could be considered a physical intrusion by the communities and neighborhoods in the project study area. | pedestrian and bicycle circulation would be required. These would not be expected to significantly interfere with pedestrian access along the corridor, although bicycle access and safety impacts would be the same as those in Alternatives 1 and 2.<br><br>**Social and Economic Impacts**<br>Some areas would require commercial property acquisitions to accommodate the Low-Floor LRT/Tram facilities. Full right-of-way acquisitions for the construction of the MSF would also be required, with three possible locations for the MSF. Displacements could result in substantial changes to local neighborhood character and potentially the social fabric of the local community, because neighborhood residents and visitors may be accustomed to accessing businesses in their existing locations and the displacement of those businesses could be psychologically or socially disruptive, and could affect professional and social interactions. If relocation sites are available within proximity to the existing business sites, the disruptions to professional and social interactions may be temporary as residents become accustomed to accessing the displaced businesses at their new locations.<br><br>**Physical Impacts**<br>Changes in the aesthetic character could be substantial in areas where sensitive viewers are located, including residents, pedestrians, and bicyclists. Alternative 3 would not be expected to introduce substantial physical intrusions, and operations would be consistent with existing transportation uses. Potential for accidents would be highest initially, but would stabilize as people become used to the new alignment. Stations could present safety hazards if pedestrian traffic and movement are not considered, and if pedestrians attempt to cross | expected to substantially interfere with pedestrian access along the project corridor. The Mission City Trail for bicycles would be maintained. Alternative 4 could result in bicycle access and safety impacts.<br><br>**Social and Economic Impacts**<br>Property acquisitions and displacements would be required to accommodate the LRT alignment and the MSF, with slightly different parcels affected.<br><br>**Physical Impacts**<br>Visual impacts on sensitive viewers and recreational users could be adverse. Pedestrian safety issues would mostly apply to proposed at-grade stations, and less to the proposed underground LRT facilities. Safety impacts within communities and neighborhoods in the project study area from the potential for bicycle collisions could be adverse. | | Significant impact (bicycle access and safety)<br><br>**NEPA:** No adverse; (social and community interactions from business displacements, visual impacts on sensitive viewers in communities and neighborhoods);<br><br>Adverse effect (bicycle access and safety) |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | streets and tracks illegally. Alternative 3 could also result in safety impacts from the potential for bicycle collisions. | | | |
| Cumulative | The TSM Alternative would not result in adverse effects or would result in beneficial impacts on communities and thus would not contribute in any appreciable way to cumulative impacts. | Short-term and temporary impacts during construction would be less than cumulatively considerable. Operation would have some beneficial long-term effects for the community. However, cumulative impacts on local traffic circulation would be significant. Access and safety due to bicycle and vehicle collisions could be substantial, and could be cumulatively considerable when combined with other related projects in the project study area. | Cumulative impacts would be the same as those described for Alternative 1. | Since Alternative 3 would result in potentially significant operational impacts on social and community interactions due to business displacements, and potentially significant operational visual impacts on sensitive viewers, it could contribute to significant cumulative impacts on community cohesion and integration and aesthetic character, unlike the BRT alternatives. | Cumulative impacts would be the same as those described for Alternative 3. | **TSM Alternative:**<br>None required<br><br>**Alternatives 1 through 4:**<br>Please see the Transportation, Transit, Circulation, and Parking; Real Estate and Acquisitions; Visual Quality and Aesthetics; Air Quality; Noise and Vibration; and Safety and Security sections of this table for a list of mitigation measures to minimize construction and operational impacts on communities and neighborhoods. See Chapter 3, Transportation, Transit, Circulation, and Parking; Section 4.5, Visual Quality and Aesthetics; Section 4.6, Air Quality; Section 4.8, Noise and Vibration; and Section 4.14, Safety and Security<br><br>**Alternative 2:**<br>See Chapter 3, Transportation, Transit, Circulation, and Parking; Section 4.5, Visual Quality and Aesthetics; Section 4.6, Air Quality; Section 4.8, Noise and Vibration; and Section 4.14, Safety and Security<br><br>**Alternative 3:**<br>See Chapter 3, Transportation, Transit, Circulation, and Parking; Section 4.2, Real Estate and Acquisitions; Section 4.5, Visual Quality and Aesthetics; Section 4.6, Air Quality; Section 4.8, Noise and Vibration; and Section 4.14, Safety and Security.<br>In addition, see proposed mitigation measure MM-CN-1.<br><br>**Alternative 4:** See Chapter 3, Transportation, Transit, Circulation, and Parking; Section 4.2, Real Estate and Acquisitions; Section 4.5, Visual Quality and Aesthetics; Section 4.6, Air Quality; Section 4.8, Noise and Vibration; and Section 4.14, Safety and Security.<br><br>Also, see proposed mitigation measure MM-CN-1, listed in this column for construction a couple of rows above. | **TSM Alternative**<br>**CEQA:** No impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1, 2, 3, and 4:**<br>**CEQA:** Significant impact<br>**NEPA:** Adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| **Visual Quality and Aesthetics** | | | | | | | |
| Construction | The TSM Alternative would include limited physical improvements and result in very minimal impacts on visual and aesthetic resources. | This alternative could result in temporary visual impacts including cranes, bulldozers, graders, scrapers and other equipment visible to viewers in the construction area. Mature vegetation may be temporarily or permanently removed from some areas. | Construction impacts would be the same as those described for Alternative 1. | Construction impacts for Alternative 3 would be slightly greater than the BRT alternatives due to the construction of the OCS, TPSSs, a pedestrian bridge, an MSF, and larger station platforms. | Alternative 4 would result in the greatest construction impacts due to the subway portion of the alignment. | **TSM Alternative:** None required<br><br>**Alternative 1 through 4:**<br>**MM-VIS-1:** Construction staging shall be located away from residential and recreational areas, and shall be screened to minimize visual intrusion into the surrounding landscape. The screening shall be a height and type of material that is appropriate for the context of the surrounding land uses. There shall be Metro branded art and community-relevant messaging on the perimeter of the construction staging walls.<br>Lighting within construction areas shall face downward and be designed to minimize spillover into adjacent properties. | **TSM, Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| Operation | The TSM Alternative would include minor visual changes that would not adversely affect any existing scenic vistas, resources, or add any substantial sources of light or glare. | **Scenic Vistas:** Scenic vistas may be affected by station canopies, but other changes such as additional buses and widened sidewalks would not be expected to result in changes to scenic vistas.<br>**Scenic Resources:** Existing scenic resources, including landscaping, would be preserved.<br>**Visual Character and Quality:** Visual character and quality would be enhanced by the removal of parking along the outside curb lanes, station upgrades, sidewalk widening, and additional trees and benches.<br><br>**Lighting, Glare, and Shading:** Station upgrades and additional buses may result in increased lighting, glare, and shading. Shading from bus station canopies would be a beneficial change for station users. | The addition of bus stop platforms and railings in the roadway median, a barrier along the median lanes, the addition of BRT vehicles, changes to parking and vehicle lands, and sidewalk widening would be added to those impacts identified for Alternative 1. Street trees would be removed along the corridor for implementation of this alternative, but the landmark trees within the Van Nuys Civic Center and downtown San Fernando would be minimally affected. The view of the corridor as a whole would not be substantially affected. Visual quality would increase slightly in this alternative. | **Scenic Vistas:** Adverse effects may occur due to new vertical features in the landscape, particularly the OCS. Narrowed sidewalks, the MSF, and the TPSSs would not be expected to substantially affect views. Overall impacts on scenic vistas could be adverse.<br><br>**Scenic Resources:** Existing scenic resources, including landscaping, and street trees would be affected with this alternative, and in particular the mature trees found along San Fernando Road in the downtown San Fernando area.<br><br>**Visual Character and Quality:** Visual character and quality would be affected by the Low-Floor LRT/Tram cars and new stations; however, views in the corridor as a whole would not be substantially affected. The MSF would have a similar industrial appearance to replaced buildings and thus would not have a substantial adverse effect on visual character and quality, though the TPSSs may slightly disrupt visual unity along the corridor.<br><br>**Lighting, Glare, and Shading:** Lighting, glare, and shading would not change substantially except in residential areas where elements of this alternative could increase nighttime lighting. | **Scenic Vistas:** Scenic vistas may be affected by new LRT cars and OCS, median stations and fencing, railroad crossing gates, TPSSs, the pedestrian bridge, the MSF, and changes to parking, lanes and sidewalks. The OCS would substantially affect views, and other structures listed above.<br>**Scenic Resources:** This alternative would affect landscaping, including street trees, such as the rows of palm trees along Van Nuys Boulevard in the Van Nuys Civic Center area.<br><br>**Visual Character and Quality:** The LRT cars would affect the visual character of the project corridor, as the OCS would have a different appearance than existing buses. The MSF would have similar visual characteristics as surrounding commercial and industrial facilities. The TPSSs could slightly disrupt visual unity along the corridor, but the removal of parking along the outside curb lanes could enhance visual unity and quality.<br><br>**Lighting, Glare, and Shading:** Lighting, glare, and shading would be the same as those described in Alternative 3. | **TSM Alternative:** None required<br><br>**Alternative 1 through 4:**<br>**MM-VIS-2:** Vegetation removal shall be minimized to the extent possible, and vegetation shall be replaced following construction either in-kind or following the landscaping design palette for the project, which would be prepared in consultation with the Cities, including the City Tree Removal Policy and replacement ratio.<br>**MM-VIS-3:** Scenic resources, including historic properties and landscape elements such as rows of palm trees (along Van Nuys Boulevard) or mature trees (along San Fernando Road) and uniform lighting, shall be preserved, where feasible.<br>**MM-VIS-4:** Lighting associated with the project shall be designed to face downward and minimize spillover lighting into adjacent properties, in particular residential and recreational properties.<br>**MM-VIS-5:** Infrastructure elements shall be designed with materials that minimize glare. | **TSM, Alternatives 1 and 2:**<br>**CEQA:** Less than significant or beneficial impact<br>**NEPA:** No adverse effect or beneficial effect<br><br>**Alternative 3:**<br>**CEQA:** Significant<br>**NEPA:** Adverse<br><br>**Alternative 4:**<br>**CEQA:** Potentially significant impact (scenic views, scenic resources, visual character); less than significant or beneficial impact (visual quality)<br>**NEPA:** Adverse effect (scenic views, scenic resources, visual character); no adverse effect or beneficial effect (visual quality) |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| Cumulative | The TSM Alternative would have no or negligible adverse effects and thus would not contribute to cumulative impacts on visual or aesthetic resources. | During construction, this alternative would result in temporary adverse effects on visual and aesthetic resources. Operational impacts would be less than cumulatively considerable because views in the corridor as a whole would not be substantially affected. | The cumulative impacts for Alternative 2 would be the same as those described for Alternative 1. | The cumulative impacts for this alternative would be the same as those described for Alternative 1, except operational visual impacts may be significant for viewer groups in the vicinity of related projects that further degrade the visual character of the area. | The cumulative impacts for Alternative 4 would be to the same as those described for Alternative 3. | **TSM Alternative:** None required<br><br>**Alternatives 1 through 4:** See MM-VIS-1 through MM-VIS-5 in the row above. | **TSM, Alternatives 1 and 2:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect<br>**Alternatives 3 and 4:**<br>**CEQA:** Significant impact (visual character and quality)<br>**NEPA:** Adverse effect (visual character and quality) |
| **Air Quality** | | | | | | | |
| Construction | No or very minor amounts of criteria pollutant emissions or toxic air contaminant emissions would be generated. | Project construction under Alternative 1 would result in the short-term generation of criteria pollutant emissions. Emissions would include fugitive dust, hydrocarbon (reactive organic gas [ROG]), exhaust, and motor vehicle emissions, mostly associated with heavy equipment operations during construction. Localized emissions of particulate matter 10 microns in diameter or less ($PM_{10}$) and particulate matter 2.5 microns in diameter or less ($PM_{2.5}$) during construction would exceed local thresholds. | Project construction under Alternative 2 would result in the short-term generation of criteria pollutant emissions, the same as those described for Alternative 1. | Construction of Alternative 3 would result in the short-term generation of criteria pollutant emissions, as described for Alternative 1. It should be noted that Alternative 3 has a slightly longer construction period (at 24 months for air quality emission calculation purposes). Regional emissions for ROG and oxides of nitrogen (NOx) are expected to exceed the South Coast Air Quality Management District (SCAQMD) regional emissions thresholds. Localized $PM_{10}$ and $PM_{2.5}$ emissions during construction would exceed local thresholds. The greatest potential for toxic air contaminant (TAC) emissions would be related to diesel particulate matter (DPM) emissions associated with operation of heavy construction equipment. | Construction of Alternative 4 would result in the short-term generation of criteria pollutant emissions, as described for Alternative 3. | **TSM Alternative:** None required.<br><br>**Alternatives 1 through 4:**<br>**MM-AQ-1:** Construction vehicle and equipment trips and use shall be minimized to the extent feasible and unnecessary idling of heavy equipment shall be avoided.<br>**MM-AQ-2:** Solar powered, instead of diesel powered, changeable message signs shall be used.<br>**MM-AQ-3:** Electricity from power poles, rather than from generators, shall be used where feasible.<br>**MM-AQ-4:** Engines shall be maintained and tuned per manufacturer's specifications to perform at U.S. Environmental Protection Agency (EPA) certification levels and to perform at verified standards applicable to retrofit technologies. Periodic, unscheduled inspections shall be conducted to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.<br>**MM-AQ-5:** Any tampering with engines shall be prohibited and continuing adherence to manufacturer's recommendations shall be required.<br>**MM-AQ-6:** New, clean (diesel or retrofitted diesel) equipment meeting the most stringent applicable federal or state standards shall be used and the best available emissions control technology shall be employed. Tier 4 engines shall be used for all construction equipment. If non-road construction equipment that meets Tier 4 engine standards is not available, the Construction Contractor shall be required to use the best available emissions control technologies on all equipment.<br>**MM-AQ-7:** EPA-registered particulate traps and other appropriate controls shall be used where suitable to reduce emissions of DPM and other pollutants at the construction site. | **TSM Alternative:**<br>**CEQA:** No or less than significant impacts<br>**NEPA:** No adverse effects<br><br>**Alternative 1 and 2:**<br>**CEQA:** Significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 3 and 4:**<br>**CEQA:** Significant impact<br>**NEPA:** Adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| Operation | Regional criteria pollutant emissions under the TSM Alternative would not exceed SCAQMD significance thresholds. | Regional criteria pollutant emissions under Alternative 1 would exceed the SCAQMD significance threshold for $NO_X$ but would not exceed the significance thresholds for any other pollutant. Although the SCAQMD regional operational emissions threshold for $NO_X$ would be exceeded under Alternative 1, SCAQMD's operational emissions significance thresholds are based on emissions from stationary sources. Because the primary source of operational emissions from this project would be mobile sources (due to changes in auto circulation patterns), the SCAQMD thresholds are provided for informational purposes only. The proposed project's requirement to demonstrate transportation conformity ensures that project emissions are accounted for in the SIP, which demonstrated attainment of the federal ozone standard. As such, ozone precursor emissions of $NO_X$ would be less than significant. Overall operational emissions under Alternative 1 would be less than significant under CEQA and would not be adverse under NEPA.<br><br>Based on lower intersection approach volumes, idle emissions, and grams/mile emissions relative to the 2003 air quality management plan (AQMP) attainment demonstration, there would be no potential for Alternative 1 carbon monoxide (CO) emissions at any intersection location to result in an exceedance of either the national ambient air quality standards (NAAQS) or California ambient air quality standards (CAAQS) for CO. Alternative 1 would not be considered a project of air quality concern, as defined by 40 Code of Federal Regulations [CFR] 93.123(b) (1). Therefore, it is unlikely that Alternative 1 would generate new air quality violations, worsen existing violations, or delay attainment of NAAQS for $PM_{2.5}$ and $PM_{10}$. There would be no material change in regional mobile-source air toxic (MSAT) | See discussion for Alternative 1. | Operational impacts for Alternative 3 would be the same as those that would occur for Alternative 1, except that under Alternative 3 both ROG and NOx emissions are anticipated to exceed SCAQMD significance criteria in 2040. All remaining criteria pollutant emissions under Alternative 3 would not exceed SCAQMD significance thresholds. No emissions thresholds would be exceeded in the 2012 scenario.<br><br>Although the SCAQMD regional operational emissions thresholds would be exceeded in the 2040 Alternative 3 scenario, SCAQMD's operational emissions significance thresholds are based on emissions from stationary sources. Because the primary source of operational emissions from this project would be mobile sources (due to changes in auto circulation patterns), the SCAQMD thresholds are provided for informational purposes only. The proposed project's requirement to demonstrate transportation conformity ensures that project emissions are accounted for in the SIP, which demonstrated attainment of the federal ozone standard. As such, ozone precursor emissions of ROG and NOx would be less than significant. Overall operational emissions under Alternative 3 would be less than significant under CEQA and would not be adverse under NEPA. | Regional criteria pollutant emissions under Alternative 4 would not exceed SCAQMD significance thresholds. Impacts would be less than significant under CEQA and would not be adverse under NEPA. | None required. | **TSM Alternative:**<br>**CEQA:** No or less than significant impact<br>**NEPA:** No adverse effect<br><br>**Alternative 1 and 2:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 3 and 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | pollutant emissions under Alternative 1 when compared to the No-Build Alternative. | | | | | |
| Cumulative | Given the TSM Alternative would result in no or negligible increases in pollutant emissions, it would not appreciably contribute to any cumulative air quality impacts. | As the proposed project is listed, as currently proposed, in the region's currently conforming SCAG 2016–2040 RTP/SCS under Project ID 1TR0706 (for the BRT Alternatives) and ID S1160326 (for all build alternatives). The proposed project has been incorporated into amendment 17-02 to the SCAG 2017 FTIP (under project ID LA0G1301). It can be concluded that project emissions would not be cumulatively considerable. | See discussion for Build Alternative 1. | See discussion for Alternative 1 | See discussion for Alternative 1 | **TSM Alternative:** None required.<br><br>**Alternatives 1 through 4:** See MM-AQ-1 through MM-AQ-7, listed a couple of rows above. | **TSM, Alternatives 1 through 4:**<br>**CEQA:** No impact<br>**NEPA:** No adverse effect |
| **Climate Change** | | | | | | | |
| Construction | The TSM Alternative may include minor physical improvements to bus stops and roadways; consequently, there would be no or very minor construction-related greenhouse gas (GHG) emissions. | Construction activities under Alternative 1 would involve roadway and sidewalk modifications as well as the installation of canopies at stops, which could result in the emission of approximately 1,280 metric tons of carbon dioxide equivalent ($CO_{2e}$) over the course of the construction period, or 43 metric tons per year amortized over a 30-year period. | Construction activities under Alternative 2 would involve roadway, bus stop, and sidewalk modifications to allow for a median-running BRT service. These activities could result in the emission of 2,168 metric tons of $CO_{2e}$ over the course of the construction period, or approximately 72 metric tons per year amortized over a 30-year period. | Construction activities under Alternative 3 would involve roadway and sidewalk modifications to allow for median-running Low-Floor LRT/Tram service. In addition, Alternative 3 would involve construction of the MSF, a pedestrian bridge to the Sylmar/San Fernando Metrolink station, and the installation of approximately ten TPSS units. Construction of these facilities could result in the emission of 4,025 metric tons of $CO_{2e}$ over the course of the construction period, or approximately 134 metric tons per year amortized over a 30-year period. | Alternative 4 would involve construction activities and changes to roadways and sidewalks to accommodate LRT service. This would include the construction of a tunnel and three subterranean stations. In addition, Alternative 4 would involve construction of the MSF, a pedestrian bridge to the Sylmar/San Fernando Metrolink station, and the installation of approximately 10 TPSS units. Construction of these facilities could result in the emission of approximately 19,900 metric tons of $CO_{2e}$ over the course of the construction period, or approximately 633 metric tons per year amortized over a 30-year period. | **TSM, Alternatives 1 through 4:** None required. | Since impact determinations take into account the combined effect of construction and operational GHG emissions, please see the impact determinations below for Operation. |
| Operation | The TSM Alternative would result in a negligible increase in GHG emissions compared with the baseline due to increased bus service and lower operational efficiency of roadways in the project vicinity. It would not conflict with the Assembly Bill (AB) 32, Senate Bill (SB) 375, and Metro and city of Los Angeles goals to reduce GHG emissions by providing the transportation infrastructure necessary to enable more sustainable communities | Alternative 1 would result in in the annual emission of approximately 2,800 metric tons (MT) of $CO_{2e}$ above future (2040) baseline vehicle emissions, an increase of 0.005%. The increased emissions are due to increased bus service and lower operational efficiency of roadways in the project vicinity. Overall, by providing transportation infrastructure necessary to enable more sustainable communities. Alternative 1 would not conflict with the AB 32, SB 32, SB 375, and Metro and city of Los Angeles goals to reduce GHG emissions. | Alternative 2 would result in the annual emission of approximately 165 MT of $CO_{2e}$ above future (2040) baseline vehicle emissions. Also, see the discussion for Alternative 1. | Alternative 3 would result in in the annual emission of approximately 44,000 MT of $CO_{2e}$ above future (2040) baseline vehicle emissions, an increase of 0.072%. Also, see the discussion for Alternative 1. Because of amortized construction emissions as well as ongoing transit-vehicle propulsion and maintenance facility emissions, Alternative 3, in the 2012 scenario, would result in a 0.019% increase in emissions compared with the 2012 baseline scenario. | Alternative 4 would result in the annual emission of approximately 29,000 MT of $CO_{2e}$ below future (2040) baseline vehicle emissions, a decrease of 0.05%. | **TSM, Alternatives 1 through 4:** None required. | **TSM, Alternatives 1 through 3:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect<br><br>**Alternative 4:**<br>**CEQA:** Beneficial impact<br>**NEPA:** Beneficial effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| Cumulative | GHG emissions and climate change are exclusively cumulative impacts; there are no non-cumulative GHG emissions impacts from a climate change perspective. The project would not exceed the threshold of significance and would be consistent with adopted plans and regulations that aim to reduce GHG emissions. Therefore, the project would not contribute to a cumulatively significant impact related to GHG emissions and climate change. | See Cumulative Impacts discussion for the TSM Alternative. | See Cumulative Impacts discussion for the TSM Alternative. | See Cumulative Impacts discussion for the TSM Alternative. | See Cumulative Impacts discussion for the TSM Alternative. | **TSM, Alternatives 1 through 4:** None required. | **TSM, Alternatives 1 through 3:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect<br><br>**Alternative 4:**<br>**CEQA:** Beneficial impact<br>**NEPA:** Beneficial effect |
| **Noise and Vibration** | | | | | | | |
| Construction | Because proposed physical improvements would only require light construction equipment and any construction would be of very short duration, only non-adverse construction noise or vibration impacts under NEPA and less-than-significant impacts under CEQA are expected to occur for the TSM Alternative. | **Noise:** The construction of the Curb-Running BRT Alternative would require the use of heavy earthmoving equipment, pneumatic tools, generators, concrete pumps, and similar equipment. The predicted noise level from a typical 8-hour work-shift is 86 dBA (8-hour $L_{eq}$) at 50 feet, which is about 15 to 20 decibels higher than the ambient noise level. The NEPA and CEQA significance threshold is construction noise levels exceeding existing ambient noise levels by 10 dBA or more at a sensitive land use. Therefore, the Curb-Running BRT Alternative could result in significant adverse construction noise impacts/effects under CEQA and NEPA.<br><br>**Vibration:** The construction of the Curb-Running BRT Alternative would require the use of heavy earthmoving equipment, pneumatic tools, generators, concrete pumps, and similar equipment. Many construction activities, such as pavement breaking, and the use of tracked vehicles, such as bulldozers, could result in noticeable levels of ground-borne vibration.<br>The predicted vibration levels for equipment that produces the highest levels of vibration, such as a vibratory roller, are about equal to the construction vibration significance threshold for non-engineered and timber masonry buildings at a distance of 25 feet. | See discussion for Build Alternative 1 | The Low-Floor LRT/Tram Alternative, as well as the LRT Alternative, would result in more extensive construction than the two BRT alternatives. | **Noise:** Impacts resulting from the construction of Alternative 4 would be the same as those that would occur under Alternative 3, with the exception being that Alternative 4 includes tunneling, which is not included in Alternative 3. Noise impacts from tunnel boring machines are expected to be less-than-significant, because operations take place under ground.<br><br>**Vibration:** Ground-borne noise and vibration impacts associated with tunneling are likely to be less than significant because tunneling will only take place within the ROW. However, an assessment of tunneling operations should be including in the Construction Vibration Control Plan because ground-borne noise and vibration levels from tunneling are highly dependent on the means and methods selected by the contractor. | **TSM Alternative:**<br>None required<br><br>**Alternatives 1 through 4**<br>**MM-NOI-1a:** Specific measures to be employed to mitigate construction noise impacts shall be developed by the contractor and presented in the form of a Noise Control Plan. The Noise Control Plan shall be submitted for review and approval before the beginning of construction noise activities**MM-NOI-1b:** The contractor shall adequately notify the public of construction operations and schedules no less than 72-hours in advance of construction through a construction notice with confirmed details and a look ahead briefing several weeks in advance.<br>**MM-NOI-1c:** If a noise variance from Section 41.40(a) of the Los Angeles Municipal Code is sought for nighttime construction work, a noise limit shall be specified. The contractor shall employ a combination of the noise-reducing approaches listed in MM-NOI-1d to meet the noise limit.<br>**MM-NOI-1d:** Where feasible, the contractor shall use the following noise-reducing approaches:<br>• The contractor shall use specialty equipment with enclosed engines and/or high-performance mufflers.<br>• The contractor shall locate equipment and staging areas as far from noise-sensitive receivers as possible.<br>• The contractor shall limit unnecessary idling of equipment.<br>• The contractor shall install temporary noise barriers to enclose stationary noise sources, such as compressors, generators, laydown and staging areas, and other noisy equipment. | Noise<br>**TSM Alternative:**<br>**CEQA:** No impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 through 4**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect<br><br>Vibration<br>**TSM Alternative:**<br>**CEQA:** No impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | • The contractor shall reroute construction-related truck traffic away from residential buildings to the extent practicable.<br>• The contractor shall sequence the use of equipment so that simultaneous use of the loudest pieces of equipment is avoided as much as practicable.<br>• The contractor shall avoid the use of impact equipment and, where practicable, use non-impact equipment. Non-impact equipment could include electric or hydraulic-powered equipment rather than diesel and gasoline-powered equipment where feasible.<br>• The contractor shall use portable noise control enclosures for welding in the construction staging area.<br>**MM-VIB-1:** Where equipment, such as a vibratory roller, that produces high levels of vibration is used near buildings, the Construction Vibration Control Plan shall include mitigation measures to minimize vibration impact during construction. Recommended construction vibration mitigation measures that shall be considered and implemented where feasible include:<br>• The contractor shall minimize the use of tracked vehicles.<br>• The contractor shall avoid vibratory compaction.<br>• The contractor shall monitor vibration levels near sensitive receivers during activities that generate high vibration levels to ensure thresholds are not exceeded.<br><br>**Alternatives 3 and 4**<br>Mitigation Measure NOI-1a-d and VIB-1 are proposed. | |
| Operation | **Noise:** The changes in noise levels as a result of the TSM Alternative would not exceed noise significance thresholds at any sensitive receiver clusters.<br><br>**Vibration:** Vibration from additional bus volumes or minor changes to the roadway network that would be part of the TSM Alternative would not exceed vibration significance thresholds at any sensitive receivers. | **Noise:** The increase over existing noise levels as a result of the project would be no more than one decibel.<br><br>**Vibration:** Vibration from the Curb-Running BRT Alternative would not exceed the NEPA or CEQA significance thresholds at any sensitive receivers. | See discussion for Build Alternative 1. | **Noise:** Changes in noise levels would occur as a result of the introduction of Low-Floor LRT/Tram vehicles and removal of all existing buses from Van Nuys Boulevard in the project area. The predicted noise levels would exceed the NEPA and CEQA significance thresholds at three clusters of residences where the alignment would curve to transition between Van Nuys Boulevard and San Fernando Road, as well as where it would be directly adjacent (within 30 feet) of a multi-family residential building and a motel on San Fernando Road just north of Hubbard Avenue. | See discussion for Alternative 3. | **TSM, Alternatives 1 and 2:**<br>None required<br><br>**Alternative 3 and 4**<br>**MM-NOI-2a:** A sound wall where the row of buildings would be removed shall be constructed to mitigate the increase in traffic noise levels that would result from removing the row of buildings. Sound walls should be constructed in such a fashion as to not impair the Train Operator vision triangle-sightlines.<br>**MM-NOI-2b:** Friction control shall be incorporated into the design for the curve at Van Nuys Boulevard and San Fernando Road. Friction control may consist of installing lubricators on the rail or using an onboard lubrication system that applies lubrication directly to the wheel. | Noise<br>**TSM Alternative:**<br>**CEQA:** No impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 through 4**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect<br><br>Vibration<br>**TSM, Alternatives 1 and 2:**<br>**CEQA:** No impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 3 and 4 :**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | **Vibration:** The predicted vibration levels would exceed the NEPA and CEQA significance threshold at 17 clusters of sensitive residential receivers and one institutional land use. The TPSS units and MSF Options have the potential to cause noise impacts. | | The recommended measure for the third cluster where predicted noise levels exceed the NEPA and CEQA significance thresholds is to specify and procure low-noise vehicles (see MM-NOI-2c below). Low-noise vehicles would reduce the predicted noise level by 2 to 3 decibels at all receivers. A sound wall would not be a feasible mitigation measure because there is a narrow right-of-way making it difficult to accommodate a sound wall and because a sound wall might create a visual impact.<br>If specifying a low-noise vehicle is not a feasible mitigation measure, building sound insulation shall be considered as an alternative. Improving building sound insulation increases the outdoor-to-indoor noise reduction and is often the best choice where sound walls are not feasible or reasonable. Specifying a low-noise vehicle is the preferred mitigation measure because it would reduce noise levels in exterior areas of the impacted receivers and it would have the benefit of reducing noise levels at all receivers throughout the project area.<br>**MM-NOI-2c:** Metro shall specify and procure low-noise vehicles with a reference sound level of 75 dBA maximum sound level ($L_{max}$) at 50 feet and 50 miles per hour (mph) for a 2-car train on ballast-and-tie track. Manufacturers could meet this level using a combination of vehicle skirts, a well-designed suspension, and under-car absorption. If specifying a low-noise vehicle is not feasible, Metro shall improve building insulation at the noise-sensitive uses significantly affected by transit vehicle noise. If sound insulation is used, the sound insulation should reduce project noise to below 45 dBA $L_{dn}$ inside the residence.<br><br>Noise impacts are also predicted near five of the proposed TPSS sites. The measures that are proposed to mitigate noise from the TPSS units are:<br>**MM-NOI-3a**: The following noise limit shall be included in the purchase specifications for the TPSS units: TPSS noise shall not exceed 50 dBA at a distance of 50 feet from any part of a TPSS unit.<br>**MM-NOI-3b**: The TPSS units shall be located within the parcel as far from sensitive receivers as feasible. If possible, the cooling fans shall be oriented away from sensitive receivers. | |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | **MM-NOI-3c**: If necessary, a sound enclosure shall be built around the TPSS unit to further reduce noise levels at sensitive receivers to below the applicable impact threshold.<br><br>Noise impacts are predicted at sensitive receivers near MSF Option A and C. Proposed measures to mitigate MSF noise include:<br>**MM-NOI-4a:** Low-impact frogs shall be used at crossovers, where feasible. Monoblock or welded boltless manganese (WBM) frogs are low-impact frogs that may be appropriate for heavy use at a maintenance facility. Where low-impact frogs are not feasible, a noise study shall be completed when the MSF layout is finalized to determine where sound walls are necessary to mitigate noise levels.<br>**MM-NOI-4b:** The MSF facility shall be laid out with the noisiest operations located away from sensitive receivers wherever possible. For example, the open façade of the carwash facility shall not directly face sensitive receivers if feasible. When the layout of the MSF facility is finalized, a noise assessment shall be completed to determine if sound walls are necessary to mitigate noise levels.<br><br>Predicted vibration levels could be reduced to below the NEPA and CEQA significance thresholds at all sensitive receivers with traditional floating slab track. A floating slab consists of a concrete slab supported by rubber or steel springs. Floating slab is the most expensive vibration mitigation measure; however, it provides the most reduction in vibration levels. Further investigation may show that vibration levels could be reduced to below the applicable thresholds with a less expensive option, such as a continuous mat floating slab.<br><br>**MM-VIB-2:** The contractor shall install a floating-slab track where predicted vibration levels would exceed the NEPA and CEQA significance thresholds. Or alternatively, the contractor may install a less expensive option, such as a continuous mat floating slab or a vibration isolated embedded track system such as QTrack, if further investigation confirms that the alternative method would reduce vibration levels below the applicable thresholds. | |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| Cumulative | Given the minimal amount of construction, the TSM Alternative would not contribute to any significant cumulative noise and vibration impacts within the cumulative impacts study area. | Although it is not possible to predict with certainty which future projects would contribute to cumulative noise levels and quantify the increase in noise levels, nonetheless, for the purposes of this EIS/EIR, the short-term and temporary cumulative construction noise impacts due to the Curb-Running BRT Alternative and other noise and vibration sources are considered to be potentially significant. Although the potential increase in noise levels along San Fernando Road due to the Curb-Running BRT Alternative would be negligible, noise generated by this alternative combined with other future sources of noise along San Fernando Road, such as the CAHSR Project, could potentially result in significant cumulative noise impacts. | See discussion for Build Alternative 1 | Although recommended construction noise mitigation measures would reduce temporary construction noise impacts due to the proposed project to a less-than significant level, the residual increases in noise levels due to the Low-Floor LRT/Tram Alternative, when combined with increased noise generated by other sources or projects in the vicinity of the study area, could result in cumulatively considerable noise impacts. | See discussion for Alternative 3. | **TSM Alternative:**<br>None required<br><br>**Alternatives 1 and 2:**<br>MM-NOI-1a through MM-NOI-1d, MM-VIB-1a through MM-VIB-1c listed in the row above<br><br>**Alternatives 3 and 4:**<br>MM-NOI-1a through MM-NOI-1d, MM-VIB-1a through MM-VIB-1c, MM-NOI-2a through MM-NOI-2c, MM-NOI-3a through MM-NOI-3c, MM-NOI-4a and MM-NOI-4b, MM-VIB-2 listed two rows above | Noise:<br>**TSM Alternative:**<br>**CEQA:** No significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Potentially significant impact<br>**NEPA:** Potentially adverse effect<br><br>Vibration:<br>**TSM, Alternatives 1 and 2:**<br>**CEQA:** No impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 3 and 4 :**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| **Geology, Soils and Seismicity** | | | | | | | |
| Construction | Given the very limited amount of construction that could occur under this alternative, geological hazards in the project area are not likely to affect or be affected by construction activities. Therefore, no or very minor impacts/effects would occur during construction. | Potential impacts due to construction of Alternative 1 would be similar to those that would occur as result of a typical construction project and would include the potential for undermining of existing structures and potential geologic/soils hazards to construction workers. | See discussion for Alternative 1. | See discussion for Alternative 1 | The LRT Alternative would result in the same construction impacts/hazards similar to the other alternatives, except that under this alternative, the tunneling and deep excavations during construction could cause vertical and lateral movement of the existing soils adjacent to the improvements. The LRT Alternative could also be affected by groundwater hazards during construction due to the depth of excavation. | **TSM:**<br>None required<br>**Alternatives 3 and 4:** See measures MM-GEO-3 and MM-GEO-4 below.<br>**Alternative 4:** See measures MM-GEO-3 through MM-GEO-5 below. | **TSM, Alternatives 1 through 4**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| Operation | Given the small size of the bus stop structures and the fact they would be constructed in accordance with current building codes, the potential risks would be minimal. Operation of this alternative would also not cause or accelerate geologic hazards or increase soil instability because the physical improvements would be minor and constructed on flat terrain in a developed urban area. | Structures constructed under the Curb-Running BRT Alternative, which would include new traffic and pedestrian signs and bus stop canopies, could experience strong seismic ground shaking and pose a hazard to riders and passers-by. On the north end of the alternative alignment, the Sylmar/San Fernando Station is located with an Alquist-Priolo Earthquake Fault Zone (APEFZ). Some project components would be subject to faulting. A portion of the alignment south of Vanowen Street would be subject to liquefaction. The alignment is within a dam failure inundation zone, though flooding risk is low. | See discussion for Build Alternative 1 | The proposed pedestrian bridge for the Sylmar/San Fernando Station is located within an APEFZ, and the Pacoima Wash Bridge is located in the City of Los Angeles Fault Rupture Study Area. Fault rapture hazards to these project facilities could be significant. Some project structures would be subject to strong seismic ground shaking and could pose a hazard to riders and passers-by. Flooding risks would be the same as those mentioned in Alternative 1. | The operational impacts of the LRT Alternative would be the same as those of the Low-Floor LRT/Tram Alternative, except unlike the Low-Floor Tram/LRT Alternative, this alternative would include a tunnel. Because of the presence of alluvial soils, the tunnel segment of the alignment could be susceptible to seismic-induced settlement and ground loss, a potentially significant hazard. | **TSM, Alternatives 1 and 2:**<br>None required<br><br>**Alternatives 3 and 4**<br>**MM-GEO-1:** Metro design criteria require probabilistic seismic hazard analyses (PSHA) to estimate earthquake loads on structures. These analyses take into account the combined effects of all nearby faults to estimate ground shaking. During Final Design, site-specific PSHAs shall be used as the basis for evaluating the ground motion levels along the project corridor. The structural elements of the proposed project shall be designed and constructed to resist or accommodate appropriate site-specific estimates of ground loads and distortions imposed by the design | **TSM, Alternatives 1 through 4**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | earthquakes and conform to Metro's *Design Standards for the Operating and Maximum Design Earthquakes*. The concrete structures are designed according to the *Building Code Requirements for Structural Concrete* (ACI 318) by the American Concrete Institute.<br>**MM-GEO-2:** At liquefaction or seismic settlement prone areas, evaluations by geotechnical engineers shall be performed during Final Design to provide estimates of the magnitude of the anticipated liquefaction or settlement. Based on the magnitude of evaluated liquefaction, either structural design, or ground improvement (such as deep soil mixing) or deep foundations to non-liquefiable soil (such as drilled piles) measures shall be selected. Site-specific design shall be selected based on State of California guidelines and design criteria set forth in the *Metro Seismic Design Criteria*.<br>**MM-GEO-3:** In addition to design measures, as Metro has implemented on the existing Red Line, it shall implement standard operating procedures (SOP) in seismic areas to detect earthquakes and shall provide back-up power, lighting, and ventilation systems to increase safety during tunnel or station evacuations in the event of loss of power due to an earthquake. For example, seismographs are located in 11 of the existing Metro Red/Purple Line stations to detect ground motions and trigger SOPs (SOP#8 – Earthquake) by the train operators and controllers. Operating procedures are dependent on the level of earthquake and include stopping or holding trains, gas monitoring, informing passengers, communications with Metro's Central Control, and inspecting for damage.<br>**MM-GEO-4:** As with the existing Red or Purple Lines and the Metro Gold Line Eastside Extension, Metro shall install gas monitoring and detection systems with alarms, as well as ventilation equipment to dissipate gas to safe levels according to Metro's current design criteria and Cal/OSHA standards for a safe work environment. Measures shall include, but are not limited to, the following for both tunnel and station operation:<br>• High volume ventilation systems with back-up power sources<br>• Gas detection systems with alarms<br>• Emergency ventilation triggered by the gas detection systems | |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | • Automatic equipment shut-off<br>• Maintenance and operations personnel training<br>• Gas detection instrumentation is set to send alarms to activate ventilation systems and evacuate the structures as follows: methane gas – minor alarm at 10 percent of the lower explosive limit (LEL) (activate ventilation) and major alarms at 20 percent of LEL (evacuation of area)<br>• Hydrogen sulfide – minor alarm at 8 parts per million (ppm) and major alarm at 10 ppm.<br>**MM-GEO-5:** Tunnels and stations shall be designed to provide a redundant protection system against gas intrusion hazard. The primary protection from hazardous gases during operations is provided by the physical barriers (tunnel and station liner membranes) that keep gas out of tunnels and stations. As with the existing Metro Red and Purple Lines and the Metro Gold Line Eastside Extension, tunnels and stations shall be designed to exclude gas to below alarm levels (GEO-4) and include gas monitoring and detection systems with alarms, as well as ventilation equipment to dissipate gas.<br>• At stations in elevated gassy ground(e.g., Van Nuys Metrolink Station and Sherman Way Station), construction shall be accomplished using slurry walls – or similar methods such as continuous drilled piles – to provide a reduction of gas inflow both during and after construction than would occur with conventional soldier piles and lagging.<br>• Other station design concepts to reduce gas and water leakage are the use of additional barriers; compartmentalized barriers to facilitate leak sealing; and flexible sealants, such as poly-rubber gels, along with high-density polyethylene-type materials used on Metro's underground stations.<br>• Consideration of secondary station walls to provide additional barriers or an active system (low or high pressure barrier) shall also be studied during Final Design to further to determine if they will be incorporated into the Final design of the tunnel and stations.<br>• The evaluations for station and tunnel construction materials shall include laboratory testing programs such as those conducted for the Metro Gold Line Eastside Extension during development of | |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | the double gasket system and material testing for long-term exposure to the ground conditions for materials such as rubber gaskets used for tunnel segment linings. Testing programs shall examine:<br>o Segment leakage – gasket seal under pressure before, during, and after seismic movements. This will include various gasket materials and profiles (height and width).<br>o Gasket material properties – effective life and resistance to deterioration when subjected to man-made and natural contaminants, including methane, asphaltic materials, and hydrogen sulfide.<br>o Alternative products to high-density polyethylene products such as poly-rubber gels, now in use in ground containing methane in other cities. Methods for field testing high-density polyethylene joints. These are now being used for landfill liners and water tunnels under internal water pressure. | |
| Cumulative | Cumulative impacts could occur when subsurface excavations result in ground and differential settlement that could affect adjacent properties. If other nearby projects would also include excavation activities that could result in the potential settlement of soils, then the proposed and nearby projects could result in adverse cumulative settlement impacts on nearby properties. However, given the limited amount of construction that is anticipated to occur under the TSM Alternative, it's unlikely this alternative would result in cumulative ground and differential settlement impacts. | Although more extensive construction would occur under Alternative 1 than under the TSM Alternative, the amount of excavation and potential for settlement would be minimal; therefore, it is unlikely this alternative would contribute to significant cumulative settlement impacts. | See discussion for TSM and Alternative 1 | See discussion for TSM and Alternative 1 | The LRT Alternative, unlike the other alternatives, could result in substantial settlement impacts. The study area for cumulative geological hazards due to the LRT Alternative is limited to those properties adjacent to the tunnel portion of the LRT alignment. Although the project and cumulative impacts could be significant, compliance with proposed design and mitigation measures would reduce potential impacts to a less-than-significant level. | **TSM, Alternatives 1 and 2:**<br>None required<br><br>**Alternatives 3 and 4:**<br>MM-GEO-1 through MM-GEO-5 listed in the row above | **CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| **Hazardous Waste and Materials** | | | | | | | |
| Construction | Construction would be very minor and would be generally limited to minor roadway modifications and bus stop amenities/improvements. It is unlikely that significant amounts of materials, soils, or groundwater containing hazardous materials or wastes would be encountered during construction. | Construction may encounter hazardous materials during grading and excavation, though work would generally be limited to within the upper 5 feet of soil. It is likely that lead and arsenic may have been deposited within the soil along the project alignment and could occur at hazardous levels. Yellow thermoplastic paint markings on the pavement to be removed may contain lead and other heavy metals such as chromium. Dust created from construction activities may contain hazardous contaminants. Construction equipment contains fuel, hydraulic oil, lubricants, and other hazardous materials, which could be released accidentally. | The Median-Running BRT Alternative would result in the same construction impacts as the Curb-Running BRT Alternative. | Deeper construction excavations for the retrofit or replacement of structures crossing the Pacoima Wash or the foundations for the new pedestrian crossing at the San Fernando Metrolink Station could result in the potential for encountering groundwater contaminated by volatile organic compounds (VOCs). Lead-based paint (LBP) and asbestos containing material (ACM) may be encountered in waste building materials during demolition of existing structures for the MSF and TPSSs facilities. | Construction for at-grade portions of the project would result in the same impacts as Alternative 3. The cut and cover/tunneling portion of this alternative would consist of excavations as deep as 80 feet, with piles extending deeper. The tunnel would cross beneath former and current manufacturing and industrial sites that may contain soils containing hydrocarbons, VOCs, and other hazardous waste constituents. The southern end of the proposed tunnel would potentially be located below historically high groundwater levels, which may be contaminated with hazardous materials. | **TSM Alternative:**<br>None required<br><br>**Alternatives 1 through 4:**<br>**MM-HAZ-1 (All Build Alternatives):** An environmental investigation shall be performed during design for above-grade or below-grade transit structures, stations, and the maintenance yard. The environmental investigation shall collect soil, groundwater, and/or soil gas samples to delineate potential areas of contamination that may be encountered during construction or operations. The environmental investigation shall include the following:<br>• Properties potentially to be acquired are listed on multiple databases and shall be evaluated further for contaminants that were manufactured, stored, or released from the facility. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.<br>• Phase II subsurface investigations for potential impacts from adjoining current or former underground storage tank (UST) sites and nearby leaking underground storage tank (LUST) sites may be recommended pending the selection of the preferred alternative, potential ROW acquisitions, the depth of excavation, and the result of a review of archives on file with the City of Los Angeles Fire Department (LAFD) and Regional Water Quality Control Board (RWQCB).<br>• A Phase II subsurface investigation to evaluate potential presence of perchloroethylene (PCE) shall be performed along the portions of the project alignment that are adjacent to former and current dry cleaners. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.<br>• If construction encroaches into the two former plugged and abandoned dry-hole oil exploration wells mapped adjacent to the proposed project ROW, the project team shall consult with the Division of Oil, Gas and Geothermal Resources (DOGGR) regarding the exact locations of the abandoned holes and the potential impact of the wells on proposed construction. | **TSM, Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | • The locations of proposed improvements involving excavations adjacent to (within 50 feet of) the electrical substation shall be screened prior to construction by testing soils within 5 feet of the existing ground surface for polychloroniated biphenyls (PCBs). If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.<br>• Buildings that will be demolished shall have a comprehensive ACM inspection prior to demolition. In addition, ACM may be present in the existing bridge crossings at the Pacoima Diversion Channels. If improvements associated with the corridor alternative selected for final design will disturb the existing bridge crossings, then these structures shall be evaluated for suspect ACM. If ACM is found, it shall be removed, and transported to an approved disposal location according to state law.<br>• Areas along the project alignment where soil may be disturbed during construction shall be tested for aerially deposited lead (ADL) according to Caltrans ADL testing guidelines. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.<br>• Lead and other heavy metals, such as chromium, may be present within yellow thermoplastic paint markings on the pavement. These surfacing materials shall be tested for LBP prior to removal. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.<br>• Former railroad ROWs that crossed or were adjacent to the project ROW may contain hazardous materials from the use of weed control, including herbicides and arsenic, and may also contain Treated Wood Waste (TWW). Soil sampling for potentially hazardous weed control substances shall be conducted for health and safety concerns in the event that construction earthwork involves soil removal from the former railroad ROWs. If encountered during construction, railroad ties designated for reuse or disposal (including previously salvaged railroad ties in the project ROW) shall be managed or disposed of as TWW in accordance with Alternative Management Standards provided in CCR Title 22 Section 67386. | |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | **MM-HAZ-2 (All Build Alternatives):** The contractor shall implement a Worker Health and Safety Plan prior to the start of construction activities. All workers shall be required to review the plan, receive training if necessary, and sign the plan prior to starting work. The plan shall identify properties of concern, the nature and extent of contaminants that could be encountered during excavation activities, appropriate health and environmental protection procedures and equipment, emergency response procedures including the most direct route to a hospital, and contact information for the Site Safety Officer.<br>**MM-HAZ-3(All Build Alternatives):** The contractor shall implement a Contaminated Soil/Groundwater Management Plan during construction to establish procedures to follow if contamination is encountered in order to minimize associated risks. The plan shall be prepared during the final design phase of the project, and the construction contractor shall be held to the level of performance specified in the plan. The plan shall include procedures for the implementation of the following measures:<br>• Contacting appropriate regulatory agencies if contaminated soil or groundwater is encountered<br>• Sampling and analysis of soil and/or groundwater known or suspected to be impacted by hazardous materials<br>• Legal and proper handling, storage, treatment, transport, and disposal of contaminated soil and/or groundwater shall be delineated and conducted in consultation with regulatory agencies, in accordance with established statutory and regulatory requirements in Section 4.10.1.1 of this EIS/EIR<br>• Implementation of dust control measures such as soil wetting, wind screens, etc., for contaminated soil<br>• Groundwater collection, treatment, and discharge shall be performed according to applicable standards and procedures listed in Section 4.10.1.1 of this EIS/EIR<br>**MM-HAZ-4 (All Build Alternatives):** The contractor shall properly maintain equipment and properly store and manage related hazardous materials, so as to prevent motor oil, or other potentially hazardous substances used during construction, from spilling onto the soil. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law. | |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | **Alternative 4:**<br>MM-HAZ-1 through MM-HAZ 4 and the following proposed measure:<br>**MM-HAZ-5:** In addition to the environmental studies identified above in MM-HAZ-1, the environmental investigation for the LRT Alternative shall include the following:<br>• If reconstruction of the Pacoima Wash bridge on San Fernando Road is proposed, the construction spoils (e.g., excavated soils, cuttings generated during installation of cast in drilled hole piles (CIDH piles), including those in contact with the groundwater, shall be contained and tested for total chromium, 1,4-dioxane, trichloroethylene (TCE), and PCE to determine appropriate disposal.<br>• Phase II subsurface investigation shall be performed along the below-grade segment of the corridor to evaluate the need for environmental remediation measures during construction. The Phase II site investigation shall include the installation of groundwater monitoring wells for the tunneling portion of the alternative.<br>• An existing underground injection control well is located adjacent to the proposed tunnel along Van Nuys Boulevard for the LRT corridor alternative. The design team shall consult with California Department of Conservation to evaluate the potential impact of the well on the proposed improvements that could encounter groundwater and are located within ⅛ mile of the well.<br>• To evaluate for the presence of deeper soil contamination and VOCs in groundwater at cut and cover/tunnel excavation locations, soil borings shall be performed and groundwater monitoring wells shall be installed. Soil sampling shall include environmental screening for contamination by visual observations and field screening for VOCs with a photoionization detector (PID). Based on field screening, soil samples shall be analyzed for the suspected chemicals by a certified laboratory. Groundwater samples shall be analyzed for VOCs.<br>• A Contaminated Soil/Groundwater Management Plan shall be prepared during final design that describes appropriate methods and measures to manage contamination encountered during construction. | |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| Operation | Increased bus service could increase use of hazardous materials required to operate and maintain the bus fleet. Mechanical failure or accidents could increase release of lubricants contained in bus vehicles. | Alternative 1 would result in the same impacts as those described for the TSM Alternative. To the extent that this alternative increases bus vehicle service miles beyond what would occur under the TSM Alternative, it would result in a proportionally greater potential for operational hazardous materials impacts. | The Median-Running BRT Alternative would result in the same construction impacts as the Curb-Running BRT Alternative. | The MSF will use and store hazardous materials including fuels, lubricants, and paints, for maintenance of the rail vehicles. The Low-Floor LRT/Tram vehicles would be electrically powered and would not contain fuels that could be released to the environment in the event of an accident or mechanical failure. | This alternative would result in the same impacts as those that would occur under Alternative 3. However, the tunnel and below grade stations have the potential for vapor intrusion from soil and groundwater contamination. | **TSM, Alternatives 1 through 3:** None required<br><br>**Alternative 4:**<br>**MM-HAZ-6:** Engineering controls shall be implemented to increase ventilation in the below-grade structures, if vapor intrusion from soil and groundwater contamination is above regulatory levels. | **TSM, Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| Cumulative | Given the low potential for encountering hazardous materials and the fact that compliance with regulatory requirements would minimize any potential impacts that could occur due to the TSM Alternative and related projects, it is not expected that the TSM Alternative would contribute to any significant cumulative hazardous waste and materials impacts. | Construction of other related projects could encounter soils or groundwater contaminated by current or historical uses. Disturbance of contaminated soils or groundwater could expose workers, the public, and environment to increased hazards and result in cumulative hazardous materials impacts. | See discussion for Alternative 1. | See discussion for Alternative 1. | See discussion for Alternative 1. | **TSM Alternative:** None required<br><br>**Alternatives 1 through 3:** MM-HAZ-1 through MM-HAZ-4 listed above<br><br>**Alternative 4:** MM-HAZ-1 through MM-HAZ-6 listed above | **TSM, Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| **Energy** | | | | | | | |
| Construction | Construction would require minimal amounts of energy and construction activities would comply with the Metro Green Construction Policy. No buildings subject to energy standards required by Title 24 of the California Code of Regulations would be constructed under the TSM Alternative. | Alternative 1 would not result in the wasteful or inefficient use of energy. Most of the energy would be in the form of diesel fuel used by construction equipment and vehicles and would not require new or expanded sources of energy or infrastructure to meet demands (17,618 MMBTU [million British thermal units]). | See discussion for Alternative 1. However, note that Alternative 2 would have slightly higher energy demands (29,816 MMBTU). | Construction of an MSF, new at-grade stations, a pedestrian bridge to the Sylmar Metrolink station, modifications to sidewalks and roadways, and the installation of TPSS units are required under Alternative 3. Impacts are the same as those of Alternative 1, but with higher energy demands (55,366 MMBTU). | Alternative 4 would involve the construction of a LRT system, an underground segment, an MSF, new stations, a pedestrian bridge to the Sylmar Metrolink station, modifications to sidewalks and roadways, and the installation of TPSS units. MSF Option A was assumed when estimating energy consumption, as it would be the most energy-intensive method. Impacts would be the same as those of Alternative 1, but with higher energy demands (273,600 MMBTU). | **TSM, Alternatives 1 through 4:** None required. | **TSM, Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| Operation | Direct impacts could include electricity consumption and fuel consumption. Indirect impacts would occur as a result of the impacts on traffic. However, this alternative would not result in the wasteful, inefficient, or unnecessary use of energy or require new energy infrastructure. | This alternative would not result in the wasteful, inefficient, or unnecessary consumption of energy and no new energy infrastructure that would result in significant impacts on the environment would be required. | See discussion for Alternative 1. | Overall operational energy consumption under Alternative 3 would increase relative to future (2040) baseline conditions, but it would not result in the wasteful, inefficient, or unnecessary consumption of energy. | The decrease in total energy use would be consistent with long-term conservation goals. Additionally, energy would not be consumed in a wasteful, inefficient, or unnecessary manner. Operation of Alternative 4 would decrease overall energy use relative to future (2040) baseline conditions, | **TSM, Alternatives 1 through 4:** None required. | **TSM Alternative:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| Cumulative Impacts | With the exception of instances in which projects require the physical development of new power generation, transmission, or fueling facilities, energy use impacts are cumulative impacts in that all energy consumed comes from a common resource pool. Where energy providers have identified | See cumulative impacts discussion for the TSM Alternative. | See cumulative impacts discussion for the TSM Alternative. | See cumulative impacts discussion for the TSM Alternative. | See cumulative impacts discussion for the TSM Alternative. | **TSM, Alternatives 1 through 4:** None required. | **TSM, Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | specific individual projects that are required to meet future projected regional cumulative demands and determined that construction or operation of those projects would result in significant impacts to the environment, then the cumulative impact of the proposed project and the energy infrastructure projects would be considered significant. However, where the extent and details of future infrastructure improvements and their impacts have not been identified, the significance of potential cumulative impacts cannot be definitively determined and it would be speculative[1] to assume the cumulative impacts would be significant. | | | | | | |
| **Ecosystems/Biological Resources** | | | | | | | |
| Construction | The TSM Alternative proposes transportation systems upgrades, which may include relatively low-cost transit service improvements and minor physical improvements that would be limited to the public roadway right-of-way. As a consequence, no or very minor impacts to biological resources would occur. | **Special-Status Plants and Animals:** There is a potential for pallid bat, western yellow bat, and big free-tailed bat to occur in the study area. These species could be significantly affected by removal of adjacent vegetation. Ornamental landscaping and bus stop canopies with nesting birds exist within the study area.<br><br>**Conflict with Local Polices:** Construction of new bus stop canopies could require the removal of trees protected by the City of LA and/or San Fernando tree ordinances. Removal of protected trees would conflict with the city ordinances, which would be a significant impact under CEQA and adverse effect under NEPA. If protected trees are to be removed, implementation of Mitigation Measure BIO-4 would be required to ensure compliance with city ordinances. The biological consequence of removing or trimming urban trees would be less than significant under CEQA and a no adverse effect under NEPA with implementation of Mitigation Measure BIO-4. | See discussion under Build Alternative 1. | Alternative 3 could result in potentially significant impacts/adverse effects to nesting birds or roosting bats if construction activities remove vegetation where nesting birds are present or affect structures or vegetation used by special-status bat species. | Alternative 4 could result in potentially significant impacts/ adverse effects to nesting birds or roosting bats if construction activities remove vegetation where nesting birds are present or affect structures or vegetation used by special-status bat species. | **TSM Alternative:** None required.<br><br>**Alternatives 1 through 4:**<br>**MM-BIO-1: Avoid and Minimize Project-Related Impact on Special-Status Bat Species**<br>In the maternity season (April 15 through August 31) prior to the commencement of construction activities, a field survey shall be conducted by a qualified biologist to determine the potential presence of colonial bat roosts (including palm trees) on or within 100 feet of the project boundaries. Should a potential roost be identified that will be affected by proposed construction activities, a visual inspection and/or one-night emergence survey shall be used to determine if it is being used as a maternity-roost.<br>To avoid any impacts on roosting bats resulting from construction activities, the following measures shall be implemented:<br>Bridges and Overpasses<br>• Should potential bat roosts be identified that will require removal, humane exclusionary devices shall be used. Instillation would occur outside of the maternity season and hibernation period (February 16-April 14 and August 16-October 30, or as determined by a qualified biologist) unless it has been confirmed as | **TSM Alternative:**<br>**CEQA:** No or minor impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | absent of bats. If the roost has been determined to have been used by bats, the creation of alternate roost habitat shall be required, with CDFW consultation. The roost shall not be removed until it has been confirmed by a qualified biologist that all bats have been successfully excluded.<br>• Should an active maternity roost be identified, a determination (in consultation with CDFW or a qualified bat expert) shall be made whether indirect effects of construction-related activities (i.e., noise and vibration) could substantially disturb roosting bats. This determination shall be based on baseline noise/vibrations levels, anticipated noise-levels associated with construction of the proposed project, and the sensitivity to noise-disturbances of the bat species present. If it is determined that noise could result in the temporary abandonment of a day-roost, construction-related activities shall be scheduled to avoid the maternity season (April 15 through August 31), or as determined by the biologist.<br>Trees<br>All trees to be removed as part of the project shall be evaluated for their potential to support bat roosts. The following measures would apply to trees to be removed that are determined to provide potential bat roost habitat by a qualified biologist.<br>• If trees with colonial bat roost potential require removal during the maternity season (April 15 through August 31), a qualified bat biologist shall conduct a one-night emergence survey during acceptable weather conditions (no rain or high winds, night temperatures above 52˚F) or if conditions permit, physically examine the roost for presence or absence of bats (such as with lift equipment) before the start of construction/removal. If the roost is determined to be occupied during this time, the tree shall be avoided until after the maternity season when young are self-sufficiently volant.<br>• If trees with potential colonial bat roost potential require removal during the winter months when bats are in torpor, a state in which the bats have significantly lowered their physiological state, such as body temperature and metabolic rate, due to lowered food availability. (October 31 through February 15, but is dependent on specific weather conditions), a qualified bat biologist shall physically examine the roost if conditions permit for presence or absence of bats (such as with lift | |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | equipment) before the start of construction. If the roost is determined to be occupied during this time, the tree shall be avoided until after the winter season when bats are once again active.<br>• Trees with potential colonial bat habitat can be removed outside of the maternity season and winter season (February 16 through April 14 and August 16 through October 30, or as determined by a qualified biologist) using a two-step tree trimming process that occurs over 2 consecutive days. On Day 1, under the supervision of a qualified bat biologist, Step 1 shall include branches and limbs with no cavities removed by hand (e.g., using chainsaws). This will create a disturbance (noise and vibration) and physically alter the tree. Bats roosting in the tree will either abandon the roost immediately (rarely) or, after emergence, will avoid returning to the roost. On Day 2, Step 2 of the tree removal may occur, which would be removal of the remainder of the tree. Trees that are only to be trimmed and not removed would be processed in the same manner; if a branch with a potential roost must be removed, all surrounding branches would be trimmed on Day 1 under supervision of a qualified bat biologist and then the limb with the potential roost would be removed on Day 2.<br>• Trees with foliage (and without colonial bat roost potential), such as sycamores, that can support lasiurine bats, shall have the two-step tree trimming process occur over one day under the supervision of a qualified bat biologist. Step 1 would be to remove adjacent, smaller, or non-habitat trees to create noise and vibration disturbance that would cause abandonment. Step 2 would be to remove the remainder of tree on that same day. For palm trees that can support western yellow bat (the only special-status lasiurine species with the potential to occur in the project area), shall use the two-step tree process over two days. Western yellow bats may move deeper within the dead fronds during disturbance. The two-day process will allow the bats to vacate the tree before removal.<br>**MM BIO-2: Avoid Impacts on Nesting Birds (including raptors)**<br>To avoid any impacts on migratory birds, resulting from construction activities that may occur during the nesting season, March 1 through August 31, the following measure shall be implemented: | |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | • A qualified biologist shall conduct a preconstruction survey of the proposed construction alignment with a 150-foot buffer for passerines and 500-feet for raptors around the site. This preconstruction survey shall commence no more than 3 days prior to the onset of construction, such as clearing and grubbing and initial ground disturbance.<br>• If a nest is observed, an appropriate buffer shall be established, as determined by a qualified biologist, based on the sensitivity of the species. For nesting raptors, the minimum buffer shall be 150 feet. The contractor shall be notified of active nests and directed to avoid any activities within the buffer zone until the nests are no longer considered to be active by the biologist.<br>**MM BIO-3: Jurisdictional Waters**<br>Any work resulting in materials that could be discharged into jurisdictional features shall adhere to strict best management practices (BMPs) to prevent potential pollutants from entering any jurisdictional feature. Applicable BMPs to be applied shall be included in the Stormwater Pollution Prevention Plan and/or Water Quality Management Plan and shall include, but not be limited to, the following BMPs as appropriate:<br>• Containment around the site shall include use of temporary measures such as fiber rolls to surround the construction areas to prevent any spills of slurry discharge or spoils recovered during the separation process;<br>• Downstream drainage inlets shall be temporarily covered to prevent discharge from entering the storm drain system;<br>• Construction entrances/exits shall be properly set up so as to reduce or eliminate the tracking of sediment and debris offsite by including grading to prevent runoff from leaving the site, and establishing "rumble racks" or wheel water points at the exit to remove sediment from construction vehicles;<br>• Onsite rinsing or cleaning of any equipment shall be performed in contained areas and rinse water shall be collected for appropriate disposal;<br>• Use of a tank on work sites to collect the water for periodic offsite disposal;<br>• Soil and other building materials (e.g., gravel) stored onsite shall be contained and covered to prevent contact with stormwater and offsite discharge; and | |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | • Water quality of runoff shall be periodically monitored before discharge from the site and into the storm drainage system.<br><br>**MM BIO-4: A Project Tree Report Shall Be Approved by the City of Los Angeles and City of San Fernando**<br>Prior to construction, the contractor shall review the approved alternative alignment to determine whether any trees protected by the City of Los Angeles Tree Ordinance 177404 and City of San Fernando Comprehensive Tree Management Program Ordinance (Ordinance No. 1539) will be removed or trimmed. A tree report must be prepared, by a qualified arborist, for the project and approved by each city. Trees approved for removal (or replacement) shall be done in accordance to the specifications outlined in the city ordinances. | |
| Operation | The TSM Alternative emphasizes transportation systems upgrades, which may include relatively low-cost transit service improvements, such as increased bus frequencies. Because the buses would operate along existing roadways in a developed urban area, no adverse operational impacts or effects on ecosystems/biological resources are expected to occur. | The project is planned within an existing urban neighborhood and regional commercial setting, and wildlife species in the area are urban-tolerant. Operation of this alternative would result in no impact/no effect on biological resources in the study area. | See discussion for Alternative 1. | Installation of the overhead catenary system lines for the LRT Alternative would potentially have an impact on avian species by increasing line collisions and electrocution risks. However, the project is planned within an existing urban area, and wildlife species in the area are urban-tolerant. | See discussion for Alternative 3. | **TSM, Alternatives 1 through 4:** None required. | **TSM Alternative:**<br>**CEQA:** No or less-than-significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| Cumulative | The TSM Alternative would result in no or very minor construction impacts/effects and no operational impacts or effects. As a consequence, it would not contribute to any significant cumulative impacts. | Any biological resources impacts due to the build alternatives would be mitigated with implementation of proposed mitigation measures. The related projects are also expected to result in no or minimal impacts on biological resources for similar reasons. Implementation of the build alternatives would not result in or contribute to significant cumulative impacts on regional flora and fauna. | See discussion for Build Alternative 1. | See discussion for Build Alternative 1. | See discussion for Build Alternative 1. | **TSM, Alternatives 1 through 4:** None required. See mitigation measures BIO-1 through BIO-4 in the construction discussion two rows above. | **TSM Alternative:**<br>**CEQA:** No or less-than-significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| **Water Resources/Hydrology and Water Quality** | | | | | | | |
| Construction | Any construction activities required under the TSM Alternative would be minimal (e.g., construction of bus stop amenities, signage, and minor roadway improvements); therefore, no or very minor construction impacts/effects would occur. | **Water Quality:** Construction of Alternative 1 could include reconstruction of sidewalks, paving, and striping, which could result in an increase in surface water pollutants such as sediment, oil and grease, and miscellaneous wastes. Increased turbidity and other pollutants resulting from construction-related discharges can ultimately introduce compounds toxic to aquatic organisms, increase water temperature, and stimulate the growth of algae. Delivery, handling, and storage could increase the risk of stormwater contamination. A stormwater pollution prevention plan (SWPPP) would be prepared to minimize contact of construction materials, equipment, and maintenance supplies with stormwater.<br><br>**Stormwater and Drainage:** Use of groundwater would be minimal and temporary. Construction activities could result in increased erosion. Temporary drainage facilities could be required to redirect runoff from work areas. | See discussion for Alternative 1. | **Water Quality:** Because Alternative 3 also includes the construction of a new MSF and the relative area of soil disturbance would be greater to install the tracks and construct the stations, the potential for water quality degradation is greater than for the BRT alternatives. However, the General Construction Permit would still apply and a SWPPP would be developed. The SWPPP would specify BMPs to ensure that water quality standards or waste discharge requirements are not violated even for a larger area of disturbance. | Construction of the LRT Alternative would result in the same impacts as those described above for Alternative 3 with the exceptions pertaining to groundwater supplies and recharge.<br><br>**Groundwater:** Dewatering would likely be required for the underground stations and could potentially be required for utility relocation or replacement depending on local groundwater levels. Adherence to dewatering requirements of the Los Angeles RWQCB, and minimal water use during construction would ensure that impacts on groundwater would be less than significant under CEQA and the effects would not be adverse under NEPA. | **TSM, Alternatives 1 through 4**<br>None Required. | **TSM Alternative:**<br>**CEQA:** No or less than significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| Operation | Given that the bus vehicle miles traveled are not expected to substantially increase and given the possibility that operational improvements may increase bus patronage with a corresponding decrease in passenger car vehicle miles traveled, a significant impact on water quality is not expected. | Operational impacts on water quality due to Alternative 1 would be the same as existing conditions because the project would result in a negligible change in impervious area and there would be no major sources of new pollutants. | See discussion for Build Alternative 1. | Operational impacts on water quality for Alternative 3 would be the same as existing conditions because the project would result in very minor increases in the amount of impervious area. | Operational impacts of Alternative 4 would be the same as Alternative 3, described above, with the exception that there is a potential for flooding at the underground stations proposed under the LRT Alternative. | **TSM, Alternatives 1 through 4**<br>None Required. | **TSM Alternative:**<br>**CEQA:** No or less than significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| Cumulative | The TSM Alternative would not result in adverse water resources, hydrological, or water quality impacts. Therefore, it would not result in any meaningful contributions to cumulative impacts in these areas. | Adherence to regulatory and permit requirements would minimize the proposed and related project's adverse water quality impacts. Therefore, there would be a less than significant cumulative impact on water quality as a result of project implementation. | See discussion for TSM Alternative | See discussion for TSM Alternative | See discussion for TSM Alternative | **TSM, Alternatives 1 through 4**<br>None Required. | **TSM, Alternatives 1 through 4:**<br>**CEQA:** No significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| **Safety and Security** | | | | | | | |
| Construction | Given the minor amount of construction that would occur under this alternative and the fact that construction sites would be secured to prevent tampering and vandalism, construction impacts/effects would be minor. | Motorists, pedestrians, and bicyclists would experience additional safety hazards during construction of Alternative 1. Lane closures, traffic detours, and designated truck routes may be required, which could adversely affect emergency vehicle response times. Maintaining an adequate level of signage, construction barriers, and supervision of trained safety personnel as part of the construction team would ensure that pedestrian, bicyclist, and motorist safety is maintained during construction. | Construction effects would be the same as those anticipated to occur under Alternative 1 – Curb-Running BRT. | Construction effects would be greater than Alternative 1 due to the more extensive construction activities. | Construction of Alternative 4 may have temporary adverse effects on public safety and security in the study area. | **TSM Alternative:** None required.<br><br>**Alternatives 1 through 4:**<br>**MM-SS-1:** Alternate walkways for pedestrians shall be provided around construction staging sites in accordance with American with Disability Act (ADA) requirements.<br>**MM-SS-2:** All pedestrian and bicyclist detour locations around staging sites shall be signed and marked in accordance with the Manual on Uniform Traffic Control Devices "work zone" guidance, and other applicable local and state requirements.<br>**MM-SS-3:** Work plans and traffic control measures shall be coordinated with emergency responders to limit effects to emergency response times. | **TSM Alternative:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| Operation | Implementation of the TSM Alternative is not expected to result in substantial increased risk of accidents or collisions, and no substantial adverse or significant impacts are anticipated. | **Pedestrian, Vehicle, and Bicycle Safety:** The removal of Class II bike lanes or replacement with shared lanes would increase the potential for conflicts between bicyclists and motor vehicles, reducing safety, which would be a potentially adverse effect and significant impact.<br><br>**Security:** The Curb-Running BRT Alternative is not expected to result in a substantial increase in crime and any adverse effects on security are expected to be minor. | **Pedestrian, Vehicle, and Bicycle Safety:** Alternative 2 would result in impacts on pedestrian sidewalk safety, bicycle safety due to the removal of existing bike lanes, and potential impacts on emergency vehicle response time due to turn restrictions and the increased congestion resulting from the removal of mixed-flow travel lanes. Consequently, the adverse safety effects of Alternative 2 could be significant. | See discussion for Alternative 2. | See discussion for Alternative 2. Pedestrian, bicyclist and motor vehicle safety issues apply mostly to proposed at-grade stations and less to underground LRT facilities. | **TSM Alternative:** None required.<br><br>**Alternatives 1 through 4:**<br>**MM-SS-4:** All stations shall be illuminated to avoid shadows and all pedestrian pathways leading to/from sidewalks and parking facilities shall be well illuminated. In addition, lighting would provide excellent visibility for train operators to be able to react to possible conflicts, especially to pedestrians crossing the tracks.<br>**MM-SS-5:** Proposed station designs shall not include design elements that obstruct visibility or observation nor provide discrete locations favorable to crime; pedestrian access to at-grade stations shall be at ground-level with clear sight lines.<br>**MM-SS-6:** Sidewalk widths shall be designed with the widest dimensions feasible in conformance with the Los Angeles/Metro's adopted "Land Use/Transportation Policy," and with widths exceeding 10 feet;<br>Minimum widths shall not be less than those allowed by the State of California Title 24 access requirements, or the Americans with Disability Act design recommendations. Section 1113A of Title 24 states that walks and sidewalks shall be a minimum of 48 inches (1,219 mm) in width, except that walks serving dwelling units in covered multi-family dwelling buildings may be reduced to 36 inches (914 mm) in clear width except at doors;<br>Accommodating pedestrian movements and flows shall take priority over other transportation improvements, including | **TSM Alternative:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Significant impact<br>**NEPA:** Potentially adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | automobile access; physical improvements shall ensure that all stations are fully accessible as defined in the Americans with Disabilities Act.<br>**MM-SS-7:** Adequate pedestrian queuing and refuge areas and wide crosswalks shall be provided in areas immediately around proposed stations to facilitate pedestrian mobility.<br>**MM-SS-8:** Metro shall coordinate and consult with the LAFD, Los Angeles Police Department (LAPD), and Los Angeles County Sheriff's Department (LASD) to develop safety and security plans for the proposed alignment, parking facilities, and station areas.<br>**MM-SS-9:** Fire separations shall be provided and maintained in public occupancy areas. Station public occupancy shall be separated from station ancillary occupancy by a minimum 2-hour fire-rated wall. The only exception is that a maximum of two station agents, supervisors, or information booths may be located within station public occupancy areas when constructed of approved noncombustible materials and limited in floor area to 100 square feet.<br>**MM-SS-10:** For portions of the alignment where pedestrians and/or motor vehicles must cross the tracks, Metro shall prepare grade crossing applications in coordination with the California Public Utilities Commission (CPUC) and local public agencies, such as LADOT, City of Los Angeles Bureau of Engineering, and the City and County of Los Angeles Fire Departments. Crossings will require approval from the CPUC and will meet applicable CPUC standards for grade crossings.<br>**MM-SS-11:** All proposed LRT stations and related parking facilities shall be equipped with monitoring equipment, which would primarily consist of video surveillance equipment to monitor strategic areas of the LRT stations and walkways, and/or be monitored by Metro security personnel on a regular basis.<br>**MM-SS-12:** Metro shall implement a security plan for LRT operations. The plan shall include both in-car and station surveillance by Metro security or other local jurisdiction security personnel.<br>**MM-SS-13:** Light rail vehicles shall be provided with front and rear safety fenders to increase light rail vehicle safety and minimize or prevent the potential for pedestrians to contact the vehicle coupler and/or fall under the LRT. | |

| Affected Resource | Effects/Impacts: TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | | | | | | **MM-SS-14 (Alternative 4):** To reduce potential risk of collisions between LRTs and automobiles on the street portion of Alternative 4, Metro shall coordinate with the CPUC, City and County of Los Angeles traffic control departments, City of Los Angeles Bureau of Engineering, and the City and County of Los Angeles Fire Departments and comply with the Federal Highway Administration's Manual on Uniform Traffic Control Devices for signing and pavement marking treatments.<br>**MM-SS-15 (Alternative 4):** The Metro Fire/Life Safety Committee has developed standard safety-related design criteria to ensure safe and adequate LRT operations in and around LRT underground stations. These criteria, which shall be adhered to, include:<br>1.Fire alarm protection within the station area;<br>2.A minimum of two fire emergency routes from each proposed station;<br>3.Emergency ventilation and lighting;<br>4.Communication systems between adjoining fire agencies; and<br>5.A methane detection system for each proposed station.<br>**MM-SS-16 (Alternative 4):** Building construction for underground stations would not be less than Type I Construction, as defined in the Uniform Building Code (UBC). Type I Construction is a category of building construction that sets forth design requirements that provide for safety features such as ventilation, additional egress routes, lighting, etc.<br>**MM-SS-17 (Alternative 4):** Proposed stations having more than two levels below grade or more than 80 feet to the lowest occupied level from grade shall require protected level separation or other protection features to provide safe egress to the exits.<br>**MM-SS-18 (Alternative 4):** The diverse needs of the traveling public, including senior citizens, disabled citizens, and low-income citizens, shall be addressed through a formal educational and outreach campaign. The campaign shall target these diverse community members to educate them on proper system use and benefits of LRT ridership. | |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| Cumulative Impacts | Because the TSM Alternative would consist of low-cost transit service improvements and very minor physical improvements, which could have a beneficial operational effect on congestion, and no or minimal other safety and security impacts, it would not contribute to any significant adverse safety and security cumulative impacts. | **Pedestrian, Vehicle, and Bicycle Safety:** Implementation of Alternative 1 would result in impacts, after mitigation, on bicycle safety due to the removal of existing bike lanes. Consequently, the adverse safety effects of Alternative 1 combined with the effects of other projects in the study area that reduce bicycle access and safety could be cumulatively significant. | **Pedestrian, Vehicle, and Bicycle Safety:**Alternative 2 would result in impacts, after mitigation, on pedestrian sidewalk safety, bicycle safety due to the removal of existing bike lanes, and potential impacts on emergency vehicle response time due to turn restrictions and the increased congestion resulting from the removal of mixed-flow travel lanes. Consequently, the adverse safety effects of Alternative 2 combined with the effects of other projects in the study area that decrease sidewalk width, increase traffic congestion, or reduce bicycle access and safety could be cumulatively significant. | **Pedestrian, Vehicle, and Bicycle Safety:** Alternative 3 would result in impacts, after mitigation, on pedestrian sidewalk safety, bicycle safety due to the removal of existing bike lanes, and potential impacts on emergency vehicle response time due to turn restrictions and the increased congestion resulting from the removal of mixed-flow travel lanes. Consequently, the adverse safety effects of Alternative 3 combined with the effects of other projects in the study area that reduce sidewalk widths, increase congestion, or reduce bicycle access and safety, could be cumulatively significant. | **Pedestrian, Vehicle, and Bicycle Safety:** Alternative 4 would result in impacts, after mitigation, on pedestrian sidewalk safety, bicycle safety, and emergency vehicle response time. Consequently, the adverse safety effects of this alternative, combined with the effects of other projects in the study area that reduce sidewalk widths, increase congestion, or reduce bicycle access and safety, could be cumulatively significant. | **TSM Alternative:** None required.<br><br>**Alternatives 1 through 4:** MM-SS-1 through MM-SS-13 listed above | **TSM Alternative:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Significant impact<br>**NEPA:** Adverse effect |
| **Parklands and Community Facilities** | | | | | | | |
| Construction | Given the very limited extent of potential physical improvements, construction activities would likely have no or very minimal impacts on any nearby parklands and community facilities. | The Curb-Running BRT Alternative would not result in the physical acquisition, displacement, or relocation of parklands and community facilities to implement the proposed transportation improvements. Construction activities could result in a range of impacts on nearby parklands and community facilities including air quality, noise, visual, and traffic impacts. | See discussion for Build Alternative 1. | More extensive construction would be required to construct Alternative 3 facilities, which would include the OCS, TPSSs, and an MSF, than would be required for the BRT alternatives. | Alternative 4 would require the most extensive construction of the four build alternatives because of the subway portion of the alignment. The LRT Alternative would also include construction of OCS, TPSSs, and MSF structures. Those structures or facilities would not be required for the BRT alternatives. As a consequence, Alternative 4 would result in the greatest construction impacts on parklands and community facilities, compared to the other alternatives,. | **TSM Alternative:** None required.<br>**Alternatives 1 through 4:** See the Transportation, Transit, Circulation, and Parking; Visual Quality and Aesthetics; Air Quality; Noise and Vibration; and Safety and Security sections of this table for a list of mitigation measures that would mimize construction impacts, including impacts related to parklands and community facilities. | **TSM Alternative:**<br>**CEQA:** Less than significant or beneficial impact<br>**NEPA:** No adverse effect or beneficial effect<br><br>**Alternative 1:**<br>**CEQA:** potentially significant (air quality)<br>**NEPA:** No adverse effects<br><br>**Alternative 2:**<br>**CEQA:** Less-than-significant; significant (air quality)<br>**NEPA:** No adverse effect<br><br>**Alternative 3:**<br>**CEQA:** Less-than-Significant; significant (air quality)<br>**NEPA:** No adverse effect; adverse effect (air quality)<br><br>**Alternative 4:**<br>**CEQA:** Less-than-Significant; significant (air quality)<br>**NEPA:** No adverse effect; adverse effect (air quality) |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| Operation | No right-of-way acquisitions would be required and this alternative would not result in the physical acquisition, displacement, or relocation of parklands and community facilities, or result in the substantial disturbance of these facilities from noise, air quality, traffic, or visual impacts. | Operation of curb-running buses is not expected to result in substantial noise, air quality, traffic, or visual impacts on parklands and community facilities.<br>It is not expected that any induced growth due to this alternative would substantially increase the demand for parklands and community facilities and require the construction of new facilities to meet that demand. Other operational impacts, such as noise impacts, are expected to be less than significant. | Operational impacts would be the same as those described above for Alternative 1. However, under this alternative, unlike Alternative 1, the median BRT lanes would be barrier separated from adjacent mixed-flow traffic lanes. As a consequence of the reduced access and because of the increased congestion that would occur along the corridor due to the reduction in the number of mixed-flow lanes, impacts on emergency vehicle access within the corridor would be potentially significant. Unless otherwise prohibited, U-turns would be allowed from signalized left-turn lanes on Van Nuys Boulevard; therefore, vehicles that need to turn left to access parklands and community facilities would continue to have access through U-turns from signalized left-turn lanes. | The operational impacts of Alternative 3 would be the same as those described for Alternative 2. with the exception being that Alternative 3 would result in higher noise levels and greater impacts on nearby land uses than would occur under the BRT alternatives described above. | The operational impacts of Alternative 4 would be the same as those described above for Alternative 3., except the operational noise and traffic impacts would be less than Alternative 3 because the subway portion (south of Sherman Way to Parthenia Street) of the Alternative 4 alignment would avoid the at-grade impacts of Alternative 3 for that section of the alignment. | **TSM Alternative:** None required.<br>**Alternatives 1 through 4:** See the Transportation, Transit, Circulation, and Parking; Visual Quality and Aesthetics; Air Quality; Noise and Vibration; and Safety and Security sections of this table for a list of mitigation measures that would mimize operational impacts, including impacts related to parklands and community facilities.<br>See Chapter 3, Transportation, Transit, Circulation, and Parking; Section 4.5, Visual Quality and Aesthetics; Section 4.6, Air Quality; Section 4.8, Noise and Vibration; and Section 4.14, Safety and Security. | **TSM Alternative:**<br>**CEQA:** Less than significant or beneficial impact<br>**NEPA:** No adverse effect or beneficial effect<br><br>**Alternative 1:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect<br><br>**Alternative 2:**<br>**CEQA:** Less than significant impact; significant (emergency vehicles)<br>**NEPA:** Adverse effect (emergency vehicles)<br><br>**Alternative 3:**<br>**CEQA:** Less than significant impact; significant (emergency vehicle access and visual impacts on sensitive viewers)<br><br>**NEPA:** Not adverse; adverse (emergency vehicle access and visual impacts on sensitive viewers)<br><br>**Alternative 4:**<br>**CEQA:** Less than significant impact; significant (emergency vehicle access and visual impacts on sensitive viewers)<br>**NEPA:** Not adverse; adverse (emergency vehicle access and visual impacts on sensitive viewers) |
| Cumulative | The TSM Alternative would have no or negligible adverse effects on parklands and community facilities. As a consequence, the TSM Alternative would not contribute in any appreciable way to cumulative impacts on parklands and community facilities that might occur due to other projects in the study area. | Alternative 1 would result in no impacts related to the physical acquisition, displacement, or relocation of parkland and community facilities. During construction, the build alternatives could result in short and temporary noise, air quality, traffic, and visual impacts from construction activities and equipment; and reduced access and delayed emergency response resulting from temporary sidewalk, lane, and road closures, and temporary removal of parking. The conversion of mixed-flow lanes to dedicated lanes or guideways for transit vehicles would increase congestion and reduce access for emergency vehicle response. This potentially substantial adverse effect and | See discussion for Alternative 1. | The cumulative impacts that could occur due to implementation of Alternative 3 would be the same as those described above for Alternative 1, except Alternative 3 would result in potentially significant operational visual impacts on sensitive viewers at parklands and community facilities; it could contribute to significant cumulative visual impact on these resources, unlike the BRT alternatives. | See discussion for Alternative 3. | **TSM Alternative:** None required<br>**Alternatives 1 through 4:** See the Transportation, Transit, Circulation, and Parking; Visual Quality and Aesthetics; Air Quality; Noise and Vibration; and Safety and Security sections of this table for a list of mitigation measures that would mimize cumulative impacts, including impacts related to parklands and community facilities. See Chapter 3, Transportation, Transit, Circulation, and Parking; Section 4.5, Visual Quality and Aesthetics; Section 4.6, Air Quality; Section 4.8, Noise and Vibration; and Section 4.14, Safety and Security. | **TSM Alternative:**<br>**CEQA:** No significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 and 2:**<br>**CEQA:** Significant impact<br>**NEPA:** Adverse effect<br><br>**Alternatives 3 and 4:**<br>**CEQA:** Significant impact (visual)<br>**NEPA:** Adverse effect (visual) |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | significant impact, combined with the impacts of other related projects in the project study area (e.g., housing and mixed-use development) that could increase traffic and consequently result in delayed emergency vehicle response, could be cumulatively considerable. | | | | | |
| **Historic, Archaeological, and Paleontological Resources** | | | | | | | |
| Historic Resources - Construction | The TSM Alternative would include relatively low-cost transit service improvements that would require only light construction equipment, and any construction would be of very short duration. Therefore, no construction or vibration effects on historic properties are anticipated. | Under Alternative 1, historic properties that have a potential to be affected by construction of proposed bus stations are far enough (more than 25 feet) away from proposed construction areas, such that any equipment used would not exceed the FTA damage risk vibration limits. Therefore, this alternative would not result in adverse effects on any historic properties during construction. | The construction or upgrading of the stations and BRT guideway would not involve any changes to individual properties. Additionally, under Alternative 2, most of the historic properties within the Area of Potential Effects (APE) that have a potential to be affected by the construction of proposed bus stations are located far enough (more than 25 feet) away from the proposed construction areas such that any equipment used would not exceed the FTA damage risk vibration limits. The one historic property located less than 25 feet away from a proposed BRT stop is made of reinforced concrete construction, and can therefore withstand vibration levels of 0.5 in/sec peak particle velocity (PPV). | The construction of the 28 stations and two of the three possible MSF sites would not involve any changes to individual properties. However, development of one of the MSF sites would require the acquisition and demolition of one historic property. One historic property is located less than 25 feet away from a proposed stop, but is made of reinforced concrete construction and can therefore withstand vibration levels of 0.5 in/sec PPV. | The construction of the stations and MSF under this alternative could affect two historic properties. Two properties would be demolished under Alternative 4 with MSF Option A, and one of those two properties would be demolished under Alternative 4 with MSF Options B and C. All of the historic properties that have a potential to be affected by the construction of proposed above-ground stations are located far enough (more than 25 feet) away from the proposed construction areas such that any equipment used would not exceed the FTA damage risk vibration limits. Pile drivers could be used in the construction of underground stations, which could produce vibration levels that could affect one historic property. However, the property is located far away enough that equipment used would not exceed the FTA damage risk vibration limits. | **TSM, Alternatives 1 through 4:** None required. | **TSM, Alternatives 1 and 2:**<br>**CEQA:** No significant impact<br>**NEPA:** No adverse effect<br>**Alternatives 3 and 4:**<br>**CEQA:** Significant impact<br>**NEPA:** Adverse effect |
| Historic Resources – Operation | The TSM Alternative would involve low-cost transit service improvements such as increased bus frequencies. These operational improvements would have no impact on any historic properties. | Visual impacts are the only impacts that could occur due to operation of Alternative 1. Under Criterion v, this alternative would not result in atmospheric or audible elements that could diminish significant historic features of any of the properties. There are 10 historic properties in the APE. Five of the properties have a potential to be affected due to the introduction of visual elements under Alternative 1; however, Alternative 1 would not cause an adverse effect on any historic properties. | See discussion for Alternative 1. Of the 10 historic properties in the APE, four have the potential to be affected under Alternative 2. | The operational effects that could occur to historic properties under Alternative 3 would be potential visual effects due to OCS, TPSS, and MSF facilities. There are 10 historic properties within the APE. There is the potential for operational effects due to the introduction of new visual elements on seven of the 10 properties. However, no adverse visual impacts would occur. | See discussion for Alternative 3. Alternative 4 would include an OCS, TPSS, and MSF facilities. There are 10 historic properties within the APE. There is the potential for operational effects due to the introduction of new visual elements on five of the 10 properties. However, no adverse visual impacts would occur. | **TSM, Alternatives 1 through 4:** None required. | **TSM, Alternatives 1 and 2:**<br>**CEQA:** No impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 3 and 4:**<br>**CEQA:** Less-than-Significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| Historic Resources – Cumulative | Under the TSM Alternative, there would be no adverse effects or impacts to historic properties; therefore, this alternative would not contribute to cumulative impacts on the properties identified as part of this study or as a result of any other planned projects within the region. | Under the Curb-Running BRT Alternative, there would be no adverse effects or impacts to historic properties; therefore, this alternative would not contribute to cumulative impacts on the properties identified as part of this study. | Under the Median-Running BRT Alternative, there would be no adverse effects or impacts to historic properties; therefore, this alternative would not contribute to cumulative impacts on these properties. | Due to the types of resources that are proposed for demolition, it does not appear that similar property types within the region would be demolished as a result of the related projects within the study area. Therefore, Alternative 3, in conjunction with the other related projects within the study area, is not expected to result in the cumulative loss of the remaining collection of similar property types. Therefore, no significant cumulative impacts to historic resources would occur. | Cumulative historic resource impacts are the same as those described for Alternative 3. | See construction mitigation measures two rows above. | **TSM, Alternative 1 and 2:**<br>**CEQA:** No significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 3 and 4:**<br>**CEQA:** Less-than-Significant impact<br>**NEPA:** No adverse effect |
| Archaeological Resources – Construction | The TSM Alternative would result in no or very minimal excavation activities. Thus, no construction impacts to archaeological resources are anticipated. | The Curb-Running BRT Alternative would involve excavation during station upgrades and sidewalk widening and removal. Archaeological sites 19-001124 and 19-002681 are both located in the footprint of this alternative, however, in areas that do not appear to involve construction. There is a low potential for ground-disturbing activities to expose and affect previously unknown significant cultural resources. Grading and trenching, as well as other ground-disturbing actions, have the potential to damage or destroy previously unidentified and potentially significant cultural resources within the project area. No human remains have been previously discovered in the APE, and no burials or cemeteries are known to occur within the APE. However, construction would involve earth-disturbing activities, and it is still possible that human remains may be discovered, possibly in association with archaeological sites. | Archaeological construction impacts are the same as those for Alternative 1. | Archaeological construction impacts are the same as those for Alternative 1, but with just archaeological site 19-002681 within the project area. No archaeological resources are recorded within the three proposed MSF sites, and thus Alternative 3 has a low potential for ground-disturbing activities to expose and affect previously unknown significant archeological resources. | The LRT Alternative would involve shallow excavations for bus stop platform construction in the median, station upgrades and sidewalk widening. Archaeological sites 19-001124 and 19-002681 are both located in the footprint of this alternative, however in areas that do not appear to involve construction. This alternative requires extensive excavations, although previous ground disturbance at tunnel, plaza, station, and sidewalk locations has probably destroyed subsurface archaeological resources. Other impacts are the same as those described under Alternative 3. | **Alternatives 3 and 4:**<br>**MM-AR-1:** Within the site areas and a 500-foot buffer zone, monitoring by a qualified archaeologist and culturally affiliated Native American shall be conducted within the project APE during all initial ground-disturbing activities. If, during cultural resources monitoring, the archaeologist determines that the sediments being excavated have been previously disturbed and are unlikely to contain significant cultural materials, the archaeologist shall request that monitoring be reduced or eliminated. If buried cultural resources such as flaked or ground stone, historic debris, or human remains are inadvertently discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find. Metro will notify the FTA, ACHP, and SHPO of those actions that it proposes to avoid, minimize, or mitigate adverse effects. Treatment measures for items that are not associated with human remains typically include development of avoidance strategies, capping with fill material, or mitigation of impacts through data recovery programs such as excavation or detailed documentation. Consulting parties will have 48 hours to provide their views on the proposed actions. The FTA will ensure that timely filed recommendations of consulting parties are taken into account prior to granting approval of the measures that Metro will implement to resolve adverse effects. Metro shall carry out the approved measures prior to resuming construction activities in the location of the discovery.<br>Metro will ensure that the expressed wishes of Native American individuals, tribes, and organizations are taken into consideration when decisions are made | **TSM Alternative:**<br>**CEQA:** No significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | regarding the disposition of Native American archaeological materials and records relating to Indian tribes.<br>**MM-AR-2:** If prehistoric or historic-era cultural materials are encountered during construction activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations. If the resources are determined to be significant, Cultural resource materials may include prehistoric resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, Metro will notify FTA and SHPO within 48 hours of the discovery to determine the appropriate course of action. Additional investigations may be required to mitigate adverse impacts from project implementation. These additional studies may include avoidance, testing, and evaluation or data recovery excavation.<br>**MM-AR-3:** If human remains are discovered that are thought to be Native American, Metro and the FTA shall consult with the affected Native American individuals, tribes, and organizations regarding the treatment of cultural remains and artifacts. These shall be treated in accordance with the requirements of the California Health and Safety Code. If the county coroner/medical examiner determines that the human remains are or may be of Native American origin, then the discovery shall be treated in accordance with the provisions of PRC 5097.98 (a) – (d), which provides for the notification of human remains and associated grave goods. | |
| Archaeological Resources – Operation | The operational improvements proposed under the TSM Alternatives would have no impact on archaeological resources or human remains. | Operation of the Curb-Running BRT Alternative would result in no impacts or effects on archaeological resources. | Operation of Alternative 2 would not result in any impacts or effects on archaeological resources. | Operation of Alternative 3 would result in no impacts or effects on archaeological resources. | The LRT Alternative would result in no operational impacts or effects on archaeological resources. | **TSM, Alternatives 1 through 4:** None required. | **TSM, Alternatives 1 through 4:**<br>**CEQA:** No significant impact<br>**NEPA:** No adverse effect |
| Archaeological Resources - Cumulative | Under the TSM Alternative, there would be no adverse effects or impacts to archaeological resources; therefore, this alternative would not contribute to cumulative impacts on the properties identified as part of this study. | Under the Curb-Running BRT Alternative, there would be no adverse effects or impacts to historic properties; therefore, this alternative would not contribute to cumulative impacts on the properties identified as part of this study. | Under the Median-Running BRT Alternative, there would be no adverse effects or impacts to archaeological resources or human remains; therefore, this alternative would not contribute to cumulative impacts on archaeological resources as part of this study. | Related and other proposed projects in the study area, i.e., the San Fernando Valley, could require earthmoving activities during construction that could disturb or result in the destruction of archaeological resources, a potentially significant impact. | This alternative would not contribute to cumulative impacts on archaeological resources as part of this project or as a result of any other planned projects within the region. However, although the LRT Alternative is not expected to result in impacts to previously | See construction mitigation measures two rows above. | **TSM Alternative:**<br>**CEQA:** No significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | However, under the Low-Floor LRT Alternative, the potential for encountering significant archaeological resources is considered to be low. | identified archaeological resources in the study area, this alternative has a higher potential for encountering significant archaeological resources than the other build alternatives because of the depth and extent of excavation proposed. | | |
| Paleontological Resources – Construction | Only shallow grading activities for bus stops amenities and signalization improvements may be required under the TSM Alternative. Typically these sorts of excavations are less than five feet deep and in California, Holocene valley deposits are typically more than eight feet deep. Assuming construction impacts are less than eight feet deep, there would be no construction impacts to paleontological resources associated with the TSM Alternative. | The Curb-Running BRT Alternative would involve excavation within the Quaternary alluvium during station upgrades and sidewalk widening and removal. All earthmoving activities are anticipated to be restricted to the shallow, surficial sediments, which are too young in age to contain fossils. This alternative would have no impact on paleontological resources. | The Median-Running BRT Alternative would involve shallow excavation within the Quaternary alluvium during bus stop platform construction in the median, station upgrades, and sidewalk widening. These shallow earthmoving activities would not affect paleontological resources, since the sediments that would be disturbed by construction are too young in age to contain fossils. | Construction impacts would be the same as those described for the BRT alternatives. No paleontological resources are recorded within the three proposed MSF sites. Although there has been prior construction in these MSF sites, fossils in valley areas are located subsurficially. New impacts into native sediments for MSF sewer and water lines as well as for underground storage tanks may result in significant impacts/adverse effects to paleontological resources | The LRT Alternative would involve shallow excavations for bus stop platform construction in the median, station upgrades and sidewalk widening. There would be 14 stations, three of which would be underground. Shallow earthmoving activities would not affect paleontological resources, since the affected sediments are too young in age to contain fossils. However deeper excavations have the potential to significantly affect the paleontologically sensitive Quaternary older alluvium that underlies the surficial Quaternary alluvium at variable depths across the project area. Pleistocene fossils are known from the Quaternary older alluvium at depths between14 and 100 feet below the surface in the San Fernando Valley. No paleontological resources are recorded within the three proposed MSF sites. New impacts into native sediments for MSF sewer and water lines as well as for underground storage tanks may result in significant impacts to paleontological resources. | **TSM and Alternatives 1 through 3:**<br>**MM-PR-1:** Metro shall retain the services of a qualified paleontologist (minimum of graduate degree, 10 years of experience as a principal investigator, and specialty in vertebrate paleontology) to oversee execution of this mitigation measure. Metro's qualified principal paleontologist shall then develop a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) acceptable to the collections manager of the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County. Metro will implement the PRMMP during construction. The PRMMP will clearly demarcate the areas to be monitored and specify criteria. At the completion of paleontological monitoring for the proposed project, a paleontological resources monitoring report will be prepared and submitted to the Natural History Museum of Los Angeles County to document the results of the monitoring activities and summarize the results of any paleontological resources encountered.<br>The PRMMP shall include specifications for processing, stabilizing, identifying, and cataloging any fossils recovered as part of the proposed project. Metro's qualified principal paleontologist shall prepare a report detailing the paleontological resources recovered, their significance, and arrangements made for their curation at the conclusion of the monitoring effort.<br>**Alternative 4:**<br>**MM-PR-2:** Prior to the start of construction a qualified Principal Paleontologist shall prepare a Paleontological Mitigation Plan (PMP) that includes the following requirements:<br>• All project personnel involved in ground-disturbing activities shall receive paleontological resources awareness training before beginning work.<br>• Excavations, excluding drilling, deeper than 8 feet below the current surface in the Quaternary alluvium shall be periodically spot checked to determine when older sediments conducive to fossil preservation are encountered. Once the | **TSM, Alternatives 1 and 2:**<br>**CEQA:** No significant impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 3 and 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | | | paleontologically sensitive older alluvium is reached, a qualified paleontologist shall perform full-time monitoring of construction. Should sediments in a particular area be determined by the paleontologist to be unsuitable for fossil preservation, monitoring shall be suspended in those areas. A paleontologist shall be available to be on call to respond to any unanticipated discoveries and may adjust monitoring based on the construction plans and field visits.<br>• Sediment samples from the Quaternary older alluvium shall be collected and screened for microfossils.<br>• Recovered specimens shall be stabilized and prepared to the point of identification. Specimens shall be identified to the lowest taxonomic level possible and transferred to an accredited repository for curation along with all associated field and lab data.<br>• Upon completion of project excavation, a Paleontological Mitigation Report (PMR) documenting compliance shall be prepared and submitted to the Lead Agency under CEQA. | |
| Paleontological Resources – Operation | The operational improvements proposed under the TSM Alternative would have no impact on paleontological resources. | Operation of the Curb-Running BRT Alternative would result in no impacts or effects on paleontological resources. | Operation of Alternative 2 would not result in any impacts or effects on paleontological resources. | Operation of Alternative 3 would result in no impacts or effects on paleontological resources. | The LRT Alternative would result in no operational impacts or effects on paleontological resources. | **TSM, Alternative 1 through 4:** None required. | **TSM, Alternative 1 through 4:**<br>**CEQA:** No impact<br>**NEPA:** No adverse effect |
| Paleontological Resources – Cumulative | No impacts to paleontological resources would occur under the TSM Alternative; therefore, this alternative would not contribute to any cumulative paleontological resources impacts. | Under the Curb-Running BRT Alternative, there would be no adverse effects or impacts to paleontological resources; therefore, this alternative would not contribute to cumulative impacts on paleontological resources as part of this project or as a result of any other planned projects within the region. | Under the Median-Running BRT Alternative, there would be no adverse effects or impacts to paleontological resources; therefore, this alternative would not contribute to cumulative impacts on paleontological resources as part of this project or as a result of any other planned projects within the region. | Other related projects could require excavation to depths containing fossil bearing soils and could result in the destruction of fossil resources, a potentially significant impact. However, potential impacts to any paleontological resources that may be encountered during construction of Alternative 3 would be mitigated to a less-than-significant-level. | Impacts are the same as those described under Alternative 3. Only the subsurficial excavations of the LRT Alternative have the potential to affect fossils as this is the only build alternative with excavations planned in geologically sensitive units. | **TSM, Alternatives 1 and 2:** None required<br><br>**Alternative 3:** MM-HRPR-2 1 through and MM-HRPR-92<br><br>**Alternative 4:** MM-HRPR-1 through and MM-HRPR-92 | **TSM, Alternatives 1 and 2:**<br>**CEQA:** No impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 3 and 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| **Environmental Justice** | | | | | | | |
| Construction | Given the very limited extent of potential physical improvements, construction activities would likely have no or very minimal impacts on the social, economic, and physical conditions of the communities and neighborhoods in the project study area. These minor temporary effects are anticipated to affect all communities within the project study area comparably, regardless of the block groups' socioeconomic or demographic characteristics. | **Mobility and Access Impacts:**<br>Construction of curb-running BRT stations and the transit alignment would require temporary sidewalk, lane, and road closures, and temporary removal of parking. These closures could reduce pedestrian, bicycle, and vehicle access to areas along the project corridor. These temporary effects are anticipated to affect all communities within the project | Construction impacts would be the same as those described for Alternative 1. | Construction of Alternative 3 would be more extensive but impacts would be generally the same as those described for the BRT alternatives, with the following exceptions:<br><br>**Displacement of Businesses, Housing, and People:**<br>Alternative 3 would require full or partial acquisition of 65 to 90 parcels, depending on which MSF site is selected. The majority of the | Alternative 4 would require the most extensive construction of the four build alternatives because of the subway portion of the alignment. As a consequence, Alternative 4 would result in the greatest construction impacts compared to the other alternatives. | **TSM Alternative:** None required<br><br>**Alternatives 1 through 4:** See the following sections in this table for measures to reduce or avoid potential construction impacts on local communities, including environmental justice populations: Transportation, Transit, Circulation, and Parking; Real Estate and Acquisitions; Communities and Neighborhoods; Visual Quality and Aesthetics; Air Quality; Noise and Vibration; and Safety and Security. | **TSM Alternative:**<br>**NEPA:** No effect<br><br>**Alternatives 1 through and 4:**<br>**NEPA:** No disproportionately high and adverse effects on environmental justice populations would occur |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | study area and communities adjacent to the project study area comparably.<br><br>**Social and Economic Impacts:**<br>Construction activities would likely result in a decrease in accessibility to many businesses and could reduce on-street and off-street parking, which may negatively affect business activity levels because the number of customers may temporarily decline. Construction activities would take place throughout the project corridor, and the temporary decrease in accessibility would affect all businesses comparably.<br><br>**Physical Impacts:**<br>Construction activities could result in noise, dust, odors, and traffic delays. Local neighborhoods, businesses, and community facilities may be inconvenienced temporarily, and community activities could be disrupted by construction. Construction of Alternative 1 may also result in several visual impacts and temporary effects on public safety and security within the project study area.<br><br>Since the project would comply with regulatory requirements and measures would be implemented to mitigate construction impacts and because the potential effects are anticipated to affect all communities within the project study area comparably, regardless of the block groups' socioeconomic or demographic characteristics, Alternative 1 would not result in disproportionately high and adverse effects on minority or low-income populations with respect to construction. | | acquisitions would be from light manufacturing and commercial properties that are occupied by automobile repair, supply businesses, and other general commercial retail uses. These businesses are located in low-income and/or minority neighborhoods and therefore, the displacement impacts of Alternative 3 would be predominantly borne by an environmental justice population. However, within the larger surrounding urban area, it is anticipated that there would be enough available properties to accommodate most, if not all, of the displaced businesses. Additionally, all communities within the project study area would be affected and the impacts suffered by the environmental justice populations would not be appreciably more severe or greater in magnitude than the adverse effects that would be suffered by the non-environmental justice populations. | | | |

| Affected Resource | Effects/Impacts TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| Operation | **Mobility and Access Impacts:** The TSM Alternative would be expected to result in beneficial changes to existing mobility and access in the project study area. Therefore, the TSM Alternative would not result in any adverse mobility and access effects on minority or low-income populations.<br><br>**Social and Economic Impacts:** Under the TSM Alternative, enhanced bus frequencies would provide an increased availability of transit service, which could stimulate the local economy by facilitating access to local businesses. The additional bus service could result in a beneficial impact on low-income individuals that do not own a vehicle and that rely on public transportation. All businesses within the project study area would be affected comparably, regardless of socioeconomic or demographic characteristics. Therefore, the TSM Alternative would not result in disproportionate effects on, or fewer benefits for minority or low-income populations with respect to social and economic conditions.<br><br>**Physical Impacts:** This alternative would not achieve circulation improvements within the existing community that would be expected as a result of the proposed build alternatives. The existing and projected transportation deficiencies would be experienced comparably among local and regional travelers, regardless of socioeconomic or demographic characteristics. Therefore, the TSM Alternative would not result in effects on minority or low-income populations with respect to physical conditions. | **Mobility and Access Impacts:**<br>Alternative 1would enhance connections to public transportation within the project study area and across the region. The curb-running BRT would be available to all communities throughout the project study area as well as communities adjacent to the project study area, regardless of socioeconomic or demographic characteristics.<br><br>Under Alternative 1, the Metro Rapid 761 bus would no longer operate on Van Nuys Boulevard from north of San Fernando Road to Foothill Boulevard, a distance of 1.5 miles. This entire segment of roadway is adjacent to block groups containing minority and low-income populations. Metro Local Line 233, however, would continue to operate along the same segment of Van Nuys Boulevard. Passengers using Local Line 233 would be able to use the same method of payment as with Rapid 761, fares between the two lines are comparable, and riders who qualify for Metro transportation subsidy programs would be able to utilize the subsidy regardless of which line they are using. Therefore, Alternative 1 would not result in disproportionate effects on, or fewer benefits for minority or low-income with respect to availability of public transportation.<br><br>Under Alternative 1, curbside parking along the entire 9.2 miles (in the northbound and southbound directions) of the project corridor would be prohibited from early morning to early evening, which could affect vehicle access to businesses and community resources. However, available adjacent on-street parking and/or off-street parking areas can meet the weekday and weekend on-street parking demand for the area. | Operational impacts would be the same as those described for Alternative 1, with the following exceptions:<br><br>**Mobility and Access Impacts:** Implementation of Alternative 2 would require restrictions on motor vehicle movements, which would be required to accommodate the median-running BRT facilities and eliminate conflicts between BRT vehicles and other traffic on the roadway. Travelers along the project corridor would be similarly affected by prohibited left turn lanes, regardless of trip origin. Therefore, Alternative 2 would not result in disproportionate effects on, or result in fewer benefits for, minority or low-income populations with respect to prohibited left turns (and associated changes in access).<br><br>Current pedestrian movements across roadways at existing signal-controlled crosswalks would be maintained; however, other pedestrian crossings along Van Nuys Boulevard at unsignalized intersections would be prohibited to avoid potential conflicts between pedestrians and median-running BRT vehicles. However, adequate pedestrian facilities, sidewalks, and crosswalks would be provided to ensure access and safety. As a consequence, Alternative 2 would not result in disproportionate effects on, or fewer benefits for, minority or low-income populations with respect to pedestrian access.<br><br>Under Alternative 2, a barrier would be installed to prevent illegal pedestrian crossings of the BRT guideway. These barriers would not substantially affect access between the existing communities and neighborhoods in the project study area. Therefore, Alternative 2 would not result in disproportionately high and adverse effects on minority or low-income populations with respect to physical divisions. | The operational impacts of Alternative 3 would be the same as those described for Alternative 2, with the exceptions noted below:<br><br>**Changes in Pedestrian and Bicycle Access:** On Van Nuys Boulevard between the Metro Orange Line and El Dorado Avenue in the community of Pacoima, the existing 13-foot-wide sidewalks on each side of the roadway would be narrowed to 10 feet to accommodate the installation of the Low-Floor LRT/Tram facilities. These modifications are not expected to substantially interfere with pedestrian access along the project corridor. For that reason and because these effects are anticipated to affect all communities within the project study area comparably, regardless of the block groups' socioeconomic or demographic characteristics, Alternative 3 would not result in disproportionately high and adverse effects on minority or low-income populations with respect to changes in pedestrian access.<br><br>**Changes in Visual Character:** New median fences and OCS, in particular, would introduce additional vertical elements that could substantially change the existing visual character and quality within the project corridor, especially for residents, pedestrians, and bicyclists, who would be expected to have high viewer sensitivity to their surroundings. However, these proposed elements would be distributed relatively evenly throughout the project corridor. In addition, individuals traveling from outside the project study area would also be affected by these visual impacts. Therefore, Alternative 3 would not result in disproportionate visual effects on minority or low-income populations. | Operational impacts associated with Alternative 4 would be slightly greater those described for Alternative 3. | **TSM Alternative:** None required<br><br>**Alternatives 1 through 4:** See MM-CN-1 in the Communities and Neighborhoods section (Section 4.4)of this table as well as other measures in other sections of this EIS/EIR listed in the following sections of this table: Transportation, Transit, Circulation, and Parking; Real Estate and Acquisitions; Communities and Neighborhoods; Visual Quality and Aesthetics; Air Quality; Noise and Vibration; and Safety and Security. | **TSM Alternative:**<br>**NEPA:** No effect<br><br>**Alternatives 1 through and 4:**<br>**NEPA:** No disproportionately high and adverse effects on environmental justice populations would occur |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | Under Alternative 1, the existing Class II bike lanes along Van Nuys Boulevard north of Parthenia Street would be removed, which would be expected to affect all bicyclists regardless of socioeconomic or demographic characteristics.<br><br>Conversion of existing mixed-flow lanes to dedicated BRT lanes would decrease roadway capacity for mixed-flow traffic. As a consequence, this alternative would result in adverse effects on 16 of the 73 study intersections within the corridor, which could reduce access for emergency vehicle response or interfere with emergency evacuation plans. Traffic impacts are anticipated to affect all emergency calls or travelers within the project study area comparably, regardless of socioeconomic or demographic characteristics.<br>**Social and Economic Impacts:**<br>Alternative 1 would not result in disproportionate effects on, or result in fewer benefits for, minority or low-income populations with respect to improved economic conditions. Transit connectivity would be improved throughout the entire project corridor. Therefore, Alternative 1 would not result in disproportionate effects on, or fewer benefits for minority or low-income populations with respect to community cohesion.<br><br>**Physical Impacts:**<br>Alternative 1 would be designed in compliance with Metro design guidelines to ensure pedestrian, motorist, and bicyclist safety; however, the removal of existing Class II bike lanes would increase the potential for conflicts between bicyclists and motor vehicles. Because the changes to the Class II bike lanes along Van Nuys Boulevard would be expected to affect all bicyclists within an approximate four-mile radius comparably, regardless of | | **Safety Impacts and Other Physical Intrusions:**<br>Alternative 3 could result in a potential for collisions between pedestrians and Low-Floor LRT/Tram vehicles at median stations. The introduction of Low-Floor LRT/Tram vehicles into mixed-flow traffic lanes on San Fernando Road, just north of Wolfskill Street, could result in a potential for similar collisions at intersection pedestrian crossings. Illegal crossings by pedestrians could also result in potential safety hazards. Pedestrian traffic control and channelization techniques would be used to control pedestrian movements at intersections and encourage the use of designated pedestrian crossings. Metro would prepare grade crossing applications in coordination with local public agencies to further increase safety and reduce the potential for conflicts, accidents, and collisions. Therefore, Alternative 3 would not result in disproportionate effects on minority or low-income populations with respect to pedestrian safety. | | | |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | socioeconomic or demographic characteristics, disproportionately high and adverse effects on environmental justice populations are not anticipated. | | | | | |
| Cumulative | The TSM Alternative would not result in effects on minority or low-income populations; therefore, this alternative would not contribute to cumulative impacts on environmental justice communities. | Although Alternative 1 would not result in disproportionately high and adverse effects on minority or low-income populations, other planned or proposed projects in the corridor could. The potential for cumulative effects to occur due to those related projects in combination with implementation of Alternative 1 would depend on the location of the related projects and their proximity to environmental justice populations; the magnitude, timing, and duration of potential impacts; and whether measures could be implemented to reduce any adverse effects that might occur due to the related projects. | Cumulative impacts would be the same as those described for Alternative 1. | The cumulative impacts would be to the same as those that would occur under Alternatives 1 and 2 above, with the exception that under Alternative 3, displacement impacts would be borne by predominantly minority and low-income populations. Other related projects in the study area could also result in business and/or residential displacements that could be borne by predominantly environmental justice populations. However, relocation benefits and assistance would be provided to businesses displaced by the project and may also be provided to businesses displaced by related projects. Additionally, it is anticipated that a majority of displaced businesses and residents could be relocated within the project study area or in surrounding communities. | Cumulative impacts associated with Alternative 4 would be the same as those described for Alternative 3. | **TSM Alternative:** None required<br><br>**Alternatives 1 through 4:**<br>See MM-CN-1 in the Communities and Neighborhoods section (of this table as well as other measures listed in the following sections of this table: Transportation, Transit, Circulation, and Parking; Real Estate and Acquisitions; Communities and Neighborhoods; Visual Quality and Aesthetics; Air Quality; Noise and Vibration; and Safety and Security. | **TSM Alternative:**<br>**NEPA:** No effect<br><br>**Alternatives 1 through and 4:**<br>**NEPA:** Depending on the extent and significance of the impacts due to the related projects, there is a potential for disproportionately high and adverse cumulative effects on environmental justice populations |
| **Growth-Inducing Impacts** | | | | | | | |
| Induce substantial population growth in an area either directly or indirectly | Construction activities associated with this alternative would be minimal and no growth inducement impacts would occur.<br>Any temporary or long-term increases in employment that could directly occur would be small. The TSM Alternative would not directly induce substantial growth. Given the relatively minor service and other improvements that could occur and the fact the proposed project is located in a developed urban area, it is unlikely this alternative would indirectly induce any substantial growth. | The proposed increase in construction jobs would not result in substantial increases in project study area populations because there is a large pool of skilled and unskilled construction workers in Los Angeles County within commuting distance of the project. The potential increase in permanent employment would be relatively minor. Therefore, this alternative would not directly induce substantial residential or employment population growth. Also, the alternative would not indirectly induce growth that would substantially change existing land use and development patterns. | Impacts would be the same as those described for Alternative 1. | Construction impacts would be the same as impacts described for the BRT Alternatives. The anticipated increase in long-term employment would be relatively minor and would not result in a significant increase in the project study area population. Therefore, this alternative would not directly induce substantial residential or employment population growth. This alternative may indirectly result in growth along the corridor and within the project study area. However, it would not extend transit service to undeveloped areas and would be located in a developed urban area. Therefore, it would not indirectly induce growth that would substantially change existing land use and development patterns at the corridor level. | Construction impacts would be the same as impacts described for the BRT Alternatives. Direct impacts would be the same as those anticipated to occur under Alternative 3. Alternative 3 would not indirectly induce growth that would result in a substantial change in land use development patterns. | **TSM, Alternatives 1 through 4:** None required. | **TSM, Alternative 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |

| Affected Resource | Effects/Impacts TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| Cumulative Impacts | Since the TSM Alternative consists primarily of low-cost transit service improvements and would include only minor physical improvements to the transportation network, it would not induce growth and consequently would not contribute to any cumulative growth inducement effects. | This alternative would not include the development of new housing or businesses that would directly induce growth. Therefore, neither BRT alternative would directly contribute to cumulative growth inducement effects. However, proposed project improvements to the transit system and increases in transportation network efficiency and connectivity could be a catalyst for new development. The indirect growth inducement effects could contribute to the growth inducement effects of other infrastructure projects and new residential and business development projects. This induced growth could be substantial and result in significant adverse impacts. However, this cumulative induced growth is accounted for in local and regional plans. | Impacts would be the same as those described for Alternative 1. | The indirect growth inducement effects of the rail alternatives could contribute to the growth-inducement effects of other infrastructure projects and new residential and business development projects. This induced growth could be substantial and result in significant adverse impacts. However, this cumulative induced growth is accounted for in local and regional plans. | Impacts would be the same as those described for Alternative 3. | **TSM, Alternatives 1 through 4:** None required. | **TSM, Alternative 1 through 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| **Real Estate and Acquisitions** | | | | | | | |
| Construction | Construction of the physical improvements would not require any property acquisitions or result in displacement of existing uses. Therefore, no adverse impacts or effects associated with displacements or relocations would occur. | Alternative 1 would involve primarily dedication of the existing curb lanes to bus service. No new facilities beyond bus stop improvements would be required. All improvements associated with Alternative 1 would take place within the existing transportation ROW. Therefore, no impacts associated with acquisitions of property would occur under Alternative 1. | Alternative 2 would not require the permanent acquisition of any property along the project corridor because it would involve primarily dedication of the median lane to bus service. No new facilities beyond bus stop improvements would be required. All improvements associated with Alternative 2 would take place within the existing transportation ROW. | Alternative 3 could require between 65 and 90 acquisitions of properties, most of which would be full acquisitions. Most of the acquisitions that would be required are commercial or industrial properties (MSF Option A would require full acquisition of four residential units). Because the study area and surrounding urban area are almost entirely built out and given the number of existing buildings for sale or lease in the immediate area, it is expected that most of the businesses that would be displaced because of Alternative 3 would relocate to existing commercial buildings. Thus, it is not anticipated that construction of a substantial amount of new commercial development that could result in substantial adverse impacts on the environment would occur. | Alternative 4 could require between 110 and 120 acquisitions of properties, most of which would be full acquisitions. Most of the acquisitions that would be required are commercial or industrial properties (MSF Option A would require the full acquisition of four residential units). | **TSM, Alternatives 1 through 4:** Relocation assistance and compensation for displaced businesses and residences would be provided in compliance with existing laws. No measures beyond those required by law are proposed. | **TSM, Alternatives 1 and 2:**<br>**CEQA:** No impact<br>**NEPA:** No adverse effect<br><br>**Alternatives 3 and 4:**<br>**CEQA:** Less than significant impact<br>**NEPA:** No adverse effect |
| Cumulative | The TSM Alternative would not result in the acquisition and displacement of properties. Therefore, it would not contribute to any cumulative impacts. | Alternative 1 would not result in the acquisition and displacement of properties; therefore, it would not contribute to any cumulative impacts. | Alternative 2 would not result in the acquisition and displacement of properties; therefore, it would not contribute to any cumulative impacts. | It is anticipated that the majority of displaced businesses and residents could be relocated within the study area or in surrounding communities. In addition, it is not anticipated that relocated businesses or residences that would be displaced by the project | See discussion under Alternative 3. | **TSM, Alternatives 1 through 4:** None required. | **TSM, Alternative 1 through 4:**<br>**CEQA:** No impacts<br>**NEPA:** No adverse effects |

| Affected Resource | Effects/Impacts | | | | | Mitigation Measures | Level of Significance after Mitigation |
|---|---|---|---|---|---|---|---|
| | TSM Alternative | Alt. 1 – Curb-Running BRT | Alt. 2 – Median-Running BRT | Alt. 3 – Low-Floor LRT/Tram | Alt. 4 – LRT | | |
| | | | | would require construction of a substantial amount of commercial and industrial development or new housing that would result in substantial adverse indirect impacts. As a consequence, the proposed and related projects are not expected to result in substantial adverse cumulative real estate and acquisitions impacts. | | | |

Chapter 1
# Purpose and Need

## 1.1 History and Background

The East San Fernando Valley Transit Corridor has been studied extensively for more than 12 years. In 2000, the California State Legislature made funds available through a Traffic Congestion Relief Program (TCRP). The grant specified the following:

> Los Angeles-San Fernando Valley Transit Extension: (A) Build an East-West Bus Rapid Transit system in the Burbank-Chandler corridor, from North Hollywood to Warner Center. One hundred forty-five million dollars ($145,000,000). (B) Build a North-South corridor bus transit project that interfaces with the foregoing East-West Burbank-Chandler Corridor Project and with the Ventura Boulevard Rapid Bus Project. One hundred million dollars ($100,000,000). The lead applicant for both extension projects is the Los Angeles County Metropolitan Transportation Authority.[1]

### 1.1.1 San Fernando Valley North–South Transit Corridor Regional Significant Transportation Investment Study (2003)

In May 2003, the Los Angeles County Metropolitan Transportation Authority (Metro) Board received and filed staff's recommendation for the advancement of the *San Fernando Valley North/South Transit Corridor's, Regional Significant Transportation Investment Study (RSTIS)*. This study found that due to the geographic width (east-west distance) of the Valley, a single north/south transit corridor project would be of limited benefit to the community. The RSTIS recommended a series of bus efficiency improvements on five north/south corridors:

- On Reseda Boulevard, Sepulveda Boulevard, Van Nuys Boulevard, and Lankershim Boulevard/San Fernando Road in the San Fernando Valley.
- Adjacent to the Canoga Avenue corridor in the west San Fernando Valley. The corridor is located on a former rail right-of-way (ROW) jointly owned by Metro and the City of Los Angeles. Metro environmentally cleared that corridor, and construction was completed on the Metro Orange Line (MOL) Canoga Extension Project in July 2012.

### 1.1.2 LADOT East San Fernando Valley North/South Transit Corridors Bus Speed Improvement Project (2010)

In March 2010, LADOT completed a bus speed improvement study for the four East San Fernando Valley North/South Transit Corridors – Reseda, Sepulveda, Van Nuys, and Lankershim/San Fernando. The study recommended a range of near-term, mid-term, and long-term bus speed and service improvements, including a new interlined bus service for Van Nuys, signal timing adjustments, traffic striping improvements, street widenings, concrete bus pads, bridge widening, bus stop relocations, transit station enhancements, and a median busway on Van Nuys Boulevard.

[1] California State Legislature. 2000. *The Traffic Congestion Relief Act of 2000*. Chapter 4.5. Available: <http://www.catc.ca.gov/programs/tcrp/TCRP_Statutes.pdf>.

In April 2010, the Los Angeles City Council approved the study's recommendations and directed LADOT to 1) work with Metro to develop a scope, schedule, and budget for environmental clearance and public outreach for the three phases of the East San Fernando Valley/North South Rapidways Project; 2) include three busway alternatives for the Van Nuys Corridor between Burbank Boulevard and Plummer Street (median busway, median busway with grade separations at major streets, and median busway with grade separations and a tunnel segment between the Metro Orange Line and Vanowen Street); and 3) work with Metro to develop a scope, schedule, and budget for an Alternatives Analysis (AA) of expanded north–south passenger rail in the San Fernando Valley.

### 1.1.3 East San Fernando Valley Transit Corridor Alternative Analysis (2012)

In 2011, Metro authorized preparation of an AA, Draft Environmental Impact Statement/ Environmental Impact Report (EIS/EIR), and conceptual engineering for transit alternatives in the East San Fernando Valley Corridor. Building on the findings of the aforementioned previous studies, an AA was carried out and completed in December 2012.[2] The AA evaluated 26 build alternatives plus Transportation Systems Management (TSM) and No-Build Alternatives. Route segments were also evaluated to determine feasible alignments in the study area. A segment was deemed infeasible if the right-of-way (ROW) width was insufficient to accommodate the considered project modes, even with roadway widening or if a segment failed to contribute to a reasonable route alignment. Some segments that are considered crucial to maintain a viable alignment, like San Fernando Road between the Sylmar/San Fernando Metrolink Station and Van Nuys Boulevard, were considered feasible even if buses must operate in mixed-flow operation.

This study enabled Metro, the City of Los Angeles, and the City of San Fernando to evaluate a range of new public transit service alternatives that can accommodate future population growth and transit demand, while being compatible with existing land uses and future development opportunities. The study considered the Sepulveda Pass Corridor, which is another Measure R project, and the proposed California High Speed Rail Project. Both of these projects may be directly served by the East San Fernando Valley Transit Corridor Project. The Sepulveda Pass Corridor could eventually link the West Los Angeles area to the east San Fernando Valley and the California High Speed Rail Project via the project corridor. As part of the Alternatives Analysis, most of Sepulveda Boulevard was eliminated as an alignment option. As a result of the Alternatives Analysis, modal recommendations were for bus rapid transit (BRT) and light rail transit (LRT) to be carried forward for analysis in the Draft EIS/EIR.

#### 1.1.3.1 Draft EIS/EIR Scoping and Alternatives

During the March 2013–May 2013 Draft EIS/EIR scoping period, four public scoping meetings were held, and 258 scoping comments were received. Many of the comments reflected the following:

- Strong Preference for LRT;
- Support for bicycle facilities; and
- Opposition to a dedicated guideway south of the Metro Orange Line.

In June 2013, Metro held meetings with the Cities of Los Angeles and San Fernando to review the alternatives being analyzed in light of the scoping comments received, and the alternatives being carried

[2] The NEPA statute allows for incorporating relevant analysis into the current NEPA document, provided that the studies are, in most cases, not older than 5 years. The technical studies in the appendices of this Draft EIS/EIR, including the AA, is less than 5 years old as of the date of this publication. The analysis in most of the sections of this document builds upon the initial analysis in these technical documents.

forward for analysis in this Draft EIS/EIR were finalized for the Alternatives Analysis and refined following the scoping meetings based on public comment and further analysis. The refined alternatives were received by and filed with the Metro Planning and Programming Committee in November 2013.

As a result of the alternatives screening process and feedback received during the public scoping period, a curb-running BRT, median-running BRT, median-running Low-Floor LRT/Tram, and a median-running LRT, were identified as the four build alternatives, along with the Transportation Systems Management (TSM) and No-Build Alternatives to be carried forward for analysis in this Draft EIS/EIR.

In addition, based on scoping comments and further review of transit options, Metro is now considering a phased approach for the development of the East SFV Corridor in coordination with other planned transit projects in the southern end of the Corridor. Under this scenario, exclusive bus and/or rail guideways would be constructed between the MOL and San Fernando Road over a distance of 6.7 miles. Service would be provided south to Ventura Boulevard and north to the Sylmar/San Fernando Station in mixed-flow operation as a part of the current project. In the future, and in coordination with other planned projects, exclusive guideway bus or rail service could be extended to those areas.

#### 1.1.3.2 Southern Terminus Connection with the Sepulveda Pass Transit Corridor

Transit improvements along Van Nuys Boulevard will need to consider a future connection to a transit line in the Sepulveda Pass. Options in that corridor range from BRT in HOV/Express Lanes in the 1-405 Freeway to a full transit/highway tunnel extending under the Pass from the MOL to the future Metro Purple Line and/or Metro Expo Line Stations in West Los Angeles. Per Board direction, the East SFV Corridor is being analyzed for Public Private Partnership delivery method in conjunction with the Sepulveda Pass Transit Corridor Project.

Analysis of travel boardings on buses along the Van Nuys Boulevard shows very heavy transfer activity between the buses on Van Nuys Boulevard and the MOL. Ridership south of the MOL is approximately half of the ridership north of the MOL and it is therefore not warranted to extend exclusive guideways south of the MOL until sometime in the future when there is a connection through the Sepulveda Pass to the Westside.

In order to provide for this future connection, Metro is now identifying the MOL Van Nuys Station as the initial southern terminus of the East SFV Transit Corridor for exclusive bus and rail guideways.

## 1.2 Description of Project Area/Corridor

The East San Fernando Valley Transit Corridor Project alignment is located in the San Fernando Valley in the County of Los Angeles. Generally, the project study area extends from the City of San Fernando and the Sylmar/San Fernando Metrolink Station in the north to the Van Nuys Metro Orange Line Station within the City of Los Angeles in the south.[3] The eastern San Fernando Valley includes the two major north-south arterial roadways of Sepulveda and Van Nuys Boulevards, spanning approximately 10 to 12 miles and the major north/west arterial roadway of San Fernando Road.

[3] The study areas for the environmental impact analyses presented in this report may vary from this general study area, depending on the needs of the analyses.

Several freeways traverse or border the eastern San Fernando Valley. These include the Ventura Freeway (US-101), the San Diego Freeway (Interstate [I] 405), the Golden State Freeway (I-5), the Ronald Reagan Freeway (State Route [SR] 118), and the Foothill Freeway (I-210). The Hollywood Freeway (SR-170) is located east of the project area. In addition to Metro Local and Metro Rapid bus service, the Metro Orange Line (MOL) BRT service, the Metrolink Ventura Line commuter rail service, Amtrak inter-city rail service, and the Metrolink Antelope Valley Line commuter rail service are the major transit corridors that provide interregional trips in the area.

Land uses in the study area include neighborhood and regional commercial land uses, as well as government and residential land uses. Specifically, land uses in the study area include government services at the Van Nuys Civic Center, retail shopping along the project corridor, and medium- to high-density residential uses throughout the area. Notable land uses in the eastern San Fernando Valley include: The Village at Sherman Oaks, Sherman Oaks Hospital, Sherman Oaks Galleria (Photo 1-1), Panorama Mall, Whiteman Airport, Van Nuys Airport, Mission Community Hospital, Kaiser Permanente Hospital, Van Nuys Auto Row, and several schools (Valley College shown in Photo 1-2), youth centers, and recreational centers.

### Photo 1-1: Sherman Oaks Galleria


Source: Metro, 2016.

Photo 1-2: Los Angeles Valley College


Source: Metro, 2016.

## 1.2.1 Study Area Demographics

### 1.2.1.1 Existing Economic and Land Use Conditions

Socioeconomic indicators include: average household income, low income households, low vehicle ownership households, and transit dependent population per acre (see below for definitions). These indicators were based on the 2009-2013 American Community Survey (ACS) 5-year characteristics at the census tract level. These distributions were then applied to 2010 population and household Southern California Association of Governments (SCAG) Tier 2 control totals. Economic data including employment, and wage and payroll distribution estimates for 2010 were obtained from the SCAG Regional Transportation Plan (RTP) and the California Employment Development Department (EDD).

The 2010 TAZ level data from SCAG was used for the initial socio-economic analysis. More recent (2016) data has been collected and has been reviewed to determine whether any significant changes to study area demographics have occurred subsequent to the initial analyses conducted for this EIS/EIR. Data for this recent analysis was gathered from the Southern California Association of Governments (SCAG) and is based on their latest Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), Tier 2 forecasts for 2016 at the transportation analysis zone (TAZ) level. The 2016 data has been compared with the 2010 data to determine whether any significant changes have occurred over this time period.

For the overall Study Area and Corridor, the changes in population and households appear to be relatively small at less than 5.0 percent. For the overall Study Area, the employment change is also less than 5.0 percent, while the change for the overall Corridor is slightly higher at 7.3 percent, because of the greater concentration of employment within ¼ mile of the proposed transit line. In conclusion, the demographic data from 2016, compared to that from 2010, is similar with only minor changes, and characteristics of the existing conditions are consistent between 2010 and 2016.

#### 1.2.1.2 Route Alternatives and Basic Units of Analysis

Complete Tier 2 Transportation Analysis Zones (TAZs) that intersected quarter- mile buffer areas on either side of the transit corridor and East San Fernando Valley (ESFV) study area were selected, as shown in Figures 1-1 through 1-3.

#### 1.2.1.3 Population, Households, and Employment

Information developed by SCAG for the Tier 2 TAZs includes total population, household, and employment numbers for 2010 and 2016.[4,5]

### 1.2.2 Demographic Estimates

The following section includes a discussion of population, household, and employment estimates for the transit corridor and the ESFV study area.

#### 1.2.2.1 Estimated Population

As shown in Table 1-1, in 2010, the transit corridor's total population (167,834) was about 37 percent of the ESFV study area's total population (458,379). The estimated household population (excluding group quarters[6] population) for the transit corridor (167,093) and for the ESFV study area (454,525) was relatively close to the total population estimates for these two areas, indicating a very small estimate for Group Quarters population. As shown in the map on Figure 1-1, the highest concentrations of population tend to focus in Panorama City north of Roscoe Boulevard on either side of Van Nuys Boulevard. The transit corridor is identified by the SCAG Tier 2 TAZs outlined in blue on Figure 1-1.

#### 1.2.2.2 Estimated Households

As shown in Table 1-1, in 2010, the transit corridor household count (42,859) was about 32 percent of the study area's household count (134,023). However, the persons per household estimate was slightly higher for the transit corridor, at about 3.90, compared to the ESFV study area, which was about 3.39, with the highest household concentrations similar to those for the population north of Roscoe Boulevard along either side of Van Nuys Boulevard. The transit corridor is similarly identified by the Tier 2 TAZs outlined in blue on Figure 1-2.

#### 1.2.2.3 Estimated Employment

As shown in Table 1-1, in 2010, employment in the transit corridor (41,610) was about 30 percent of the employment in the ESFV study area (140,915). The estimated jobs per household were slightly lower for the transit corridor at about 0.97 compared to the ESFV study area's estimate of 1.05. Along the transit

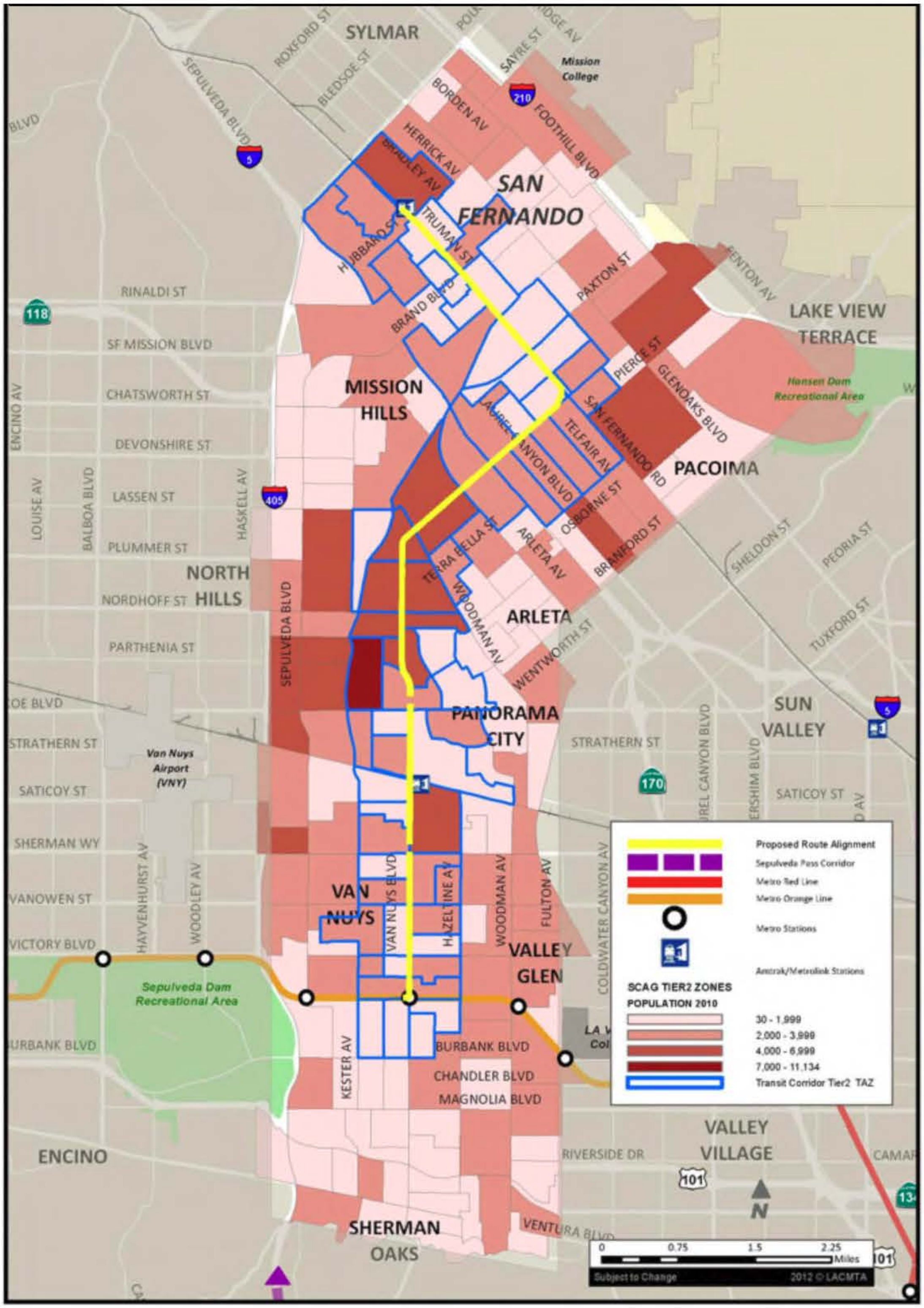
---

[4] Southern California Association of Governments, *2012 Regional Transportation Plan.* Available: <http://rtpscs.scag.ca.gov>. Accessed: March 25, 2013.

[5] Southern California Association of Governments, *2016 Regional Transportation Plan/Sustainable Communities Strategy.* Available: <http://scagrtpscs.net>. Accessed: June 6, 2017.

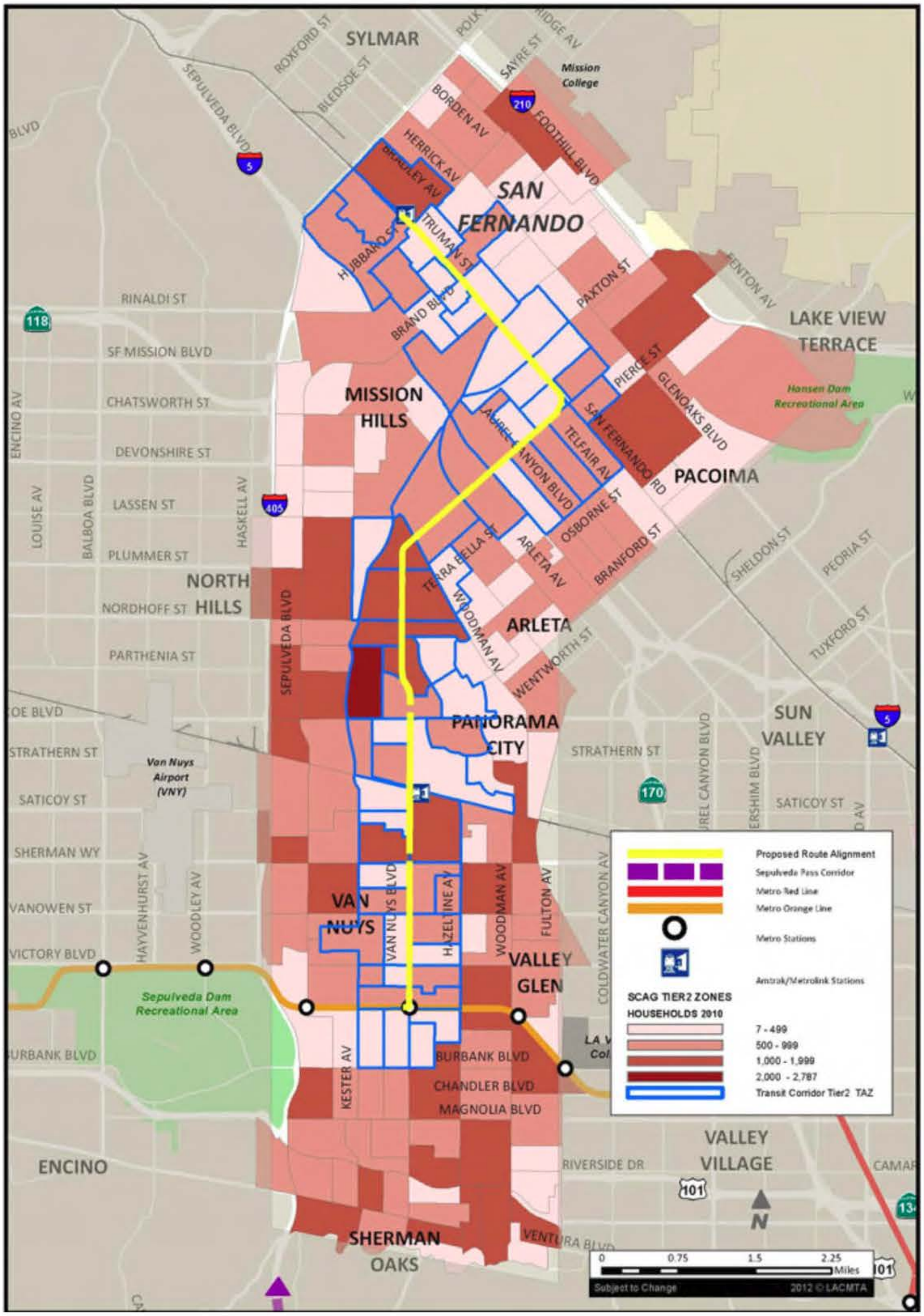
[6] Group Quarters (GQ) are places where people live or stay, in a group living arrangement, which is owned or managed by an entity or organization providing housing and/or services for the residents. This is not a typical household-type living arrangement. These services may include custodial or medical care as well as other types of assistance, and residency is commonly restricted to those receiving these services. People living in group quarters are usually not related to each other. Group quarters include such places as college residence halls, residential treatment centers, skilled nursing facilities, group homes, military barracks, correctional facilities, and workers' dormitories. Available: https://ask.census.gov/faq.php?id=5000&faqId=1681. Accessed : March 22, 2016.

## Figure 1-1: Population Concentrations in Transit Corridor



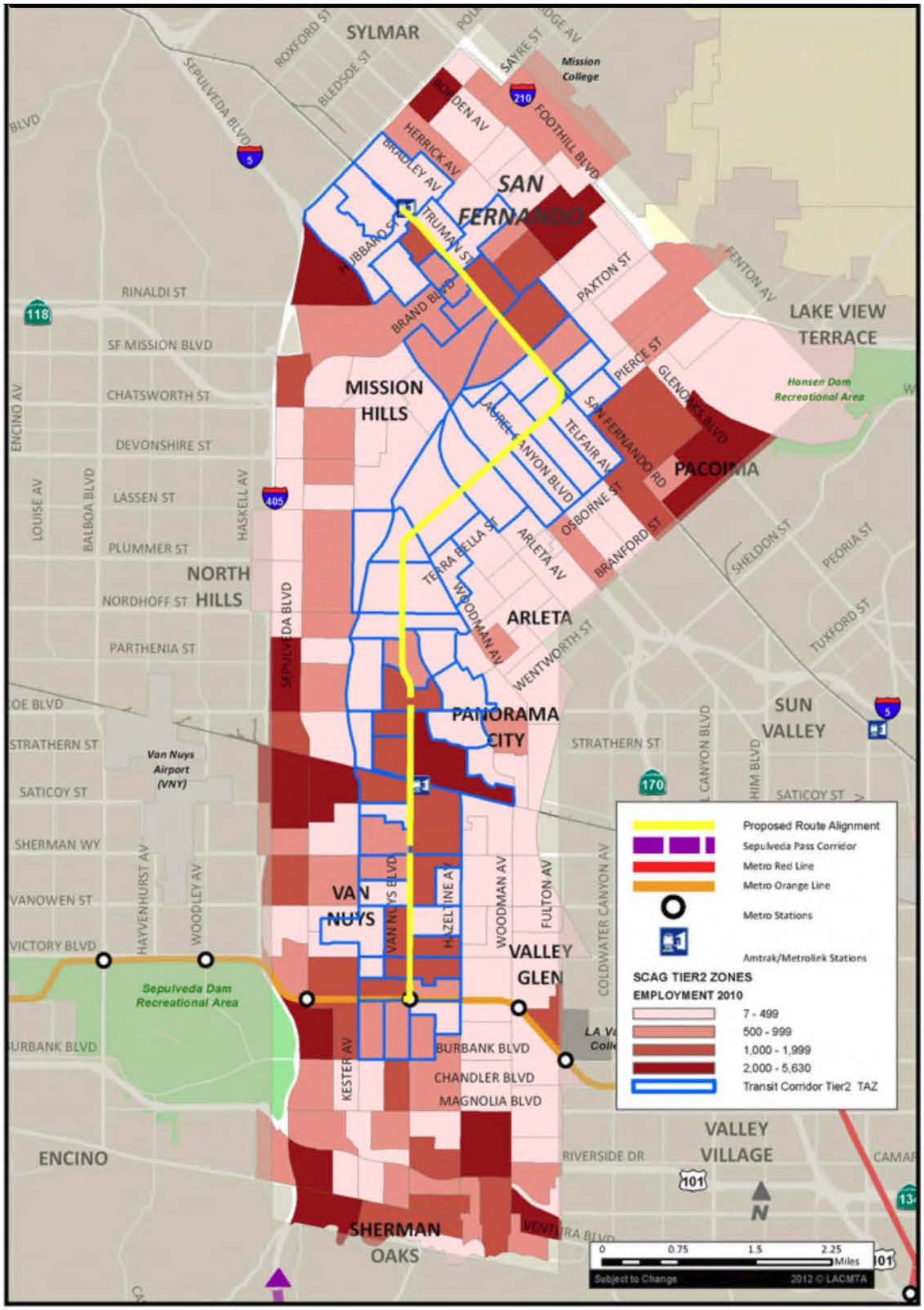

Sources: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, *2012 Regional Transportation Plan and 2016 Regional Transportation Plan/Sustainable Communities Strategy.*

## Figure 1-2: Households Concentrations in Transit Corridor




Sources: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, *2012 Regional Transportation Plan and 2016 Regional Transportation Plan/Sustainable Communities Strategy.*

## Figure 1-3: Employment Concentrations in Transit Corridor




Sources: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, *2012 Regional Transportation Plan and 2016 Regional Transportation Plan/Sustainable Communities Strategy.*

**Table 1-1: Population, Households, and Employment (2010)**

| | Transit Corridor | ESFV Study Area | Corridor as % of Study Area |
|---|---|---|---|
| Estimated Population | 167,834 | 458,379 | 36.6% |
| Estimated Household Population | 167,093 | 454,525 | 36.8% |
| Estimated Households | 42,859 | 134,023 | 32.0% |
| Estimated Employment | 41,610 | 140,915 | 29.5% |
| Estimated Persons per Household | 3.90 | 3.39 | 115.0% |
| Estimated Jobs per Household | 0.97 | 1.05 | 92.3% |

Sources: Stanley R. Hoffman Associates, Inc. Southern California Association of Governments, *2012 Regional Transportation Plan, Tier 2 Socioeconomic Data.*

corridor—outlined in blue in the map on Figure 1-3—the highest concentrations of employment were within the Van Nuys Civic Center, along Van Nuys Boulevard just north of the Metro Orange Bus Line, and also within the Panorama City area adjacent and near the intersection of Van Nuys Boulevard and Roscoe Boulevard. Additionally, there are relatively higher concentrations of employment at the northern end of the route alignment in the downtown area of the City of San Fernando. The transit corridor is similarly identified by the Tier 2 TAZs outlined in blue on Figure 1-3.

## 1.2.3 Census Socioeconomic Variables

Socioeconomic variables, including average household income, persons in poverty, and indicators of transit dependency (by age structure) and ownership of vehicles per household were developed from the 2009-2013 American Community Survey 5-year estimate at the census tract level for each alignment. Census tracts that closely matched the SCAG Tier 2 selections were assembled for the transit corridor and the study area to develop these variables.[7] Density and ratio calculations were based on the acreage information at the census tract level.

### 1.2.3.1 Average Household Income

As shown in Part A of Table 1-2, average household income across the transit corridor and ESFV study area ranges from $53,224 (transit corridor) to $64,038 (ESFV study area), in constant 2010 dollars, based on the 2010 American Community Survey (ACS) 5-year Estimates. The transit corridor's average household income was about 83.1 percent of the ESFV study area's household income. In contrast, the average household income for urbanized Los Angeles County is higher than both of these, at about $79,658.

[7] Southern California Association of Governments. 2*012 Regional Transportation Plan.* Available: <http://rtpscs.scag.ca.gov>. Accessed: March 25, 2013.

#### 1.2.3.2 Adult Persons below Poverty Line

Adult persons are defined as persons 18 years and over. As shown in Part A of Table 1-2, the ESFV study area had a lower proportion of its population in poverty at an estimated 13.8 percent (63,093 persons) compared to the transit corridor at about 15.4 percent (25,846 persons). The persons below the poverty line in the transit corridor were about 12 percent higher than the percentage in the ESFV study area.

**Table 1-2: Transit-Dependent Populations (2010)**

| | Los Angeles County | Transit Corridor | ESFV Study Area | Corridor as % of Study Area |
|---|---|---|---|---|
| A. Low Income Households | | | | |
| Average Household Income | $79,658 | $53,224 | $64,038 | 83.1% |
| Adult Persons below Poverty Line | 1,307,606 | 25,846 | 63,093 | 41.0% |
| Percent of Population in Poverty | 15.7% | 15.4% | 13.8% | 111.9% |
| Adult Persons below Poverty Line per Census Tract Acre[a] | 1.08 | 3.5 | 2.7 | 128.5% |
| B. Low Vehicle Ownership Households | | | | |
| Vehicles per Household | 1.67 | 1.76 | 1.75 | 99.6% |
| Zero Vehicle Households per Census Tract Acre[a] | 0.3 | 0.4 | 0.3 | 120.3% |
| C. Transit Dependent Population | | | | |
| Transit Dependent Population | 3,486,554 | 62,390 | 164,506 | 37.9% |
| Transit Dependent Population as Percent of Population | 35.7% | 37.2% | 35.9% | 103.6% |
| Transit Dependent Population per Census Tract Acre[a] | 3.2 | 8.5 | 7.1 | 119.0% |

[a.] Intensity measures for adult persons below poverty line, zero vehicle households, and transit dependent population per census tract acre are measured against total acreage of census tracts.

Sources: Stanley R. Hoffman Associates, Inc.; *American Community Survey 2009–2013, 5-Year Estimates*.

#### 1.2.3.3 Adult Persons below Poverty Line per Census Tract Acre

As shown in Part A of Table 1-2, the transit corridor had a higher concentration of persons below the poverty line per census tract acre estimated at 3.5 compared to the ESFV study area's estimate of 2.7. In contrast, there were an estimated 1.08 adult persons below the poverty line per census tract acre in urbanized Los Angeles County.

#### 1.2.3.4 Vehicles per Household

As shown in Part B of Table 1-2, the transit corridor and the ESFV study area have almost equal estimates for vehicles per household of 1.76 (transit corridor) and 1.75 (ESFV study area). These averages are similar to urbanized Los Angeles County at 1.67.

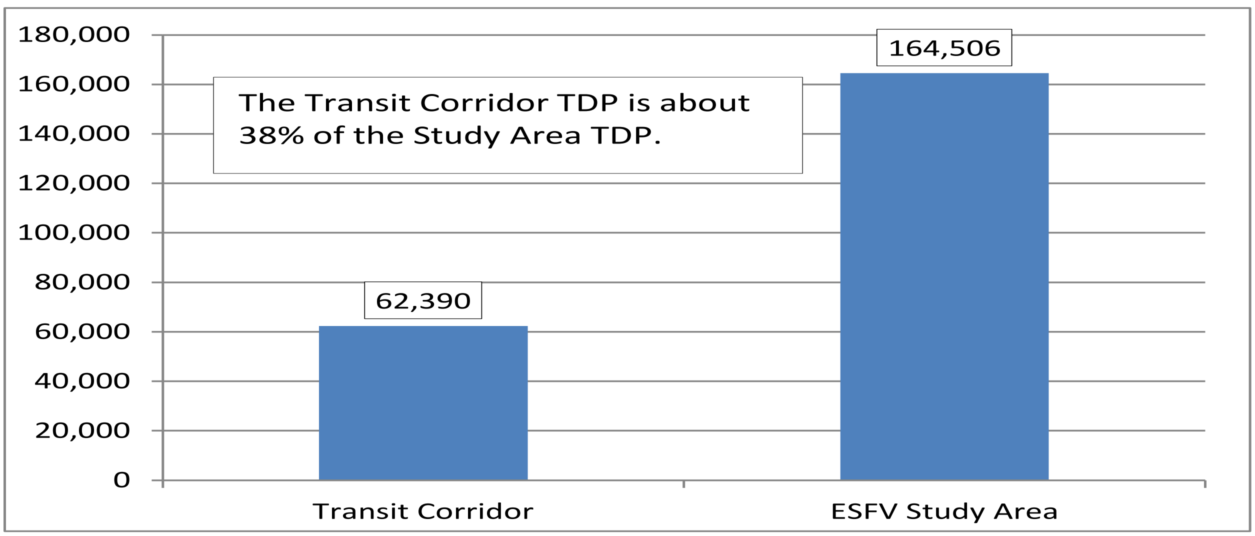
#### 1.2.3.5 Zero-Vehicle Households per Census Tract Acre

This intensity measure for zero vehicle households per census tract acre is also measured against total acreage of census tracts. As shown in Part B of Table 1-2, the transit corridor has an estimated 0.4 zero-vehicle households per census tract acre, while the ESFV study area has 0.3 zero-vehicle households per acre. These estimates are very similar to the average for urbanized Los Angeles County, which averages 0.3 zero-vehicle households per census tract acre.

#### 1.2.3.6 Transit-Dependent Population

The transit dependent population is defined as total persons equal to or below the age of 18 years and 65 years and older. For the transit corridor, the transit dependent population (62,390) is about 38 percent of the ESFV study area's transit dependent population (164,506), as shown in Part C of Table 1-2 and in Figure 1-4. The transit-dependent population is evenly distributed at about 37 percent of the study area population and about 36 percent of the transit corridor population.

**Figure 1-4: Transit-Dependent Population (TDP)[a] (2010)**



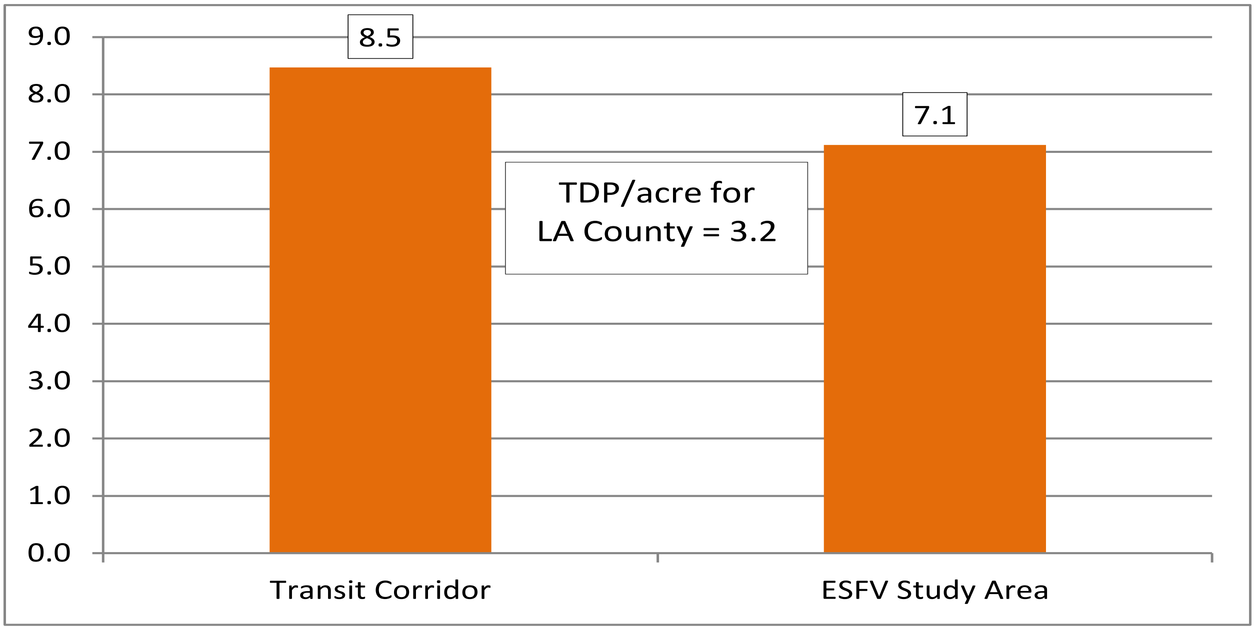

a. TDP is defined as persons ≤ 18 or ≥ 65 years old.

Sources: Stanley R. Hoffman Associates, Inc.; *American Community Survey, 2009–2013, 5-Year Estimates;* Southern California Association of Governments, *2012 Regional Transportation Plan, Tier 2 Socioeconomic Data.*

#### 1.2.3.7 Transit-Dependent Population per Census Tract Acre

This intensity measure for transit dependent population per census tract acre is measured against total acreage of census tracts within each route alternative. Transit dependent population per census tract acre ranges from 8.5 in the transit corridor compared to 7.1 in the ESFV study area, as shown in Part C of Table 1-2 and Figure 1-5. In comparison, these averages are greater than the urbanized Los Angeles County average of 3.2 transit dependent population per census tract acre.

Figure 1-5: Transit-Dependent Population per Acre (2010)




Sources: Stanley R. Hoffman Associates, Inc.; *American Community Survey, 2009–2013, 5-Year Estimates*; Southern California Association of Governments, *2012 Regional Transportation Plan, Tier 2 Socioeconomic Data*.

## 1.2.4 Employment Distribution

Table 1-3 shows employment distribution by industry categories for the transit corridor and the ESFV study area for 2010.[8] The total estimated employment in the transit corridor (41,610) is about 30 percent of the total estimated employment in the ESFV study area (140,915). Education and Health jobs constitute the largest share of employment in each area at about 28 percent for the transit corridor and about 25 percent for the ESFV study area. The next two largest employment sectors in the transit corridor are Professional Services (12.8 percent) and Retail (12.4 percent). The next two largest employment sectors in the ESFV study area are also Professional Services (14.8 percent) and Retail Trade (12.6 percent). Together these three employment sectors—Education and Health, Professional Services and Retail—constitute about 52–53 percent of the total employment in both areas.

Table 1-4 shows the percentage of each employment sector for the transit corridor as a percentage of the ESFV study area to show relative employment concentrations. These percentages are then compared against the total employment percentage estimate for the transit corridor, about 30 percent of the ESFV study area. As shown in Table 1-4, Public Administration is relatively concentrated in the transit corridor—representing primarily the Van Nuys government center—and has about 60 percent of the total Public Administration employment in the study area. The Information sector is about 37 percent of Information employment in the ESFV study area. For the other sectors above the 30 percent overall average for the study area, Manufacturing (34 percent), and Education and Health (33 percent), and Other Services (33 percent) are only slightly higher. For Agriculture and Mining (84 percent), this higher percentage is out-weighted by the relatively small size of this sector in the study area.

[8] Southern California Association of Governments, *2012 Regional Transportation Plan.* Available: <http://rtpscs.scag.ca.gov>. Accessed: March 25, 2013.

## Table 1-3: Distribution of Employment by Sector (2010)

| | Transit Corridor | % Distribution | ESFV Study Area | % Distribution |
|---|---|---|---|---|
| Agriculture and Mining | 234 | 0.6% | 277 | 0.2% |
| Construction | 2,119 | 5.1% | 7,443 | 5.3% |
| Manufacturing | 3,652 | 8.8% | 10,636 | 7.5% |
| Wholesale Trade | 1,723 | 4.1% | 9,524 | 6.8% |
| Retail Trade | 5,141 | 12.4% | 17,724 | 12.6% |
| Transportation, Warehousing and Utilities | 1,758 | 4.2% | 5,929 | 4.2% |
| Information | 1,741 | 4.2% | 4,725 | 3.4% |
| FIRE | 1,807 | 4.3% | 7,716 | 5.5% |
| Professional Services | 5,310 | 12.8% | 20,890 | 14.8% |
| Education and Health | 11,470 | 27.6% | 35,079 | 24.9% |
| Arts, Ent, Recr, Accom and Food | 3,163 | 7.6% | 12,154 | 8.6% |
| Other Services | 2,160 | 5.2% | 6,612 | 4.7% |
| Public Administration | 1,332 | 3.2% | 2,206 | 1.6% |
| *Total* | ***41,610*** | ***100.0%*** | ***140,915*** | ***100.0%*** |

Source: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, *2012 Regional Transportation Plan, Tier 2 Socioeconomic Data.*

## Table 1-4: Employment by Sector as Percent of Study Area (2010)

| | Transit Corridor | ESFV Study Area | Corridor as % of Study Area |
|---|---|---|---|
| Agriculture and Mining | 234 | 277 | 84% |
| Construction | 2,119 | 7,443 | 28% |
| Manufacturing | 3,652 | 10,636 | 34% |
| Wholesale Trade | 1,723 | 9,524 | 18% |
| Retail Trade | 5,141 | 17,724 | 29% |
| Transportation, Warehousing and Utilities | 1,758 | 5,929 | 30% |
| Information | 1,741 | 4,725 | 37% |
| FIRE | 1,807 | 7,716 | 23% |
| Professional Services | 5,310 | 20,890 | 25% |
| Education and Health | 11,470 | 35,079 | 33% |
| Arts, Ent, Recr, Accom and Food | 3,163 | 12,154 | 26% |
| Other Services | 2,160 | 6,612 | 33% |
| Public Administration | 1,332 | 2,206 | 60% |
| *Total* | ***41,610*** | ***140,915*** | *30%* |

Source: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, *2012 Regional Transportation Plan, Tier 2 Socioeconomic Data.*

### 1.2.5 Transit Supportive Land Use

Table 1-5 shows indicators for jobs-generating (Part A) land uses and residential (Part B) land uses by density; the indicators are discussed below.[9]

**Table 1-5: Job-Generating and Residential Land Uses by Density (2010)**

| | ESFV Study Area | Transit Corridor |
|---|---|---|
| A. Jobs-Generating Land Uses by Density | | |
| Commercial Employment Density (jobs per commercial acre) | 30.6 | 32.7 |
| Industrial Employment Density (jobs per industrial acre) | 19.4 | 18.4 |
| Total Jobs per Household | 1.1 | 1.0 |
| B. Residential Land Uses by Density | | |
| Population Density (persons per residential acre) | 38.1 | 47.4 |
| Persons per Household | 3.4 | 3.9 |
| Households per Acre | 11.2 | 12.2 |

Sources: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, *2012 Regional Transportation Plan, Tier 2 Socioeconomic Data*; Los Angeles County Assessor's Parcel Data, 2014.

#### 1.2.5.1 Commercial Employment Density (Jobs per Developed Commercial Acre)

In 2010, commercial employment density for the transit corridor at 32.7 jobs per developed acre was slightly higher than that for the study area at 30.6 jobs per developed acre.

#### 1.2.5.2 Industrial Employment Density (Jobs per Developed Industrial Acre)

Similarly, industrial employment density for the transit corridor at 18.4 jobs per developed acre was slightly lower compared to that for the study area at 19.4 jobs per developed acre.

#### 1.2.5.3 Jobs per Household

In 2010, the transit corridor had an estimated job per household ratio of about 1.0, very similar to the study area ratio of 1.1 jobs per household.

#### 1.2.5.4 Population Density (Population per Developed Acre)

In 2010, population density, estimated as a ratio of residential population per developed residential acre, was estimated relatively higher at 47.4 persons per acre within the transit corridor compared to 38.1 persons per acre in the study area.

[9] Land use data for this section obtained from Los Angeles County Assessor's Parcel data for 2014, while demographic and employment information was obtained from the SCAG 2012 RTP Tier 2 dataset.

### 1.2.5.5 Persons per Household

In 2010, household size within the corridor at 3.9 persons per household was relatively higher compared to the study area at 3.4 persons per household.

### 1.2.5.6 Households per Acre

In 2010, households per developed residential acre were slightly higher within the transit corridor at 12.2 households per acre compared to 11.2 households per acre within the study area.

# 1.3 Transportation System and Performance

The regional and study-area public transit system and the highway and roadway network are described in detail in Appendix E, the Purpose and Need Report.

The San Fernando Valley has a vast freeway, arterial, and transit network which connects it to the greater Southern California region. Within the study area, an extensive transportation network provides mobility via major freeways, arterials, and railroad infrastructure that serve the project corridor and the surrounding communities.

The traffic and transit data from the Metro model and the larger SCAG travel demand model indicates that traffic conditions in the study area will become more congested and trip speeds will become slower as the region grows through the year 2040.

Existing bicycle facilities along the Project alignment are as follows:

- Van Nuys Boulevard – A Class II bicycle lane exists between Chandler Boulevard and the MOL. More recently, a Class II bicycle lane has been striped from Parthenia Street to Beachy Avenue.
- San Fernando Road – A Class I bicycle path exists from Roxford Street to Hubbard Street. A multi-use path exists from Hubbard Street to Wolfskill Street/La Rue Street.
- Metro Orange Line (Class I) – This east-west bicycle path is located within the MOL ROW and intersects Van Nuys Boulevard (Photo 1-3).

Per the 2010 City of Los Angeles Bicycle Plan, new bicycle striped roadway lanes and dedicated paths will be added to the study area. The addition of new bicycle lanes (Class II) on the Van Nuys Boulevard, and the Phase 2 of the San Fernando Bicycle Path (Class I), recently completed along a 2.75-mile segment extending from Wolfskill Street/La Rue Street to Branford Street, have been considered in Project conceptual engineering and implementation planning.

Van Nuys Boulevard is designated by the Bicycle Plan as a segment of the “Backbone Network,” and therefore is targeted for future implementation of bicycle lanes, for the entire length of the Project alignment. San Fernando Road is also designated as part of the “Backbone Network” as a bicycle lane, as well as the “Green Bikeway Network” as a bicycle path (separated, but parallel to the roadway) with a future lane designation.

Photo 1-3: Metro Orange Line Class I Bicycle Path


Source: Metro, 2016.

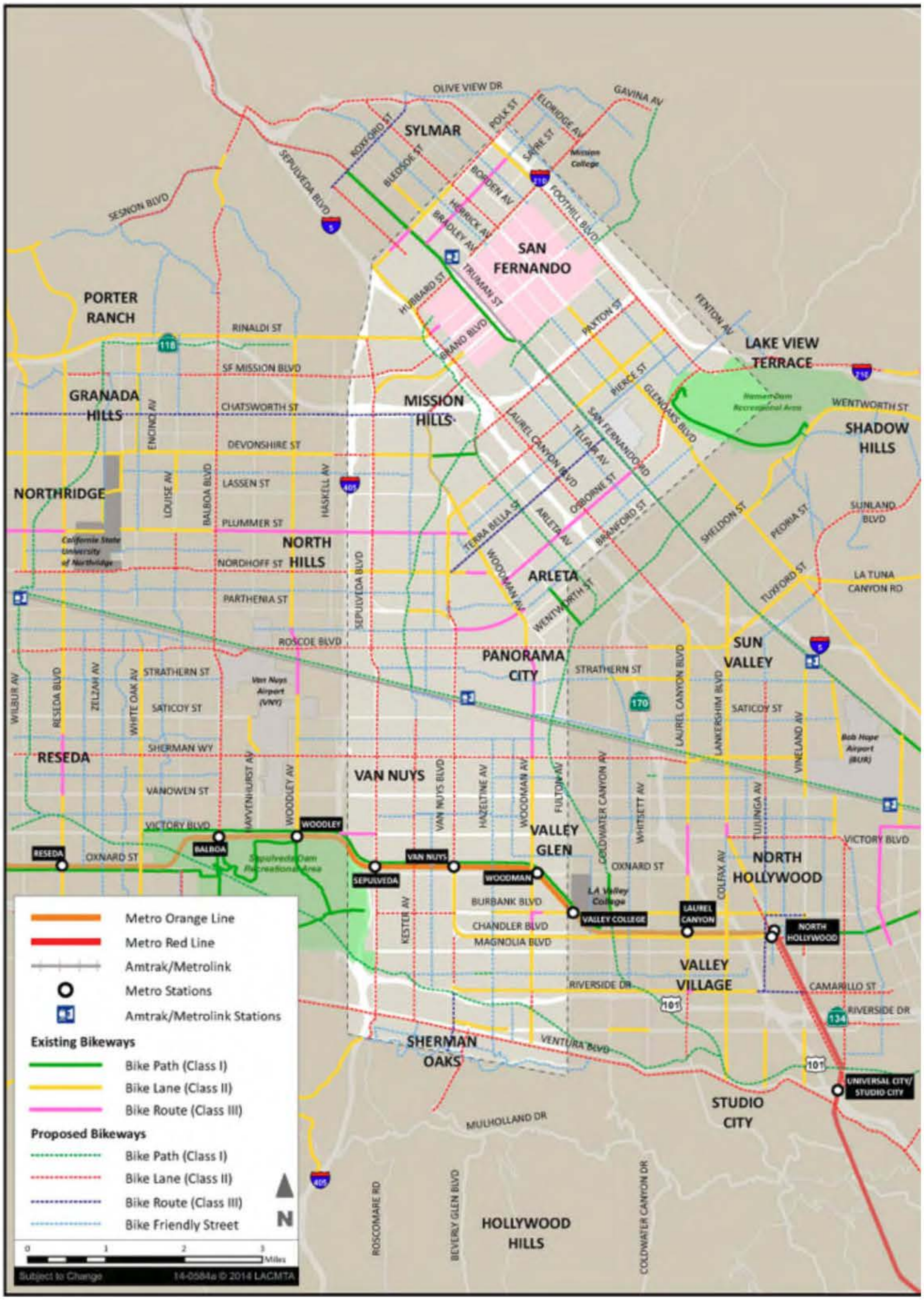
The existing and planned bicycle facilities in the study area are illustrated in Figure 1-6.

## 1.3.1 Existing Trip Patterns

Metro model data for the study area indicates that 50 percent of person-trips stay within the study area. By 2040, this trip pattern is expected to remain roughly the same. These local trips, however, will remain a significant contributor to traffic and transit trends.

Of the approximately 2,954,963 daily trips that either originate or are destined to the study area, approximately 1,487,397 (around 50 percent) stay within the study area, with a large portion of trips occurring between the northern communities of the City of San Fernando and Pacoima and the southern communities of Mission Hills and Panorama City. These southern communities have a higher number of activity centers that include Kaiser Permanente, several high schools, and the Panorama Mall. Additional significant trip distribution is to and from the Van Nuys Civic Center area, with a large number of study area trips (52 percent) occurring between Mission Hills, Panorama City, and Sherman Oaks. These general trip trends are expected to remain similar in 2040 and represent high trip distribution attraction between the central study area and the Civic Center.

## Figure 1-6: Study Area Bicycle Facilities




Source: LADOT, KOA, 2014.



Metro

Existing Metro service boarding data generally supports these estimated trip patterns. The boarding activity is higher along the Van Nuys Boulevard corridor, at the MOL Van Nuys Station, Vanowen Street, Roscoe Boulevard, and Nordhoff Street stops. These locations are all located within the central study area and the Civic Center area. The higher level of passenger activity in the central study area and the Civic Center area could be attributed to the connectivity to east-west bus services and also activity centers that are located in these areas.

## 1.3.2 Transit Passenger Activity

### 1.3.2.1 Bus Passenger Boardings

The Van Nuys Boulevard corridor has the seventh-highest total transit boardings in the Metro system. The San Fernando Road corridor also has some of the highest transit boardings in the San Fernando Valley. Figure 1-7 illustrates existing transit boardings for all bus lines and the MOL within the study area.

Boardings and alightings in the study area are generally highest along the MOL (7,500 per day) and along Van Nuys Boulevard between Nordhoff Street and the MOL Busway. Van Nuys Boulevard north of Nordhoff Street also has higher boardings, especially between Laurel Canyon Boulevard and Glenoaks Boulevard. The San Fernando Road and Truman Street corridors do not have high boardings and alightings, in comparison to the Van Nuys Boulevard corridor.

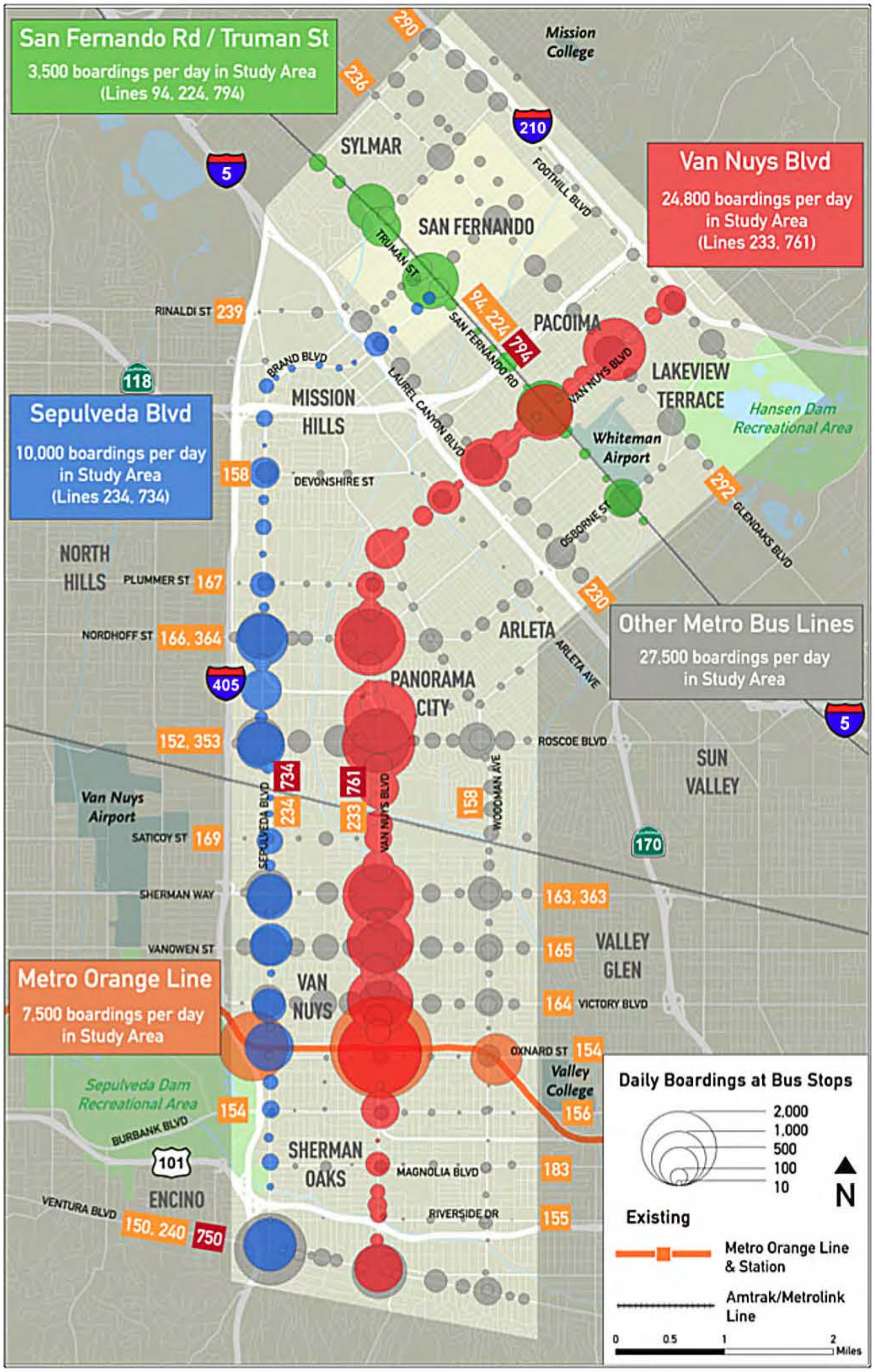
Existing transit boardings on Van Nuys Boulevard are some of the highest in the Metro system, when compared to other higher-density areas of the region. The Van Nuys Boulevard corridor has the second-highest boardings total in the San Fernando Valley (about 24,800 per day), just behind the MOL Busway (about 25,500 per day). Local Line 233 has higher boardings than Rapid Line 761, due to the number of stops (supporting shorter trips and higher throughput of passengers per mile) served by the local service.

It should be noted that modifications were made in December 2014 to one of the primary Metro bus routes operating on Van Nuys Boulevard after this project analysis was already underway. Metro Rapid Line 744 was added connecting Pacoima in the east to Northridge in the west, and traveling for a large portion of the route (north-south) along Van Nuys Boulevard, and replacing the Metro Rapid Line 761. For the purposes of this study, the evaluation was based on the routes (Metro Rapid Line 761 and Metro Local Line 233) that were already in place in 2012 when the transportation modeling for this study began.

Only a few changes were made to Metro's bus system between 2012 and 2017 within the study area. These include:

1. Combining the Van Nuys Boulevard portion of the Line 761 with Line 741 to form Line 744.
2. Combining the non-Van Nuys Boulevard portion of Line 761 with Line 734 and then extending it to the Exposition Rail Station.
3. Combining the non-Van Nuys Boulevard portion of Line 233 during the late night/weekend service period to Line 234 and extending it to the Exposition Rail Station.
4. Separating Line 237 from Line 236 and combining it with Line 156.
5. Adding Line 788 which runs from Arleta to Westwood during just the weekday peak periods.

## Figure 1-7: Existing Transit Boardings




Source: Metro, 2011.

Aside from adding Line 788, the rest of the changes were limited to a reorganization of seven lines. Transit service levels in 2017 for the study area are very similar to those in 2012. Over the same time period, the number of bus stops changed from 1,089 to 1,093, a net increase of only four stops.

#### 1.3.2.2 Rail Passenger Boardings

Based on Metrolink data from 2011, the Antelope Valley Line has an average weekday boardings total of 5,885, of which 509 occur at the Sylmar/San Fernando Metrolink Station. The Ventura County Line has an average weekday boardings total of 4,141, of which 184 boardings occur at the Van Nuys station.

According to Amtrak, the Pacific Surfliner route is the second busiest corridor in the United States, with approximately 200 daily boardings at the Van Nuys Station, in addition to those accessing Metrolink at this location.

### 1.3.3 Bus Crowding Issues

Bus overcrowding is defined by Metro as passenger demand that exceeds bus seating capacity for a particular trip by the corresponding load factor for buses, which is based on the maximum average ratio of passengers to available seating per vehicle size (i.e. 40-foot, 45-foot, and 60-foot buses. This set of load factors considered frequency of service as well as seated capacity of a 40-foot, 45-foot, or 60-foot vehicle. The revised policy also accounted for differences between peak and non-peak operations. The rationale for this change was to recognize that a single load factor does not cover the full range of circumstances confronting a passenger. For example, on routes where the frequency of service is 60 minutes, accepting a load factor of 130% of a seated load at all times throughout the day means that the passenger may experience severe overcrowding or worse, be unable to board the bus and be forced to wait another hour for service[10]. Table 1-6 shows the revised loading standards.

**Table 1-6: Loading Standards with Approximate Passengers per Seat Equivalence**

| Weekday AM and PM Periods | | | | |
|---|---|---|---|---|
| | | Bus Types | | |
| Frequency Range (min.) | Psgrs. / Seat | 40 ft. | 45 ft. | 60 ft. |
| | | Average Peak Loads | | |
| 1 - 10 | 1.40 | 56 | 65 | 80 |
| 11 -20 | 1.30 | 52 | 60 | 74 |
| 21 - 40 | 1.20 | 48 | 55 | 68 |
| 41 -60 | 1.10 | 44 | 51 | 63 |
| 60+ | 1.00 | 40 | 46 | 57 |

| Off-Peaks and Weekends | | | | |
|---|---|---|---|---|
| | | Bus Types | | |
| Frequency Range (min.) | Psgrs. / Seat | 40 ft. | 45 ft. | 60 ft. |
| | | Average Peak Loads | | |
| 1 - 10 | 1.30 | 52 | 60 | 74 |
| 11 -20 | 1.25 | 50 | 58 | 71 |
| 21 - 40 | 1.10 | 44 | 51 | 63 |
| 41 -60 | 1.00 | 40 | 46 | 57 |
| 60+ | 0.75 | 30 | 35 | 43 |

Shaded area presents current load factor standard applicable at all times. This table replaces 0% standard with one that varies by peak / off-peak and schedule frequency.

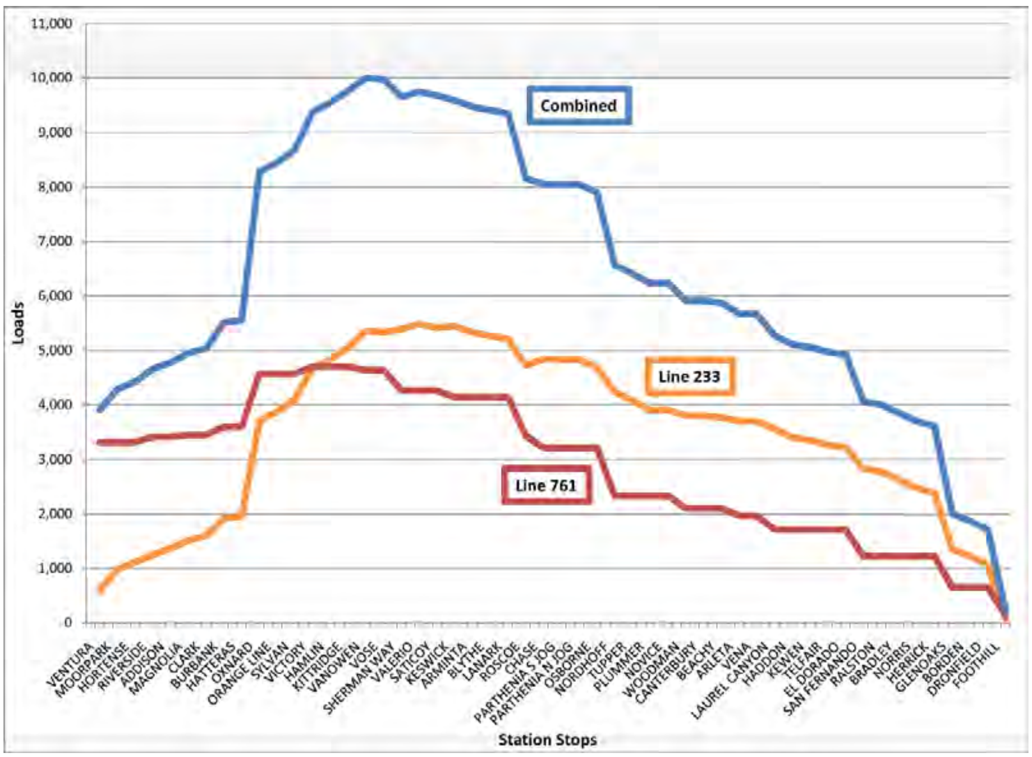
[10] The 2011 Transit Service Policy, as adopted by the Metro Board in January 2011, increased the Load Factor from 1.2 to 1.3. At the end of the Consent Decree in 2010, load factors were changed from 1.0 to 1.2. Even at that, Metro Load Factors were below other North American operators. The standards have been modified in the 2016 Policy document to be more in line with the accepted standards exemplified by other large metropolitan operators.

Since population and employment are forecast to grow, this is expected to result in increases in boardings, resulting in bus overcrowding, as the load factor standards will likely be exceeded on many trips.

## 1.3.4 Passenger Loads

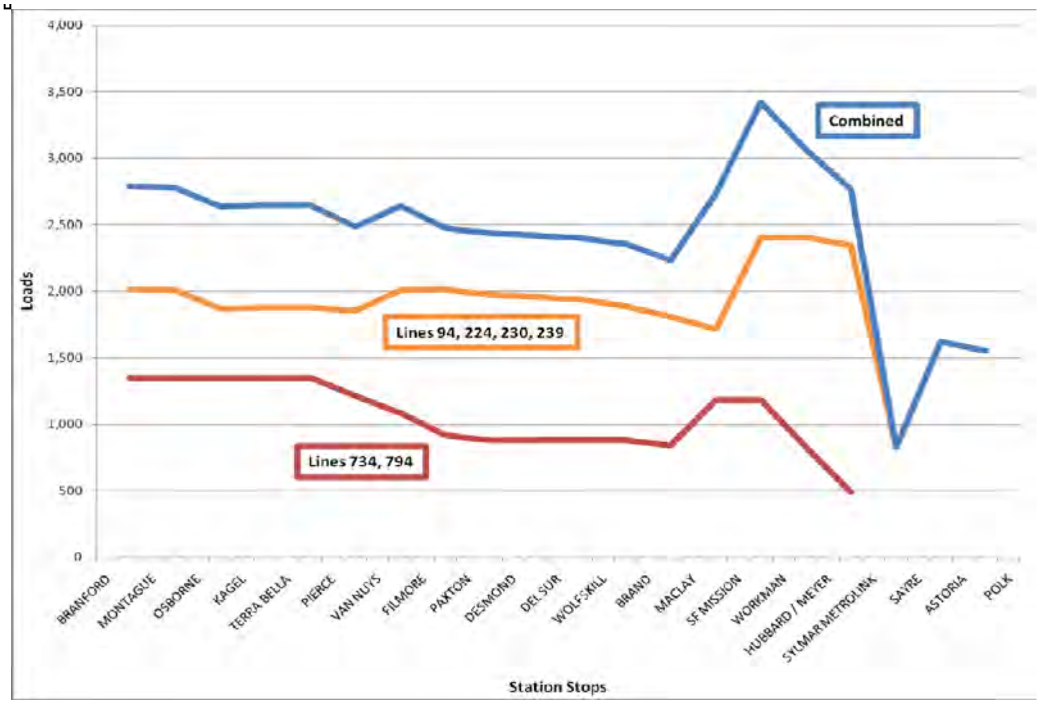
Passenger loading is a measure of how many patrons are using a transit service at any point along a designated route. The data presented here is an average of all weekday trips within a month of service. Figures 1-8 and 1-9 illustrate the total loads for each bus line (northbound and southbound) that operates along Van Nuys Boulevard and San Fernando Road (the two main transit corridors in the study area). These figures also show the total combined loading, which is a sum of the passenger activity from all of the bus lines at each point along each of the corridors.

**Figure 1-8: Total Passenger Loading – Van Nuys Boulevard**




Note: Time points are from south to north.
Source: Metro, 2011.

**Figure 1-9: Total Passenger Loading – San Fernando Road**




Note: Time points are from south to north.
Source: Metro, 2011.

## 1.3.4.1 Van Nuys Boulevard

Figure 1-8 illustrates the total passenger loading (northbound and southbound) for Metro Rapid Line 761 and Metro Local Line 233 along Van Nuys Boulevard. The combined total is the sum of these two lines at each point along Van Nuys Boulevard.

Passenger loads on Metro Rapid Line 761 peak between the MOL and Sherman Way in the Van Nuys Civic Center area. Passenger loading near Ventura Boulevard is high because the Metro Rapid Line 761 provides service into and out of the San Fernando Valley, with a southern terminus at the major activity center of Westwood. Existing headways on Metro Rapid Line 761 are 10 minutes in the peak period and 17.5 minutes in the off-peak period.

Total passenger loads on Metro Local Line 233 tend to peak north of the MOL transfer point, particularly in the vicinity of Valerio, Saticoy and Keswick Streets. Existing headways on Metro Local Line 233 are 12 minutes in the peak period and 20 minutes in the off-peak period.

For both lines, passenger loads decline as they approach their northern termini in the vicinity of Van Nuys Boulevard and Foothill Boulevard. A substantial number of passengers – nearly 10,000 at the combined total peak load – are using transit service along the more southern portion of the Van Nuys Boulevard corridor during an average day.

Transit improvements in the Van Nuys Boulevard corridor (especially between the MOL and Panorama City) should realize substantial increases in discretionary riders, while providing benefits for the high number of existing riders, which includes a high concentration of transit dependent populations, on Metro bus lines.

#### 1.3.4.2 San Fernando Road/Truman Street

Figure 1-9 illustrates the total loads (northbound and southbound) for the numerous lines that operate along San Fernando Road and Truman Street. The combined total is the sum of the loads on these lines at each point.

Figure 1-9 illustrates that passenger loads on the Metro Rapid Lines 734 and 794 remain generally consistent throughout the San Fernando Road corridor, although loads decrease north of the San Fernando Mission Boulevard stop. Loads on the Metro Local Lines 94 and 224 also remain steady for the length of the corridor until they peak between the San Fernando Mission Boulevard stop and Sylmar/San Fernando Metrolink Station, as Metro Local Lines 230 and 239 serve this segment of the corridor, which is within the downtown area of the City of San Fernando. Loads on these local lines then drop off dramatically to the north of the Metrolink station stop, where only Line 224 continues north along San Fernando Road. A combined peak load of 3,400 transit patrons near the Sylmar/San Fernando Metrolink Station and downtown San Fernando makes this a very good area to improve transit service and secure better connections to these existing transit hubs.

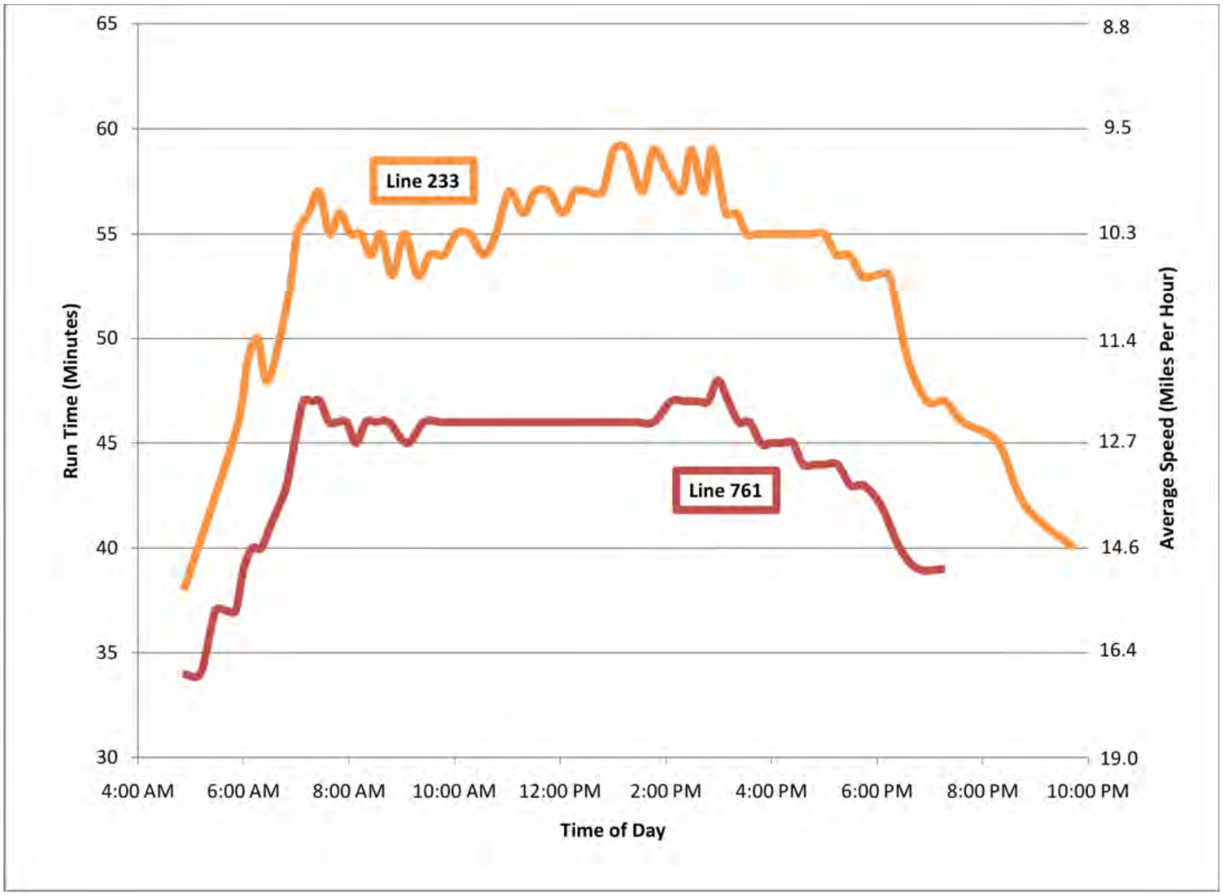
### 1.3.5 Congestion Effects on Bus Speeds

Based on existing Metro bus schedules and recent monthly summary data (May 2011) provided by Metro Bus Operations, an analysis of existing bus schedule runtimes and bus speeds on the Van Nuys Boulevard and San Fernando Road/Truman Street corridors was conducted. Only a few changes were made to Metro's bus system between 2012 and 2017 within the study area. Aside from adding Line 788, the rest of the changes were limited to a reorganization of seven lines. Transit service levels in 2017 for the study area were checked, validated, and are very similar to those in 2012.

#### 1.3.5.1 Van Nuys Boulevard

The existing Metro Rapid Line 761 and Metro Local Line 233 operate the length of Van Nuys Boulevard from Foothill Boulevard in Pacoima to Ventura Boulevard in Sherman Oaks. As illustrated by Figure 1-10, Metro Rapid Line 761 operates in the southbound direction from Van Nuys/Glenoaks to Ventura/Sepulveda with a runtime of less than 40 minutes in the early morning hours and a runtime of over 50 minutes during the morning peak period. Likewise, speeds in the early morning can reach close to 15 miles per hour, but then slow to just over 10 miles per hour in the peak period.

**Figure 1-10: Scheduled Runtimes and Speeds – Van Nuys Boulevard - Southbound**



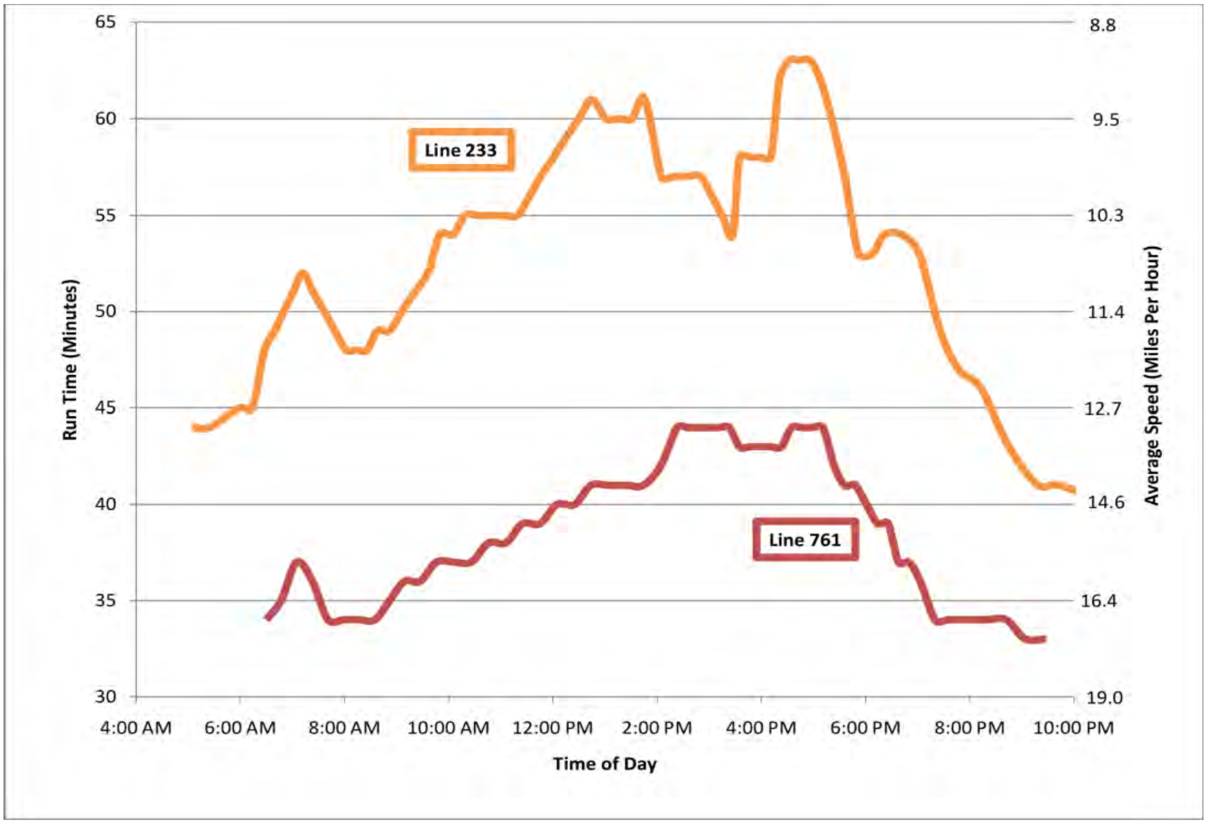

Source: Metro, 2011.

The southbound trips of Metro Local Line 233 have runtimes of five to ten minutes longer to travel a distance similar to that of the Metro Rapid Line due to more frequent stops, with speeds slowing to less than 10 miles per hour.

As illustrated by Figure 1-11, there is a similar situation northbound on Van Nuys Boulevard, with Metro Rapid Line 761 scheduled runtimes of ten to 15 minutes less to cover the route from Ventura Boulevard to Foothill Boulevard in the peak period than Metro Local Line 233. Similar to the southbound direction of travel, the Metro Local Line 233 averages speeds fewer than 10 miles per hour in the peak, while the Metro Rapid Line 761 averages speeds closer to 12 miles per hour. Where the lines deviate near termini points, the relevant data has been excluded on the graphs in order to illustrate equal comparisons of operations within shared corridors.

The significantly longer travel times and slower speeds during the peak hours for Metro buses along Van Nuys Boulevard support the need for a transit improvement including, but not limited to, an exclusive bus or rail guideway.

### Figure 1-11: Scheduled Runtimes and Speeds – Van Nuys Boulevard - Northbound



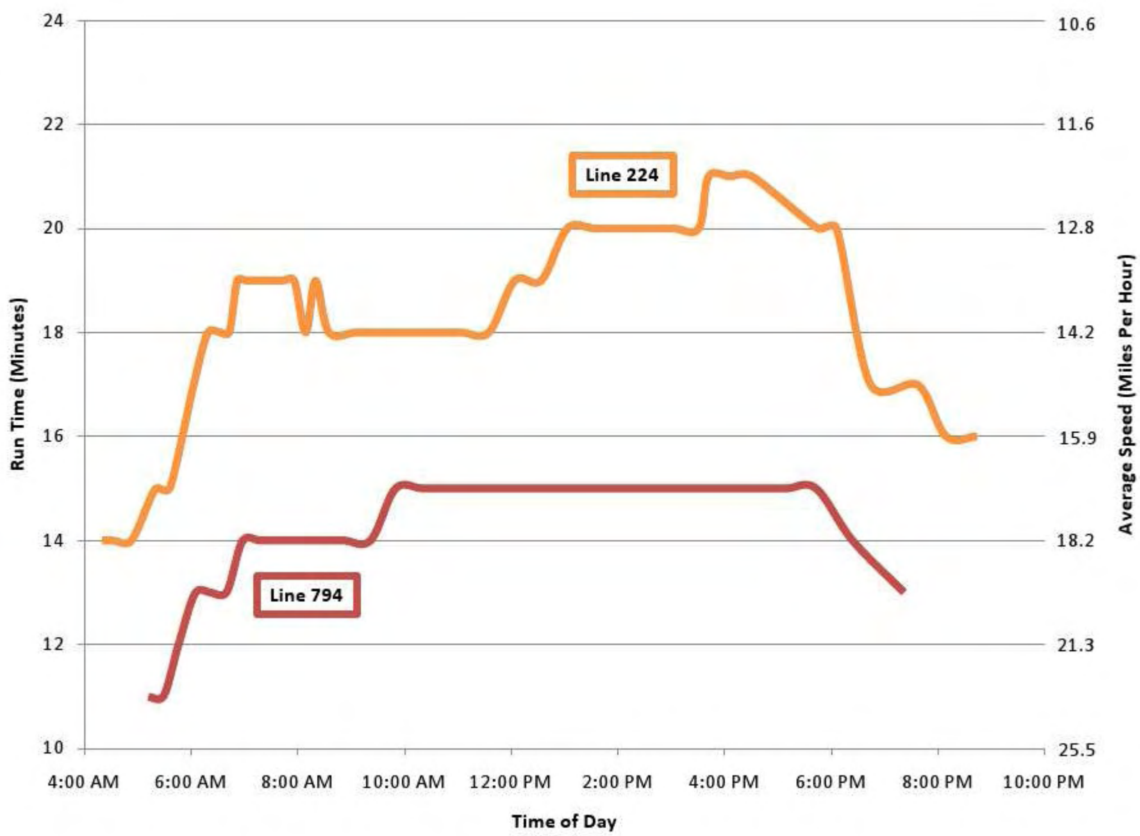

Source: Metro, 2011.

## 1.3.5.2 San Fernando Road/Truman Street

The existing Metro Rapid Line 794 operates along Truman Street and San Fernando Road from the Sylmar/San Fernando Metrolink Station in Sylmar, to Figueroa Street in Glassell Park. Within the study area, Metro Rapid Line 794 is examined from Sylmar/San Fernando Metrolink Station to Osborne Street in Sun Valley. The existing Metro Local Line 224 operates along Truman Street and San Fernando Road from Polk Street in Sylmar to Branford Street in Sun Valley. The analyzed portions of these routes are about half the length of the bus routes analyzed for Van Nuys Boulevard – each just under five miles in length.

As illustrated by Figure 1-12, the Metro Rapid Line 794 has a runtime along San Fernando Road/Truman Street in the southbound direction from the Sylmar/San Fernando Metrolink Station to Osborne Street that is just over 10 minutes in the early morning hours, but this same trip is scheduled with a runtime of nearly 15 minutes during the morning peak period. Likewise, speeds in the early morning can reach 23 miles per hour while speeds are closer to 18 miles per hour during the peak period. The southbound Metro Local Line 224 has a runtime that is ten to 15 minutes slower for a similar distance as the Metro Rapid Line 794. Speeds along the Metro Local Line 233 are reduced to approximately 12 miles per hour during the peak period.

## Figure 1-12: Scheduled Runtimes and Speeds – San Fernando Road – Southbound




Source: Metro, 2011.

As illustrated by Figure 1-13, there is a similar situation traveling northbound on San Fernando Road and Truman Street, with the Metro Rapid Line 794. This line has a runtime that is five minutes more to cover the route from Osborne Street to the Sylmar/San Fernando Metrolink Station in the peak period. In the southbound direction of travel, the Metro Local Line 224 has a runtime that is almost 10 minutes higher than the Rapid Line 794 in the northbound direction, and speeds are reduced to just over 10 miles per hour.

Metro Rapid Line 794 generally has good performance along San Fernando Road, with a substantial travel time savings compared to Metro Local Line 224 and only a small increase in runtimes during peak periods. Transit improvements including, but not limited to, bus or rail guideway would have a positive benefit for riders.

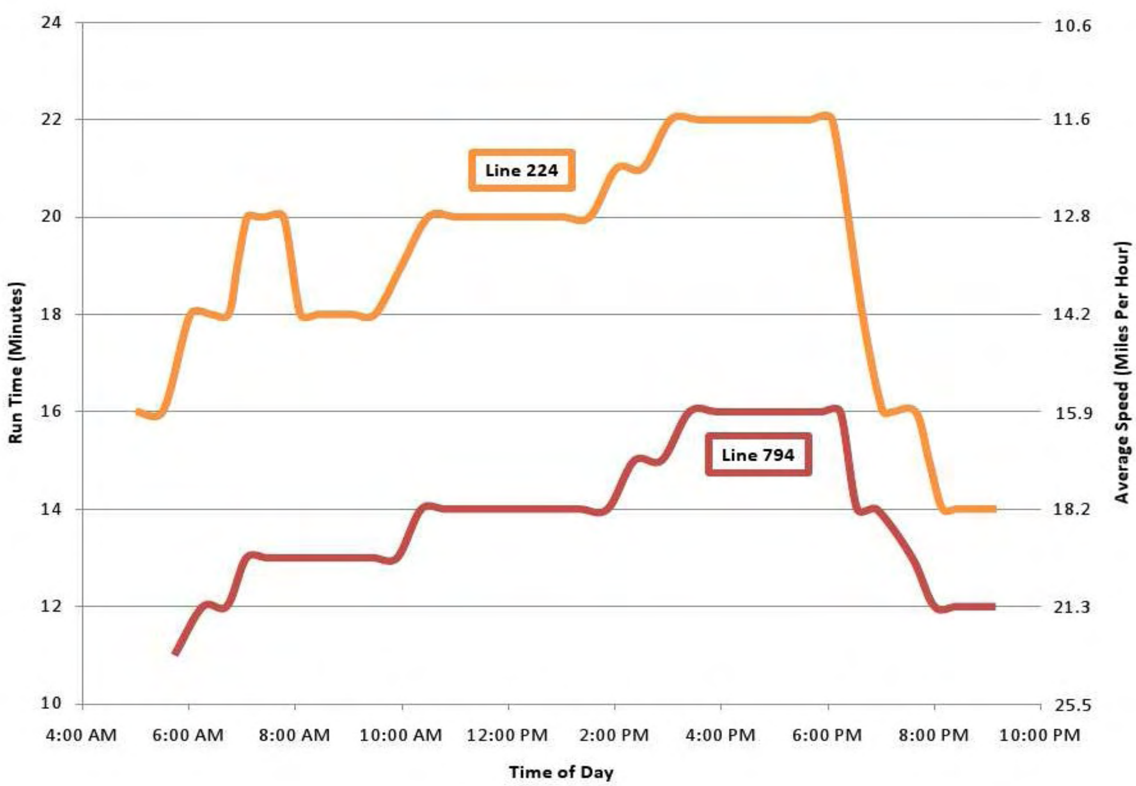
Overall, the large differences between peak and off-peak scheduled runtimes (ranging from approximately 25 percent to 50 percent) and speeds (ranging from approximately 33 percent to 50 percent) show that separating transit and auto traffic may have a significant benefit for Van Nuys Boulevard and San Fernando Road travelers.

## 1.3.6 Transit On-Time Performance and Reliability

### 1.3.6.1 Van Nuys Boulevard

An examination of on-time performance statistics for the Metro Rapid Line 761 and the Metro Local Line 233 indicates that the lines are not currently meeting the on-time performance goal of 80 percent.

**Figure 1-13: Scheduled Runtimes and Speeds – San Fernando Road – Northbound**

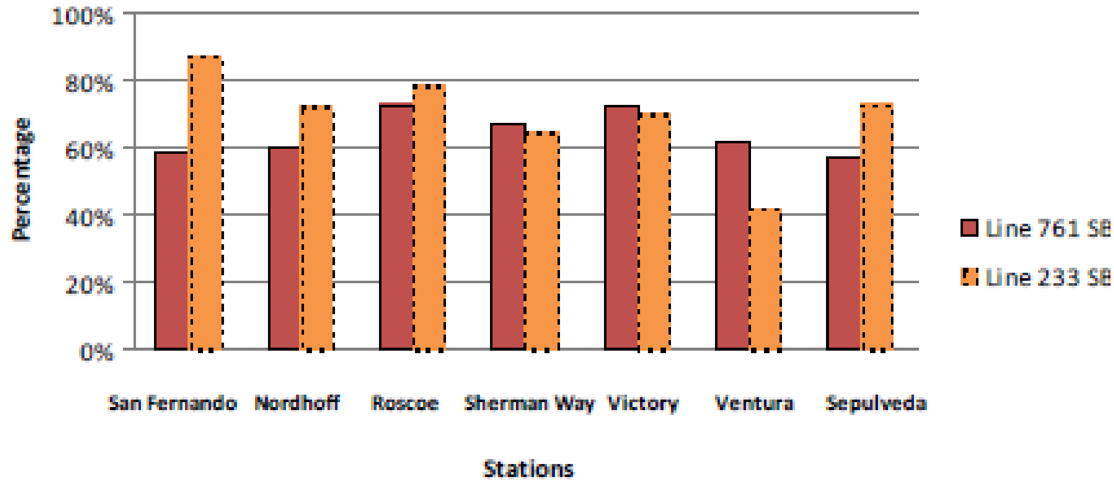



Source: Metro, 2011.

Figure 1-14 and Figure 1-15 below illustrate on-time performance at select service locations along the Van Nuys Boulevard corridor in both the north and southbound directions.

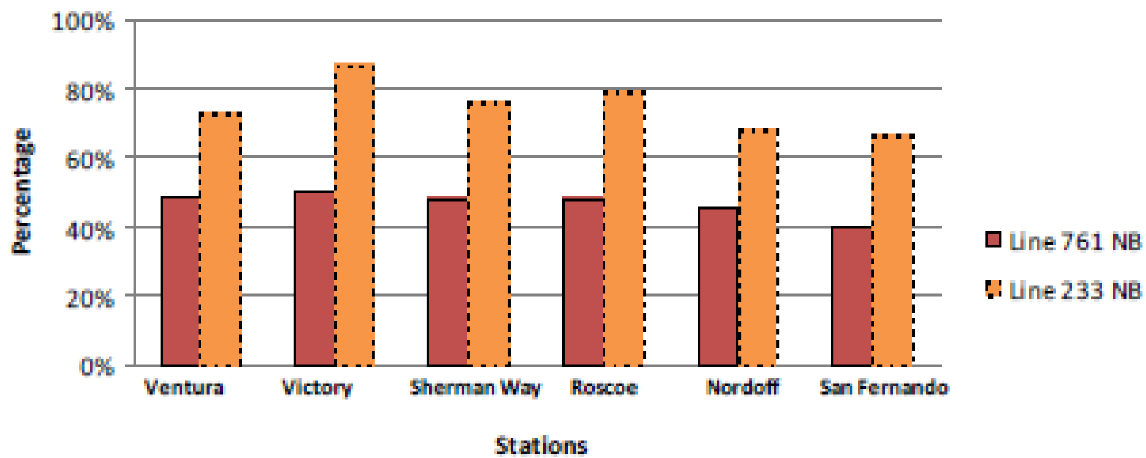
The Metro Local Line 233 performs better than the Metro Rapid Line 761, but the Metro Local Line 233 still rates below 80 percent on-time performance at almost every time-point examined (excluding San Fernando in the southbound direction and Victory in the northbound direction). The Metro Rapid Line 761 performs particularly poorly in terms of reliability in the northbound direction, where on-time performance is less than 50 percent at all time-points examined. While both the Metro Local Line 233 and Metro Rapid Line 761 perform poorly in terms of reliability the Metro Rapid 761 performs worse because it is a Rapid line with fewer stops and faster expected travel through the corridor than the local line with many more stops and a longer expected trip time. However, since the Metro Rapid Line 761 travels in the same mixed-flow lanes with a considerable amount of traffic congestion, its speed is hindered and thus the total trip time is not much shorter than on the Local Line 233, thus performing worse than expected due to it being a Rapid Line versus the speed and travel time expectations of the Local line.

## Figure 1-14: On-Time Performance – Van Nuys Boulevard - Southbound




*Source: Metro, 2011*

## Figure 1-15: On-Time Performance – Van Nuys Boulevard - Northbound




*Source: Metro, 2011*

Transit service that is physically separated from auto traffic would allow for much more improved reliability of operations in this corridor, especially with the clear lack of advantage in reliability with the Metro Rapid Bus service.

### 1.3.6.2 San Fernando Road

An examination of on-time performance statistics for the Metro Local Lines 94, 224, 230 and 234 indicate that the lines are not currently meeting the on-time performance goals of 80 percent.

Figure 1-16 and Figure 1-17 below illustrate on-time performance at select service locations along San Fernando Road in both the northbound and southbound directions.

**Figure 1-16: On-Time Performance – San Fernando Road - Southbound**

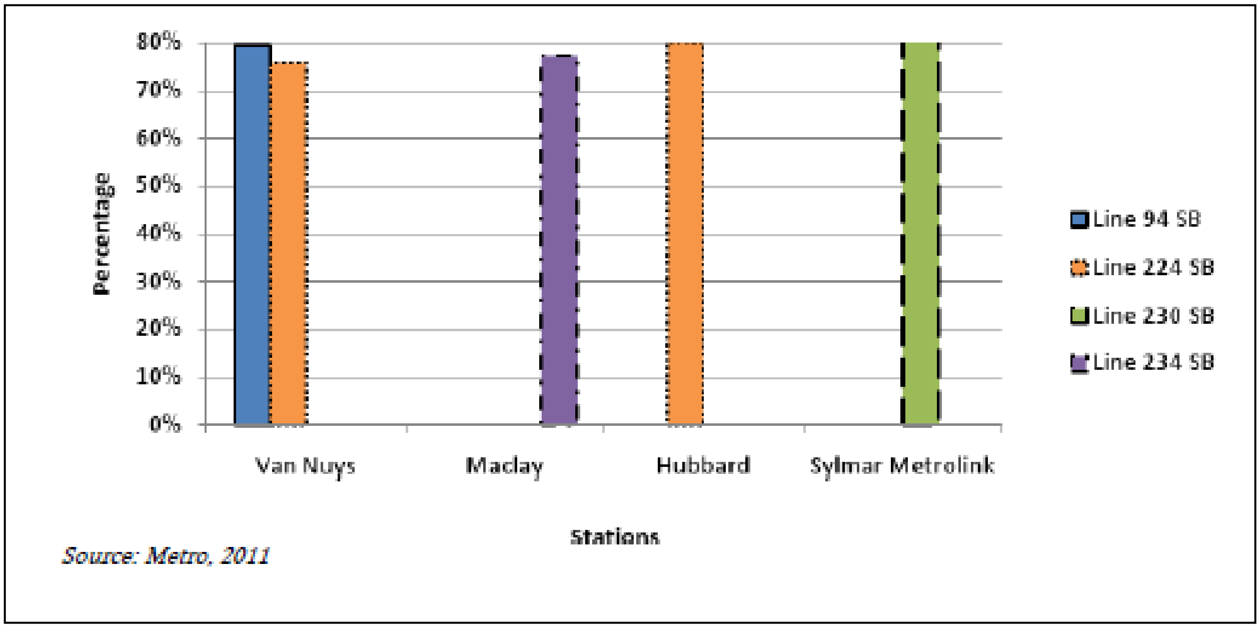
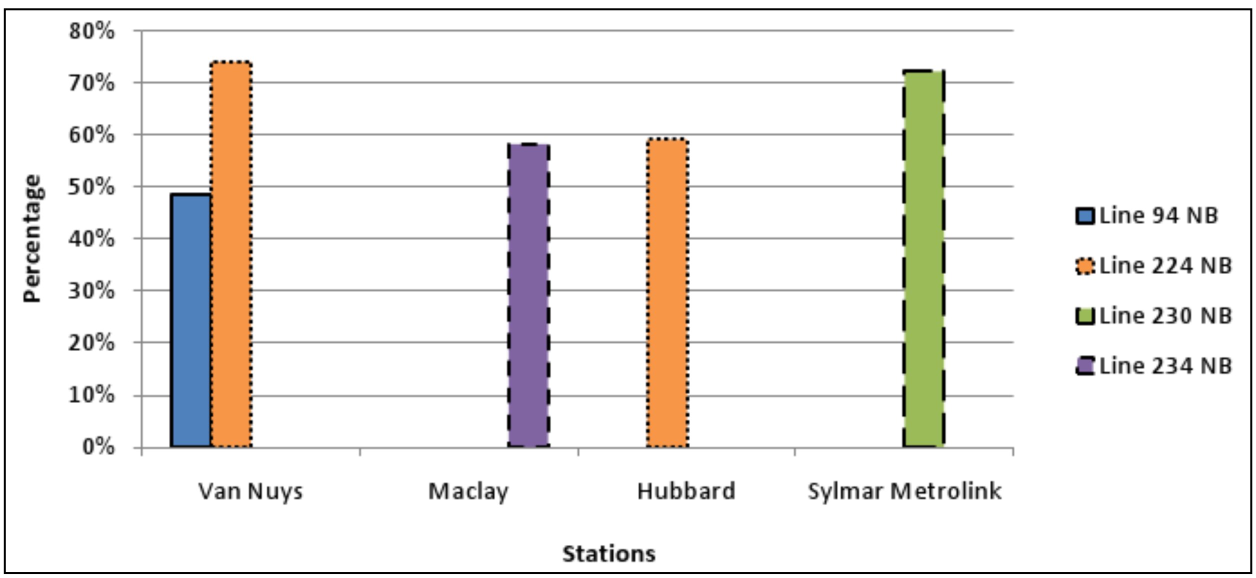



**Figure 1-17: On-Time Performance – San Fernando Road - Northbound**




Source: Metro, 2011.

The Metro Local Lines 94, 224, 230 and 234 generally perform better in the southbound direction, although on-time performance is still below 80 percent for most lines in this direction. Metro Local Lines 94, 224, and 234 perform especially poorly in the northbound direction, with on-time performance below 60 percent. The Metro Local Line 94 in the northbound direction performs particularly poorly, where on-time performance is under 50 percent. Please note that the Metro Rapid Line 794 was not evaluated as part of this study.

Transit service physically separated from auto traffic would allow for much improved reliability of operations in this corridor.

# 1.4 Project Purpose, Need, and Objectives

This section includes the project purpose, project need, and project objectives. The project purpose describes the intent of the proposed transit improvements in addressing the needs listed in the project need subsection. The range of alternatives considered during the AA and further considered in this Draft EIS/EIR reflect the identified project purpose and need. The project objectives describe how Metro intends on delivering the proposed transit project to not only meet the project purpose and need but also identify how the project alternatives are consistent with Metro's mission statement as a public transit agency.

## 1.4.1 Project Purpose

The East San Fernando Valley Transit Corridor Project would provide new service and/or infrastructure that improves passenger mobility and connectivity to regional activity centers, increases transit service efficiency (speeds and passenger throughput), and makes transit service more environmentally beneficial via reductions in greenhouse gas emissions.

The purposes of the proposed project can be summarized as follows:

- Improve mobility in the eastern San Fernando Valley by introducing an improved north-south transit connection between key transit hubs/routes by improving transit trip times and speeds along the project corridor;
- Enhance transit accessibility/connectivity for residents within the study area to local and regional destinations by improving the carrying capacity and person throughput through the corridor to address projected population growth and increased roadway congestion in the corridor that will directly affect transit service;
- Provide more reliable transit service within the eastern San Fernando Valley;
- Provide additional transit options in an area with a large transit dependent population, including the disabled, and high transit ridership; and
- Encourage modal shift to transit in the eastern San Fernando Valley, thereby improving air quality.

## 1.4.2 Project Need

This section summarizes the nexus between the purpose of the project and the identified needs in the study area. The five project purposes are defined below and followed by a discussion of supporting study area needs.

**Purpose:** Improve mobility in the eastern San Fernando Valley by introducing an improved north-south transit connection between key transit hubs/routes.

**Supporting Needs:** The project study area contains three major transit corridors (Metro Orange Line, Metrolink Antelope Valley Line, and Metrolink Ventura County Line/Amtrak Pacific Surfliner), which are vital to the regional movement of residents and workers into and out of the east San Fernando Valley. These core transit services traverse and serve the study area at various geographic locations and are linked by local and Rapid Bus service. The northern portion of the study area includes the Sylmar/San Fernando Metrolink Station, which is served by the Metrolink Antelope Valley Line. The middle portion of the study area is served by the Metrolink Ventura County Line/Amtrak Pacific Surfliner via the Van Nuys Station. The southern portion is served by the Metro Orange Line at the Van Nuys and Sepulveda station stops.

The extent of the study area's transit dependency is supported in part by boarding and alighting data in each corridor as well as its socioeconomic profile. For example, Metro Local Line 233 and Metro Rapid Line 761 have some of the highest ridership in the San Fernando Valley and Los Angeles County with approximately 24,000 boardings. Offering Metro riders an improved north-south transit connection is imperative to fostering increased future travel opportunities between key regional transit hubs, including a future project in the Sepulveda Pass and the Metro Orange Line (30,000 boardings).

Based on the Metro travel forecast model, the number of congested roadway segments (a portion of the roadway located between two intersections) in the study area is expected to increase from 126 to 162, a 29 percent increase in the AM peak hour and from 103 to 159, a 54 percent increase in the PM peak hour. Average speeds on these segments are expected to decrease by up to 12 miles per hour (mph) during the AM and PM peak hours. The increase in congested segments will result in lower vehicle speeds and increased travel delay in the study area, reducing mobility.

The forecasts also indicate that by the year 2040, peak-hour average vehicle travel speeds will:

- Decline in the Van Nuys Boulevard Corridor by about 4.6 mph (a 15.6 percent decrease), from 30.1 mph to 25.4 mph in the AM peak period and by about 4.3 mph (a 14.8 percent decrease) from 28.9 to 24.6 mph in the PM peak period.
- In the Sepulveda Boulevard Corridor, speeds are forecasted to decrease by about 3.5 miles per hour (an 11.3 percent decrease) from 30.9 mph to 27.4 mph in the AM peak period and by about 3.1 mph (a 14.8 percent decrease) from 30.7 to 27.6 mph in the PM peak period.
- For the study area as a whole, speeds are forecasted to decrease by about 4.1 miles per hour (a 13.4 percent decrease) from 30.5 mph to 26.4 mph in the AM peak period and by about 3.7 mph (a 14.8 percent decrease) from 29.8 to 26.1 mph in the PM peak period.

Based on travel projections from the Metro model, the number of study intersections currently operating at LOS E or F along the Van Nuys Boulevard corridor and the Sepulveda Boulevard corridor will more than double by the year 2040.

Mobility is directly related to, among other measures, average travel speeds and commute times. As traffic levels increase, travel times and speeds will worsen and create disincentives for travelers to use regional transit. Providing an improved north-south transit option that is not affected by traffic conditions is paramount in continuing to provide local mobility within the east San Fernando Valley, as well as providing regional mobility to and from the area, including connections to the rest of the transportation system and destinations such as the Westwood, UCLA, Brentwood, and the entire Westside by way of the Metro Orange Line, the future project in the Sepulveda Pass.

**Purpose:** Enhance transit accessibility/connectivity for residents within the study area to local and regional destinations.

**Supporting Needs:** According to the Metro model, the person-trip distribution for the project study area indicates that a high number of travel trips tend to be localized to the communities within the area. As shown in the Metro model results, approximately 50 percent of the trips stay within the study area, with a large portion of trips occurring between the northern communities of the City of San Fernando and Pacoima and the southern communities of Mission Hills and Panorama City. These southern communities have a higher number of activity centers that include Kaiser Permanente, several high schools, and the Panorama Mall. A significant proportion of the overall study area trip distribution is to and from the Van Nuys Civic Center area, constituting approximately 52 percent of all study area trips. The transit service levels between 2012 and 2017 were checked, validated, and these operating characteristics are still very similar and consistent in the study area.These general trip trends are expected to remain similar in 2040 and show a high attraction of trips between the central study area and the Civic Center area.

Because of the centralized trip patterns, transit accessibility and connectivity are integral to study area resident travel needs, especially to those who are transit dependent (35 percent). A total of 10 percent of households do not own a car and the average adult poverty ratio is 2.26 persons per acre compared to 1.08 per acre for Los Angeles County. These residents rely on Metro and City of Los Angeles Department of Transportation bus services for work and non-work trips within the study area and the greater Los Angeles County area.

By 2040, the trip pattern is expected to remain similar, with a high number of trips (approximately 50 percent) staying within the study area. Local trips will remain a significant contributor to traffic and transit trends. Therefore, providing enhanced transit connections and accessibility to surrounding destinations is critical for residents that rely on public transit.

**Purpose:** Provide more reliable transit services within the eastern San Fernando Valley.

**Supporting Needs:** The existing bus service along the study area corridors does not meet the Metro on-time performance goal of 80 percent. This is directly correlated to levels of congestion and related vehicular speeds, which together reduce the mobility of area bus riders. As congestion continues to increase, the reliability of bus service for riders will also worsen. Providing transit services that are less affected by increasing traffic congestion will provide increased reliability.

The increased congestion and reduction of speeds will increase both automobile and transit vehicle delay at intersections in the study area. The analysis indicates that the increase in average vehicle delay at key intersections in the study area are expected to increase by at least 30 seconds to possibly over two minutes at several locations during the AM and PM peak hours. Driver delay within the study area commute corridors could increase by 40 percent or more without major mobility improvements. For example, a driver approaching an intersection in the Civic Center that is currently experiencing 25 seconds in delay will now experience 35 seconds in delays by the year 2040.

Existing Metro bus performance data for the study area indicates that there are large overall differences between peak and off-peak scheduled runtimes (with an increase in runtimes from approximately 25 percent to 50 percent, between the fastest and slowest trips) and bus speeds (with an increase ranging from approximately 33 percent to 50 percent during peak periods). In the Van Nuys Boulevard and Sepulveda Boulevard corridors, there is a lack of a substantial speed advantage for the Rapid Line, as compared to the local line.

The Rapid Line 761 and the Local Line 233 operating on Van Nuys Boulevard do not meet the Metro on-time performance goal during peak periods. For example, the on-time performance of Rapid Line 761 within the study area is less than 50 percent at all time-points traveling northbound and approximately 60 to 70 percent at the southbound time-points. The on-time performance of the Local Line 233 averages to 69 percent in the southbound direction and 75 percent in the northbound direction. The same occurs along the length of Sepulveda Boulevard within the study area, where Rapid Line 734 and the Local Line 234 do not typically meet the on-time performance goal. On San Fernando Road, the Local Lines 94, 224, 230 and 234 generally perform below the goal within the study area.

On-time performance tends to be slightly better when it is measured across the entirety of these Rapid and Local lines. For instance, the on-time performance for the entire length of Line 233 along Van Nuys Boulevard is approximately 77 percent – still below the 80 percent on-time performance goal, but an improvement over the on-time performance within the study area specifically. This implies that congestion and subsequent poor on-time performance is especially severe in the study area, which may lead to the potential reductions in reliability along other portions of the routes outside of the study area.

The longer travel times, slower speeds, and on-time performance during the AM and PM peak hours support the need for improved transit service in the Van Nuys Boulevard and Sepulveda Boulevard corridors.

**Purpose:** Provide additional transit options in an area with a large transit dependent population, including the disabled, and high transit ridership.

**Supporting Needs:** The Van Nuys Boulevard corridor has the seventh highest total transit boardings on the Metro Bus system. This corridor is served by Rapid Line 761 and Local Line 233, which have combined passenger boardings that are the second-highest in the San Fernando Valley (24,000), with the Metro Orange Line boardings (30,000) at a slightly higher number.

Boardings and alightings along Van Nuys Boulevard are highest between Nordhoff Street and the Metro Orange Line, and between Laurel Canyon Boulevard and Glenoaks Boulevard. The demand in passenger boardings is constituted by both transit dependent and discretionary riders. The overall population density and the transit dependent population density are both more than twice as high in the study area as in the urbanized area of the County as a whole:

- The study area average of 0.53 zero-vehicle households per acre is 77 percent higher than the 0.30 County average.
- The study area average transit dependent population of 7.04 persons per acre is approximately 120 percent higher than the 3.21 County average.
- The study area average of 2.26 adult persons below the poverty line per acre is over two times the 1.08 County average.

Although population density and transit dependent population characteristics are expected to stay the same or improve slightly, study area population is expected to increase by almost 12 percent by the year 2040, and area employment will increase by approximately 15 percent. With the increase in population and employment growth, it is likely that there will be an increase in bus crowding.

The large number of existing riders within the Van Nuys and Sepulveda Boulevard corridors, and the projected population growth indicates that an especially large market is available if transit is further improved in the study area. There will be future needs for increased and upgraded transit services, as populations increase, and transit dependent factors related to age, the concentration of persons without private transportation, and the number of adults below the poverty line are expected to remain higher than County averages. The additional transit option that would be provided by the project will serve existing and future riders well.

**Purpose:** Encourage modal shift to transit in the eastern San Fernando Valley, thereby improving air quality.

**Supporting Needs:** Standards for many of the criteria pollutants monitored within the east San Fernando Valley have been exceeded multiple times during each of the previous three years of collected data (2009 – 2011). The traffic analysis indicates that travel speeds, vehicular delay and congestion will worsen by 2040. This will result in increased gas consumption and vehicle emissions in the study area. The increase in delay at the study intersections is expected to increase vehicle emissions and fuel consumption.

To address climate change and greenhouse gas (GHG) emissions, thus air quality in California, two major initiatives were passed. Assembly Bill 32 (AB 32) was passed in 2006 with the aim of reducing GHG to 1990 levels by 2020. In 2008, Senate Bill 375 (SB 375) was passed to enhance the State's ability to reach the goals set forth in AB 32 via the promotion of planning more sustainable communities through integrated land use and transportation strategies. As a result of these policies, it is imperative that state and local agencies work toward a solution.

A primary project objective is to encourage a mode shift from automobile to transit, which would result in a reduction of mobile-source air pollutant emissions. The East San Fernando Valley Transit Corridor Project would provide transportation and transit improvements that could potentially include BRT, Low-Floor LRT/Tram, or Light Rail Transit (LRT). Each of these transit modes would provide the study area with high- quality transit service, where currently there are limited competitive alternatives to driving. All existing corridor services, excluding the Metro Orange Line running on a guideway, are slowed by mixed-flow traffic and traffic signal operations.

As such, the proposed project would provide the opportunity for auto drivers to choose low-emission transit modes to serve their transportation needs. By shifting mode share from personal automobiles to transit, fewer automobile trips would occur on area roadways, which would reduce the amount of time vehicles idle in severely congested traffic. To the extent that the proposed project can offer an alternative to automobile travel, mobile-source air pollutant emissions would be reduced.

### 1.4.3 Project Objectives

The project objectives reflect Metro's mission to meet public transportation and mobility needs for transit infrastructure while also being a responsible steward of the environment and being considerate of affected agencies and community members when planning a fiscally sound project. The objectives are described below:

- Provide new service and/or infrastructure that improves passenger mobility and connectivity to regional activity centers;
- Increase transit service efficiency (speeds and passenger throughput) in the project study area; and
- Make transit service more environmentally beneficial via reductions in greenhouse gas emissions in the project study area.

# Chapter 2
# Project Description/Alternatives Considered

This chapter describes the alternatives evaluated in this Draft Environmental Impact Statement/Environmental Impact Report (DEIS/DEIR) for the East San Fernando Valley Transit Corridor Project and outlines the process used to identify, evaluate, and refine the alternatives. The alternatives analysis was performed in compliance with NEPA and the environmental impact–related procedures (23 CFR 771).

The Los Angeles County Metropolitan Transit Authority (Metro) followed the alternative selection process outlined in the Alternative Analysis Report (included as Appendix F to this document) to identify the alternatives and issues to be analyzed, including seeking input from the public, corridor stakeholders, and other affected parties. The alternatives described provide a reasonable range of possible alternatives that meet the project purpose and need described in Chapter 1, Introduction and Purpose and Need, of this DEIS/DEIR. Metro will consider all reasonable alternatives, besides those that have previously been eliminated from consideration in the Alternatives Analysis Report, before selecting a preferred alternative that provides improved public transportation services in the East San Fernando Valley Transit Corridor.

Alternatives were evaluated according to their:

- Effectiveness;
- Environmental impacts;
- Efficiency:
- Financial feasibility; and
- Equity.

## 2.1 Alternatives Screening and Selection Process

The alternatives screening and selection process began with the Metro East San Fernando Valley Transit Corridor Alternatives Analysis (AA) report, which was the precursor to this DEIS/DEIR. The AA evaluated 26 build alternatives plus the Transportation Systems Management (TSM) and No-Build Alternatives. Route segments were also evaluated to determine feasible alignments in the study area. A segment was deemed infeasible if the right-of-way (ROW) width is insufficient to accommodate the considered project modes, even with roadway widening or if a segment failed to contribute to a reasonable route alignment. Some segments that are considered crucial to maintain a viable alignment, like San Fernando Road between the Sylmar/San Fernando Metrolink Station and Van Nuys Boulevard, were considered feasible even if buses must operate in mixed-flow operation. However, segments that currently lack Metro Rapid bus service and are too narrow for BRT, LRT, or streetcar, like Fox Street in the northern portion of the study area, were deemed infeasible. Of the route segments that were evaluated, 14 route alignment options were determined to be feasible. These north-south alignments would be located within the existing ROW on Van Nuys Boulevard, Sepulveda Boulevard/Brand Boulevard, or use a hybrid combination of both the Van Nuys Boulevard and Sepulveda Boulevard/Brand Boulevard corridors.

As part of the Alternatives Analysis (AA) Report completed in December 2012, most of Sepulveda Boulevard/Brand Boulevard corridor was eliminated as an alignment option based on the fact that there would not be substantial improvements to mobility and connectivity along this alignment, the route would not have included key areas along Van Nuys Boulevard that have higher transit dependent populations and transit ridership, and there was high public opposition to a project on Brand Boulevard due to the historic characteristic of the corridor and potential vibration and parkland impacts on the San Fernando Mission and Brand Park properties. Furthermore, there was strong community support for an alignment on Van Nuys Boulevard. As a result of the Alternatives Analysis, modal recommendations were for BRT and LRT. As part of the March 2013–May 2013 DEIS/DEIR scoping period, there were four public scoping meetings held, and 258 scoping comments received. Many of the comments reflected the following:

- Preference for LRT;
- Support for bicycle facilities; and
- Opposition to a dedicated guideway south of the Metro Orange Line.

In June 2013, Metro held meetings with the Cities of Los Angeles and San Fernando to review the alternatives being analyzed in light of the scoping comments received, and the alternatives being carried forward for analysis in this DEIS/DEIR. These refined alternatives were then received by and filed with the Metro Planning and Programming Committee in November 2013.

It should be noted that during the AA process the curbside bus alternative was eliminated from further consideration because it failed to achieve several of the operational efficiencies that were called for in the project's Purpose and Need. After further analysis, this alternative is being reconsidered as it could meet most of the project's Purpose and Need and because it could have the least impact on existing traffic, and has the potential to be constructed within the budget reserved for this project in the Metro Board-adopted 2009 LRTP. In addition, this alternative allows for bicycles to travel in the proposed curbside lanes, sharing the lane with buses only, in response to comments received on the AA in support of bicycle facilities along the corridor. The other alternatives being considered would require bicycles to travel in the regular automotive lanes, due to right-of-way constraints.

Tram technology was also not included in the AA Study because the rail alternative was presumed to be modeled on the standard Los Angeles LRT lines already in operation. Los Angeles LRT vehicles often require grade separations or subway segments to fit into the urban environment. The street-running Low-Floor LRT/Tram Alternative was introduced for further study in the DEIS/DEIR because it could have a much higher carrying capacity than a BRT system and allow for mixed-flow traffic, while avoiding some of the potential property acquisition and grade separations that could be needed with an LRT system. Therefore, as a result of the alternatives screening process and feedback received during the public scoping period, a Curb-Running BRT, Median-Running BRT, median-running Low-Floor LRT/Tram, and a median-running LRT, were the four build alternatives, along with the TSM and No-Build Alternatives that were carried forward for analysis in the technical studies prepared in support of this DEIS/DEIR. For the purposes of this DEIS/DEIR, the four build alternatives have been organized as follows:[1]

[1] In the technical studies prepared in support of this DEIR/DEIS, the alternatives were defined as follows: No-Build Alternative, TSM Alternative, Build Alternative 1 – Curb-Running BRT, Build Alternative 2 – Median-Running BRT, Build Alternative 3 – Low-Floor LRT/Tram Alternative, and Build Alternative 4 – LRT.

- BRT Alternatives;
  - Alternative 1: Curb-Running BRT;
  - Alternative 2: Median-Running BRT;
- Rail Alternatives;
  - Alternative 3: Low-Floor LRT/Tram; and
  - Alternative 4: LRT.

### 2.1.1 What Project Alternative Modes/Routes Are Included in This Analysis?

The following alternatives are being evaluated as part of this study:

- No-Build Alternative;
- TSM Alternative;
- BRT Alternatives;
  - Alternative 1: Curb-Running BRT;
  - Alternative 2: Median-Running BRT;
- Rail Alternatives;
  - Alternative 3: Low-Floor LRT/Tram; and
  - Alternative 4: LRT.

All of the BRT and rail alternatives would operate over 9.2 miles, either in a dedicated bus lane or guideway (6.7 miles) and/or in mixed-flow traffic lanes (2.5 miles), from the Sylmar/San Fernando Metrolink Station to the north to the Van Nuys Metro Orange Line Station to the south, with the exception of Alternative 4, which includes a 2.5-mile segment within Metro-owned railroad right-of-way adjacent to San Fernando Road and Truman Street and a 2.5-mile underground segment beneath portions of the communities of Panorama City and Van Nuys. All of the build alternatives would serve the City of San Fernando and the City of Los Angeles communities of Sylmar, Pacoima, Arleta, Panorama City, and Van Nuys. The project study area is currently served by the Van Nuys Metro Rapid Line 761 and Metro Local Line 233. The project study area is also currently served by Metro Rapid Line 794, which runs along Truman Street and San Fernando Road, as well as by Metro Rapid Line 734, which runs along Truman Street.

It should be noted that modifications were made in December 2014 to one of the primary Metro bus routes operating on Van Nuys Boulevard after this project analysis was already underway. Metro Rapid Line 744 was added connecting Pacoima in the east to Northridge in the west, and traveling for a large portion of the route (north-south) along Van Nuys Boulevard, replacing the Metro Rapid Line 761. For the purposes of this study, the evaluation was based on the routes (Metro Rapid Line 761 and Metro Local Line 233) that were already in place in 2012 when the transportation modeling for this study began.

# 2.2 Alternatives

This section provides a detailed description of the alternatives and their main components.

## 2.2.1 No-Build Alternative

The No-Build Alternative represents projected conditions in 2040 without implementation of the project. No new transportation infrastructure would be built within the project study area, aside from related transportation projects that are currently under construction or funded for construction and operation by 2040. These projects include highway and transit projects funded by Measure R and specified in the current constrained element of the Metro 2009 LRTP and the 2016 Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Existing infrastructure and future planned and funded projects assumed under the No-Build Alternative include:[2]

- Existing Freeways – Interstate (I) 5, State Route (SR) 118, and US 101;
- Existing Transitway – Metro Orange Line;
- Existing Bus Service – Metro Rapid and Metro Local; Los Angeles Department of Transportation Commuter Express, and DASH;
- Existing and Planned Bicycle Projects – Bicycle facilities on Van Nuys Boulevard, Class I bike lane on the north side of San Fernando Road, and connecting east/west facilities; and
- Other Planned Projects – Various freeway and arterial roadway upgrades, upgrades to the Metrolink system, and the proposed California High Speed Rail Project.

This alternative establishes a baseline for comparison to other alternatives in terms of potential environmental effects, including adverse and beneficial environmental effects. The existing conditions (i.e., existing street and transit network) under the No-Build Alternative are shown in Figure 2-1.

## 2.2.2 TSM Alternative

The Transportation Systems Management (TSM) Alternative proposes enhancements to the existing transit system and would focus on relatively low-cost, efficient, and feasible transit service improvements and transportation systems upgrades, such as increased bus frequencies and minor modifications to the roadway network. Additional transit improvements that would be considered under the TSM Alternative include, but are not limited to, traffic signalization improvements, bus stop amenities/improvements, and bus schedule restructuring. Specifically, the TSM Alternative would include enhanced operating hours and increased bus frequencies for the existing Metro Rapid Line 761[3] and Metro Local Line 233. It would not change the existing bus operations on San Fernando Road, including those of Metro Local Line 244 and Metro Rapid Line 794. The route of the TSM Alternative is shown in Figure 2-2.

---

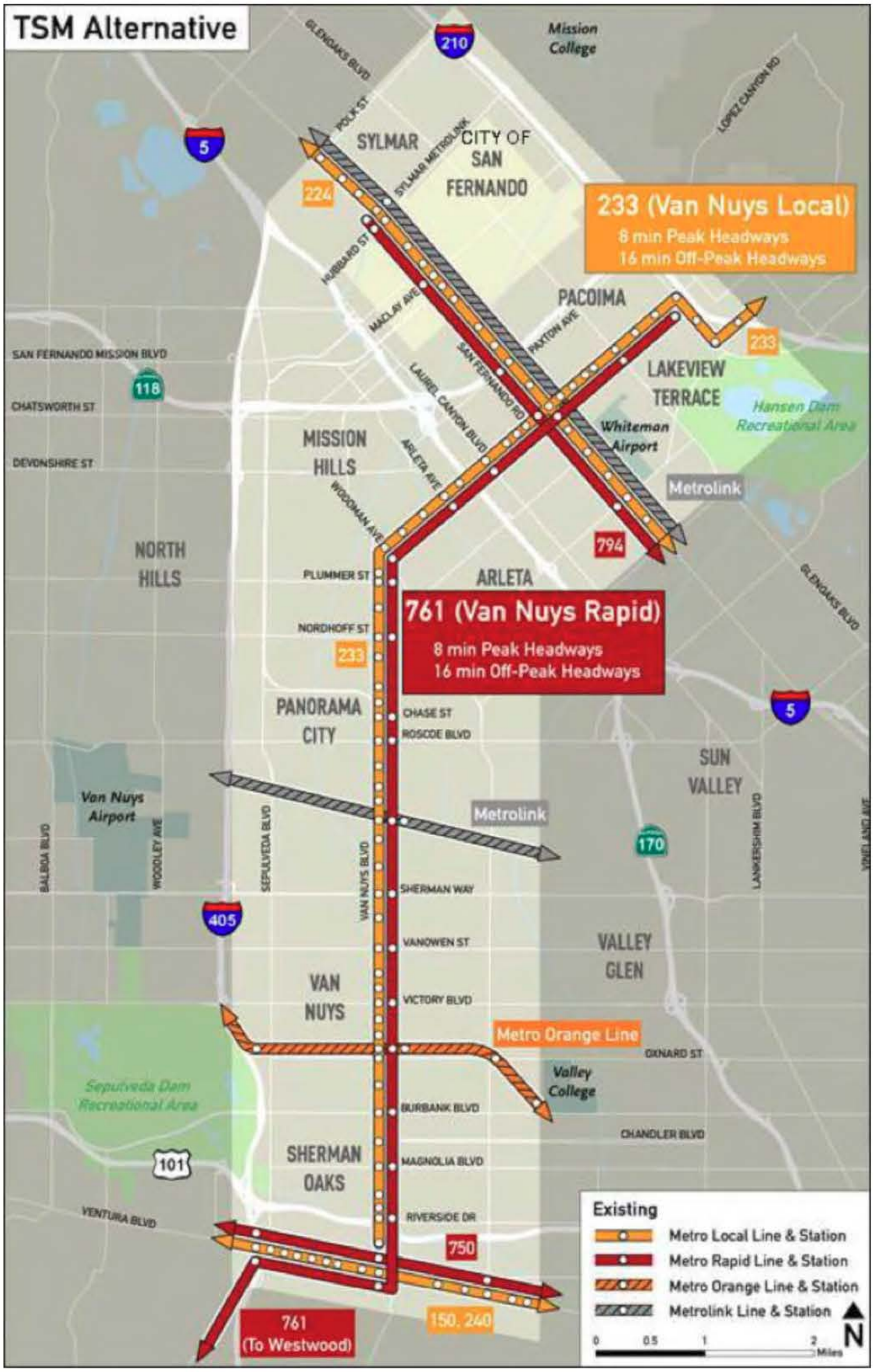
[2] Metro has identified a need for capacity improvements through the Sepulveda Pass and is considering conducting further studies to evaluate the feasibility of a transit project that would carry passengers between the San Fernando Valley and West Los Angeles over the Sepulveda Pass. However, as the project is not yet defined and is subject to further feasibility studies, it is not included as part of the No-Build Alternative.

[3] Subsequent to initiation of the analyses for this EIS/EIR, Metro Rapid Line 761 was replaced by Metro Rapid Line 744.

## Figure 2-1: Existing Conditions under No-Build Alternative


Source: STV, 2014.

## Figure 2-2: TSM Alternative




Source: STV, 2014.

It should be noted that modifications were made in December 2014 to one of the primary Metro bus routes operating on Van Nuys Boulevard after this project analysis was already underway. Metro Rapid Line 744 was added connecting Pacoima in the east to Northridge in the west, and traveling for a large portion of the route (north-south) along Van Nuys Boulevard, and replacing the Metro Rapid Line 761. For the purposes of this study, the evaluation was based on the routes (Metro Rapid Line 761 and Metro Local Line 233) that were already in place in 2012 when the transportation modeling for this study began.

Only a few changes were made to Metro's bus system between 2012 and 2017 within the study area. These include:

1. Combining the Van Nuys Boulevard portion of the Line 761 with Line 741 to form Line 744.
2. Combining the non-Van Nuys Boulevard portion of Line 761 with Line 734 and then extending it to the Exposition Rail Station.
3. Combining the non-Van Nuys Boulevard portion of Line 233 during the late night/weekend service period to Line 234 and extending it to the Exposition Rail Station.
4. Separating Line 237 from Line 236 and combining it with Line 156.
5. Adding Line 788 which runs from Arleta to Westwood during just the weekday peak periods.

Aside from adding Line 788, the rest of the changes were limited to a reorganization of seven lines. Transit service levels in 2017 for the study area are very similar to those in 2012. Over that same time period, the number of bus stops changed from 1,089 to 1,093, a net increase of only four stops.

#### 2.2.2.1 Alignment and Bus Stops

Under the TSM Alternative, the Metro Rapid Line 761 and Metro Local Line 233 bus routes would retain existing stop locations.

The Metro Rapid Line 761 stop locations from north to south (along Van Nuys Boulevard unless otherwise noted) are:

1. Foothill Boulevard;
2. Glenoaks Boulevard;
3. San Fernando Road;
4. Laurel Canyon Boulevard;
5. Arleta Avenue;
6. Woodman Avenue;
7. Plummer Street;
8. Nordhoff Street;
9. Chase Street;
10. Roscoe Boulevard;
11. Blythe Street;
12. Van Nuys Metrolink Station;
13. Sherman Way;
14. Vanowen Street;
15. Victory Boulevard;
16. Bessemer Street/Oxnard Boulevard;
17. Burbank Boulevard;
18. Magnolia Street;
19. Huston Street;
20. Ventura Boulevard (at Van Nuys Boulevard);
21. Ventura Boulevard (at Sepulveda Boulevard); and
22. Existing Metro Rapid Line 761 stops within Sepulveda Pass and Westwood.

#### 2.2.2.2 Vehicles

The TSM Alternative would add 20 additional buses to the existing Metro Local Line 233 and Metro Rapid Line 761 bus routes. These buses would be similar to existing Metro 60-foot articulated buses, and each bus would have the capacity to serve up to 75 passengers (57 seats x 1.30 passenger loading standard). Buses would be equipped with transit signal priority equipment to allow for improved operations and on-time performance.

#### 2.2.2.3 Supporting Facilities

The 20 additional buses required under the TSM Alternative would be accommodated at the existing Metro Division 15 Maintenance and Storage Facility (MSF) located in Sun Valley. No major modifications would be required to this facility to accommodate the additional 20 buses.

#### 2.2.2.4 Operations

Under the TSM Alternative, operational changes would include reduced headway (elapsed time between buses) times for Metro Rapid Line 761 and Metro Local Line 233, as follows:

- Metro Rapid Line 761 would operate with headways reduced from 10 minutes to 8 minutes during peak hours (7 a.m. to 9 a.m. and 4 p.m. to 7 p.m. on weekdays) and from 17.5 minutes to 12 minutes during off-peak hours.
- Metro Local Line 233 would operate with headways reduced from 12 minutes to 8 minutes during peak hours and from 20 minutes to 16 minutes during off-peak hours.

### 2.2.3 BRT Alternatives

#### 2.2.3.1 Alternative 1: Curb-Running BRT

Under the Curb-Running BRT Alternative, 6.7 miles of existing curb lanes (i.e., lanes closest to the curb) along Van Nuys Boulevard between San Fernando Road and the Metro Orange Line would be converted to dedicated bus lanes. This Alternative would be similar to the Metro Wilshire BRT Project with a dedicated bus lane that could operate 24-hours a day or only during peak periods. The hours during which the curb lane would be used as a dedicated BRT lane may be limited to the period extending from 7:00 a.m. to 7:00 p.m. (further refinement of the operating hours and days for the Curb-Running BRT could occur, if necessary, based on passenger demand and community input after operation of this alternative commences). The existing asphalt lane along Van Nuys Boulevard, Truman Street, and San Fernando Road would be replaced with a concrete lane; similar to what was done for the Wilshire BRT Project. The lanes would be dedicated curb-running bus lanes for Metro Rapid Line 761 and Metro Local Line 233, and for other transit lines that operate on short segments of Van Nuys Boulevard. In addition, this Alternative would incorporate 2.5 miles of mixed-flow lanes, where buses would operate in the curb lane along San Fernando Road and Truman Street between Van Nuys Boulevard and Hubbard Avenue for Metro Rapid Line 761. Metro Local Line 233 would continue north on Van Nuys Boulevard to Lakeview Terrace. These improvements would result in an improved Metro Rapid Line 761 (hereafter referred to as 761X) and an improved Metro Local Line 233 (hereafter referred to as 233X). The route of the Curb-Running BRT Alternative is illustrated in Figure 2-3.

## Figure 2-3: BRT Alternatives – Alternative 1: Curb-Running BRT


Source: KOA and ICF International, 2014.

## Alignment

The Curb-Running BRT Alternative would operate as follows from the Sylmar/San Fernando Metrolink Station:

- Metro Rapid Line 761X would operate within mixed-flow roadway travel lanes on Truman Street and San Fernando Road.
- At Van Nuys Boulevard, Metro Rapid Line 761X would turn southwest and travel south within a curb-running dedicated bus lane along Van Nuys Boulevard.
- The BRT alignment would continue to be curb running along Van Nuys Boulevard until reaching the Van Nuys Metro Orange Line Station where Metro Rapid Line 761X service would be integrated into mixed-flow traffic.
- Metro Rapid Line 761X would then continue south to Westwood as under existing conditions, though it should be noted that in December 2014 the Metro Rapid Line 761 was re-routed and replaced with Metro Rapid Line 744, which travels from Van Nuys Boulevard to Ventura Boulevard, and then to Reseda Boulevard, while a new Metro Rapid Line 788 travels from Van Nuys Boulevard through the Sepulveda Pass to Westwood and provides peak period freeway express service.

Metro Local Line 233X would operate similar to how it currently operates between the intersections of Van Nuys and Glenoaks Boulevards to the north and Van Nuys and Ventura Boulevards to the south. However, operation of Metro Local Line 233X would improve compared to existing service because it would utilize the dedicated BRT lanes where its route overlaps with the curb-running BRT lanes along Van Nuys Boulevard.

Transit service would not be confined to only the dedicated curb lanes. Buses would still have the option to operate within the remaining mixed-flow lanes to bypass right-turning vehicles, a bicyclist, or another bus at a bus stop.

## Bus Stops

All current Metro Rapid bus stops within the proposed alignment would be upgraded and have design enhancements that would be Americans with Disabilities Act (ADA) compliant, including compliance with the dimensions and requirements pertaining to bus boarding and alighting areas, bus shelters, and bus stops as described in sections 8.10.2, 8.10.3, and 8.10.4 of the 2010 ADA Standards. The proposed BRT stations would be consistent with Metro's Systemwide Station Design Criteria. Bicycle parking would be provided at or near Metro stations, as required by Metro's Design Criteria. The Curb-Running BRT Alternative would include the following bus stops from north to south:

1. Sylmar/San Fernando Metrolink Station
2. Hubbard Station
3. Maclay Station
4. Paxton Station
5. Van Nuys/San Fernando Station
6. Laurel Canyon Station
7. Arleta Station
8. Woodman Station
9. Plummer Station
10. Nordhoff Station
11. Chase Station
12. Roscoe Station
13. Blythe Station
14. Van Nuys Metrolink Station
15. Sherman Way Station
16. Vanowen Station
17. Victory Station
18. Van Nuys Metro Orange Line Station

The Curb-Running BRT Alternative would operate in dedicated bus lanes, sharing the lanes with bicycles and right turning vehicles. However, on San Fernando Road and Truman Street, buses would share lanes with other motor vehicles and no dedicated bus lanes would be provided. Bus stops for Metro Rapid Line 761 on Van Nuys Boulevard, which are typically combined with local bus stops, would remain in the same locations as they are now. Due to the narrow sidewalk width, the Truman Street bus stop for southbound (the City of San Fernando refers to this as "eastbound") travel near Hubbard Avenue would be shifted farther away from Hubbard Avenue, to Meyer Street in order to provide space for station amenities at this bus stop location. This bus stop relocation would need to be coordinated with and approved by the City of San Fernando. Any bus stop relocations within the City of Los Angeles would have to coordinated and approved by the City of Los Angeles. Some curbside parking on San Fernando Road would be prohibited to provide for extended bus stop lengths, which would range between 80 feet and 150 feet. Bus stop widths (similar to sidewalk widths) would range from ten feet to 16 feet from the outside curb lane. Sidewalk widening would be required on Truman Street at Hubbard Avenue (Meyer Street) and both directions at Maclay Avenue -- where the existing sidewalk is less than 10 feet wide. Off-board fare collection and TAP card validators would be provided at all stations. In addition, Metro is moving to a fare gate system and such a system may be integrated into station design. Figure 2-4 illustrates a typical station with a canopy that would be constructed under this BRT alternative, though final design could be different, as any bus stations within the City of Los Angeles and City of San Fernando would have to be coordinated with, and approved by each respective city.

#### Figure 2-4: BRT Alternatives – Alternative 1: Curb-Running BRT (Typical Curb-Running BRT Station)


Source: Metro, John Kaliski Architects, 2015.

## Vehicles

The buses operating under the Curb-Running BRT Alternative would be similar to existing Metro high-capacity, articulated 60-foot buses, as shown in Figure 2-5. Each bus would have the capacity to serve up to 75 passengers (57 seats x 1.30 passenger loading standard). Buses would be equipped with transit signal priority equipment to allow for improved operations and on-time performance.

## Supporting Facilities

The Curb-Running BRT Alternative would not include the construction of an MSF. It is anticipated that Metro's Division 15 MSF, located in Sun Valley, would accommodate the 10 additional buses needed for this alternative, without any modification to the existing facility. This alternative would require fewer vehicles than the TSM Alternative because it would operate in dedicated bus lanes and therefore, would have faster run-times.

**Figure 2-5: Example of Metro 60-Foot Articulated Bus**


Source: Metro Transportation Library and Archives, 2015.

## Operations

Under the Curb-Running BRT Alternative, Metro Rapid Line 761X would operate with 6-minute peak and 12-minute off-peak headways. Metro Local Line 233X would operate with 8-minute peak and 16-minute off-peak headways.

Based on Metro's Operations Plan for the East San Fernando Valley Transit Corridor Project, the Curb-Running BRT Alternative is anticipated to result in speed improvements of 18 percent during the peak hour/peak direction and 15 percent during other times of the day.

#### Parking Loss and Lane Loss

Under the Curb-Running BRT Alternative, curbside parking would be prohibited in both directions, resulting in a loss of on-street parking. If exclusive use of the curb lane by buses is limited to the period of the day extending from 7:00 a.m. to 7:00 p.m., then on-street parking and stopping could be allowed during nighttime hours. The curbside parking prohibition during the daytime would result in a net increase in lane capacity for motor vehicles and buses in some cases, while in other cases, a mixed-flow travel lane would be replaced by a bus lane.

#### Van Nuys Boulevard between San Fernando Road and Parthenia Street

Along this segment, curbside parking is currently permitted throughout the day and at night. Under this alternative, parking would be prohibited. If exclusive use of the curb lane is limited to the period from 7:00 a.m. to 7:00 p.m., parking could continue to be permitted during the nighttime period along this segment.

#### Van Nuys Boulevard between Parthenia Street and Roscoe Boulevard

Along this segment, parking is currently prohibited. The roadway is striped for three travel lanes each way. The curbside travel lane would be converted to a dedicated bus lane and through traffic would not be allowed in the curbside lane from 7:00 a.m. to 7:00 p.m.

#### Van Nuys Boulevard between Roscoe Boulevard and Valerio Street

On this segment of Van Nuys Boulevard, the curbside lane, which currently functions as a travel lane during peak hours, would become a dedicated bus-only lane.

Along this segment, the roadway is currently striped to provide three lanes each way and allows parking throughout the day (except during peak periods). One travel lane would be removed in each direction, resulting in two travel lanes each way, and parking would be prohibited. If exclusive use of the curb lane by buses is limited to the period from 7:00 a.m. to 7:00 p.m., then parking could be permitted during nighttime hours.

#### Between Vose Street South of Sherman Way to Metro Orange Line

Along this segment, curbside parking would be removed and/or prohibited to accommodate a curbside bus lane. Nighttime parking could be permitted if exclusive use of the curb lane is limited to the period extending from 7:00 a.m. to 7:00 p.m.

### Bicycle Facilities

Bicycle parking would be provided at or near Metro stations, as required by Metro's Design Criteria. On Van Nuys Boulevard between the Metro Orange Line and San Fernando Road, with one exception (between Parthenia Street and Roscoe Boulevard), the curbside lane would be 12 feet wide or greater. The curb lane would be restricted to buses and bicyclists, with other vehicles allowed in the lane only for right-turns.

The existing Class II bike lanes on Van Nuys Boulevard north of Parthenia Street would be removed under this alternative.

On Van Nuys Boulevard between Parthenia Street and Roscoe Boulevard, the curbside lane would be 11 feet wide. Parking is currently prohibited on the segment. A permanent curbside bus lane would be provided on this segment so that bicyclists would share the curbside lane only with buses and right-turning vehicles and not the general public.

### Accessibility

#### Pedestrian

All current pedestrian movements across roadways would be maintained under this alternative, including all existing mid-block crossing opportunities. Canopies at upgraded bus stations would be designed to meet accessibility requirements.

#### Adjacent Businesses and Residents

All current motor vehicle turns into and out of cross streets and driveways would be maintained. No prohibitions on left turns or right turns would be necessary.

## 2.2.3.2 Alternative 2: Median-Running BRT

The Median-Running BRT Alternative would provide approximately 6.7 miles of dedicated median-running bus lanes between San Fernando Road and the Metro Orange Line, and would have operational standards similar to the Metro Orange Line. Similar to Alternative 1, this Alternative would also remove the existing asphalt lane and replace it with a concrete lane, similar to what was done for the Wilshire BRT Project. The remaining 2.5 miles would operate in mixed-flow traffic between the Sylmar/San Fernando Metrolink Station and San Fernando Road/Van Nuys Boulevard. The Median-Running BRT Alternative is illustrated in Figure 2-6.

### Alignment

Similar to the Curb-Running BRT Alternative, the Median-Running BRT Alternative (Metro Rapid Line 761X) would operate as follows from the Sylmar/San Fernando Metrolink Station:

- Within mixed-flow lanes on Truman Street and San Fernando Road.
- At Van Nuys Boulevard, the route would turn southwest and travel south within the median of Van Nuys Boulevard in a new dedicated guideway.
- Upon reaching the Van Nuys Metro Orange Line Station, the dedicated guideway would end and the Metro Rapid Line 761X service would then be integrated into mixed-flow traffic.
- The route would then continue south to Westwood, similar to the existing route, though it should be noted that in December 2014, Metro Rapid Line 761 was re-routed and replaced with Metro Rapid Line 744, which travels from Van Nuys Boulevard to Ventura Boulevard, and then to Reseda Boulevard, while a new Metro Rapid Line 788 travels from Van Nuys Boulevard through the Sepulveda Pass to Westwood and provides peak period freeway express service.

Metro Local Line 233 would operate similar to existing conditions between the intersections of Van Nuys and Glenoaks Boulevards to the north and Van Nuys and Ventura Boulevards to the south. Metro Local Line 233 would not operate in the dedicated guideway within the median of Van Nuys Boulevard, but it would operate as it currently does, with mixed flow traffic.

## Figure 2-6: BRT Alternatives – Alternative 2: Median-Running BRT


Source: KOA and ICF International, 2014.



Metro

## Bus Stops

Metro Rapid bus stops that currently serve the 794 and 734 lines on the northern part of the alignment along Truman Street and San Fernando Road would be upgraded and have design enhancements that would be Americans with Disabilities Act (ADA) compliant, including compliance with the dimensions and requirements pertaining to Bus Boarding and Alighting Areas, Bus Shelters, and Bus Stops as described in sections 8.10.2, 8.10.3, and 8.10.4 of the 2010 ADA Standards. These stops would also serve the redirected Metro Rapid Line 761X:

1. Sylmar/San Fernando Metrolink Station;
2. Hubbard Station;
3. Maclay Station;
4. Paxton Station; and
5. Van Nuys/San Fernando Station.

At the Sylmar/San Fernando Metrolink Station, an upgraded bus stop with canopies would be provided for both northbound and southbound bus service.

The bus stops at Hubbard Avenue and Maclay Avenue would require widening of the sidewalks to 10 feet to accommodate the bus stop canopies. Due to the narrow sidewalk width, the southbound bus stop at Hubbard Avenue would be shifted south of Meyer Street. This would provide space for station amenities at this bus stop location. This bus stop relocation would require coordination with and approval by the City of San Fernando. Any bus stop relocations within the City of Los Angeles would have to be coordinated with, and approved by the City of Los Angeles.

Along the Van Nuys Boulevard segment, bus stop platforms would be constructed in the median. Proposed new median bus stops would include the following (from north to south):

1. Laurel Canyon Station
2. Arleta Station
3. Woodman Station
4. Plummer Station
5. Nordhoff Station
6. Roscoe/Chase Station
7. Blythe Station
8. Van Nuys Metrolink Station
9. Sherman Way Station
10. Vanowen Station
11. Victory Station
12. Van Nuys Metro Orange Line Station

All curbside bus stops that serve local buses such as the Metro Local Line 233 along Van Nuys Boulevard north of the Metro Orange Line would remain in their current location.

The proposed stations would be consistent with Metro's Systemwide Station Design Criteria. The median BRT bus stops that would be used by Metro Rapid Line 761X would have split platforms serving the two directions of travel, and typically would be located on the far side of signalized intersections. The median BRT bus stop platforms would be 6 to 8 inches high, 8 to 12 feet wide, and approximately 190 to 330 feet long. The bus stops on Van Nuys Boulevard near the Metro Orange Line and at Victory Boulevard would have entrances at each end as they are located on short blocks with traffic signals at each end. Off-board fare collection and TAP card validators would be provided at all station platforms. In addition, Metro is moving to a fare gate system and such a system may be integrated into station design. Bicycle parking and bike lockers would also be provided at or near Metro stations, as required by Metro's Design Criteria. In addition, a painted steel guardrail would be placed along the non-loading side of the BRT platform, to prevent patrons from crossing. A barrier that would be the length of the alignment could be installed to prevent illegal pedestrian crossings, and fencing for pedestrian channelization could also be installed under this alternative. Figure 2-7 illustrates a typical station with a canopy that would be constructed for this BRT alternative.

**Figure 2-7: BRT Alternatives – Alternative 2: Median-Running BRT (Typical Median-Running BRT Station)**


Source: Metro, John Kaliski Architects, 2015.

## Operations

Metro Rapid Line 761X would operate with 6-minute peak and 12-minute off-peak headways. Metro Local Line 233 would operate with 8-minute peak and 16-minute off peak headways.

Based on Metro's *Operations Plan for the East San Fernando Valley Transit Corridor Project*, the Median-Running BRT Alternative is anticipated to result in speed improvements of 18 percent for peak hours and 15 percent for off-peak hours.

## Vehicles

Articulated 60-foot buses, similar to those under the Curb-Running BRT Alternative would be operated, as shown in Figure 2-5. Each bus would have the capacity to serve up to 75 passengers (57 seats x 1.30 passenger loading standard). Buses would be equipped with transit signal priority equipment, similar to existing Metro Rapid buses, to continue to allow for improved operations and on-time performance.

Vehicles would have doors only on the right side of the bus for passengers to board and alight.

## Supporting Facilities

It is anticipated that the Metro Division 15 MSF, located in Sun Valley, would accommodate the 10 additional buses needed for this alternative, which is fewer vehicles than the TSM Alternative because it would operate in dedicated bus lanes and, therefore, would have faster run-times. No major modifications would be required to the existing facility to accommodate the additional buses.

## Parking Loss and Lane Loss

All curbside parking would be prohibited along the entire extent of Van Nuys Boulevard from the Van Nuys Metro Orange Line Station to San Fernando Road.

Travel lanes on Van Nuys Boulevard would be provided as follows:

- <u>North of Parthenia Street</u>: two lanes would be maintained in each direction;
- <u>Between Parthenia Street and Roscoe Boulevard</u>: the number of travel lanes would be reduced from three lanes to two lanes in each direction;
- <u>Between Roscoe Boulevard and Valerio Street</u>: two lanes would be maintained each way throughout the day; and
- <u>Between the Van Nuys Metro Orange Line Station and Valerio Street</u>: Travel lanes would be reduced from three lanes to two lanes in each direction.

Although two lanes would be provided the length of Van Nuys Boulevard in each direction, the flow in the curbside lane of traffic would be impeded whenever a right-turning vehicle yields to crossing pedestrians or a local bus is stopped at a bus stop. Similarly, the flow of traffic would also be impeded at intersections along San Fernando Road, which is the only segment where left-turns are allowed, without a left-turn lane.

## Turning Restrictions

Left turns from Van Nuys Boulevard onto cross streets would be maintained at most of the currently signalized intersections, and prohibited at all unsignalized intersections. The dual left-turn lanes on northbound and southbound Van Nuys Boulevard at Sherman Way and at Roscoe Boulevard would be reduced to single left-turn lanes.

Several left-turns in the Van Nuys Civic Center, between Calvert and Hartland Streets, would be prohibited to accommodate median bus stop platforms. Because of the distance between signalized intersections, there would not be enough space for left-turn lanes. For similar reasons, the signalized left turn into the Panorama Plaza retail property on the east side of Van Nuys Boulevard, between Roscoe Boulevard and Chase Street, would be prohibited.

Unless otherwise prohibited, U-turns would be allowed from signalized left-turn lanes on Van Nuys Boulevard. Access to and from minor side streets and private driveways would rely on these U-turn opportunities.

All movements across the median guideway would be prohibited. This includes left turns from Van Nuys Boulevard at unsignalized intersections and private driveways, as well as left turns and through traffic from the side streets or from private driveways. Motorists who desire to make a left turn into an unsignalized cross-street or driveway would need to find a signalized left turn from which to make a U-turn or turn right off of Van Nuys Boulevard and seek a route that would enable them to reach a signalized cross street.

The following intersections would have left-turn prohibitions:

- Van Nuys Boulevard & El Dorado Avenue
- Van Nuys Boulevard & Tamarack Avenue
- Van Nuys Boulevard & Cayuga Avenue
- Van Nuys Boulevard & Oneida Avenue
- Van Nuys Boulevard & Omelveny Avenue
- Van Nuys Boulevard & Amboy Avenue
- Van Nuys Boulevard & Rincon Avenue
- Van Nuys Boulevard & Remick Avenue
- Van Nuys Boulevard & Vena Avenue
- Van Nuys Boulevard & Lev Avenue
- Van Nuys Boulevard & Canterbury Avenue
- Van Nuys Boulevard & Vesper Avenue
- Van Nuys Boulevard & Novice Street
- Van Nuys Boulevard & Gledhill Street
- Van Nuys Boulevard & Vincennes Street
- Van Nuys Boulevard & Osborne Street
- Van Nuys Boulevard between Chase Street & Roscoe Boulevard
- Van Nuys Boulevard & Lorne Street
- Van Nuys Boulevard & Michaels Street
- Van Nuys Boulevard & Keswick Street (northbound)
- Van Nuys Boulevard & Covello Street
- Van Nuys Boulevard & Wyandotte Street
- Van Nuys Boulevard & Gault Street
- Van Nuys Boulevard & Hart Street
- Van Nuys Boulevard & Archwood Street
- Van Nuys Boulevard & Gilmore Street (northbound)
- Van Nuys Boulevard & Friar Street (southbound)
- Van Nuys Boulevard & Delano Street (northbound)
- Van Nuys Boulevard & Calvert Street
- Van Nuys Boulevard & Bessemer Street

## Bicycle Facilities

On Van Nuys Boulevard between the Van Nuys Metro Orange Line Station and San Fernando Road, the curbside lanes typically would be 11 feet wide. Thus, motorists in the curbside lane would need to shift to the left to pass a bicyclist. The existing bike lanes extending north on Van Nuys Boulevard approximately two miles from Parthenia Street to Beachy Avenue would be removed and would not be replaced under this alternative. However, bicycle parking would be provided at or near Metro stations, as required by Metro's Design Criteria.

### Accessibility

#### Pedestrian Access

All existing signal-controlled crosswalks would be maintained. However, all other pedestrian crossings on Van Nuys Boulevard at unsignalized intersections would be prohibited.

Bus patrons would be restrained between curbside local bus stops and median BRT bus stops by railings on the backside of median bus stop platforms.

From Sherman Way northward, the public right-of-way width of Van Nuys Boulevard is 100 feet. To accommodate two bus lanes and a left-turn lane or bus stop in the median of Van Nuys Boulevard, the sidewalk widths would be narrowed to 10 feet. This is required due to street widening that would occur in some locations. At locations where the sidewalk would be narrowed, the power poles would need to be relocated. In most cases, to satisfy drainage requirements, the entire width of the sidewalk would be reconstructed. At some locations where the sidewalk width is currently less than 10 feet, there would be no sidewalk narrowing. At a curbside bus stop, sidewalks currently less than 10 feet wide would be widened to 10 feet.

#### Access to Businesses and Residents

Only right turns into and out of unsignalized cross streets and driveways would be allowed. Left turns into and out of cross streets and driveways would be prohibited.

## 2.2.4 Rail Alternatives

### 2.2.4.1 Alternative 3: Low-Floor LRT/Tram

The Low-Floor LRT/Tram Alternative would operate along a 9.2-mile route from the Sylmar/San Fernando Metrolink Station to the north, to the Van Nuys Metro Orange Line Station to the south. The Low-Floor LRT/Tram Alternative would operate in a median dedicated guideway for approximately 6.7 miles along Van Nuys Boulevard between San Fernando Road and the Van Nuys Metro Orange Line Station. The Low-Floor LRT/Tram Alternative would operate in mixed-flow traffic lanes on San Fernando Road between the intersection of San Fernando Road/Van Nuys Boulevard and just north of Wolfskill Street. Between Wolfskill Street and the Sylmar/San Fernando Metrolink Station, the Low-Floor LRT/Tram would operate in a median dedicated guideway. The Low-Floor LRT/Tram would serve the cities of San Fernando and Los Angeles, including the communities of Pacoima, Arleta, Panorama City, and Van Nuys, with 28 stations. The route of the Low-Floor LRT/Tram Alternative is illustrated in Figure 2-8.

The Low-Floor LRT/Tram Alternative would operate using low-floor articulated vehicles that would be electrically powered by overhead wires. This alternative would include supporting facilities, such as traction power substations (TPSS) and an MSF.

Because the Low-Floor LRT/Tram Alternative would fulfill the current functions of the existing Metro Rapid Line 761 and Metro Local Line 233, these bus routes would be modified to maintain service only to areas outside of the project corridor. Thus, Metro Rapid Line 761 (referred to as 761S with reduced service) would operate only between the Metro Orange Line and Westwood, and Metro Local Line 233 (referred to as 233S with reduced service) would operate only between San Fernando Road and Glenoaks Boulevard, although it is most likely that this area would continue to be served by a

## Figure 2-8: Rail Alternatives – Alternative 3: Low-Floor LRT/Tram


Source: KOA and ICF International, 2014.



Metro

neighboring bus line or that the 233S route would be modified, because it is not typical for a Metro bus line to serve such a limited geographic area. Metro Operations would make such modifications based on observation of the line's performance and feedback from the communities it serves. It should be noted that in December 2014, Metro Rapid Line 761 was re-routed and replaced with Metro Rapid Line 744, which travels from Van Nuys Boulevard to Ventura Boulevard, and then to Reseda Boulevard, while a new Metro Rapid Line 788 travels from Van Nuys Boulevard through the Sepulveda Pass to Westwood and provides peak period freeway express service.

## Vehicles

Low-Floor LRT/Tram vehicles may be similar to the small articulated rail vehicles currently used in Portland, Oregon, or may resemble the multi-unit low-floor light rail vehicles that are also used in Portland, as well as San Diego and many other US cities. For the purposes of this study, it is assumed the Low-Floor LRT/Tram trains would consist of two cars that would be connected to form a 180-foot-long train. Although Low-Floor LRT/Tram vehicles could operate at speeds of up to 60 miles per hour (mph) in a dedicated guideway, along Van Nuys Boulevard, they would not exceed the posted adjacent roadway speed limit, which is typically 35 mph. Low-Floor LRT/Tram vehicles would carry over 150 seated passengers and approximately 265 total passengers, including standing passengers (depends on which type of Low-Floor LRT/Tram vehicle is selected). The Low-Floor LRT/Tram would have doors on both sides of each vehicle, allowing for passenger boarding and alighting at center platform as well as side platform stations. The Low-Floor LRT/Tram vehicles would be configured with a driver's cab at either end, allowing them to run in either direction without the need to turn around at the termini. Figure 2-9 presents examples of different types of Low-Floor LRT/Tram vehicles that could be used with this alternative.

## Alignment

The Low-Floor LRT/Tram Alternative would operate along the following route:

- From the Sylmar/San Fernando Metrolink Station, the Low-Floor LRT/Tram would operate within a median dedicated guideway on San Fernando Road;
- At Wolfskill Street, the Low-Floor LRT/Tram would operate within mixed-flow travel lanes on San Fernando Road to Van Nuys Boulevard;
- At Van Nuys Boulevard, the Low-Floor LRT/Tram would turn southwest and travel south within the median of Van Nuys Boulevard in a new dedicated guideway; and
- The Low-Floor LRT/Tram would continue to operate in the median along Van Nuys Boulevard until reaching its terminus at the Van Nuys Metro Orange Line Station.

## Figure 2-9: Examples of Low-Floor LRT/Tram Vehicle Types

Portland Streetcar Tram Vehicle in Operation


Siemens S70 Low-Floor LRT Vehicle Operation on Portland's MAX System


San Diego Trolley Siemens S70 Low-Floor LRT Vehicle

Source: Wikipedia and sdmts.com, 2015.

## Stations

The following stations are proposed with the Low-Floor LRT/Tram Alternative:

1. Sylmar/San Fernando Metrolink Station
2. Hubbard Station
3. Maclay Station
4. Paxton Station
5. Van Nuys/San Fernando Station
6. Telfair Station
7. Haddon Station
8. Laurel Canyon Station
9. Arleta Station
10. Beachy Station
11. Woodman Station
12. Plummer Station
13. Tupper Station
14. Nordhoff Station
15. Parthenia North Station
16. Parthenia South Station
17. Chase Station
18. Roscoe Station
19. Blythe Station
20. Van Nuys Metrolink Station
21. Valerio Station
22. Sherman Way Station
23. Hart/Vose Station
24. Vanowen Station
25. Kittridge Station
26. Victory Station
27. Erwin/Sylvan Station
28. Van Nuys Metro Orange Line Station

The Low-Floor LRT/Tram stations would be ADA compliant, including compliance with the requirements pertaining to rail platforms, rail station signs, public address systems, clocks, escalators, and track crossings as described in sections 8.10.5, 8.10.6, 8.10.7, 8.10.8, 8.10.9, and 8.10.10 of the 2010 ADA Standards. The proposed Low-Floor LRT/Tram stations would be consistent with Metro's Rail Design Criteria, including directive and standard drawings. Metro's criteria apply to all station types (i.e., at-grade, subway, etc.). The typical Low-Floor LRT/Tram station platform would be 8 feet wide for a side platform station to 16 feet wide for a center platform station, 180 feet long, and rise from the street and sidewalk level via ADA compliant accessible ramps to a 14-inch height. Access to the Low-Floor LRT/Tram station platforms would be from crosswalks. Canopies at the Low-Floor LRT/Tram stations would be approximately 13 feet high and would incorporate Low-Floor LRT/Tram station stop lighting to enhance safety. Low-Floor LRT/Tram station platforms may include one or two entryways; for stations with only one public access point, an emergency exit and stair would provide an exit. Low-Floor LRT/Tram stations would provide bench seating and contain ticket vending machines, video message signs, route maps, and stand-alone validators, as well as include the name and location of the Low-Floor LRT/Tram station. In addition, Metro is moving to a fare gate system and such a system may be integrated into station design. Figure 2-10 illustrates a typical station with a canopy that would be constructed under the Low-Floor LRT/Tram Alternative.

## Figure 2-10: Rail Alternatives – Alternative 3: Low-Floor LRT/Tram (Typical Low-Floor LRT/Tram Station)

Source: Metro, John Kaliski Architects, 2015.

## Supporting Facilities

The Low-Floor LRT/Tram Alternative would require a number of additional elements to support vehicle operations, including an Overhead Contact System (OCS), TPSSs, signaling, and an MSF.

### Maintenance and Storage Facility

The new Low-Floor LRT/Tram MSF would accommodate both operational and administrative functions. The MSF would accommodate all levels of vehicle service and maintenance (i.e., progressive maintenance, scheduled maintenance, unscheduled repairs, warrantee service, and limited heavy maintenance) in addition to storage space for vehicles. The number of Low-Floor LRT/Tram vehicles that would be needed under this alternative would likely be small in comparison to the existing Metro LRT system. The typical Low-Floor LRT/Tram MSF would provide: interior and exterior vehicle cleaning, sanding, and inspection areas; maintenance and repair shops; storage yards for vehicles; and storage areas for materials, tools, and spare vehicle parts. The storage yard would be the point of origin and termination for daily service. Figure 2-11 is a photograph of a typical MSF facility.

The MSF would serve as the “home base” for the operators. Space would be provided for staff offices, dispatcher workstations, employee break rooms and/or lunchrooms, operator areas with lockers, showers and restrooms, and employee and visitor parking.

The MSF would include collision/body repair areas, paint booths, and wheel truing (the profiling of wheels to ensure the proper wheel to rail interface) machines. The MSF would also include maintenance-of-way, signals and communications, and traction power functions that would be housed in a separate and smaller building.

The MSF site would accommodate the maximum number of Low-Floor LRT/Tram vehicles required for service and also allow for future expansion of transit service and vehicle maintenance and storage. The MSF site would be approximately 25 to 30 acres.

The MSF would be located at or near one of the following intersections, in industrial areas, and shown in Figure 2-12:

- MSF Option A – Van Nuys Boulevard/Metro Orange Line;
- MSF Option B – Van Nuys Boulevard/Keswick Street; and
- MSF Option C – Van Nuys Boulevard/Arminta Street.

Several parcels occupying 25 to 30 acres would need to be acquired to accommodate the MSF.

It is possible that minor bodywork and collision repairs, such as the replacement of body panels and touch-up of painted surfaces, could be contracted or sent to another heavy maintenance facility, such as the Metro Blue Line facility in Long Beach. Similarly, it is possible that wheel truing could be contracted or sent to another heavy maintenance facility.

## Figure 2-11: Typical MSF Facility for Tram/LRT


Source: Metro, 2015.

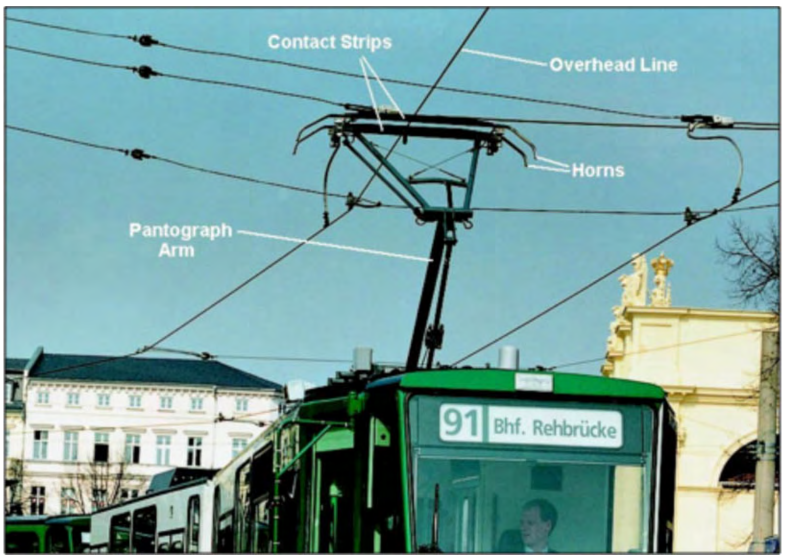
## Figure 2-12: Locations of Potential MSF Sites along Alignment


Source: KOA, 2014.

### Overhead Contact System

An OCS is a network of overhead wires that distributes electricity to tram and light rail vehicles (see Figure 2-13). An OCS would include steel poles along the length of the right-of-way to support an electrical power line that would be suspended above the LRT or tram tracks. A telescoping pantograph or "arm" on the roof of Low-Floor LRT/Tram vehicles would slide along the underside of the contact wire and deliver electric power to the vehicles. The OCS poles would be approximately 30 feet tall and typically located every 90 to 170 feet between two Low-Floor LRT/Tram tracks. Where the available public right-of-way width is extremely limited, the OCS poles would be placed on the sidewalk. This would be required in a few locations within the communities of Van Nuys, Panorama City, and Arleta. At such locations, curb side bus stops serving local bus lines would be relocated so as to avoid having obstructions within the bus stop area.

### Figure 2-13: Typical OCS for Tram/LRT




Source: Railway Technical Web Pages, 2014.

### Traction Power Substations

TPSSs are electrical substations that would be typically placed every 1.0 to 1.5 miles. The Low-Floor LRT/Tram vehicles would be powered by approximately nine TPSS units, which would be spaced relatively evenly along the alignment to provide direct current to the Low-Floor LRT/Tram vehicles. TPSSs would be located at points along the alignment where maximum power draw is expected (such as at stations and on inclines). In the event that one TPSS needs to be taken off line, the Low-Floor LRT/Tram vehicles would continue to operate. Maintenance buildings would require a separate TPSS.

The size of each TPSS unit would be approximately 60 feet by 80 feet and about 12 to 14 feet high. The unit would require access to the local road network for equipment installation and maintenance. Power would be fed to the OCS through underground feeders in duct banks and up a pole to a connection with the contact wire.

The TPSS units may be located within the public right-of-way, in parking lots, or in acquired parcels. A representative TPSS is shown in Figure 2-14. For the purposes of analysis in this DEIS/DEIR, potential or typical TPSS locations were evaluated. However, other more suitable locations could be selected, if they become available and are comparable to the potential locations analyzed herein.

### Figure 2-14: Typical TPSS for Tram/LRT

Source: Google, 2015.

### Low-Floor LRT/Tram Signaling

The Low-Floor LRT/Trams would be controlled by the traffic signals that govern vehicular traffic on Van Nuys Boulevard. Every traffic signal on Van Nuys Boulevard would be modified to provide for Low-Floor LRT/Tram signals.

Signal operation would be similar to that used for median LRT operations throughout the Metro region (such as the Metro Blue Line segments along Washington Boulevard and Long Beach Boulevard, the Metro Gold Line along 1st Street and 3rd Street, the Exposition Line along Colorado Avenue, and the Crenshaw/LAX Line along Crenshaw Boulevard). The Low-Floor LRT/Tram would receive a green light only when conflicting traffic has a red light. Low-Floor LRT/Trams would be equipped with transit signal priority equipment to allow for improved operations and on-time performance.

## Operations

The proposed Low-Floor LRT/Tram would operate with 4-minute peak and 8-minute off-peak headways. Metro Rapid Line 761S would operate with 6-minute peak and 12-minute off-peak headways, while Metro Local Line 233S would operate with 8-minute peak and 16-minute off peak headways.

Based on Metro's Operations Plan for the East San Fernando Valley Transit Corridor Project, the Low-Floor LRT/Tram Alternative would assume a similar travel speed as the Median-Running BRT Alternative, with speed improvements of 18 percent during peak hours/peak direction and 15 percent during off-peak hours.

## Parking Loss and Lane Loss

### Parking Loss

All curbside parking would be prohibited along the alignment on Van Nuys Boulevard and on San Fernando Road.

### Lane Loss

Travel lanes would be provided as follows:

- From its northern junction with Truman Street, near Bleeker Street, to Wolfskill Street, the number of travel lanes on San Fernando Road would be reduced from two lanes to one lane in each direction.
- From Wolfskill Street to Van Nuys Boulevard, San Fernando Road would retain its existing two lanes in each direction, with the Low-Floor LRT/Tram sharing a lane with motor vehicles in each direction.
- The number of travel lanes on Van Nuys Boulevard would be reduced from three to two lanes in each direction on Van Nuys Boulevard between San Fernando Road and the Metro Orange Line, and wider curb lanes would be narrowed near intersections.

## Turning Restrictions

Most of the left turns would be prohibited from San Fernando Road through the City of San Fernando where a median dedicated guideway for the Low-Floor LRT/Tram vehicle is proposed between the Sylmar/San Fernando Metrolink Station and Wolfskill Street. Furthermore, to maintain the pedestrian-oriented retail character of San Fernando Road between San Fernando Mission Boulevard and Chatsworth Drive, a possible option for operation in this location would redirect through traffic off San Fernando Road on the block between Maclay Avenue and Brand Boulevard by means of turn restrictions.

All existing turning movements would be maintained on San Fernando Road between Wolfskill Street and Van Nuys Boulevard, where the Low-Floor LRT/Tram would share travel lanes with motor vehicles.

Left turns from Van Nuys Boulevard onto cross streets would be maintained at most of the currently signalized intersections where the Low-Floor LRT/Tram would be running in the median. However, all vehicle movements across the median at currently unsignalized intersections would be prohibited. This would include left turns from Van Nuys Boulevard as well as left turns and through traffic from minor side streets and private driveways. Motorists who desire to make a left turn onto an unsignalized cross street or into a driveway would have to make a U-turn at a signalized left-turn location or choose a route that would allow them to use a signalized cross street.

The following intersections would have turning restrictions (left turns prohibited each way, unless otherwise noted):

- Hubbard Avenue & San Fernando Road
- Meyer Street & San Fernando Road
- Lazard Street & San Fernando Road
- Huntington Street & San Fernando Road
- Workman Street & San Fernando Road
- Kalisher Street & San Fernando Road
- San Fernando Mission Boulevard & San Fernando Road
- Maclay Avenue & San Fernando Road (left and through moves prohibited)
- Brand Boulevard & San Fernando Road (left turns prohibited northbound, right and through moves prohibited southbound)
- Kittridge Street & San Fernando Road
- Chatsworth Drive & San Fernando Road
- Van Nuys Boulevard & El Dorado Avenue (left turns prohibited northbound)
- Van Nuys Boulevard & Tamarack Avenue
- Van Nuys Boulevard & Cayuga Avenue
- Van Nuys Boulevard & Oneida Avenue
- Van Nuys Boulevard & Omelveny Avenue
- Van Nuys Boulevard & Amboy Avenue
- Van Nuys Boulevard & Rincon Avenue
- Van Nuys Boulevard & Remick Avenue
- Van Nuys Boulevard & Vena Avenue
- Van Nuys Boulevard & Lev Avenue
- Van Nuys Boulevard & Canterbury Avenue
- Van Nuys Boulevard & Vesper Avenue
- Van Nuys Boulevard & Novice Street
- Van Nuys Boulevard & Gledhill Street
- Van Nuys Boulevard & Vincennes Street
- Van Nuys Boulevard & Osborne Street
- Van Nuys Boulevard between Chase Street & Roscoe Boulevard
- Van Nuys Boulevard & Lorne Street
- Van Nuys Boulevard & Michaels Street
- Van Nuys Boulevard & Keswick Street (northbound)
- Van Nuys Boulevard & Covello Street
- Van Nuys Boulevard & Wyandotte Street
- Van Nuys Boulevard & Gault Street
- Van Nuys Boulevard & Hart Street
- Van Nuys Boulevard & Archwood Street
- Van Nuys Boulevard & Gilmore Street (northbound)
- Van Nuys Boulevard & Friar Street (southbound)
- Van Nuys Boulevard & Sylvan Street (northbound)
- Van Nuys Boulevard & Calvert Street
- Van Nuys Boulevard & Bessemer Street

New traffic signals would be constructed at the following locations:

- Meyer Street & San Fernando Road;
- Lazard Street & San Fernando Road;
- Huntington Street & San Fernando Road;
- Kalisher Street & San Fernando Road;
- Chatsworth Drive/Kittridge Street & San Fernando Road;
- Pinney Street and San Fernando Road;
- Van Nuys Boulevard & El Dorado Avenue; and
- Van Nuys Boulevard & Hart Street.

## Bicycle Facilities

On Van Nuys Boulevard between San Fernando Road and the Metro Orange Line, the curbside lanes typically would be 11 feet wide. The existing bike lanes extending north on Van Nuys Boulevard approximately two miles from Parthenia Street to Beachy Avenue would be removed, but the existing Class I bike path adjacent to San Fernando Road would remain in place. In addition, bicycle parking would be provided at or near Metro stations, as required by Metro's Design Criteria.

## Accessibility

### Pedestrian Access

On the segment of San Fernando Road between Wolfskill Street and Van Nuys Boulevard where the Low-Floor LRT/Tram would operate in mixed-flow, pedestrians may continue to cross San Fernando Road at any location where crossings are currently allowed.

There would be a pedestrian bridge at the Sylmar/San Fernando Station from the LRT/Tram platform to the Metrolink platform.

On all other segments where the Low-Floor LRT/Tram operates in a semi-exclusive guideway, pedestrian crossings would be permitted only at signal-controlled intersections. Between the signalized intersections, a fence would be installed to prevent mid-block pedestrian crossings, as is the current practice of Metro on its median-running LRT lines. Pedestrians would be required to walk to a signalized location to cross San Fernando Road or Van Nuys Boulevard. Low-Floor LRT/Tram passengers would reach the median station platforms from crosswalks at signalized intersections.

Along Van Nuys Boulevard, where the existing sidewalks on each side of Van Nuys Boulevard are approximately 13 feet wide, sidewalks would be narrowed to 10 feet to accommodate the installation of the Low-Floor LRT/Tram guideway and a left-turn lane or Low-Floor LRT/Tram station in the median of Van Nuys Boulevard, while providing two travel lanes in each direction. No sidewalk would be narrowed to a width less than 10 feet. This sidewalk narrowing would occur from the Metro Orange Line to El Dorado Avenue in Pacoima, and would require the relocation of utility poles. In these areas, the entire sidewalk would be reconstructed to satisfy drainage requirements.

#### Access to Adjacent Businesses and Residences

Mixed-flow segments of the Low-Floor LRT/Tram alignment on San Fernando Road between Wolfskill Street and Van Nuys Boulevard would allow all currently permitted turns into and out of driveways that cross the medians. For all other segments, left turns into and out of driveways would be blocked by a median fence under the Low-Floor LRT/Tram Alternative. Only right turns into and out of unsignalized cross streets and driveways would be allowed.

### Right-of-Way

Several parcels occupying a total of 25 to 30 acres would need to be acquired to accommodate the MSF site. Right-of-way would also be required to access the MSF site from the alignment. This would differ depending on the MSF site that is ultimately selected, as follows:

- For MSF Option A, right-of-way would be required for vehicles to travel between Van Nuys Boulevard and the MSF site, in an alignment between the Metro Orange Line and Bessemer Street.
- For MSF Option B, additional acquisitions would be needed on the west side of Van Nuys Boulevard from the Saticoy/Metrolink Station, so that the Low-Floor LRT/Tram vehicles could travel to the west of the Van Nuys Boulevard alignment, to the MSF site located within the industrial areas north of Keswick Street and just south of Raymer Street.
- For MSF Option C, additional acquisitions would be needed along Arminta Street west of the Van Nuys Boulevard alignment, so that the Low-Floor LRT/Tram vehicles could travel to the MSF site located within the industrial areas north of the Union Pacific Railroad and Metrolink tracks, and just south of Arminta Street.

In addition, parcel acquisitions would be required for the placement of TPSSs approximately 1.0 to 1.5 miles apart along the alignment.

## 2.2.4.2 Alternative 4: LRT

Similar to the Low-Floor LRT/Tram Alternative, the LRT vehicles under Alternative 4 would be powered by overhead electrical wires; however, it is relevant to note the onboard commuter load capacities for Alternatives 3 and 4. Low-floor and high-floor LRT vehicles have different load capacities, 100 versus 133, respectively. Using the San Diego Trolley low-floor vehicle as an example, their 90-foot low-floor vehicle has a commute/load capacity of 100 persons. Additionally, aisles are narrower and include step(s) to get to some/many seats. Additionally, seats above 'trucks' have less leg room. The low floor combined with the area dedicated to the trucks/wheels and the longer cab areas result in reduced capacity. For comparison, Metro's 90-foot high-floor model has a commute/load capacity of 133 passengers and is the vehicle type that would likely be used for Alternative 4 (shown in Figure 2-16).

Under this alternative, the LRT would travel along the Antelope Valley Metrolink railroad corridor from the Sylmar/San Fernando Metrolink Station south to Van Nuys Boulevard, then along Van Nuys Boulevard from San Fernando Road to the Van Nuys Metro Orange Line Station; a distance of approximately 9.2 miles. The route of the LRT Alternative is illustrated in Figure 2-15.

## Figure 2-15: Rail Alternatives – Alternative 4: LRT


Source: ICF International, 2014.



Metro

## Figure 2-16: Example of Metro LRT Vehicle


Source: Metro Transportation Library and Archives, 2015.

## Vehicles

LRT vehicles would be similar to those currently used throughout the existing Metro LRT system, as shown in Figure 2-16. Metro's LRT System is designed to accommodate trains of up to three 90-foot rail cars, for a total train length of 270 feet. Although LRT vehicles can operate at speeds of up to 65 mph in an exclusive guideway, operating at-grade along Van Nuys Boulevard, they would not exceed the posted speed limit, which is typically 35 mph. The LRT Alternative assumes a maximum speed of 50 mph when traveling underground, but due to station spacing would travel at an average of 30 mph along the underground segment, as well as when traveling within the Metro rail right-of-way adjacent to San Fernando Road. LRT vehicles could carry approximately 230 seated passengers and more than 400 passengers when standing passengers on a three-car train are included. The LRT train sets would be configured with a driver's cab at either end, similar to other Metro light rail trains, allowing them to run in either direction without the need to turn around at the termini.

## Alignment

On the surface-running segment, the LRT Alternative would operate at prevailing traffic speeds and would be controlled by standard traffic signals.

The LRT Alternative alignment would have two tracks and would be fully separated from automobile traffic, except at grade crossings. The LRT Alternative would operate along the following route:

- Along and just east of San Fernando Road, from the Sylmar/San Fernando Metrolink Station south to Van Nuys Boulevard, the alignment would be located within the existing Antelope Valley freight/commuter rail right-of-way but on separate dedicated tracks;
- From the intersection of San Fernando Road and Van Nuys Boulevard to the Metro Orange Line, the LRT Alternative would operate in a semi-exclusive right-of-way in what is currently the median of Van Nuys Boulevard; within this segment, the LRT would be underground beneath Van Nuys Boulevard from just north of Parthenia Street south to Hart Street.

## Stations

Stations would be constructed at approximately 3/4-mile intervals along the entire route. There would be 14 stations, three of which would be underground. The three underground stations would be located near Sherman Way, the Van Nuys Metrolink Station, and Roscoe Boulevard. The following stations are proposed under the LRT Alternative:

1. Sylmar/San Fernando Metrolink Station
2. Maclay Station
3. Paxton Station
4. Van Nuys/San Fernando Station
5. Laurel Canyon Station
6. Arleta Station
7. Woodman Station
8. Nordhoff Station
9. Roscoe Station
10. Van Nuys Metrolink Station
11. Sherman Way Station
12. Vanowen Station
13. Victory Station
14. Van Nuys Metro Orange Line Station

All local curbside bus stops along Van Nuys Boulevard north of the Metro Orange Line would remain in their current location. Along San Fernando Road and Truman Street, the existing bus stops would also remain in their current locations.

The proposed stations would have designs consistent with existing Metro Rail Design Criteria, including directive and standard drawings. Stations, as shown in Figure 2-17 and would be ADA compliant including compliance with the requirements pertaining to rail platforms, rail station signs, public address systems, clocks, escalators, and track crossings as described in sections 8.10.5, 8.10.6, 8.10.7, 8.10.8, 8.10.9, and 8.10.10 of the 2010 ADA Standards. The proposed LRT stations would be consistent with Metro's Systemwide Station Design Criteria.

Common elements would include signage, maps, fixtures, furnishings, lighting, and communications equipment. All stations are proposed to have center or side platforms, allowing passengers to access trains traveling in either direction. Typically, at-grade station platforms would be 270 feet long (to accommodate three-car trains), 39 inches high (to allow level boarding and full accessibility, in compliance with the ADA), and 13.5 feet wide for side platforms to 16 feet wide for center platform stations. The three below-grade stations would be the same length and height but about 30 feet wide to accommodate stairs, escalators, and elevators. A typical below-grade station is shown in Figure 2-18.

Canopies at the LRT stations would be approximately 13 feet high and would incorporate station lighting to enhance safety. LRT station platforms may include one or two entry ways; for stations with only one public access point, an emergency exit and stair would provide an exit. LRT stations would include bench seating and contain ticket vending machines, video message signs, route maps, and fare gates, as well as the name and location of the LRT station.

Stations would also include bicycle parking and bike lockers at or near underground stations, as required by Metro's Design Criteria. In addition, signage and safety and security equipment, such as closed-circuit televisions, public announcement systems, passenger assistance telephones, and variable message signs (providing real-time information), would be part of the amenities.

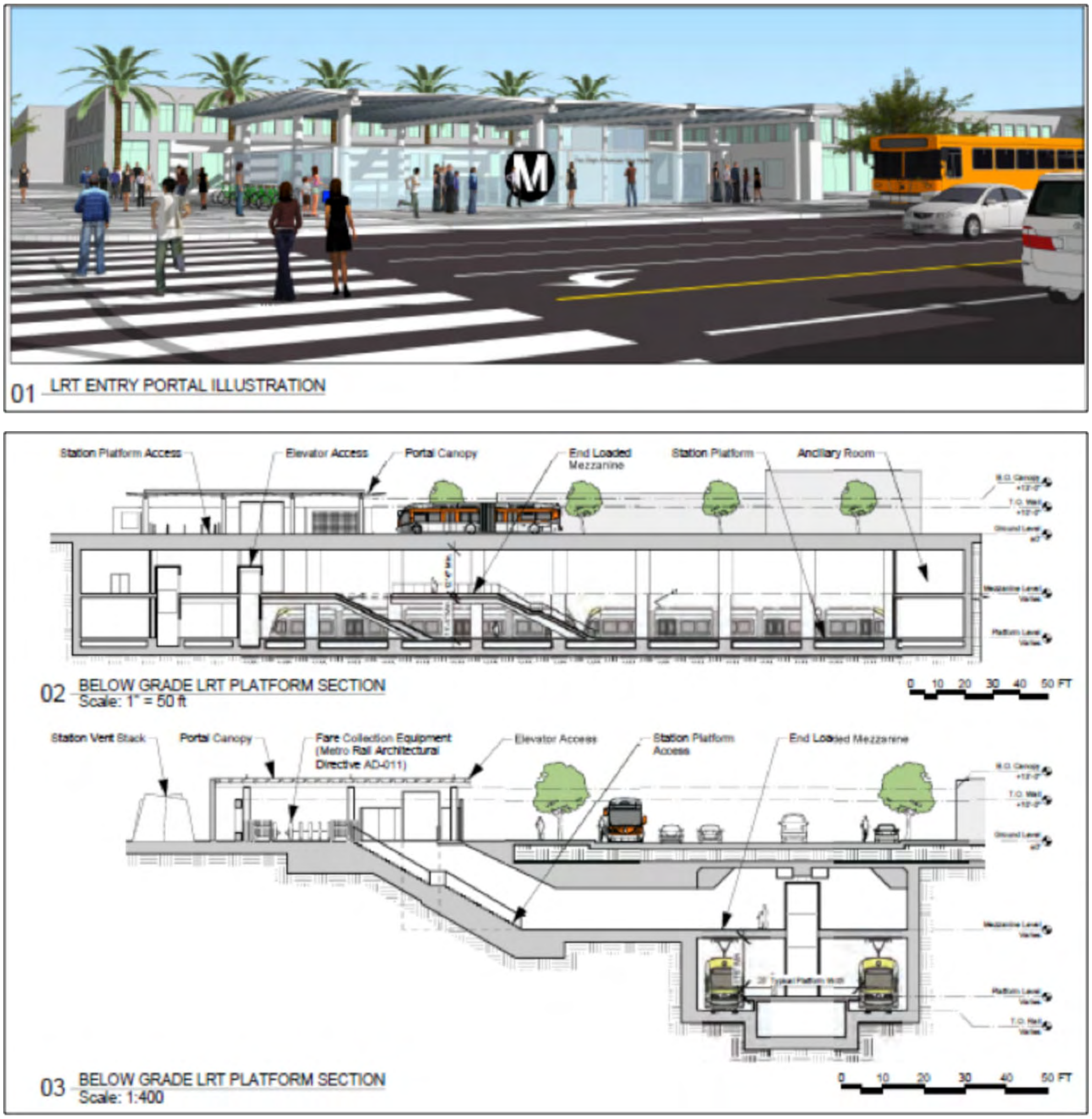
Entry to the three underground stations would be provided from an entry plaza and portal. The entry plaza would be approximately 150 feet long and 90 feet deep and contain centrally placed and approximately 100 feet long by 60 feet wide entry structures rising to a height of approximately 15 feet. Each plaza would also contain landscape planting, and bicycle racks and/or storage. The entry portals would be covered with canopies, and the entry areas would contain ticket vending machines, video message signs, and route maps. The entry portals would provide access to stairs, escalators, and elevators leading to an underground LRT station mezzanine level, which, in turn, would be connected via additional stairs, escalators, and elevators to the underground LRT station platforms that would be 28 feet wide.

Engineering drawings illustrating typical cross sections for the underground guideway and guideway portals are shown as Figure 2-19.

## Figure 2-17: Rail Alternatives – Alternative 4: LRT (Typical At-Grade LRT Station)

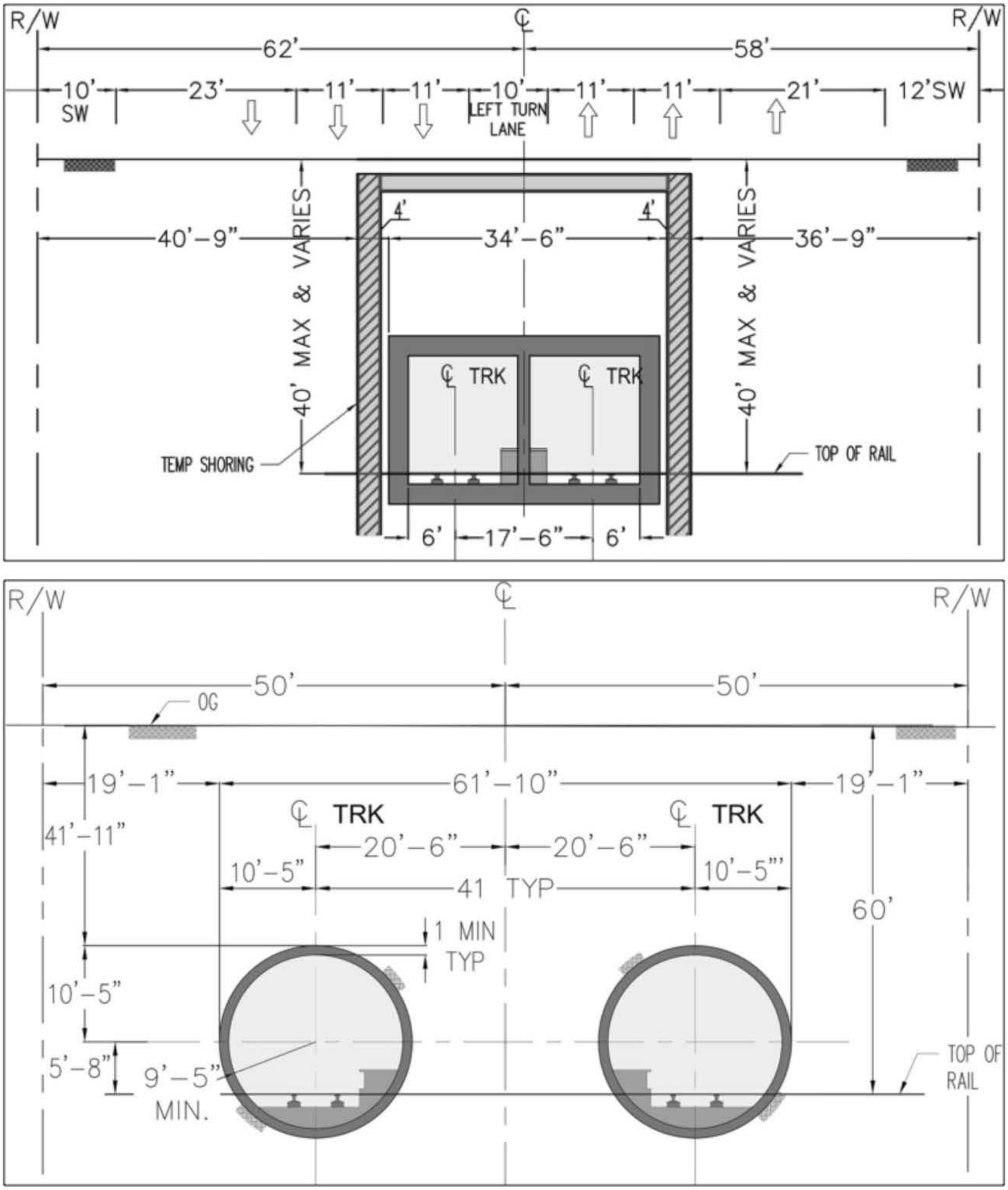

Source: Metro, John Kaliski Architects, 2015.

## Figure 2-18: Rail Alternatives – Alternative 4: LRT (Typical Below-Grade LRT Station)




Source: Metro, John Kaliski Architects, 2014.

## Figure 2-19: Rail Alternatives – Alternative 4: LRT (Examples of Typical Cross Sections for Underground Guideway and Portal)




Source: KOA, 2015.



Metro

## Maintenance and Storage Facility

Similar to the Low-Floor/LRT Alternative, this Alternative would include construction of a new MSF, which would provide secure storage of the LRT vehicles when they are not in operation as well as regular light maintenance to keep them clean and in good operating condition. Figure 2-11 is a photograph of a typical MSF facility.

The MSF would be located at or near the following intersections, in industrial areas, and shown in Figure 2-12:

- MSF Option A – Van Nuys Boulevard/Metro Orange Line;
- MSF Option B – Van Nuys Boulevard/Keswick Street; and
- MSF Option C – Van Nuys Boulevard/Arminta Street.

The MSF would consist of an enclosed building and a yard where routine inspections, maintenance work, and light repairs would be performed. The facility would have sufficient storage capacity as well as paved maintenance aisles, a pit track, overhead crane, paved truck access, staff offices, parts storage areas, and a machine shop. An employee parking area may also be provided. The MSF site would be approximately 25 to 30 acres in size. Train Operators and transportation staff would be based out of MSF facilities.

## Supporting Facilities

The LRT Alternative would require a number of additional elements to support vehicle operations, including an OCS, TPSS, communications and signaling buildings, and an MSF.

The LRT would travel along the median for most of the route, with a subway of approximately 2.5 miles in length between Vanowen Street and Nordhoff Street.

Per Fire Life Safety Criteria, ventilation shafts and emergency fire exits would be installed along the tunnel portion of the alignment. These would be located at the underground stations and surrounding properties or sidewalks.

### Overhead Contact System

Similar to the Low-Floor LRT/Tram Alternative, an OCS would be required for this alternative (see Figure 2-13). The function of the OCS would be similar to that described for the Low-Floor LRT/Tram Alternative.

### Traction Power Substations

Similar to the Low-Floor LRT/Tram Alternative, the TPSS units would be spaced approximately 1 mile apart along Van Nuys Boulevard. Up to seven TPSS locations are proposed for the LRT Alternative, generally in station areas, acquired land, and in parking lots.

A representative TPSS is shown in Figure 2-14.

### Communications and Signaling Buildings

Communications and signaling buildings that would contain train control and communications equipment would be located at each station. These facilities would be constructed as enclosures underneath the station platforms.

## Operations

The proposed LRT would operate with 6-minute peak and 12-minute off-peak headways. Metro Rapid Line 761S would operate with 6-minute peak and 12-minute off-peak headways, while Metro Local Line 233 would operate with 8-minute peak and 16-minute off peak headways.

## Parking Loss and Lane Loss

### Parking Loss

All curbside parking would be prohibited along the surface-running segments of the LRT Alternative on Van Nuys Boulevard. On-street parking would be maintained on segments where the LRT Alternative would be underground (between Vose Street and Parthenia Street) as well as where the LRT Alternative route would be located within the Metro-owned railroad right-of-way parallel to San Fernando Road and Truman Street.

### Lane Loss

Travel lanes would be provided as follows:

The number of travel lanes on Van Nuys Boulevard would be reduced from three to two lanes in each direction for the segment between the Metro Orange Line and Vose Street.

- Between Vose Street and Parthenia Street, the LRT Alternative would be located underground, and no major changes in the surface roadway would be necessary.
- North of Parthenia Street, two travel lanes in each direction on Van Nuys Boulevard would be maintained, but wider curb lanes would be narrowed near intersections.
- The LRT Alternative would depart the median-running portion of the alignment on Van Nuys Boulevard at El Dorado Avenue, two blocks south of the Metrolink and Union Pacific Railroad grade crossing. Beyond that point, Van Nuys Boulevard would have two travel lanes in each direction and room for right-turn lanes at intersections. Just north of El Dorado Avenue would be the Pacoima LRT station.

The LRT alignment would be constructed within the Metro right-of-way, adjacent to San Fernando Road. The existing single Metrolink track would need to be shifted easterly, while leaving room for a proposed second Metrolink track. The recently constructed bike path along the north side of San Fernando Road would be maintained. The current lane configuration on Van Nuys Boulevard leading to and from the railroad grade crossing would remain.

## Turning Restrictions

Left turns from Van Nuys Boulevard onto cross streets would be maintained at most of the currently signalized intersections where the LRT would be running in the median. However, all vehicle movements across the median at currently unsignalized intersections would be prohibited. This would include left turns from Van Nuys Boulevard as well as left turns and through traffic from un-signalized side streets and private driveways. Motorists who desire to make a left turn onto an unsignalized cross street or into a driveway would have to make a U-turn at a signalized left-turn location or choose a route that would allow them to use a signalized cross street.

The following intersections would have turning restrictions (left turns prohibited each way, unless otherwise noted):

- Van Nuys Boulevard & El Dorado Avenue (left turns prohibited northbound)
- Van Nuys Boulevard & Tamarack Avenue
- Van Nuys Boulevard & Telfair Avenue
- Van Nuys Boulevard & Cayuga Avenue
- Van Nuys Boulevard & Kewen Avenue
- Van Nuys Boulevard & Oneida Avenue
- Van Nuys Boulevard & Haddon Avenue
- Van Nuys Boulevard & Omelveny Avenue
- Van Nuys Boulevard & Amboy Avenue
- Van Nuys Boulevard & Rincon Avenue
- Van Nuys Boulevard & Laurel Canyon Boulevard (left turns prohibited southbound)
- Van Nuys Boulevard & Remick Avenue
- Van Nuys Boulevard & Vena Avenue
- Van Nuys Boulevard & Bartee Avenue
- Van Nuys Boulevard & Lev Avenue
- Van Nuys Boulevard & Arleta Avenue (left turns prohibited northbound)
- Van Nuys Boulevard & Beachy Avenue
- Van Nuys Boulevard & Canterbury Avenue
- Van Nuys Boulevard & Woodman Avenue (left turns prohibited southbound)
- Van Nuys Boulevard & Vesper Avenue
- Van Nuys Boulevard & Novice Street
- Van Nuys Boulevard & Gledhill Street
- Van Nuys Boulevard & Vincennes Street
- Van Nuys Boulevard & Tupper Street
- Van Nuys Boulevard & Nordhoff Street (left turns prohibited southbound)
- Van Nuys Boulevard & Osborne Street
- Van Nuys Boulevard & Rayen Street
- Van Nuys Boulevard between Chase Street & Roscoe Boulevard
- Van Nuys Boulevard & Lorne Street
- Van Nuys Boulevard & Michaels Street
- Van Nuys Boulevard & Keswick Street (left turns prohibited northbound)
- Van Nuys Boulevard & Covello Street
- Van Nuys Boulevard & Wyandotte Street
- Van Nuys Boulevard & Gault Street
- Van Nuys Boulevard & Hart Street
- Van Nuys Boulevard & Hartland Street
- Van Nuys Boulevard & Archwood Street
- Van Nuys Boulevard & Gilmore Street
- Van Nuys Boulevard & Friar Street
- Van Nuys Boulevard & Erwin Street (left turns prohibited southbound)
- Van Nuys Boulevard & Delano Street
- Van Nuys Boulevard & Calvert Street
- Van Nuys Boulevard & Bessemer Street

New traffic signals would be constructed at the following locations:

- Pinney Street & San Fernando Road; and
- Van Nuys Boulevard & El Dorado Avenue.

## Bicycle Facilities

Bicycle parking would be provided at or near Metro stations, as required by Metro's Design Criteria. On Van Nuys Boulevard, between the Metro Orange Line and San Fernando Road, the curbside lanes typically would be 11 feet wide. The existing bike lanes extending north on Van Nuys Boulevard approximately two miles from Parthenia Street to Beachy Avenue would be removed, but bike lanes would be provided along the segment where the LRT is underground, from Hart Street north to Parthenia Street.

The City of Los Angeles recently constructed a bicycle path within Metro's railroad right-of-way parallel to San Fernando Road. This existing Class I bike path adjacent to San Fernando Road would remain in place. The right-of-way is sufficiently wide enough to allow the bicycle path to remain alongside a pair of LRT tracks and relocated tracks for Metrolink and Union Pacific trains. At the point where the LRT Alternative crosses the bicycle path, near the intersection of Pinney Street and San Fernando Road, a signalized grade crossing would be provided. It should be noted that the bike path would be shifted from the east side of the railroad alignment to the west side of the tracks through the City of San Fernando to reduce the number of bike-rail crossings, reduce the amount of right-of-way acquisitions, and provide a better alignment of the railroad and LRT tracks, since there is limited right-of-way for rail to the west of the existing tracks, but more right-of-way available east of the existing tracks, and would avoid having trains and the bike lane cross each other at Wolfskill Street.

## Accessibility

### Pedestrian Access

All current crosswalks at signal-controlled intersections would be maintained. Between the signalized intersections, a fence would be installed to prevent mid-block pedestrian crossings, as is Metro's current practice on its median-running LRT lines. Pedestrians would be required to walk to a signalized location to cross Van Nuys Boulevard. LRT passengers would reach the median station platforms from crosswalks at signalized intersections.

There would be a pedestrian bridge at the Sylmar/San Fernando Metrolink Station from the LRT platform to the parking lot.

In the Van Nuys Civic Center, where the existing sidewalks on each side of Van Nuys Boulevard are approximately 13 feet wide, sidewalks would be narrowed to 10 feet to accommodate the installation of two LRT tracks and a left-turn lane or LRT station in the median of Van Nuys Boulevard while providing two travel lanes in each direction. This sidewalk narrowing would occur from the Metro Orange Line to the planned subway portal north of Hartland Street. No sidewalk would be narrowed to a width less than 10 feet. At the locations where the sidewalks would be narrowed, utility poles would need to be relocated. In these areas, the entire sidewalk would be reconstructed to satisfy drainage requirements.

A similar narrowing of the sidewalks would occur along Van Nuys Boulevard north of the subway portal near Rayen Street in Panorama City where the LRT vehicles would resume a surface alignment in the roadway median and proceed to El Dorado Avenue in Pacoima.

### Access to Adjacent Businesses and Residences

All current vehicle turns into and out of driveways that currently cross the median as left turns would be blocked by a median fence under the LRT Alternative. Only right turns into and out of cross streets and driveways would be allowed.

## Right-of-Way

Several parcels occupying a total of 25 to 30 acres would need to be acquired to accommodate the MSF site. Right-of-way is also required to access the MSF site from the alignment. This would differ depending on the MSF site that is ultimately selected, as follows:

- MSF Option A: right-of-way would be required for vehicles to travel between Van Nuys Boulevard and the MSF site, in an alignment between the Metro Orange Line and Bessemer Street.
- MSF Option B: the tunnel would include a turnoff south of the underground Van Nuys Metrolink Station, and would form a U-Trench just west of Van Nuys Boulevard, where the LRT vehicles would travel to the MSF site located within the industrial areas just south of the Raymer Street.
- MSF Option C: the tunnel would include a turnoff north of the underground Van Nuys Metrolink Station, where a tunnel leading west to the MSF site would travel eventually into a U-Trench, between Cabrito Road and Arminta Street.

In addition, parcel acquisitions would be required for the placement of TPSS units approximately 1.0 to 1.5 miles apart along the alignment. Underground easements would also be required where the tunnel portion of the alignment travels beneath private property rather than directly underneath the Van Nuys Boulevard right-of-way.

Metro is the owner and operator of a 100-foot-wide railroad right-of-way through Pacoima, San Fernando, and Sylmar that currently has a single track down the center of the corridor, with some sidings. The track serves Metrolink commuter rail service and the Union Pacific Railroad. Within the Pacoima community of the City of Los Angeles, the 100-foot width could accommodate two LRT tracks, two commuter and freight rail tracks, and the new bike path. To provide sufficient room for the LRT tracks, the existing single rail track would be removed from the center of the corridor and replaced with double tracks along the corridor’s eastern edge to serve commuter and freight rail operations. The right-of-way could accommodate a center platform LRT station near Paxton Street.

The available right-of-way within the City of San Fernando is relatively narrow. From Wolfskill Street to a point approximately 1,000 feet north of Maclay Avenue, the right-of-way widths generally range from 60 feet to 80 feet. At the Pacoima Wash, north of SR-118, a pair of new bridges would be needed, one for the LRT tracks, and the other for the commuter/freight rail tracks. These bridges would lie alongside the existing San Fernando Road Bridge and the newly constructed bike path bridge.

## Gated LRT Grade Crossings

For the portion of the LRT alignment within the Metro-owned railroad right-of-way, the grade crossings at Paxton Street, Wolfskill Street, Brand Boulevard, Maclay Avenue, and Hubbard Avenue would be controlled by traditional railroad crossing gates. The current single-track crossings would become four-track crossings, contingent on approval by the Public Utilities Commission.

There is also the possibility of including pedestrian gates for at-grade street crossings, in addition to the traditional railroad crossing gates that exist at Paxton Street, Wolfskill Street, Brand Boulevard, Maclay Avenue, and Hubbard Avenue.

## 2.2.5 Operations Summary

It is assumed that the TSM, BRT, Low-Floor LRT/Tram, and LRT alternatives could operate 24 hours a day 7 days a week. However, Alternative 1, the Curb-Running BRT Alternative would operate in dedicated curb lanes only from the morning and extending throughout the day and early evening but would not operate in a dedicated lane during the overnight hours. Metro Rapid Line 761 currently operates fewer hours during the evening and late-night timeframe, from 10 p.m. to 4 a.m., whereas Metro Rapid Line 761 under the No-Build Alternative (in 2040) would provide operations during expanded hours, including the time period from 12 a.m. to 4 a.m.

Headways generally are shortest during peak hours and longer during off-peak hours. The forecasted headways for each alternative are shown in Table 2-1. Figure 2-20 illustrates some of the main differences between the alternatives.

### Table 2-1: Alternatives Comparison: Bus and Rail Headways during Peak and Off-Peak Hours

| ALTERNATIVE | HEADWAY (Minutes) | | | |
|---|---|---|---|---|
| | Metro Local Line 233 (peak/off-peak hours) | Metro Rapid Line 761 (peak/off-peak hours) | Low-Floor LRT/Tram (peak/off-peak hours) | LRT (peak/off-peak hours) |
| No-Build | 12/20 | 10/17.5 | n/a | n/a |
| TSM | 8/16 | 8/16 | n/a | n/a |
| BRT- Alternative 1: Curb-Running BRT | 8/16 | 6/12 | n/a | n/a |
| BRT Alt.-Alternative 2: Median-Running BRT | 8/16 | 6/12 | n/a | n/a |
| Rail Alt. – Alternative 3: Low-Floor LRT/Tram | 8/16 | 6/12 | 4/8 | n/a |
| Rail Alt. – Alternative 4: LRT | 8/16 | 6/12 | n/a | 6/12 |
| Source: STV 2014. | | | | |

## Figure 2-20: Comparison of Alternatives

EAST SAN FERNANDO VALLEY TRANSIT CORRIDOR PROJECT

**COMPARISON OF ALTERNATIVES**

| CONSIDERATIONS * | NO BUILD | TSM | CURB-RUNNING BRT Alternative 1 | MEDIAN-RUNNING BRT Alternative 2 | MEDIAN-RUNNING LOW-FLOOR LRT/TRAM Alternative 3 | MEDIAN-RUNNING LRT Alternative 4 |
|---|---|---|---|---|---|---|
| LEFT-TURN RESTRICTIONS AT CERTAIN INTERSECTIONS | — | — | — | ✓ | ✓ | ✓ |
| STREET PARKING RESTRICTIONS | — | — | ✓ | ✓ | ✓ | ✓ |
| FUTURE BIKE LANE RESTRICTIONS | — | — | ✓ | ✓ | ✓ | ✓ |
| REDUCES CURRENT SIDEWALK WIDTHS | — | — | — | ✓ | ✓ | ✓ |
| TRAVEL LANES IN EACH DIRECTION | 3 | 3 | 2 | 2 | 2 | 2 |
| POTENTIAL REAL ESTATE ACQUISITION | — | — | — | — | ✓ | ✓ |
| REQUIRES NEW RAIL MAINTENANCE STORAGE FACILITY (MSF) | — | — | — | — | ✓ | ✓ |
| **2040 OPERATIONAL CHARACTERISTICS *** | | | | | | |
| AVERAGE SPEED (MPH) | 11.3 | 11.3 | 13.4 | 15 | 13.1 | 19.2 |
| TRAVEL TIME (MINUTES) | 49 | 49 | 41 | 37 | 42 | 29 |
| 2040 CORRIDOR BOARDINGS (9.2 MILES) | 20,900 | 24,200 | 30,900 | 31,500 | 35,800 | 47,400 |
| CAPITAL COSTS IN 2014 $ (APPROXIMATE) $170 MILLION CURRENTLY IDENTIFIED | — | $35.2 M | $294 M | $402 M | $1.3 B | $2.67 - 2.79 B |
| CAPACITY PER MODE | 75 | 75 | 75 | 75 | 265 | 400 |

*SUBJECT TO CHANGE

Source: KOA, 2015.

# 2.3 Alternatives Considered and Eliminated from Further Review

The following alternative alignments were considered but eliminated from further review in this Draft DEIS/DEIR:

- Sepulveda Boulevard – Other than the southern segment, this alignment failed to link with many primary destination points, would realize fewer boardings than an alignment primarily on Van Nuys Boulevard and was opposed by the community in the northern section of the alignment.
- I-210 Freeway Terminus Point – An alignment to this location failed to link with local/regional bus or rail service and lacked the ridership potential when compared with an alignment terminating at the Sylmar/San Fernando Metrolink Station. The Metrolink Station provides regional and local linkages, a park-and-ride, bus layover facilities, and garnered greater community support.
- Van Nuys Boulevard between the Metro Orange Line and Ventura Boulevard – Since the alignment of the future Sepulveda Pass transit project has not yet been determined, nor where such a transit line would connect to existing transit lines in the San Fernando Valley, it was decided that this transit corridor should not preclude the location of the connection. Therefore, the southern terminus for this corridor was modified to be at an existing transit line.

# 2.4 Construction Activities

Section 4.18 of this DEIS/DEIR includes a detailed discussion of potential construction impacts, by alternative. The following text in this section is intended to provide a general description and understanding of the types of activities that would be required to construct the build alternatives.

Generally, the two BRT alternatives would require less construction than the two proposed rail alternatives. Construction of the build alternatives would utilize conventional construction techniques and equipment commonly used in the Southern California region. This could include the following:

- Pavement removal;
- Utility relocation;
- Excavation;
- Construction of at-grade trackwork and train signaling;
- Stations, including station platforms;
- Tunnels (Alternative 4);
- Construction of pedestrian access ways;
- Installation of specialty system work, such as overhead contact electrification systems and communications and signaling systems;
- Construction of TPSS facilities;
- Reconstruction of sidewalks, paving, and striping; and
- Subgrade preparation and placement of rail ballast.

All work would conform to industry specifications and standards. The construction equipment could include the following:

- Pile-driving and trenching equipment;
- Tunnel boring machines;
- Bulldozers;
- Rollers;
- Cranes;
- Concrete trucks;
- Pumping equipment;
- Flatbed trucks;
- Support vehicles, including employees' personal transportation, fuel delivery trucks, mechanics' trucks, and utility trucks used by supervisors and inspectors;
- Dump trucks; and
- Rail-mounted equipment.

Temporary traffic detours and truck routes would be required during construction. A Construction Management Plan would be implemented throughout the entire construction period to reduce potential impacts.

Construction is anticipated to last 18 to 60 months, depending on the alternative. The actual duration for construction activities would depend on final designs, the contractors' means and methods, project funding, restrictions on working hours, and other similar variables. Project construction activities would typically take place between the hours of 7 a.m. and 9 p.m. within the City of Los Angeles, in accordance with Los Angeles Municipal Code Section 41.40(a) and 7 a.m. and 6 p.m. within the City of San Fernando, in accordance with San Fernando City Code Section 34-28(10). However, Metro may seek a variance from these Municipal Code Sections, to construct particular portions of the alignment outside of these hours. Construction would begin after funding for the project is secured.

The required construction easements (i.e., the areas needed temporarily during construction in addition to the actual project footprint) would vary along the alignment, depending on the type of construction and the adjacent land use. Lane and/or road closures would be scheduled to minimize disruptions, and a Traffic Management Plan would be approved, in coordination with both the Cities of Los Angeles and San Fernando, prior to construction.

The laydown and storage areas for construction equipment and materials would be established in the vicinity of the project within the right-of-way, parking lots, vacant land, or on the parcels that would be acquired for the proposed MSF site. During construction, the contractor would determine staging locations. Construction staging areas are locations needed for:

- Equipment storage
- Construction materials delivery and storage
- Equipment assembly
- Materials production
- Dewatering activities

- Access roads
- Construction worker parking
- Temporary trailer offices
- Demolition staging
- Removal of excavated materials
- Other related activities during the construction period

Construction staging areas are temporary, and would be located within the street right-of-way and in off-street locations. Temporary street closures would be needed to accommodate construction staging. Detours and closures would be coordinated with LADOT and the City of San Fernando. In some instances, land acquired for permanent project facilities, such as station entrances, would be suitable for construction staging. In other locations, temporary construction easements may be needed to allow construction equipment to use private property during construction. Further detail on acquisitions needed for construction staging areas is provided in Section 4.2, Real Estate, and Acquisitions.

The analysis in this document assumes that, unless otherwise stated, the project would be designed, constructed, and operated in accordance with all applicable laws, regulations, ordinances, and formally adopted City of Los Angeles, City of San Fernando, and Metro standards (e.g., Los Angeles Municipal Code and Metro's Green Construction Policy). Construction and demolition activities would comply with applicable regulations, and the disposal and/or recycling of materials would be performed in accordance with standard construction practices and Metro's GEN-51: Construction and Demolition Debris Recycling and Reuse Policy. Further detail describing the potential construction methods, techniques, and equipment is included in Section 4.19, Construction Impacts, of this Draft EIS/EIR.

# 2.5 Anticipated Permits and Approvals

Certification of the EIR and approval of the project by Metro, as well as approval of the EIS by the Federal Transit Administration, would be required prior to construction and implementation. This DEIS/DEIR is a project EIR, as defined by Section 15161 of the California Environmental Quality Act (CEQA) Guidelines and, as such, serves as an informational document for the general public and the project's decision-makers. Metro, as the CEQA lead agency, has the responsibility for preparing and distributing the DEIS/DEIR, pursuant to State CEQA Guidelines Section 21067. Metro will prepare a Final EIS/EIR that incorporates the DEIS/DEIR and any required revisions to the DEIS/DEIR, DEIS/DEIR comments, a list of commenters, and responses to the comments. The Metro Board will consider the Final EIR together with any comments received during the public review process. The Metro Board then would decide whether to certify the Final EIR and approve the project.

This DEIS/DEIR would be used in connection with all other permits and approvals necessary for construction and operation of the project. It would be used by the City of Los Angeles, Los Angeles Department of Building and Safety, Los Angeles Bureau of Street Lighting, California Public Utilities Commission (CPUC), City of San Fernando, South Coast Air Quality Management District, and other responsible public agencies that must approve activities undertaken with respect to the project.

Implementation of the project would require discretionary actions and permits from the following agencies:

### Table 2-2: Anticipated Permits and Approvals

| Agency | Permit/Approval Required | Phase Anticipated |
|---|---|---|
| Federal Transit Administration | Approval of EIS as lead agency under NEPA | End of Environmental Phase |
| Los Angeles County Metropolitan Transportation Authority (Metro) Board of Directors | Certification of the EIR, adoption of Findings and Statement of Overriding Considerations, adoption of the Mitigation Monitoring and Reporting Program | End of Environmental Phase |
| Los Angeles Department of Transportation | Approval of traffic signal/transit priority system improvements and street restriping plans; recommendation for approval by the City Council | End of Environmental Phase |
| Los Angeles Fire Department | Approval of project plans for fire life safety design requirements | Final Design Plans Phase |
| City of San Fernando | Discretionary actions and permits would be required | Environmental Phase through Construction |
| Cal/OSHA | Classification by Cal/OSHA under the Title 8 Tunnel Safety Orders for construction of underground guideways and stations | Final Design Plans and Construction Phases |
| Metrolink | Approval for track relocations | Final Design Plans and Construction Phases |
| Union Pacific Railroad | Approval for track relocations | Final Design Plans and Construction Phases |
| U.S. Army Corps of Engineers | Permits or approval for potential encroachments on the Pacoima Wash and Los Angeles River | Final Design Plans and Construction Phases |
| California Department of Transportation (Caltrans) | Permits or approvals for encroachment on the I-5 and SR-118 freeway ramps | Final Design Plans and Construction Phases |
| California Public Utilities Commission | Approval for grade crossings | Final Design Plans and Construction Phases |
| Los Angeles Regional Water Quality Control Board | Stormwater Pollution Prevention Plan (SWPPP) and National Pollutant Discharge Elimination System (NPDES) General Permit | Pre-Construction and Construction Phases |

# 2.6 Approach to Cumulative Impacts Analysis

CEQA requires an environmental impact report to evaluate a project's contribution to cumulative impacts. Cumulative impacts are the project's impacts combined with the impacts of the related past, present, and reasonably foreseeable future projects. Cumulative impacts discussions for each environmental topic area are provided in this document. As stated in CEQA, Title 14, Section 21083 (b)(2), a project may have a significant effect on the environment if the "possible effects of a project are individually limited but 'cumulatively considerable.' As used in this paragraph, 'cumulatively considerable' means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." State CEQA Guidelines Section 15130(b) states that the discussion of cumulative impacts can be either "a list of past, present, and probably future projects" or a "summary of projections contained in an adopted local, regional, or statewide plan, or related planning document that describes or evaluates conditions contributing to the cumulative effect." The cumulative impact analysis in this DEIS/DEIR uses both the summary of projections approach and related projects list, depending on the impact area. The appropriate adopted planning document is the SCAG 2012–2035 RTP/SCS. However, SCAG is currently updating the RTP/SCS to reflect the years 2016-2040. The 2016–2040 timeframe for projections is more appropriate than the 2012–2035 timeframe because it more closely resembles the estimated operational date for this project. Therefore, for purposes of this DEIS/DEIR, the modeling and calculations for cumulative impacts used throughout the analyses reflect a 2040 horizon year.

For the purposes of this analysis, the general study area used for the determination of cumulative impacts includes parts of the City of San Fernando and the communities of Mission Hills, Pacoima, Arleta, Panorama City, and Van Nuys. The general study area boundaries include the Santa Monica Mountains (just north of Foothill Boulevard) to the North, Polk Street and Sepulveda Boulevard to the West, just south of Ventura Boulevard on the South, and Fulton Avenue and Branford Street to the East. These boundaries encompass all past, present, and reasonably foreseeable projects (with impacts related to the proposed project) near the proposed project and alignment. Related projects located within the general study area are listed in Table 2-3 and depicted in Figure 2-21. If the study area for a particular resource area differs from the general study area, that study area is identified in the relevant section below.

Detailed descriptions of the affected environment/existing conditions for each of the resource areas (visual and aesthetics; air quality; cultural resources; ecology and biology; etc.) can be found in the individual technical studies prepared for each resource area. An overview of the affected environment within the study defined above is provided below.

The study area is located in the San Fernando Valley area of Los Angeles. The San Fernando Valley is a flat area consisting of approximately 260 square miles, and is bounded by the Santa Susana Mountains to the northwest, the Simi Hills to the west, the Santa Monica Mountains and Chalk Hills to the south, the Verdugo Mountains to the east, and the San Gabriel Mountains to the northeast. The San Fernando Valley is an urbanized area that includes a variety of land uses, including residential, commercial, institutional, and light industrial development. The project corridor is approximately 9.2 miles in length, and runs nearly the entire north/south length of the valley floor.

## Table 2-3: Cumulative Projects

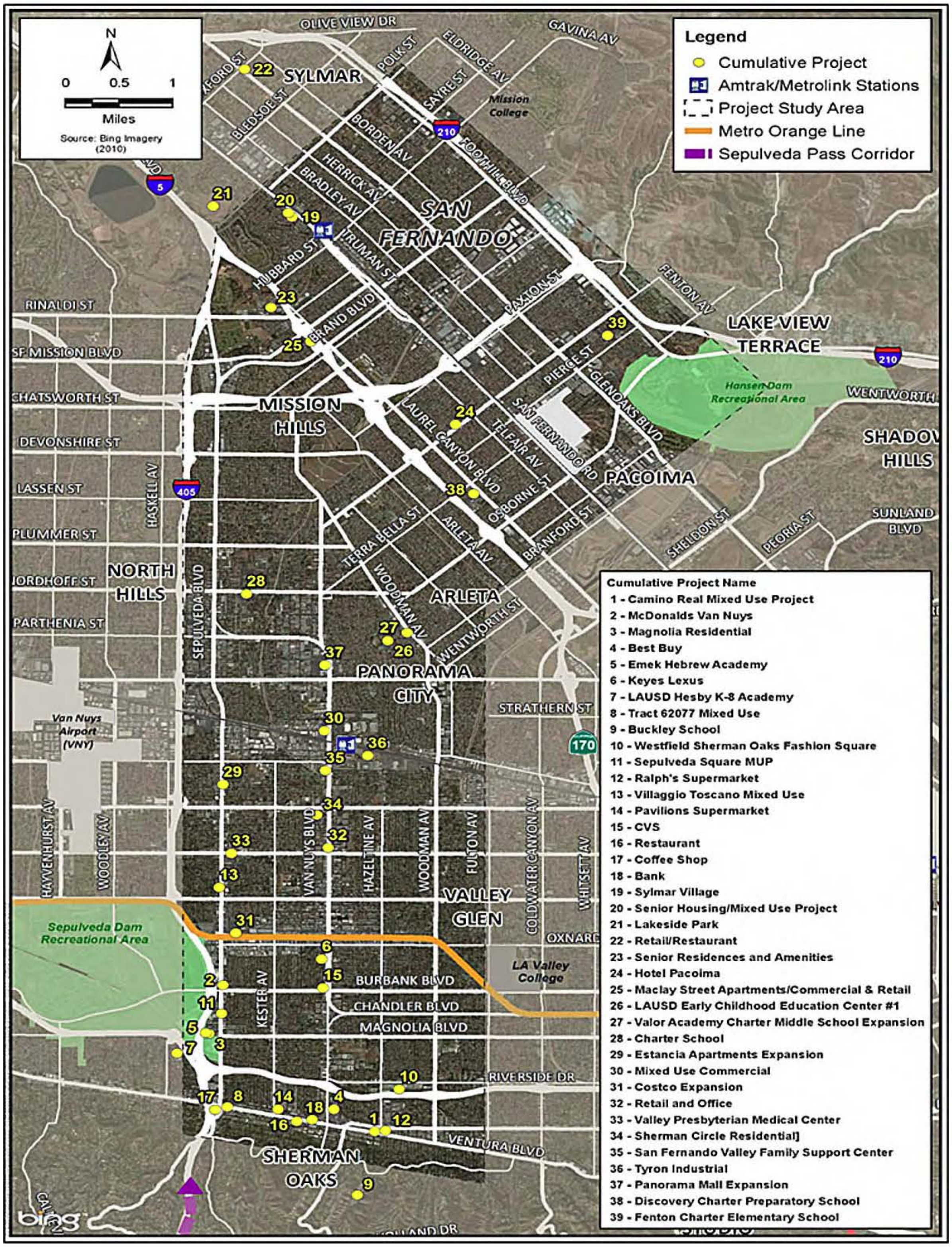
| Map Reference No. | Status | Project Title | Project Description/Scope | Project Location |
|---|---|---|---|---|
| 1 | Completed | Camino Real Mixed Use Project | Demolition of 7,000 sf of commercial uses. Proposed condominium and retail uses. | 14121 Ventura Blvd. |
| 2 | Pre-construction | McDonalds Van Nuys | 2,437 sf fast food with drive thru | 5628 Sepulveda Blvd. |
| 3 | Completed | Magnolia Residential | Proposed 98 apartments | 15357 Magnolia Blvd |
| 4 | Completed | Best Buy | 60,000 sf electronics store | 4500 Van Nuys Blvd |
| 5 | Completed | Emek Hebrew Academy | 225 student enrollment increase | 15365 Magnolia Blvd |
| 6 | Completed | Keyes Lexus | Proposed car dealership | 5855 Van Nuys Blvd |
| 7 | Completed | LAUSD Hesby K-8 Academy | 528 K-8 students in academy school to replace old school site | 15530 Hesby St |
| 8 | Completed | Tract 62077 Mixed Use | 52 condominiums plus 7,460 sf specialty retail | 15222 Ventura Blvd |
| 9 | Completed. | Buckley School | Addition to existing school | 3900 Stansbury Avenue |
| 10 | Under Construction | Westfield Sherman Oaks Fashion Square | Expansion of existing shopping center | 14006 Riverside Dr |
| 11 | Pre-construction | Sepulveda Square MUP | 97 condo units/34,775 sf retail | 5700 N Sepulveda Blvd |
| 12 | Constructed | Ralphs Supermarket | Supermarket | 14049 Ventura Blvd |
| 13 | Pre-construction | Villaggio Toscano Mixed Use | 500 apartment units | 4805 N Sepulveda Blvd |
| 14 | Constructed | Pavilions Supermarket | Supermarket | 14845 Ventura Blvd |
| 15 | Constructed | CVS | 12,830 sf pharmacy with drive-thru | 5601 Van Nuys Blvd |
| 16 | Constructed. | Restaurant | restaurant | 14708 Ventura Blvd |
| 17 | Pre-construction | Coffee shop | Coffee shop | 15315 Dickens St. |
| 18 | Pre-construction | Bank | 7,000 sf bank to replace 7,000 sf office | 14601 Ventura Blvd |
| 19 | Pre-construction | Sylmar Village | 246 condo units, 9,000 sf retail,9,000 office building | 12385 San Fernando Rd |
| 20 | Pre-construction | Senior housing/mixed use project | 150 senior housing units, 25,000 sf medical office | 12415 San Fernando Rd |

| Map Reference No. | Status | Project Title | Project Description/Scope | Project Location |
|---|---|---|---|---|
| 21 | Pre-construction | Lakeside Park | Development of a 36-acre park with five baseball fields and four full-size soccer fields, a skate plaza, office space, and parking lots. | 15300 W Lakeside St |
| 22 | Pre-construction | Retail/Restaurant | 7,486 sf retail/restaurant | 13530 Glenoaks Blvd |
| 23 | Pre-construction | Senior Residences and amenities | 1,250 units of senior residences and amenities | 11570 N Indian Hills |
| 24 | Pre-construction | Hotel Pacoima | 44-room hotel development | 13535 Van Nuys Blvd |
| 25 | Completed | Maclay Street Apartments/Commercial & Retail | 141 units and 10,115 sf commercial space | 13260 W Maclay St |
| 26 | Completed | LAUSD Early Childhood Education Center #1 | 175 seats for pre-K to 2nd grade | 8605 Colbath Ave |
| 27 | Completed | Valor Academy Charter Middle School Expansion | Charter middle school expansion | 8755 Woodman Ave |
| 28 | Pre-construction | 15136 Nordhoff Street Charter School | Charter school | 15136 Nordhoff St |
| 29 | Completed | Estancia Apartments Expansion | 77 additional apartments | 6640 N Sepulveda Blvd |
| 30 | Pre-Construction | Mixed Use Commercial & Fire Station | Fire Station and Office/Retail Commercial Space | 14450 Arminta St |
| 31 | Pre-Construction | Costco Expansion | 13,221 sf addition | 6100 N Sepulveda Blvd |
| 32 | Completed | Retail and Office | 100 apartments, 13,000 sf, retail | 6828 Van Nuys Blvd |
| 33 | Completed | Valley Presbyterian Medical Center | 79,127 sf office building | 15225 Vanowen St |
| 34 | Under Construction | Sherman Circle Residential | 355-unit apartment building | 14500 W Sherman Circle |
| 35 | Under Construction | San Fernando Valley Family Support Center | Relocation of County Services building | 7515 Van Nuys Blvd |
| 36 | Pre-construction | Tyrone Industrial | 283,920 sf light industrial uses | 7600 Tyrone Ave |
| 37 | Pre-Construction | Panorama Mall Expansion | Expansion of existing mall | 8401 Van Nuys Blvd |
| 38 | Pre construction | Discovery Charter Preparatory School | Proposed 400-student private high school | 9989 Laurel Canyon Blvd |
| 39 | Completed | Fenton Charter Elem School | Relocation and expansion of existing school | 11351 Dronfield Ave |

| Map Reference No. | Status | Project Title | Project Description/Scope | Project Location |
|---|---|---|---|---|
| 40 | Preliminary Planning | Sepulveda Pass Transit Corridor Project | Implementation of a transit project in the Sepulveda Pass area, connecting the San Fernando Valley and the Westside regions of Los Angeles | Sepulveda Pass area, but exact alignment still undefined |
| 41 | Preliminary Planning | Pacoima Wash Greenway Project | Development of greenway along the Pacoima Wash area, connecting with San Fernando Road Metrolink Bike Path | |

Source: KOA and ICF International, 2015.

## Figure 2-21: Cumulative Projects




Source: ICF International, 2015.



Metro

# 3.1 Regulatory Framework and Methodology

## 3.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's transportation impacts are listed below. For additional information regarding these regulations, please see the Transportation Impacts Report in Appendix G of this Draft EIS/EIR.

### 3.1.1.1 Federal

There are no federal regulations applicable to an analysis of the proposed project's transportation impacts.

### 3.1.1.2 State

There are no specific state regulations that are applicable to an analysis of the proposed project's transportation impacts.

### 3.1.1.3 Local

- SCAG
  - Regional Transportation Plan/Sustainable Communities Strategy (2012)
  - Regional Comprehensive Plan (2008)
  - Compass Blueprint Growth Vision (2004)
- Metro
  - Long Range Transportation Plan (2009)
  - Short Range Transportation Plan (2014)
  - Grade Crossing Safety Policy for Light Rail Transit (2010)
  - Congestion Management Program (2010)
  - Bicycle Transportation Strategic Plan (2006)
- Los Angeles County
  - General Plan (2014)
- City of Los Angeles
  - General Plan Framework (Readopted 2001)
  - Bicycle Plan (2011)
  - Mobility Plan 2035 (2015)

  - Community Plan Areas
  - Los Angeles River Revitalization Master Plan (2007)
- City of San Fernando
  - General Plan (1987)
  - San Fernando Corridors Specific Plan (2005)

## 3.1.2 Methodology

The methodologies developed to determine potential transportation impacts with respect to transit, traffic, parking, and pedestrian and bicycle facilities are described in this section.

### 3.1.2.1 Transit

Future transit ridership was established through an extensive evaluation utilizing the Metro Travel Demand Model. The model was developed by Metro and incorporates inputs from the SCAG Regional Travel Demand Model. The model applies current travel patterns and future transit changes to the network in relation to the project, in order to develop trips by mode, projected boardings, and travel speeds and times for each project alternative.

To enhance the multimodal connectivity for the TSM and all of the build alternatives, active transportation improvements that would connect neighborhoods to existing transit infrastructure could be added by expanding catchment areas through bike and walking, and by adding robust bicycle facilities on parallel streets with low traffic volumes. However, Metro's current travel demand model has no capability to reflect these features. If the model had this capability, the addition of these features would not result in any additional significant differences among the alternatives. Therefore, the active transportation improvements were not included in the alternative evaluation from a travel forecasting perspective and are not addressed in this report.

### 3.1.2.2 Traffic

The traffic analysis incorporates level-of-service (LOS) methodologies for signalized intersections, per local jurisdictional policies, for the purpose of providing a comprehensive traffic analysis.

The City of Los Angeles utilizes the Circular 212 Critical Movement Analysis (CMA) Planning methodology per LADOT *Traffic Study Policies and Procedures, June 2013*, whereas the City of San Fernando utilizes the Intersection Capacity Utilization (ICU) for signalized intersections. For Congestion Management Plan (CMP) intersections, either CMA or ICU are considered acceptable methodologies.

However, for the purposes of the proposed project, the City of Los Angeles has accepted the use of the 2010 Highway Capacity Manual (HCM) Operational Analysis Methodology for evaluation of transit projects. This methodology is based on average intersection delay and takes into account operational factors such as signal timing and phasing, and adjustments to lane configurations via seconds of delay that a driver would experience at each signalized location. As such, it provides a better assessment of the traffic conditions as it relates to complexity of a transit project.

A letter value is assigned to define the LOS, ranging from A (free-flow operations) to F (severely congested operations). Table 3-1 provides the level-of-service criteria for the HCM methodology.

### Table 3-1: Level-of-Service Definitions – HCM Signalized Intersection Analysis

| LOS | Definition | Average Stop Delay per Vehicle (sec/veh) |
|---|---|---|
| A | LOS A describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at the boundary intersections is minimal. | ≤10 |
| B | LOS B describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. | >10–20 |
| C | LOS C describes stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. | >20–35 |
| D | LOS D indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersections. | >35–55 |
| E | LOS E is characterized by unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersections. | >55–80 |
| F | LOS F is characterized by flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. | >80 |
| Source: KOA, 2015. | | |

## Existing Conditions

Compiling information on existing conditions involved extensive data collection that included compilation of traffic counts and signal timing plans and field work to determine lane geometries, traffic control, transit stop locations near intersections, and on-street parking restrictions.

The Synchro software package was used to build a study area roadway network model to assist in the analysis of signal timing/phasing under the HCM methodology for signalized intersections.

## Future Conditions

For the future baseline (No-Build scenario), volumes were defined through the use of data exported from the Metro Travel Demand Model. As the model includes input from the SCAG regional model on population and employment growth, it provides estimates of future vehicle travel demand on roadways throughout the region. The future baseline conditions volumes were the basis for the analysis of the No-Build Alternative.

Comparisons were then made to each of the project build alternatives, in terms of projected study area intersection operations and LOS. Changes in study area vehicle travel patterns identified by the model, based on corridor lane configurations and trip mode splits (vehicles, transit, etc.) with the project-related improvements; and transit park-and-ride activity, were analyzed and served as the basis for the analysis of incremental changes in study intersection volumes and operations.

On a corridor level, the project corridor land uses were collected to assist with the development of trip generation and the development of driveway trip diversion/redistribution. Since each alternative imposes different types and locations of turn restrictions, traffic impacts along the corridor vary. Therefore, driveway trip diversions were established for each alternative that would be affected by turn restrictions from the presence of a median guideway or intersection turn prohibitions. The volume projections for the alternatives were developed using the following approach:

- Development of a growth factor for the 28-year period between existing and future conditions for all project alternatives derived from the Metro model;
- Development of increased bus volumes along the corridor due to future bus headway improvements for all project alternatives as developed in the proposed transit operations plan;
- Development of trip generation rates for the increased demand at three existing park-and-ride facilities under the bus and rail alternatives based on the Metro model;
- Development of trip generation rates for MSF sites within the project study area under the bus and rail Alternatives; and
- Development of corridor trip diversions due to turning restrictions implemented under BRT Alternative 2 and the rail alternatives.

In addition, an Existing (2012) with Alternative 3 scenario has been evaluated. This scenario provides the environmental setting that "normally constitute[s] the baseline physical conditions by which a lead agency determines whether an impact is significant," consistent with Section 15125(a) of the CEQA Guidelines. Considering that Alternative 3 would have the greatest traffic impacts, the Existing (2012) with Alternative 3 scenario presents a worst-case scenario for traffic relative to any of the other "Existing Plus Project" scenarios. Thus, traffic impacts would be no greater than those identified for Build Alternative 3.

### Alternate Corridor Analysis

As part of the traffic analysis an expanded assessment of area-wide highway corridors was conducted in order to provide a more comprehensive analysis of the potential effects of the build alternatives on adjacent and nearby roadway corridors.

The travel corridors that were included in the expanded analysis were as follows:

- Van Nuys Boulevard – from the Metro Orange Line to Ventura Boulevard
- Sepulveda Boulevard - from Lassen Street to Ventura Boulevard
- Woodman Avenue – from Lassen Street to Oxnard Street

### Roadway Vehicle Speeds

From the Metro Travel Demand Model, average vehicle speeds (based on volumes and roadway segment capacities) and congested time (amount of total delay added to a trip due to congestion) values were estimated. The data was analyzed in approximate one-mile segments, but the distance varies based on the location of major arterials and other major elements of the transportation network. This analysis provides an estimate of the effects on vehicle travel speeds of project elements such as roadway lane reconfigurations and changes in trip mode splits.

### 3.1.2.3 Parking

The parking analysis considered the utilization of existing on-street and off-street parking within a primarily one to two block extent on either side of Van Nuys Boulevard.

Parking analysis zones (PAZs) were developed along the length of Van Nuys Boulevard to define blocks of parking areas for both on- and off-street parking. For each PAZ, numbers were assigned to each block face for each side of the roadway. For on-street parking areas that did not have any parking space markings, an average parking space length of 20 feet was used to determine the number of parking spaces. The collection of parking demand data (number of parked cars) for each of the on-street and off-street areas within each PAZ was conducted on two weekdays (Monday and Friday) and on one Saturday:

- Monday surveys were conducted on April 29, 2013 at 11 a.m., 1 p.m., and 3 p.m.
- Friday surveys were conducted on May 3, 2013 at 11 a.m., 1 p.m., and 3 p.m.
- Saturday surveys were conducted on April 27, 2013 at 12 p.m., 2 p.m., 4 p.m., and 6 p.m.

The focus of the parking survey was on overall occupancy for the parking study areas, but a second and more important component was the identification of vehicle parking occupancy within individual street segments and parking lots, including whether or not the number of parked vehicles versus available spaces met or exceeded a threshold value of 90 percent. When conducting an assessment of parking on a street segment or off-street facility, an occupancy value of 90 percent generally means few spaces remain available per block curb face or parking facility and is considered to represent the level at which the parking area is perceived to be full. Therefore, the ideal occupancy value for a block or facility should be at 90 percent of the spaces available or lower.

For each project alternative, the amount of on-street and off-street parking displaced along the alignment was quantified to develop general conclusions regarding the effects of the project on local parking conditions. For each station, the estimated parking demand was compared to the proposed supply, and the qualitative effects of spillover parking was identified in the vicinity of the station (within an approximate 1/4 of a mile walking distance).

Construction and development of new park-and-ride facilities are not being considered as a part of the project. Increased demand at existing park-and-ride facilities was considered at the following locations:

- Sylmar/San Fernando Metrolink Station
- Van Nuys Amtrak/Metrolink Station
- Metro Orange Line Van Nuys Station

### 3.1.2.4 Pedestrian and Bicycle Facilities

Bicycle and pedestrian circulation were evaluated as part of this transportation analysis.

With respect to bicycle facilities, the planned inclusion of bicycle lanes on Van Nuys Boulevard and San Fernando Road/Truman Street corridors per the 2010 City of Los Angeles Bicycle Plan were considered as part of the analysis along with the evaluation of roadway cross-sections. In addition, the station design plans were reviewed for consideration of adequate pedestrian facilities and the feasibility of bicycle facilities.

## 3.1.3 CEQA Significance Thresholds

The determination of traffic impact significance is guided by the policies and requirements of both NEPA and CEQA. The project must satisfy both federal and state requirements. As NEPA and CEQA definitions of significance are different, what may be considered significant under CEQA may not apply to NEPA's determination of significance, especially since only CEQA requires significance thresholds.

CEQA requires state and local government agencies to identify the significant environmental effects of proposed actions; however, CEQA does not describe specific significance thresholds. According to the Governor's Office of Planning and Research, significance thresholds for a given environmental effect are at the discretion of the Lead Agency and are at the levels at which the Lead Agency finds the effects of the project to be significant.[1]

### State CEQA Guidelines

The State CEQA Guidelines define a significant effect on the environment as: "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (State CEQA Guidelines, Section 15382).[2]

The State CEQA Guidelines do not describe specific significance thresholds. However, Appendix G of the State CEQA Guidelines lists a variety of potentially significant effects, which are often used as thresholds or guidance in developing thresholds for determining impact significance. According to Appendix G, a project could have a significant transportation impact, if it would:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Conflict with an applicable congestion management program, including, but not limited to level-of-service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

As noted earlier, CEQA defers quantitative significance threshold criteria to the local agency with jurisdiction over the project. Therefore, for the purposes of this EIS/EIR, the thresholds of significance used in the determination of project specific impacts as it relates to transit, traffic (intersection and performance measures), parking, pedestrian, and bicycles are summarized in Table 3-2.

---

[1] OPR (State of California, Governor's Office of Planning and Research). 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September. Available: < http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 12, 2013.

[2] AEP. 2015. *California Environmental Quality Act (CEQA) Statute and Guidelines.*

### Table 3-2: Significance Thresholds

| Transportation Type | Significance Thresholds |
|---|---|
| Transit | A substantial increase in travel time. |
| Traffic | Level of Service<br>• Intersection operating at LOS C with an average delay per vehicle due to project-related increases equal to 6 or more seconds<br>• Intersection operating at LOS D with an average delay per vehicle due to project-related increases equal to 4 or more seconds<br>• Intersection operating at LOS E or F with an average delay per vehicle due to project-related increases equal to 2.5 or more seconds<br>• Intersection at high end of delay value range (more than 100 seconds, with causing or worsening of LOS F conditions.<br>Level of Service under the Congestion Management Program (CMP):<br>Intersection operating at LOS F with an average volume-to-capacity (V/C) ratio due to project-related increases equal to 0.02 or more. |
| Parking | Under CEQA, parking impacts are not considered to be significant impacts unless the loss of parking leads to other substantial adverse impacts on the environment. |
| Pedestrian | Changes to pedestrian circulation that would result in a substantial reduction in pedestrian access and connectivity. |
| Bicycle | Conflict with goals or policies of local bicycle plans. |
| Source: KOA, 2015. | |

## Local Jurisdiction Thresholds – First-Stage Impact Analysis

The City of Los Angeles has established thresholds of impact significance for signalized intersections for V/C and delay analysis methodologies. Significance thresholds for project-related V/C increases are established per the LADOT *Traffic Study Policies and Procedures* (August 2014).

LADOT permits the use of HCM methodology for infrastructure (e.g., LRT, BRT, bicycle lanes) project intersection analysis, which is consistent with other Metro projects. The delay-based significance thresholds are equivalent to V/C significance thresholds under the CMA methodology. This method applies to the remaining thresholds.

The City of San Fernando applies the same significance thresholds as the City of Los Angeles when evaluating signalized intersections.

The CMP guideline for evaluating significant impacts at intersections is based on an increase in project-related traffic volumes. A significant impact occurs if the project-related increase in the V/C ratio is equal to or greater than 0.02 at LOS F or thereby worsening the operation to LOS F. The CMP allows for consideration of more stringent criteria. Because the City of Los Angeles significance thresholds are considered more conservative in comparison, the evaluation of impact significance utilized these criteria. Employing the delay threshold, if an intersection operates at LOS D, for example, and the delay at the intersection increases by 4 seconds due to project-related traffic, the intersection is considered significantly affected (see significance thresholds in Table 3-2, above).

### Analysis of Travel Performance Measures – Second-Stage Impact Analysis

In addition to the traditional impact analysis required by CEQA and the local jurisdictions, a comparison of regional travel performance measures was developed in order to identify the effects that each build alternative would have on travel patterns across the study area roadway network. These measures included evaluating potential queuing concerns, review of Vehicle Miles Traveled (VMT), Vehicle Hours Traveled (VHT), vehicle speeds, and a person-trips analysis by alternative.

Further analysis was conducted on select intersections to identify potential queuing concerns as a result of the turning restrictions under Alternatives 2, 3, and 4. Issues related to queuing can affect upstream and downstream intersections as well as create an increase in intersection blockage.

The effects of the alternatives with respect to the regional transportation network vary within the study area and to/from the corridor. VMT provides a good metric for determining vehicle trip changes across the area roadway network. Reductions to VMT are beneficial since they mean that fewer cumulative vehicle miles are being generated on a daily basis as a result of a particular alternative. Increases in VMT infer that more miles are being traveled, and this can create impacts by indicating that additional vehicle trips or longer vehicle trips would be generated by a project.

Passenger throughput provides a metric for evaluating travel capacity across a defined geographic area or corridor. Passenger throughput measures the capacity of travel across multiple modes within the analysis area. If capacity improvements are provided for one mode but reduced for another mode, and the improved mode can provide more overall capacity (in terms of more vehicles passing through the area in set timeframe, or an increased number of seats due to an increase in number or capacity of passing transit buses, etc.), passenger throughput is increased.

## 3.1.3.1 Recent CEQA Litigation

The *Sunnyvale West Neighborhood Association v. City of Sunnyvale City Council* and subsequent cases (*Madera Oversight Coalition, Inc. v. County of Madera; Neighbors for Smart Rail v. Exposition Metro Line Construction Authority*) have considered the question of what is an appropriate baseline for the impact analyses in CEQA documents. Traditional future-year impact analyses are normally considered by lead agencies for impact determinations on major multi-year projects with planned opening dates that are far in the future.

In the Neighbors for Smart Rail case, the court held that "while an agency preparing an EIR does have discretion to omit an analysis of the project's significant impacts on existing environmental conditions and substitute a baseline consisting of environmental conditions projected to exist in the future, the agency must justify its decision by showing an existing conditions analysis would be misleading or without information value."

As the proposed project does not have full funding for any of the build alternatives, project final design and construction would not begin until a future date when the project becomes financially feasible. The year 2040 was chosen for the definition of future baseline conditions, primarily due to the need to match the future baseline year of the Metro Travel Demand Model, and also partially due to the potential for the project to be completed and become operational at a later planning horizon year. Therefore, the transportation analysis represents operational year 2040 conditions. As such, the cumulative analysis and resulting cumulative impacts, are inherent to the operational year conditions.

# 3.2 Affected Environment and Existing Conditions

The existing project study area public transit system, highway and roadway network, parking, pedestrian and bicycle facilities serve the project corridor and the surrounding communities. The infrastructure and public services are vital to the regional movement of residents and workers into and out of the eastern San Fernando Valley, and are described within this section to provide a background of the study area and its existing conditions.

## 3.2.1 Transit

The project study area contains three major transit facilities:

- The Metro Orange Line Busway
- The Metrolink Antelope Valley Line
- The Metrolink Ventura County Line (also used by the daily interstate Amtrak Coast Starlight train and the regional service of the Amtrak Pacific Surfliner)

These core transit services traverse and serve the study area at various geographic locations and local transit links to these services are provided by local and Rapid Bus service.

The Van Nuys Boulevard corridor has the seventh highest total transit boardings in the Metro system, and has the second-highest boardings total in the San Fernando Valley (about 24,800 per day), just behind the Metro Orange Line busway (about 25,500 per day). Figure 3-1 illustrates existing transit boardings for all bus lines and the Metro Orange Line within the study area. The corridor is also noted for having a high number of bus-to-bus transfers, with three transfer locations in the top 30 non-rail transfer locations. The locations include the Van Nuys Metro Orange Line Station, Van Nuys Boulevard/Roscoe Boulevard, and Van Nuys Boulevard/Sherman Way.

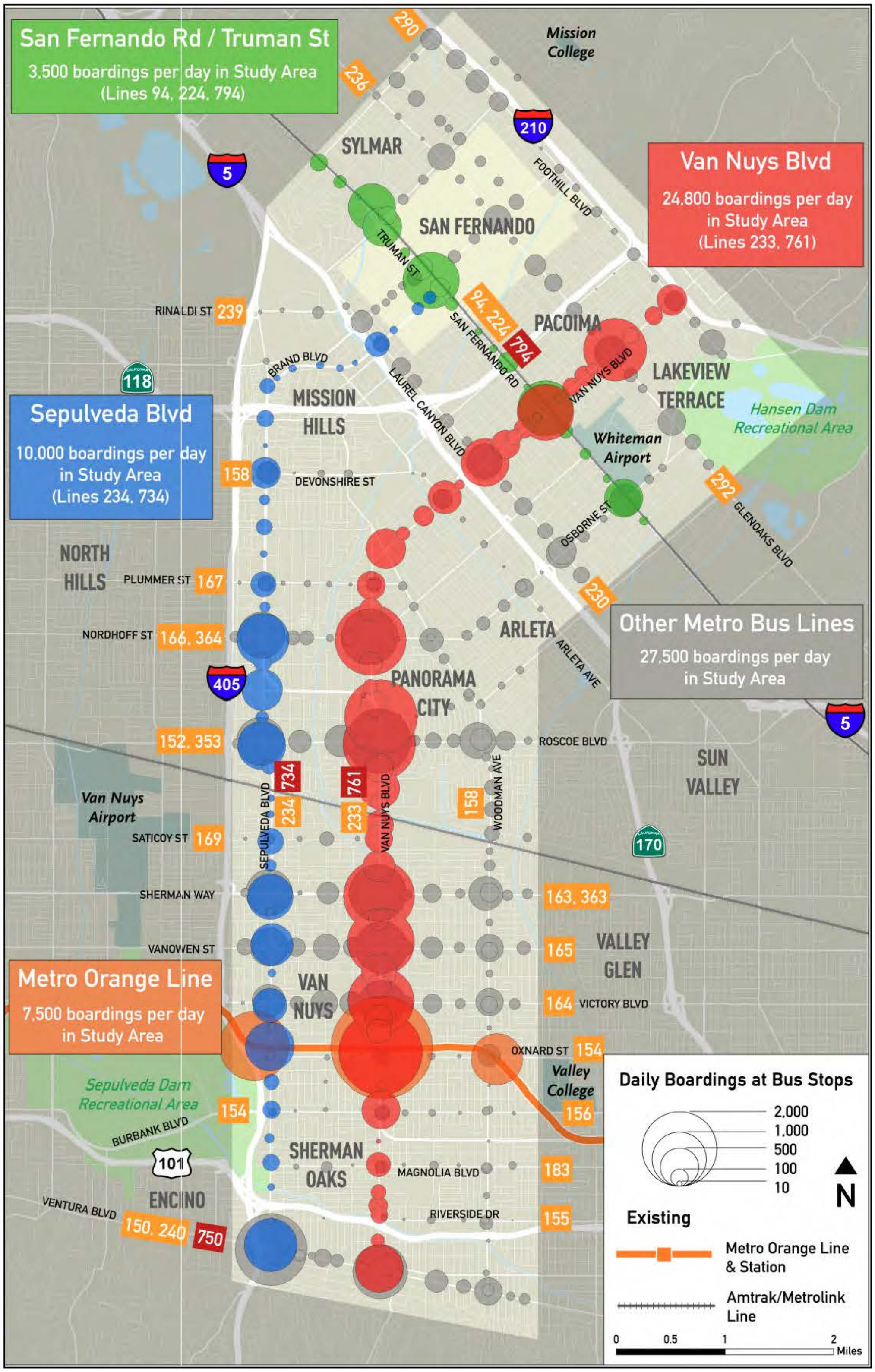
### 3.2.1.1 Programmed Transit Improvements

The Sepulveda Pass Corridor and the California High Speed Rail Projects have not been defined with respect to the project study area extents and are therefore not included as part of the future buildout analysis. However, the projects are discussed to provide background context because they could link to the project, thereby providing greater regional connectivity.

## 3.2.2 Highway and Roads

An extensive freeway network surrounds and intersects the Van Nuys Boulevard, Sepulveda Boulevard, and San Fernando Road corridors, providing regional access between the San Fernando Valley and the greater Los Angeles region. They include the following:

## Figure 3-1: Existing Transit Boardings




Source: Metro, 2011.

#### North–South

- The Golden State Freeway (I-5) bisects the northern portion of the study area
- The Hollywood Freeway (SR-170) parallels the southern half of the study area, to the east
- The San Diego Freeway (I-405) borders the west side of the study area
- The Foothill Freeway (I-210) borders the north side of the study area

#### East–West

- The Ronald Reagan Freeway (SR-118) bisects the northern portion of the study area
- The Ventura Freeway (US-101) bisects the southern portion of the study area

Van Nuys Boulevard has interchanges with the US-101 freeway and the I-5 freeway. San Fernando Road has an interchange with the SR-118 freeway.

### 3.2.2.1 Planned Roadway Improvement Projects

Future planned projects include capital improvements identified in the financially constrained element of Metro's 2009 LRTP and SCAG's 2012 constrained RTP that will be implemented by 2035. This includes the installation of carpool lanes on the I-5 between SR-118 and SR-170, and on the I-405 through the Sepulveda Pass. The Metro Model has been updated to analyze a future baseline year of 2040, but the current RTP is based on the 2035 baseline model.

### 3.2.2.2 Study Area Level of Service

A total of 73 signalized intersections on Van Nuys Boulevard, between San Fernando Road and Ventura Boulevard; and San Fernando Road/Truman Road, between Van Nuys Boulevard and the Sylmar/San Fernando Metrolink Station were included as part of the analysis. A total of 60 study intersections are located within the City of Los Angeles, which includes one CMP intersection location, while the remaining 13 intersections are located within the City of San Fernando. It should be noted that although intersections south of Oxnard Street are not directly affected by any of the build alternatives, these intersections are considered part of the overall study area and were therefore evaluated.

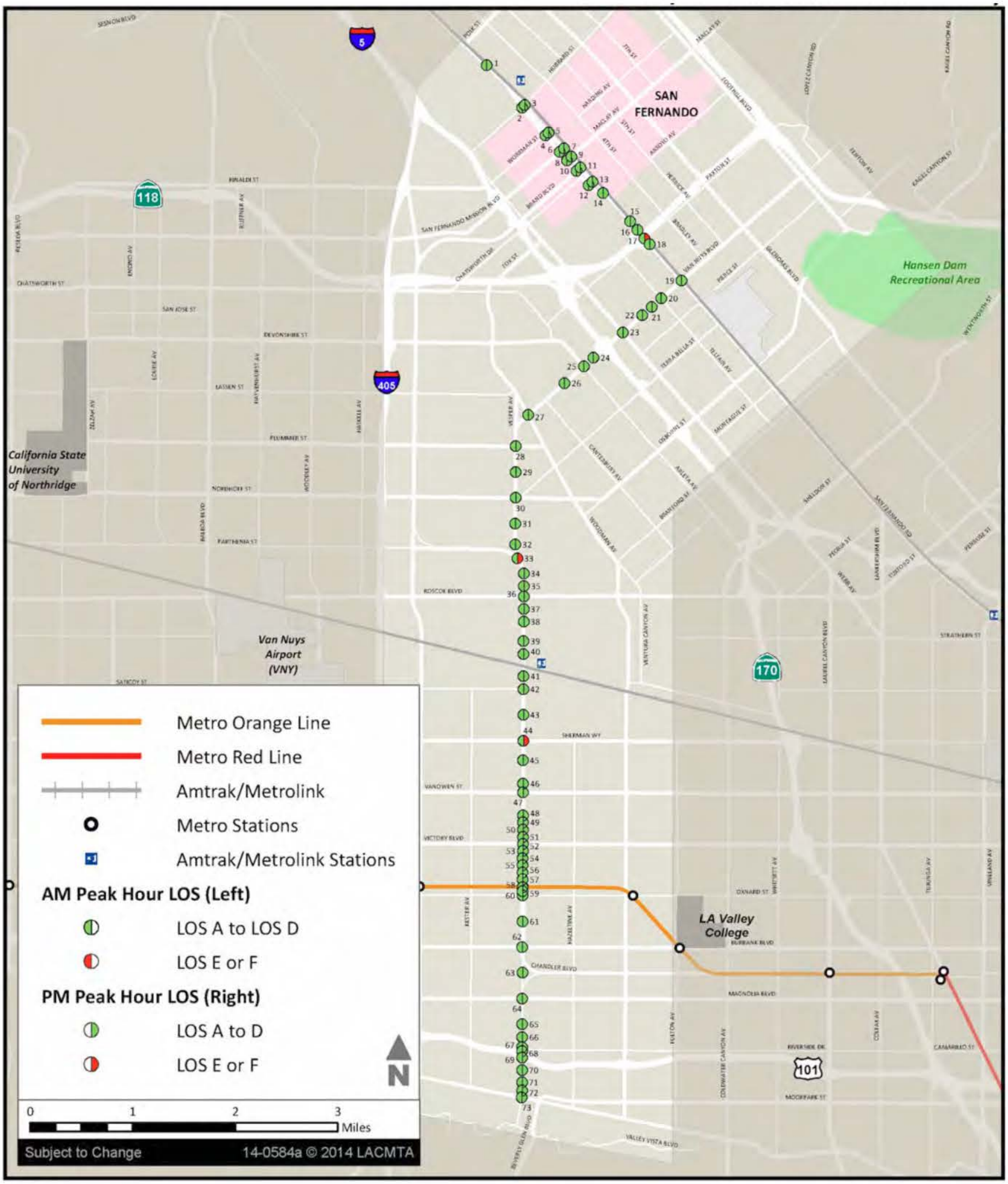
### 3.2.2.3 Existing Intersection Level of Service

Under the existing conditions scenario, three of the 73 intersections are operating at LOS E or F during weekday peak hours as shown in Table 3-3 and Figure 3-2.

**Table 3-3: Existing Intersection Operations at LOS E or F**

| Study Intersections | | Jurisdiction | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|
| | | | Delay (secs) | LOS | Delay (secs) | LOS |
| 17 | San Fernando Rd & Paxton St | Los Angeles | 32.7 | C | 57.6 | E |
| 33 | Van Nuys Blvd & Parthenia St/Vesper Ave | Los Angeles | 24.3 | C | 80.8 | F |
| 44 | Van Nuys Blvd & Sherman Way | Los Angeles | 43.0 | D | 59.8 | E |
| Source: KOA, 2015. | | | | | | |

## Figure 3-2: Existing Study Area AM and PM LOS Map




Source: KOA, 2014.



Metro

## 3.2.3 Parking

Based on review of existing parking data, Monday and Friday for the weekday (the two days were averaged) and Saturday for the weekend were analyzed for the worst-case scenario.

### 3.2.3.1 Off-Street Parking

Existing off-street parking facilities are generally reserved for businesses and their customers via surface parking lots located directly off of the Van Nuys Boulevard corridor. The overall corridor off-street parking supply, from Oxnard Street to San Fernando Road, includes a total of 19,853 parking spaces.

Transit parking facilities are provided at the Sylmar/San Fernando Metrolink Station (375 parking spaces), Van Nuys Metrolink Station (350 parking spaces), and the Metro Orange Line Van Nuys (776 parking spaces). Transit facilities located along Van Nuys Boulevard are included in the overall total spaces calculated for the parking study.

The peak parking demand for the off-street spaces occurred during the weekday at 1 p.m. when 45 percent of the spaces were occupied.

### 3.2.3.2 On-Street Parking

Curbside parking availability varies considerably along much of the extent of Van Nuys Boulevard and San Fernando Road/Truman Street. It is generally permitted along most of the corridor and includes metered, passenger/loading zone, unrestricted (with some segments allowing parking throughout the day), and restricted (segments that allow parking only during off-peak hours) parking.

Specific to Van Nuys Boulevard from Oxnard Street to San Fernando Road, a total of 1,140 on-street parking spaces are provided, with an additional 4,611 on-street spaces provided on adjacent blocks to the east and west of the corridor. These areas serve various businesses and residents with both long-term and short-term parking needs.

The peak parking demand for on-street spaces occurred on Saturday during the 12:00 p.m. hour when 52 percent of the spaces were occupied. The majority of on-street parking demand occurred in residential areas north of Parthenia Street to Laurel Canyon Boulevard with smaller pockets of high demand scattered throughout the commercial areas.

During the weekday, the peak parking demand for on-street parking spaces occurred on a weekday during the 3:00 p.m. hour when 42 percent of the spaces were occupied. There was no particular area where parking demand was most concentrated, but instead demand was scattered throughout various blocks in both residential and commercial areas.

High parking demand along San Fernando Road/Truman Street generally occurred within downtown San Fernando. On-street and off-street parking was sufficient and was not fully utilized during this period.

Specifically, within the downtown area of San Fernando, generally between Wolfskill Street on the southeast and Hubbard Street on the northwest, on-street parking is currently provided within pockets of parallel spaces and diagonal spaces.

Based on parking demand monitoring conducted in the San Fernando Road/Truman Street corridor, the highest parking demand generally occurs within downtown San Fernando. There is underutilized parking supply within both on-street and off-street areas that could accommodate the loss of parking on San Fernando Road.

### 3.2.4 Pedestrian Facilities

The pedestrian circulation system within the project corridor is generally well developed as the study area is urbanized and there is a consistent street grid pattern in most areas. Sidewalks and crosswalks are provided that serve both adjacent residential and commercial land uses. Sidewalk widths vary throughout the project alignment corridors from five to 16 feet, but are generally an adequate 10 feet. Crosswalks at signalized intersections have pedestrian indications and push-button activation for pedestrian phases.

The existing pedestrian activity at intersections near several of the proposed station locations is summarized in Table 3-4.

### 3.2.5 Bicycle Facilities

Based on the Caltrans Highway Design Manual (2012), bicycle facilities are classified based on the standards described below and illustrated in the LADOT-produced figure on the next page.

**Class I Bikeway (Bicycle Path)** – A completely separate ROW for the exclusive use of bicycles and pedestrians, with vehicle and pedestrian cross-flows minimized.

**Class II Bikeway (Bicycle Lane)** – A restricted ROW designated for the use of bicycles, with a striped lane on a street or a highway. Vehicle parking along with vehicle and pedestrian cross-flows are usually permitted.

**Class III Bikeway (Bicycle Route)** – A shared ROW designated by signs or pavement markings for use by both bicyclists and motor vehicles.

The existing bicycle facilities along the project alignment (Figure 3-3) are as follows:

- Van Nuys Boulevard – A Class II bicycle lane exists between Chandler Boulevard and the Metro Orange Line. More recently, a Class II bicycle lane has been striped from Parthenia Street to Beachy Avenue.
- San Fernando Road – A Class I bicycle path exists from Roxford Street to Hubbard Street. A multi-use path exists from Hubbard Street to Wolfskill Street/La Rue Street.

Several bicycle facilities provide parallel and connecting opportunities for bicyclists in the area. The facilities that interface with the project corridors are located on the following roadways:

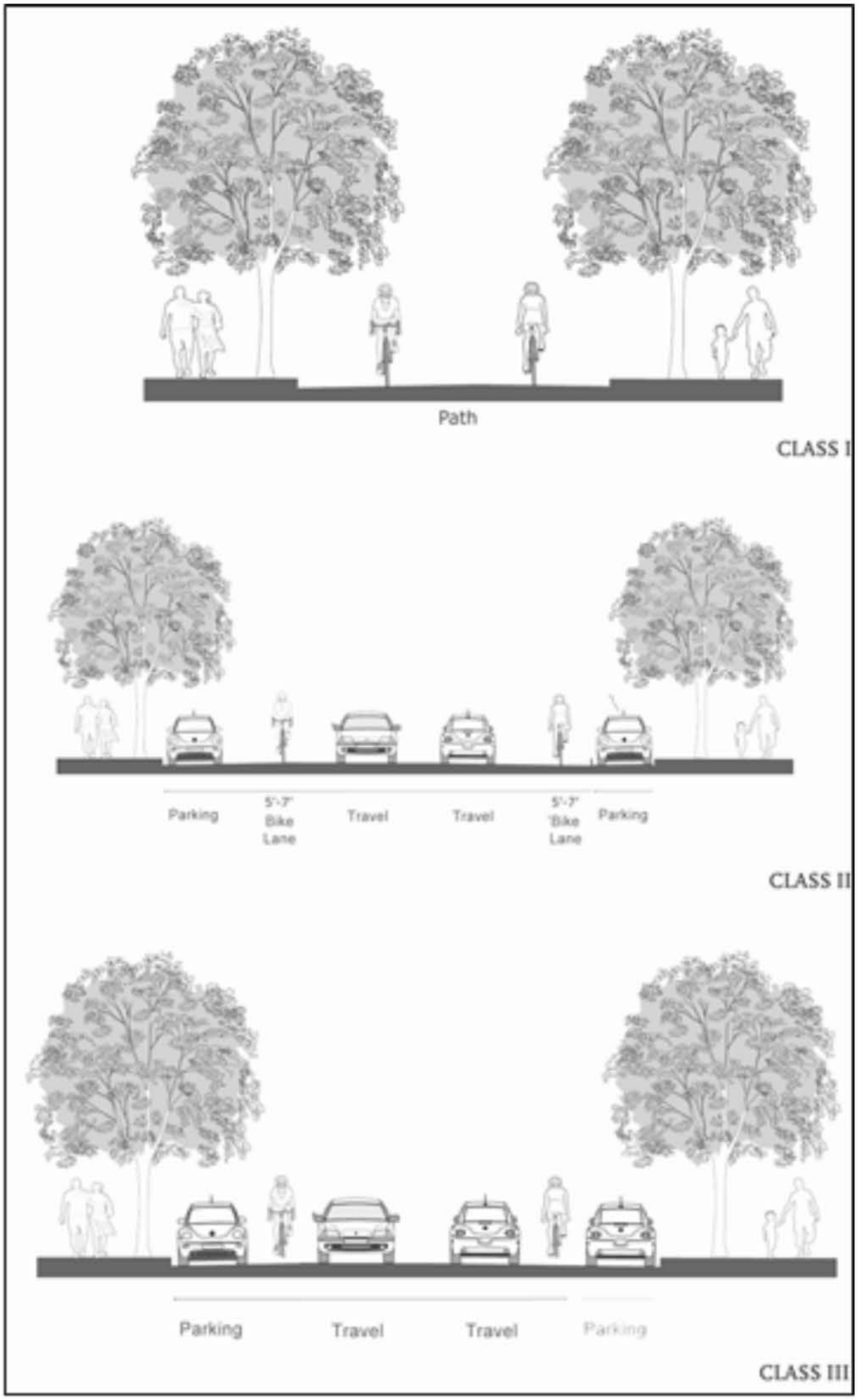
- Plummer Street (Class II) – This east-west bicycle lane intersects Van Nuys Boulevard providing a facility on Plummer Street to the west of the corridor, and transitioning onto Woodman Avenue as a north-south bicycle route to the east of the corridor.
- Parthenia Street (Class II) – This east-west bicycle lane provides a bicycle facility for the western leg of Parthenia Street, which eventually merges to Van Nuys Boulevard.
- Metro Orange Line (Class I) – This east-west bicycle path is located within the Metro Orange Line ROW and intersects Van Nuys Boulevard.
- Chandler Boulevard (Class II) – The east-west bicycle lane has a western terminus at Van Nuys Boulevard and continues east along the roadway.
- Riverside Drive (Class II) – This east-west bicycle lanes has a western terminus at Van Nuys Boulevard and continues east for a short distance where it eventually connects to the north-south bicycle lane on Laurel Canyon Boulevard.

### Table 3-4: Existing Pedestrian Activity at Proposed Station Locations

| | Pedestrian Activity* | | |
|---|---|---|---|
| Station | AM | PM | Description |
| Sylmar/San Fernando Metrolink Station<br>Hubbard Station | 117 | 112 | Current pedestrian activity is average. With the project, this station would serve as a key transfer point. |
| Maclay Station | 124 | 108 | Current pedestrian activity is average. |
| Paxton Station | 66 | 125 | Current pedestrian activity is relatively low. |
| Chase Station | 376 | 714 | Current pedestrian activity is relatively high. |
| Roscoe Boulevard Station | 521 | 988 | Current pedestrian activity is relatively high. |
| Blythe Station | 1,049 | 1,237 | Current pedestrian activity is relatively high due to its proximity to Panorama High School. |
| Van Nuys/Keswick Metrolink Station | 165 | 159 | Current pedestrian activity is relatively low. With the project, this station would serve as a key transfer point. |
| Sherman Way Station | 375 | 696 | Current pedestrian activity is relatively high. |
| Vanowen Station | 471 | 780 | Current pedestrian activity is high. |
| Victory Station | 314 | 440 | Current pedestrian activity is average. |
| Metro Orange Line Van Nuys Station | 818 | 594 | Current pedestrian activity is very high due to the Metro Orange Line ridership. With the project, this station would serve as a key transfer point. |
| Source: KOA, 2015. | | | |

* The pedestrian counts were collected by LADOT. The counts were collected on a Tuesday, Wednesday, or Thursday. The time period for the pedestrian counts was from 7 a.m.–10 a.m. and 3 p.m.–6 p.m.

## Figure 3-3: Illustration of Class I, II, and III Bikeways




Source: LADOT, 2010.

# 3.3 Environmental Consequences, Impacts, and Mitigation Measures

## 3.3.1 Impact Overview

This section provides an overview of the potential construction, operational, and cumulative impacts that could occur as a result of the No-Build Alternative, TSM Alternative, and the project build alternatives.

The impact areas that are discussed in this section include:

- Traffic including impacts on highways, roadways, and local intersections
- Parking
- Transit
- Non-motorized transportation (pedestrian and bicycle)

The most prominent impact areas are the potential parking, non-motorized transportation, loading/unloading, local circulation, and access/egress impacts on land uses fronting Van Nuys Boulevard. Detailed information specific to the impacts of each alternative's impacts and proposed mitigation measures are discussed after this section.

A summary of the specific characteristics of each build alternative is provided in Table 3-5.

## Table 3-5: Build Alternatives Attributes

| Van Nuys Boulevard Segment – Build Attributes | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Build Alternative | Length Total | | Stations Total | | Circulation | | Parking | | Bicycle Facilities |
| | Van Nuys Blvd. | San Fernando Rd. | Van Nuys Blvd. | San Fernando Rd. | Van Nuys Blvd. | San Fernando Rd. | Van Nuys Blvd. | San Fernando Rd. | |
| Alternative 1 (Curb-Running BRT) | 6.7 miles | 2.5 miles | 14 BRT | 4 BRT | Curb lane BRT and RT Only | Mixed-flow | NPAT and NSAT all Curb Segments (7 a.m. to 7 p.m.) | Permitted | Sharrow Only |
| Alternative 2 (Median-Running BRT) | 6.7 miles | 2.5 miles | 13 BRT | 4 BRT | 30 Intersections No Left Turn | Mixed-flow | NPAT and NSAT all Curb Segments | Permitted | None |
| Alternative 3 (Low-Floor LRT/Tram) | 6.7 miles | 2.5 miles | 24 Rail | 4 Rail | 30 Intersections No Left Turn | 11 Intersections Turn Restrictions | NPAT and NSAT all Curb Segments | NPAT and NSAT all Curb Segments | None |
| Alternative 4 (LRT) | 4.2 miles (Median) + 2.5 miles (Subway) | 2.5 miles (rail ROW) | 11 Rail (3 are subway) | 3 Rail | 43 Intersections No Left Turn | No Restrictions | NPAT and NSAT except when LRT underground | Permitted | None |

Notes:
NPAT = No Parking Any Time
NSAT = No Stopping Any Time
RT = Right Turn
Source: KOA, 2015.

### 3.3.1.1 Traffic

#### How Would Vehicular Circulation Be Affected?


Each of the build alternatives would affect corridor-wide, local circulation, and land use access/egress with differing and increasing levels of restrictiveness. Under the No-Build and TSM Alternatives, there would be no changes in circulation patterns.

Under Alternative 1 (Curb-Running BRT), the curbside lane would be reserved for transit buses and bicycles from the morning to early evening. As noted above, where currently available, parking would be prohibited from 7 a.m. to 7 p.m., resulting in a loss of on-street parking. All current motor vehicle turns into and out of cross streets and driveways would be maintained under this alternative. No prohibitions on left turns or right turns would be necessary.

Under Alternative 2 (Median-Running BRT), all curbside parking would be prohibited along the entire extent of Van Nuys Boulevard from the Van Nuys Metro Orange Line Station to San Fernando Road. Although two lanes would be provided the length of Van Nuys Boulevard in each direction, the flow in the curbside lane of traffic would be impeded whenever a right-turning vehicle yields to crossing pedestrians or a local bus is stopped at a bus stop.

Thirty intersections would have left-turn prohibitions; these are generally secondary roadways along the corridor. At these intersections, only right turns from Van Nuys Boulevard or right turns onto Van Nuys Boulevard would be permitted. Otherwise, left turns from Van Nuys Boulevard onto cross streets would be maintained at most of the currently signalized intersections, and prohibited at all unsignalized intersections. The dual left-turn lanes on northbound and southbound Van Nuys Boulevard at Sherman Way and at Roscoe Boulevard would be reduced to single left-turn lanes.

Several left-turns in the Van Nuys Civic Center, between Calvert Street and Hartland Street, would be prohibited to accommodate median bus stop platforms. Because of the distance between signalized intersections, there would not be enough space for left-turn lanes. For the same reasons, the left turn into the retail property on the east side of Van Nuys Boulevard, between Roscoe Boulevard and Chase Street, would be prohibited.

Unless otherwise prohibited, U-turns would be allowed from signalized left-turn lanes on Van Nuys Boulevard. Access to and from minor side streets and private driveways would rely on these U-turn opportunities.

All movements across the median guideway would be prohibited. This includes left turns from Van Nuys Boulevard at unsignalized intersections and private driveways, as well as left turns and through traffic from the side streets or from private driveways. Motorists who desire to make a left turn into an unsignalized cross-street or driveway would need to find a signalized left turn from which to make a U-turn or turn right off of Van Nuys Boulevard and seek a route that would enable them to reach a signalized cross street.

Only right turns into and out of unsignalized cross streets and driveways would be allowed. Left turns into and out of cross streets and driveways would be prohibited.

Under Alternative 3 the (Low-Floor LRT/Tram), all curbside parking would be prohibited along the entire extent of the project alignment.

Forty-one intersections would have left-turn prohibitions. At these intersections, only right turns from Van Nuys Boulevard or right turns onto Van Nuys Boulevard would be permitted. All other turning prohibitions noted under Alternative 2 remain the same. Additionally, all existing turning movements on San Fernando Road between Wolfskill Street and Van Nuys Boulevard would be maintained where the Low-Floor LRT/Tram would share travel lanes with motor vehicles.

Under Alternative 4 (LRT), curbside parking would be prohibited along the majority of the project alignment with the exception of where the alignment goes underground between Vose Street and Parthenia Street, and along San Fernando Road as it would be located within an exclusive ROW.

Forty-three intersections would have left-turn prohibitions. At these intersections, only right turns from Van Nuys Boulevard or right turns onto Van Nuys Boulevard would be permitted. All other turning prohibitions noted under Alternative 2 remain the same.

Table 3-6 summarizes the project traffic impacts by alternative.

### Table 3-6: Potential Traffic Impacts by Alternative

| Traffic Impacts | | | | |
|---|---|---|---|---|
| Alternative | Intersections at LOS E or F | Number of Significant Impacts | Typical Mitigations Available | Alternate Mitigation Measures Available |
| 2040 No Build | 16 | — | N/A | N/A |
| TSM | 16 | — | N/A | N/A |
| Alternative 1 (Curb-Running BRT) | 18 | 16 | No | Partially Mitigating * |
| Alternative 2 (Median-Running BRT) | 21 | 24 | No | Partially Mitigating * |
| Alternative 3 (Low-Floor LRT/Tram) | 27 | 32 | No | Partially Mitigating * |
| Alternative 4 (LRT) | 21 | 20 | No | Partially Mitigating * |

Source: KOA, 2015.
** The proposed project, providing new transit services, will reduce vehicle miles traveled (VMT), vehicles hours traveled (VHT), and otherwise general improve transportation options. It is therefore mitigating traffic impacts caused by the project, to some extent.*

Tables 3-7 and Table 3-8 summarize the performance of the project in relation to reductions in daily VMT and VHT, and effects on peak hour average vehicle speed, compared to the No-Build Alternative. These metrics provide insight into the potential benefits associated with each alternative.

### Table 3-7: Project Performance – VMT and VHT by Alternative

| Alternative | Daily VMT Reduction | Daily VHT Reduction |
|---|---|---|
| **Outside the Study Area** | | |
| TSM | 9,353 | 440 |
| Alternative 1 (Curb-Running BRT) | 33,137 | 1,594 |
| Alternative 2 (Median-Running BRT) | 34,733 | 1,686 |
| Alternative 3 (Low-Floor LRT/Tram) | 9,188 | 704 |
| Alternative 4 (LRT) | 44,487 | 2,495 |
| **Within the Study Area** | | |
| TSM | 254 | 11 |
| Alternative 1 (Curb-Running BRT) | 2,823 | 102 |
| Alternative 2 (Median-Running BRT) | 2,625 | 93 |
| Existing + Alternative 3 (Low-Floor LRT Tram) | 7,948 | 1,254 |
| Alternative 3 (Low-Floor LRT Tram) | 10,819 | 385 |
| Alternative 4 (LRT) | 9,720 | 343 |
| Source: KOA, 2015. | | |

### Table 3-8: Project Performance – Average Traffic Speeds by Alternative

| Alternative | AM Peak-Hour Average Speed (NB Direction) | PM Peak-Hour Average Speed (SB Direction) |
|---|---|---|
| No Build | 22.6 | 27.3 |
| TSM | 22.6 | 27.3 |
| Alternative 1 (Curb-Running BRT) | 22.3 | 26.9 |
| Alternative 2 (Median-Running BRT) | 22.4 | 26.9 |
| Alternative 3 (Low-Floor LRT Tram) | 22.3 | 26.5 |
| Alternative 4 (LRT) | 22.7 | 27.2 |
| Source: KOA, 2015. | | |

The VMT value provided in Table 3-7 provides a combined estimate of both the vehicle trips generated (as versus transit trips, bicycling, walking, etc.) and the length of those vehicle trips. Alternative 4 has the most daily VMT reduction compared to the No-Build Alternative, with a reduction of 44,487 outside of the study area and a reduction of 9,270 within the study area. The majority of the reduction is to/from outside of the corridor because the trips within the study area are relatively short; those to/from outside tend to be longer trips.

Alternatives 1 and 2 have similar VMT reductions, at 33,137 and 34,733 outside of the study area, and reductions of 2,823 and 2,625 within the study area. The reason that the BRT alternatives have less reduction within the study area than Alternative 4 is that the BRT alternatives do not serve the markets within the study area as well; therefore, the BRT alternatives have fewer transit trips within the study area, which translates into less VMT reduction. However, the advantage of the BRT alternatives is that they require no extra transfer at the Metro Orange Line as is required with Alternative 4. As a result, the BRT alternatives serve the corridor to outside market better than Alternative 4.

Alternative 3 has a VMT reduction of 9,188 outside of the study area and a reduction of 10,819 within the study area. The corridor transit trip paths and lengths are modified under the rail alternatives, resulting in a loss of transit trips in some instances. However, because Alternative 4 has more competitive transit service, it has less transit trip loss and more transit trip gains than Alternative 3, which offsets the transit trip loss.

The VHT value provided in Table 3-7 is a similar combined value of vehicle trips generated and the time required to complete those trips (incorporating congestion into the measure). Similar to the VMT reduction, Alternative 4 has the highest total reduction in VHT at 2,495 outside of the study area and a reduction of 343 within the study area. Alternative 3 has a higher VHT reduction, at a slightly higher value of 385. The BRT alternatives have a similar ranking amongst all of the alternatives, as they do under the VMT value.

Table 3-8 provides a comparison of projected average roadway speeds across the project alternatives. During the AM peak period, all of the build alternatives would have a negligible affect on roadway speeds, as the approximately 22 mph value remains relatively constant.

During the PM peak period, the values do not change by large amounts across the alternatives (all values approximately 26 or 27 mph), but higher relative speeds would be provided under the BRT alternatives and the highest would be provided under Alternative 4. The LRT Alternative would have the fastest transit travel times and would also have fewer surface station locations due to the subterranean operating segments, and therefore, less traffic impacts than Alternative 3.

### Would There Be Increased Congestion on Corridor Intersections as a Result of Constructing Any of the Build Alternatives?

There would be increased congestion and significantly affected intersections under each of the build alternatives.

### Would There Be Increased Congestion on Parallel Roadway Intersections as a Result of Constructing Any of the Build Alternatives?

There would be increased congestion and significantly affected intersections under each of the build alternatives due to shifting and/or diverting traffic.

### Would There Be Impacts on Traffic During Construction?

There would be adverse traffic conditions during the construction of the build alternatives, most notably Alternatives 2 through 4. Construction impacts could include roadway segment closures for extended periods of time and/or the loss of travel lanes on Van Nuys Boulevard.

## 3.3.1.2 Transit

### How Would Transit Be Affected?

Transit riders would benefit from increased transit service frequency and generally improved travel times along the corridor during the peak periods. With the transit improvements, daily boardings, and transit trips (an indicator of how many trips are moving from auto to transit versus the No-Build) would increase over the No-Build Alternative for all project alternatives. For riders traveling through the corridor, the bus alternatives would be the most beneficial as it would avoid the need to transfer; whereas, the rail alternatives force the transfer for continued service, hence the higher overall transit boardings. Table 3-9 summarizes the transit performance results.

**Table 3-9: Transit Performance by Alternative**

| Transit Summary | | | |
|---|---|---|---|
| Alternative | Daily Transit Boardings | New Daily Transit Trips | Travel Time San Fernando Rd. – Metro Orange Line (SB AM Peak minutes) |
| TSM | 38,128 | 466 | 34.8 (Line 761)<br>36.3 (Line 233) |
| Alternative 1 (Curb-Running BRT) | 46,644 | 2,970 | 27.8 (Line 761X)<br>29.8 (Line 233X) |
| Alternative 2 (Median-Running BRT) | 46,934 | 2,969 | 23.9 (Line 761X)<br>41.8 (Line 233X) |
| Alternative 3 (Low-Floor LRT/Tram) | 55,145 | 8,452 | 27 (LRT/Tram) |
| Alternative 4 (LRT) | 69,221 | 8,604 | 18 (LRT)<br>41.8 (Line 233) |
| Source: KOA, 2015. | | | |

### Would There Be Impacts on Transit during Construction?

Transit service would be disrupted to varying levels depending on the build alternative. Alternative 1 would create the least disruptions while Alternatives 2 through 4 would create the greatest disruption due to the construction of median guideways. Construction, at a minimum, would cause lane closures and the temporary closure of bus stops, which would be temporarily moved outside of the work areas.

### 3.3.1.3 Parking

#### What Type of Parking and Loading/Unloading Changes Would Be Made along the Project Corridor?

For all four build alternatives (two BRT and two rail transit alternatives), parking, as well as loading/unloading, along Van Nuys Boulevard would be affected. This is due to the use of the curb lane in Alternative 1 as a full time transit lane during the day and in Alternatives 2 through 4 due to the reduction in travel lanes on Van Nuys Boulevard from three to two, which is necessary to accommodate a median guideway for either the bus (Alternative 2) or rail alternatives (Alternatives 3 and 4). It should be noted that under Alternative 4, parking would not be affected where the alignment travels underground for approximately two-and-a-half miles. In the City of San Fernando, some curbside parking on San Fernando Road would be prohibited to provide for extended bus stop lengths, which would range between 80 feet and 150 feet. All curbside parking would be prohibited along the alignment on Van Nuys Boulevard and on San Fernando Road under Alternative 3. No parking along San Fernando Road would be affected under Alternative 4 since the rail service would be operating in an exclusive ROW within that corridor.

Table 3-10 summarizes the project parking impacts by alternative.

#### Where Would Motorists Park and Where Would Deliveries Occur?

Parking for land uses along Van Nuys Boulevard would be required to shift from on-street to off-street lots and garages conjoined to the property or on the side streets in the vicinity of the land use in question. Deliveries to businesses and residences would not be able to rely on curbside parking and would either have to use off-street parking facilities, parking on an adjacent street, or alleyways behind commercial properties.

#### Won't This Require People to Walk Further to and from a Land Use?

In those cases where a land use does not have off-street parking available, it may be necessary for people and delivery persons to walk further as they may have to park a block or more away.

### 3.3.1.4 Pedestrian and Bicycle

#### How Would Pedestrian and Bicyclists (non-motorized transportation) Be Affected?

Pedestrian and bicyclists would be affected to varying degrees under the four build alternatives as described below.

<u>Under Alternative 1</u>, all current pedestrian movements across roadways would be maintained including all existing mid-block crossing opportunities.

On Van Nuys Boulevard, the curb lane would be shared by buses and bicyclists. The existing Class II bicycle lanes on Van Nuys Boulevard north of Parthenia Street to Beachy Avenue would be removed under this alternative.

## Table 3-10: Van Nuys Boulevard Parking Impacts by Alternative

| Parking | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Build Alternative | No. of On-Street Spaces | No. of Off-Street Spaces | Loss of On-Street Parking | Loss of Off-Street Parking | Total Number of Spaces Lost | Weekday Shortfall in Blocks | Weekend Shortfall in Blocks | Adjacent Block Capacity |
| Alternative 1 (Curb-Running BRT) | 5,715 | 19,853 | 1,140 | 0 | 1,140 | 11 | 14 | Yes |
| Alternative 2 (Median-Running BRT) | 5,715 | 19,853 | 1,140 | 0 | 1,140 | 11 | 14 | Yes |
| Alternative 3 (Low-Floor LRT/Tram) | 5,715 | 19,853 | 1,155 | 152 | 1,307 | 12 | 15 | Yes |
| Alternative 4 (LRT) | 5,715 | 19,853 | 902 | 528 | 1,430 | 11 | 14 | Yes |
| Source: KOA, 2015. | | | | | | | | |

Under Alternative 2, all existing signal-controlled crosswalks would be maintained. However, all other pedestrian crossings on Van Nuys Boulevard at unsignalized intersections would be prohibited. Bus patrons would be restrained between curbside local bus stops and median BRT bus stops by railings on the backside of median bus stop platforms.

Bicyclists would share the curb lane with other motorists. The existing Class II bicycle lanes on Van Nuys Boulevard north of Parthenia Street would be removed under this alternative.

Under Alternative 3, on the segment of San Fernando Road between Wolfskill Street and Van Nuys Boulevard where the Low-Floor LRT/Tram would operate in mixed-flow, pedestrians may continue to cross San Fernando Road at any location where crossings are currently allowed. There would be a pedestrian bridge at the Sylmar/San Fernando Metrolink station from the LRT platform to the Metrolink platform. On all other segments where the Low-Floor LRT/Tram operates in semi-exclusive guideway, pedestrian crossings would be permitted only at signal-controlled intersections. Pedestrians would be required to walk to a signalized location to cross San Fernando Road or Van Nuys Boulevard. Low-Floor LRT/Tram passengers would reach the median station platforms from crosswalks at signalized intersections.

The curb lane would be shared by mixed-flow traffic and bicyclists. Just as for the other alternatives, the existing Class II bicycle lanes on Van Nuys Boulevard north of Parthenia Street would be removed.

Under Alternative 4, all current crosswalks at signal-controlled intersections would be maintained. Between the signalized intersections, a fence would be installed to prevent mid-block pedestrian crossings, as is the current practice of Metro on its median-running LRT lines. Pedestrians would be required to walk to a signalized location to cross Van Nuys Boulevard. LRT passengers would reach the median station platforms from crosswalks at signalized intersections. There would be a pedestrian bridge at the Sylmar/San Fernando Metrolink station from the LRT platform to the parking lot.

The curb lane on Van Nuys Boulevard would be shared by mixed-flow traffic and bicyclists. The existing Class II bicycle lanes on Van Nuys Boulevard north of Parthenia Street to Beachy Avenue would be removed, but bicycle lanes would be provided along the segment where the LRT is underground from Hart Street north to Parthenia Street. Additionally, the City of Los Angeles recently constructed a bicycle path within Metro's railroad right-of-way parallel to San Fernando Road.

The right-of-way is sufficiently wide enough to allow the bicycle path to remain alongside a pair of LRT tracks and tracks for Metrolink and Union Pacific trains. At the point where the LRT crosses the bicycle path, near the intersection of Pinney Street and San Fernando Road, a signalized grade crossing would be provided. The bicycle path would be shifted from the east side of the railroad alignment to the west side of the tracks through the City of San Fernando to reduce the number of bicycle-rail crossings.

## Would There Be Impacts on Pedestrians and Bicyclists during Construction?

Pedestrian and bicycle facilities would be affected during construction as a result of potential closure to these facilities. Detours and parallel routes would be established.

# 3.3.2 No-Build Alternative

The table below summarizes the potential transportation impacts under the No-Build Alternative (a "Yes" in the table indicates an adverse effect under NEPA or significant impact under CEQA would occur).

| | Transit | | Traffic | | Parking | | Pedestrian | | Bicycle | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated |
| Construction | No | — | No | — | No | — | No | — | No | — |
| Operations | No | — | No | — | No | — | No | — | No | — |
| Cumulative | No | — | No | — | No | — | No | — | No | — |

Yes = Significant impact under CEQA, Adverse effect under NEPA;
No = No impact or less than significant impact under CEQA, No effect or no adverse effect under NEPA.

## 3.3.2.1 Construction Impacts

### Transit

No construction activity is planned under the No-Build Alternative; therefore, no impacts on transit would occur.

### Traffic

There would be no physical changes to the existing environment as a result of the No-Build Alternative; therefore, no impacts on traffic would occur.

### Parking

No project-related construction or physical improvements would occur along the alignment under the No-Build Alternative; thus, this alternative would not result in parking impacts on on-street parking.

### Pedestrian and Bicycle Facilities

The No-Build Alternative would not generate impacts on pedestrian and bicycle facilities, as project-related construction and/or physical improvements would not occur along the project corridor under this alternative.

## 3.3.2.2 Operational Impacts

### Transit

Under the No-Build Alternative, the Rapid Line 761 and Local Line 233 bus service would be identical to existing bus service. Therefore, there would be no direct operational impacts on transit.

The No-Build Alternative, however, would lack the potential transportation benefits that the build alternatives would provide, such as increased service frequency and capacity, improved transit access and reliability, and improved connections to the regional transit network. Over time, traffic congestion is expected to increase, creating additional delay per mile for buses and auto traffic. The No-Build Alternative would not provide a reliable alternative to these existing modes of travel in the project area.

## Traffic

### Intersections

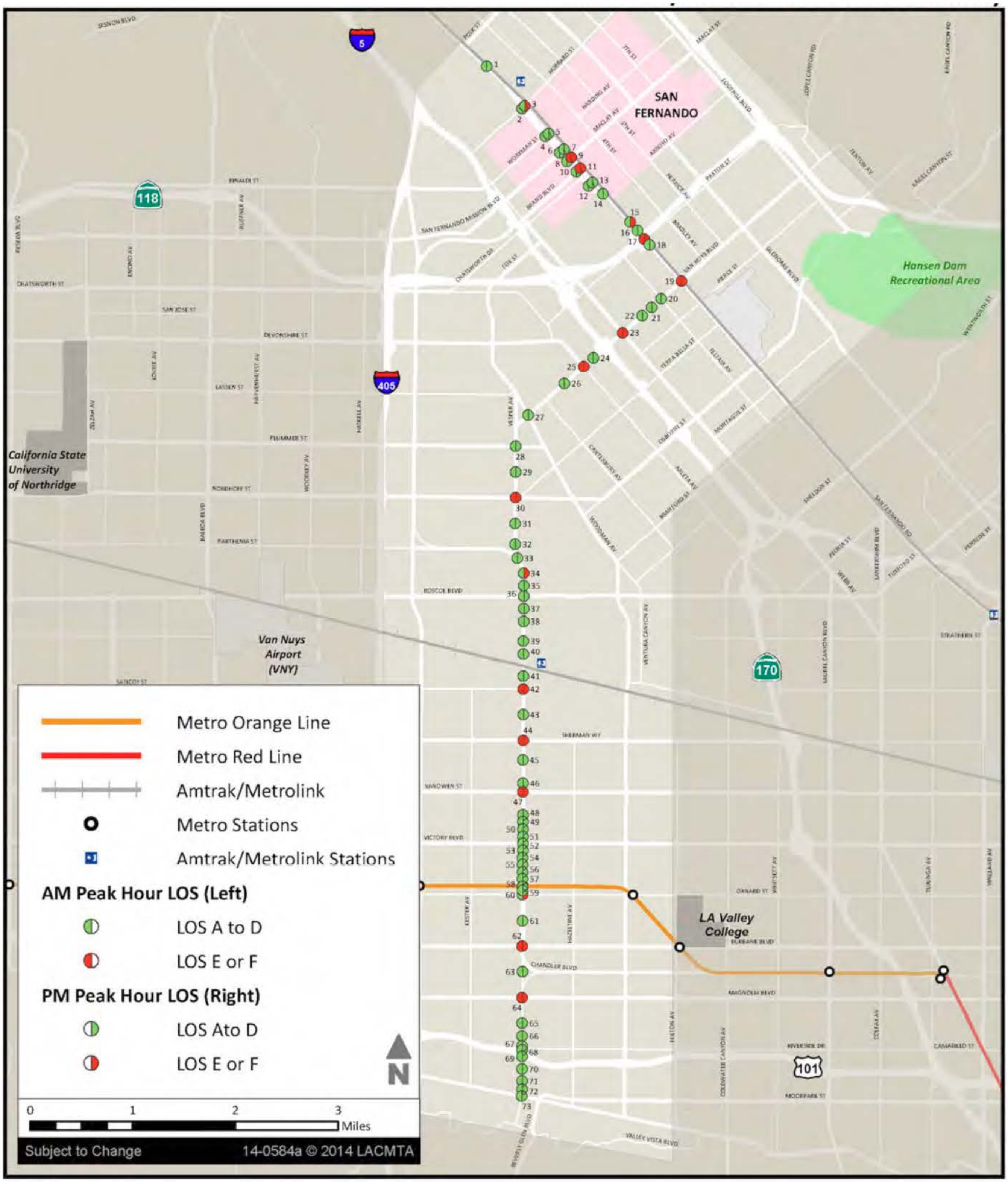
Daily vehicle traffic within the study area is projected to increase over the 28-year period between existing and future baseline conditions during the AM and PM peak periods. Under the future baseline analysis scenario, 16 of the 73 analyzed intersections would operate at LOS E or F during weekday peak hours.

Table 3-11 summarizes the future baseline AM and PM peak hour LOS values at the study intersections. Figure 3-4 illustrates these LOS values on a map of the project study area.

**Table 3-11: Future (2040) Baseline Conditions – Intersections Operating at LOS E or F**

| Study Intersections | | Jurisdiction | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|
| | | | Delay (secs) | LOS | Delay (secs) | LOS |
| 3 | Truman St & Hubbard St | San Fernando | 45.3 | D | 72.2 | E |
| 9 | Truman St & Maclay Ave | San Fernando | 87.6 | F | 122.8 | F |
| 11 | Truman St & Brand Blvd | San Fernando | 117.3 | F | 73.0 | E |
| 15 | San Fernando Rd & Desmond St | Los Angeles | 31.1 | C | 196.3 | F |
| 17 | San Fernando Rd & Paxton St | Los Angeles | 99.7 | F | 76.6 | E |
| 19 | San Fernando Rd & Van Nuys Blvd | Los Angeles | 100.4 | F | 128.9 | F |
| 23 | Laurel Canyon Blvd & Van Nuys Blvd | Los Angeles | 157.2 | F | 124.0 | F |
| 25 | Arleta Ave & Van Nuys Blvd | Los Angeles | 65.2 | E | 75.1 | E |
| 30 | Van Nuys Blvd & Nordhoff St | Los Angeles | 72.0 | E | 76.7 | E |
| 34 | Van Nuys Blvd & Chase St | Los Angeles | 23.7 | C | 72.2 | E |
| 42 | Van Nuys Blvd & Saticoy St | Los Angeles | 92.4 | F | 128.0 | F |
| 44 | Van Nuys Blvd & Sherman Way | Los Angeles | 57.5 | E | 120.3 | F |
| 47 | Van Nuys Blvd & Vanowen St | Los Angeles | 70.4 | E | 89.3 | F |
| 60 | Van Nuys Blvd & Oxnard St | Los Angeles | 45.9 | D | 55.5 | E |
| 62 | Van Nuys Blvd & Burbank Blvd | Los Angeles | 149.9 | F | 104.9 | F |
| 64 | Van Nuys Blvd & Magnolia Blvd | Los Angeles | 58.4 | E | 80.9 | F |
| Source: KOA, 2015. | | | | | | |

## Figure 3-4: Future (2040) Baseline Study Area AM and PM LOS Map




Source: KOA, 2014.



Metro

#### Performance Measures

The No-Build Alternative represents the future baseline against which all other project alternatives are compared to determine the potential benefits to VMT, VHT, and vehicle speeds.

#### Parking

The No-Build Alternative does not include operational changes and consequently would not result in impacts on the on-street parking supply.

#### Pedestrian and Bicycle Facilities

The No-Build Alternative would not result in operational impacts on pedestrian and bicycle facilities.

### 3.3.2.3 Cumulative Impacts

CEQA requires an environmental impact report to evaluate a project's contribution to cumulative impacts. Cumulative impacts are the project's impacts combined with the impacts of the related past, present, and reasonably foreseeable future projects.

No transportation improvements would occur under the No-Build Alternative. As a result, no effects or impacts from this scenario would contribute to and/or produce any cumulative impacts.

### 3.3.2.4 Mitigation Measures

#### Construction Mitigation Measures

No construction mitigation measures are required.

#### Operational Mitigation Measures

No operational mitigation measures are required.

### 3.3.2.5 Impacts Remaining After Mitigation

#### NEPA Finding

No adverse transportation effects would occur under the No-Build Alternative.

#### CEQA Determination

No transportation impacts would occur under the No-Build Alternative.

## 3.3.3 TSM Alternative

The following table summarizes the impacts of the TSM Alternative.

| | Transit | | Traffic | | Parking | | Pedestrian | | Bicycle | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated |
| Construction | No | — | No | — | No | — | No | — | No | — |
| Operations | No | — | No | — | No | — | No | — | No | — |
| Cumulative | No | — | No | — | No | — | No | — | No | — |

Yes = Significant impact under CEQA; adverse effect under NEPA.
No = No impact or less than significant impact under CEQA; no effect or no adverse effect under NEPA.

### 3.3.3.1 Construction Impacts

#### Transit

Under the TSM Alternative, minor physical improvements to existing roadways (e.g., signal improvements) and bus stops could occur. Construction of these improvements would be very limited in scope and short in duration; it's not expected that road closures or detours would be required. Therefore, construction effects under NEPA would not be adverse and would be less than significant under CEQA.

#### Traffic

Because construction of any physical improvement would be temporary and short in duration and because road closures would not occur, potential impacts on traffic would not be adverse under NEPA and would be less than significant under CEQA.

#### Parking

Similar to impacts on transit and traffic described above, any physical improvements to roadways or bus stops proposed under the TSM Alternative would be very limited in scope and short in construction duration. It's anticipated few if any parking spaces would be affected by proposed construction activities. Any potential effects that would occur would be temporary. Therefore, potential effects on parking would not be adverse under NEPA and would be less than significant under CEQA.

#### Pedestrian and Bicycle Facilities

The very minor construction that could occur under the TSM Alternative would not result in the permanent removal of any existing bike lanes. It's also not anticipated that construction would require sidewalks to be removed or reduced in width. Consequently, construction impacts on pedestrian and bicycle facilities would not be adverse under NEPA and would be less than significant under CEQA.

### 3.3.3.2 Operational Impacts

#### Transit

Existing bus routes Rapid Line 761 and Local Line 233 would retain the current stop locations with enhancements to bus services through increased bus frequencies. The bus headways would be improved as follows and as shown in Figure 3-5:

- Rapid Line 761 – Two-minute peak headway improvement (eight minutes versus 10 minutes); one-and-a-half minute off-peak headway improvement (16 minutes versus 17.5 minutes);
- Local Line 233 – Four-minute peak headway improvement (eight minutes versus 12 minutes); four minute off-peak headway improvement (16 minutes versus 20 minutes).
- Implementation of improved transit service under the TSM Alternative would result in an increase of 466 daily transit trips on Van Nuys Boulevard between the Metro Orange Line and the Sylmar/San Fernando Metrolink station, as compared to future No-Build/baseline conditions. The improved transit service would result in increased bus service, and no adverse operational impacts.

## Figure 3-5: TSM Alternative


Source: STV, 2014.



Metro

## Traffic

### Intersections

No changes to the existing roadway configuration are proposed under the TSM Alternative. With implementation of the increased bus service proposed under the TSM Alternative, 16 of 73 study intersections would operate at LOS E or F during weekday peak hours in the year 2040, as shown in Table 3-12. In comparison to the No-Build/future baseline scenario, implementation of the TSM Alternative would not cause study intersection operations to worsen by a measurable amount; therefore, the significant impact thresholds would not be exceeded. Impacts would not be adverse under NEPA and would be less than significant under CEQA.

### Performance Measures

Average vehicle speeds in the corridor would not change considerably from the No-Build Alternative, as only existing bus frequencies would increase under this alternative. Benefits in terms of VMT and VHT would also be negligible.

## Parking

The TSM Alternative would not require removal of parking spaces or otherwise adversely affect parking along the corridor. No operational impacts or effects would occur.

## Pedestrian and Bicycle Facilities

The TSM Alternative does not propose any physical or operational changes to pedestrian and bicycle facilities within the corridor. No operational impacts or effects would occur.

# 3.3.3.3 Cumulative Impacts

The TSM Alternative involves the enhancement of transportation system upgrades and low-cost transit improvements. These improvements could be beneficial to the study area and would not contribute to any significant adverse cumulative transportation impacts.

# 3.3.3.4 Mitigation Measures

## Construction Mitigation Measures

No construction mitigation measures are required.

## Operational Mitigation Measures

No operational mitigation measures are required.

# 3.3.3.5 Impacts Remaining After Mitigation

## NEPA Finding

No adverse effects would occur during construction and operation of the TSM Alternative.

## CEQA Determination

No or less-than-significant impacts would occur during construction and operation of the TSM Alternative.

## Table 3-12: TSM Alternative – Intersections at LOS E or F in 2040

| Study Intersections | | Jurisdiction | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|
| | | | Delay (secs) | LOS | Delay (secs) | LOS |
| 3 | Truman St & Hubbard St | San Fernando | 45.3 | D | 72.2 | E |
| 9 | Truman St & Maclay Ave | San Fernando | 87.6 | F | >100 | F |
| 11 | Truman St & Brand Blvd | San Fernando | >100 | F | 73.0 | E |
| 15 | San Fernando Rd & Desmond St | Los Angeles | 31.1 | C | >100 | F |
| 17 | San Fernando Rd & Paxton St | Los Angeles | 99.7 | F | 76.6 | E |
| 19 | San Fernando Rd & Van Nuys Blvd | Los Angeles | >100 | F | >100 | F |
| 23 | Laurel Canyon Blvd & Van Nuys Blvd | Los Angeles | >100 | F | >100 | F |
| 25 | Arleta Ave & Van Nuys Blvd | Los Angeles | 65.2 | E | 75.1 | E |
| 30 | Van Nuys Blvd & Nordhoff St | Los Angeles | 72.0 | E | 76.7 | E |
| 34 | Van Nuys Blvd & Chase St | Los Angeles | 23.7 | C | 72.2 | E |
| 42 | Van Nuys Blvd & Saticoy St | Los Angeles | 92.4 | F | >100 | F |
| 44 | Van Nuys Blvd & Sherman Way | Los Angeles | 57.5 | E | >100 | F |
| 47 | Van Nuys Blvd & Vanowen St | Los Angeles | 70.4 | E | 89.3 | F |
| 60 | Van Nuys Blvd & Oxnard St | Los Angeles | 45.9 | D | 55.5 | E |
| 62 | Van Nuys Blvd & Burbank Blvd | Los Angeles | >100 | F | >100 | F |
| 64 | Van Nuys Blvd & Magnolia Blvd | Los Angeles | 58.4 | E | 80.9 | F |

Source: KOA, 2015.

# 3.3.4 BRT Alternatives (Alternatives 1 and 2)

## 3.3.4.1 Alternative 1 – Curb-Running BRT

The table below summarizes the impacts of Alternative 1 under CEQA and NEPA, which are discussed in detail in the text that follows.

| | Transit | | Traffic | | Parking | | Pedestrian | | Bicycle | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated |
| Construction | No | — | No | — | No | — | No | — | Yes | No |
| Operations | No | — | Yes | No | No | — | No | — | Yes | No |
| Cumulative | No | — | Yes | No | No | — | No | — | No | No |

Yes = Significant impact under CEQA; adverse effect under NEPA.
No = No impact or less than significant impact under CEQA; no effect or no adverse effect under NEPA.

### Construction Impacts

Construction would require pavement breaking, excavation, and removal of the existing roadway pavement; the removal of curbs and gutters; grading of the roadbed to prepare it for paving; paving (an asphalt concrete overlay would be provided in place of the existing pavement for the dedicated BRT lanes and mixed-flow BRT lanes); installation of surface and subsurface drainage systems; and concrete finish work. With commencement of construction, public access to parking spaces, bus stops, curb lanes, and bicycle lanes within each work area would be prohibited. As described below, the duration of construction within each work zone is anticipated to be less than 2 weeks. At the start of construction within each work area, on-street parking areas would be removed for project-related construction activities. Temporary lane and street closures may be necessary under this alternative. The extent and duration of the closures would depend on a number of factors, including the construction contract limits and individual contractor's choices, and would be coordinated with the Cities of Los Angeles and San Fernando, as necessary. Restrictions on the extent and duration of the closures can be incorporated in the project construction specifications. In some cases, short-term full closures might be substituted for extended partial closures to reduce overall impacts.

The duration of construction within each work zone along the project corridor would very likely be less than 2 weeks. The construction contractor would develop detour routes, if required, to facilitate traffic movement through construction zones without significantly increasing cut-through traffic in adjacent residential areas. Additionally, where feasible, Metro would temporarily restripe roadways, including turn lanes, through lanes, and parking lanes, at the affected intersections to maximize the vehicular capacity at those locations that would be affected by construction closures. A majority of construction-related travel (i.e., deliveries, hauling, and worker trips) would be scheduled during off-peak hours.

#### Transit

Construction of Alternative 1 would occur in phases, within separate work zones, over an 18-month period.

Some curb lane closures within small work areas would be necessary to implement the improvements, bus stops would need to be temporarily closed, and temporary bus stops outside of the work areas, or the nearest bus stops would serve patrons of the temporarily closed stop(s).

Given the magnitude of construction and the fact that impacts would be temporary and short in duration at any one location (construction would include signing/striping and possibly concrete bus lane installation work, which would occur on a block-by-block basis), construction of Alternative 1 would not result in adverse effects on transit service under NEPA and would result in less-than-significant impacts under CEQA. Additionally, Worksite Traffic Control Plans and Traffic Management Plans would be required by the City of Los Angeles and the City of San Fernando before construction could begin.

### Traffic

As noted above, the construction of Alternative 1 may require temporary lane and street closures; however, impacts would not be adverse under NEPA and would be less than significant under CEQA given the estimated limited duration and magnitude of construction within each work area.

### Parking

On-street parking areas would be removed within each work zone for project-related construction activities related to pavement reconstruction, roadway signing and striping activities, and the installation of bus stop infrastructure including shelters and seating. Parking impacts would initially only occur during the construction period, typically from 7 a.m. to 7 p.m., but the completion of the bus-only lane would require that on-street parking areas be permanently removed during peak periods (such as 7 to 9 a.m. and 4 to 7 p.m.). As indicated by the results of the parking study for project operations, the corridor PAZs would be able to accommodate the Van Nuys Boulevard weekday and weekend on-street parking demand within the available on-street spaces and/or off-street parking areas. Lane closures and other partial roadway closures due to project construction would not encompass the entire corridor at a single time. Therefore, impacts would be less than those identified for the operation period of this build alternative. Impacts would not be adverse under NEPA and would be less than significant under CEQA.

### Pedestrian and Bicycle Facilities

Existing and planned pedestrian and bicycle facilities would be affected during construction activities. To accommodate construction and implementation of Alternative 1, existing bicycle lanes along Van Nuys Boulevard would be removed. Implementation of Alternative 1 would also preclude construction of future planned bicycle lanes along Van Nuys Boulevard. The impacts on existing and planned bicycle lanes would conflict with the City of Los Angeles' adopted Bicycle Plan and would be adverse under NEPA and significant under CEQA.

Pedestrian routes would be lengthened where minor intersections would be closed as part of construction. Given the intersection closures would be temporary and short-term, and because construction work areas are not expected to span multiple blocks at a time, impacts on pedestrian access would not be adverse under NEPA and would be less than significant under CEQA.

## Operational Impacts

### Transit

The existing bus stops along San Fernando Road would remain unchanged under the TSM Alternative. Rapid Line 761X and Local Line 233X would retain the current stop locations along Van Nuys Boulevard with enhancements to bus services through increased bus frequencies. The bus headways would be improved as follows:

- Rapid Line 761X – Four-minute peak headway improvement (six minutes versus 10 minutes); five-and-a-half-minute off-peak headway improvement (12 minutes versus 17.5 minutes);
- Local Line 233X – Four-minute peak headway improvement (eight minutes versus 12 minutes); four-minute off-peak headway improvement (16 minutes versus 20 minutes).

Implementation of Alternative 1 would result in an increase of 2,970 daily transit trips between the Metro Orange Line and the Sylmar/San Fernando Metrolink station, as compared to future No-Build/baseline conditions.

Under Alternative 1, local bus service may benefit from the dedicated curb-adjacent bus lanes, which would be available to both the proposed BRT service and the existing local service.

### Traffic

#### *Intersections*

Level-of-service analysis results for this scenario are discussed here, followed by significant impact determinations.

Of the 73 study intersections, 18 intersections would operate at LOS E or F during either one or both of the weekday peak hours. Level-of-service values at the following intersections would worsen to or be within poor conditions during the separately analyzed peak hours for this alternative:

- LOS at 14 study intersections would worsen to/be within LOS E or F during the AM peak hour
- LOS at 19 study intersections would worsen to/be within LOS E or F during the PM peak hour

Table 3-13 identifies intersections that would operate at LOS E or F and/or intersections that would be significantly affected as a result of implementation of Alternative 1. Under Alternative 1, within the list of intersections included in this table, significant traffic impacts would occur at 16 study intersections along Van Nuys Boulevard. Figure 3-6 illustrates the level of service for the overall study area.

With respect to the effects on parallel corridors, with the implementation of this alternative, the shifts in traffic to the Sepulveda and Woodman parallel corridors would cause 19 of the 50 study intersections to operate at or worsen within LOS E or F. In addition, significant traffic impacts would occur at 15 of these intersections, as shown in Table 3-14.

#### *Performance Measures*

Average vehicle speeds under Alternative 1 would not change considerably versus the other alternatives. The relative benefits of this alternative include higher total VMT and VHT values than the TSM Alternative and Alternative 3, but both values would be lower than Alternative 2 or Alternative 4.

### Parking

The Van Nuys Boulevard corridor on-street parking supply, from Oxnard Street to San Fernando Road, totals 1,140 vehicle parking spaces. An additional 4,611 on-street spaces are provided on adjacent blocks east and west of the corridor.

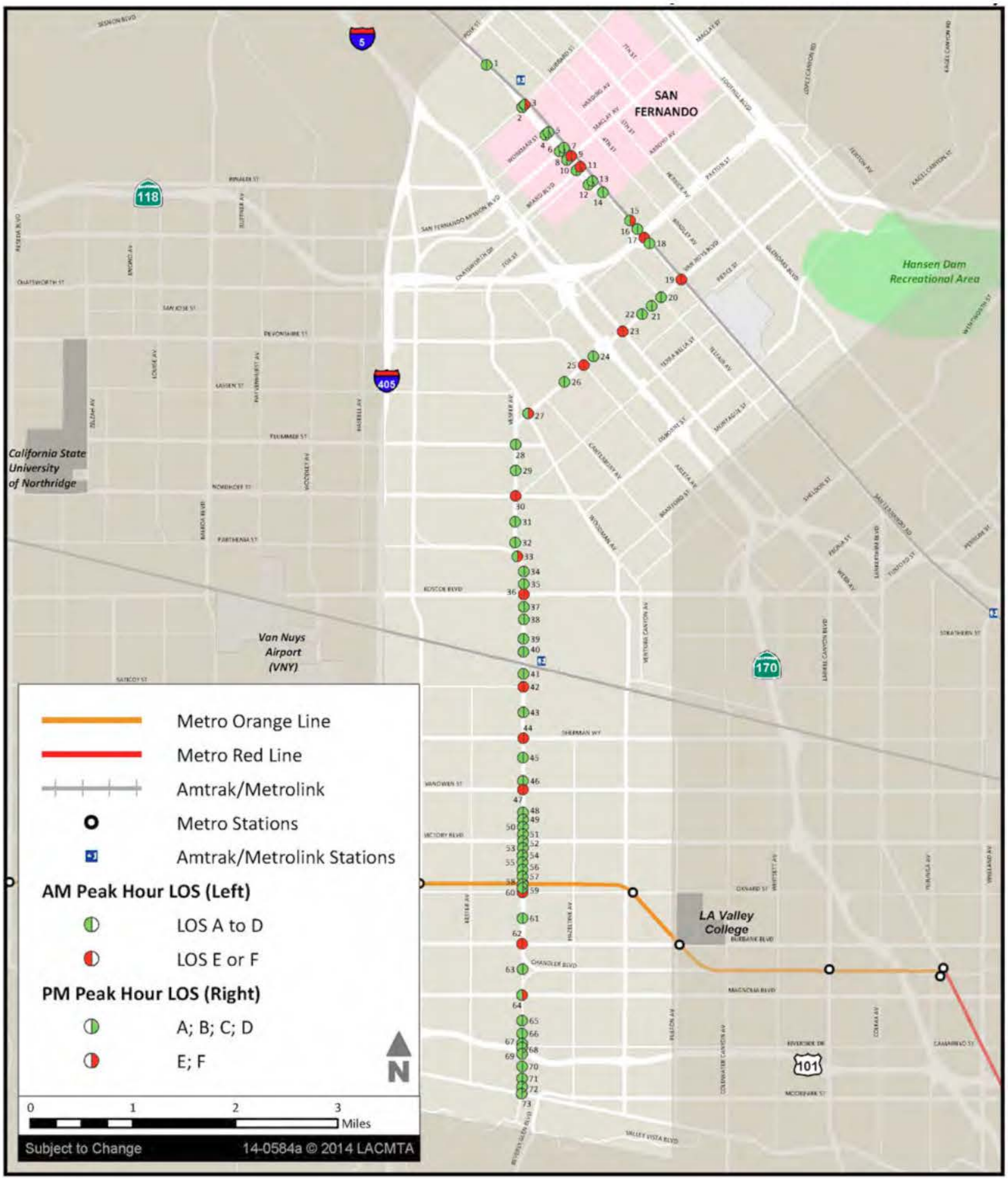
Under Alternative 1, all on-street parking spaces along Van Nuys Boulevard would be removed to accommodate the transit improvements along the corridor. During the late evening and early morning hours, however, the parking prohibition would not apply. On-street parking would be available at those times, and the BRT would operate in mixed-flow traffic. No off-street parking spaces would be removed. No on-street parking on San Fernando Road or Truman Street would be removed.

## Table 3-13: Alternative 1 – Intersections at LOS E or F and/or Significantly Affected in 2040

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 1) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 3 | Truman St & Hubbard St | 45.3 | D | 72.2 | E | 45.3 | D | 72.2 | E | 0.0 | 0.0 | No |
| 9 | Truman St & Maclay Ave | 87.6 | F | >100 | F | 87.6 | F | >100 | F | 0.0 | – | No |
| 11 | Truman St & Brand Blvd | >100 | F | 73.0 | E | >100 | F | 73.0 | E | – | 0.0 | No |
| 11 | Truman St & Brand Blvd | >100 | F | 73.0 | E | >100 | F | 73.0 | E | – | 0.0 | No |
| 15 | San Fernando Rd & Desmond St | 31.1 | C | >100 | F | 31.2 | C | >100 | F | 0.1 | – | No |
| 17 | San Fernando Rd & Paxton St | 99.7 | F | 76.6 | E | >100 | F | 76.7 | E | – | 0.1 | No |
| 19 | San Fernando Rd & Van Nuys Blvd | >100 | F | >100 | F | >100 | F | >100 | F | – | – | No |
| 23 | Laurel Canyon Blvd & Van Nuys Blvd | >100 | F | >100 | F | >100 | F | >100 | F | – | – | **Yes** |
| 25 | Arleta Ave & Van Nuys Blvd | 65.2 | E | 75.1 | E | 85.4 | F | 88.0 | F | 20.2 | 12.9 | **Yes** |
| 27 | Woodman Ave & Van Nuys Blvd | 40.0 | D | 50.3 | D | 43.7 | D | 57.0 | E | 3.7 | 6.7 | **Yes** |
| 30 | Van Nuys Blvd & Nordhoff St | 72.0 | E | 76.7 | E | 94.1 | F | 94.8 | F | 22.1 | 18.1 | **Yes** |
| 33 | Van Nuys Blvd & Parthenia St/ Vesper Ave | 25.4 | C | 49.4 | D | 32.3 | C | 59.0 | E | 6.9 | 9.6 | **Yes** |
| 34 | Van Nuys Blvd & Chase St | 23.7 | C | 72.2 | E | 33.9 | C | 54.4 | D | 10.2 | -17.8 | Yes |
| 36 | Van Nuys Blvd & Roscoe Blvd | 52.9 | D | 53.8 | D | 57.7 | E | 57.9 | E | 4.8 | 4.1 | **Yes** |
| 38 | Van Nuys Blvd & Lanark St | 29.4 | C | 33.0 | C | 34.0 | C | 43.5 | D | 4.6 | 10.5 | Yes |
| 39 | Van Nuys Blvd & Blythe St | 18.6 | B | 20.1 | C | 23.7 | C | 39.0 | D | 5.1 | 18.9 | Yes |
| 40 | Van Nuys Blvd & Arminta St | 14.6 | B | 24.8 | C | 23.7 | C | 22.7 | C | 9.1 | -2.1 | Yes |
| 41 | Van Nuys Blvd & Keswick St | 21.6 | C | 24.5 | C | 25.8 | C | 31.6 | C | 4.2 | 7.1 | Yes |
| 42 | Van Nuys Blvd & Saticoy St | 92.4 | F | >100 | F | >100 | F | >100 | F | – | – | **Yes** |

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 1) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 44 | Van Nuys Blvd & Sherman Way | 57.5 | E | >100 | F | 61.0 | E | >100 | F | 3.5 | – | **Yes** |
| 47 | Van Nuys Blvd & Vanowen St | 70.4 | E | 89.3 | F | 88.2 | F | >100 | F | 17.8 | – | **Yes** |
| 52 | Van Nuys Blvd & Victory Blvd | 35.2 | D | 20.7 | C | 41.6 | D | 18.4 | B | 6.4 | -2.3 | Yes |
| 60 | Van Nuys Blvd & Oxnard St | 45.9 | D | 55.5 | E | 81.4 | F | 57.3 | E | 35.5 | 1.8 | **Yes** |
| 62 | Van Nuys Blvd & Burbank Blvd | >100 | F | >100 | F | >100 | F | 98.5 | F | – | – | No |
| 64 | Van Nuys Blvd & Magnolia Blvd | 58.4 | E | 80.9 | F | 52.0 | D | 68.1 | E | -6.4 | -12.8 | No |
| Source: KOA, 2015. | | | | | | | | | | | | |

## Figure 3-6: Alternative 1 – Study Area AM/PM LOS Map




Source: KOA, 2014



Metro

## Table 3-14: Alternative 1 – Parallel Corridors – Intersections at LOS E or F and/or Significantly Affected in 2040

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 1) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 77 | Sepulveda Blvd & Nordhoff St | 72.9 | E | 89.7 | F | 69.5 | E | 85.0 | F | -3.4 | -4.7 | No |
| 79 | Sepulveda Blvd & Parthenia St | >100 | F | 63.5 | E | 99.8 | F | 61.7 | E | – | -1.8 | No |
| 80 | Sepulveda Blvd & Chase St | 13.8 | B | 15.6 | B | 8.1 | A | 66.4 | E | -5.7 | 50.8 | Yes |
| 81 | Sepulveda Blvd & & Roscoe Blvd | >100 | F | >100 | F | >100 | F | >100 | F | – | – | Yes |
| 82 | Sepulveda Blvd & Lanark St – Sepulveda Pl | >100 | F | >100 | F | >100 | F | >100 | F | – | – | Yes |
| 83 | Sepulveda Blvd & Raymer St | 6.3 | A | 54.4 | D | 5.6 | A | 56.8 | E | -0.7 | 2.4 | No |
| 87 | Sepulveda Blvd & Sherman Way | 51.5 | D | 58.0 | E | 53.1 | D | 61.1 | E | 1.6 | 3.1 | Yes |
| 89 | Sepulveda Blvd & Vanowen St | 78.6 | E | 71.0 | E | 81.0 | F | 74.0 | E | 2.4 | 3.0 | Yes |
| 90 | Sepulveda Blvd & Victory Blvd | 73.4 | E | 44.5 | D | 80.0 | E | 46.2 | D | 6.6 | 1.7 | Yes |
| 94 | Sepulveda Blvd & Oxnard St | 36.2 | D | 60.0 | E | 34.0 | C | 64.1 | E | -2.2 | 4.1 | Yes |
| 96 | Sepulveda Blvd & Burbank Blvd | >100 | F | >100 | F | >100 | F | >100 | F | – | – | No |
| 98 | Sepulveda Blvd & Magnolia Blvd | 48.6 | D | >100 | F | 45.0 | D | >100 | F | -3.6 | – | Yes |

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 1) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 100 | Sepulveda Blvd & Camarillo St | 32.6 | C | >100 | F | 34.0 | C | >100 | F | 1.4 | – | No |
| 102 | Sepulveda Blvd & Ventura Blvd | 44.3 | D | >100 | F | 45.5 | D | >100 | F | 1.2 | – | No |
| 108 | Woodman Ave & Chase St | 55.7 | E | 57.7 | E | 62.6 | E | 59.6 | E | 6.9 | 1.9 | Yes |
| 110 | Woodman Ave & Roscoe Blvd | 91.1 | F | >100 | F | 92.4 | F | >100 | F | 1.3 | – | No |
| 111 | Woodman Ave & Lanark St-Cantara St | >100 | F | >100 | F | >100 | F | >100 | F | – | – | No |
| 113 | Woodman Ave & Strathern St | 13.8 | B | 11.9 | B | 21.8 | C | 12.2 | B | 8.0 | 0.3 | Yes |
| 114 | Woodman Ave & Saticoy St | 81.5 | F | 98.0 | F | 74.7 | E | >100 | F | -6.8 | – | Yes |
| 116 | Woodman Ave & Valerio St | 33.9 | C | 42.9 | D | 35.9 | D | 46.9 | D | 2.0 | 4.0 | Yes |
| 117 | Woodman Ave & Sherman Way | 43.9 | D | 79.8 | E | 45.1 | D | 84.6 | F | 1.2 | 4.8 | Yes |
| 119 | Woodman Ave &Vanowen St | 45.7 | D | 53.5 | D | 49.6 | D | 57.5 | E | 3.9 | 4.0 | Yes |
| 121 | Woodman Ave & Victory Blvd | 74.6 | E | 48.8 | D | 74.3 | E | 48.8 | D | -0.3 | 0.0 | No |
| 124 | Woodman Ave & Oxnard St | 38.1 | D | 33.2 | C | 42.4 | D | 33.3 | C | 4.3 | 0.1 | Yes |

Source: KOA, 2015.

Based on the parking survey included in Appendix G of this EIS/EIR, the Van Nuys Boulevard corridor has a weekday peak parking demand of 481 on-street spaces and a Saturday peak parking demand of 589 on-street spaces. The majority of the PAZs, used to define blocks of parking areas for analysis purposes, within the Van Nuys Boulevard parking study area would be able to accommodate the on-street parking demand on Van Nuys Boulevard with the removal of the on-street spaces. However, there are several PAZs that cannot accommodate the additional Van Nuys Boulevard on-street parking demand. There is a shortfall of on-street parking spaces at 11 PAZs on a weekday and 14 PAZs on the weekend. Some of the off-street parking facilities within these PAZs have available parking spaces to accommodate the shortfall of on-street parking spaces.

A parking analysis of PAZs adjacent to the locations with a supply shortfall with the proposed project was conducted to determine if available on-street and off-street parking supplies within these PAZs could accommodate the additional Van Nuys Boulevard on-street parking demand. As shown in Appendix G, there is adequate parking supply either on adjacent streets or through off-street parking, for areas on Van Nuys Boulevard that may encounter parking shortfalls; therefore, the corridor PAZs would be able to accommodate the Van Nuys Boulevard weekday and weekend on-street parking demand within the available on-street spaces and/or off-street parking areas.

Areas along the Van Nuys Boulevard corridor that may encounter parking shortfalls during the weekday and/or weekend are generally located in commercial areas just north of the Metro Orange Line, directly south of the Amtrak/Metrolink Van Nuys Station north to Roscoe Boulevard, and near San Fernando Road. Shortfalls to parking in residential areas may occur along segments between Parthenia Street north to Woodman Avenue, and between Beachy Avenue and I-5. There may also be access issues for delivery trucks for smaller businesses (those without truck loading bays or other on-site loading/delivery facilities) since they would not be able to dwell within the roadway during the hours the parking restrictions are in place. Consequently, trucks would either have to use off-street parking facilities, or parking on an adjacent street, or alleyways behind the property.

In conclusion, the localized, minor, parking shortfalls and delivery access issues may create the need for drivers to park within a distance of a block or two from the destination business, which would cause limited inconvenience, but this condition would not constitute a substantial adverse effect under NEPA or a significant impact under CEQA. Within a small radius from each business, available parking would exist within a short walking distance, and this is typical of business districts. Therefore, the parking impacts due to the parking restrictions on Van Nuys Boulevard under this alternative would not be adverse under NEPA and would be less than significant under CEQA.

### Pedestrian and Bicycle Facilities

Existing and planned pedestrian and bicycle facilities would be affected as a result of Alternative 1 operations. Alternative 1 would result in conflicts with the City of Los Angeles Bicycle Plan, as designated bicycle lanes on Van Nuys Boulevard under the “Backbone Bikeway Network” would not be feasible. Instead, bicyclists would have to share the proposed curb lane with buses during the peak-period, under Alternative 1.Within the Pacoima area, some of the striped on-street bicycle lanes called for in the Bicycle Plan have been implemented. These facilities would be removed as a result of implementation of Alternative 1.

The Bicycle Plan calls for bicycle lanes on parallel streets such as Woodman Avenue (1 mile east of Van Nuys Boulevard) between Ventura Boulevard and the Osborne Street and Nordhoff Street corridors and Osborne Street from that point to San Fernando Road. The proposed bicycle lanes along streets that parallel Van Nuys Boulevard provide alternate routes for bicyclists traveling along the corridor. Additionally, it should be noted that the Van Nuys Boulevard corridor is designated as a

Transit Priority Street within the City of Los Angeles General Plan Framework Element, which creates a conflict between the general plan and the bicycle plan. Because Alternative 1 would remove existing bicycle lanes and make it infeasible to implement planned bicycle lanes along Van Nuys Boulevard in the future, the effects/impacts would be adverse under NEPA and significant under CEQA.

Pedestrian routes would be lengthened where minor intersections would be permanently closed. Pedestrian crossings that remain would be improved with enhanced design and safety features. The overall impacts on pedestrian circulation would not be adverse under NEPA and would be less than significant under CEQA.

## Cumulative Impacts

For the purposes of analyzing potential cumulative transportation impacts, the future growth and development projections from the regional transportation model and the localized impacts due to the cumulative related projects in Table 2-3 have been considered. The study area for the cumulative traffic impacts analysis encompasses the project corridor along Van Nuys Boulevard and San Fernando Road and the parallel corridors along Sepulveda Boulevard and Woodman Avenue.

### Cumulative Impacts During Construction

Under existing conditions (see Table 3-3), three of 73 study intersections operate at an unacceptable LOS of E or F. Future growth and development in the region would generate additional traffic on streets in the project corridor, which would adversely affect traffic flow and bus transit service. Although the lane or street closures required to construct Alternative 1 would be temporary, they could, nonetheless, contribute to short-term increases in congestion for motorists and result in additional delays for bus vehicles, a potentially significant cumulative impact.

With regards to cumulative construction impacts on pedestrian circulation due to sidewalk closures, it is likely that cumulative projects would not substantially diminish pedestrian circulation over time. Additionally, it's not known what other related projects would be constructed concurrently and in the vicinity of Alternative 1 construction activities. Therefore, it is unlikely that Alternative 1 construction activities would result in a cumulatively considerable contribution to any significant cumulative impacts on pedestrian facilities.

It is probable that construction of some of the cumulative development projects in Table 2-3 would require temporary closure of bike lanes adjacent to construction sites to accommodate construction vehicles and equipment. Given these closures would be temporary and affect short segments of the bike lanes, the cumulative construction impacts on bike lanes due to the projects in Table 2-3 would not be significant. Construction of Alternative 1 would require the permanent removal of existing bicycle facilities on Van Nuys Boulevard within Los Angeles and would conflict with planned bikeways along Van Nuys Boulevard identified in the City's Bicycle Plan. Therefore, Alternative 1 would result in a cumulatively considerable contribution to a significant cumulative project effect on bicycle facilities.

### Cumulative Impacts during Operation

As noted above, under existing conditions (see Table 3-3), three of 73 study intersections would operate at an unacceptable LOS of E or F. Because of future growth and development and the resulting increases in traffic, under future baseline (2040) conditions, 16 of the 73 study intersections would operate at unacceptable LOS of E or F, a cumulatively significant impact. Alternative 1 would convert mixed-flow lanes to dedicated BRT lanes, resulting in a reduction in roadway capacity for mixed-flow traffic. As a consequence, in 2040, 18 study intersections would operate at LOS of E or F, an increase of two intersections compared to the future baseline conditions. Alternative 1 would result in a cumulatively considerable contribution to significant cumulative traffic impacts.

It is not expected that the cumulative projects would substantially diminish pedestrian circulation along the corridor and result in significant cumulative impacts. The closure of minor intersections under Alternative 1 would result in longer routes for some pedestrians. However, mitigation is proposed to minimize impacts. As a consequence, Alternative 1 would not result in a cumulatively considerable contribution to a significant cumulative impact on pedestrian circulation and facilities.

The cumulative projects are not expected to result in the removal of bicycle lanes or any other operational adverse impacts on bicycle lanes. Therefore, although Alternative 1 would result in the removal of existing bicycle lanes along Van Nuys Boulevard, which would be a significant project impact, it would not contribute to any significant cumulative bicycle lane impacts.

## Mitigation Measures

### Construction Mitigation Measures

#### *Transit*

No construction mitigation measures are required.

#### *Traffic*

No construction mitigation measures are required. As noted above, Worksite Traffic Control Plans and Traffic Management Plans would be required by the City of Los Angeles and the City of San Fernando before construction could begin.

#### *Parking*

No construction mitigation measures are required.

#### *Pedestrian and Bicycle Facilities*

**MM-TRA-1:** To ensure potential impacts on pedestrian and bicycle facilities are minimized to the extent feasible, the Traffic Management Plan and Traffic Control Plan shall include the following:

- Bicycle detour signs shall be provided, as appropriate, to route bicyclists away from detour areas with minimal-width travel lanes and onto parallel roadways.
- Sidewalk closure and pedestrian route detour signs shall be provided, as appropriate, that safely route pedestrians around work areas where sidewalks are closed for safety reasons or for specific construction work within the sidewalk area. In addition, the project contractor shall ensure appropriate “Open during Construction,” wayfinding, and promotional signage for businesses affected by sidewalk closures is provided and access to these businesses is maintained.

### Operational Mitigation Measures

#### *Transit*

No operational mitigation measures are required.

#### *Traffic*

There are no feasible mitigation measures.

#### *Parking*

No operational mitigation measures are required.

#### *Pedestrian and Bicycle Facilities*

The following general mitigation measures are proposed to reduce or minimize potential impacts on pedestrian facilities during the operations period:

> **MM-TRA-2:** Additional visual enhancements, such as high-visibility crosswalks that meet current LADOT design standards, to the existing crosswalks at each proposed station location shall be implemented to further improve pedestrian circulation.
>
> **MM-TRA-3:** To further reduce potential adverse and less-than-significant pedestrian impacts, Metro shall prepare a community linkages study that documents preferred pedestrian access to each station, general pedestrian circulation in the immediate vicinity of the station, and potential sites for connections to nearby bus services. The purpose of this study shall include ensuring sufficient circulation, access, and information important to users of the transit system. The results of the study shall be implemented through coordination between Metro and the local jurisdictions of the City of Los Angeles and the City of San Fernando.

## Impacts Remaining After Mitigation

### NEPA Finding

#### *Construction Impacts*

Measure MM-TRA-1 would ensure that impacts on pedestrian access during the construction period would be minimized. Therefore, Alternative 1 would not result in adverse construction effects on transit, traffic, parking, and pedestrian facilities after implementation of proposed mitigation measures.

Although mitigation measure MM-TRA-1 would reduce construction impacts on bicyclists and bicycle facilities, the permanent removal of the existing bicycle lanes along Van Nuys Boulevard would remain an adverse effect under NEPA.

#### *Operational Impacts*

Alternative 1 would result in adverse operational effects on traffic, no or beneficial effects on transit, no adverse effects on parking and pedestrian facilities, and adverse effects on bicycle facilities.

### CEQA Determination

#### *Construction Impacts*

Alternative 1 would result in less-than-significant impacts on transit, traffic, parking, and pedestrian facilities. Impacts on existing and proposed bicycle facilities would be significant.

#### *Operational Impacts*

Alternative 1 would result in significant traffic impacts. There would be no adverse impacts on transit operations and less-than-significant impacts on parking and pedestrian facilities after implementation of proposed mitigation measures. Operational effects on existing and proposed bicycle facilities would be significant after implementation of proposed mitigation measures.

## 3.3.4.2 Alternative 2 – Median-Running BRT

The potential impacts of Alternative 2 under CEQA and NEPA are summarized in the table below and discussed in detail in the text that follows.

| | Transit | | Traffic | | Parking | | Pedestrian | | Bicycle | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated |
| Construction | Yes | No | Yes | No | No | — | No | — | Yes | No |
| Operations | No | No | Yes | No | No | — | No | — | Yes | No |
| Cumulative | No | No | Yes | No | No | — | No | — | No | No |

Yes = Significant impact under CEQA; adverse effect under NEPA.
No = No impact or less than significant impact under CEQA; no effect or no adverse effect under NEPA.

### Construction Impacts

Construction of the Median-Running BRT Alternative would occur in phases. Construction activities would be the same as those described above for the Curb-Running BRT Alternative, except that this alternative would not require the relocation of existing bus stops in the curb lanes as would occur under the Curb-Running BRT Alternative. Additionally, construction of the BRT lanes and associated bus stops and platforms in the median of Van Nuys Boulevard would result in more extensive construction over a longer period of time.

With commencement of construction, public access to parking spaces, bus stops, curb lanes, and bicycle lanes within each work area would be prohibited The duration of construction activities is anticipated to be greater under this alternative than the Curb-Running BRT Alternative and would last approximately 24 months. As discussed above for the Curb-Running BRT Alternative, these are rough estimates and are likely to vary based on conditions in the field. The phases are likely to overlap to some degree, and the sequence of construction activities may also vary.

At the start of construction within each work area, on-street parking areas would be removed for project-related construction activities. Temporary lane and street closures may be necessary under this alternative. The extent and duration of the closures would depend on a number of factors, including the construction contract limits and individual contractor’s choices, and would be coordinated with the Cities of Los Angeles and San Fernando, as necessary. Restrictions on the extent and duration of the closures can be incorporated in the project construction specifications. In some cases, short-term full closures might be substituted for extended partial closures to reduce overall impacts.

#### Transit

Construction activities could result in temporary lane or street closures, which would increase congestion along the project corridor and increase travel times for buses and other motor vehicles. Because of the magnitude of construction and length of time required to construct the BRT lanes, median stations, and traffic signal modifications, the construction impacts on transit would be adverse under NEPA and significant under CEQA.

### Traffic

Because of the potential for temporary lane or street closures, the impacts on traffic and vehicle travel would be adverse under NEPA and significant under CEQA.

### Parking

On-street parking would be prohibited within work areas, as prescribed in the Traffic Control Plans to be approved by LADOT (the BRT would operate in mixed-flow conditions within the city of San Fernando and major construction would not be required there). As indicated by the results of the parking study for project operations, the corridor PAZs would be able to accommodate the Van Nuys Boulevard weekday and weekend on-street parking demand within the available on-street spaces and/or off-street parking areas. Lane closures and other partial roadway closures due to project construction would not encompass the entire corridor at a single time. Therefore, impacts would be less than those identified for the operation period of this build alternative and would not be adverse under NEPA and would be less than significant under CEQA.

### Pedestrian and Bicycle Facilities

Construction of Alternative 2 would require the closure and permanent removal of bicycle lanes located within the work zones along the corridor. This would be an adverse effect under NEPA and a significant impact under CEQA.

Alternative 2 would result in temporary and non- adverse effects and less-than-significant impacts on pedestrian facilities during construction due to potential temporary intersection and crosswalk closures.

## Operational Impacts

### Transit

Rapid Line 761X would have 17 new or upgraded bus stops, while Local Line 233 would retain the current local bus stop locations. There would be enhancements to bus service with improved headways similar to those that would occur under Alternative 1.

Transit speeds on local lines may decrease due to increased traffic congestion where the BRT fixed guideway and station locations would create travel lane reductions. However, this alternative would result in an increase of 2,969 daily transit trips between the Metro Orange Line and the Sylmar/San Fernando Metrolink station, as compared to the future No-Build/baseline conditions. This alternative, in providing dedicated bus lanes, would provide a faster transit alternative compared to local bus service.

Overall impacts on transit would be less than significant under CEQA and non-adverse under NEPA.

### Traffic

#### *Intersections*

Level-of-service analysis results for this scenario are discussed here, followed by significant impact determinations.

A total of 21 of the 73 study intersections along the project corridor would operate at LOS E or F during either one or both of the weekday peak hours. Operations at the following intersections during the separately analyzed peak hours would worsen to or be within poor conditions compared to the No-Build conditions:

- LOS at 14 study intersections would worsen to/be within LOS E or F during the AM peak hours.
- LOS at 21 study intersections would worsen to/be within LOS E or F during the PM peak hours.

Table 3-15 identifies the study intersections that would operate at LOS E or F in the AM and PM peak hours or would be significantly affected as a result of implementation of Alternative 2. Within the list of intersections included in this table, significant traffic impacts would occur at 24 study intersections. Figure 3-7 illustrates the level of service at the study intersections along the project corridor. Additionally, it should be noted that left-turn movements would be permitted at primary intersections and prohibited at secondary intersections due to the installation of the median fixed guideway. At minor intersections, only right turns in and out of the side street would be allowed.

As for impacts on study intersections along the parallel corridors, the shifts in traffic to Sepulveda Boulevard and Woodman Avenue would cause 19 of the 50 study intersections to operate at or worsen within LOS E or F, and significant traffic impacts (criteria defined in Table 3-2) would occur at 14 of these intersections, as shown in Table 3-16.

#### *Performance Measures*

Although the overall roadway capacity would be reduced with the removal of lanes under this alternative, average vehicle speeds under Alternative 2 would slightly improve versus the No-Build Alternative. This is due in part to multiple factors that may include an increase in transit ridership, exclusive median guideway, changes in travel patterns, and/or a decrease in traffic conflicts because of turning movement restrictions/prohibition. The benefits of this alternative include reductions in VMT and VHT values that would be greater than those that would occur under the TSM Alternative or Alternative 3, but would not be greater than under Alternative 4.

### Parking

Under Alternative 2, all 1,140 on-street parking spaces would be removed to accommodate the transit improvements along the Van Nuys Boulevard corridor. No off-street parking spaces would be removed under this build alternative. No on-street parking on San Fernando Road or Truman Street would be affected.

Specific areas along the Van Nuys Boulevard corridor that may encounter parking shortfalls and access issues during the weekday and/or weekend would be similar to Alternative 1. As shown in Appendix G, the adjacent PAZs would be able to accommodate the Van Nuys Boulevard weekday and weekend on-street parking demand within the available on-street spaces and/or off-street parking areas. Therefore, parking impacts would not be adverse under NEPA and would be less than significant under CEQA.

There may be access issues for delivery trucks for smaller businesses (those without truck loading bays or other on-site loading/delivery facilities) because they would not be able to dwell within the roadway during operations. Consequently, they would either have to use off-street parking facilities or parking on an adjacent street, or alleyways behind the property. This would not be an adverse effect under NEPA and would be a less-than-significant impact under CEQA.

## Table 3-15: Alternative 2 – Intersections at LOS E or F and/or Significantly Affected in 2040

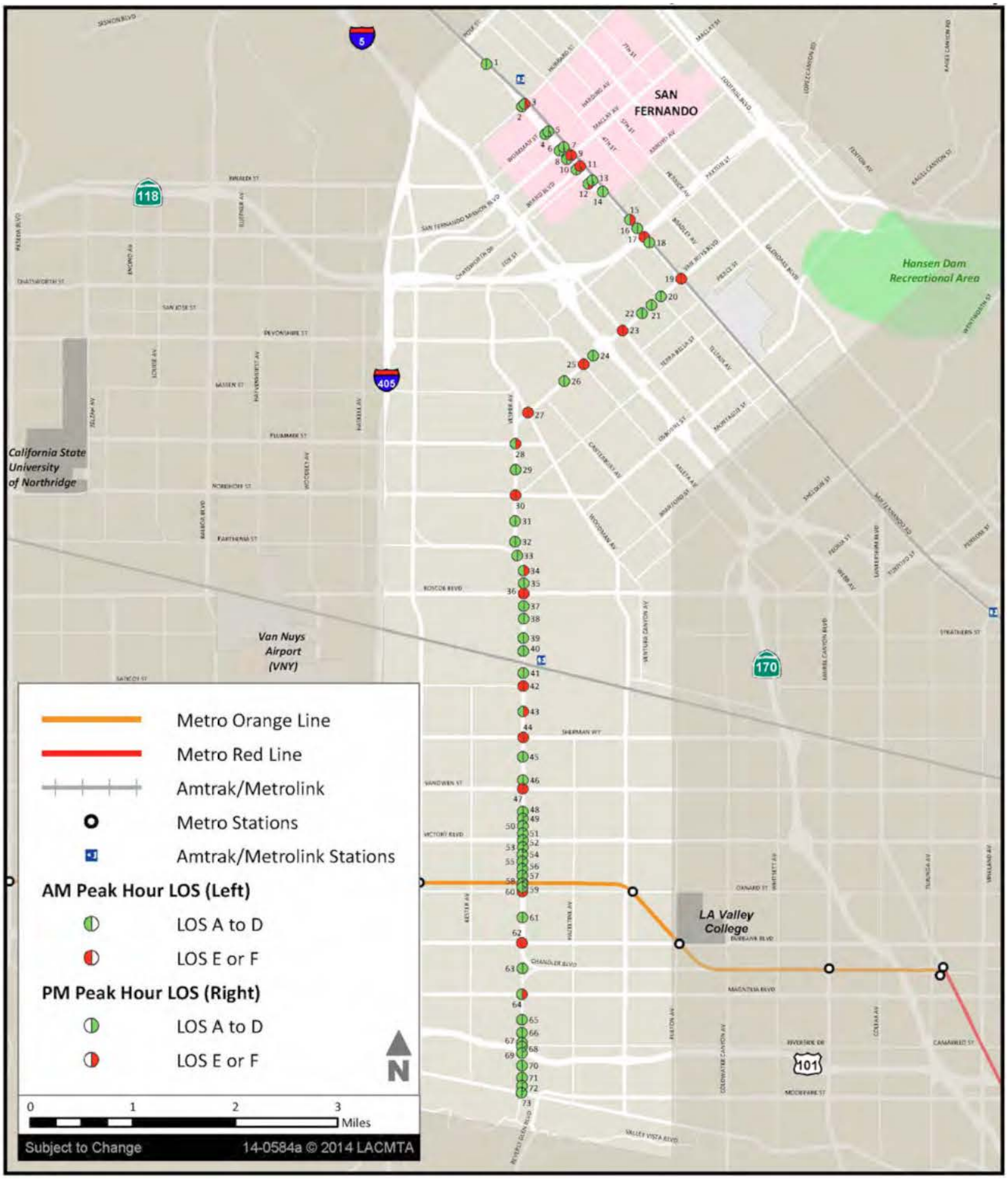
| Study Intersections | | Future No Build | | | | Future With Project (Alternative 2) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 3 | Truman St & Hubbard St | 45.3 | D | 72.2 | E | 45.3 | D | 76.3 | E | 0.0 | 4.1 | **Yes** |
| 9 | Truman St & Maclay Ave | 87.6 | F | >100 | F | 87.6 | F | >100 | F | 0.0 | – | No |
| 11 | Truman St & Brand Blvd | >100 | F | 73.0 | E | >100 | F | 73.6 | E | – | 0.6 | No |
| 12 | San Fernando Rd & Wolfskill St | 8.0 | A | 8.2 | A | 8.0 | A | >100 | F | 0.0 | – | **Yes** |
| 15 | San Fernando Rd & Desmond St | 31.1 | C | >100 | F | 31.0 | C | >100 | F | -0.1 | – | No |
| 17 | San Fernando Rd & Paxton St | 99.7 | F | 76.6 | E | >100 | F | 83.3 | F | – | 6.7 | **Yes** |
| 19 | San Fernando Rd & Van Nuys Blvd | >100 | F | >100 | F | >100 | F | >100 | F | – | – | **Yes** |

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 2) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 23 | Laurel Canyon Blvd & Van Nuys Blvd | >100 | F | >100 | F | >100 | F | >100 | F | – | – | **Yes** |
| 25 | Arleta Ave & Van Nuys Blvd | 65.2 | E | 75.1 | E | 87.7 | F | 90.9 | F | 22.5 | 15.8 | **Yes** |
| 26 | Beachy Ave & Van Nuys Blvd | 14.2 | B | 10.7 | B | 44.8 | D | 15.5 | B | 30.6 | 4.8 | Yes |
| 27 | Woodman Ave & Van Nuys Blvd | 40.0 | D | 50.3 | D | 56.6 | E | 82.5 | F | 16.6 | 32.2 | **Yes** |
| 28 | Van Nuys Blvd & Plummer St | 32.9 | C | 38.9 | D | 41.7 | D | 56.4 | E | 8.8 | 17.5 | **Yes** |
| 30 | Van Nuys Blvd & Nordhoff St | 72.0 | E | 76.7 | E | >100 | F | >100 | F | – | – | **Yes** |
| 31 | Van Nuys Blvd & Rayen St | 6.1 | A | 17.5 | B | 8.4 | A | 41.1 | D | 2.3 | 23.6 | Yes |
| 32 | Van Nuys Blvd & Parthenia St | 11.9 | B | 11.9 | B | 10.0 | A | 23.1 | C | -1.9 | 11.2 | Yes |
| 34 | Van Nuys Blvd & Chase St | 23.7 | C | 72.2 | E | 32.6 | C | >100 | F | 8.9 | – | **Yes** |

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 2) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 36 | Van Nuys Blvd & Roscoe Blvd | 52.9 | D | 53.8 | D | 86.0 | F | >100 | F | 33.1 | – | **Yes** |
| 38 | Van Nuys Blvd & Lanark St | 29.4 | C | 33.0 | C | 43.3 | D | 33.3 | C | 13.9 | 0.3 | Yes |
| 39 | Van Nuys Blvd & Blythe St | 18.6 | B | 20.1 | C | 53.3 | D | 40.5 | D | 34.7 | 20.4 | Yes |
| 40 | Van Nuys Blvd & Arminta St | 14.6 | B | 24.8 | C | 25.6 | C | 27.2 | C | 11.0 | 2.4 | Yes |
| 41 | Van Nuys Blvd & Keswick St | 21.6 | C | 24.5 | C | 15.8 | B | 36.3 | D | -5.8 | 11.8 | Yes |
| 42 | Van Nuys Blvd & Saticoy St | 92.4 | F | >100 | F | >100 | F | >100 | F | – | – | **Yes** |
| 43 | Van Nuys Blvd & Valerio St | 15.5 | B | 23.6 | C | 24.0 | C | 72.4 | E | 8.5 | 48.8 | **Yes** |
| 44 | Van Nuys Blvd & Sherman Way | 57.5 | E | >100 | F | 87.8 | F | >100 | F | 30.3 | – | **Yes** |
| 45 | Van Nuys Blvd & Vose St | 13.3 | B | 18.3 | B | 13.3 | B | 31.3 | C | 0.0 | 13.0 | Yes |

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 2) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 47 | Van Nuys Blvd & Vanowen St | 70.4 | E | 89.3 | F | 96.5 | F | >100 | F | 26.1 | – | **Yes** |
| 60 | Van Nuys Blvd & Oxnard St | 45.9 | D | 55.5 | E | 87.6 | F | 65.6 | E | 41.7 | 10.1 | **Yes** |
| 62 | Van Nuys Blvd & Burbank Blvd | >100 | F | >100 | F | >100 | F | 98.6 | F | – | – | No |
| 64 | Van Nuys Blvd & Magnolia Blvd | 58.4 | E | 80.9 | F | 52.1 | D | 67.5 | E | -6.3 | -13.4 | No |
| Source: KOA, 2015. | | | | | | | | | | | | |

## Figure 3-7: Alternative 2 – Study Area AM/PM LOS Map




Source: LADOT, KOA, 2014

### Table 3-16: Alternative 2 – Parallel Corridors – Intersections at LOS E or F and/or Significantly Affected in 2040

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 2) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 77 | Sepulveda Blvd & Nordhoff St | 72.9 | E | 89.7 | F | 69.1 | E | 85.8 | F | -3.8 | -3.9 | No |
| 79 | Sepulveda Blvd & Parthenia St | >100 | F | 63.5 | E | 99.5 | F | 62.0 | E | – | -1.5 | No |
| 80 | Sepulveda Blvd & Chase St | 13.8 | B | 15.6 | B | 8.1 | A | 67.9 | E | -5.7 | 52.3 | Yes |
| 81 | Sepulveda Blvd & & Roscoe Blvd | >100 | F | >100 | F | >100 | F | >100 | F | – | – | Yes |
| 82 | Sepulveda Blvd & Lanark St – Sepulveda Pl | >100 | F | >100 | F | >100 | F | >100 | F | – | – | Yes |
| 83 | Sepulveda Blvd & Raymer St | 6.3 | A | 54.4 | D | 4.4 | A | 56.1 | E | -1.9 | 1.7 | No |
| 87 | Sepulveda Blvd & Sherman Way | 51.5 | D | 58.0 | E | 53.1 | D | 60.9 | E | 1.6 | 2.9 | Yes |
| 89 | Sepulveda Blvd & Vanowen St | 78.6 | E | 71.0 | E | 81.6 | F | 70.7 | E | 3.0 | -0.3 | Yes |

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 2) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 90 | Sepulveda Blvd & Victory Blvd | 73.4 | E | 44.5 | D | 77.7 | E | 47.3 | D | 4.3 | 2.8 | Yes |
| 94 | Sepulveda Blvd & Oxnard St | 36.2 | D | 60.0 | E | 34.9 | C | 62.3 | E | -1.3 | 2.3 | No |
| 96 | Sepulveda Blvd & Burbank Blvd | >100 | F | >100 | F | >100 | F | >100 | F | – | – | Yes |
| 98 | Sepulveda Blvd & Magnolia Blvd | 48.6 | D | >100 | F | 44.4 | D | >100 | F | -4.2 | – | Yes |
| 99 | Sepulveda Blvd & US-101 WB (NB) off-ramp | 60.7 | E | 23.8 | C | 51.9 | D | 50.6 | D | -8.8 | 26.8 | Yes |
| 100 | Sepulveda Blvd & Camarillo St | 32.6 | C | >100 | F | 23.2 | C | >100 | F | -9.4 | – | No |
| 102 | Sepulveda Blvd & Ventura Blvd | 44.3 | D | >100 | F | 44.7 | D | >100 | F | 0.4 | – | No |
| 108 | Woodman Ave & Chase St | 55.7 | E | 57.7 | E | 58.5 | E | 60.1 | E | 2.8 | 2.4 | Yes |
| 110 | Woodman Ave & Roscoe Blvd | 91.1 | F | >100 | F | 92.1 | F | >100 | F | 1.0 | – | No |

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 2) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 111 | Woodman Ave & Lanark St–Cantara St | >100 | F | >100 | F | >100 | F | >100 | F | – | – | No |
| 114 | Woodman Ave & Saticoy St | 81.5 | F | 98.0 | F | 83.4 | F | >100 | F | 1.9 | – | **Yes** |
| 116 | Woodman Ave & Valerio St | 33.9 | C | 42.9 | D | 43.5 | D | 46.9 | D | 9.6 | 4.0 | **Yes** |
| 117 | Woodman Ave & Sherman Way | 43.9 | D | 79.8 | E | 45.3 | D | 84.6 | F | 1.4 | 4.8 | **Yes** |
| 119 | Woodman Ave &Vanowen St | 45.7 | D | 53.5 | D | 50.0 | D | 57.4 | E | 4.3 | 3.9 | **Yes** |
| Source: KOA, 2015. | | | | | | | | | | | | |

### Pedestrian and Bicycle Facilities

Alternative 2 would result in impacts on existing and planned pedestrian facilities that would be non-adverse under NEPA and less than significant under CEQA. Impacts on bicycle facilities would be adverse under NEPA and significant under CEQA. Impacts would be the same as those that would occur under Alternative 1.

## Cumulative Impacts

Alternative 2 would result in the same cumulative transit, traffic, pedestrian and bicycle facilities, and parking impacts as those described above for Alternative 1.

## Mitigation Measures

### Construction Mitigation Measures

#### *Transit*

As noted previously, a Traffic Management Plan will be developed and implemented by the construction contractor in coordination with Metro, LADOT, and the City of San Fernando in order to minimize impacts on transit service. To ensure impacts are minimized to the extent feasible, the following measure is proposed:

> **MM-TRA-4:** The Traffic Management Plan shall require Metro to communicate closures and information on any changes to bus service to local transit agencies in advance and develop detours as appropriate. Bus stops within work areas shall be relocated, with warning signs posted in advance of the closure, and warnings and alternate stop notifications posted during the extent of the closure.

The Traffic Management Plan would partially mitigate temporary disruptions to transit service. However, since significant impacts could remain, and additional mitigation measures are not feasible, the potential impacts would be significant and unavoidable under CEQA and adverse under NEPA.

#### *Traffic*

To facilitate the flow of traffic in and around the construction zones and ensure impacts are minimized to the extent feasible, the following measure is proposed:

> **MM-TRA-5:** The Traffic Management Plan shall include including the following typical measures, and others as appropriate:

- Schedule a majority of construction-related travel (i.e., deliveries, hauling, and worker trips) during the off-peak hours;
- Develop detour routes to facilitate traffic movement through construction zones without significantly increasing cut-through traffic in adjacent residential areas;
- Where feasible, temporarily restripe roadways including turning lanes, through lanes, and parking lanes at the affected intersections to maximize the vehicular capacity at those locations affected by construction closures;

- Where feasible, temporarily remove on-street parking to maximize the vehicular capacity at those locations affected by construction closures. In these areas where street parking is temporarily removed in front of businesses, the contractor shall provide wayfinding to other nearby parking lots or temporary lots, with any temporary parking secured well in advance of parking being removed in the affected area;
- Where feasible, place station traffic control officers at major intersections during peak hours to minimize delays related to construction activities;
- Assign a Construction Relations team inclusive of a manager, senior officers, and social media strategist to develop and implement the Metro Board's adopted Construction Relations model. The team will conduct the outreach program to inform the general public about the construction process, planned roadway closures, and anticipated mitigations through community briefings in public meeting spaces and use of signage (banners, etc.);
- Develop and implement a program with business owners to minimize effects to businesses during construction activities, including but not limited to signage, Eat, Shop, Play, and promotional programs;
- Consult and seek input on the designation and identification of haul routes and hours of operation for trucks with the local jurisdictions and Caltrans. The selected routes should minimize noise, vibration, and other effects;
- To the extent practical, maintain traffic lanes in both directions, particularly during the morning and afternoon peak hours;
- Maintain access to adjacent businesses via existing or temporary driveways throughout the construction period; and
- Coordinate potential road closures and detour routes with local school districts.

Combined, these measures would partially address adverse effects and significant impacts on traffic flow during the construction period. However, since significant impacts could remain, and additional feasible mitigation measures have not been identified, impacts would be significant and unavoidable under CEQA and adverse under NEPA.

#### *Parking*

No construction mitigation measures are required.

#### *Pedestrian and Bicycle Facilities*

Please see mitigation measures MM-TRA-1 described under Alternative 1 above.

### Operational Mitigation Measures

#### *Transit*

No mitigation measures are required or proposed to mitigate the non-adverse and less-than-significant operational impacts on transit.

#### *Traffic*

Implementation of this alternative, would result in significant traffic impacts on the project corridor and along parallel corridors during operation. Typical mitigation measures that would add vehicular capacity, such as lane configuration changes that would increase capacity of the roadways or restrictions in allowable turning movements, are considered infeasible due to ROW constraints or secondary effects to upstream and downstream locations. No other feasible mitigation measures have been identified.

#### *Parking*

No operational mitigation measures are required.

#### *Pedestrian and Bicycle Facilities*

Please see the mitigation measures MM-TRA-2 and MM-TRA-3 under Alternative 1 above.

### Impacts Remaining After Mitigation

#### NEPA Finding

#### *Construction Impacts*

Alternative 2 would result in adverse construction effects on transit, traffic, and bicycle facilities and non-adverse effects to parking and pedestrian facilities after implementation of proposed mitigation measures.

#### *Operational Impacts*

Alternative 2 would result in non-adverse operational effects on local transit lines and adverse effects on traffic. However, Alternative 2 would result in beneficial regional effects on transit service.

Effects on parking and pedestrian facilities would not be adverse, and effects on bicycle facilities would be adverse due to the infeasibility of bicycle lanes within the project corridor and the conflict with the adopted City of Los Angeles Bicycle Plan.

#### CEQA Determination

#### *Construction Impacts*

Alternative 2 would result in significant construction impacts on transit, traffic, and bicycle facilities, and less-than-significant impacts on parking and pedestrian facilities.

#### *Operational Impacts*

Alternative 2 would result in significant traffic and bicycle facilities impacts and less-than-significant impacts on transit, parking, and pedestrian facilities after implementation of proposed mitigation measures.

# 3.3.5 LRT Alternatives (Alternatives 3 and 4)

## 3.3.5.1 Existing with Alternative 3 – Low-Floor LRT Tram

The potential impacts of Alternative 3 under CEQA and NEPA are summarized in the table below and discussed in detail in the text that follows.

| | Transit | | Traffic | | Parking | | Pedestrian | | Bicycle | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated |
| Construction | Yes | No | Yes | No | No | — | No | — | Yes | No |
| Operations | No | No | Yes | No | No | — | No | — | Yes | No |
| Cumulative | No | No | Yes | No | No | — | No | — | Yes | No |

Yes = Significant impact under CEQA; adverse effect under NEPA.
No = No impact or less-than-significant impact under CEQA; no effect or no adverse effect under NEPA.

## Construction Impacts

### Transit

Construction of Alternative 3 would occur over a period of four years. Construction activity would most likely be divided into separate work zones with varying levels of construction.

Construction activities could result in temporary lane or street closures, which would increase congestion along the project corridor and reduce travel times for buses and other motor vehicles. Because of the magnitude of construction and length of time required to construct the guideway, stations, overhead contact system (OCS), traction power substations (TPSS), maintenance and storage facilities (MSF), and communication and signaling systems, the construction impacts on transit would be adverse under NEPA and significant under CEQA.

### Traffic

Because of the potential for temporary lane or street closures, impacts on traffic and vehicle travel would be adverse under NEPA and significant under CEQA.

### Parking

On-street parking would be prohibited within work areas, as prescribed in the Traffic Control Plans to be approved by LADOT and the City of San Fernando. However, the supply of parking on adjacent streets and in off-street lots is expected to be adequate with respect to demand. Therefore, impacts on parking would not be adverse under NEPA and would be less than significant under CEQA.

### Pedestrian and Bicycle Facilities

Construction of Alternative 3 would require closure and permanent removal of bicycle lanes within the work zones along the corridor. This would be an adverse effect under NEPA and a significant impact under CEQA.

Alternative 3 would result in temporary non- adverse effects and less-than-significant impacts on pedestrian facilities during construction due to temporary intersection and crosswalk closures.

## Operational Impacts

### Transit

Alternative 3 would include a total of 28 stations. Metro bus service would be eliminated along the length of the Van Nuys Boulevard portion of the project alignment. Bus service would be provided north of San Fernando Road on Van Nuys Boulevard by Local Line 233S, while Rapid Line 761S would operate south of the Metro Orange Line to Westwood. The transit headways would be as follows:

- The Low-Floor LRT/Tram would operate at four-minute peak headways and eight-minute off-peak headways;
- Rapid Line 761S – Six-minute peak headways and 12-minute off-peak headways; and
- Local Line 233S – Eight-minute peak headways and 16-minute off-peak headways.

Proposed transit improvements would result in 8,452 additional daily transit trips between the Metro Orange Line and the Sylmar/San Fernando Metrolink station versus existing conditions.

Under Alternative 3, local bus service would be removed on Van Nuys Boulevard between San Fernando Road on the north and the Metro Orange Line on the south. The Low-Floor LRT/Tram service would replace that local service, although the transit stop distances would increase within the service corridor. The presence of dedicated signal phases for the new transit service could improve travel times and the reliability of the transit service. Therefore, transit operational impacts would be minor and less than significant.

### Traffic

#### *Intersections*

A total of 5 of the 73 study intersections along the project corridor would operate at LOS E or F during weekday peak hours. Table 3-17 identifies the intersections that would operate at LOS E or F in the AM and PM peak hours or would be significantly affected as a result of implementation of Alternative 3. As shown in the table, significant traffic impacts would occur at 16 study intersections. Figure 3-8 illustrates the level of service for the overall study area.

Under Alternative 3, the traffic signal on Van Nuys Boulevard at the Panorama Mall (between Chase Street and Roscoe Boulevard) would be removed to accommodate the proposed Low-Floor LRT/Tram's dedicated median; only through movements on Van Nuys Boulevard would be permitted. As a result, the intersection was not analyzed.

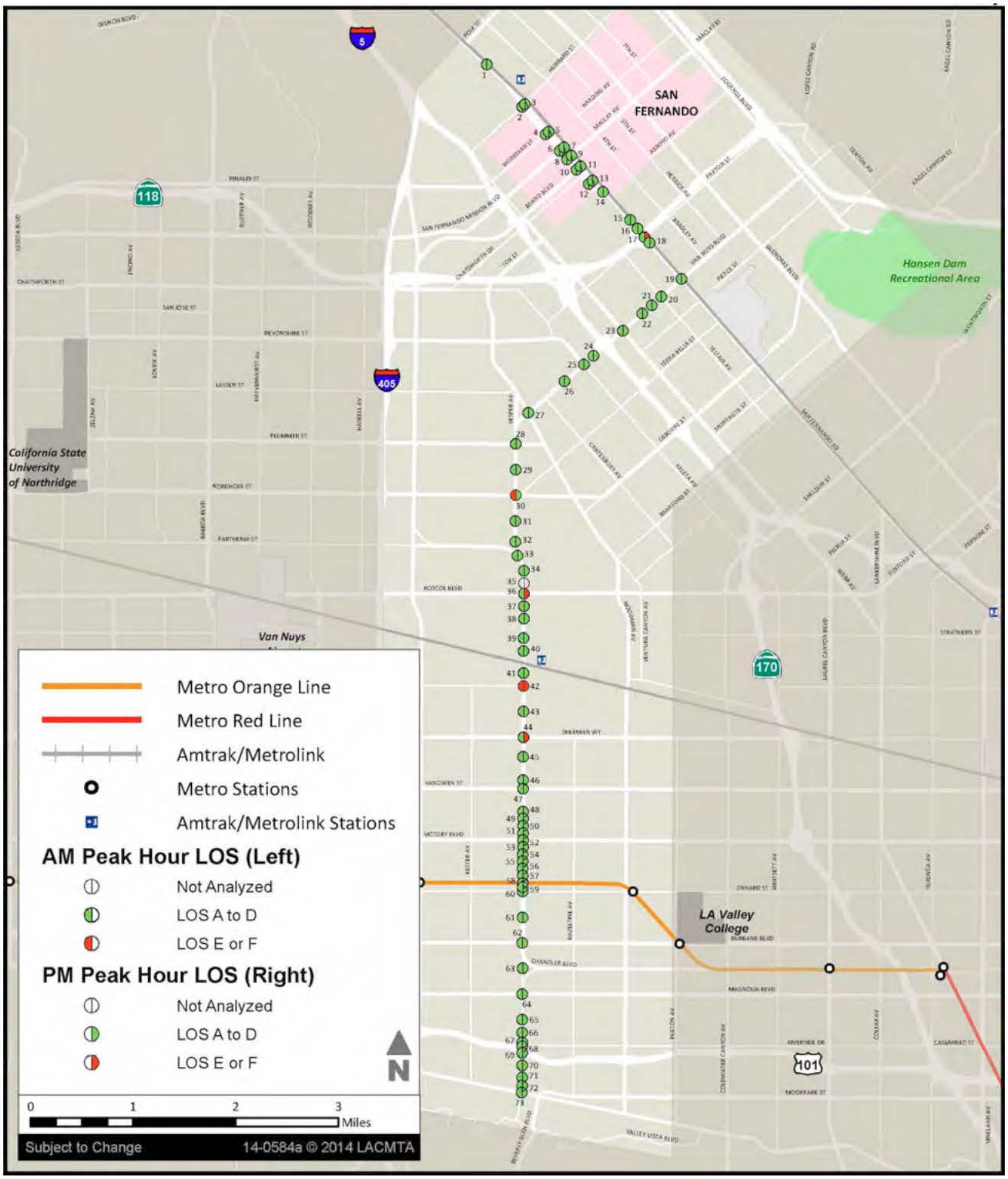
Left-turn movements would be permitted at primary intersections and prohibited at secondary intersections because of the installation of the median's fixed guideway. At minor intersections, only right turns in and out of the side street would be allowed.

Under Alternative 3, the shifts in traffic to the parallel Sepulveda and Woodman corridors would cause 6 of the 50 study intersections to operate at LOS E or F. In addition, significant traffic impacts would occur at nine of these intersections, as summarized in Table 3-18.

## Table 3-17: Alternative 3 – Intersections Operating at LOS E or F and/or Significantly Affected under Existing with Project Conditions

| Study Intersections | | Existing Conditions | | | | Existing with Project (Alternative 3) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 2 | San Fernando Rd & Hubbard St | 14.1 | B | 18.0 | B | 32.3 | C | 30.4 | C | 18.2 | 12.4 | Yes |
| 3 | Truman St & Hubbard St | 16.4 | B | 17.6 | B | 29.2 | C | 31.1 | C | 12.8 | 13.5 | Yes |
| 6 | San Fernando Rd & San Fernando Mission Blvd | 6.6 | A | 7.7 | A | 23.4 | C | 25.6 | C | 16.8 | 17.9 | Yes |
| 17 | San Fernando Rd & Paxton St | 32.7 | C | 57.6 | E | 35.3 | D | 64.0 | E | 2.6 | 6.4 | Yes |
| 19 | San Fernando Rd & Van Nuys Blvd | 34.2 | C | 41.9 | D | 36.6 | D | 46.7 | D | 2.4 | 4.8 | Yes |
| 27 | Woodman Ave & Van Nuys Blvd | 33.5 | C | 35.0 | C | 29.8 | C | 43.6 | D | -3.7 | 8.6 | Yes |
| 30 | Van Nuys Blvd & Nordhoff St | 45.6 | D | 47.6 | D | 60.0 | E | 54.6 | D | 14.4 | 7.0 | Yes |
| 31 | Van Nuys Blvd & Rayen St | 4.8 | A | 12.4 | B | 8.3 | A | 24.0 | C | 3.5 | 11.6 | Yes |
| 34 | Van Nuys Blvd & Chase St | 25.1 | C | 34.9 | C | 25.2 | C | 47.6 | D | 0.1 | 12.7 | Yes |
| 36 | Van Nuys Blvd & Roscoe Blvd | 48.0 | D | 46.8 | D | 54.0 | D | 58.7 | E | 6.0 | 11.9 | Yes |
| 39 | Van Nuys Blvd & Blythe St | 11.6 | B | 9.0 | A | 45.9 | D | 41.7 | D | 34.3 | 32.7 | Yes |
| 41 | Van Nuys Blvd & Keswick St | 10.0 | A | 9.2 | A | 20.3 | C | 37.1 | D | 10.3 | 27.9 | Yes |
| 42 | Van Nuys Blvd & Saticoy St | 36.2 | D | 31.3 | C | 67.7 | E | >100 | F | 31.5 | - | Yes |
| 43 | Van Nuys Blvd & Valerio St | 14.6 | B | 14.9 | B | 20.1 | C | 28.2 | C | 5.5 | 13.3 | Yes |
| 44 | Van Nuys Blvd & Sherman Way | 43.0 | D | 59.8 | E | 47.9 | D | >100 | F | 4.9 | - | Yes |
| 47 | Van Nuys Blvd & Vanowen St | 24.8 | C | 32.6 | C | 31.4 | C | 54.1 | D | 6.6 | 21.5 | Yes |
| Source: KOA, 2016. | | | | | | | | | | | | |

## Figure 3-8: Alternative 3 – Study Area AM/PM LOS Map




Source: KOA, 2016

### Table 3-18: Alternative 3 – Parallel Corridors, Intersections Operating at LOS E or F and/or Significantly Affected under Existing with Project Conditions

| Study Intersections | | Existing Conditions | | | | Existing with Project (Alternative 3) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 74 | Sepulveda Blvd & Lassen St | 29.1 | C | 25.4 | C | 24.1 | C | 33.7 | C | -5.0 | 8.3 | Yes |
| 81 | Sepulveda Blvd & & Roscoe Blvd | 43.9 | D | 43.3 | D | 54.5 | D | 48.6 | D | 10.6 | 5.3 | Yes |
| 82 | Sepulveda Blvd & Lanark St – Sepulveda Pl | 31.4 | C | 9.3 | A | 49.1 | D | 11.5 | B | 17.7 | 2.2 | Yes |
| 87 | Sepulveda Blvd & Sherman Way | 40.4 | D | 43.0 | D | 44.4 | D | 46.5 | D | 4.0 | 3.5 | Yes |
| 90 | Sepulveda Blvd & Victory Blvd | 34.4 | C | 35.6 | D | 43.2 | D | 30.2 | C | 8.8 | -5.4 | Yes |
| 96 | Sepulveda Blvd & Burbank Blvd | >100 | F | >100 | F | 50.1 | D | 56.9 | E | - | - | No |
| 98 | Sepulveda Blvd & Magnolia Blvd | 28.7 | C | >100 | F | 17.9 | B | 60.1 | E | -10.8 | - | No |
| 99 | Sepulveda Blvd & US-101 WB (NB) off-ramp | 33.6 | C | 15.5 | B | 37.2 | D | 24.8 | C | 3.6 | 9.3 | Yes |
| 102 | Sepulveda Blvd & Ventura Blvd | 44.7 | D | 97.4 | F | 32.6 | C | 58.6 | E | -12.1 | -38.8 | No |
| 110 | Woodman Ave & Roscoe Blvd | 56.9 | E | 71.6 | E | 52.5 | D | 66.5 | E | -4.4 | -5.1 | No |
| 111 | Woodman Ave & Lanark St – Cantara St | 96.6 | F | >100 | F | 9.5 | A | 15.6 | B | -87.1 | - | No |
| 114 | Woodman Ave & Saticoy St | 63.8 | E | 58.9 | E | 63.7 | E | 46.8 | D | -0.1 | -12.1 | No |
| 117 | Woodman Ave & Sherman Way | 25.3 | C | 38.3 | D | 36.2 | D | 56.0 | E | 10.9 | 17.7 | Yes |
| 119 | Woodman Ave &Vanowen St | 30.9 | C | 28.4 | C | 44.0 | D | 32.2 | C | 13.1 | 3.8 | Yes |
| 121 | Woodman Ave & Victory Blvd | 32.4 | C | 35.5 | D | 40.1 | D | 45.8 | D | 7.7 | 10.3 | Yes |

Source: KOA, 2016.

#### *Performance Measures*

Under Alternative 3, average vehicle speeds would improve slightly compared with the No-Build Alternative. These changes may be attributed to an increase in transit ridership, changes in travel patterns, and/or a decrease in traffic conflicts because of turning movement restrictions/prohibitions. The benefits of this alternative include reductions in VMT and VHT values, although these reductions would be greater under the BRT alternatives and Alternative 4.

#### *Maintenance and Storage Facilities*

Alternative 3 would require the addition of an MSF. There are a total of three potential MSF sites. The additional traffic as a result of staffing at the potential MSFs is not projected to cause an increase in intersection delay. The typical arrival and departure times for employees are outside typical weekday peak travel periods. Employees would travel to and from the MSF before the AM peak hour and before trains begin morning operations and after the PM peak hour when trains begin operating at lower frequencies.

Rail vehicles being serviced at the three MSF location options would cross vehicular travel lanes on Van Nuys Boulevard to travel between the MSF site and the guideway. Movements of Low-Floor LRT/Tram vehicles to and from the final MSF site would result in an increase in adjacent intersection delay. However, with planned implementation of grade crossing devices (e.g., crossing gates, flashing signals, pedestrian safety signage) and traffic/conflict management improvements on local streets, given the fact that train crossings would be made only by vehicles entering or exiting service and not at a regular frequency during peak periods, impacts would not be adverse under NEPA and would be less than significant under CEQA.

### Parking

All 1,140 on-street parking spaces on Van Nuys Boulevard, in addition to 15 adjacent cross-street spaces, would be removed, for a total decrease in on-street parking supply of 1,155. Approximately 152 off-street parking spaces would be removed to accommodate the TPSS and the Van Nuys/San Fernando station. Parking would be removed along San Fernando Road to accommodate median-running and mixed-flow operations of the Low-Floor LRT/Tram.

Specific areas along the Van Nuys Boulevard corridor may encounter parking shortfalls and access issues on weekdays and/or weekends, just as for the other build alternatives, except for an increased potential shortfall near the Metro Orange Line and along San Fernando Road. The adjacent parking areas along Van Nuys Boulevard and San Fernando Road would be able to accommodate this reduction in on- and off-street parking with the available on-street and/or off-street parking supply. Thus, the parking impacts due to the removal of the on- and off-street parking would not be adverse under NEPA and would be less than significant under CEQA.

### Pedestrian and Bicycle Facilities

Existing and planned pedestrian and bicycle facilities would be affected under this alternative. Alternative 3 would conflict with the City of Los Angeles Bicycle Plan because designated bicycle lanes on Van Nuys Boulevard would not be feasible under this alternative. However, it should also be noted that the Van Nuys Boulevard corridor is designated as a Transit Priority Segment within the City of Los Angeles General Plan Framework Element, which creates a conflict between the General Plan and the Bicycle Plan.

Pedestrian routes would be lengthened where minor intersections would be permanently closed. Pedestrian crossings that remain would be improved with enhanced design and safety features. Overall operational effects and impacts on pedestrian facilities would not be adverse under NEPA and would be less than significant under CEQA.

## Cumulative Impacts

Alternative 3 would result in the same cumulative impacts that could occur under Alternative 2.

## Mitigation Measures

### Compliance Requirements and Design Features

The Low-Floor LRT/Tram stations would be fully compliant with ADA and Metro Rail Design Criteria pertaining to design features such as rail platforms, rail station signs, public address systems, clocks, ramps, and track crossings.

Also see the discussion above under Alternative 1.

### Construction Mitigation Measures

#### *Transit*

Please see mitigation measure MM-TRA-6 under Alternative 2, above.

#### *Traffic*

Please see mitigation measure MM-TRA-7 under Alternative 2, above.

#### *Parking*

No construction mitigation measures are required.

#### *Pedestrian and Bicycle Facilities*

Please see mitigation measures MM-TRA-1 and MM-TRA-2 under Alternative 1, above.

### Operational Mitigation Measures

#### *Transit*

No mitigation measures are proposed or are required.

#### *Traffic*

Implementation of this alternative would result in significant traffic impacts on the project corridor and along parallel corridors during operation. Typical mitigation measures that would add vehicular capacity, such as lane configuration changes that would increase the capacity of the roadways or restrictions in allowable turning movements, were considered infeasible because of ROW constraints or secondary effects on upstream and downstream locations. No other feasible mitigation measures have been identified.

#### *Pedestrian and Bicycle Facilities*

Please see mitigation measures MM-TRA-3 and MM-TRA-4 under Alternative 1, above.

## Impacts Remaining After Mitigation

### NEPA Finding

#### *Construction Impacts*

Alternative 3 would result in adverse construction effects on transit, traffic, and bicycle facilities and non-adverse effects on parking and pedestrian facilities after implementation of proposed mitigation measures.

#### *Operational Impacts*

Alternative 3 would result in adverse localized operational effects on traffic. However, Alternative3 would result in beneficial regional effects on transit.

Effects on parking and pedestrian facilities would not be adverse. Effects on bicycle facilities would be adverse because of conflicts with the Bicycle Plan.

### CEQA Determination

#### *Construction Impacts*

Alternative 3 would result in significant construction impacts on transit, traffic, and bicycle facilities and less-than-significant impacts on parking and pedestrian facilities.

#### *Operational Impacts*

Alternative 3 would result in significant bicycle facility and traffic impacts and less-than-significant impacts on transit, parking, and pedestrian facilities after implementation of proposed mitigation measures.

# 3.3.5.2 Alternative 3 – Low-Floor LRT Tram

The potential impacts of Alternative 3 under CEQA and NEPA are summarized in the table below and discussed in detail in the text that follows.

| | Transit | | Traffic | | Parking | | Pedestrian | | Bicycle | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated |
| Construction | Yes | No | Yes | No | No | — | No | — | Yes | No |
| Operations | No | No | Yes | No | No | — | No | — | Yes | No |
| Cumulative | No | No | Yes | No | No | — | No | — | No | No |

Yes = Significant impact under CEQA; adverse effect under NEPA.
No = No impact or less-than-significant impact under CEQA; no effect or minor adverse effect under NEPA.

## Construction Impacts

Because the Low-Floor LRT/Tram vehicles would operate on rail tracks and would be powered by overhead electrical wires, power duct bank, additional transit structures and associated infrastructure would be required to operate this alternative that would differ from those described above for the BRT alternatives. Construction of Alternative 3 would occur over a period of four years. The construction activity would likely be divided into separate work zones with varying levels of construction.

At the start of construction within each work area, on-street parking areas would be removed for project-related construction activities. Temporary street and lane closures may be necessary under this alternative. The extent and duration of the closures would depend on a number of factors, including the construction contract limits and individual contractor's choices, and would be coordinated with the Cities of Los Angeles and San Fernando, as necessary. Restrictions on the extent and duration of the closures can be incorporated in the project construction specifications. In some cases, short-term full closures might be substituted for extended partial closures to reduce overall impacts. Community outreach to keep the public and businesses advised as to closures would be provided. Signage and access to businesses would also be provided.

Under this alternative, the construction contractor would develop detour routes to facilitate traffic movement through construction zones without significantly increasing cut-through traffic in adjacent residential areas. Additionally, where feasible, Metro would temporarily restripe roadways including restriping turn lanes, through lanes, and parking lanes at the affected intersections to maximize the vehicular capacity at those locations affected by construction closures. A majority of construction-related travel (i.e., deliveries, hauling, and worker trips) would be scheduled during the off-peak hours.

On-street parking may be removed to maximize vehicular capacity at those locations affected by construction closures. Additionally, traffic control officers may be placed at major intersections during peak hours to minimize delays related to construction activities.

#### Transit

Construction activities would increase congestion along the project corridor and increase travel times for buses and other motor vehicles. Due to the magnitude of construction and length of time required to construct the guideway, stations, overhead contact system (OCS), traction power substations (TPSS), maintenance and storage facilities (MSF), and communications and signaling, the construction impacts on transit would be adverse under NEPA and significant under CEQA.

#### Traffic

Because of the potential for temporary lane or street closures, the impacts on traffic and vehicle travel would be adverse under NEPA and significant under CEQA.

#### Parking

On-street parking would be prohibited within work areas as prescribed in the Traffic Control Plans that will be prepared and approved by LADOT and the City of San Fernando. As indicated by the results of the parking study for project operations, the corridor PAZs would be able to accommodate the Van Nuys Boulevard weekday and weekend on-street parking demand within the available on-street spaces and/or off-street parking areas. Therefore, the impacts on parking would not be adverse under NEPA and would be less than significant under CEQA.

#### Pedestrian and Bicycle Facilities

Construction of Alternative 3 would require the closure and permanent removal of bicycle lanes located within the work zones along the corridor. This would be an adverse effect under NEPA and a significant impact under CEQA.

Alternative 3 would result in temporary non- adverse effects and less-than-significant impacts on pedestrian facilities during construction due to potential temporary intersection and crosswalk closures.

## Operational Impacts

### Transit

Alternative 3 would include a total of 28 stations. Metro bus service would be eliminated along the length of the Van Nuys Boulevard portion of the project alignment. Bus service would be provided north of San Fernando Road on Van Nuys Boulevard via Local Line 233S, while Rapid Line 761S would operate south of the Metro Orange Line to Westwood. Transit headways would be as follows:

- The Low-Floor LRT/Tram would operate at four-minute peak headways and eight-minute off-peak headways;
- Rapid Line 761S – Six-minute peak headways and 12-minute off-peak headways; and
- Local Line 233S – Eight-minute peak headways and 16-minute off-peak headways.

Proposed transit improvements would result in an increase of 8,452 daily transit trips between the Metro Orange Line and the Sylmar/San Fernando Metrolink station versus the future No-Build/baseline conditions.

Under Alternative 3, local bus service would be removed on Van Nuys Boulevard between San Fernando Road on the north and the Metro Orange Line on the south. The Low-Floor LRT/Tram service would replace that local service, although the transit stop distances would be increased within the service corridor. The presence of dedicated signal phases for the new transit service would potentially improve travel times and the reliability of the transit service. Therefore, transit operational impacts would be minor and less than significant.

### Traffic

#### *Intersections*

Level-of-service analysis results for this scenario are discussed here, followed by significant impact determinations.

A total of 27 of the 73 study intersections along the project corridor would operate at LOS E or F during either one or both of the weekday peak hours. Operations at the following intersections would worsen to or within poor conditions, versus the No-Build future baseline conditions, during the separately analyzed peak hours:

- LOS at 26 study intersections would worsen to/within LOS E or F during the AM peak hour
- LOS at 26 study intersections would worsen to/within LOS E or F during the PM peak hour

Table 3-19 identifies the intersections that would operate at LOS E or F in the AM and PM peak hours or would be significantly affected as a result of implementation of Alternative 3. Within the list of intersections included in this table, significant traffic impacts would occur at 32 study intersections. Figure 3-9 illustrates the level of service for the overall study area.

## Table 3-19: Alternative 3 – Intersections at LOS E or F and/or Significantly Affected in 2040

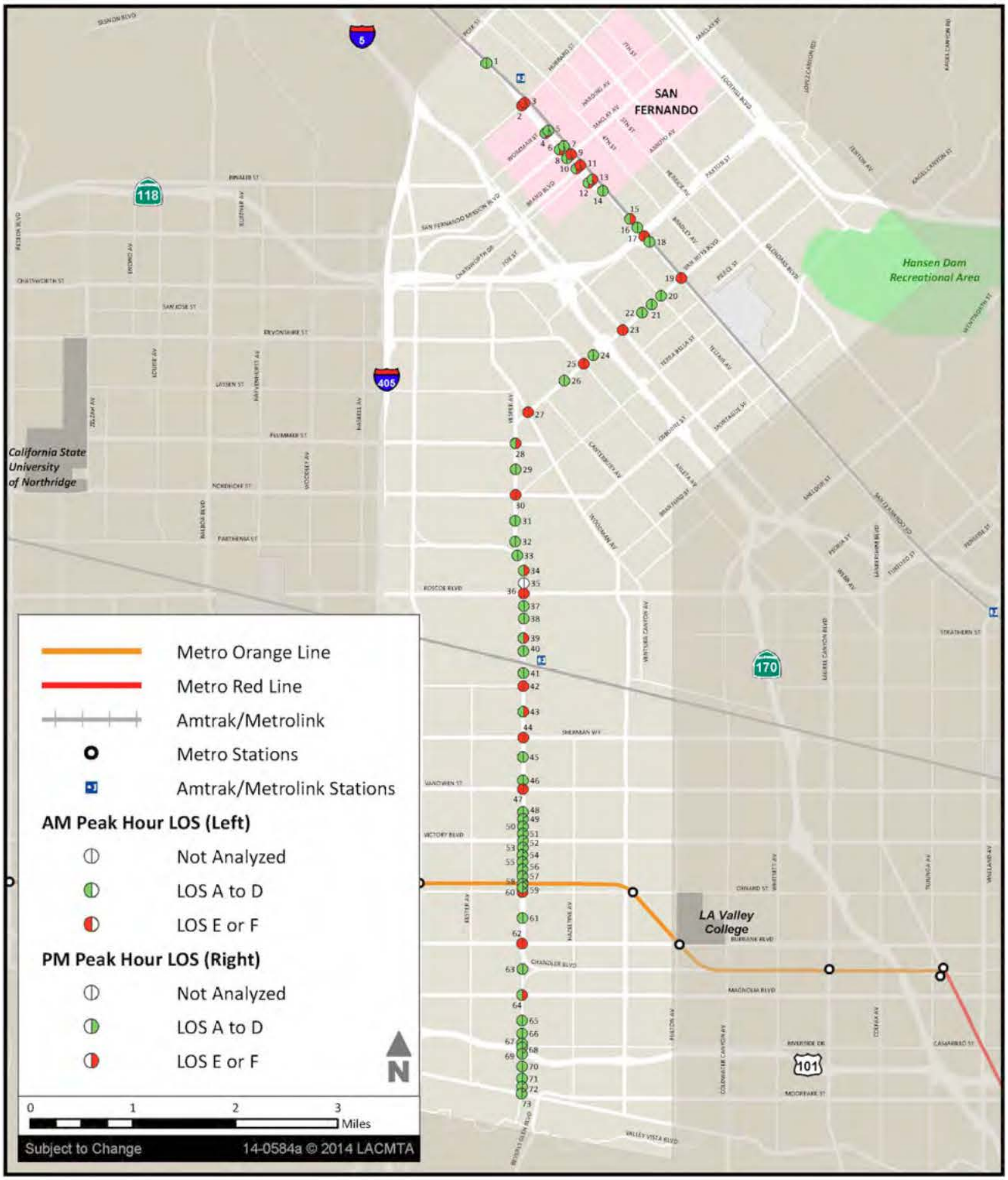
| Study Intersections | | Future No Build | | | | Future With Project (Alternative 3) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 2 | San Fernando Rd & Hubbard St | 22.6 | C | 45.7 | D | 65.8 | E | >100 | F | 43.2 | – | Yes |
| 3 | Truman St & Hubbard St | 45.3 | D | 72.2 | E | 63.0 | E | >100 | F | 17.7 | – | Yes |
| 4 | San Fernando Rd & Workman St | 8.3 | A | 11.5 | B | 18.6 | B | 56.8 | E | 10.3 | 45.3 | Yes |
| 6 | San Fernando Rd & San Fernando Mission Blvd | 8.1 | A | 51.4 | D | 26.7 | C | 66.8 | E | 18.6 | 15.4 | Yes |
| 9 | Truman St & Maclay Ave | 87.6 | F | >100 | F | 88.6 | F | >100 | F | 1.0 | – | Yes |
| 10 | San Fernando Rd & Brand Blvd | 13.5 | B | 34.8 | C | 13.1 | B | 59.4 | E | -0.4 | 24.6 | Yes |
| 11 | Truman St & Brand Blvd | >100 | F | 73.0 | E | >100 | F | >100 | F | – | – | Yes |
| 12 | San Fernando Rd & Wolfskill St | 8.0 | A | 8.2 | A | 9.7 | A | >100 | F | 1.7 | – | Yes |
| 13 | Truman St & Wolfskill St | 36.4 | D | 26.2 | C | 36.0 | D | 59.4 | E | -0.4 | 33.2 | Yes |

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 3) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 15 | San Fernando Rd & Desmond St | 31.1 | C | >100 | F | 31.4 | C | >100 | F | 0.3 | – | No |
| 17 | San Fernando Rd & Paxton St | 99.7 | F | 76.6 | E | >100 | F | >100 | F | – | – | **Yes** |
| 18 | San Fernando Rd & SR-118 EB on-/off-ramps | 47.3 | D | 27.0 | C | 52.1 | D | 25.7 | C | 4.8 | -1.3 | Yes |
| 19 | San Fernando Rd & Van Nuys Blvd | >100 | F | >100 | F | >100 | F | >100 | F | – | – | **Yes** |
| 23 | Laurel Canyon Blvd & Van Nuys Blvd | >100 | F | >100 | F | >100 | F | >100 | F | – | – | **Yes** |
| 25 | Arleta Ave & Van Nuys Blvd | 65.2 | E | 75.1 | E | 87.3 | F | 91.6 | F | 22.1 | 16.5 | **Yes** |
| 26 | Beachy Ave & Van Nuys Blvd | 14.2 | B | 10.7 | B | 44.9 | D | 15.6 | B | 30.7 | 4.9 | Yes |
| 27 | Woodman Ave & Van Nuys Blvd | 40.0 | D | 50.3 | D | 56.6 | E | 81.5 | F | 16.6 | 31.2 | **Yes** |
| 28 | Van Nuys Blvd & Plummer St | 32.9 | C | 38.9 | D | 42.6 | D | 59.1 | E | 9.7 | 20.2 | **Yes** |

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 3) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 30 | Van Nuys Blvd & Nordhoff St | 72.0 | E | 76.7 | E | >100 | F | >100 | F | – | – | **Yes** |
| 34 | Van Nuys Blvd & Chase St | 23.7 | C | 72.2 | E | 35.7 | D | >100 | F | 12.0 | – | **Yes** |
| 36 | Van Nuys Blvd & Roscoe Blvd | 52.9 | D | 53.8 | D | 88.4 | F | >100 | F | 35.5 | – | **Yes** |
| 38 | Van Nuys Blvd & Lanark St | 29.4 | C | 33.0 | C | 43.9 | D | 38.6 | D | 14.5 | 5.6 | Yes |
| 39 | Van Nuys Blvd & Blythe St | 18.6 | B | 20.1 | C | 54.6 | D | 71.1 | E | 36.0 | 51.0 | **Yes** |
| 40 | Van Nuys Blvd & Arminta St | 14.6 | B | 24.8 | C | 24.9 | C | 23.0 | C | 10.3 | -1.8 | Yes |
| 41 | Van Nuys Blvd & Keswick St | 21.6 | C | 24.5 | C | 16.7 | B | 42.9 | D | -4.9 | 18.4 | Yes |
| 42 | Van Nuys Blvd & Saticoy St | 92.4 | F | >100 | F | >100 | F | >100 | F | – | – | **Yes** |
| 43 | Van Nuys Blvd & Valerio St | 15.5 | B | 23.6 | C | 23.5 | C | 69.3 | E | 8.0 | 45.7 | **Yes** |
| 44 | Van Nuys Blvd & Sherman | 57.5 | E | >100 | F | 88.2 | F | >100 | F | 30.7 | – | **Yes** |

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 3) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| | Way | | | | | | | | | | | |
| 45 | Van Nuys Blvd & Vose St | 13.3 | B | 18.3 | B | 13.4 | B | 34.4 | C | 0.1 | 16.1 | Yes |
| 47 | Van Nuys Blvd & Vanowen St | 70.4 | E | 89.3 | F | >100 | F | >100 | F | – | – | **Yes** |
| 60 | Van Nuys Blvd & Oxnard St | 45.9 | D | 55.5 | E | 86.0 | F | 65.0 | E | 40.1 | 9.5 | **Yes** |
| 62 | Van Nuys Blvd & Burbank Blvd | >100 | F | >100 | F | >100 | F | >100 | F | – | – | **Yes** |
| Source: KOA, 2015. | | | | | | | | | | | | |

## Figure 3-9: Alternative 3 – Study Area AM/PM LOS Map




Source: KOA, 2014

Under this alternative, the traffic signal on Van Nuys Boulevard and the Panorama Mall (between Chase Street and Roscoe Boulevard) would be removed to accommodate the proposed Low-Floor LRT/Tram dedicated median; only through movements on Van Nuys Boulevard would be permitted. As a result, the intersection was not analyzed.

Left-turn movements would be permitted at primary intersections and prohibited at secondary intersections due to the installation of the median fixed guideway. At minor intersections, only right turns in and out of the side street would be allowed.

Under this alternative, the shifts in traffic to the Sepulveda and Woodman parallel corridors would cause 22 of the 50 study intersections to operate at or worsen within LOS E or F. In addition, significant traffic impacts (criteria defined in Table 3-2) would occur at 23 of these intersections as summarized in Table 3-20.

#### *Performance Measures*

Under Alternative 3, average vehicle speeds would slightly improve versus the No-Build Alternative. These changes may be attributed to an increase in transit ridership, change in travel patterns, and/or a decrease in traffic conflicts because of turning movement restrictions/prohibition. The benefits of this alternative include reductions in VMT and VHT values, although these reductions would be greater under the BRT alternatives and Alternative 4.

#### *Maintenance and Storage Facilities*

Alternative 3 would require the addition of an MSF. There are a total of three potential MSF sites. The additional traffic as a result of staffing at the potential MSFs is not projected to cause an increase in intersection delay. The typical arrival and departure times for employees are outside typical weekday peak travel periods. Employees would travel to and from the MSF before the AM peak hour and before trains begin morning operations, and also after the PM peak hour when trains begin operating at lower frequencies.

Rail vehicles being serviced at the three MSF location options would cross vehicular travel lanes on Van Nuys Boulevard to travel between the MSF site and the guideway. Movements of the Low-Floor LRT/Tram vehicles to and from the final MSF site would result in an increase in adjacent intersection delay. However, with the planned implementation of grade crossing devices (e.g., crossing gates, flashing signals, and pedestrian safety signage) and traffic/conflict management improvements to the local streets and given the fact that train crossings would only be made by vehicles entering or exiting service and not at a regular frequency during peak periods, impacts would not be adverse under NEPA and would be less than significant under CEQA.

### Parking

All 1,140 on-street parking spaces on Van Nuys Boulevard in addition to 15 adjacent cross-street spaces would be removed for a total decrease in on-street parking supply of 1,155. Approximately 152 off-street parking spaces would be removed to accommodate the TPSS and the Van Nuys/San Fernando Station. Parking would be removed along San Fernando Road to accommodate the median-running and mixed-flow operations of the Low-Floor LRT/Tram.

Specific areas along the Van Nuys Boulevard corridor that may encounter parking shortfalls and access issues during the weekday and/or weekend are comparable to the other build alternatives, except for an increased potential shortfall near the MOL, and along San Fernando Road.

## Table 3-20: Alternative 3 – Parallel Corridors - Intersections at LOS E or F and/or Significantly Affected in 2040

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 3) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 74 | Sepulveda Blvd & Lassen St | 46.2 | D | 52.2 | D | 43.9 | D | 56.1 | E | -2.3 | 3.9 | Yes |
| 75 | Sepulveda Blvd & Plummer St | 51.6 | D | 53.4 | D | 51.9 | D | 56.0 | E | 0.3 | 2.6 | Yes |
| 77 | Sepulveda Blvd & Nordhoff St | 72.9 | E | 89.7 | F | 69.0 | E | 95.1 | F | -3.9 | 5.4 | Yes |
| 79 | Sepulveda Blvd & Parthenia St | >100 | F | 63.5 | E | 99.4 | F | 67.5 | E | – | 4.0 | Yes |
| 80 | Sepulveda Blvd & Chase St | 13.8 | B | 15.6 | B | 8.1 | A | 77.3 | E | -5.7 | 61.7 | Yes |
| 81 | Sepulveda Blvd & & Roscoe Blvd | >100 | F | >100 | F | >100 | F | >100 | F | – | – | Yes |
| 82 | Sepulveda Blvd & Lanark St – Sepulveda Pl | >100 | F | >100 | F | >100 | F | >100 | F | – | – | Yes |
| 83 | Sepulveda Blvd & Raymer St | 6.3 | A | 54.4 | D | 3.0 | A | 63.8 | E | -3.3 | 9.4 | Yes |
| 87 | Sepulveda Blvd & Sherman Way | 51.5 | D | 58.0 | E | 52.6 | D | 62.9 | E | 1.1 | 4.9 | Yes |
| 89 | Sepulveda Blvd & Vanowen St | 78.6 | E | 71.0 | E | 81.1 | F | 69.6 | E | 2.5 | -1.4 | Yes |
| 90 | Sepulveda Blvd & Victory Blvd | 73.4 | E | 44.5 | D | 82.3 | F | 51.0 | D | 8.9 | 6.5 | Yes |
| 94 | Sepulveda Blvd & Oxnard St | 36.2 | D | 60.0 | E | 32.5 | C | 82.2 | F | -3.7 | 22.2 | Yes |
| 95 | Sepulveda Blvd & Hatteras St | 13.4 | B | 23.1 | C | 17.0 | B | 44.9 | D | 3.6 | 21.8 | Yes |
| 96 | Sepulveda Blvd & Burbank Blvd | >100 | F | >100 | F | >100 | F | >100 | F | – | – | Yes |
| 98 | Sepulveda Blvd & Magnolia Blvd | 48.6 | D | >100 | F | 43.7 | D | >100 | F | -4.9 | – | Yes |
| 99 | Sepulveda Blvd & US-101 WB(NB) off-ramp | 60.7 | E | 23.8 | C | 50.2 | D | 51.2 | D | -10.5 | 27.4 | Yes |
| 100 | Sepulveda Blvd & Camarillo St | 32.6 | C | >100 | F | 21.6 | C | >100 | F | -11.0 | – | No |
| 102 | Sepulveda Blvd & Ventura Blvd | 44.3 | D | >100 | F | 44.3 | D | >100 | F | 0.0 | – | No |
| 108 | Woodman Ave & Chase St | 55.7 | E | 57.7 | E | 57.6 | E | 60.2 | E | 1.9 | 2.5 | Yes |

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 3) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 110 | Woodman Ave & Roscoe Blvd | 91.1 | F | >100 | F | 91.2 | F | >100 | F | 0.1 | – | **Yes** |
| 111 | Woodman Ave & Lanark St–Cantara St | >100 | F | >100 | F | >100 | F | >100 | F | – | – | No |
| 114 | Woodman Ave & Saticoy St | 81.5 | F | 98.0 | F | 82.5 | F | >100 | F | 1.0 | – | **Yes** |
| 116 | Woodman Ave & Valerio St | 33.9 | C | 42.9 | D | 43.7 | D | 45.5 | D | 9.8 | 2.6 | **Yes** |
| 117 | Woodman Ave & Sherman Way | 43.9 | D | 79.8 | E | 45.5 | D | 83.0 | F | 1.6 | 3.2 | **Yes** |
| 119 | Woodman Ave &Vanowen St | 45.7 | D | 53.5 | D | 47.3 | D | 56.7 | E | 1.6 | 3.2 | **Yes** |
| 121 | Woodman Ave & Victory Blvd | 74.6 | E | 48.8 | D | 74.3 | E | 58.5 | E | -0.3 | 9.7 | **Yes** |

Source: KOA, 2015.

As shown in Appendix G, the adjacent PAZs would be able to accommodate the Van Nuys Boulevard weekday and weekend on-street parking demand within the available on-street spaces and/or off-street parking areas. Thus, the parking impacts due to the removal of the on- and off-street parking would not be adverse under NEPA and would be less than significant under CEQA.

There may be access issues for delivery trucks for smaller businesses (those without truck loading bays or other on-site loading/delivery facilities) since they would not be able to dwell within the roadway during operations. Consequently, they would either have to use off-street parking facilities, or parking on an adjacent street, or alleyways behind the property. This impact would not be adverse under NEPA and would be less than significant under CEQA.

#### Pedestrian and Bicycle Facilities

Existing and planned pedestrian and bicycle facilities would be affected under this alternative. Alternative 3 would conflict with the City of Los Angeles Bicycle Plan, as designated bicycle lanes on Van Nuys Boulevard would not be feasible under this alternative. However, it should also be noted that Van Nuys Boulevard corridor is designated as a Transit Priority Segment within the City of Los Angeles General Plan Framework Element, which creates a conflict between the General Plan and the Bicycle Plan.

Pedestrian routes would be lengthened where minor intersections would be permanently closed. Pedestrian crossings that remain would be improved with enhanced design and safety features. Overall operational effects and impacts on pedestrian facilities would not be adverse under NEPA and would be less than significant under CEQA.

### Cumulative Impacts

Alternative 3 would result in the same cumulative impacts hat could occur under Alternative 2.

### Mitigation Measures

#### Construction Mitigation Measures

##### *Transit*

Please see mitigation measure MM-TRA-4 under Alternative 2 above.

##### *Traffic*

Please see mitigation measure MM-TRA-5 under Alternative 2 above.

##### *Parking*

No construction mitigation measures are required.

##### *Pedestrian and Bicycle Facilities*

Please see mitigation measures MM-TRA-1 under Alternative 1 above.

#### Operational Mitigation Measures

##### *Transit*

No mitigation measures are proposed or are required.

#### *Traffic*

No other feasible mitigation measures have been identified.

#### *Pedestrian and Bicycle Facilities*

Please see mitigation measures MM-TRA-2 and MM-TRA-3 under Alternative 1 above.

## Impacts Remaining After Mitigation

### NEPA Finding

#### *Construction Impacts*

Alternative 3 would result in adverse construction effects on transit, traffic, and bicycle facilities and non-adverse effects to parking and pedestrian facilities after implementation of proposed mitigation measures.

#### *Operational Impacts*

Alternative 3 would result in adverse localized operational effects on traffic. However, Alternative3 would result in beneficial regional effects on transit.

Effects on parking and pedestrian facilities would not be adverse. Effects on bicycle facilities would be adverse, due to conflicts with the Bicycle Plan.

### CEQA Determination

#### *Construction Impacts*

Alternative 3 would result in significant construction impacts on transit, traffic, and bicycle facilities, and less-than-significant impacts on parking and pedestrian facilities.

#### *Operational Impacts*

Alternative 3 would result in significant bicycle facilities and traffic impacts, and less-than-significant impacts on transit, parking, and pedestrian facilities after implementation of proposed mitigation measures.

## 3.3.5.3 Alternative 4 – LRT

The potential impacts of Alternative 4 are summarized in the table below and discussed in detail in the text that follows (please note that a "Yes" in the table indicates an adverse effect under NEPA or significant impact under CEQA would occur).

| | Transit | | Traffic | | Parking | | Pedestrian | | Bicycle | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated | Impact | Mitigated |
| Construction | Yes | No | Yes | No | No | — | No | — | Yes | No |
| Operations | No | No | Yes | No | No | — | No | — | Yes | No |
| Cumulative | No | No | Yes | No | No | — | No | — | No | No |

Yes = Significant impact under CEQA; adverse effect under NEPA.
No = No impact or less than significant impact under CEQA; no effect or no adverse effect under NEPA.

## Construction Impacts

The LRT vehicles would operate on rail tracks and would be powered by overhead electrical wires, power duct bank, additional transit structures and associated infrastructure would be required to operate this alternative. Construction of Alternative 4 would occur over a period of five years. The construction activity would likely be divided into separate work zones with varying levels of construction.

This alternative differs from Alternative 3 as three stations would be underground. The underground portion of the alignment would be constructed using either a cut-and-cover technique or a tunnel boring machine, or a combination of both. The method will be determined by the construction contractor, who will take into consideration a number of factors in determining which method would be the most appropriate for the subway portion of the LRT alignment. Regardless of the subway construction method, the process would necessitate some full street closures in the early stages of the station construction process. During periods of full street closure, delays to transit operations and traffic would be realized resulting in increased levels of congestions and travel times.

Under this alternative, the construction contractor would develop detour routes to facilitate traffic movement through construction zones without significantly increasing cut-through traffic in adjacent residential areas. Additionally, where feasible, Metro would temporarily restripe roadways including restriping turn lanes, through lanes, and parking lanes at the affected intersections to maximize the vehicular capacity at those locations affected by construction closures. A majority of construction-related travel (i.e., deliveries, hauling, and worker trips) would be scheduled during the off-peak hours.

At the start of construction within each work area, on-street parking areas would be removed for project-related construction activities. Temporary street and lane closures may be necessary under this alternative. The extent and duration of the closures would depend on a number of factors, including the construction contract limits and individual contractor's choices, and would be coordinated with the Cities of Los Angeles and San Fernando, as necessary. Restrictions on the extent and duration of the closures can be incorporated in the project construction specifications. In some cases, short-term full closures might be substituted for extended partial closures to reduce overall impacts. Community outreach to keep the public and businesses advised as to closures would be provided. Signage and access to businesses would also be provided. Additionally, traffic control officers may be placed at major intersections during peak hours to minimize delays related to construction activities.

### Transit

Construction of Alternative 4 could take up to five years, which is the longest construction period of the four build alternatives. The impacts on transit would be the same as those described above for Alternative 3. The effects would be adverse under NEPA and significant under CEQA due to the estimated duration and magnitude of construction activities required to relocate utilities, remove the existing roadbed, construct the subway portion of the alignment, install high-floor LRT system trackage, signals, power infrastructure, and install stations and related infrastructure.

### Traffic

The construction traffic impacts of Alternative 4 would be adverse under NEPA and significant under CEQA as a consequence of the estimated duration and magnitude of construction, which would include lane and street closures and potentially 2.5 miles of cut and cover construction for the subway segment of the alignment.

### Parking

Impacts would be to the same as under Alternative 3. On-street parking would be prohibited within work areas as prescribed in the Traffic Control Plans to be approved by LADOT and the City of San Fernando.

As indicated by the results of the parking study for project operations, the corridor PAZs would be able to accommodate the Van Nuys Boulevard weekday and weekend on-street parking demand within the available on-street spaces and/or off-street parking areas. Lane closures and other partial roadway closures due to project construction would not encompass the entire corridor at a single time. Therefore, impacts would be less than those identified for the operation period of this build alternative and would not be adverse under NEPA and would be less than significant under CEQA.

### Pedestrian and Bicycle Facilities

Construction of Alternative 4 would require the permanent removal of bicycle facilities located within the work zones. This would be an adverse effect under NEPA and a significant impact under CEQA.

Impacts on pedestrian facilities would not be adverse under NEPA and would be less than significant under CEQA.

## Operational Impacts

### Transit

Local bus operating speeds may decrease because of the proposed traffic lane reductions along the project corridor and the resulting increases in traffic congestion. However, the transit improvements proposed under this alternative would result in an increase of 8,604 daily transit trips between the Metro Orange Line and the Sylmar/San Fernando Metrolink station, as compared to future No-Build/baseline conditions. An LRT line would improve travel times and the reliability of transit service compared to existing bus lines along the corridor. Therefore, overall operational impacts on transit service would not be adverse under NEPA and would be less than significant under CEQA.

### Traffic

#### *Intersections*

Level-of-service analysis results for this scenario are discussed here, followed by significant impact determinations.

Of the 73 study intersections, 21 would operate at LOS E or F during either one or both of the weekday peak hours. Operating LOS at the following intersections would worsen to or within poor conditions during the separately analyzed peak hours, versus No-Build/baseline conditions:

- LOS at 13 study intersections would worsen to/within LOS E or F during the AM peak hour.
- LOS at 21 study intersections would worsen to/within LOS E or F during the PM peak hour.

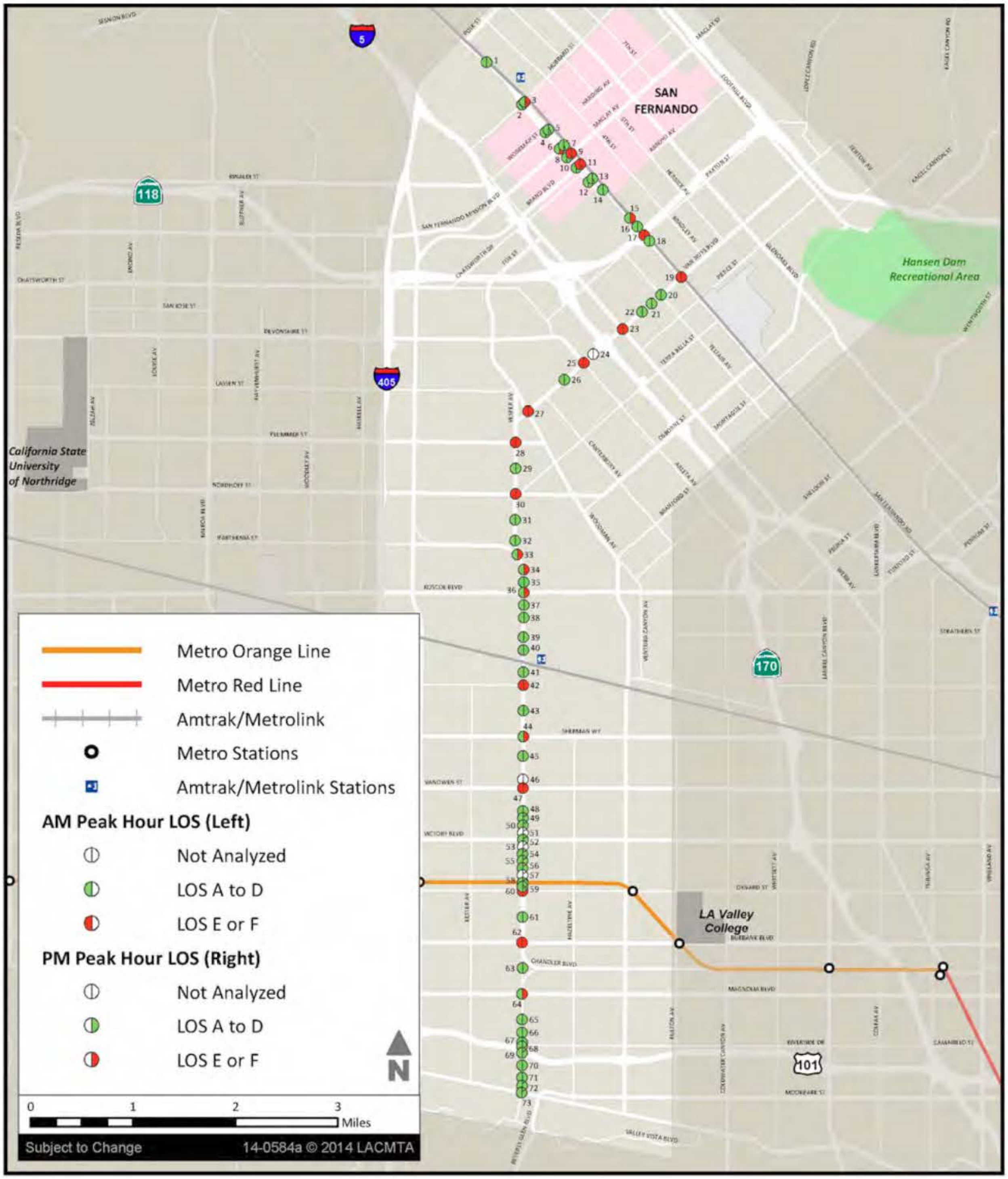
Table 3-21 identifies the study intersections along the project corridor that would operate at LOS E or F in the AM and PM peak hour and/or intersections that would be significantly affected as a result of implementation of Alternative 4. Within the list of intersections included in this table, significant traffic impacts would occur at 20 study intersections. Figure 3-10 illustrates the level of service for the overall study area.

## Table 3-21: Alternative 4 – Intersections at LOS E or F and/or Significantly Affected in 2040

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 4) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 3 | Truman St & Hubbard St | 45.3 | D | 72.2 | E | 49.4 | D | 81.7 | F | 4.1 | 9.5 | Yes |
| 6 | San Fernando Rd & San Fernando Mission Blvd | 8.1 | A | 51.4 | D | 8.4 | A | 57.8 | E | 0.3 | 6.4 | Yes |
| 9 | Truman St & Maclay Ave | 87.6 | F | >100 | F | 87.5 | F | >100 | F | -0.1 | - | No |
| 11 | Truman St & Brand Blvd | >100 | F | 73.0 | E | >100 | F | 70.0 | E | - | -3.0 | No |
| 15 | San Fernando Rd & Desmond St | 31.1 | C | >100 | F | 30.6 | C | >100 | F | -0.5 | - | No |
| 17 | San Fernando Rd & Paxton St | 99.7 | F | 76.6 | E | >100 | F | 74.9 | E | - | -1.7 | Yes |
| 19 | San Fernando Rd & Van Nuys Blvd | >100 | F | >100 | F | >100 | F | >100 | F | - | - | Yes |
| 20 | Telfair Ave & Van Nuys Blvd | 11.6 | B | 12.3 | B | 15.6 | B | 27.3 | C | 4.0 | 15.0 | Yes |
| 22 | Haddon Ave & Van Nuys Blvd | 8.0 | A | 14.6 | B | 13.1 | B | 29.1 | C | 5.1 | 14.5 | Yes |
| 23 | Laurel Canyon Blvd & Van Nuys Blvd | >100 | F | >100 | F | >100 | F | >100 | F | - | - | Yes |
| 25 | Arleta Ave & Van Nuys Blvd | 65.2 | E | 75.1 | E | >100 | F | >100 | F | - | - | Yes |
| 26 | Beachy Ave & Van Nuys Blvd | 14.2 | B | 10.7 | B | 41.3 | D | 19.8 | B | 27.1 | 9.1 | Yes |
| 27 | Woodman Ave & Van Nuys Blvd | 40.0 | D | 50.3 | D | 81.0 | F | >100 | F | 41.0 | - | Yes |
| 28 | Van Nuys Blvd & Plummer St | 32.9 | C | 38.9 | D | 71.9 | E | >100 | F | 39.0 | - | Yes |
| 30 | Van Nuys Blvd & Nordhoff St | 72.0 | E | 76.7 | E | >100 | F | >100 | F | - | - | Yes |
| 32 | Van Nuys Blvd & Parthenia St | 11.9 | B | 11.9 | B | 9.2 | A | 25.1 | C | -2.7 | 13.2 | Yes |

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 4) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 33 | Van Nuys Blvd & Parthenia St/Vesper Ave | 25.4 | C | 49.4 | D | 23.6 | C | 84.8 | F | -1.8 | 35.4 | Yes |
| 34 | Van Nuys Blvd & Chase St | 23.7 | C | 72.2 | E | 37.0 | D | 68.8 | E | 13.3 | -3.4 | Yes |
| 36 | Van Nuys Blvd & Roscoe Blvd | 52.9 | D | 53.8 | D | 53.7 | D | 56.0 | E | 0.8 | 2.2 | No |
| 39 | Van Nuys Blvd & Blythe St | 18.6 | B | 20.1 | C | 35.6 | D | 38.6 | D | 17.0 | 18.5 | Yes |
| 42 | Van Nuys Blvd & Saticoy St | 92.4 | F | >100 | F | 84.3 | F | >100 | F | -8.1 | - | No |
| 44 | Van Nuys Blvd & Sherman Way | 57.5 | E | >100 | F | 54.4 | D | >100 | F | -3.1 | - | Yes |
| 45 | Van Nuys Blvd & Vose St | 13.3 | B | 18.3 | B | 23.2 | C | 47.1 | D | 9.9 | 28.8 | Yes |
| 47 | Van Nuys Blvd & Vanowen St | 70.4 | E | 89.3 | F | >100 | F | >100 | F | - | - | Yes |
| 60 | Van Nuys Blvd & Oxnard St | 45.9 | D | 55.5 | E | 89.8 | F | 63.4 | E | 43.9 | 7.9 | Yes |
| 62 | Van Nuys Blvd & Burbank Blvd | >100 | F | >100 | F | >100 | F | 91.3 | F | - | - | No |
| 64 | Van Nuys Blvd & Magnolia Blvd | 58.4 | E | 80.9 | F | 52.6 | D | 64.6 | E | -5.8 | -16.3 | No |

## Figure 3-10: Alternative 4 – Study Area AM/PM LOS Map




Source: KOA, 2014.



Metro

Additionally, it should be noted that left turns would be permitted at primary intersections and prohibited at secondary intersections due to the installation of the median fixed guideway. At minor intersections, right turns in and out of the side streets would be allowed. The following study intersections were not analyzed in this scenario since the traffic signals would be removed, and only through movements on Van Nuys Boulevard would be permitted:

- Bartee Avenue & Van Nuys Boulevard (#24)
- Van Nuys Boulevard & Hartland Street (#46)
- Van Nuys Boulevard & Gilmore Street (#51)
- Van Nuys Boulevard & Friar Street (#53)
- Van Nuys Boulevard & Calvert Street (#57)

With the implementation of Alternative 4, the shifts in traffic to the Sepulveda and Woodman parallel corridors would cause 17 of the 50 study intersections to operate at LOS E or F. In addition, significant traffic impacts (criteria defined in Table 3-2) would occur at six of these intersections, as shown in Table 3-22.

#### *Performance Measures*

Under Alternative 4, vehicle travel speeds may decrease because of the proposed traffic lane reductions along the Project corridor and the resulting increases in traffic congestion, where the fixed guideway and station locations would necessitate travel lane reductions. This may be attributed to potential areas of congestion where the LRT transitions from at-grade to underground in the subway section. Once underground, the roadway capacity would not be different from existing conditions; however, once the LRT enters/exits the portal, the roadway capacity would be consistent with the remainder of the alignment on Van Nuys Boulevard.

This alternative would provide the highest reduction in VMT and VHT values.

## Mitigation Measures

### Construction Mitigation Measures

#### *Transit*

Please see mitigation measure MM-TRA-4 under Alternative 2 above.

#### *Traffic*

Please see mitigation measure MM-TRA-5 under Alternative 2 above.

#### *Parking*

No construction mitigation measures are required.

#### *Pedestrian and Bicycle Facilities*

Please see mitigation measures MM-TRA-1 under Alternative 1 above.

## Table 3-22: Alternative 4 – Parallel Corridors – Intersections at LOS E or F and/or Significantly Affected in 2040

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 4) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 75 | Sepulveda Blvd & Plummer St | 51.6 | D | 53.4 | D | 51.3 | D | 55.5 | E | -0.3 | 2.1 | No |
| 77 | Sepulveda Blvd & Nordhoff St | 72.9 | E | 89.7 | F | 72.8 | E | 89.3 | F | -0.1 | -0.4 | No |
| 79 | Sepulveda Blvd & Parthenia St | >100 | F | 63.5 | E | >100 | F | 63.2 | E | – | -0.3 | No |
| 81 | Sepulveda Blvd & & Roscoe Blvd | >100 | F | >100 | F | 97.4 | F | >100 | F | – | – | No |
| 82 | Sepulveda Blvd & Lanark St – Sepulveda Pl | >100 | F | >100 | F | >100 | F | >100 | F | – | – | No |
| 87 | Sepulveda Blvd & Sherman Way | 51.5 | D | 58.0 | E | 52.7 | D | 58.5 | E | 1.2 | 0.5 | No |
| 89 | Sepulveda Blvd & Vanowen St | 78.6 | E | 71.0 | E | 73.8 | E | 67.5 | E | -4.8 | -3.5 | No |
| 90 | Sepulveda Blvd & Victory Blvd | 73.4 | E | 44.5 | D | 75.9 | E | 44.7 | D | 2.5 | 0.2 | **Yes** |
| 94 | Sepulveda Blvd & Oxnard St | 36.2 | D | 60.0 | E | 33.2 | C | 61.6 | E | -3.0 | 1.6 | No |
| 96 | Sepulveda Blvd & Burbank Blvd | >100 | F | >100 | F | >100 | F | >100 | F | – | – | **Yes** |
| 98 | Sepulveda Blvd & Magnolia Blvd | 48.6 | D | >100 | F | 44.8 | D | >100 | F | -3.8 | – | **Yes** |
| 99 | Sepulveda Blvd & US-101 WB (NB) off-ramp | 60.7 | E | 23.8 | C | 58.2 | E | 30.0 | C | -2.5 | 6.2 | **Yes** |
| 100 | Sepulveda Blvd & Camarillo St | 32.6 | C | >100 | F | 33.9 | C | >100 | F | 1.3 | – | No |
| 102 | Sepulveda Blvd & Ventura Blvd | 44.3 | D | >100 | F | 45.3 | D | >100 | F | 1.0 | – | No |
| 103 | Woodman Ave & Plummer St | 59.0 | E | 12.0 | B | 66.8 | E | 14.7 | B | 7.8 | 2.7 | **Yes** |
| 108 | Woodman Ave & Chase St | 55.7 | E | 57.7 | E | 55.7 | E | 57.7 | E | 0.0 | 0.0 | No |
| 110 | Woodman Ave & Roscoe Blvd | 91.1 | F | >100 | F | 91.1 | F | >100 | F | 0.0 | – | No |

| Study Intersections | | Future No Build | | | | Future With Project (Alternative 4) | | | | Change in Delay (secs) | | Significant Impact? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | | | | |
| | | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | Delay (secs) | LOS | AM Peak Hour | PM Peak Hour | |
| 111 | Woodman Ave & Lanark St–Cantara St | >100 | F | >100 | F | >100 | F | >100 | F | – | – | No |
| 114 | Woodman Ave & Saticoy St | 81.5 | F | 98.0 | F | 81.5 | F | 98.0 | F | 0.0 | 0.0 | No |
| 116 | Woodman Ave & Valerio St | 33.9 | C | 42.9 | D | 41.3 | D | 42.5 | D | 7.4 | -0.4 | **Yes** |
| 117 | Woodman Ave & Sherman Way | 43.9 | D | 79.8 | E | 43.4 | D | 79.9 | E | -0.5 | 0.1 | No |
| Source: KOA, 2015. | | | | | | | | | | | | |



Metro

#### *Maintenance and Storage Facilities*

Alternative 4, would require the addition of a MSF. Staffing of the facility is not projected to cause an increase in intersection delay since the typical arrival and departure times for employees are outside typical weekday peak travel periods.

Rail vehicles being serviced by any of the three MSF location options would cross vehicular travel lanes on Van Nuys Boulevard to transfer between the MSF site and the median fixed guideway. This would result in an increase in adjacent intersection delay. However, this increase would not result in an adverse effect under NEPA and would result in a less-than-significant traffic impact under CEQA.

### Parking

A total of 902 on-street parking spaces on Van Nuys Boulevard and approximately 528 off-street parking spaces would be removed to accommodate the median guideway, TPSS, the Sherman Way Station, Keswick Street/Metrolink Station, Roscoe Boulevard Station, and Van Nuys/San Fernando Station. Parking supply on San Fernando Road would not be removed since the LRT would operate within an exclusive ROW adjacent to the Metrolink tracks.

Areas along Van Nuys Boulevard corridor that may encounter parking shortfalls and access issues during the weekday and/or weekend would be the same as those for the other build alternatives.

As shown in Appendix G, the adjacent PAZs will be able to accommodate the Van Nuys Boulevard weekday and weekend on-street parking demand within the available on-street spaces and/or off-street parking areas. Parking impacts would not be adverse under NEPA and would be less than significant under CEQA.

There may be access issues for delivery trucks for smaller businesses (those without truck loading bays or other on-site loading/delivery facilities) since they would not be able to dwell within the roadway during operations. Consequently, they would either have to use off-street parking facilities, or parking on an adjacent street, or alleyways behind the property. This impact would not be adverse under NEPA and would be less than significant under CEQA.

### Pedestrian and Bicycle Facilities

Existing and planned pedestrian and bicycle facilities would be affected under Alternative 4. Alternative 4 would conflict with the City of Los Angeles Bicycle Plan, as designated bicycle lanes on Van Nuys Boulevard would not be feasible under this alternative. This would be an adverse effect under NEPA and a significant impact under CEQA. However, it should be noted that the City of Los Angeles General Plan Framework Element designates the corridor as a Transit Priority Segment, which conflicts with City of Los Angeles Bicycle Plan.

Pedestrian routes would be lengthened where minor intersections would be permanently closed. Pedestrian crossings that remain would be improved with enhanced design and safety features. Overall operational effects and impacts on pedestrian facilities would not be adverse under NEPA and would be less than significant under CEQA.

## Cumulative Impacts

The cumulative impacts would be the same as those described above for Alternatives 2 and 3.

### Operational Mitigation Measures

#### *Transit*

No mitigation measures are proposed or required.

#### *Traffic*

No feasible mitigation measures have been identified.

#### *Parking*

No operational mitigation measures are required.

#### *Pedestrian and Bicycle Facilities*

Please see mitigation measures MM-TRA-2 and MM-TRA-3 under Alternative 1 above.

## Impacts Remaining After Mitigation

### NEPA Finding

#### *Construction Impacts*

Alternative 4 would result in adverse construction effects on transit, traffic, and bicycle facilities and non-adverse effects to parking and pedestrian facilities after implementation of proposed mitigation measures.

#### *Operational Impacts*

Alternative 4 would result in adverse localized operational effects on traffic. However, Alternative 4 would result in non-adverse effects on local transit service due to increased congestion but overall beneficial regional effects on transit due to increased transit capacity and reduced travel times for LRT riders.

Effects on parking and pedestrian facilities would not be adverse. Effects on bicycle facilities would be adverse, due to conflicts with the City of Los Angeles Bicycle Plan.

### CEQA Determination

#### *Construction Impacts*

Alternative 4 would result in significant construction impacts on transit, traffic, and bicycle facilities, and less-than-significant impacts on parking and pedestrian facilities.

#### *Operational Impacts*

Alternative 4 would result in significant bicycle facilities and traffic impacts, and less-than-significant impacts on parking, and pedestrian facilities after implementation of proposed mitigation measures. Impacts on local transit would be less than significant and beneficial on overall regional transit service.

Chapter 4
# Affected Environment and Environmental Consequences

# 4.1 Land Use

## 4.1.1 Regulatory Framework and Methodology

### 4.1.1.1 Regulatory Framework

The applicable local regulations that are relevant to an analysis of the proposed project's land use impacts are listed below (there are no federal or state land use regulations or plans that are directly applicable to the land use impact analysis). For additional information regarding these regulations, please see the *East San Fernando Valley Transit Corridor Draft Environmental Impact Statement/ Environmental Impact Report Land Use Impacts Report*, prepared by GPA Consulting in December 2014 in Appendix H of this Draft EIS/EIR.

#### Local

The following local regulations and land use plans would be applicable to the proposed project:

- Southern California Association of Governments 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy
- Southern California Association of Governments 2008 Regional Comprehensive Plan
- County of Los Angeles Pacoima Wash Vision Plan
- City of Los Angeles Land Use/Transportation Policy
- City of Los Angeles General Plan Framework Element
- City of Los Angeles Land Use Element
- City of Los Angeles Mobility Plan 2035
- City of Los Angeles Streetscape Plans
- City of Los Angeles Special Districts
- City of Los Angeles Van Nuys Historic Preservation Overlay Zone (HPOZ)
- City of Los Angeles Whiteman Airport Zone
- City of Los Angeles Zoning Code
- City of San Fernando General Plan
- San Fernando Corridors Specific Plan
- City of San Fernando Zoning Code

#### 4.1.1.2 Methodology

The following common terms are used in this section and are defined below for clarity:

- **Land Use**: Land use refers to the human use of land. There are several types of land uses, including residential, commercial, industrial, public facilities, and open space.
- **Study Area**: The study area for land use encompasses the area in which direct and/or indirect impacts associated with the project would likely result. The study area for this land use section extends one-half mile surrounding the East San Fernando Valley Transit Corridor (project corridor) to incorporate potential impacts to surrounding neighborhoods and roadways (see Figures 4.1-1 and 4.1-2).
- **Direct Effects**: Direct effects are effects that would be caused by the project and would result at the same time and place as the project.
- **Indirect Effects**: Indirect effects are effects that would be caused by the project and would result later in time or would be farther removed in distance, but would still be reasonably foreseeable. Indirect effects would include growth-related effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.
- **Project Corridor**: The project corridor is defined as the area that could be directly and physically affected by at least one of the project alternatives (road widening, construction of a BRT, Low-Floor Tram/LRT, or LRT system). More specifically, the project corridor is limited to the properties abutting the following roadway/transit segments:
  - Van Nuys Boulevard, from the Metro Orange Line in the south to San Fernando Road in the north.
  - San Fernando Road, from Van Nuys Boulevard in the southeast to the Sylmar/San Fernando Metrolink Station in the northwest (at 12219 Frank Modugno Drive between Hubbard Avenue and Sayre Street).
  - Truman Street, from La Rue Street in the southeast to the Sylmar/San Fernando Metrolink Station in the northwest.
  - The Antelope Valley Metrolink railroad corridor, from Van Nuys Boulevard in the southeast to the Sylmar/San Fernando Metrolink Station in the northwest

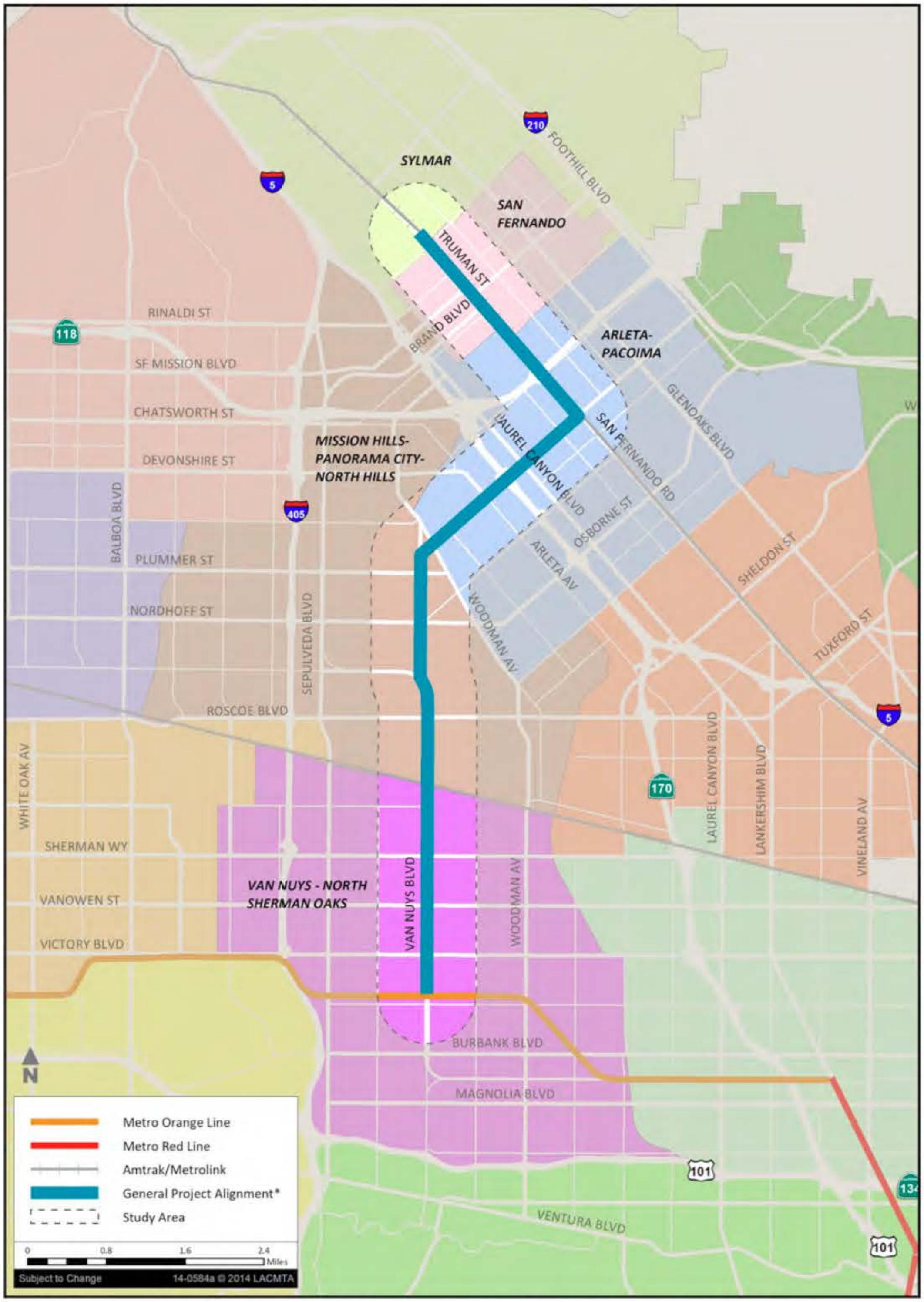
The following four steps were used to assess potential impacts from the project on existing land use in the study area:

- Maps were created to illustrate existing general plan land use in the study area;
- Existing land uses along the project corridor were described;
- Field surveys were conducted of the project corridor; and
- An assessment of the project's impacts on land use was conducted.

##### Land Use Maps

To illustrate existing land use, General Plan land use designations for the Cities of Los Angeles and San Fernando were overlain onto maps showing the boundaries of the project corridor and study area. To represent the length of the project corridor, the corridor was broken into six segments, as shown in Figure 4.1-3.

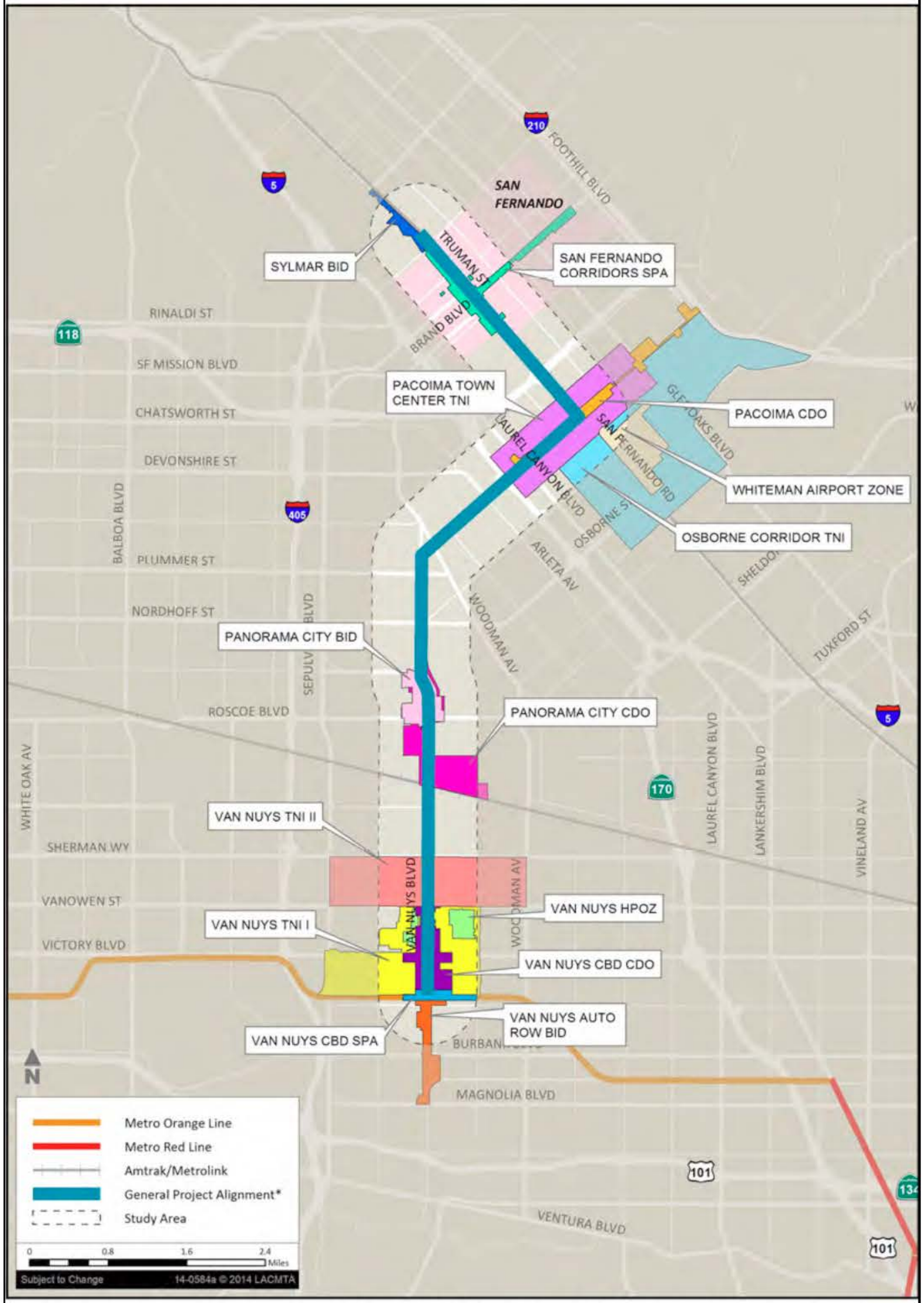
## Figure 4.1-1: Community Plan Area Boundaries



*Alignment generalized for this overview map only for clarity at this scale. Detailed alignments for each alternative are included on the map segments.

Source: ESRI, 2013.

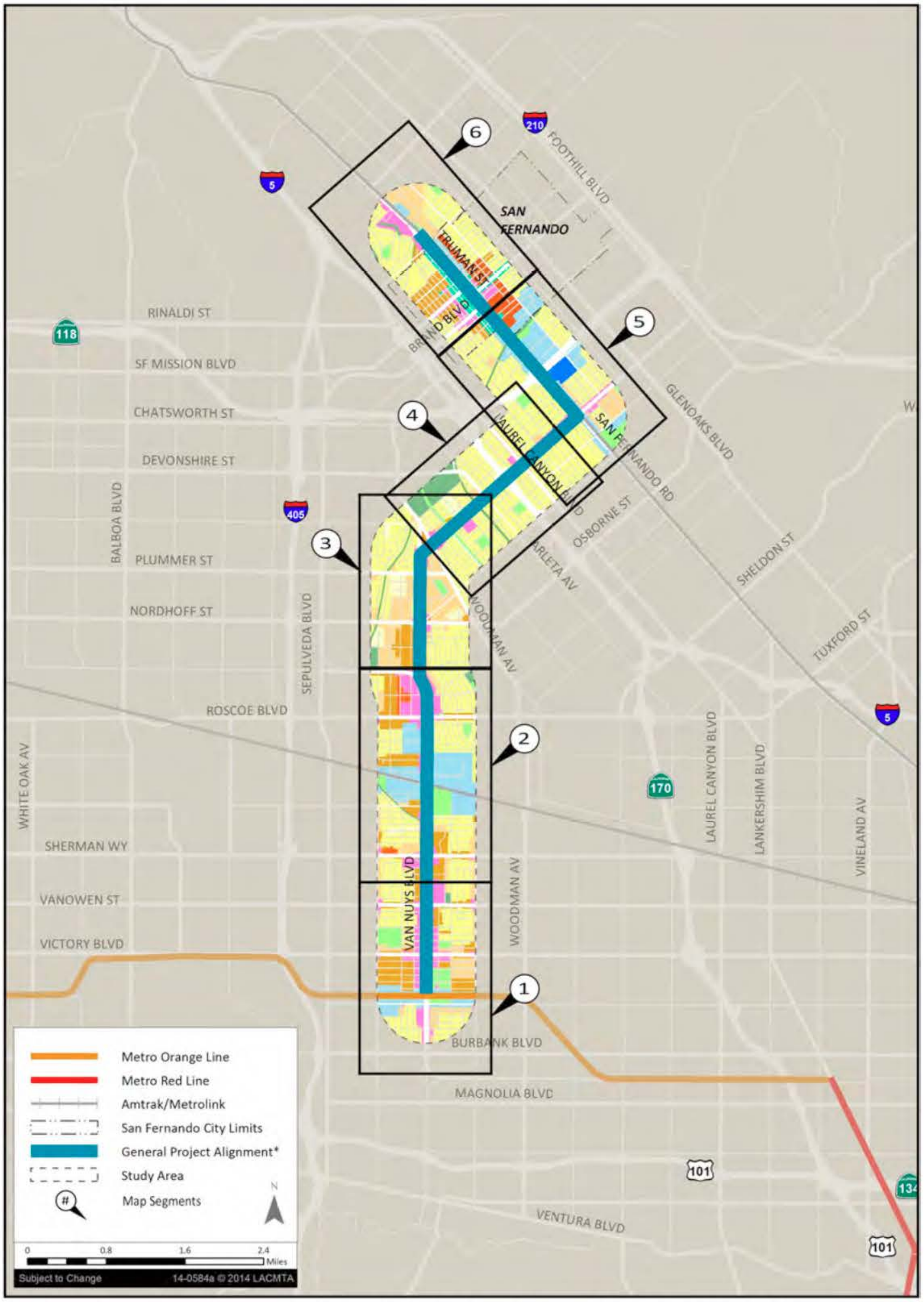
## Figure 4.1-2: Special Districts and Targeted Neighborhood Initiatives




*Alignment generalized for this overview map only for clarity at this scale. Detailed alignments for each alternative are included on the map segments.

Source: ESRI, 2013.

## Figure 4.1-3: General Plan Land Use Designations (All Segments)




*Alignment generalized for this overview map only for clarity at this scale. Detailed alignments for each alternative are included on the map segments.

Source: Metro, 2012; ESRI, 2013; City of Los Angeles, 2013; City of San Fernando, 1987.

### Land Use Descriptions

A textual description of existing land uses within the study area was developed. A general description of land uses along the project corridor is provided, as well as a more detailed description for each of the six segments of the project corridor.

### Field Surveys

Field surveys were performed in October 2011 and February 2013 to identify specific land uses along the project corridor and study area. Adjacent property types and associated land uses were also observed. In addition to the observations made during field surveys, photographs were taken throughout the study area to assist with the identification of land use.

### Land Use Impact Assessment

The project's impacts on land use were qualitatively assessed based on the information gathered on the existing land uses and whether the project would be compatible with those land uses. In addition, the project's impacts on land use were assessed by evaluating whether the project would be compatible with the land use plans, goals, and policies adopted by the regional and local jurisdictions within the study area.

## 4.1.1.3 CEQA Significance Thresholds

Significance thresholds are used to determine whether a project may have a significant environmental effect under CEQA.

CEQA requires state and local government agencies to identify the significant environmental effects of proposed actions; however, CEQA does not describe specific significance thresholds. State CEQA Guidelines

The State CEQA Guidelines define a significant effect on the environment as: "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (State CEQA Guidelines, Section 15382).

The State CEQA Guidelines do not describe specific significance thresholds. However, Appendix G of the State CEQA Guidelines lists a variety of potentially significant effects, which are often used as thresholds or guidance in developing thresholds for determining impact significance. Accordingly, for the purposes of this EIS/EIR, a project would normally have a significant land use impact, under CEQA, if it would:

- Physically divide an established community.
- Conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purposes of avoiding or mitigating an environmental effect.

Conflict with an applicable habitat conservation plan or natural community conservation plan (There is no habitat conservation plan or natural community conservation plan that is applicable to the study area).

### L.A. CEQA Thresholds Guide

The *L.A. CEQA Thresholds Guide* for land use states that a determination of significance shall be made on a case-by-case basis, considering the following factors: [1]

#### *Land Use Consistency*

- Whether the proposal is inconsistent with the adopted land use/density designation in the Community Plan, redevelopment plan, or specific plan for the site.
- Whether the proposal is inconsistent with the General Plan or adopted environmental goals or policies contained in other applicable plans.

#### *Land Use Compatibility*

- The extent of the area that would be impacted, the nature and degree of impacts, and the type of land uses within that area.
- The extent to which existing neighborhoods, communities, or land uses would be disrupted, divided, or isolated, and the duration of the disruptions.
- The number, degree, and type of secondary impacts to surrounding land uses that could result from implementation of the project.

# 4.1.2 Affected Environment/Existing Conditions

## 4.1.2.1 Study Area Setting

The study area is located in the San Fernando Valley area of Los Angeles. The San Fernando Valley is a flat area consisting of approximately 260 square miles, and is bounded by the Santa Susana Mountains to the northwest, the Simi Hills to the west, the Santa Monica Mountains and Chalk Hills to the south, the Verdugo Mountains to the east, and the San Gabriel Mountains to the northeast. The San Fernando Valley is an urbanized area that includes a variety of land uses, including residential, commercial, institutional, and light industrial development. The project corridor is approximately 9.2 miles in length, and runs nearly the entire north/south length of the valley floor.

The following overlay districts, special zones, and programs are located in the study area:

- **Business Improvement District**: A Business Improvement District (BID) is a geographically defined area within the City of Los Angeles, in which services, activities, and programs are paid for through a special assessment that is charged to all members within the district. The assessment money is collected by the city or by the county through a special contractual arrangement with the city.
- **Van Nuys Historic Preservation Overlay Zones**: Historic Preservation Overlay Zones (HPOZs), commonly known as historic districts, provide for review of proposed exterior alterations and additions to historic properties within designated districts. Recognizing the need to identify and protect neighborhoods with distinct architectural and cultural resources, the City of Los Angeles adopted the HPOZ ordinance in 1979. HPOZ areas range in size from neighborhoods of approximately 50 parcels to more than 4,000 properties. While most districts are primarily residential, many have a mix of single-family and multi-family housing, and some

[1] City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide, H. Land Use.* Available: <http://www.environmentla.org/programs/Thresholds/Complete%20Threshold%20Guide%202006.pdf>. Accessed: February 13, 2013.

include commercial and industrial properties. Van Nuys HPOZ is located in the center of the San Fernando Valley area of Los Angeles, and is the first HPOZ in the valley. Van Nuys includes some of the earliest residential development in the valley.

- **Van Nuys Central Business District Community Design Overlay District**: The Van Nuys Central Business District (CBD) Community Design Overlay District (CDO) establishes Design Guidelines and Standards for projects dealing with commercial properties. The district aims to guide development within a framework that is sensitive to the history of the Van Nuys CBD, while encouraging design creativity.
- **Targeted Neighborhood Initiative**: The Targeted Neighborhood Initiative (TNI) was proposed by Mayor Richard Riordan as a new way to revitalize the City of Los Angeles. The TNI would create the mechanisms and relationships necessary to implement a coordinated effort between City of Los Angeles Departments and area stakeholders. These mechanisms and relationships are created with the intent that duplicate efforts will be minimized, and that the supplemental Community Development Block Grant (CDBG) dollars will be leveraged for greater impact.

## 4.1.2.2 Existing Land Uses

The project corridor is currently designated with the following transportation uses:

- Within the project corridor, Van Nuys Boulevard is designated as a Major Class II Highway.[2] This type of street is defined as having four full-time through lanes, as well as two lanes that are for parking on a part-time basis and for travel on a part-time basis. This class of street has a median/left-turn lane and 104 feet of right-of-way. Additionally, it has a 12-foot sidewalk/parkway with a 13-foot curb lane.[3] It should be noted that the Draft Mobility Plan 2035 for the City of Los Angeles re-designates Major Class II Highways with a newly designated term of Boulevard II and Van Nuys Boulevard is also designated as a Comprehensive Transit Enhanced Street, and as part of the Bicycle Enhanced Network.[4]
- The Metro Orange Line is designated for public facilities on the City of Los Angeles General Plan Land Use Map.
- Within the project corridor, San Fernando Road is classified as a secondary arterial corridor.[5] This type of roadway typically directs traffic through individual districts in the San Fernando Corridors Specific Plan area and typically has a right-of-way width of 80 feet and a curb-to-curb width of 60 feet. Parallel parking is typically provided on both sides of the street. This type of roadway generally provides four through travel lanes, with a dedicated left-turn lane at enhanced intersections. The Draft Mobility Plan 2035 designates San Fernando Road as a Moderate Transit Enhanced Street and as part of the Bicycle Enhanced Network.

---

[2] City of Los Angeles. 2002a. *City of Los Angeles General Plan Transportation Element, Highways and Freeways, North Valley Subarea, Map A2.* June. Available: <http://cityplanning.lacity.org/cwd/gnlpln/transelt/TEMaps/A2NVly.gif>. Accessed: February 12, 2013.
[3] City of Los Angeles. 1999a. *City of Los Angeles General Plan, Transportation Element.* Adopted September 8. Available: <http://cityplanning.lacity.org/cwd/gnlpln/transelt/index.htm>. Accessed: February 13, 2013.
[4] City of Los Angeles. 2015. *City of Los Angeles Mobility Plan 2035, An Element of the General Plan*. May 28, 2015 Draft. Available: <https://cityclerk.lacity.org/lacityclerkconnect/index.cfm?fa=ccfi.viewrecord&ncfms=&cfnumber=15-0719>. Accessed : September 30, 2015.
[5] City of San Fernando. 2005. *The San Fernando Corridors Specific Plan*. Adopted January. Available: <http://www.ci.san-fernando.ca.us/sfold/news/specific_plan/sf_corridors_sp_final.pdf>. Accessed: February 13, 2013.

- Truman Street is classified as a major arterial corridor for its entire length through San Fernando.[6] This type of roadway serves both regional through-traffic and inter-city traffic, and generally provides four through travel lanes and a dedicated left-turn lane. This type of roadway will typically have a maximum right-of-way width of 80 feet and a curb-to-curb pavement width of 56 feet.
- The Antelope Valley Metrolink railroad corridor is shown as a railroad corridor in the San Fernando Corridors Specific Plan.

Land use varies along the six segments of the project corridor, and includes residential, commercial, industrial, recreation (parks), schools, community centers, and other urban uses.

Land uses to the east and west of the project corridor, but within the study area, are primarily designated as residential and parklands. The project corridor crosses under several roadways/highways and railroad tracks, and crosses over the Los Angeles River (LA River). Power lines, street lights, and other utilities are located along various portions of the project corridor.

At the southern end of the project corridor to just south of Calvert Street, land uses include car dealerships on Auto Row and other commercial uses. Moving further north until Vanowen Street, commercial, retail, banks, restaurants, medical offices, and other businesses occupy the corridor. A portion of this segment also includes local, state, and federal government buildings, including the Van Nuys Civic Center. South of Titus Street, a mixture of retail, restaurant, and other businesses interspersed with parking lots occupies the land adjacent to Van Nuys Boulevard.

South of Parthenia Street, small to large commercial businesses are located along Van Nuys Boulevard, as well as commercial centers and the Panorama Mall. South of the I-5 freeway, land uses include small to medium residential apartment complexes and single-family homes. At the north end of the project corridor, along San Fernando Road and Truman Street, the land uses are primarily commercial and industrial.

The following sections describe the project corridor by segments, starting from the southern limit (at the Metro Orange Line) and moving toward the northern limit (at the Sylmar/San Fernando Metrolink Station). Within each segment, a map is shown depicting the general plan land use designations within the study area, and the land use is described for the contiguous properties along the project corridor.

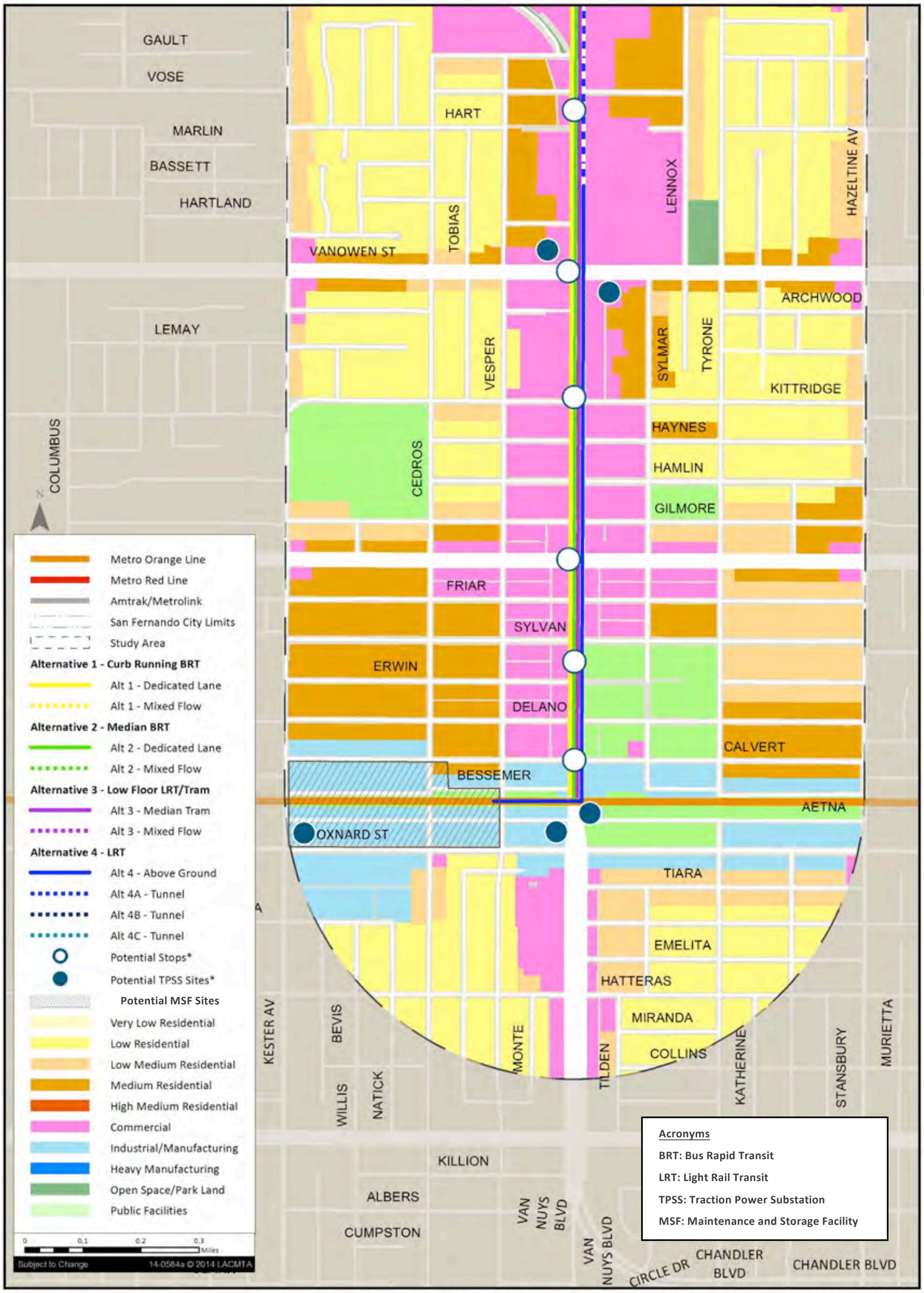
## Map Segment 1 – Van Nuys Boulevard from the Metro Orange Line to Hart Street

Map Segment 1 consists of Van Nuys Boulevard, from the Metro Orange Line in the south to Hart Street in the north (see Figure 4.1-4). Portions of this segment are part of the Van Nuys Auto Row BID, Van Nuys CBD SPA, Van Nuys CBD CDO, Van Nuys TNI I, and Van Nuys HPOZ.

Land uses along this segment of Van Nuys Boulevard are primarily commercial. North of Oxnard Street, Van Nuys Boulevard passes through a segment designated for public facilities, which includes the Metro Orange Line, the Orange Line Busway Bike Path, and a power facility. Land uses along the Metro Orange Line are primarily industrial.

[6] City of San Fernando. 2005. *The San Fernando Corridors Specific Plan*. Adopted January. Available: <http://www.ci.san-fernando.ca.us/sfold/news/specific_plan/sf_corridors_sp_final.pdf>. Accessed: February 13, 2013.

## Figure 4.1-4: General Plan Land Use Designations - Segment 1




*Stop and TPSS locations are approximate. See plans for each alternative for exact locations.

Source: ESRI, 2013.

Land designated for public facilities is located between Calvert Street and Friar Street and occupied by the Van Nuys Civic Center, which includes the city hall, the County Registrar, the Los Angeles Superior Court, the County Probation Department, a U.S. post office, and other related facilities. The First Lutheran Church and Champs Charter High School are located at 6952 Van Nuys Boulevard, near the intersection of Hart Street and Van Nuys Boulevard.

## Map Segment 2 – Van Nuys Boulevard from Hart Street to Parthenia Street

Map Segment 2 consists of Van Nuys Boulevard, from Hart Street in the south to Parthenia Street in the north (see Figure 4.1-5). Portions of this segment are part of the Van Nuys TNI II, the Panorama City CDO, and the Panorama City BID. This segment of the project corridor is designated primarily for commercial uses and includes the Panorama Mall (at Van Nuys Boulevard and Roscoe Boulevard). Clinica Latino Americana health clinic is located at 8727 Van Nuys Boulevard at Parthenia Street.

Just north of Raymer Street, Van Nuys Boulevard passes under a rail line owned by the Union Pacific Railroad. Two Amtrak lines run along this route, which are the Pacific Surfliner (service between San Diego and San Luis Obispo) and the Coast Starlight (service between Los Angeles and Seattle). The adjacent parcel is designated for public facilities and functions as the Van Nuys Transit Station (on Van Nuys Boulevard between Keswick Street and Cabrito Road). This station is serviced not only by the Amtrak trains described above, but also by Metrolink's commuter rail system and city buses.[7] Metrolink's Ventura County line (with service between Union Station in Los Angeles and East Ventura) stops at this station. In addition, the LADOT DASH Panorama City/Van Nuys Route and Metro buses 156, 169, 233, and 761 Express also stop at this station.

## Map Segment 3 – Van Nuys Boulevard from Parthenia Street to Woodman Avenue

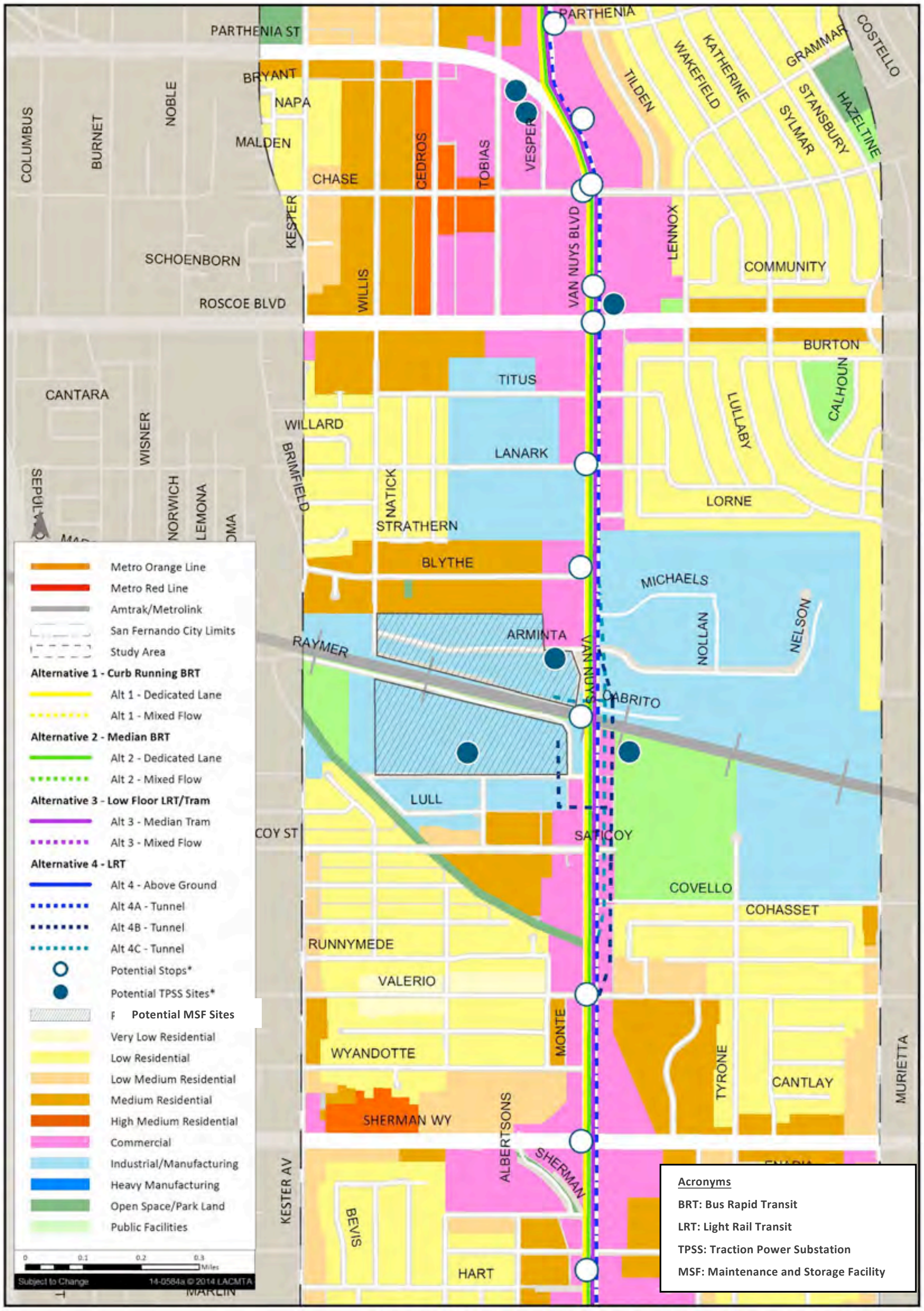
Map Segment 3 consists of Van Nuys Boulevard, from Parthenia Street in the south to Woodman Avenue in the north (see Figure 4.1-6). Portions of the segment are part of the Panorama City BID and Panorama City CDO. This segment of the project corridor is designated for various commercial land uses, but there are also some areas that are designated for medium and high/medium residential. Between Van Nuys Boulevard and Tobias Avenue (9122-9132 Tobias Avenue), there is a 1.6-acre park called Tobias Avenue Park.

## Map Segment 4 – Van Nuys Boulevard from Woodman Avenue to Telfair Avenue

Map Segment 4 consists of Van Nuys Boulevard, from Woodman Avenue in the southwest to Telfair Avenue in the northeast (see Figure 4.1-7). Portions of this segment are within the Pacoima CDO, the Pacoima Town Center TNI, and the Osborne Corridor TNI. In this segment of the project corridor, most of the land is designated and used for residential or commercial properties, with some land designated for open space and public facilities. Just northeast of Canterbury Avenue, there is a strip of land designated for public facilities. This space is used for transmission power lines and a plant nursery.

[7] Metrolink. n.d. *Van Nuys Station*. Available: <http://www.metrolinktrains.com/>. Accessed: November 8, 2011.

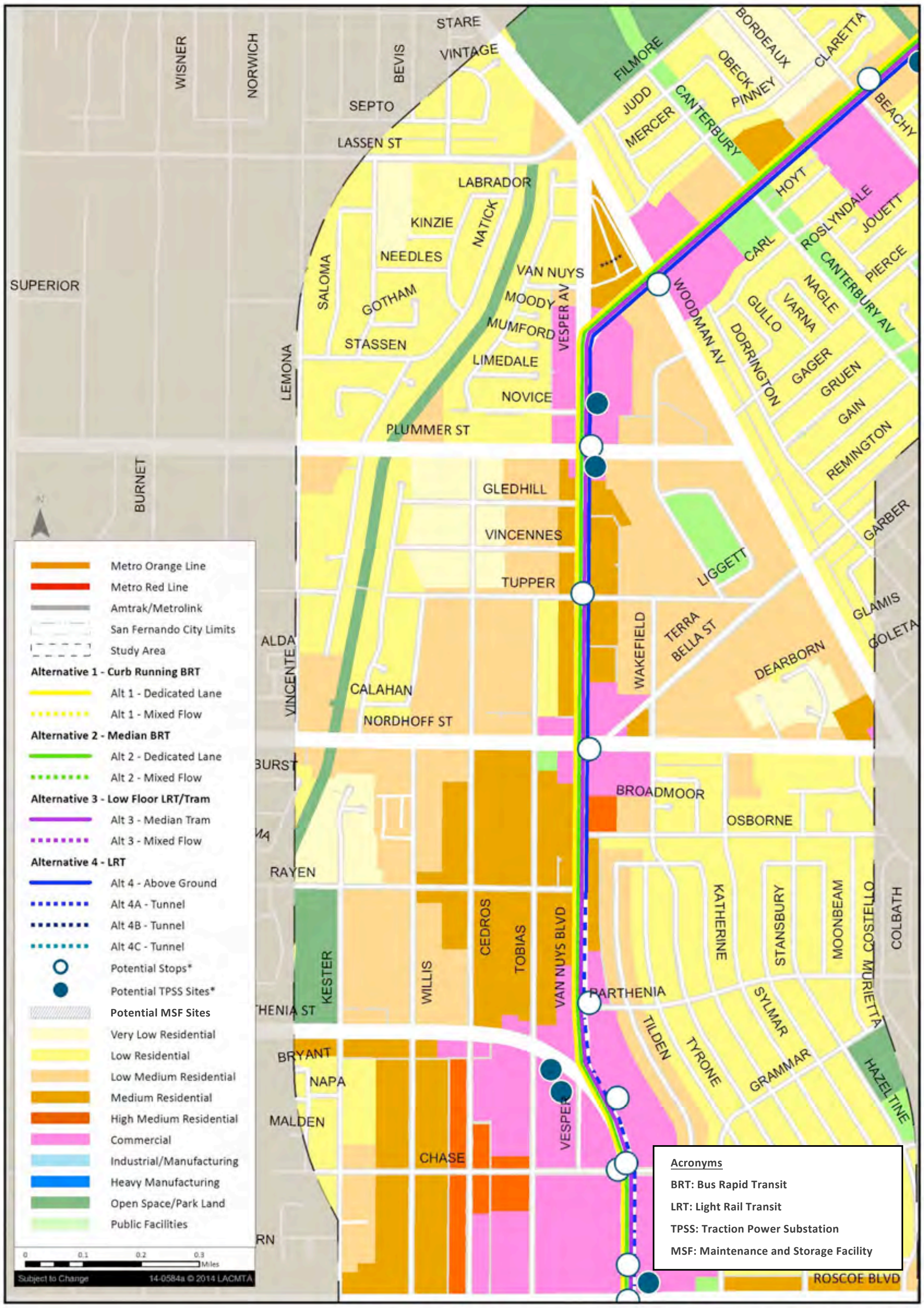
## Figure 4.1-5: General Plan Land Use Designations - Segment 2




*Stop and TPSS locations are approximate. See plans for each alternative for exact locations.

Source: ESRI, 2013.

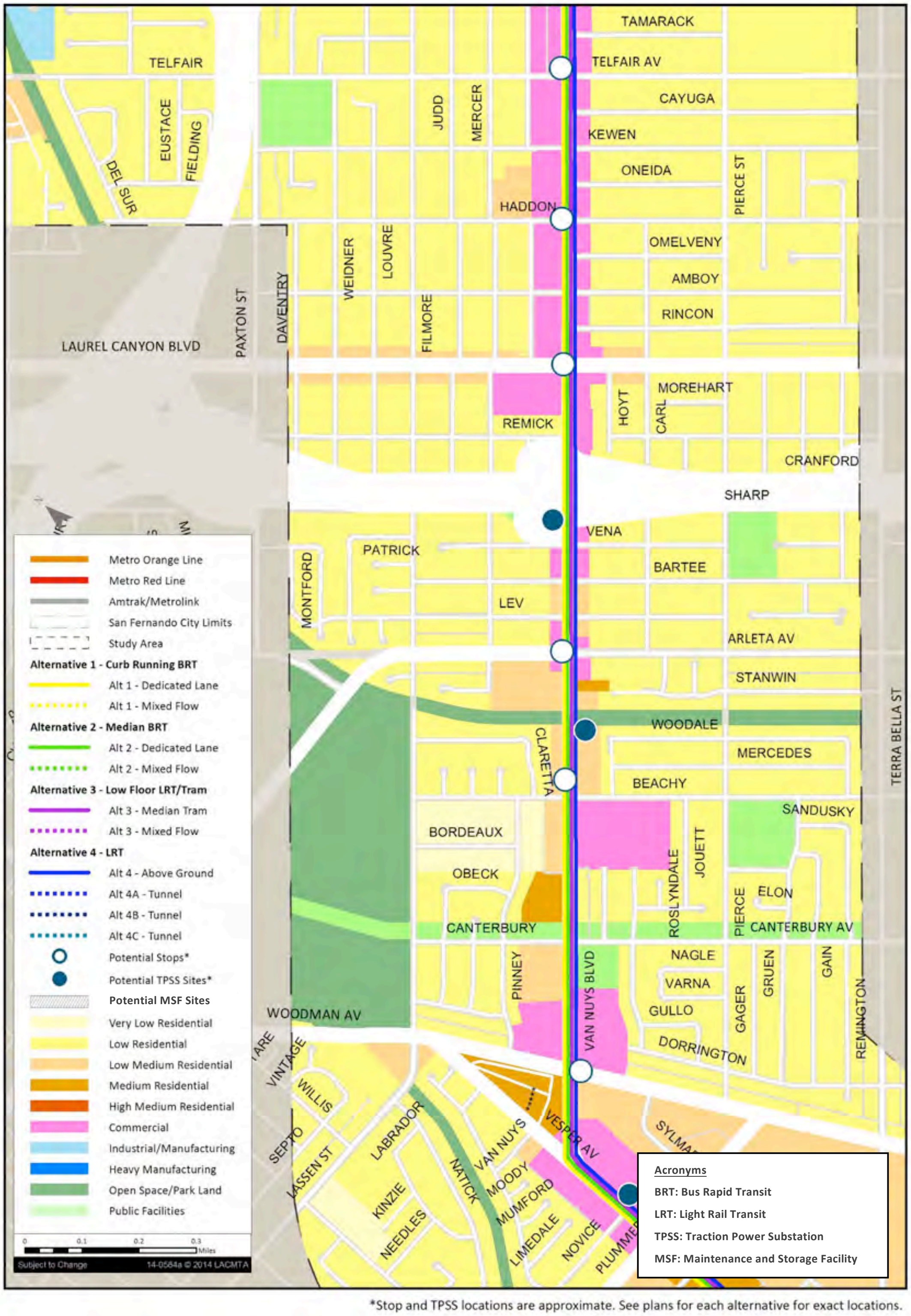
## Figure 4.1-6: General Plan Land Use Designations - Segment 3




*Stop and TPSS locations are approximate. See plans for each alternative for exact locations.

Source: ESRI, 2013.

## Figure 4.1-7: General Plan Land Use Designations - Segment 4




Source: ESRI, 2013.


Metro

Arleta High School is located at the southeast corner of Van Nuys Boulevard and Beachy Avenue (14200 Van Nuys Boulevard). UCLA Early Head Start is located at 14423 Van Nuys Boulevard. There is a small strip of land northeast of Beachy Avenue designated for open space use. This area currently serves as an open-air water drainage system. Northeast of Vena Avenue, Van Nuys Boulevard passes underneath the I-5 freeway. North of the I-5 freeway, existing land uses include the Pacoima Branch library (13605 Van Nuys Boulevard), a Department of Water & Power distribution facility (13477 Van Nuys Boulevard), Soledad Enrichment School (13452 Van Nuys Boulevard), and Pacoima Skill Center Vocational School (13545 Van Nuys Blvd).

### Map Segment 5 – Van Nuys Boulevard from Telfair Avenue to San Fernando Road; and San Fernando Road and the Antelope Valley Metrolink Corridor from Van Nuys Boulevard to La Rue Street

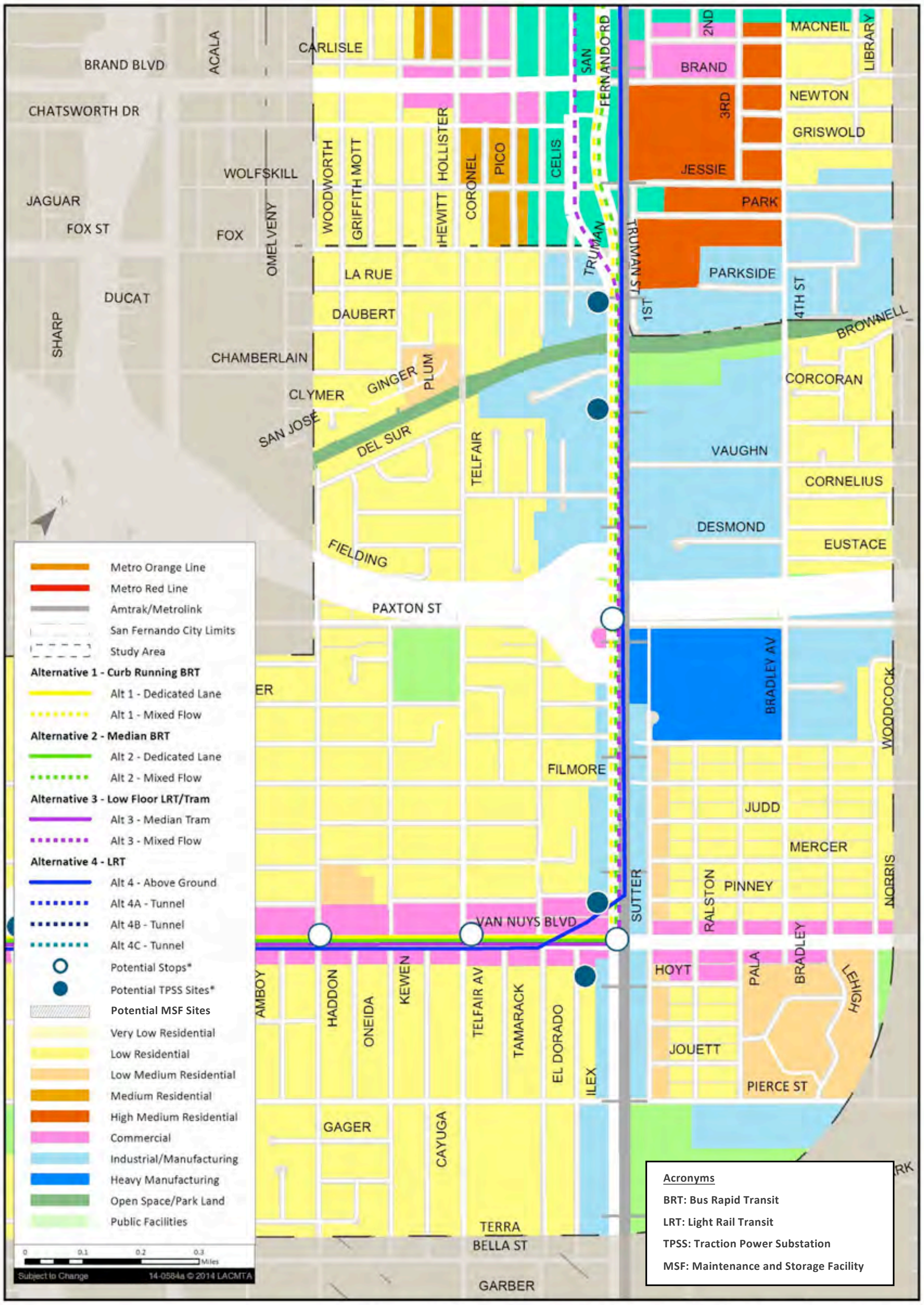
Map Segment 5 consists of Van Nuys Boulevard, from Telfair Avenue in the southwest to San Fernando Road in the northeast; and San Fernando Road and the Antelope Valley Metrolink Corridor, from Van Nuys Boulevard in the southeast to La Rue Street in the northwest (see Figure 4.1-8). Portions of this segment are within the Pacoima Town Center TNI, the Osborne Corridor TNI, the Whiteman Airport Zone, and the Pacoima CDO. Whiteman Airport is located at 12653 Osborne Street in the northeast corner of the Pierce Street and San Fernando Road intersection. Although the airport is outside of the project corridor, it is within the study area, just 0.5 mile southeast of the project corridor; therefore, many parcels within the study area fall within the Whiteman Airport Zone. A community health center run by the Los Angeles Department of Health Services is also located in this segment (13300 Van Nuys Boulevard).

The Metrolink railroad tracks are designated for public facilities. This Metrolink route is planned for future enhanced Metrolink service. Other land uses along this segment of the project corridor are primarily industrial and heavy manufacturing, with some commercial areas. The project corridor crosses under SR-118, which is designated for public facilities. The project corridor also crosses over the Pacoima Wash Diversion Channel, which is designated as open space/park land.

### Map Segment 6 – San Fernando Road, Truman Street, and the Antelope Valley Metrolink Corridor from La Rue Street to the Sylmar/San Fernando Metrolink Station

Map Segment 6 consists of San Fernando Road, Truman Street, and the Antelope Valley Metrolink Corridor, from La Rue Street in the southwest to the Sylmar/San Fernando Metrolink Station in the northeast (see Figure 4.1-9). Portions of this segment are within the San Fernando Corridors SPA and the Sylmar BID. The Metrolink railroad tracks are designated for public facilities and are planned to accommodate future enhanced Metrolink service. Because there are railroad tracks in this area, other adjacent land uses along this segment of the project corridor are primarily industrial and manufacturing. Along Truman Street and San Fernando Street, land uses are specified in the San Fernando Corridors Specific Plan, which are designated as commercial. The Sylmar/San Fernando Metrolink Station (on Frank Modugno Drive between Hubbard Street and Sayre Street) is designated as public facilities.

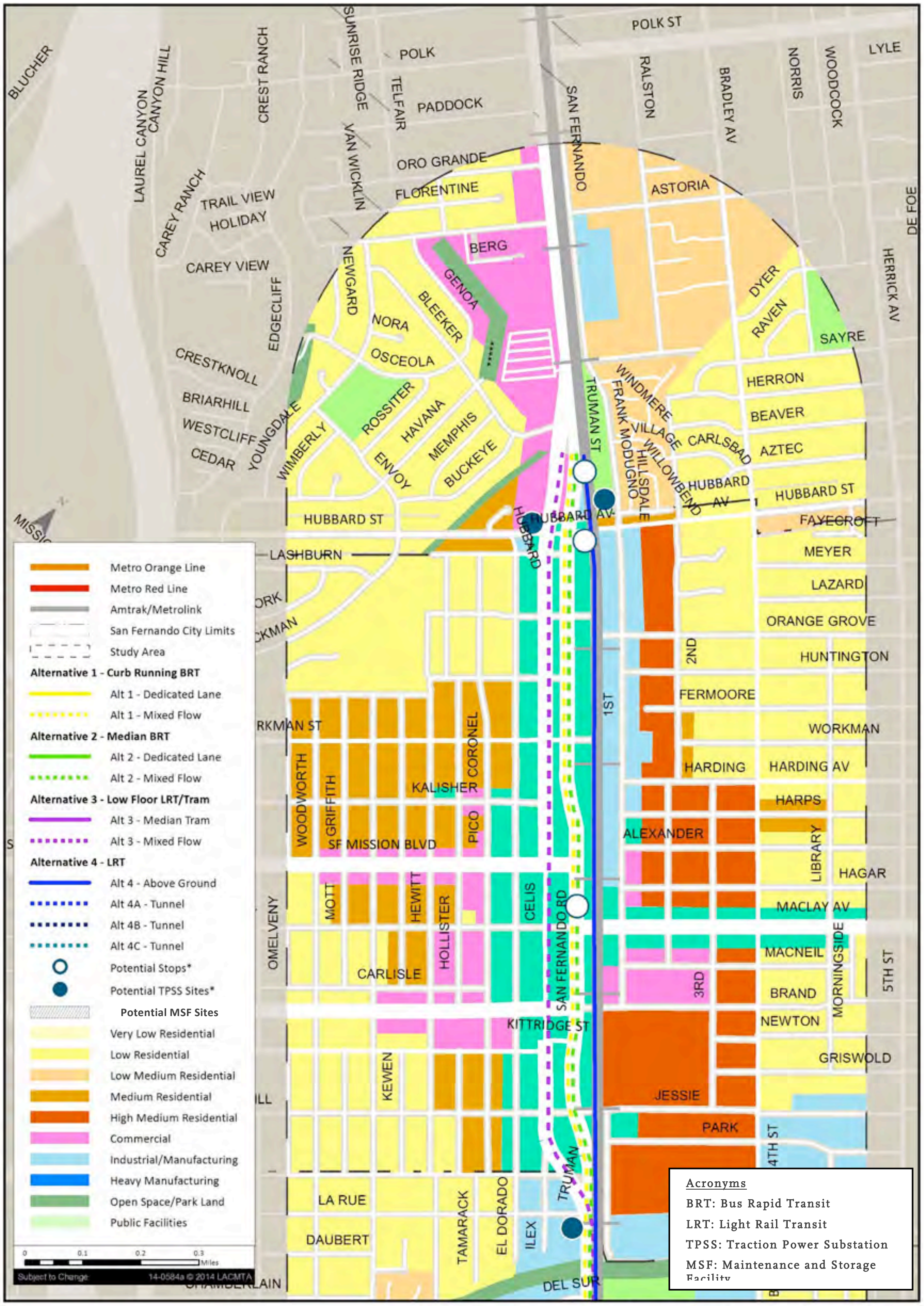
## Figure 4.1-8: General Plan Land Use Designations - Segment 5




*Stop and TPSS locations are approximate. See plans for each alternative for exact locations.

Source: ESRI, 2013.

## Figure 4.1-9: General Plan Land Use Designations - Segment 6




*Stop and TPSS locations are approximate. See plans for each alternative for exact locations.

Source: ESRI, 2013.



Metro

# 4.1.3 Environmental Consequences, Impacts, and Mitigation Measures

## 4.1.3.1 No-Build Alternative

### Construction Impacts

Under the No-Build Alternative, no new transportation or infrastructure improvements would be constructed other than those related projects currently under construction or funded for future construction. Therefore, the No-Build Alternative would have no impacts on land use during construction.

### Operational Impacts

#### Regional Land Use and Development

No new transportation or infrastructure improvements would be constructed under the No-Build Alternative other than those related projects currently under construction or funded for future construction. The No-Build Alternative would not interfere with SCAG's regional goals of encouraging land use and growth patterns that facilitate transit and non-motorized transportation and focusing growth along major transportation corridors in the region but would also do nothing to further those goals.

#### Local Land Use and Development

##### *Division of an Established Community*

Since the No-Build Alternative proposes no new transportation or infrastructure improvements, it would not introduce physical barriers that would divide the existing communities surrounding the project corridor.

##### *Conflicts with Local Land Use Plans*

Relevant plans and policies are as follows:

- **City of Los Angeles 2010 Bicycle Plan**: The City of Los Angeles 2010 Bicycle Plan (City's Bicycle Plan) designates Van Nuys Boulevard as part of the "Backbone Bicycle Network," which is a 719-mile interconnected system facilitating mobility on key arterials.[8] The network is comprised primarily of bicycle lanes, which will enable access to major employment centers, transit stations and stops, and educational, retail, entertainment, and other open space and recreational resources.
- **City of Los Angeles Land Use/Transportation Policy**: The objectives and guiding principles of the Land Use/Transportation Policy that may apply to the project are to increase land use intensity in transit station areas, where appropriate; reduce reliance on the automobile; and establish transit centers and station areas as places where future growth of Los Angeles is focused.
- **City of Los Angeles General Plan, Framework Element**: The goals that may apply to the project are Goal 3K. Transit stations to function as a primary focal point of the City's development; and Goal 3I. A network of boulevards that balance community needs and economic objectives with transportation functions and complement adjacent residential neighborhoods.

[8] City. March 2011. 2010 Bicycle Plan.

- **City of Los Angeles General Plan, Transportation Element**: The objective and policies that may apply to the project are Objective 2. Mitigate the impacts of traffic growth, reduce congestion, and improve air quality by implementing a comprehensive program of multimodal strategies that encompass physical and operational improvements as well as demand management; Policy 2.14. Promote the increase of bus service along high-demand routes and corridors in order to reduce bus overcrowding; Policy 2.15. Promote the provision of additional express and local bus service in corridors to be served by the funded rail system, so as to increase transit ridership and prepare for future rail service; Policy 2.16. Promote the expansion of express and local bus service in priority corridors not served by the funded rail system, so as to reduce congestion along congested corridors; Policy 3.7. Promote the development of transit alignments and station locations which maximize transit service to activity centers and which permit the concentration of development around transit stations as illustrated [in the General Plan]; and Policy 3.12. Promote the enhancement of transit access to neighborhood districts, community and regional centers, and mixed-use boulevards.
- **City of Los Angeles General Plan, Noise Element**: The objective that may apply to the project is Objective 2: Reduce or eliminate nonairport-related intrusive noise, especially relative to noise sensitive uses.
- **City of Los Angeles General Plan, Air Quality Element**: The objective and policy that may apply to the project are Objective 3.2. It is the objective of the City of Los Angeles to reduce traffic during peak periods; and Policy 3.2.1. Manage traffic congestion during peak periods.
- **City of Los Angeles Community Plans**: The policies that may apply to the project are to develop a public transit system that improves mobility with convenient alternatives to automobile travel; encourage improved local and express bus service through the community and encourage bus routes to interface with freeways, high occupancy vehicle (HOV) facilities, and rail facilities; encourage the provision of safe, attractive, and clearly identifiable transit stops with user friendly design amenities; increase the work trips and non-work trips on public transit; develop an intermodal mass transportation plan to implement linkages to future mast transit service; and promote pedestrian-oriented mobility and utilization of the bicycle for commuter, school, recreation use, economic activity, and access to transit facilities.
- **The City of San Fernando Corridors Specific Plan**: The objective and policies that may apply to the project area to maintain and improve vehicular traffic circulation within the specific plan area and the adjacent community so as to safely and efficiently move both local and through traffic to its destination, while accommodating future demand for circulation by all modes of transportation; Circulation Policy 5. The City will continue to oversee the improvement of a circulation system within the specific plan area that is capable of adequately accommodating a reasonable increase in future traffic demands; and Circulation Policy 9. The City will ensure that there are clear rights-of-way for safe passage of pedestrians and bicyclists using Maclay Avenue and San Fernando Road.

As described above, the local land use plans for the jurisdictions along the project corridor include several goals and policies centered around establishing transit centers, maximizing transit service, accommodating future traffic demands, reducing reliance on the automobile, decreasing congestion, minimizing environmental impacts, increasing transit ridership, and developing compact pedestrian-oriented, mixed-use neighborhoods with accommodations for bicyclists. The No-Build Alternative proposes no changes to the existing transportation system, and would therefore not conflict with local land use plans. Local jurisdictions would continue to guide development according to the goals and policies in their plans. However, this alternative would not help achieve the goals of increasing transit ridership or reducing reliance on the automobile.

##### *Incompatibility with Adjacent or Surrounding Land Uses*

The No-Build Alternative would not result in changes to existing land uses. Development patterns would not be affected, and incompatible land uses would not result from this alternative.

### Cumulative Impacts

Per CEQA Section 15130 (b), the cumulative impacts analysis can consider either a "list of past, present, and probable future projects producing related or cumulative impacts" or "a summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect." The cumulative impacts analysis below is based on the approach that considers related projects listed in Table 2-3).

The study area for the cumulative impacts analyses encompasses the area in the immediate vicinity of the corridor as well as the local land use plan areas in which the project is located. Under the No-Build Alternative, there would be no construction or operational impacts on land use; therefore, this alternative would not contribute to cumulative impacts under CEQA and NEPA.

### Mitigation Measures

#### Construction Mitigation Measures

No mitigation measures are required.

#### Operational Mitigation Measures

No mitigation measures are required.

### Impacts Remaining After Mitigation

#### NEPA Finding

No adverse effects would occur.

#### CEQA Determination

No adverse impacts would occur.

## 4.1.3.2 TSM Alternative

### Construction Impacts

Construction activities under the TSM Alternative would be minimal, limited to installation of new bus stops and signage and possibly minor roadway improvements. Typical construction methods would be used for the minor bus stop and roadway improvements. Bus stops and other minor roadway improvements would be constructed within the existing public street right-of-way; however, extended street or lane closures would be unnecessary, and mobility would not be substantially reduced during construction. Construction activities would not divide an established community. The minor construction activities that would occur under this alternative would not be inconsistent with local plans or incompatible with existing land uses.

## Operational Impacts

### Regional Land Use and Development

The TSM Alternative would include transportation system upgrades, such as increased bus efficiencies and service and minor modifications to the roadway network. The TSM Alternative would not interfere with SCAG's regional goals of encouraging land use and growth patterns that facilitate transit and non-motorized transportation and focusing growth along major transportation corridors in the region.

### Local Land Use and Development

#### *Division of an Established Community*

The TSM Alternative would include transportation system upgrades and would operate entirely within existing transportation corridors. This alternative would not introduce physical barriers that would divide the existing communities surrounding the project corridor.

#### *Conflicts with Local Land Use Plans*

As described above under the No-Build Alternative, the local land use plans for the jurisdictions along the project corridor include several goals and policies centered around establishing transit centers, maximizing transit service, accommodating future traffic demands, reducing reliance on the automobile, decreasing congestion, minimizing environmental impacts, increasing transit ridership, and developing compact pedestrian-oriented, mixed-use neighborhoods with accommodations for bicyclists. The TSM Alternative would involve transportation system upgrades, and would therefore not conflict with these local land use plans goals and policies.

#### *Incompatibility with Adjacent or Surrounding Land Uses*

The project corridor has existing transit service, and therefore, bus operations would be compatible with existing land uses. Under the TSM Alternative, Metro Rapid Line 761 and Local Line 233 bus routes would retain existing stop locations, and the existing stops along San Fernando Road would remain unchanged. It should be noted that modifications were made in December 2014 to one of the primary Metro bus routes operating on Van Nuys Boulevard after this project analysis was already underway. Metro Rapid Line 744 was added connecting Pacoima in the east to Northridge in the west, and traveling for a large portion of the route (north-south) along Van Nuys Boulevard, and replacing the Metro Rapid Line 761. For the purposes of this study, the evaluation was based on the routes (Metro Rapid Line 761 and Metro Local Line 233) that were already in place in 2012 when the transportation modeling for this study began. In addition, this alternative would not require the construction or expansion of a maintenance and storage facility (MSF), as the existing Metro Division 15 facility would be able to accommodate the 20 additional buses needed for this alternative. Therefore, development patterns would not be affected, and incompatible land uses would not occur as a result of this alternative.

## Cumulative Impacts

Per CEQA Section 15130 (b), the cumulative impacts analysis can consider either a "list of past, present, and probable future projects producing related or cumulative impacts" or "a summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect." The cumulative impacts analysis below is based on the approach that considers related projects listed in Section 4.1.3.1 under the cumulative impact analysis for the No-Build Alternative.

The study area for the cumulative impacts analyses encompasses the area in the immediate vicinity of the corridor as well as the local land use plan areas in which the project is located. During construction and operation, the TSM Alternative would not conflict with land use plans or policies, would not divide an established community, and would not be incompatible with nearby land uses; therefore, the TSM Alternative would not contribute to any significant cumulative land use impacts.

#### Compliance Requirements and Design Features

Station areas for the TSM Alternative would be designed in accordance with local codes and ordinances.

### Mitigation Measures

#### Construction Mitigation Measures

No construction mitigation measures are required.

#### Operational Mitigation Measures

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### NEPA Finding

No adverse effects would occur.

#### CEQA Determination

No adverse impacts would occur.

## 4.1.3.3 BRT Alternatives (Build Alternatives 1 and 2)

### Alternative 1 – Curb-Running BRT

#### Construction Impacts

##### *Division of an Established Community*

Construction of Alternative 1 would require temporary road, lane, and sidewalk closures, which would reduce pedestrian and vehicle mobility and access within and between local communities throughout the study area. However, these closures would be temporary and are not expected to substantially divide or diminish access to existing communities or neighborhoods. Additionally, implementation of a Traffic Management Plan and a Construction Phasing and Staging Plan would further reduce the disruption caused by construction activities and access to businesses and residential areas would be maintained to the extent feasible. Therefore impacts/effects would be less than significant under CEQA and not adverse under NEPA.

##### *Conflicts with Local Land Use Plans*

Construction activities would be conducted in compliance with local land use plans and codes. Project construction would typically take place between the hours of 7 a.m. and 9 p.m. within the City of Los Angeles, in accordance with the Los Angeles Municipal Code and between 7 a.m. and 6 p.m. within the City of San Fernando, in accordance with the San Fernando City Code. Municipal Code requirements. However, some construction may be required during nighttime hours. If it is necessary for construction to occur outside of these hours, Metro may seek a variance from Municipal Code requirements. In accordance with San Fernando City Code Section 34-28(10), noise sources associated with construction, repair, remodeling or grading of any real property would be allowed up to 70 decibels (dB) measured at the property line, provided such activities do not take place between the hours of 6:00 p.m. and 7:00 a.m. on weekdays and 6:00 p.m. and 8:00 a.m. on Saturdays, or at any time on Sundays or on federal holidays. Construction activities would be minimized during weekday AM and PM peak traffic periods (typically 7 to 9 a.m. and 4 to 6 p.m.). Therefore, substantial conflicts with local land use plans during the construction period are not expected to occur and impacts/effects would be less than significant under CEQA and not adverse under NEPA.

#### *Incompatibility with Adjacent and Surrounding Land Uses*

Construction activities along the alignment would result in temporary nuisance impacts (e.g., noise, air quality impacts) on nearby land uses. Construction noise would result from the use of heavy equipment during construction activities, such as excavation, grading, ground clearing, and installing foundations and structures, as well as from trucks hauling materials to and from the construction areas. Air quality impacts would result from the generation of fugitive dust during ground disturbing activities, and from the operation of heavy-duty, diesel-fueled equipment, such as bulldozers, trucks, and scrapers. Additionally, construction staging areas would be established near the project alignment and used for equipment and material storage. The staging areas would be located within the right-of-way, parking lots, or on vacant land and would not require land from adjacent properties. No land acquisitions would be required for construction staging areas. Nonetheless, activities at the construction staging areas, similar to other construction activities along the alignment, would result in nuisance impacts on nearby sensitive land uses. Where temporary construction impacts on nearby land uses are determined to be significant (e.g., noise impacts), the land use incompatibility impacts would also be considered to be significant. Therefore, impacts/effects would be potentially significant under CEQA and adverse under NEPA.

### Operational Impacts

#### *Regional Land Use and Development*

This alternative would be consistent with SCAG regional goals of encouraging land use and growth patterns that facilitate transit and non-motorized transportation and focusing growth along major transportation corridors in the region.

Alternative 1 could indirectly affect development in the study area by focusing growth in housing, employment, and commercial development within walking distance of the proposed transit stations along the project corridor. While this development pattern would be consistent with SCAG regional goals, Alternative 1 may attract businesses from other areas of the region to the immediate areas surrounding the proposed stations.

#### *Local Land Use and Development*

##### *Division of an Established Community*

Alternative 1 would operate entirely within existing transportation corridors, and would not introduce physical barriers that would divide the existing communities surrounding the project corridor. By providing improved bus transit service, this alternative would increase mobility and connectivity within the eastern San Fernando Valley area. No adverse impacts would occur.

*Conflicts with Local Land Use Plans*

As described above under the No-Build Alternative, the local land use plans for the jurisdictions along the project corridor include several goals and policies centered around establishing transit centers, maximizing transit service, accommodating future traffic demands, reducing reliance on the automobile, decreasing congestion, minimizing environmental impacts, increasing transit ridership, and developing compact pedestrian-oriented, mixed-use neighborhoods with accommodations for bicyclists. Alternative 1 would be consistent with or supportive of many of the goals and policies of the applicable jurisdictions along the project corridor. However, although Alternative 1 would result in regional transportation benefits due to projected increases in transit ridership, and reductions in overall vehicle miles and vehicle hours traveled compared to existing conditions, it could also result in significant adverse traffic impacts at some locations where a reduction in the number of mixed-flow travel lanes is necessary to accommodate a dedicated BRT lane. Specifically, Alternative 1 is projected to result in significant impacts (due to increases in vehicle delay) at 16 of 71 study intersections along the corridor (see Chapter 3 for a detailed discussion of transportation impacts). Therefore, Alternative 1 would result in localized traffic impacts, and would not achieve the congestion reduction objective specified in the City of Los Angeles General Plan, Transportation Element (Objective 2: To mitigate the impacts of traffic growth, reduce congestion, and improve air quality by implementing a comprehensive program of multimodal strategies that encompass physical and operational improvements as well as demand management). Alternative 1 would conflict with an objective and policy in the City of Los Angeles General Plan, Air Quality Element (Objective 3.2. It is the objective of the City of Los Angeles to reduce traffic during peak periods; and Policy 3.2.1. Manage traffic congestion during peak periods).

Under Alternative 1 - Curb-Running BRT Alternative, the existing Class II bike lanes on Van Nuys Boulevard north of Parthenia Street would be removed to make room for the dedicated transit lanes. These changes would conflict with the City's Bicycle Plan because designated bicycle lanes on Van Nuys Boulevard, which are included as part of the Backbone Bicycle Network, would not be feasible with the implementation of this alternative. Although this conflict would occur, it should be noted that the Van Nuys Boulevard corridor is also designated a Transit Priority Segment within the City of Los Angeles General Plan Framework Element. Also, the City's proposed Mobility Element 2035 of the General Plan states in Section 2.9 that on a street that is designated as a Transit Enhanced Network, but is also intended to receive a bicycle lane, design elements for the transit can take precedence over the provision of a bicycle lane. Additionally, the City's Bicycle Plan includes planned bicycle lanes on Woodman Avenue (one-mile to the east of and parallel to Van Nuys Boulevard) between Ventura Boulevard and the Osborne Street and Nordhoff Street corridors. Bicycle lanes are also planned to connect the Osborne Street corridor to San Fernando Road. In addition, bicycle access would still be allowed in the curbside lanes along the project corridor after project implementation. Typical bicycle accommodations would also be provided at BRT stations and on buses, including bicycle racks to provide options for passengers to leave their bicycles at the stations or to bring them onto buses. Therefore, while Class II bicycle lanes along Van Nuys Boulevard would not be possible under this alternative, the ability for bicyclists to access areas in the project corridor would be retained, and the project would achieve other local planning goals of reducing reliance on the automobile and increasing transit ridership.

Alternative 1 could result in localized impacts on air quality and noise from the additional buses on local roadways, which would produce additional air emissions, noise, and vibration. Because the alignment would run in proximity to residential and recreation areas, sensitive receptors could be adversely affected by these impacts, which would conflict with an objective in the City of Los Angeles General Plan, Noise Element (Objective 2: Reduce or eliminate nonairport related intrusive noise, especially relative to noise sensitive uses). To the extent that Alternative 1 results in other significant adverse environmental impacts (see other impacts discussions in Chapter 4 [e.g., air quality, noise]), it would further conflict with local land use plan goals and policies intended to minimize those environmental impacts. Therefore, given those potential conflicts and those discussed above, the potential impacts under CEQA are considered to be significant. However, under NEPA, based on the context and intensity of impacts and overall regional benefits, the impacts due to conflicts with local land use plans would not be adverse.

*Incompatibility with Adjacent and Surrounding Land Uses*

*Project Corridor*

While there would be some modifications to the project corridor (e.g., changes in bicycle lanes and turning movements), the project corridor is an existing transportation route with ongoing bus transit service; therefore, the proposed BRT operations would be compatible with existing land uses. In addition, this alternative would not require the construction or expansion of an MSF, as the existing Metro Division 15 facility would be able to accommodate the 10 additional buses needed for this alternative. Furthermore, this alternative would not require right-of-way acquisition to implement the proposed transportation improvements. Impacts would be considered less than significant.

*Stations*

Under this alternative, 18 stations would be located in areas that contain primarily commercial and residential uses. Stations would include aesthetic enhancements, such as landscaping and canopies, which would be compatible with adjacent and surrounding land uses. All current Metro Rapid bus stops would be upgraded with design enhancements that would comply with the Americans with Disabilities Act (ADA).

Impacts would be considered less than significant under CEQA and not adverse under NEPA.

### Cumulative Impacts

Per CEQA Section 15130 (b), the cumulative impacts analysis can consider either a "list of past, present, and probable future projects producing related or cumulative impacts" or "a summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect." The cumulative impacts analysis below is based on the approach that considers related projects listed in Table 2-3 of this EIS/EIR.

The study area for the cumulative impacts analyses encompasses the area in the immediate vicinity of the corridor as well as the local land use plan areas in which the project is located. During construction, this alternative would result in no adverse effects under NEPA, and impacts that are less than significant under CEQA due to a temporary reduction in mobility from traffic detours and street, lane, and sidewalk closures. With the implementation of a Traffic Management Plan and a Construction Phasing and Staging Plan, these temporary effects and impacts would be further reduced. Other present and reasonably foreseeable future projects in the area could result in temporary mobility impacts from construction activities, and impacts from past projects may also have resulted in temporary impacts. However, because these impacts are temporary, cumulative impacts would be less than significant. Because impacts under Alternative 1 would also be temporary, and impacts would be further reduced with the implementation of a Traffic Management Plan and a Construction Phasing and Staging Plan, the alternative's contribution to cumulative impacts during construction would not be cumulatively considerable.

Alternative 1 would result in operational beneficial effects by increasing connectivity within the eastern San Fernando Valley area, increasing transit ridership and mobility, and reducing overall vehicle miles and hours traveled. However, Alternative 1 would also result in localized traffic impacts at 16 of 73 study intersections due to increased congestion, and especially due to reduced mixed-flow roadway capacity along the corridor. Past projects have resulted in localized traffic impacts, and other present or reasonably foreseeable future projects in the area could further degrade traffic conditions in the area. However, since the related projects are either development projects or other projects which do not further reduce mixed-flow roadway capacity, the alternative's contribution to cumulative impacts during operation would not be cumulatively considerable.

### Compliance Requirements and Design Features

Station areas for this alternative would be designed in accordance with local codes and ordinances.

### Mitigation Measures

#### *Construction Mitigation Measures*

Please see other sections (e.g., 4.8 Noise and Vibration, 4.6 Air Quality) for measures to mitigate potentially significant adverse construction impacts on sensitive land uses near proposed construction. Specifically, Mitigation Measures MM-NOI-1a through MM-NOI-1d would require development of a Noise Control Plan, public notification of construction schedules, scheduling most construction activities during the daytime, as much as feasible, and use of methods and equipment that reduces noise, to the extent practicable. In addition, Mitigation Measure MM-VIB-1 also specifies use of equipment and methods to reduce vibration impacts. Mitigation Measures MM-AQ-1 through MM-AQ-6 would require that the construction contractor limit vehicle trips, idling of heavy equipment, and use of methods and equipment that reduces potential emissions and pollutants, to the extent feasible,

#### *Operational Mitigation Measures*

No feasible mitigation measures have been identified to mitigate the localized traffic impacts that would occur under this alternative.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Construction impacts would be temporary and can be mitigated, so Alternative 1 would result in no adverse effects during construction. However, since there would be no feasible mitigation measures that could reduce the localized traffic impacts so they would not conflict with plans, polices, and goals to reduce congestion; Alternative 1 would result in adverse operational effects under NEPA.

#### *CEQA Determination*

Construction impacts would be less than significant after mitigation. Operational impacts would be significant and unavoidable due to operational localized traffic congestion.

## Alternative 2 – Median-Running BRT

### Construction Impacts

#### *Division of an Established Community*

Impacts would be to the same as impacts anticipated to occur under Alternative 1.

#### *Conflicts with Local Land Use Plans*

Impacts anticipated to occur under this alternative would be to the same as impacts described for Alternative 1.

#### *Incompatibility with Adjacent and Surrounding Land Uses*

Impacts would be the same as impacts described for Alternative 1.

### Operational Impacts

#### *Regional Land Use and Development*

Impacts would be to the same as impacts anticipated to occur under Alternative 1.

#### *Local Land Use and Development*

*Division of an Established Community*

Impacts would be the same as impacts anticipated to occur under Alternative 1.

*Conflicts with Local Land Use Plans*

Impacts would be slightly greater in extent than the impacts anticipated to occur under Alternative 1. Under Alternative 2, significant traffic impacts would occur at 24 of the 73 study intersections versus 16 of 73 study intersections under Alternative 1. Therefore, Alternative 2would also conflict with local land use plan policies or objectives to reduce congestion, which would be a significant impact under CEQA. Impacts under NEPA would be adverse.

*Incompatibility with Adjacent and Surrounding Land Uses*

Impacts would be to the same as impacts anticipated to occur under Alternative 1.

### Cumulative Impacts

Impacts would be slightly greater (due to additional traffic impacts) than those described above for Alternative 1. Past projects have resulted in localized traffic impacts, and other present or reasonably foreseeable future projects in the area could further degrade traffic conditions in the area. However, since the related projects are either development projects or other projects which do not further reduce mixed-flow roadway capacity, the alternative's contribution to cumulative impacts during operation would not be cumulatively considerable.

#### *Compliance Requirements and Design Features*

Station areas for Alternative 2 would be designed in accordance with local codes and ordinances.

#### Mitigation Measures

##### *Construction Mitigation Measures*

See mitigation measures referenced under Alternative 1, as they would also be applicable to Alternative 2.

##### *Operational Mitigation Measures*

No feasible mitigation measures have been identified to mitigate the localized traffic impacts that would occur under this alternative, which would result in conflicts with land use plan policies and goals to reduce congestion.

#### Impacts Remaining After Mitigation

##### *NEPA Finding*

The effects of construction would not be adverse under NEPA, but operational effects of localized traffic congestion would remain adverse.

##### *CEQA Determination*

Construction impacts would be less than significant and operational impacts would be significant and unavoidable due to localized traffic congestion.

## 4.1.3.4 Rail Alternatives

### Alternative 3 – Low-Floor LRT Tram

#### Construction Impacts

##### *Division of an Established Community*

Construction of the Low-Floor LRT/Tram stations would require temporary sidewalk, lane, and street closures, and traffic detours and designated truck routes. Lane and street closures for the Low-Floor LRT/Tram would be greater in number than both Alternatives 1 and 2, due to the construction of additional infrastructure (e.g., Overhead Contact System (OCS), dedicated guideway).

Street, lane, and sidewalk closures could reduce pedestrian and vehicle mobility between communities throughout the study area during construction. However, these closures would be temporary and are not expected to substantially divide existing communities or neighborhoods. Additionally, implementation of a Traffic Management Plan and Construction Phasing and Staging Plan would further reduce the disruption caused by construction activities and access to businesses and residential areas would be maintained to the extent feasible. Therefore, impacts/ effects would be less than significant under CEQA and not adverse under NEPA.

##### *Conflicts with Local Land Use Plans*

Impacts would be potentially greater in extent than the impacts described for Alternative 1 and 2 due to the more extensive construction under this alternative compared to Alternatives 1 and 2. However, construction activities would be conducted in compliance with local land use plans and codes. Therefore, substantial conflicts with local land use plans during the construction period are not expected to occur and impacts/effects would be less than significant under CEQA and not adverse under NEPA.

#### *Incompatibility with Adjacent and Surrounding Land Uses*

Impacts would be greater in extent than the impacts that would occur under Alternatives 1 and 2. Construction activities along the alignment would result in temporary nuisance impacts (e.g., noise, air quality impacts) on nearby land uses. Construction noise would result from the use of heavy equipment during construction activities, such as excavation, grading, ground clearing, and installing foundations and structures, as well as from trucks hauling materials to and from the construction areas. Air quality impacts would result from the generation of fugitive dust during ground disturbing activities, and from the operation of heavy-duty, diesel-fueled equipment, such as bulldozers, trucks, and scrapers. The construction impacts on nearby sensitive land uses would be potentially significant under CEQA and adverse under NEPA.

### Operational Impacts

#### *Regional Land Use and Development*

Alternative 3 would be consistent with SCAG regional goals of encouraging land use and growth patterns that facilitate transit and non-motorized transportation and focusing growth along major transportation corridors in the region.

This alternative could indirectly affect development in the study area by focusing growth in housing, employment, and commercial development within walking distance of the proposed transit stations along the project corridor. While this development pattern would be consistent with SCAG regional goals, this alternative may attract businesses from other areas of the region to the immediate areas surrounding the proposed stations.

#### *Local Land Use and Development*

*Division of an Established Community*

Impacts would be slightly greater than those described for Alternatives 1 and 2. Under Alternative 3, to accommodate the Low-Floor LRT/Tram alignment in the median, additional turning restrictions would be implemented including prohibition of left turns from San Fernando Road through the City of San Fernando. Along Van Nuys Boulevard, left turns onto cross streets would be maintained at most of the currently signalized intersections where Alternative 3 would run in the median. However, all vehicle movements across the median at currently unsignalized intersections would be prohibited. Additionally, on all segments where the Low-Floor LRT/Tram operates in a semi-exclusive guideway, pedestrian crossings would be permitted only at signal-controlled intersections. Notwithstanding these turn and pedestrian crossing restrictions, given that the Alternative 3 alignment would be located along existing roadways and the fact that pedestrians and vehicles could still cross the alignment at specified locations throughout the corridor, this alternative would not divide an established community and impacts would be less than significant under CEQA and not adverse under NEPA.

*Conflicts with Local Land Use Plans*

Impacts would be slightly greater in magnitude than the impacts described for Alternatives 1 and 2. Under Alternative 3, significant traffic impacts would occur at 32 of 73 study intersections compared to 24 of the 73 study intersections under Alternative 2 and 16 of 73 study intersections under Alternative 1. Alternative 3 would result in localized traffic impacts, and would therefore not fully achieve the congestion reduction objective specified in the City of Los Angeles General Plan, Transportation Element (Objective 2: To mitigate the impacts of traffic growth, reduce congestion, and improve air quality by implementing a comprehensive program of multimodal strategies that encompass physical and operational improvements as well as demand management). In addition, Alternative 3 would conflict with an objective and policy in the City of Los Angeles General Plan, Air Quality Element (Objective 3.2. It is the objective of the City of Los Angeles to reduce traffic during peak periods; and Policy 3.2.1. Manage traffic congestion during peak periods). Therefore, would conflict with local land use plan policies or objectives to reduce congestion, which would be a significant impact under CEQA. However, Alternative 3 would provide regional transportation benefits by increasing transit ridership and reducing vehicle miles and hours traveled; therefore, impacts under NEPA would not be considered adverse.

Alternative 3 could also result in localized impacts on noise from the additional tram vehicles on local roadways, which would produce additional noise and vibration. Because the alignment would run in proximity to residential and recreation areas, sensitive receptors could be adversely affected by these impacts, which would conflict with an objective in the City of Los Angeles General Plan, Noise Element (Objective 2: Reduce or eliminate nonairport related intrusive noise, especially relative to noise sensitive uses). To the extent that Alternative 3 results in other significant adverse environmental impacts (e.g., see Section 4.8 – Noise and Vibration and discussion below), it would further conflict with any local land use plan goals and policies intended to minimize those environmental impacts. Therefore, given those potential conflicts and those discussed above, the potential impacts under CEQA are considered to be significant. However, under NEPA, based on the context and intensity of impacts and overall regional benefits, the impacts due to conflicts with local land use plans would not be considered adverse.

*Incompatibility with Adjacent and Surrounding Land Uses*

*Project Corridor*

While there would be some modifications to the project corridor (e.g., changes in bicycle lanes and tuning movements), the project corridor is an existing transportation route with ongoing bus transit service, and therefore, the proposed Low-floor LRT/Tram operations would generally be compatible with existing land uses. However, it should also be noted that operation of the Low-Floor LRT/Tram vehicles would result in significant, but mitigable, adverse noise impacts on nearby noise-sensitive uses at some locations along the alignment (see Section 4.8 – Noise and Vibration).

*Overhead Contact System*

This alternative would require an OCS that would include approximately 30-foot-tall steel poles about every 90 to 170 feet along the length of the right-of-way to support an electrical power line, which would be suspended above the tram tracks. According to the City of Los Angeles Zoning Code, structures up to 33 feet in height are allowed in low and medium residential zones.[9] In addition, because the project corridor is an existing transportation route in an urbanized area, the OCS would not conflict with adjacent and surrounding uses.

[9] City of Los Angeles. n.d. *Municipal Code, Chapter I (Planning and Zoning Code), Chapter I, General Provisions and Zoning, Article 2, Specific Planning – Zoning Comprehensive Zoning Plan*. Available: <http://www.amlegal.com/nxt/gateway.dll/California/lapz/municipalcodechapteriplanningandzoningco/chapterigeneralprovisionsandzoning/article2specificplanning-zoningcomprehen?f=templates$fn=default.htm$3.0$vid=amlegal:lapz_ca$anc=>. Accessed: February 13, 2013.

*Stations*

Under this alternative, 28 stations would be in areas that are primarily commercial and residential. Stations would include aesthetic enhancements, such as landscaping, canopies, and artwork, which would be compatible with adjacent and surrounding land uses.

*Maintenance and Storage Facility*

Under this alternative, construction of a new MSF would be required to accommodate both operational and administrative functions. The exact location of the proposed MSF has yet to be determined; however, three potential locations have been selected for consideration along Van Nuys Boulevard at Aetna, Keswick, and Arminta Streets. The selection of the candidate MSF locations were based on the following criteria to ensure compatibility with adjacent and surround land uses:

- Location within an industrialized area, to the extent feasible;
- Proximity to the alignment (Van Nuys Boulevard and San Fernando Road);
- Accessibility via rail tracks;
- Size of facility site; and
- Distance from noise-sensitive receptors, to the extent feasible.

The candidate MSF sites are located in commercial and industrial zones and are generally adjacent to existing transportation facilities. Therefore, the MSF sites would generally be compatible with adjacent and surrounding land uses; however, operational activities at the MSF sites including train movements into and out of the MSF would result in potentially significant noise impacts on some nearby sensitive uses. Additional details on the each of the candidate MSF sites and noise impacts are provided below (also see Section 4.8 – Noise and Vibration).

Option A – Aetna Street MSF Site

The candidate MSF site at Aetna Street is just south of the Metro Orange Line near the southern terminus of the proposed Low-floor LRT/Tram line. The site is comprised primarily of light and commercial manufacturing uses. Use of this site would require the acquisition of approximately 30 properties located in the Light Industrial (M2-1) and Commercial Manufacturing (CM-1) Zones. The lead tracks would be aligned south of the Metro Orange Line, which would require the acquisition of the adjacent auto dealership property that is used as parking. The proposed MSF is an allowed use in these zoning districts and would generally be compatible with adjacent and surrounding light industrial and manufacturing uses, as long as the MSF operations are conducted in compliance with the conditions in the City of Los Angeles Zoning Code for these districts. However, as discussed in the noise section of this EIS/EIR, significant noise impacts would occur at noise-sensitive uses near this MSF site.

Option B – Keswick Street MSF Site

The MSF site at Keswick Street is also just south of the Metrolink railroad tracks. The site is in a mainly industrial and commercial area, and has no adjacent residential properties. The site would require the acquisition of approximately 30 properties, the majority of which are located in the Light Industrial Zone (M2-1) with two properties in the Commercial Zone (C2-1). The proposed MSF is an allowed use in these zoning districts and would be compatible with adjacent and surrounding industrial and commercial uses, as long as the MSF operations are conducted in compliance with the conditions in the City of Los Angeles Zoning Code for these districts.

Option C – Arminta Street MSF Site

The MSF site at Arminta Street is just north of the Metrolink railroad tracks. The site is in a commercial area with residential properties to the north. The residential properties to the north would be buffered by a new 10-foot wide landscaping buffer inside the maintenance facility to reduce potential impacts. The site would require the acquisition of approximately 26 properties located in the Commercial Zone (C2-1). The proposed MSF is an allowed use in this zoning district and would be compatible with adjacent and surrounding commercial uses, as long as the MSF operations are conducted in compliance with the conditions in the City of Los Angeles Zoning Code for the C-2 district. However, as discussed in the noise section of this EIS/EIR, significant noise impacts would occur at noise-sensitive uses near this MSF site.

*Traction Power Substations*

This alternative would also require traction power substations (TPSS), which would be typically placed approximately every 0.8-mile. Eleven potential TPSS locations have been identified for this alternative based on initial examination of traction power needs. For each TPSS location, two options have been identified in case one is found infeasible. Existing Metro and City of Los Angeles properties are preferred TPSS locations to avoid property acquisitions. Car dealerships were specifically omitted from consideration because they are a major source of employment and tax revenue. Nonetheless, the potential exists that operation of some of the TPSS would result in significant noise impacts on nearby noise-sensitive land uses (see Section 4.8- Noise and Vibration).

To ensure compatibility with adjacent and surrounding land uses to the extent feasible, the majority of potential TPSS locations would be located near potential stations or the maintenance facility options. In addition, other proposed TPSS locations would be located in vacant lots, parking lots, commercial sites, and at roadway intersections to avoid conflicts with adjacent and surrounding land uses.

### Cumulative Impacts

The cumulative impacts under Alternative 3 would be slightly greater than those described above for Alternatives 1 and 2. As discussed above, Alternative 3 would result in localized traffic impacts at 32 of 73 study intersections. Operation of the Low-Floor LRT/Tram facilities would also generate additional noise that could result in noise impacts on some nearby sensitive land uses.

Past projects have resulted in localized traffic and noise impacts, and other present or reasonably foreseeable future projects in the area could further degrade traffic and noise conditions in the area. Therefore, cumulative impacts from past, present, and reasonably foreseeable future projects are significant. As a result, any adverse impacts from Alternative 3 would be considered cumulatively considerable.

However, since the related projects are either development projects or other projects which do not further reduce mixed-flow roadway capacity, the alternative's contribution to cumulative traffic impacts during operation would not be cumulatively considerable. In addition, because noise impacts resulting from Alternative 3 would be minimized or mitigated through mitigation measures, the alternative's contribution to cumulative noise impacts during operation would be reduced to less than cumulatively considerable after implementation of mitigation measures.

### Compliance Requirements and Design Features

Station areas for this alternative would be designed in accordance with local codes and ordinances.

### Mitigation Measures

#### *Construction Mitigation Measures*

See mitigation measures under Alternative 1.

#### *Operational Mitigation Measures*

No feasible mitigation measures have been identified to mitigate the localized traffic impacts that would occur under this alternative, which would conflict with land use plan policies and goals to reduce congestion. Please see Section 4.8 – Noise and Vibration for measures to mitigate potential noise and vibration impacts. Specifically, Mitigation Measures MM-NOI-2 through MM-NOI-4b include the construction of sound walls, the use of friction control (lubrication system), low-noise vehicles, track, TPSS equipment, and design and placement of the MSF site in consideration of sensitive receptors. In addition, Mitigation Measure MM-VIB-2 requires the installation of track and track equipment that reduces potential vibration due to operation of the rail vehicle near sensitive receptors.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The effects of construction would not be adverse under NEPA, but operational effects of localized traffic congestion would remain adverse.

#### *CEQA Determination*

Construction impacts would be less than significant. Operational impacts would be significant and unavoidable due to localized traffic congestion.

## Alternative 4 – LRT

### Construction Impacts

#### *Division of an Established Community*

Impacts would be greater in extent than the impacts described for Alternative 3, due to the potentially greater construction impacts along the subway portion of the alignment. Street, lane, and sidewalk closures could reduce pedestrian and vehicle mobility between communities throughout the study area during construction. However, these closures would be temporary and are not expected to substantially divide existing communities or neighborhoods. Additionally, implementation of a Traffic Management Plan and Construction Phasing and Staging Plan would further reduce the disruption caused by construction activities and access to businesses and residential areas would be maintained to the extent feasible. Therefore, impacts/ effects would be less than significant under CEQA and not adverse under NEPA.

#### *Conflicts with Local Land Use Plans*

Impacts would be to the same as the impacts described above for Alternatives 1, 2, and 3. Substantial conflicts with local land use plans during the construction period are not expected to occur and impacts/effects would be less than significant under CEQA and not adverse under NEPA.

#### *Incompatibility with Adjacent and Surrounding Land Uses*

Impacts would be to the same as the impacts described above for Alternative 3. Construction activities along the alignment would result in temporary nuisance impacts (e.g., noise, air quality impacts) on nearby land uses. Construction noise would result from the use of heavy equipment during construction activities, such as excavation, grading, ground clearing, and installing foundations and structures, as well as from trucks hauling materials to and from the construction areas. Air quality impacts would result from the generation of fugitive dust during ground disturbing activities, and from the operation of heavy-duty, diesel-fueled equipment, such as bulldozers, trucks, and scrapers.

The construction impacts on nearby sensitive land uses would be potentially significant under CEQA, due to impacts exceeding the applicable CEQA thresholds, and therefore would be incompatible with existing land use plans and codes, before mitigation.

Construction noise impacts are temporary, and given the requirement under NEPA that the context and intensity of an effect be considered when determining if it is a significant or substantial adverse effect, the construction land use incompatibility effects are not considered to be adverse under NEPA.

### Operational Impacts

#### *Regional Land Use and Development*

Impacts would be to the same as the impacts described for Alternative 3.

#### *Local Land Use and Development*

##### *Division of an Established Community*

Impacts would be the same as the impacts described for Alternative 3. This alternative would not divide an established community and impacts would be less than significant under CEQA and not adverse under NEPA.

##### *Conflicts with Local Land Use Plans*

Under Alternative 4, significant traffic impacts would occur at 20 of 73 study intersections, compared to 32 of 73 study intersections under Alternative 3; 24 of the 73 study intersections under Alternative 2; and 16 of 73 study intersections under Alternative 1. Given potential conflicts with local land use plans, as discussed under Alternative 3, the potential impacts under CEQA for Alternative 4 are considered to be significant. However, under NEPA, based on the context and intensity of impacts and overall regional benefits, the impacts due to conflicts with local land use plans would not be considered adverse.

##### *Incompatibility with Adjacent and Surrounding Land Uses*

*Project Corridor*

Impacts would be less than the impacts described under Alternative 3 above because LRT vehicles would be operating underground in the subway portion of the alignment; thus, air emissions, noise, and vibration from those vehicles would not affect sensitive receptors in residential or recreational areas along that portion of the project corridor. Therefore, it should be noted that placing a portion of the alignment in a subway would eliminate the at-grade noise and other impacts on nearby sensitive uses that would occur under Alternative 3.

*Overhead Contact System*

Impacts would be the same as the impacts described under Alternative 3 with the exception of the subway portion of the Alternative 4 alignment.

*Stations*

This alternative would include 14 stations, three of which would be underground near Sherman Way, the Van Nuys Metrolink station, and Roscoe Boulevard, in primarily commercial and residential areas. Stations would include aesthetic enhancements, such as landscaping, canopies, and artwork, which would be compatible with adjacent and surrounding land uses.

This alternative would require right-of-way acquisition of commercial properties and some vacant land near the proposed stations at Sherman Way, Roscoe Boulevard, Pacoima, Maclay Avenue, and the Sylmar/San Fernando Metrolink station. While this alternative would result in the conversion of some properties from commercial use to transportation to allow construction of the proposed stations, this alternative would promote transit service to these areas and would enhance access to adjacent and surrounding businesses.

*Maintenance and Storage Facility*

The impacts would be to the same as those described above for Alternative 3.

*Traction Power Substations*

The impacts would be the same as those described above for Alternative 3.

### Cumulative Impacts

The cumulative impacts would be to the same as those described above for Alternative 3.

### Compliance Requirements and Design Features

Station areas for this alternative would be designed in accordance with local codes and ordinances.

### Mitigation Measures

#### *Construction Mitigation Measures*

See mitigation measures under Alternative 1.

#### *Operational Mitigation Measures*

No feasible mitigation measures have been identified to mitigate the localized traffic impacts that would occur under this alternative, which would conflict with land use plan policies and goals to reduce congestion. Please see Section 4.8, Noise and Vibration, for measures to mitigate potential noise and vibration impacts. Specifically, Mitigation Measures MM-NOI-2 through MM-NOI-4b include the construction of sound walls, the use of friction control (lubrication system), low-noise vehicles, track, TPSS equipment, and design and placement of the MSF site in consideration of sensitive receptors. In addition, Mitigation Measure MM-VIB-2 requires the installation of track and track equipment that reduces potential vibration due to operation of the rail vehicle near sensitive receptors.

## Impacts Remaining After Mitigation

### *NEPA Finding*

The effects of construction would not be adverse under NEPA, but operational effects of localized traffic congestion would remain adverse.

### *CEQA Determination*

Construction impacts would be less than significant. Operational impacts would be significant and unavoidable due to localized traffic congestion.

# 4.2 Real Estate and Acquisitions

## 4.2.1 Regulatory Framework and Methodology

### 4.2.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's real estate and acquisitions impacts are listed below. For additional information regarding these regulations, please see the East San Fernando Valley Transit Corridor Draft EIS/EIR Real Estate and Acquisitions Technical Report (2015 Real Estate and Acquisitions Technical Report) in Appendix I of this Draft EIS/EIR.

#### Federal

- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970

#### State

- California Relocation Act

#### Local

There are no specific local regulations related to real estate acquisition for publicly funded projects within the city of Los Angeles and the city of San Fernando. Both cities require all such projects to comply with state and federal regulations.

### 4.2.1.2 Methodology

To assess the changes in land ownership (potential acquisition of residential and non-residential property) and leasing agreements that the project may create, conceptual engineering drawings and right-of-way (ROW) requirements for the proposed alignments and stations sites were reviewed. Private properties within the project study area that have the potential to be affected by implementation of the project were identified.

The number and types of property acquisitions were identified using a combination of aerial photography, limits-of-disturbance mapping, assessor's parcel maps, assessor's records, and selected field verification. Data for each property displaced include Assessor's Parcel Number (APN), address (when available), parcel size (square feet [sf]), current and intended use of the property, and the required amount of acquisition (sf).

Table 4.2-1 shows typical reasons for property acquisition and displacement that could occur as a result of project implementation. Either full acquisitions or partial acquisitions of properties may occur. A partial acquisition would occur if the project alternative would use a portion of a given parcel but would not require the entirety of the property. By contrast, a full acquisition would require the use of an entire property. Property acquisitions would result from the widening of roadways to accommodate the proposed busways, rail tracks, station areas, or ancillary facilities.

### Table 4.2-1: Typical Causes of Displacement during Construction

| Action | Typical Type of Acquisition | Cause of Displacement |
|---|---|---|
| Street widening | Partial | Additional width required near stations, crossings, etc. |
| Reducing access to a business (driveway or road) | Full/Partial | Damages resulting from reduced or restricted access |
| Station construction and operation | Full | Additional area required for station amenities such as platforms, ticketing areas, bus stops, parking, etc. |
| Vehicle maintenance facility construction and operation | Full | Additional area required to store and maintain vehicles |
| Source: ICF International, 2013. | | |

Displacement occurs when acquisition of a property requires the current occupants to vacate for project improvements to occur. Displacement may occur under two circumstances:

- When the majority of the property is required for the horizontal alignment because of insufficient ROW width or the need to construct stations or vehicle maintenance facilities; or
- When damage to the property is so great that compensation must be awarded for the entire value of the property (e.g., driveway access is eliminated or reduced as a result of construction).

## 4.2.1.3 CEQA Significance Thresholds

CEQA requires state and local government agencies to identify the significant environmental effects of proposed actions; however, CEQA does not describe specific significance thresholds. According to the Governor's Office of Planning and Research, significance thresholds for a given environmental effect are left to the discretion of the Lead Agency. Significance thresholds are the levels at which the Lead Agency finds the effects of the project to be significant.[1]

### State CEQA Guidelines

The State CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (State CEQA Guidelines, Section 15382).[2]

Although the State CEQA Guidelines do not describe specific significance thresholds, Appendix G of the State CEQA Guidelines lists a variety of potentially significant effects that are often used as thresholds or guidance in developing thresholds for determining impact significance. Accordingly, for the purposes of this EIS/EIR, a project would normally have a significant real estate and acquisitions impact, under CEQA, if it would:

[1] OPR (State of California, Governor's Office of Planning and Research). 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September.

[2] AEP. 2012. *California Environmental Quality Act (CEQA) Statute and Guidelines.* Reproduced with permission from the California Resources Agency.

- Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere; and/or
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

### L.A. CEQA Thresholds Guide

Real estate acquisition is covered by the *L.A. CEQA Thresholds Guide* insofar as it relates to population and housing displacement. The determination of significance is to be made on a case-by-case basis, taking into consideration the following factors:

- The total number of residential units to be demolished, converted to market rate, or removed through other means as a result of the project in terms of net loss of market-rate and affordable units.
- The current and anticipated housing demand and supply of market-rate and affordable housing units in the project study area.
- The land use and demographic characteristics of the project study area and the appropriateness of housing in the area.
- Whether the project is consistent with adopted City and regional housing policies, such as the Framework and Housing Elements, HUD Consolidated Plan and CHAS policies, redevelopment plan, Rent Stabilization Ordinance, and the Regional Comprehensive Plan and Guide.

## 4.2.2 Affected Environment/Existing Conditions

Land uses located at the southern end of the project corridor, near the Metro Orange Line, and extending north along Van Nuys Boulevard to Vanowen Street include banks, restaurants, medical offices, retail establishments, and other businesses. A portion of this segment also contains local, state, and federal government buildings, including the Van Nuys Civic Center. The next segment extending north along Van Nuys Boulevard to Titus Street includes a mix of restaurants, retail uses, and other businesses, which are interspersed with parking lots. From approximately Titus Street to Parthenia Street, small to large commercial businesses are scattered along Van Nuys Boulevard as are commercial centers, including the Panorama Mall. From Parthenia Street to I-5, residential uses (medium-density multi-family uses and some single-family residences) predominate, with community-serving retail uses generally located at major intersections. At the north end of the project corridor, along San Fernando Road and Truman Street, the land uses are primarily commercial and industrial. Land uses to the east and west, bordering the project alignment along Van Nuys Boulevard and San Fernando Road/Truman Street, are designated primarily residential and parkland.

## 4.2.3 Environmental Consequences, Impacts, and Mitigation Measures

By nature, property acquisitions occur prior to operation of a project. Therefore, all impacts related to real estate and acquisitions occur entirely within the construction phase of the project. No operational impacts would result under any of the alternatives. Therefore, no mitigation measures would be required under operation.

The discussion below discusses construction impacts only.

### 4.2.3.1 No-Build Alternative

#### Construction Impacts

Under the No-Build Alternative, no construction due to the proposed project would occur, and as a consequence, no displacement or acquisition of properties would be required. Therefore, no adverse impacts associated with displacements or relocations would occur.

#### Cumulative Impacts

Because the No-Build Alternative would result in no impacts, it would not contribute to any cumulative impacts.

#### Mitigation Measures

##### Construction Mitigation Measures

No mitigation measures are required.

#### Impacts Remaining After Mitigation

##### NEPA Finding

No adverse effects would occur.

##### CEQA Determination

No impacts would occur.

### 4.2.3.2 TSM Alternative

#### Construction Impacts

The TSM alternative would consist primarily of transportation system upgrades, such as increased bus efficiencies and service and minor physical improvements to existing roadways and bus stops. Construction of the physical improvements would not require any property acquisitions or result in displacement of existing uses. Therefore, no adverse impacts or effects associated with displacements or relocations would occur.

#### Cumulative Impacts

The TSM Alternative would not result in adverse construction impacts. Therefore, it would not contribute to any cumulative impacts.

#### Mitigation Measures

##### Construction Mitigation Measures

No mitigation measures are required.

#### Impacts Remaining After Mitigation

Less than significant.

#### NEPA Finding

No adverse effects would occur.

#### CEQA Determination

No impacts would occur under the TSM Alternative.

## 4.2.3.3 BRT Alternatives (Build Alternatives 1 and 2)

### Alternative 1 – Curb-Running BRT

#### Construction Impacts

Alternative 1 would not require the permanent acquisition of any property within the study area because it would involve primarily dedication of the existing curb lanes to bus service. No new facilities beyond bus stop improvements would be required. All improvements associated with Alternative 1 would take place within the existing transportation ROW. Therefore, no impacts associated with acquisitions of property would occur under Alternative 1.

#### Cumulative Impacts

Alternative 1 would not result in construction impacts and, therefore, would not contribute to any cumulative impacts.

#### Mitigation Measures

##### *Construction Mitigation Measures*

No construction mitigation measures would be required.

#### Impacts Remaining After Mitigation

##### *NEPA Finding*

No adverse effects associated with acquisitions of property would occur under Alternative 1.

##### *CEQA Determination*

No impacts associated with acquisitions of property would occur under Alternative 1.

### Alternative 2 – Median-Running BRT

#### Construction Impacts

Alternative 2 would not require the permanent acquisition of any property along the project corridor because it would involve primarily dedication of the median lane to bus service. No new facilities beyond bus stop improvements would be required. All improvements associated with Alternative 2 would take place within the existing transportation ROW. Therefore, no impacts associated with acquisitions of property would occur under Alternative 2.

#### Cumulative Impacts

Alternative 2 would not result in construction impacts and, therefore, would not contribute to cumulative acquisition impacts.

#### Mitigation Measures

##### *Construction Mitigation Measures*

No construction mitigation measures would be required.

#### Impacts Remaining After Mitigation

##### *NEPA Finding*

No adverse effects would occur.

##### *CEQA Determination*

No impacts would occur.

## 4.2.3.4 Rail Alternatives (Build Alternatives 3 and 4)

### Alternative 3 – Low-Floor LRT/Tram

#### Construction Impacts

The following discussion of the potential ROW acquisitions required to construct Alternative 3 is broken down into the ROW requirements for 1) the guideway, stations, and TPSS and 2) MSF sites. A summary of the potential property acquisition impacts follows the discussion of the acquisitions by component.

##### *Guideway, Stations, and TPSS*

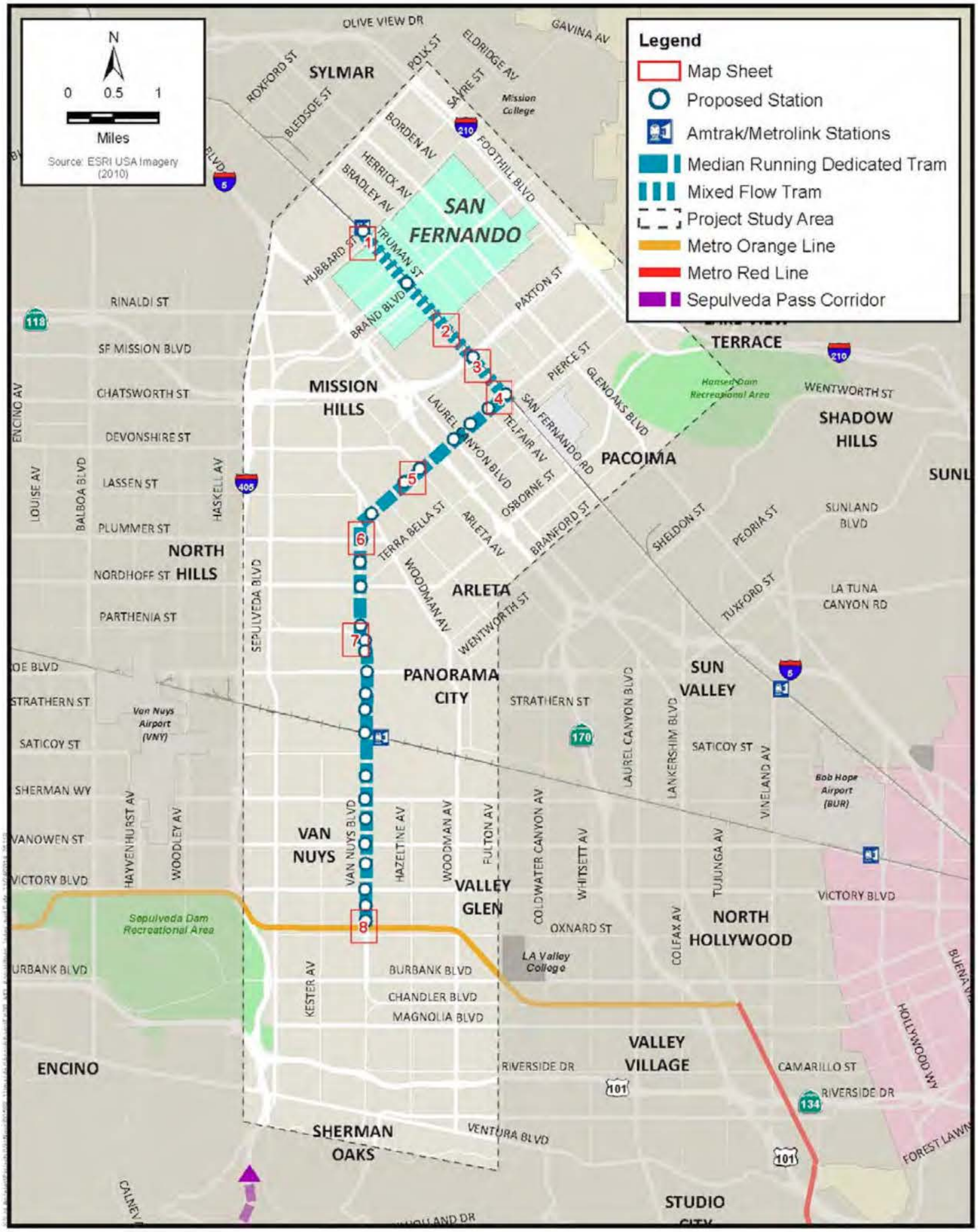
Alternative 3 would require full or partial acquisition of approximately 28 parcels to construct the guideway, stations, and TPSS. The acquisitions would consist of 25 full acquisitions and three partial acquisitions. Eleven property acquisitions would be required along the alignment to accommodate the TPSS facilities, which would be spaced approximately 1 to 1.5 miles apart. In addition, full acquisitions of 15 parcels would be required to accommodate the Low-Floor LRT/Tram guideway at the southwest corner of San Fernando Road and Van Nuys Boulevard and provide the necessary curve to transition the alignment to San Fernando Road. These parcels contain commercial retail businesses, which would require relocation. Two parcels between Weidner Street and the SR-118 on-/off-ramp at San Fernando Road would be acquired to accommodate a station platform. Table 4.2-2 lists the property acquisitions required to accommodate the Low-Floor LRT/Tram guideway and TPSS, and they are shown in Figure 4.2-1.

## Table 4.2-2: Alternative 3 Property Acquisitions – Guideway and TPSS

| AIN | Address | Jurisdiction | Current Use/ Occupant | Full or Partial Acquisition | Intended Use |
|---|---|---|---|---|---|
| 2241-027-003 | 6073 Van Nuys Blvd. | Los Angeles (Van Nuys) | Health and nutrition retail and food mart; Commercial Manufacturing | Full | TPSS Site |
| 2638-039-020 | 14608 Parthenia St. | Los Angeles (Panorama City) | El Super parking lot | Partial | TPSS Site |
| 2644-030-016 | 9462 Van Nuys Blvd. | Los Angeles (Panorama City) | General Commercial | Full | TPSS Site |
| 2644-025-901 | 9540 Van Nuys Blvd. | Los Angeles (Panorama City) | General Commercial; Low-Medium II Residential | Partial | TPSS Site |
| I-5 Freeway | N/A | Los Angeles (Arleta) | Public roadway | Partial/ Easement | TPSS Site |
| 2645-021-905 | N/A | Los Angeles (Arleta) | Low-Medium II Residential | Full | TPSS Site |
| 2619-017-036 | 13313 Van Nuys Blvd. | Los Angeles (Pacoima) | Neighborhood legal services; Community Commercial | Full | Guideway |
| 2619-017-012 | 13309 Van Nuys Blvd. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-011 | 13303 Van Nuys Blvd | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-010 | 13301 Van Nuys Blvd. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-009 | 13291 Van Nuys Blvd. | Los Angeles (Pacoima) | Restaurant; Community Commercial | Full | Guideway |
| 2619-017-008 | 13287 Van Nuys Blvd. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-007 | 13283 Van Nuys Blvd. | Los Angeles (Pacoima) | Veterinary hospital; Community Commercial | Full | Guideway |
| 2619-017-031 | 13281 Van Nuys Blvd. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-022 | 13326 Pinney St. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-023 | 13322 Pinney St. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-024 | 13320 Pinney St. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |

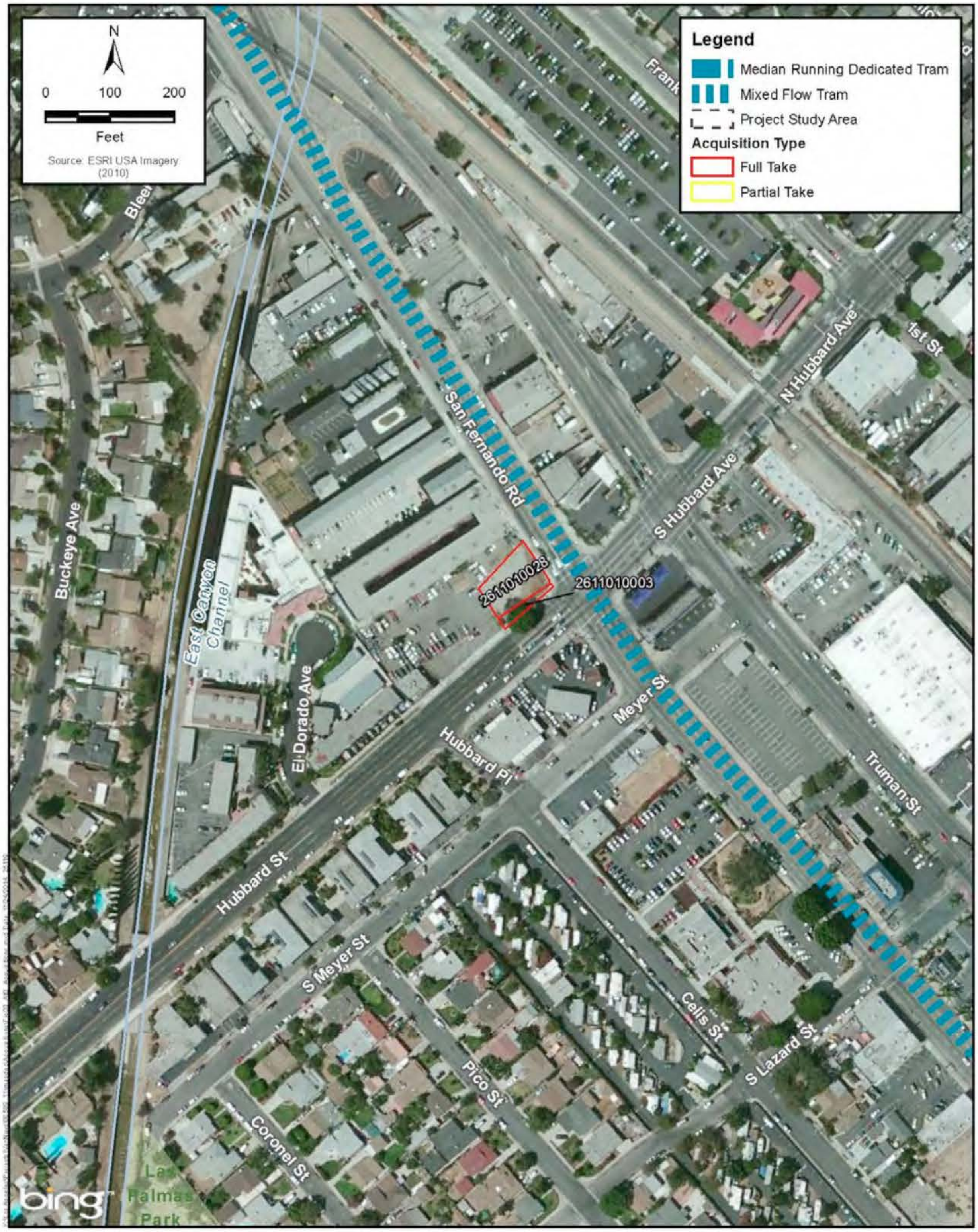
| AIN | Address | Jurisdiction | Current Use/ Occupant | Full or Partial Acquisition | Intended Use |
|---|---|---|---|---|---|
| 2619-017-025 | 13320 Pinney St. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-026 | N/A | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-037 | N/A | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-002 | 10823 San Fernando Road | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-035 | 10823 San Fernando Road, #10801 | Los Angeles (Pacoima) | Community Commercial | Full | TPSS Site |
| 2619-002-026 | 11033 San Fernando Road | Los Angeles (Pacoima) | Food mart and Pentecostal church; Commercial Manufacturing | Full | Station Platform |
| 2619-002-032 | 11057 San Fernando Road | Los Angeles (Pacoima) | Billiards hall and automotive parts; Commercial Manufacturing | Full | Station Platform |
| 2616-019-009 | 11321 San Fernando Road | Los Angeles (Pacoima) | Sand and building materials; Limited Manufacturing | Full | TPSS Site |
| 2616-018-029 | 11447 San Fernando Road | Los Angeles (Mission Hills) | Limited Manufacturing | Full | TPSS Site |
| 2611-010-003 | N/A | San Fernando | General Commercial | Full | TPSS Site |
| 2611-010-028 | N/A | San Fernando | General Commercial | Full | TPSS Site |
| Source: KOA Corporation, 2014; ICF, 2014; City of Los Angeles, 2014; Metro, 2017. | | | | | |

## Figure 4.2-1: Build Alternative 3 – Low-Floor LRT/Tram Alternative Acquisitions





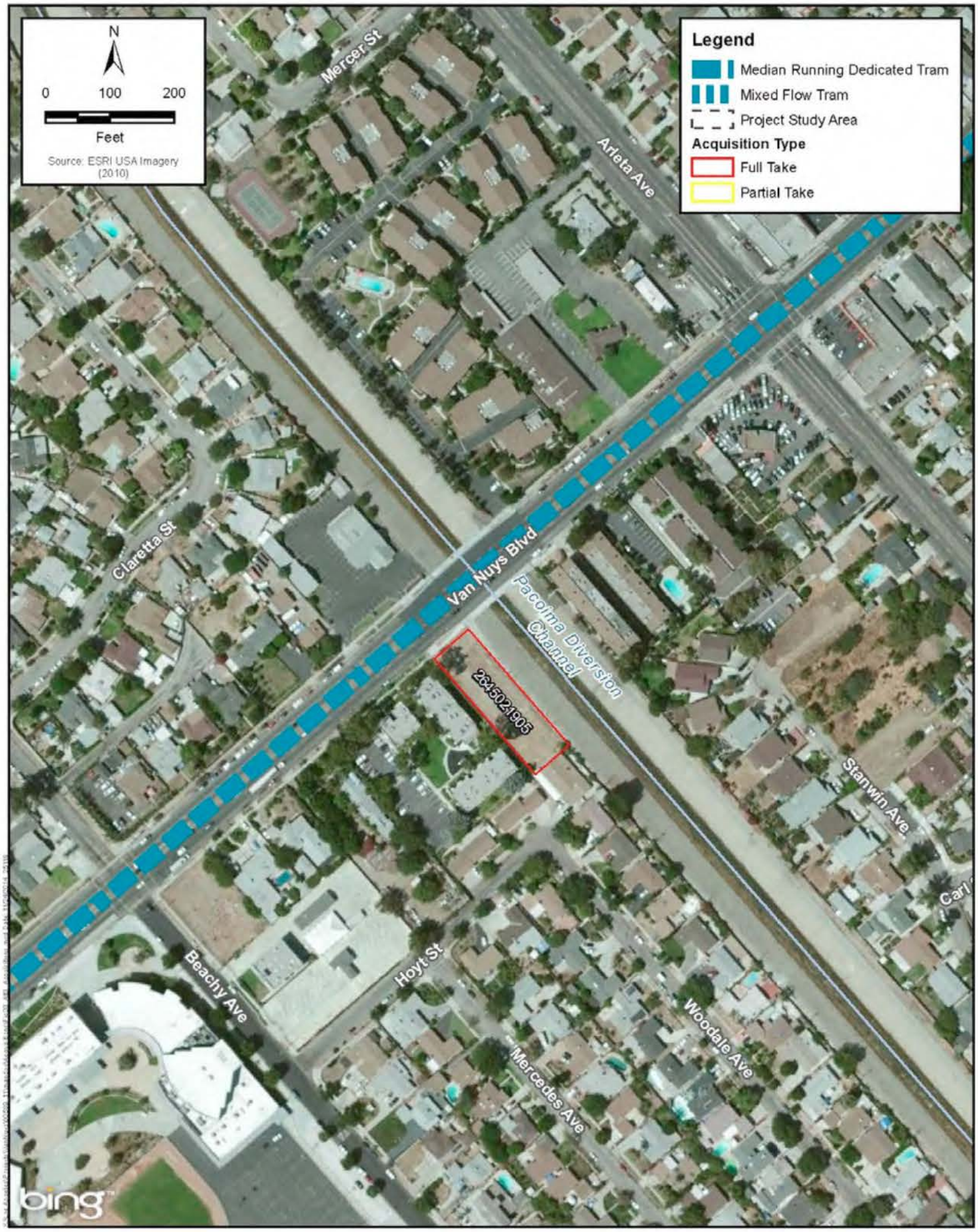

Metro


N
0 100 200
Feet
Source: ESRI USA Imagery (2010)
Legend
Median Running Dedicated Tram
Mixed Flow Tram
Project Study Area
Acquisition Type
Full Take
Partial Take
2611010028
2611010003
San Fernando Rd
S Hubbard Ave
N Hubbard Ave
1st St
Buckeye Ave
East Canyon Channel
El Dorado Ave
Meyer St
Hubbard Pl
Hubbard St
Truman St
S Meyer St
Celis St
S Lazard St
Pico St
Coronel St
Las Palmas Park
bing

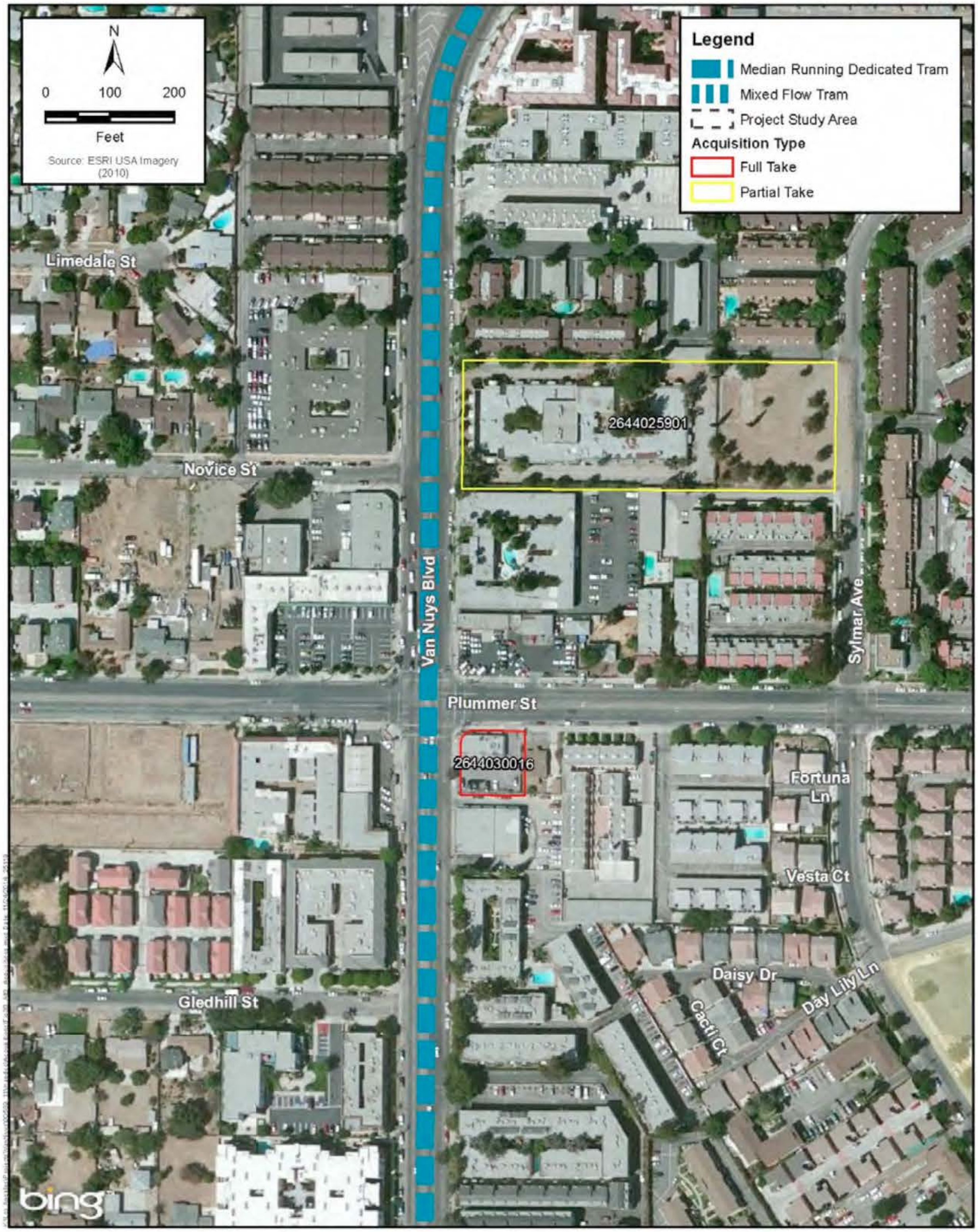

Legend
Median Running Dedicated Tram
Mixed Flow Tram
Project Study Area
Acquisition Type
Full Take
Partial Take
N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Recreation Park
1st St
La Rue St
Ilex Ave
El Dorado Ave
Pacoima Wash
San Fernando Rd
Del Sur St
Desmond St
2616018029
2616019009
bing


N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
Median Running Dedicated Tram
Mixed Flow Tram
Project Study Area
Acquisition Type
Full Take
Partial Take
118
Paxton St
San Fernando Rd
Sutter Ave
2619002032
2619002026
Daventry St
Weidner St
El Dorado Ave
Louvre St
Tamarack Ave
Filmore St
bing


N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
Median Running Dedicated Tram
Mixed Flow Tram
Project Study Area
Acquisition Type
Full Take
Partial Take
2619017037
2619017025
2619017002
2619017035
2619017023
2619017022
2619017026
2619017024
2619017031
2619017007
2619017008
2619017009
2619017010
2619017011
2619017012
2619017036
Mercer St
El Dorado Ave
Pinney St
San Fernando Rd
Sutter Ave
Van Nuys Blvd
Ilex Ave
Tamarack Ave
Telfair Ave
bing


N
0 100 200
Feet
Source: ESRI USA Imagery (2010)
Legend
Median Running Dedicated Tram
Mixed Flow Tram
Project Study Area
Acquisition Type
Full Take
Partial Take
Mercer St
Arleta Ave
Claretta St
Van Nuys Blvd
Pacoima Diversion Channel
2645021905
Stanwin Ave
Hoyt St
Beachy Ave
Woodale Ave
Mercedes Ave
bing


Metro


N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
Median Running Dedicated Tram
Mixed Flow Tram
Project Study Area
Acquisition Type
Full Take
Partial Take
Limedale St
Novice St
Van Nuys Blvd
Plummer St
Sylmar Ave
2644025901
2644030016
Fortuna Ln
Vesta Ct
Daisy Dr
Day Lily Ln
Cacti Ct
Gledhill St
bing


N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
Median Running Dedicated Tram
Mixed Flow Tram
Project Study Area
Acquisition Type
Full Take
Partial Take
Van Nuys Blvd
Parthenia St
Vesper Ave
Tobias Ave
2638039020
Panorama Mall
Chase St
Panorama Mall
bing


Source: ICF International, 2015.

### *MSF Sites*

In addition to ROW acquisitions required to construct the track and TPSS facilities associated with the rail alternatives, a number of parcels would be acquired to accommodate the MSF. The MSF site would require approximately 25 to 30 acres to provide enough space for storage of the maximum number of train vehicles and accommodate the associated operational needs, such as staff offices, dispatcher workstations, employee break rooms, operator areas, collision/body repair areas, paint booths, and wheel truing machines. Because of the space needs for the MSF, acquisition of between 37 and 58 parcels, depending on the MSF site selected, would be required. A discussion of the ROW acquisition requirements for each of the three proposed alternative MSF sites is presented below.

*MSF Option A*

MSF Option A would fully acquire 58 parcels between Calvert Street to the north, Oxnard Street to the south, and Kester Avenue to the west. The majority of the property that would be acquired consists of light manufacturing and commercial property, most of which contains businesses oriented toward automobile repair and supplies and other general commercial retail uses. Three parcels would also be fully acquired and though they are zoned for residential use, they are developed with a single parking lot serving an adjacent warehouse business. However, one parcel (2241-024-014) zoned for industrial use appears to include approximately four housing units. Accordingly, residential displacement would occur under MSF Option A. Table 4.2-3 provides a summary of the ROW acquisitions required for MSF Option A, and Figure 4.2-2 shows their locations.

**Table 4.2-3: MSF Option A ROW Acquisitions**

| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2241-024-016 | 6100 Kester Ave. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-024-014 | 14834 Calvert St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-024-015 | 14847 Bessemer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-024-019 | 14832 W. Calvert St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-024-018 | 14837 Bessemer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-024-010 | 14822 Calvert St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-024-012 | 14831 Bessemer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-024-017 | 14817 Bessemer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-024-007 | 14812 Calvert St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-024-005 | 14804 Calvert St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-024-006 | 14815 Bessemer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-024-004 | 14807 Bessemer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |

| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2241-024-002 | 14768 Calvert St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-024-001 | 14762 Calvert St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-024-003 | 14761 Bessemer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-023-012 | 14758. Calvert St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-023-013 | 14759 Bessemer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-023-011 | 14754 Calvert St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-023-014 | 14753 Bessemer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-023-009 | 14748 Calvert St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-023-010 | 14751 Bessemer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-023-008 | 14740 Calvert St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-023-007 | 14747 Bessemer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-023-005 | 14738 Calvert St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-023-006 | 14741 Bessemer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-023-004 | 14732 Calvert St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-023-003 | 14735 Bessemer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-023-017 | 14725 Bessemer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-023-016 | 6103 Cedros Ave. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-022-027 | N/A | Los Angeles (Van Nuys) | Medium Residential | Full | MSF |
| 2241-022-012 | 14654 Calvert St. | Los Angeles (Van Nuys) | Medium Residential | Full | MSF |
| 2241-022-011 | 14648 Calvert St. | Los Angeles (Van Nuys) | Medium Residential | Full | MSF |
| 2241-022-028 | 14645 Bessemer St. | Los Angeles (Van Nuys) | Commercial Manufacturing | Full | MSF |
| 2241-025-015 | 6028 Kester Ave. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-014 | 14843 Aetna St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |

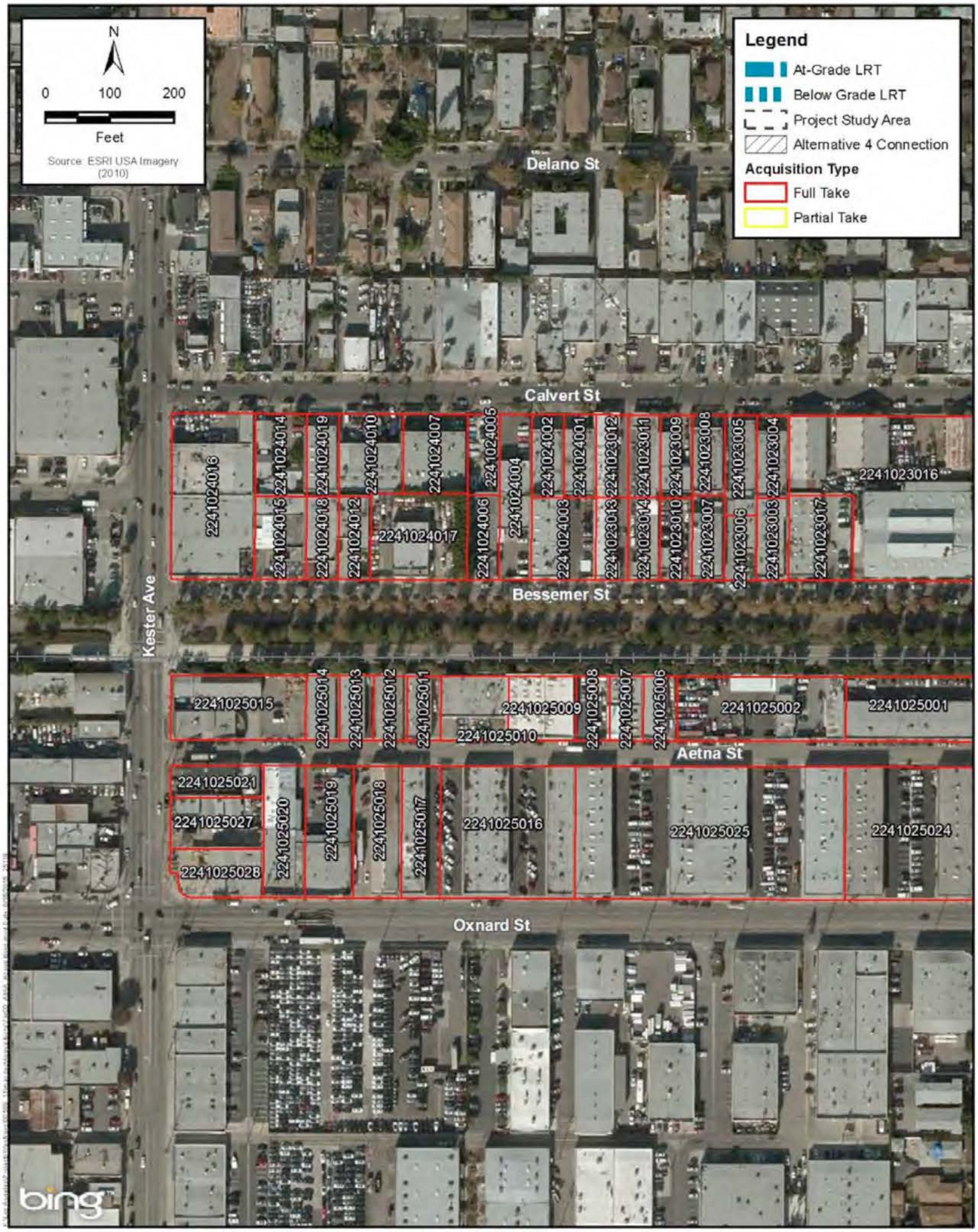
| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2241-025-013 | 14833 Aetna St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-012 | 14829 Aetna St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-011 | 14823 Aetna St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-010 | 14821 Aetna St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-009 | 14807 Aetna St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-008 | 14807 Aetna St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-007 | 14755 Aetna St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-006 | 14753 Aetna St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-002 | 14723 Aetna St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-001 | 14705 Aetna St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-021 | 6018 Kester Ave. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-027 | 6014 Kester Ave. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-028 | 6000 Kester Ave. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-020 | 14845 Oxnard St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-019 | 14837 Oxnard St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-018 | 14833 Oxnard St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-017 | 14817 Oxnard St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-016 | 14811 Oxnard St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-025 | 14757 Oxnard St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-025-024 | 14703 Oxnard St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2241-026-004 | 14641 Aetna St. | Los Angeles (Van Nuys) | Commercial Manufacturing | Full | MSF |
| 2241-026-003 | 14637 W. Aetna St. | Los Angeles (Van Nuys) | Commercial Manufacturing | Full | MSF |
| 2241-026-002 | 14633 W. Aetna St. | Los Angeles (Van Nuys) | Commercial Manufacturing | Full | MSF |
| Source: KOA Corporation, 2014; ICF, 2014; City of Los Angeles, 2014; Metro, 2017. | | | | | |

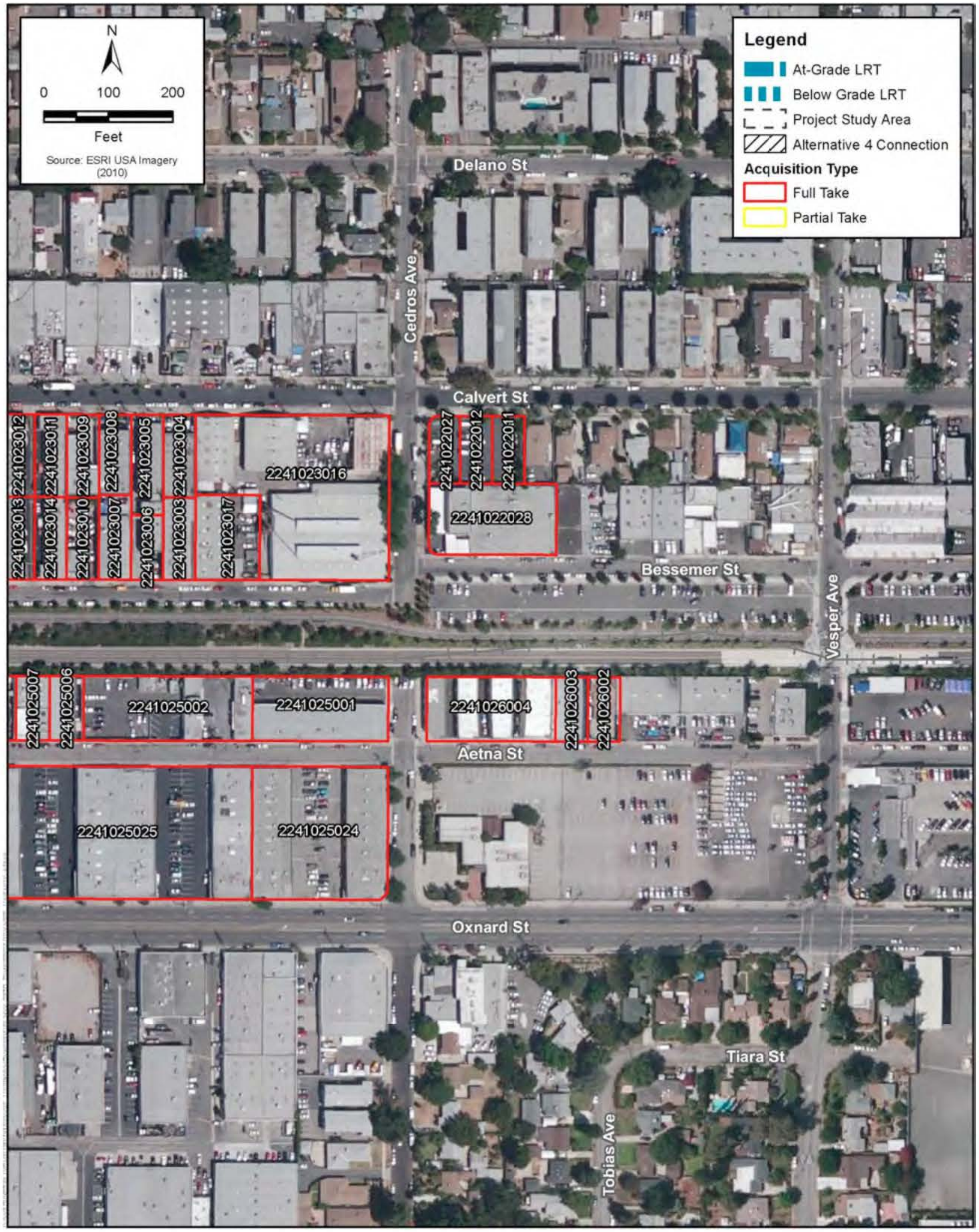
# Figure 4.2-2: MSF Option A Acquisitions



Metro


N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Arminta St
Van Nuys
Cabrito Rd
Raymer St
Keswick St
2215001907
2215001912
Saticoy St
bing


N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Delano St
Calvert St
Bessemer St
Kester Ave
Aetna St
Oxnard St
2241024016
2241024014
2241024019
2241024010
2241024007
2241024005
2241024004
2241024002
2241024001
2241023012
2241023011
2241023009
2241023008
2241023005
2241023004
2241023016
2241024015
2241024018
2241024012
2241024017
2241024006
2241024003
2241023013
2241023014
2241023010
2241023007
2241023006
2241023003
2241023017
2241025015
2241025014
2241025013
2241025012
2241025011
2241025009
2241025010
2241025008
2241025007
2241025006
2241025002
2241025001
2241025021
2241025027
2241025028
2241025020
2241025019
2241025018
2241025017
2241025016
2241025025
2241025024
bing


N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Delano St
Cedros Ave
Calvert St
Bessemer St
Vesper Ave
Aetna St
Oxnard St
Tiara St
Tobias Ave
2241023012
2241023011
2241023009
2241023008
2241023005
2241023004
2241023016
2241023013
2241023014
2241023010
2241023007
2241023006
2241023003
2241023017
2241022027
2241022012
2241022011
2241022028
2241025007
2241025006
2241025002
2241025001
2241026004
2241026003
2241026002
2241025025
2241025024


Source : ICF International, 2017.



Metro

In addition to the parcels listed above, one additional full acquisition would be required to connect the Alternative 3 guideway to the MSF Option A site. This property is identified below in Table 4.2-4.

### Table 4.2-4: Alternative 3 MSF Option A ROW Acquisitions for Access

| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2241-027-003 | 6077 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | Commercial Manufacturing | Full | Alignment |
| Source: KOA Corporation, 2014; ICF, 2014; City of Los Angeles, 2014. | | | | | |

*MSF Option B*

MSF Option B would require 37 full acquisitions along Keswick Street and Raymer Street. A majority of the property that would be acquired consists of light manufacturing and commercial property, most of which contains businesses oriented toward automobile repair and supplies or raw materials supply and manufacturing. Table 4.2-5 lists the properties that would be acquired under MSF Option B, and Figure 4.2-3 shows their locations.

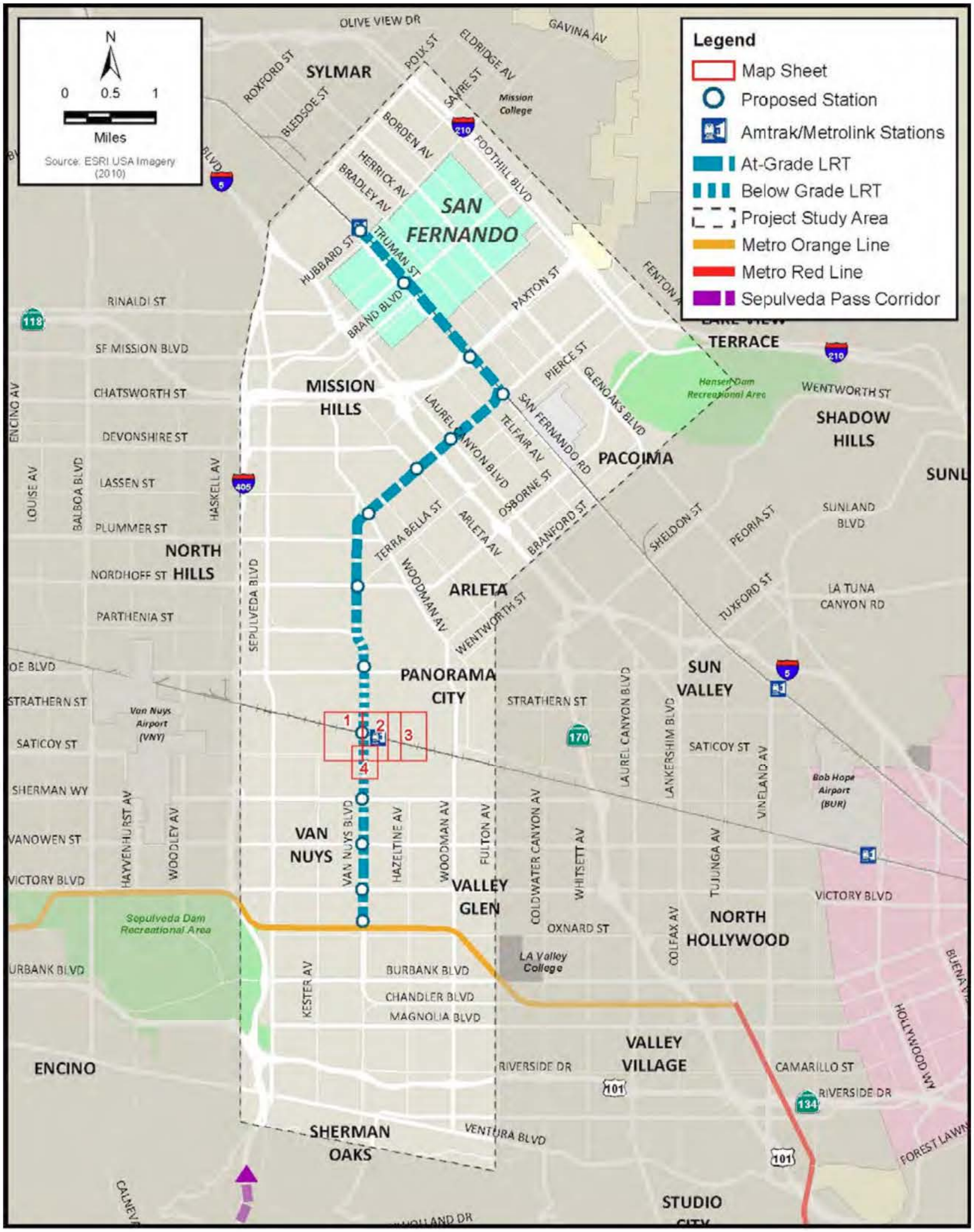
### Table 4.2-5: MSF Option B ROW Acquisitions

| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2210-025-013 | 14766 Raymer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-048 | 14746 Raymer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-045 | 14742 Raymer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-018 | 14747 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-017 | 14751 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-019 | 14757 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-049 | 14745 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-016 | 14743 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-015 | 14737 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-036 | 14731 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-044 | 14718 Raymer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-010 | 14704 Raymer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |

| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2210-025-008 | 14660 Raymer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-007 | 14646 Raymer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-009 | 14663 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-034 | 14663 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-035 | 14645 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-025-005 | 14635 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-017 | 14626 Raymer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-018 | 14606 Raymer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-019 | N/A | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-028 | 14556 Raymer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-029 | 14546 Raymer St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-030 | N/A | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-031 | N/A | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-024 | 14617 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-016 | 14605 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-014 | N/A | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-013 | 14555 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-009 | N/A | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-010 | N/A | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-011 | 14545 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-008 | 14533 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-030-007 | 14523 Keswick St. | Los Angeles (Van Nuys) | Light Manufacturing | Full | MSF |
| 2210-031-021 | 14524 Keswick St. | Los Angeles (Van Nuys) | Limited Manufacturing | Full | MSF |

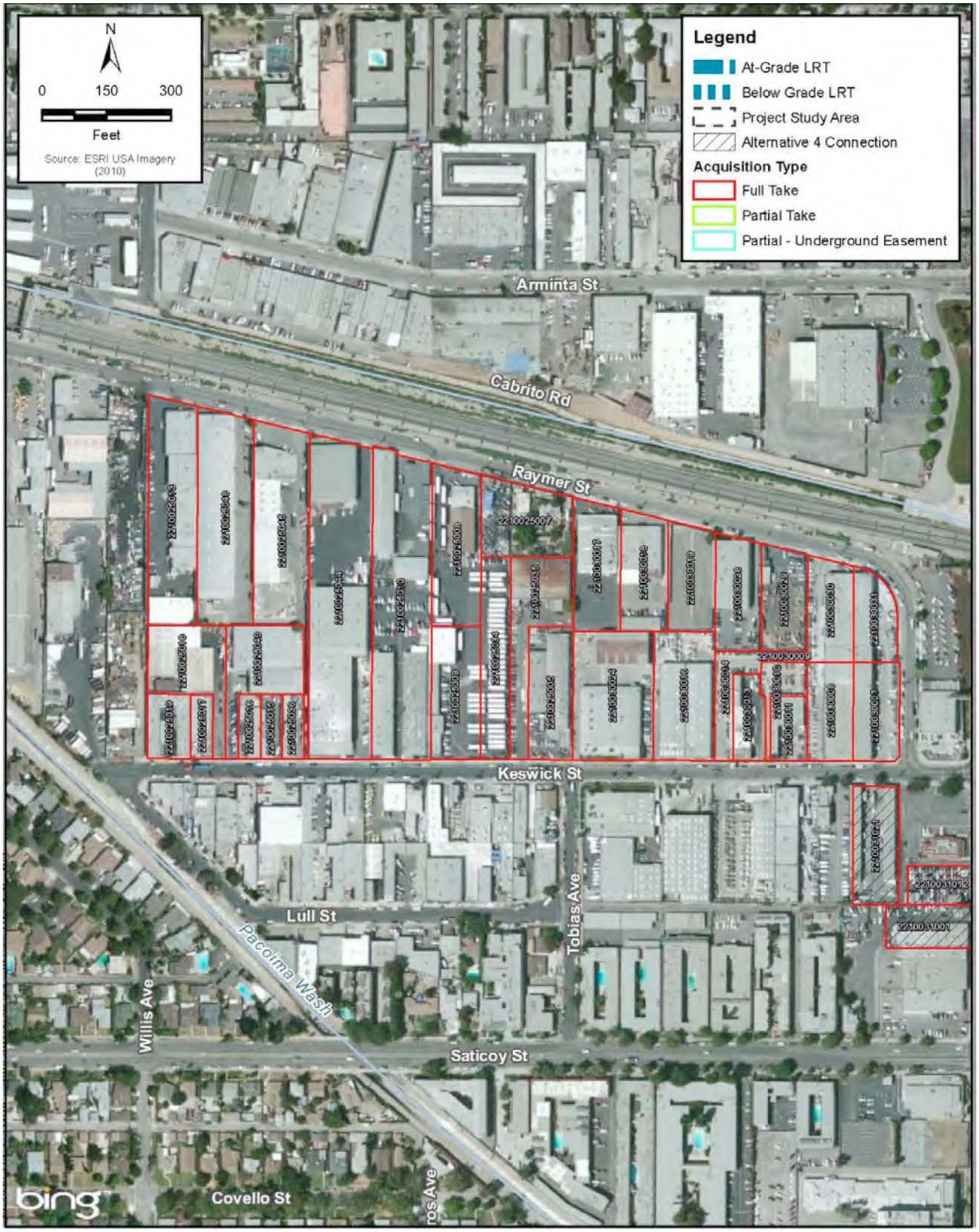
| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2210-031-012 | 7639 Van Nuys Blvd. | Los Angeles (Van Nuys) | General Commercial | Full | MSF |
| 2210-031-001 | 7627 Van Nuys Blvd. | Los Angeles (Van Nuys) | General Commercial | Full | MSF |
| Source: KOA Corporation, 2014; ICF, 2014; City of Los Angeles, 2014; Metro, 2017. | | | | | |

## Figure 4.2-3: MSF Option B Acquisitions



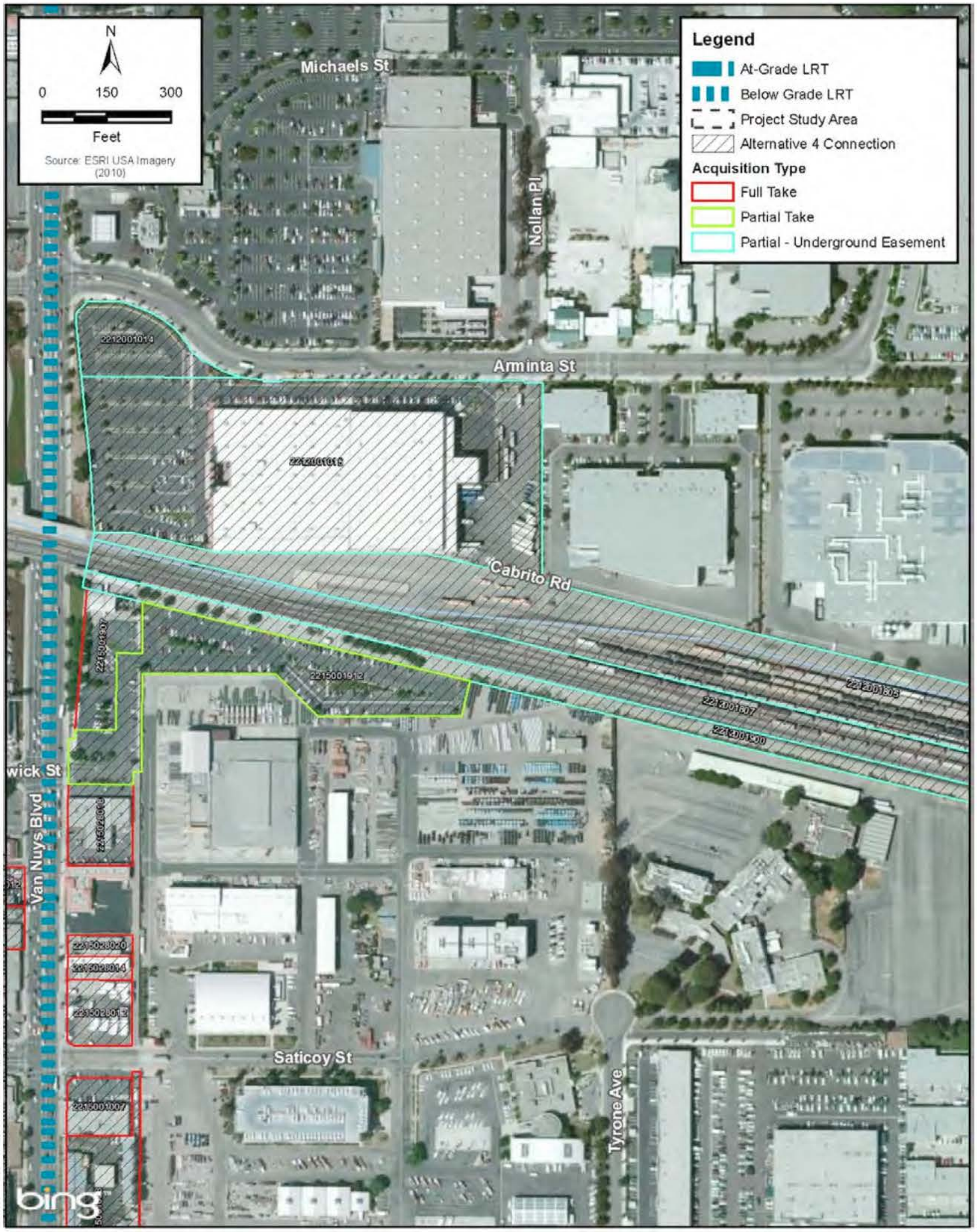


Metro


N
0
150
300
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Partial - Underground Easement
Arminta St
Cabrito Rd
Raymer St
Keswick St
Lull St
Tobias Ave
Pacoima Wash
Willis Ave
Saticoy St
Covello St
2210025007
2210030009
2210031012
2210031001



Metro

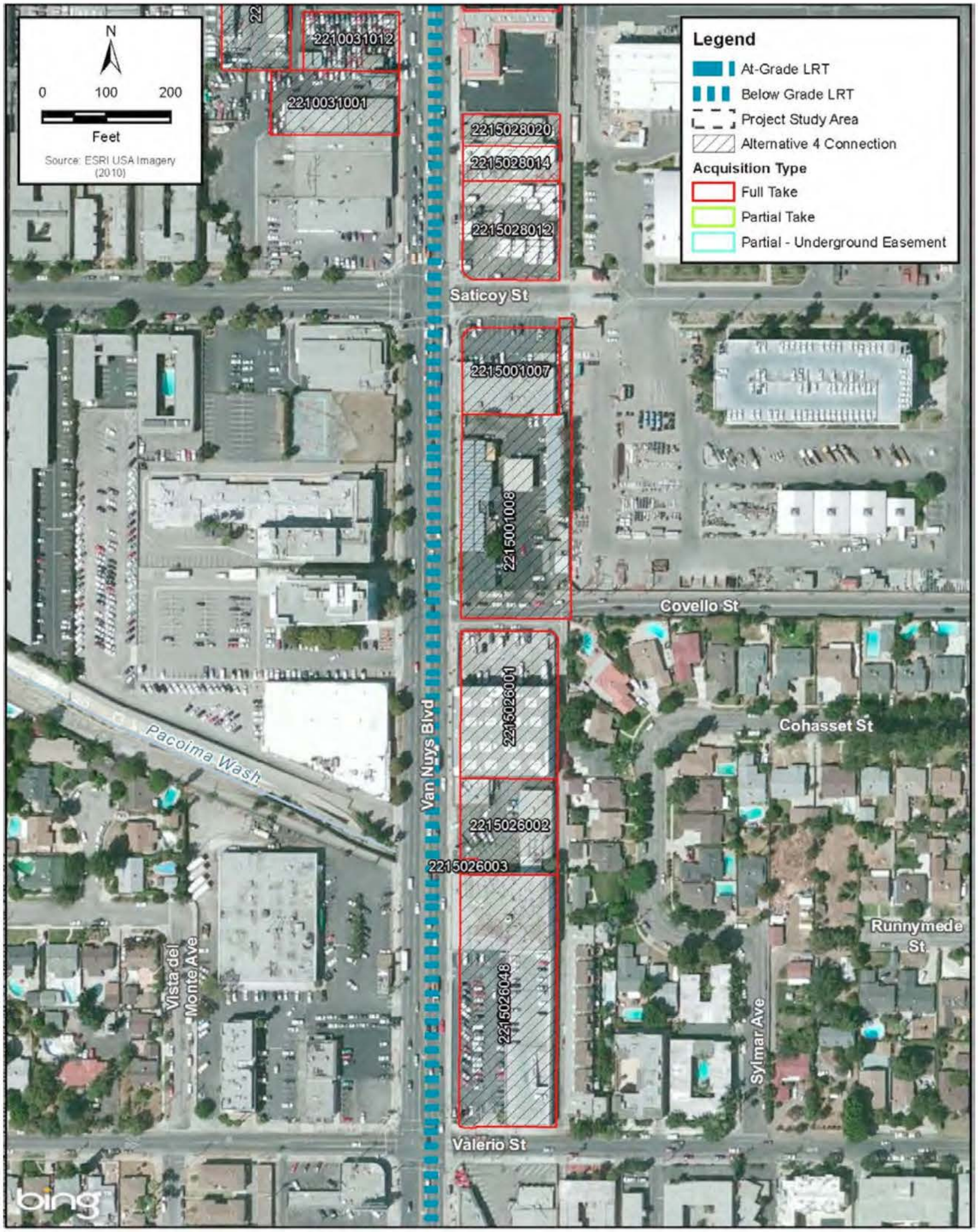

N
0 150 300
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Partial - Underground Easement
Michaels St
Nollan Pl
Arminta St
Cabrito Rd
wick St
Van Nuys Blvd
Saticoy St
Tyrone Ave


Metro


N
0
150
300
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Partial - Underground Easement
Nelson Rd
Stansbury Ave
Hazeltine Ave
Arminta St
Stagg St
Stroud St
Cabrito Rd
Saticoy St
2212001805
2212001807
2212001900
bing



Metro




Source : ICF International, 2015.

### *MSF Option C*

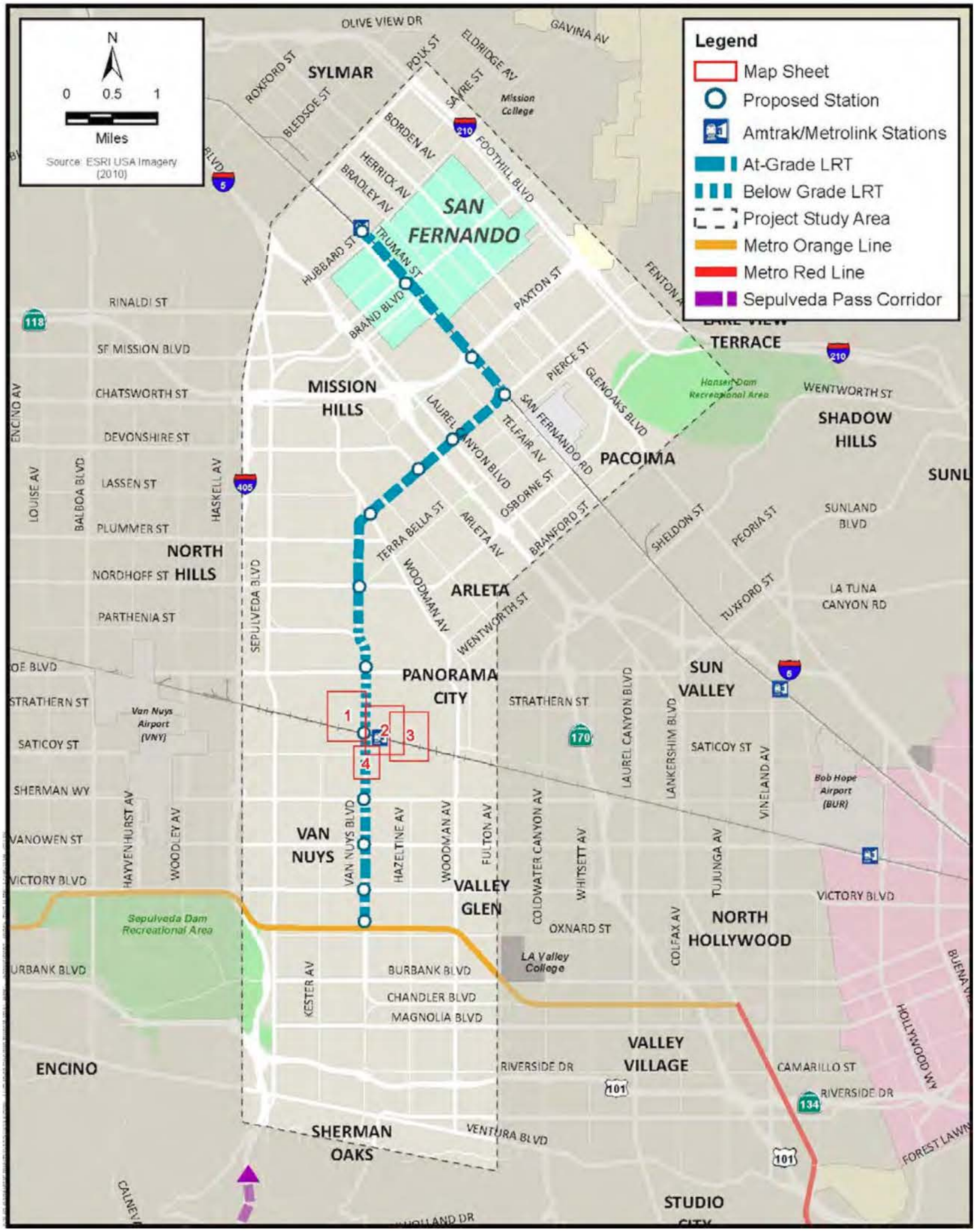
MSF Option C would require the acquisition of 42 parcels including 41 full acquisitions along Arminta Street and Cabrito Road. As with Option B, a majority of the property that would be acquired consists of light manufacturing and commercial property oriented toward automobile repair and raw materials supply and manufacturing. Table 4.2-6 lists the ROW acquisitions required for MSF Option C and Figure 4.2-4 shows their locations.

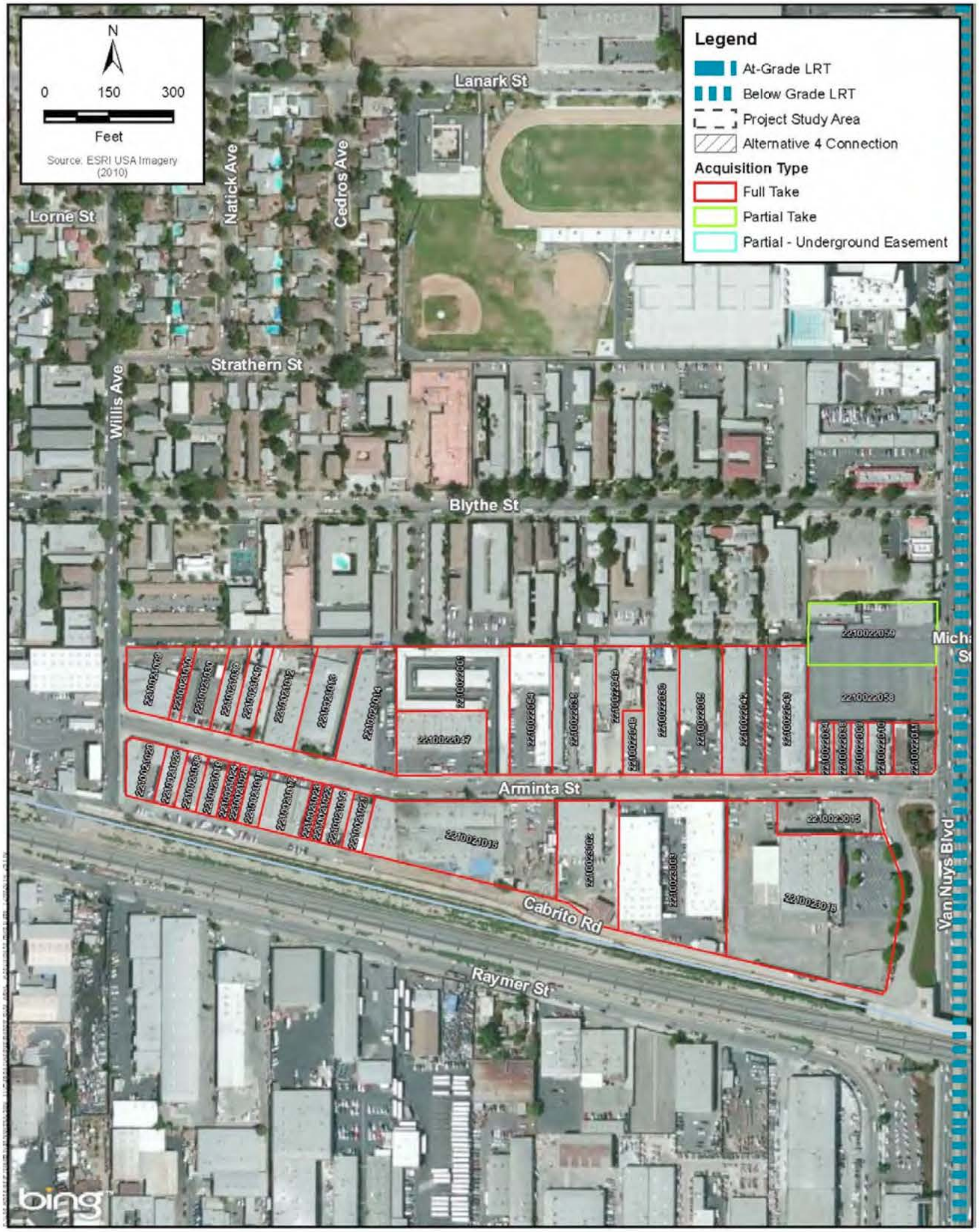
## Table 4.2-6: MSF Option C ROW Acquisitions

| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2210-021-009 | 14757 Arminta St. | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-021-010 | 14753 Arminta St. | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-021-030 | 14751 Arminta St. | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-021-039 | 14743 Arminta St. | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-021-040 | 14737 Arminta St. | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-021-012 | 14725 Arminta St. | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-021-013 | 14715 Arminta St | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-021-014 | 14701 Arminta | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-022-001 | 14647 Arminta St. | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-022-047 | 14649 Arminta St. | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-022-054 | 14631 Arminta St. | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-022-035 | 14621 Arminta St. | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-022-049 | 14617 Arminta St. | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-022-048 | 14611 Arminta St. | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-022-030 | 14603 Arminta St. | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-022-005 | 14601 Arminta St. | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-022-042 | 14541 Arminta St. | Los Angeles (Panorama City) | Limited Manufacturing | Full | MSF |
| 2210-022-043 | 14535 Arminta St. | Los Angeles (Panorama City) | Regional Commercial | Full | MSF |
| 2210-022-059 | 7905 Van Nuys Blvd. | Los Angeles (Panorama City) | Regional Commercial | Partial | MSF |

| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2210-022-058 | 7869 Van Nuys Blvd. | Los Angeles (Panorama City) | Regional Commercial | Full | MSF |
| 2210-022-034 | 14525 W. Arminta St. | Los Angeles (Panorama City) | Regional Commercial | Full | MSF |
| 2210-022-038 | 14521 W. Arminta St. | Los Angeles (Panorama City) | Regional Commercial | Full | MSF |
| 2210-022-009 | 14517 Arminta St. | Los Angeles (Panorama City) | Regional Commercial | Full | MSF |
| 2210-022-010 | 14515 Arminta St. | Los Angeles (Panorama City) | Regional Commercial | Full | MSF |
| 2210-022-011 | 7855 Van Nuys Blvd. | Los Angeles (Panorama City) | Regional Commercial | Full | MSF |
| 2210-021-020 | 14756 Arminta St. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| 2210-021-026 | 14752 Arminta St. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| 2210-021-038 | 14744 Arminta St. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| 2210-021-019 | 14740 Arminta St. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| 2210-021-024 | 13736 Arminta St. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| 2210-021-028 | 14734 Arminta St. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| 2210-021-018 | 14730 Arminta St. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| 2210-021-017 | 14720 Arminta St. | Los Angeles (Panorama City) | Regional Commercial | Full | MSF |
| 2210-021-023 | 14718 Arminta St. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| 2210-021-022 | 14716 Arminta St. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| 2210-021-016 | 14710 Arminta St. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| 2210-021-021 | 14706 Arminta St. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| 2210-021-015 | 14660 Arminta St. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| 2210-023-002 | 14620 Arminta St. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| 2210-023-003 | 14600 Arminta St. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| 2210-023-018 | 7815 Van Nuys Blvd. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| 2210-023-015 | 14528 Arminta St. | Los Angeles (Panorama City) | Light Manufacturing | Full | MSF |
| Source: KOA Corporation, 2014; ICF, 2014; City of Los Angeles, 2014; Metro, 2017. | | | | | |

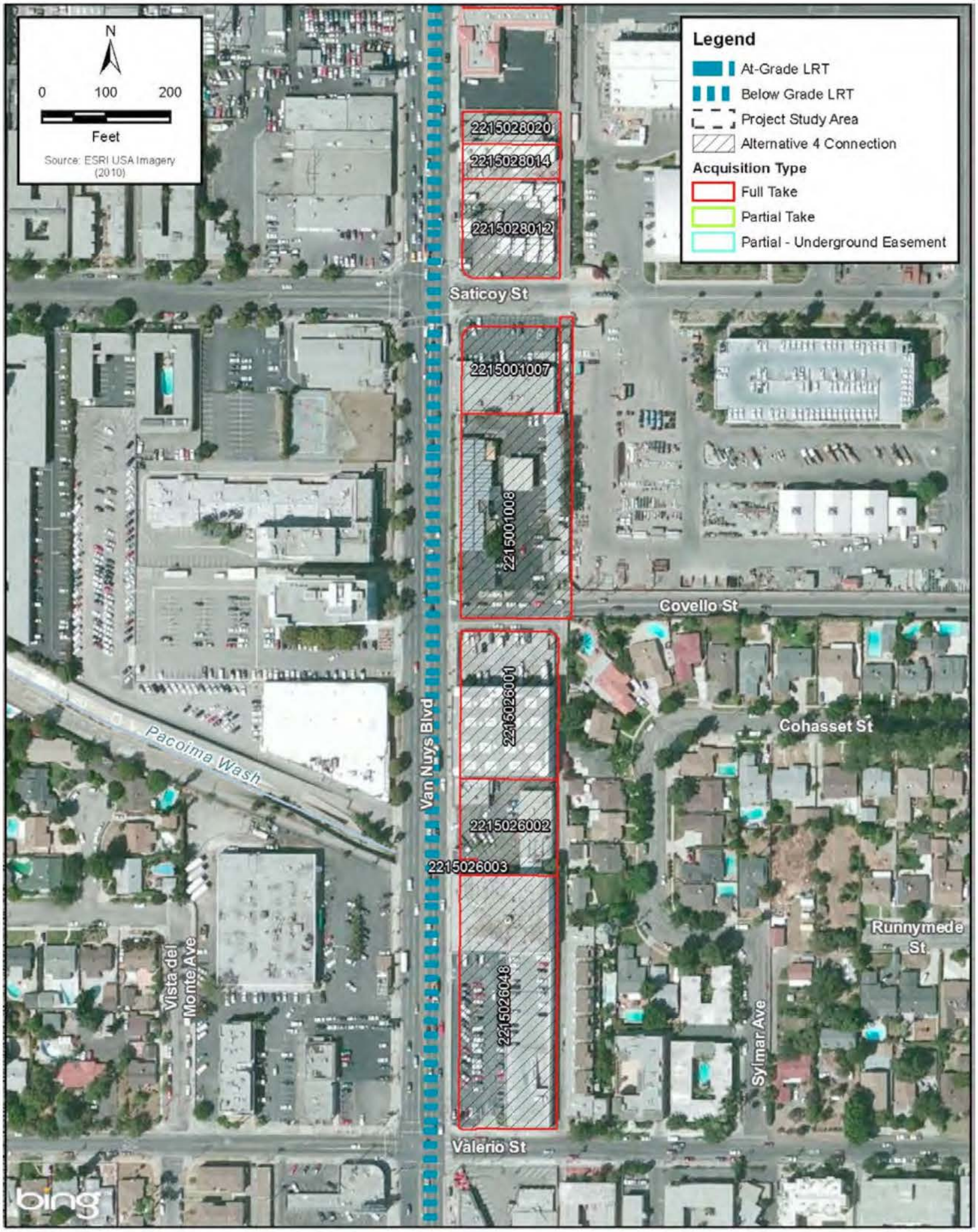
## Figure 4.2-4: MSF Option C Acquisitions




N
0
150
300
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Partial - Underground Easement
Lanark St
Lorne St
Natick Ave
Cedros Ave
Strathern St
Willis Ave
Blythe St
Arminta St
Cabrito Rd
Raymer St
Van Nuys Blvd
2210022059
2210022058
2210022047
2210023015
2210023018
bing


N
0
150
300
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Partial - Underground Easement
Michaels St
Nollan Pl
Nelson Rd
Arminta St
Cabrito Rd
Van Nuys Blvd
Saticoy St
Tyrone Ave


N
0 150 300
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Partial - Underground Easement
Nelson Rd
Stansbury Ave
Hazeltine Ave
Arminta St
Stagg St
Stroud St
Cabrito Rd
Saticoy St
bing




Source: ICF International, 2015.


Metro

### Summary of ROW Acquisition Impacts for Alternative 3

The ROW acquisition impacts that could occur due to Alternative 3 (as well as the other alternatives) are summarized in Table 4.2-7 below.

**Table 4.2-7: Summary of Acquisitions by Alternative**

| Alternative and MSF Options | | Affected Parcels | | | |
|---|---|---|---|---|---|
| | | Full | Partial | PUE | Total |
| No-Build Alternative | | 0 | 0 | 0 | 0 |
| TSM Alternative | | 0 | 0 | 0 | 0 |
| Alternative 1 – Curb-Running BRT | | 0 | 0 | 0 | 0 |
| Alternative 2 – Median-Running BRT | | 0 | 0 | 0 | 0 |
| Alternative 3 – Low-Floor LRT/Tram | MSF Option A | 84 | 3 | 0 | 87 |
| | MSF Option B | 62 | 3 | 0 | 65 |
| | MSF Option C | 66 | 4 | 0 | 70 |
| Alternative 4 - LRT | MSF Option A | 106 | 11 | 0 | 117 |
| | MSF Option B | 93 | 11 | 6 | 110 |
| | MSF Option C | 97 | 12 | 8 | 117 |

Note: Full = Full Acquisition, Partial = Partial Acquisition, PUE = Permanent Underground Easement
Source: KOA Corporation.

As shown in Table 4.2-7, Alternative 3 could require between 65 and 87 acquisitions of properties, most of which would be full acquisitions. Most of the acquisitions that would be required are commercial or industrial properties (MSF Option A would require the full acquisition of four residential units).

Due to the large number of business displacements, which include a number of industrial/manufacturing businesses, there may not be enough available real estate in the immediate vicinity of the businesses' existing locations to accommodate all of the displaced businesses. However, a review of online commercial real estate listings revealed that there were eight industrial properties and 19 commercial properties for sale within 1.5 miles of the project corridor and an additional 105 industrial and 141 commercial spaces for lease as of December 2014.[3] Thus, there appears to be an adequate number of available properties within a short distance (1.5 miles) of the study area to accommodate the displaced businesses.

Where acquisition and relocation are unavoidable, Metro would comply with the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended and implemented pursuant to the Uniform Relocation Assistance and Real Property Acquisition Regulations for Federal and Federally Assisted Programs adopted by the U.S. Department of Transportation (USDOT), dated February 3, 2005. Metro would apply acquisition and relocation policies to ensure compliance with the Uniform Relocation Act and amendments. All real property acquired by Metro would be appraised to determine its fair market value. Just compensation, which shall not be less than the approved appraisal made to each property owner, would be offered by Metro. Each homeowner, renter, business, or nonprofit organization displaced as a result of the project would be given advance written notice and would be informed of the eligibility requirements for relocation assistance and payments. The locations of the proposed ROW acquisitions under Alternative 3 are provided in Table 4.2-2.

[3] LoopNet.com property search by map area. Available: http://www.loopnet.com/. Accessed: December, 9 2014.

Because the study area and surrounding urban area are almost entirely built out and given the number of existing buildings for sale or lease in the immediate area, it is expected that most of the businesses that would be displaced because of Alternative 3 would relocate to existing commercial buildings. Thus, it is not anticipated that construction of a substantial amount of new commercial development that could result in substantial adverse impacts on the environment would occur. Therefore, substantial adverse indirect effects related to displacement and relocation are not anticipated under Alternative 3.

For an analysis of the effects of displaced businesses on the local community and environmental justice populations, please see Section 4.4 Communities and Neighborhoods, and Section 4.17 Environmental Justice of this EIS/EIR document.

### Cumulative Impacts

The study area for the cumulative impacts discussion would encompass the local communities that surround the proposed project alignment because it is likely that most of the businesses or residents that would be displaced by the project would relocate to properties within this study area. As described above, Alternative 3 would result in acquisitions of commercial and industrial properties within the study area. In addition, MSF Option A would result in the acquisition and displacement of one parcel that appears to include four housing units that could require relocation of four families. Metro would comply with the provisions of the Uniform Act and pay fair market value for properties that are acquired and provide relocation assistance to displaced businesses and residents.

Based on the cumulative projects list, which consists primarily of mixed-use and residential housing developments in residentially zoned areas, there does not appear to be any projects that would result in substantial displacement of businesses or residences. Although Alternative 3 would displace a large number of businesses and, under MSF Option A, four residences, it is anticipated that the majority of displaced businesses and residents could be relocated within the study area or in surrounding communities. In addition, it is not anticipated that relocated businesses or residences that would be displaced by the project would require construction of a substantial amount of commercial and industrial development or new housing that would result in substantial adverse indirect impacts. As a consequence, the proposed and related projects are not expected to result in substantial adverse cumulative real estate and acquisitions impacts.

### *Compliance Requirements and Design Features*

Metro would provide relocation assistance and compensation for all displaced businesses, as required by both the Uniform Act and the California Act. The details of these laws regarding relocation assistance and compensation for property acquisitions are described in Sections 2.1.1 and 2.1.2 of the 2015 Real Estate and Acquisitions Technical Report. Where acquisitions and relocations are unavoidable, FTA and Metro would follow the provisions of both acts and their amendments. All real property acquired by Metro would be appraised to determine its fair market value. Just compensation, which shall not be less than the approved appraisal, would be made to each property owner. Each business displaced as a result of the project would be given advance written notice and would be informed of its eligibility for relocation assistance and payments. It is anticipated that where relocation would be required, it would result in the relocation of most of the jobs that would be displaced. Therefore, there would be no net loss of jobs overall. This would result in no adverse impacts related to job loss.

### Mitigation Measures

#### *Construction Mitigation Measures*

No mitigation measures are required (see discussion above regarding compliance requirements and design features required by law).

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Under NEPA, the effects of Alternative 3 would not be adverse.

#### *CEQA Determination*

Alternative 3 would result in impacts that are less than significant under CEQA.

## Alternative 4 – LRT

### Construction Impacts

#### *Guideway, Stations, and TPSS*

Alternative 4 would require the full or partial acquisition of approximately 55 parcels to construct the guideway and TPSS facilities. Of these 55 acquisitions, 44 would be full acquisitions and 11 would be partial acquisitions. TPSS facilities would be located along the project alignment and require 13 property acquisitions, of which 12 would be full acquisitions and one would be a partial acquisition of a grocery store parking lot. The remaining 42 property acquisitions would be required to accommodate the project guideway and station platforms. Twenty-one such acquisitions, including 10 acquisitions in the city of San Fernando, would be located near the Alternative 4 terminus and would be required due to the partial relocation of Metrolink tracks to accommodate the Alternative 4 guideway and station platform at the Sylmar/San Fernando Metrolink Station. Within the city of San Fernando, land uses abut the existing Metrolink ROW, which is relatively narrow between Jessie Street and the Sylmar/San Fernando Metrolink Station. Additional space would be required to fully accommodate both the Metrolink and tracks/guideway. As such, small partial acquisitions of seven properties and three full acquisitions would be required in this location. As would occur under Alternative 3, full acquisitions of 16 parcels containing commercial properties would be required to accommodate the LRT guideway at the southwest corner of San Fernando Road and Van Nuys Boulevard to provide the necessary curve to transition the alignment to San Fernando Road. Two station platforms, the Roscoe Station and the Sherman Way Station, would require the acquisition of several commercial properties. Table 4.2-8 lists the ROW acquisitions required for Alternative 4 guideways, stations, and TPSS. Figure 4.2-5 shows the locations of these acquisitions.

## Table 4.2-8: Alternative 4 Property Acquisitions – Guideway, Stations, and TPSS

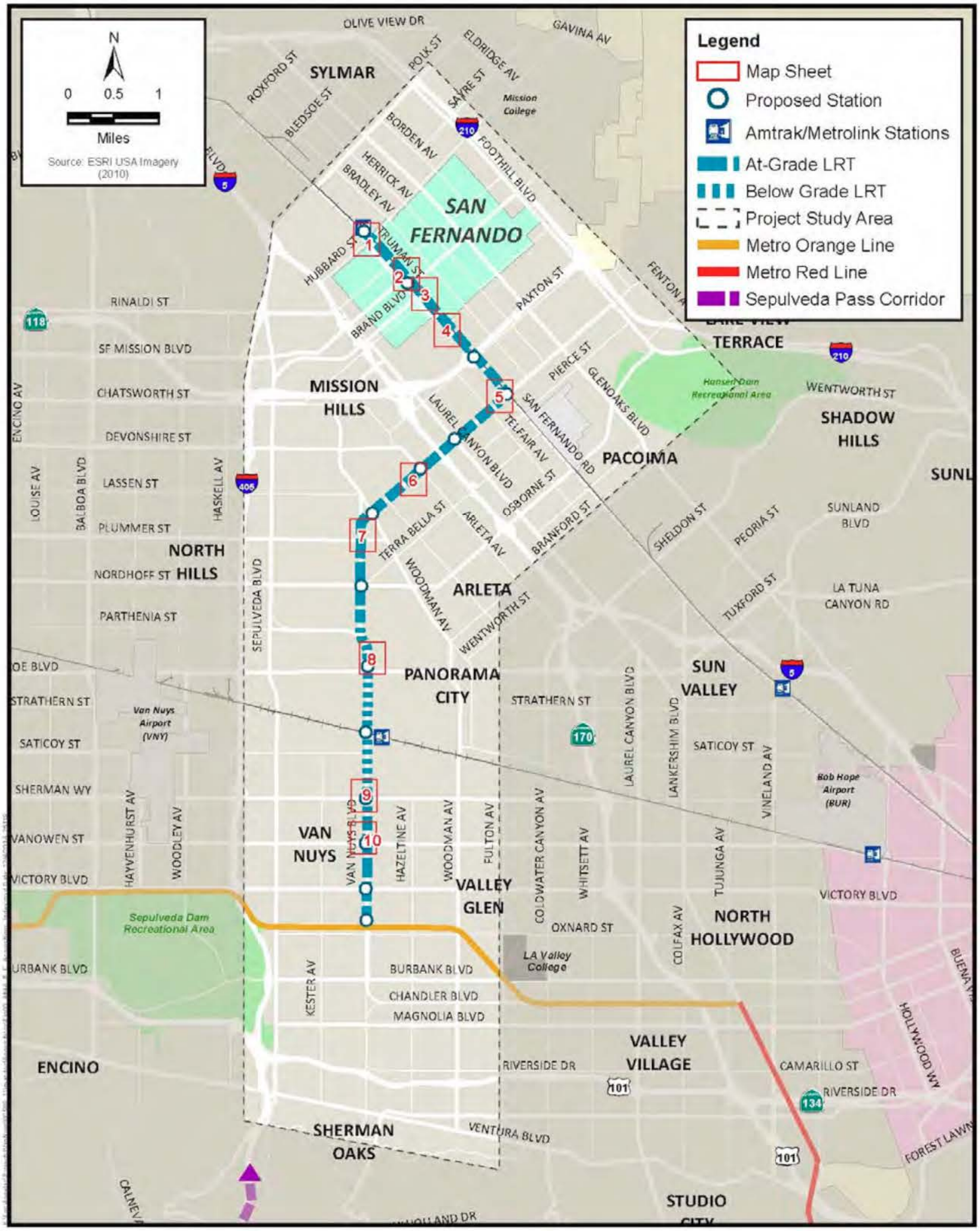
| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2219-025-027 | 14526 Hartland St. | Los Angeles (Van Nuys) | Residential | Partial | TPSS Site |
| 2219-025-003 | N/A | Los Angeles (Van Nuys) | Residential | Full | TPSS Site |
| 2219-025-026 | N/A | Los Angeles (Van Nuys) | Residential | Full | TPSS Site |
| 2219-026-027 | 6853 Van Nuys Blvd. | Los Angeles (Van Nuys) | General Commercial | Partial | Guideway |
| 2218-024-009 | 14503 Sherman Way | Los Angeles (Van Nuys) | General Commercial | Full | Guideway |
| 2215-001-912 | N/A | Los Angeles (Van Nuys) | Public Facilities | Partial | Guideway |
| 2215-001-907 | N/A | Los Angeles (Van Nuys) | Van Nuys Metrolink Station; General Commercial | Full | Guideway |
| 2638-022-061 | 8340 Van Nuys Blvd. | Los Angeles (Panorama City) | Community Commercial | Full | Guideway |
| 2638-038-017 | 14525 Roscoe Blvd. | Los Angeles (Panorama City) | Community Commercial | Full | TPSS Site/Guideway |
| 2644-030-016 | 9462 Van Nuys Blvd. | Los Angeles (Panorama City) | General Commercial | Full | TPSS Site |
| 2644-025-901 | 9540 Van Nuys Blvd. | Los Angeles (Panorama City) | General Commercial; Low Medium II Residential | Partial | TPSS Site |
| 2645-021-905 | N/A | Los Angeles (Arleta) | Low Medium II Residential | Full | TPSS Site |
| 2619-017-036 | 13313 Van Nuys Blvd. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-012 | 13309 Van Nuys Blvd. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-011 | 13303 Van Nuys Blvd. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-010 | 13301 Van Nuys Blvd. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-009 | 13291 Van Nuys Blvd. | Los Angeles (Pacoima) | Restaurant; Community Commercial | Full | Guideway |
| 2619-017-008 | 13287. Van Nuys Blvd. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |

| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2619-017-007 | 13283 Van Nuys Blvd. | Los Angeles (Pacoima) | Veterinary hospital; Community Commercial | Full | Guideway |
| 2619-017-031 | 13281 Van Nuys Blvd. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-022 | 13326 Pinney St. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-023 | 13322 Pinney St. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-024 | 13320 Pinney St. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-025 | 13314 Pinney St. | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-026 | N/A | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-037 | N/A | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2619-017-002 | 10823 San Fernando Road | Los Angeles (Pacoima) | Community Commercial | Full | TPSS Site |
| 2619-017-035 | N/A | Los Angeles (Pacoima) | Community Commercial | Full | Guideway |
| 2620-002-021 | N/A | Los Angeles (Pacoima) | Low Residential | Full | TPSS Site |
| 2616-019-009 | 11321 San Fernando Road | Los Angeles (Pacoima) | Limited Manufacturing | Full | TPSS Site |
| 2616-018-029 | 11447 San Fernando Road | Los Angeles (Mission Hills) | Limited Manufacturing | Full | TPSS Site |
| 2519-018-900 | 130 N Brand Blvd. | San Fernando | School | Partial | Guideway/ Metrolink Track Realignment |
| 2522-015-901 | 130 N Brand Blvd | San Fernando | Vacant | Full | Guideway/ Metrolink Track Realignment |
| 2519-001-902 | 910 1st St. | San Fernando | Government Facility/Police Station | Partial | Guideway/ Metrolink Track Realignment |
| 2519-001-903 | N/A | San Fernando | Parking Lot | Partial | Guideway/ Metrolink Track Realignment |
| 2520-018-012 | 55 N Maclay Ave. | San Fernando | Commercial Retail | Full | Guideway/ Metrolink Track Realignment |

| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2520-018-009 | N/A | San Fernando | Industrial | Partial | Guideway/ Metrolink Track Realignment |
| 2520-018-005 | 1318 1st St. | San Fernando | Warehouse | Full | Guideway/ Metrolink Track Realignment |
| 2520-018-002 | 1404 1st St. | San Fernando | Light Industrial | Partial | Guideway/ Metrolink Track Realignment |
| 2520-018-004 | 1414 1st St. | San Fernando | Light Industrial | Partial | Guideway/ Metrolink Track Realignment |
| 2520-018-006 | 1416 1st St. | San Fernando | Parking Lot | Partial | Guideway/ Metrolink Track Realignment |
| 2611-010-003 | N/A | San Fernando | General Commercial | Full | TPSS Site |
| 2611-010-028 | N/A | San Fernando | General Commercial | Full | TPSS Site |
| 2612-001-011 | N/A | San Fernando | General Commercial | Full | Guideway |
| 2611-009-036 | 1705 Truman St. | San Fernando | General Commercial | Full | Guideway |
| 2611-009-032 | 1647 Truman St. | San Fernando | ARCO ampm | Full | Guideway |
| 2611-009-012 | 12172 Truman Ave. | Los Angeles (Sylmar) | Limited Manufacturing | Full | Guideway |
| 2611-009-013 | 12200 N. Truman Ave. | Los Angeles (Sylmar) | Limited Manufacturing | Full | Guideway |
| 2611-009-015 | 12162 San Fernando Road | Los Angeles (Sylmar) | Highway Oriented Commercial | Full | Guideway |
| 2611-009-016 | 12162 San Fernando Road | Los Angeles (Sylmar) | Highway Oriented Commercial | Full | Guideway |
| 2611-009-017 | N/A | Los Angeles (Sylmar) | Highway Oriented Commercial | Full | Guideway |
| 2611-009-030 | 12172 San Fernando Road | Los Angeles (Sylmar) | Highway Oriented Commercial | Full | Guideway |
| 2611-009-022 | 12188 San Fernando Road | Los Angeles (Sylmar) | Highway Oriented Commercial | Full | Guideway |

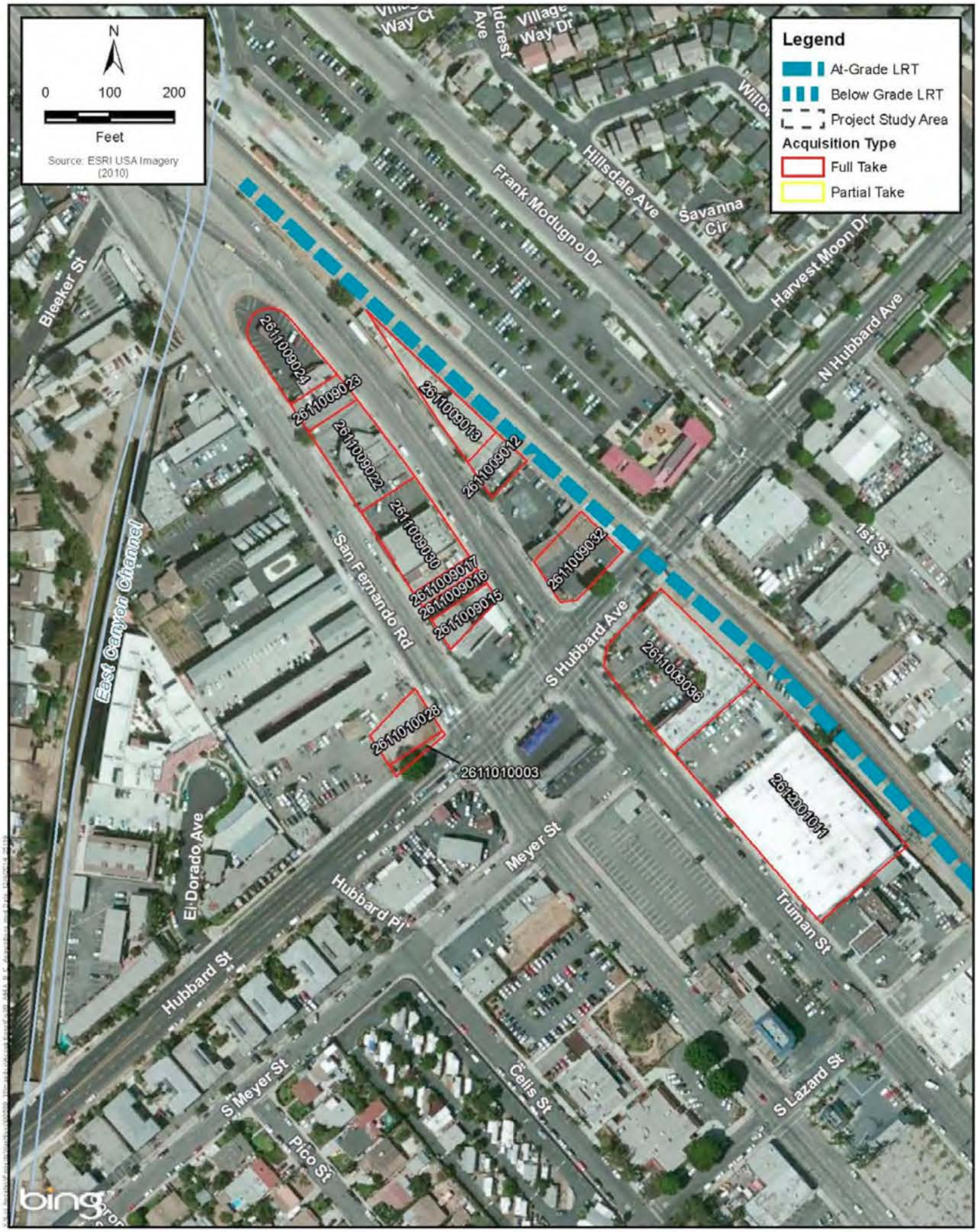
| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2611-009-023 | 12192. San Fernando Road | Los Angeles (Sylmar) | Highway Oriented Commercial | Full | Guideway |
| 2611-009-024 | 12204 San Fernando Road | Los Angeles (Sylmar) | Highway Oriented Commercial | Full | Guideway |
| Source: KOA Corporation, 2014; ICF, 2014; City of Los Angeles, 2014. | | | | | |

## Figure 4.2-5: Build Alternative 4 –LRT Alternative Acquisitions





Metro


N
0 100 200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Acquisition Type
Full Take
Partial Take
2611009021
2611009023
2611009022
2611009013
2611009012
2611009030
2611009017
2611009016
2611009015
2611009032
2611009036
2611010028
2611010003
2612001011
Frank Modugno Dr
Hillsdale Ave
Savanna Cir
Harvest Moon Dr
N Hubbard Ave
1st St
San Fernando Rd
S Hubbard Ave
Bleeker St
East Canyon Channel
El Dorado Ave
Hubbard St
Hubbard Pl
Meyer St
S Meyer St
Celis St
Pico St
S Lazard St
Truman St
Village Way Dr


Metro


N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Acquisition Type
Full Take
Partial Take
Harding Ave
Harps St
2nd St
N Alexander St
1st St
N Hagar St
N Maclay Ave
Truman St
San Fernando Rd
Mission Blvd
Celis St
S Maclay Ave
Pico
2520018006
2520018004
2520018002
2520018005
2520018009
2520018012
2519001903


N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Acquisition Type
Full Take
Partial Take
2519001903
2519001902
2522015901
2519018900
San Fernando Middle School
1st St
2nd St
N MacNeil St
N Brand Blvd
S Brand Blvd
Kittridge St
San Fernando Rd
Truman St
Jessie St
Celis St
Chatsworth Dr
Wolfskill St
Park Ave


N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Acquisition Type
Full Take
Partial Take
Recreation Park
1st St
La Rue St
Ilex Ave
El Dorado Ave
Pacoima Wash
San Fernando Rd
Del Sur St
Desmond St
2616018029
2616019009
bing

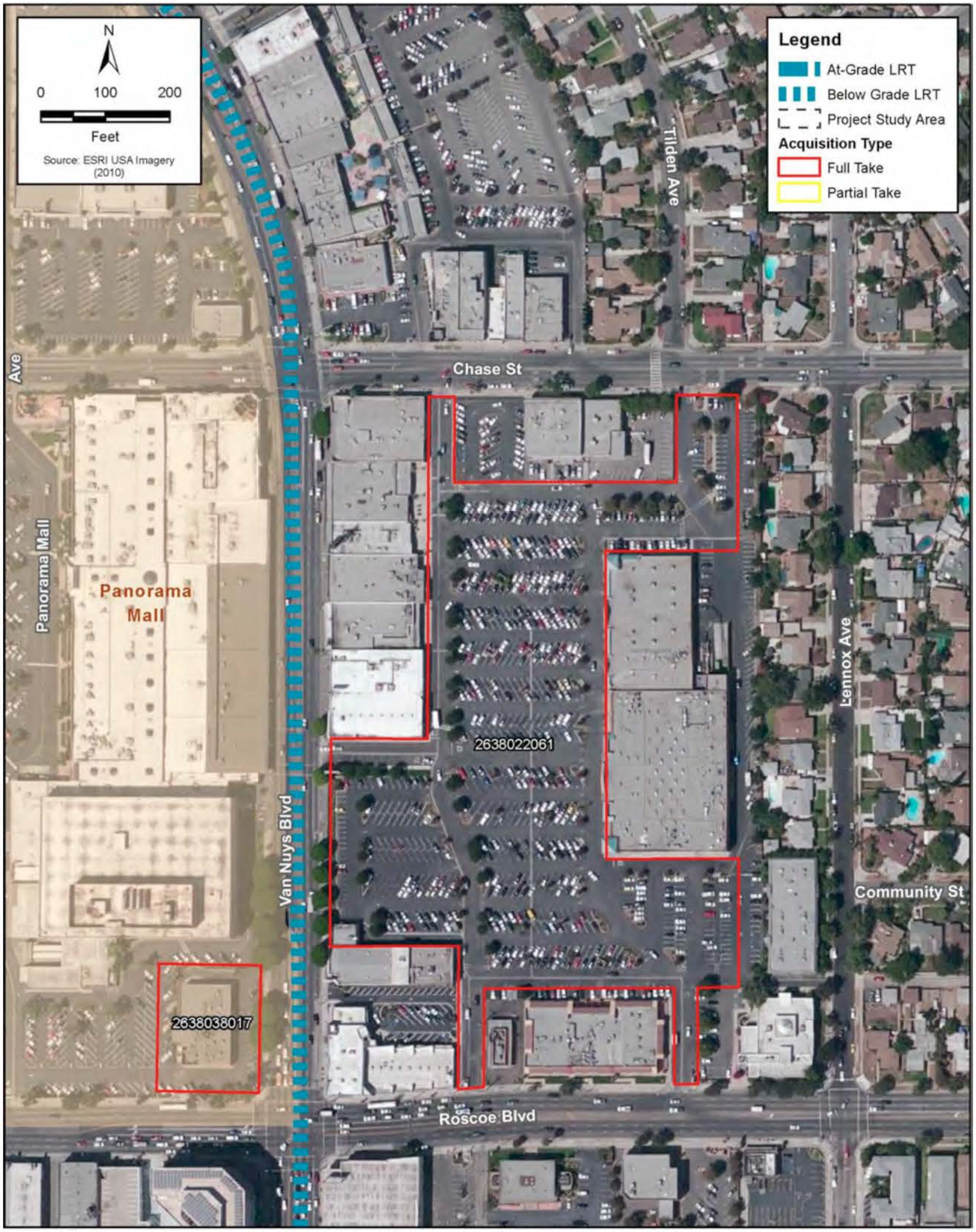

N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Acquisition Type
Full Take
Partial Take
San Fernando Rd
Sutter Ave
Mercer St
El Dorado Ave
Pinney St
Van Nuys Blvd
Ilex Ave
Tamarack Ave
Telfair Ave
2619017037
2619017025
2619017002
2619017035
2619017023
2619017022
2619017026
2619017024
2619017031
2619017007
2619017008
2619017009
2619017010
2619017011
2619017012
2619017036
2620002021
bing

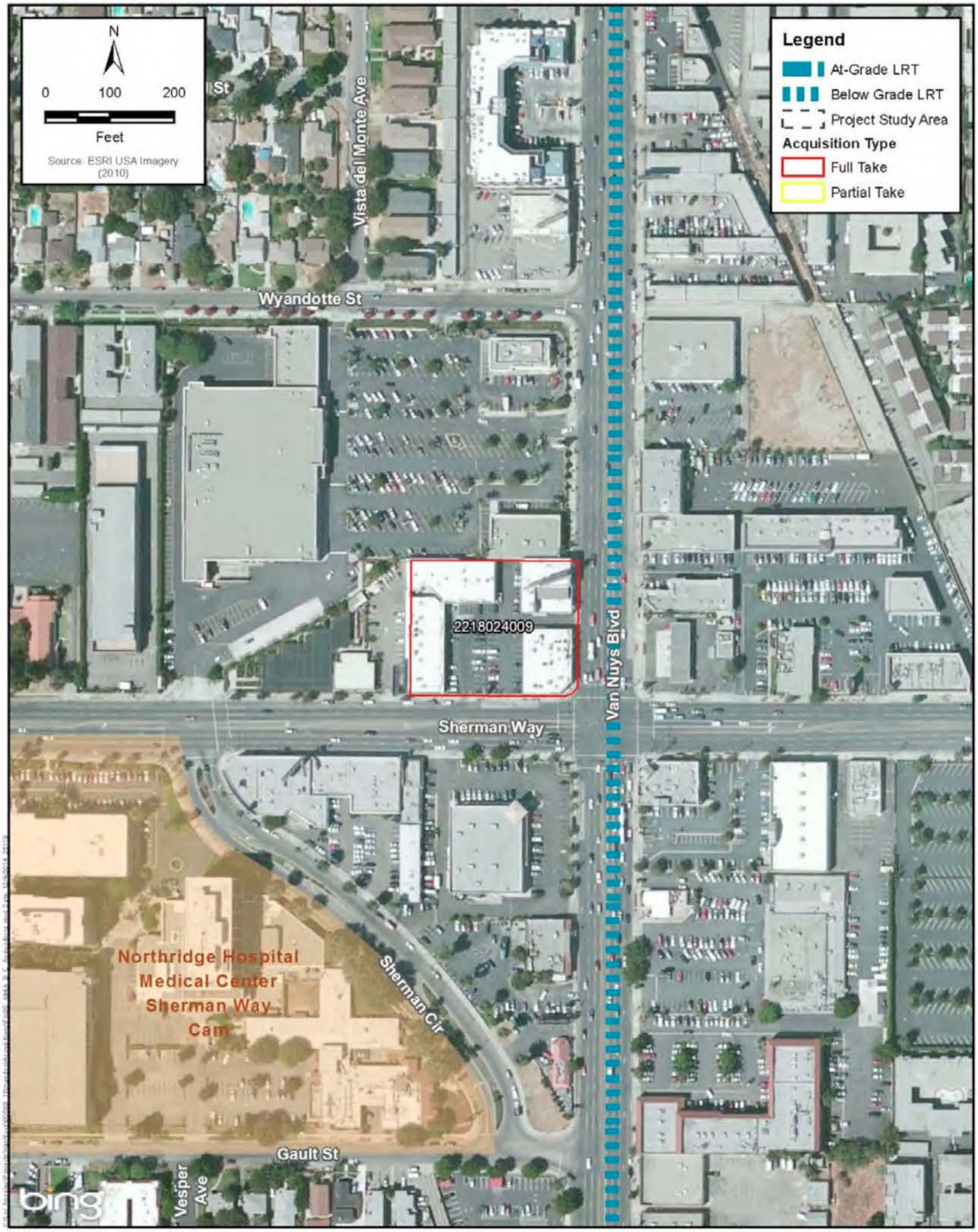
N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Acquisition Type
Full Take
Partial Take
Arleta Ave
Claretta St
Van Nuys Blvd
Pacoima Diversion Channel
2645021905
Stanwin Ave
Hoyt St
Beachy Ave
Woodale Ave
Mercedes Ave
bing


N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Acquisition Type
Full Take
Partial Take
Vesper Ave
Limedale St
Novice St
Van Nuys Blvd
2644025901
Sylmar Ave
Plummer St
2644030016
Fortuna Ln
Vesta Ct
Daisy Dr
Day Lily Ln
Cacti Ct
Gledhill St
bing



Metro


N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Acquisition Type
Full Take
Partial Take
Tilden Ave
Chase St
Ave
Panorama Mall
Panorama Mall
Lennox Ave
2638022061
Van Nuys Blvd
Community St
2638038017
Roscoe Blvd


N
0 100 200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Acquisition Type
Full Take
Partial Take
Vista del Monte Ave
Wyandotte St
2218024009
Van Nuys Blvd
Sherman Way
Northridge Hospital Medical Center Sherman Way Cam
Sherman Cir
Gault St
Vesper Ave


Metro


Source: ICF International, 2015.

### *MSF Sites*

The property acquisitions that would be required to construct the MSF at one of three alternative sites are described above under Alternative 3 and summarized below.

#### *MSF Option A*

As described above under Alternative3, MSF Option A would require acquisition of 58 parcels between Calvert Street to the north, Oxnard Street to the south, and Kester Avenue to the west (see Table 4.2-3 for a list of the full and partial acquisitions). Two additional full acquisitions (see Table 4.2-9 below) would be required where Van Nuys crosses the Orange Line Busway in order to provide the necessary curve to transition the Alternative 4 guideway onto the Orange Line Busway ROW. Because the MSF Option A site would be located at the southern terminus of Alternative 4, as opposed to the areas surrounding the Van Nuys Metrolink Station under MSF Options B and C, a key difference in MSF Option A that should be noted is the Van Nuys Metrolink station platform would only require partial acquisition of parcel 2215-001-912 at Keswick Street as opposed to the full acquisition under MSF Options B and C. Table 4.2-10 provides a summary of the ROW required for the MSF Option A connection, and Figure 4.2-2 shows their location on the map.

**Table 4.2-9: Alternative 4 MSF Option A – ROW Acquisitions for Access**

| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2241-027-003 | 6077 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | Commercial Manufacturing | Full | Alignment |
| 2240-008-905 | 6060 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | Commercial Manufacturing | Full | TPSS Site |
| Source: KOA Corporation, 2014; ICF, 2014; City of Los Angeles, 2014. | | | | | |

#### *MSF Option B*

MSF Option B would require 37 full acquisitions as described above under Alternative 3 and listed in Table 4.2-5.

In order to connect Alternative 4 to the MSF Option B site, the Alternative 4 guideway would curve east off of Van Nuys Boulevard through a row of commercial buildings requiring 11 full acquisitions. This is required to provide a perpendicular crossing of Van Nuys Boulevard to access the MSF Option B site. In addition, partial acquisition and permanent underground easements below 6 private properties would be required where tunnel portions of the alignment would not be within public road ROW. No displacements would be required as a result of these underground easements.

Table 4.2-10 provides a summary of the ROW required for the MSF Option B connection, and Figure 4.2-3 shows their location on the map.

## Table 4.2-10: Alternative 4 MSF Option B – ROW Acquisitions for Access

| AIN | Address | Jurisdiction | Current Use/Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2215-026-048 | Valerio St. and Van Nuys Blvd. | Los Angeles (Van Nuys) | Restaurant; Parking lot; General commercial | Full | Alignment |
| 2215-026-003 | Valerio St. and Van Nuys Blvd. | Los Angeles (Van Nuys) | General Commercial | Full | Alignment |
| 2215-026-002 | 7456 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | Top produce market; General Commercial | Full | Alignment |
| 2215-026-001 | 7500 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | Howard Industries; General Commercial | Full | Alignment |
| 2215-001-008 | 7554 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | Glidden Professional Paint Center; General Commercial | Full | Alignment |
| 2215-001-007 | 7564 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | Parking lot; General Commercial | Full | Alignment |
| 2215-028-012 | 7610 N. Van Nuys Blvd | Los Angeles (Van Nuys) | U-Haul of Van Nuys; General Commercial | Full | Alignment |
| 2215-028-014 | 7616 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | Auto paint and body supplies; General Commercial | Full | Alignment |
| 2215-028-020 | 7622 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | General Commercial | Full | Alignment |
| 2215-028-023 | Saticoy St. and Van Nuys Blvd. | Los Angeles (Van Nuys) | Guatemalteca Bakery; General Commercial | Full | Alignment |
| 2215-028-018 | 7658 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | Today's Furniture; General Commercial | Full | Alignment |
| 2212-001-900 | Raymer St. and Van Nuys Blvd. | Los Angeles (Van Nuys) | Public Facilities | Partial – Underground Easement | Alignment |
| 2212-001-900 | Raymer St. and Van Nuys Blvd. | Los Angeles (Van Nuys) | Public Facilities | Partial – Underground Easement | Alignment |
| 2212-001-807 | 7766 N. Van Nuys Blvd. | Los Angeles (Panorama City) | Light Manufacturing | Partial – Underground Easement | Alignment |
| 2212-001-805 | Raymer St. and Hazeltine Ave. | Los Angeles (Panorama City) | Light Manufacturing | Partial – Underground Easement | Alignment |
| 2212-001-015 | 14400 W. Arminta St. | Los Angeles (Panorama City) | Living Spaces – Van Nuys; Light Manufacturing | Partial – Underground Easement | Alignment |
| 2212-001-014 | Arminta St. and Van Nuys Blvd. | Los Angeles (Panorama City) | Parking lot; Light Manufacturing | Partial – Underground Easement | Alignment |
| Source: KOA Corporation, 2014; ICF, 2014; City of Los Angeles, 2014. | | | | | |

### *MSF Option C*

MSF Option C, as described above under Alternative 3, would require the acquisition of 42 properties, 41 of which would be full acquisitions (see Table 4.2-6 above for a list of the required properties).

The MSF Option C connection for Alternative 4 would require the full acquisition of 11 commercial properties. The primary difference would be additional underground easements would be required below two additional properties as the tunnel portion of the alignment would be extended below these two private properties.

Table 4.2-11 provides a summary of the ROW required for the MSF Option C connection, and Figure 4.2-4 shows their location on the map.

**Table 4.2-11: Alternative 4 MSF Option C – ROW Acquisitions for Access**

| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2212-028-035 | Arminta St. and Van Nuys Blvd. | Los Angeles (Panorama City) | 7-Eleven; Citibank; Light Manufacturing | Partial – Underground Easement | Alignment |
| 2212-028-033 | 7864 N. Van Nuys Blvd. | Los Angeles (Panorama City) | Dentist office; Light Manufacturing | Partial – Underground Easement | Alignment |
| 2215-026-048 | Valerio St. and Van Nuys Blvd. | Los Angeles (Van Nuys) | Restaurant; Parking lot; General commercial | Full | Alignment |
| 2215-026-003 | Valerio St. and Van Nuys Blvd. | Los Angeles (Van Nuys) | General Commercial | Full | Alignment |
| 2215-026-002 | 7456 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | Top produce market; General Commercial | Full | Alignment |
| 2215-026-001 | 7500 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | Howard Industries; General Commercial | Full | Alignment |
| 2215-001-008 | 7554 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | Glidden Professional Paint Center; General Commercial | Full | Alignment |
| 2215-001-007 | 7564 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | Parking lot; General Commercial | Full | Alignment |
| 2215-028-012 | 7610 N. Van Nuys Blvd | Los Angeles (Van Nuys) | U-Haul of Van Nuys; General Commercial | Full | Alignment |
| 2215-028-014 | 7616 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | Auto paint and body supplies; General Commercial | Full | Alignment |
| 2215-028-020 | 7622 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | General Commercial | Full | Alignment |

| AIN | Address | Jurisdiction | Current Use/ Occupant | Displacement Type | Intended Use |
|---|---|---|---|---|---|
| 2215-028-023 | Saticoy St. and Van Nuys Blvd. | Los Angeles (Van Nuys) | Guatemalteca Bakery; General Commercial | Full | Alignment |
| 2215-028-018 | 7658 N. Van Nuys Blvd. | Los Angeles (Van Nuys) | Today's Furniture; General Commercial | Full | Alignment |
| 2212-001-900 | Raymer St. and Van Nuys Blvd. | Los Angeles (Van Nuys) | Public Facilities | Partial – Underground Easement | Alignment |
| 2212-001-900 | Raymer St. and Van Nuys Blvd. | Los Angeles (Van Nuys) | Public Facilities | Partial – Underground Easement | Alignment |
| 2212-001-807 | 7766 N. Van Nuys Blvd. | Los Angeles (Panorama City) | Light Manufacturing | Partial – Underground Easement | Alignment |
| 2212-001-805 | Raymer St. and Hazeltine Ave. | Los Angeles (Panorama City) | Light Manufacturing | Partial – Underground Easement | Alignment |
| 2212-001-015 | 14400 W. Arminta St. | Los Angeles (Panorama City) | Living Spaces – Van Nuys; Light Manufacturing | Partial – Underground Easement | Alignment |
| 2212-001-014 | Arminta St. and Van Nuys Blvd. | Los Angeles (Panorama City) | Parking lot; Light Manufacturing | Partial – Underground Easement | Alignment |
| Source: KOA Corporation, 2014; ICF, 2014; City of Los Angeles, 2014. | | | | | |

### Summary of ROW Acquisition Impacts for Alternative 4

As shown in Table 4.2-7, Alternative 4 could require between 110 and 117 acquisitions of properties, most of which would be full acquisitions. Most of the acquisitions that would be required are commercial or industrial properties (MSF Option A would require the full acquisition of four residential units).

As described above under Alternative 3, it is anticipated that there is an adequate supply of commercial and industrial properties along the corridor and in surrounding areas to accommodate displaced businesses; though larger industrial facilities may have difficulty finding comparable properties near their existing locations. As with Alternative 3, where acquisition and relocation are unavoidable, Metro would comply with the provisions of the Uniform Act.

Because the study area and surrounding urban area are almost entirely built out and given the number of existing buildings for sale or lease in the immediate area, it is expected that most of the businesses that would be displaced (including associated MSF – see discussion below) would relocate to existing buildings. Thus, it is not anticipated that construction of a substantial amount of new commercial or industrial development that could result in substantial adverse impacts to the environment would occur. Therefore, substantial adverse indirect effects related to displacement and relocation are not anticipated under Alternative 4.

### Cumulative Impacts

Cumulative impacts anticipated to occur under Alternative 4 would be the same as the cumulative impacts expected to occur under Alternative 3. See discussion above for Alternative 3.

#### *Compliance Requirements and Design Features*

Compliance requirements and design features under Alternative 4 would be the same as those under Alternative 3. See discussion above for Alternative 3.

### Mitigation Measures

#### *Construction Mitigation Measures*

No mitigation measures are required (see discussion above regarding compliance requirements and design features required by law).

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Alternative 4 would not result in adverse effects under NEPA.

#### *CEQA Determination*

Alternative 4 would result in less-than-significant impacts under CEQA.

# 4.3 Economic and Fiscal Impacts

This section evaluates the potential economic, and fiscal impacts that could arise from the construction and long-term operation of the proposed East San Fernando Valley Transit Corridor Project.

## 4.3.1 Regulatory Framework and Methodology

### 4.3.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed East San Fernando Valley Transit Corridor Project's impacts are listed below. For additional information regarding these regulations, please see the Economic and Fiscal Impacts Report in Appendix V of this Draft EIS/EIR.

#### Federal

There are no specific federal regulations that are relevant to economic and fiscal impact analyses other than the requirements under NEPA.

#### State

Pursuant to the State CEQA Guidelines, economic or social effects of a project that are not related to physical changes in the environment shall not be treated as significant effects on the environment but may be used to determine the significance of physical changes caused by the project (Section 15131(b)).

#### Local

There are no local requirements or guidelines relevant to the discussion of fiscal and economic impacts in this section.

### 4.3.1.2 Methodology

The environmental impact analyses presented in Section 4.3.3 focus on the economic and fiscal impacts due to parcel acquisitions that could occur under the build alternatives and resulting loss in tax revenue, jobs, and labor income. The economic and fiscal analysis also considers the indirect and induced economic impacts and benefits due to the expenditure of funds to construct the proposed build alternatives. In order to assess and determine the extent of potential economic impacts, demographic, economic, Los Angeles County Assessor assessed valuation, property tax, sales tax, construction cost, and land use data were examined. Also, other socioeconomic data related to transit dependent population and SCAG forecasts from 2010 to 2035 were utilized to identify and/or evaluate potential transit supportive land uses, including jobs-generating and residential land uses by density.

Alignment alternatives for the transportation corridor were provided by KOA Corporation in the form of GIS shapefiles, which were then used as reference alignments, around which data for the socioeconomic indicators presented in this analysis were assembled. The basic unit of analysis used for estimating 2010 data for areas in the immediate vicinity of each route alignment alternatives is the

Tier 2 traffic analysis zone (TAZ) developed by SCAG for the RTP. The 2012 TAZ dataset was adopted on April 4, 2012. Tier 2 TAZs are the smallest units of geography developed by SCAG and these are a close approximation to Census Block-groups.

Transit dependent population was defined using the following socioeconomic variables: 1) by average household income, 2) persons in poverty, 3) by indicators of transit dependency using age structure (i.e. population less than 18 years old and 65 years and older), and 4) ownership of vehicles per household developed from the 2009–2013 American Community Survey 5-year estimate at the census tract level for each alignment alternative. Estimates of population and household variables for each sub-category of analysis were calculated by applying the Census Tract level percentage distribution for each variable to the 2010 Tier 2 population and household control totals.

Total employment estimates for 2008, 2010, and 2035 were obtained directly from the assembled Tier 2 datasets for each alignment alternative. Estimates for total employment in 2010 were developed by applying an area-wide adjustment that reflected the decline (in Los Angeles County) in employment over the 2008 to 2010 time period due to the major recession and economic downturn that began in late 2007. This decline was estimated at around 4.6 percent based on countywide datasets prepared by SCAG for the 2012 RTP.

Annual average wages by employment categories were obtained from the California Employment Development Department for 2010, on an area-wide basis for a selection of ZIP codes approximating the study area. The distribution of employment for various categories for 2010 was provided by the SCAG 2012 RTP Tier 1 socioeconomic data.

Los Angeles County Assessor parcel data, in GIS format, were provided for the total study area by Parcel Quest, a data vendor used by Metro. This parcel information was supplemented by more recent 2014 Los Angeles County Assessor parcel data for the study area and the 0.25-mile buffer area along the transit corridor alignment.

## Construction Cost Impacts

In order to determine construction cost impacts/benefits (see Section 4.3.3, below), estimates were made of employment generated, labor income, value added, and total output. The total construction economic impacts for each alternative include direct construction cost impacts plus those from indirect and induced economic impacts. For each alternative, total labor income is about 42 percent of total output, and value added is about 53 percent of total output. Value added is the combination of labor income, property type income, and indirect business taxes.

### Definition and Derivation of Economic Impact Multipliers

The total construction cost impacts discussed in Section 4.3.3 were derived from running the IMPLAN economic impact model developed by IMPLAN Group, LLC using the estimates of initial direct construction cost impacts provided by KOA Corporation. IMPLAN is an acronym for IMpact analysis for PLANing and is an input-output model that can be run for regional areas. In this case, the IMPLAN model was run using the Los Angeles County 2012 data set.

Based on the initial direct construction cost impacts of building each of the alternatives, the IMPLAN model estimates the indirect and induced economic impacts using a set of multipliers based on the model's regional data. The primary sources of the data include 1) U.S. Bureau of Labor Statistics (BLS), 2) U.S. Bureau of Economic Analysis (BEA), 3) BLS Consumer Expenditure Survey, 4) U.S. Census Bureau County Business Patterns (CBP) programs, 5) U.S. Census Bureau Decennial Census and Populations Surveys, 6) U.S. Census Bureau Economic Censuses and Surveys, and 7) the U.S. Department of Agriculture Census.

Indirect expenditures are the effects of local inter-industry expenditures as a result of the direct construction expenditures. Induced expenditures are the result of the spending of employee's wages that stem from both the direct and indirect industry expenditures. Labor income is composed of two components: 1) the wages and benefits paid to wage and salary employees; and 2) proprietor income – the profits earned by self-employed individuals. Value added is the combination of labor income, other property type income and indirect business taxes.

Detailed economic impacts are presented by various industry groups in Appendix A of the Economic and Fiscal Impacts Report (see Appendix V of this EIS/EIR), but in summary, the total impact multipliers are:

- One (1) direct employee yields 1.68 total employment;
- One (1) dollar of labor income yields 1.71 total dollars of labor income;
- One (1) dollar of direct expenditure yields 1.87 total dollars of total output; and
- One (1) dollar of direct value added yields 2.09 dollars of total value added.

## 4.3.1.3 CEQA Significance Thresholds

Significance thresholds are required by CEQA, and are used to determine whether a project may have a significant environmental effect.

Pursuant to Section 15131(a) of the State CEQA Guidelines, economic or social effects of a project shall not be treated as significant effects on the environment. However, pursuant to Section 15131(b) of the State CEQA Guidelines, economic and social effects of a project may be used to determine the significance of physical changes caused by the project. In addition, as directed by Section 15131(c) of the State CEQA Guidelines, economic and social factors (with a particular emphasis on housing factors) shall be considered, along with technological and environmental factors, if it is feasible to modify a project in order to reduce or avoid significant effects on the environment identified through the environmental review process.

The following analysis is intended to document economic effects due to construction and operation of rail transit in the project study area as well as potential fiscal effects associated with losses to the tax base due to property acquisitions required to construct the project. Also, economic impact analysis includes the potential for the proposed alternatives to facilitate greater development of jobs and housing in proximity to one another and encourage the use of transit versus the automobile.

### L.A. CEQA Thresholds Guide

The *L.A. CEQA Thresholds Guide* does not include specific thresholds for economic and fiscal impacts.

### City of San Fernando

The City of San Fernando does not have specific CEQA thresholds, but instead uses the potentially significant effects listed in Appendix G of the State CEQA Guidelines as a guide for conducting environmental analyses. However, as noted earlier, CEQA does not specifically require an analysis of a project's economic and fiscal impacts.

# 4.3.2 Affected Environment/Existing Conditions

Socioeconomic indicators include: average household income, low income households, low vehicle ownership households, and transit dependent population per acre (see below for definitions). These indicators were based on the 2009-2013 American Community Survey (ACS) 5-year characteristics at the census tract level. These distributions were then applied to 2010 population and household SCAG Tier 2 control totals. Economic data including employment, and wage and payroll distribution estimates for 2010 were obtained from the SCAG RTP and the California EDD.

Complete Tier 2 TAZs that intersected quarter mile buffer areas on either side of the transit corridor and East San Fernando Valley (ESFV) study area were selected, as shown in Figures 4.3-1 through 4.3-3.

Information developed by SCAG for the Tier 2 TAZs includes total population, household and employment numbers for 2010.[1]

The following section includes a discussion of population, household, and employment estimates for the transit corridor and the ESFV study area.

## 4.3.2.1 Estimated Population

As shown in Figure 4.3-1 and Table 4.3-1, in 2010, the transit corridor's total population (167,834) was about 37 percent of the ESFV study area's total population (458,379). The estimated household population (excluding group quarters population) for the transit corridor (167,093) and for the ESFV study area (454,525) was relatively close to the total population estimates for these two areas, indicating a very small estimate for Group Quarters population. As shown on Figure 4.3-1, the highest concentrations of population tend to focus in Panorama City north of Roscoe Boulevard on either side of Van Nuys Boulevard. The transit corridor is identified by the SCAG Tier 2 TAZs outlined in blue on Figure 4.3-1.

## 4.3.2.2 Estimated Households

As shown in Figure 4.3-2 and Table 4.3-1, in 2010, the transit corridor household count (42,859) was about 32 percent of the study area's household count (134,023). However, the persons per household estimate was slightly higher for the transit corridor, at about 3.90, compared to the ESFV study area, which was about 3.39, with the highest household concentrations similar to those for the population north of Roscoe Boulevard along either side of Van Nuys Boulevard. The transit corridor is similarly identified by the Tier 2 TAZs outlined in blue on Figure 4.3-2.

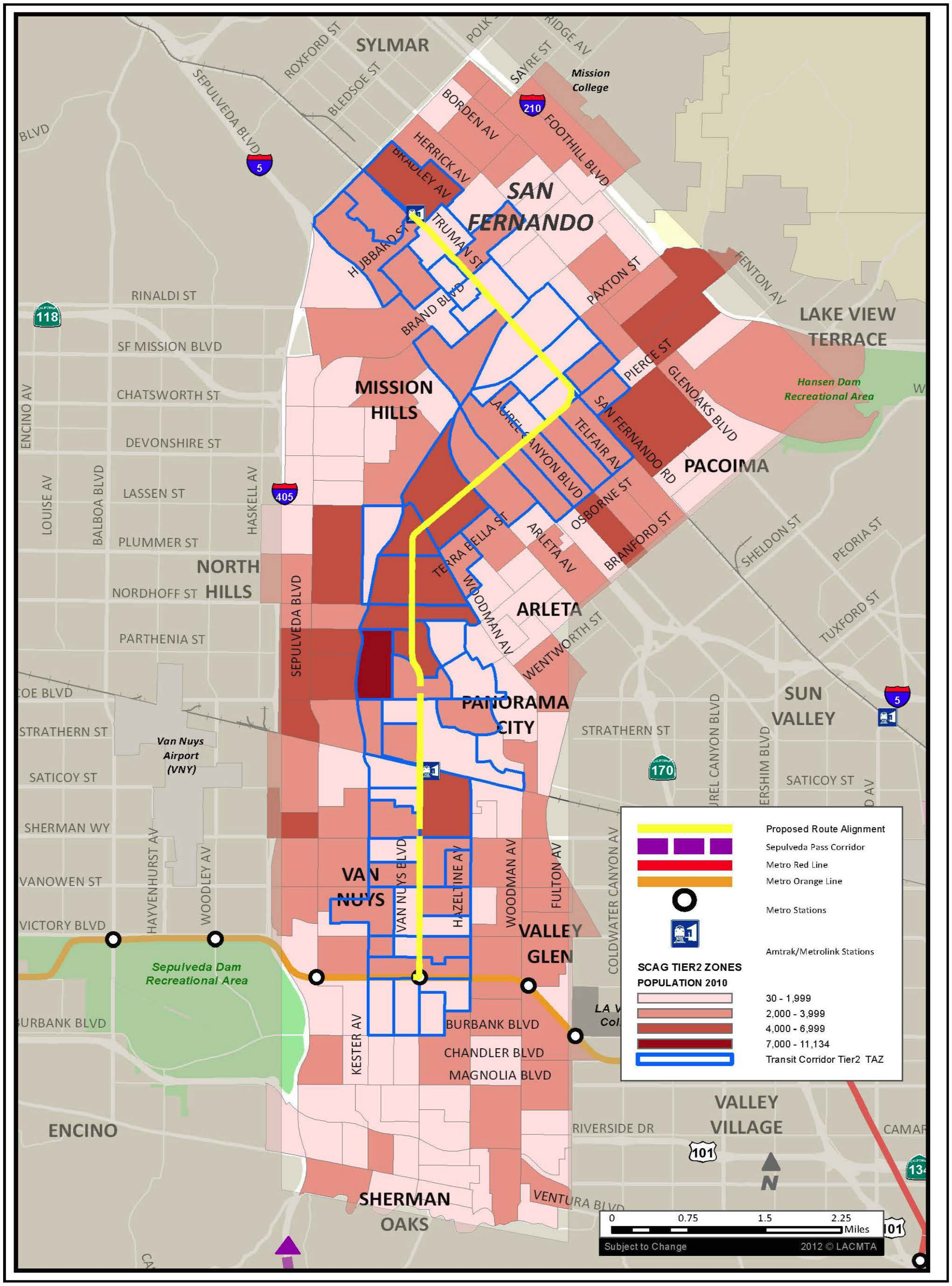
## 4.3.2.3 Estimated Employment

As shown in Figure 4.3-3 and Table 4.3-1, in 2010, employment in the transit corridor (41,610) was about 30 percent of the employment in the ESFV study area (140,915). The estimated jobs per household were slightly lower for the transit corridor at about 0.97 compared to the ESFV study area's estimate of 1.05. Along the transit corridor—again outlined in blue in Figure 4.3-3—the highest concentrations of employment were within the Van Nuys Civic Center, along Van Nuys Boulevard just north of the Orange Bus Line, and also within the Panorama City area adjacent and near the intersection of Van Nuys Boulevard and Roscoe Boulevard. Additionally, there are relatively higher concentrations of employment at the northern end of the route alignment in the downtown area of the City of San Fernando.

---

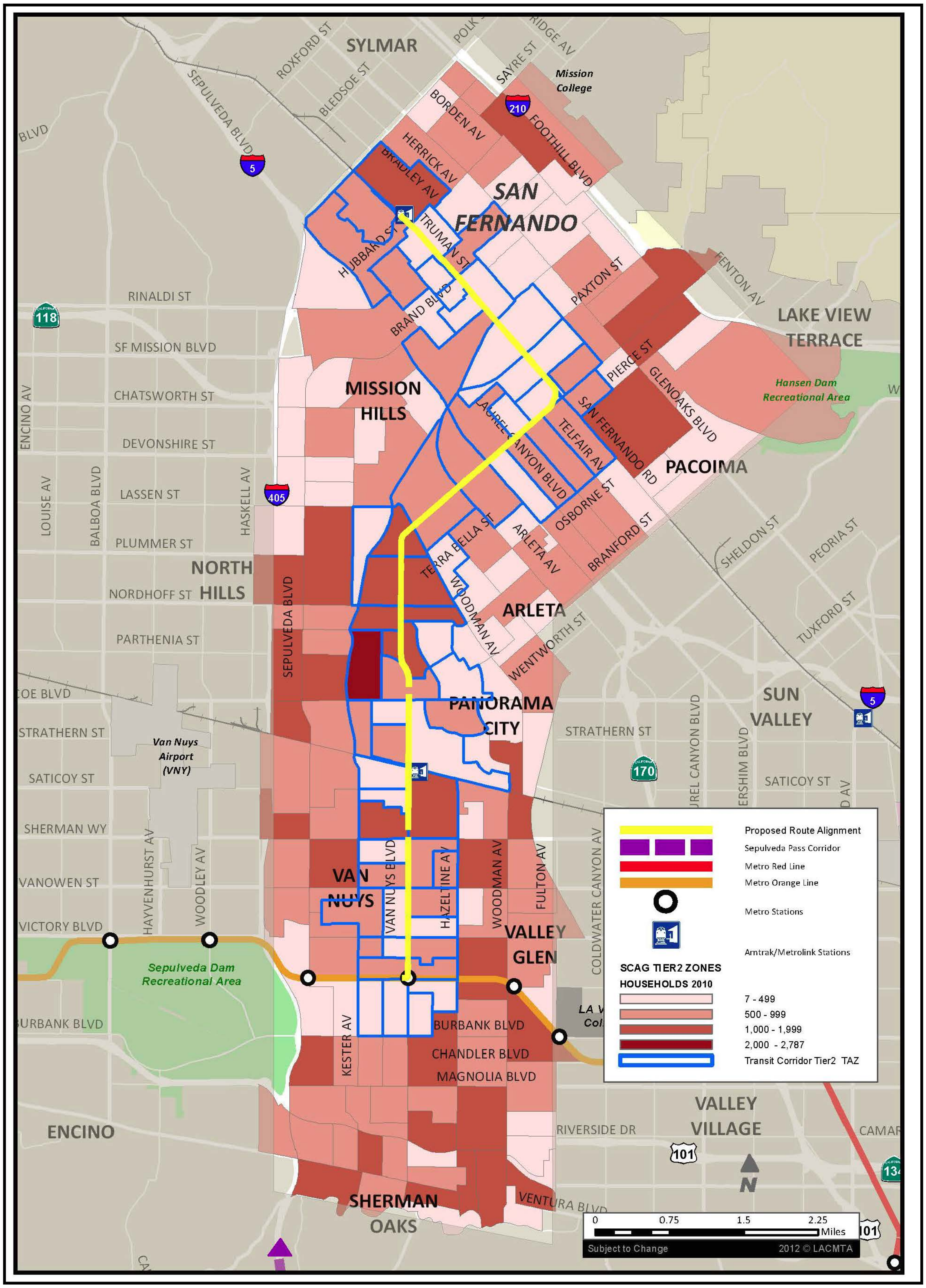
[1] Southern California Association of Governments, *2012 Regional Transportation Plan.* Available: <http://rtpscs.scag.ca.gov>. Accessed: March 25, 2013.

## Figure 4.3-1: Population Concentrations in Transit Corridor (2010)



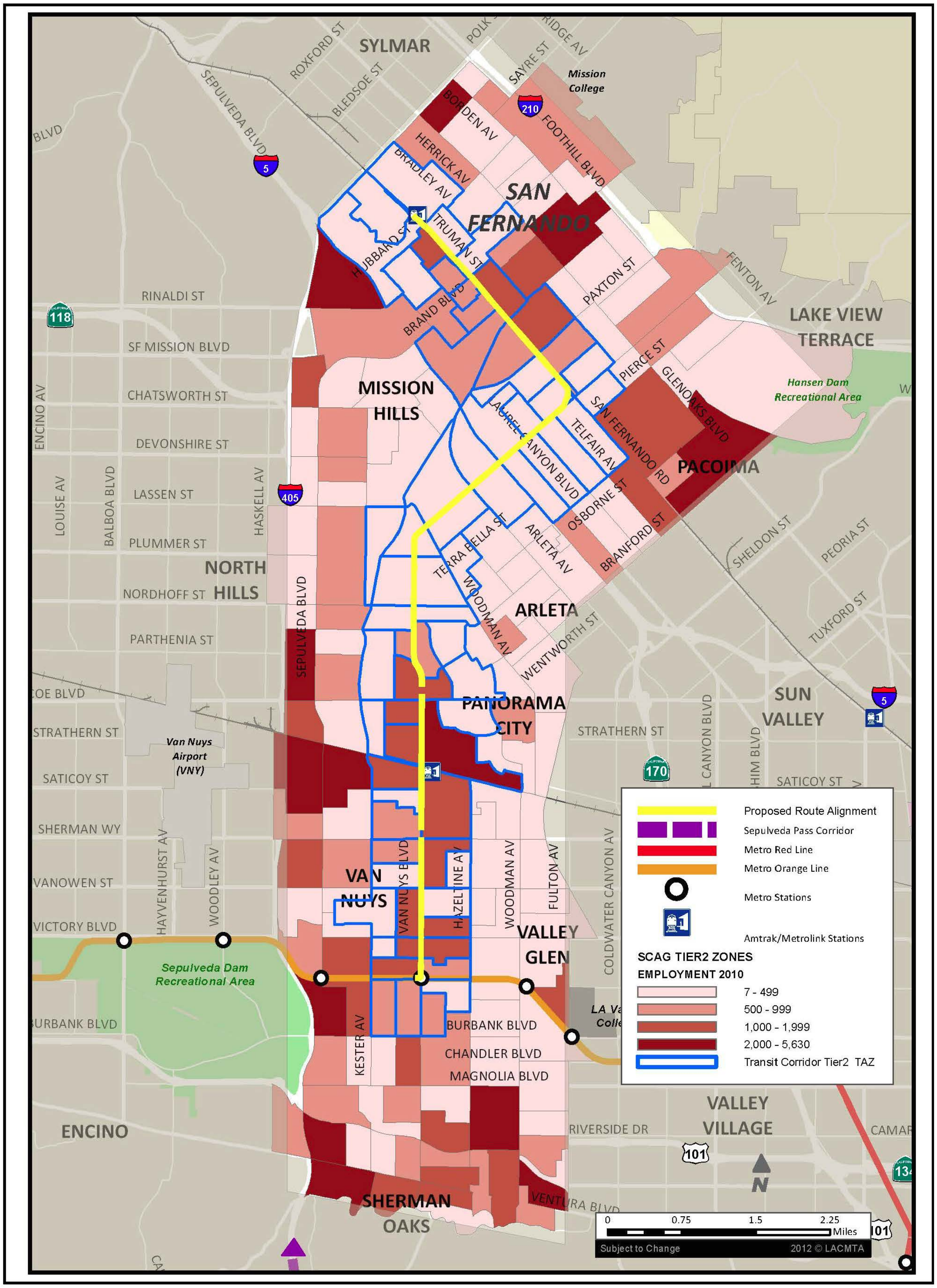

Sources: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, *2012 Regional Transportation Plan.*

## Figure 4.3-2: Households Concentrations in Transit Corridor (2010)




Sources: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, *2012 Regional Transportation Plan.*

## Figure 4.3-3: Employment Concentrations in Transit Corridor (2010)




Sources: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, *2012 Regional Transportation Plan.*

### Table 4.3-1: Population, Households, and Employment (2010)

| | Transit Corridor | ESFV Study Area | Corridor as % of Study Area |
|---|---|---|---|
| Estimated Population | 167,834 | 458,379 | 36.6% |
| Estimated Household Population | 167,093 | 454,525 | 36.8% |
| Estimated Households | 42,859 | 134,023 | 32.0% |
| Estimated Employment | 41,610 | 140,915 | 29.5% |
| Estimated Persons per Household | 3.90 | 3.39 | 115.0% |
| Estimated Jobs per Household | 0.97 | 1.05 | 92.3% |
| Sources: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, *2012 Regional Transportation Plan, Tier 2 Socioeconomic Data.* | | | |

## 4.3.2.4 Transit-Dependent Populations

As mentioned above in Section 4.3.1.2, socioeconomic variables, including average household income, persons in poverty, and indicators of transit dependency (by age structure) and ownership of vehicles per household were developed from the 2009-2013 American Community Survey 5-year estimate at the census tract level for each alignment. Census tracts that closely matched the SCAG Tier 2 selections were assembled for the transit corridor and the study area to develop these variables.[2] Density and ratio calculations were based on the acreage information at the census tract level.

### Low-Income Households

#### Average Household Income

As shown in Part A of Table 4.3-2, average household income across the transit corridor and ESFV study area ranges from $53,224 (transit corridor) to $64,038 (ESFV study area), in constant 2010 dollars, based on the 2010 ACS 5-year Estimates. The transit corridor's average household income was about 83.1 percent of the ESFV study area's household income. In contrast, the average household income for urbanized Los Angeles County is higher than both of these, at about $79,658.

#### Adult Persons below Poverty Line

Adult persons are defined as persons 18 years and over. As shown in Part A of Table 4.3-2, the ESFV study area had a lower proportion of its population in poverty at an estimated 13.8 percent (63,093 persons) compared to the transit corridor at about 15.4 percent (25,846 persons). The persons below the poverty line in the transit corridor were about 12 percent higher than the percentage in the ESFV study area.

[2] Southern California Association of Governments. 2*012 Regional Transportation Plan.* Available: <http://rtpscs.scag.ca.gov>. Accessed: March 25, 2013.

### Table 4.3-2: Transit-Dependent Populations (2010)

| | Transit Corridor | ESFV Study Area | Corridor as % of Study Area |
|---|---|---|---|
| **A. Low Income Households** | | | |
| Average Household Income | $53,224 | $64,038 | 83.1% |
| Adult Persons below Poverty Line | 25,846 | 63,093 | 41.0% |
| Percent of Population in Poverty | 15.4% | 13.8% | 111.9% |
| Adult Persons below Poverty Line per Census Tract Acre[a] | 3.5 | 2.7 | 128.5% |
| **B. Low Vehicle Ownership Households** | | | |
| Vehicles per Household | 1.76 | 1.75 | 99.6% |
| Zero Vehicle Households per Census Tract Acre[a] | 0.4 | 0.3 | 120.3% |
| **C. Transit Dependent Population** | | | |
| Transit Dependent Population | 62,390 | 164,506 | 37.9% |
| Transit Dependent Population as Percent of Population | 37.2% | 35.9% | 103.6% |
| Transit Dependent Population per Census Tract Acre[a] | 8.5 | 7.1 | 119.0% |

[a.] Intensity measures for adult persons below poverty line, zero vehicle households, and transit dependent population per census tract acre are measured against total acreage of census tracts.
Sources: Stanley R. Hoffman Associates, Inc.; American Community Survey 2009–2013, 5-Year Estimates.

### Adult Persons below Poverty Line per Census Tract Acre

As shown in Part A of Table 4.3-2, the transit corridor had a higher concentration of persons below the poverty line per census tract acre estimated at 3.5 compared to the ESFV study area's estimate of 2.7. In contrast, there were an estimated 1.08 adult persons below the poverty line per census tract acre in urbanized Los Angeles County.

## Low Vehicle Ownership Households

### Vehicles per Household

As shown in Part B of Table 4.3-2, the transit corridor and the ESFV study area have almost equal estimates for vehicles per household of 1.76 (transit corridor) and 1.75 (ESFV study area). These averages are similar to urbanized Los Angeles County at 1.67.

### Zero-Vehicle Households per Census Tract Acre

This intensity measure for zero vehicle households per census tract acre is also measured against total acreage of census tracts. As shown in Part B of Table 4.3-2, the transit corridor has an estimated 0.4 zero vehicle households per census tract acre, while the ESFV study area has 0.3 zero vehicle households per acre. These estimates are very similar to the average for urbanized Los Angeles County, which averages 0.3 zero vehicle households per census tract acre.

### Transit-Dependent Population

The transit dependent population is defined by the U.S. Census as persons equal to or below the age of 18 years and 65 years and older. For the transit corridor, the transit dependent population (62,390) is about 38 percent of the ESFV study area's transit dependent population (164,506), as shown in Part C of Table 4.3-2 and in Figure 4.3-4. The transit-dependent population is evenly distributed at about 37 percent of the study area population and about 36 percent of the transit corridor population.

#### Transit-Dependent Population per Census Tract Acre

This intensity measure for transit dependent population per census tract acre is measured against total acreage of census tracts within each route alternative. Transit dependent population per census tract acre ranges from 8.5 in the transit corridor compared to 7.1 in the ESFV study area, as shown in Part C of Table 4.3-2 and Figure 4.3-5. In comparison, these averages are greater than the urbanized Los Angeles County average of 3.2 transit dependent population per census tract acre.

## 4.3.2.5 Economic Context

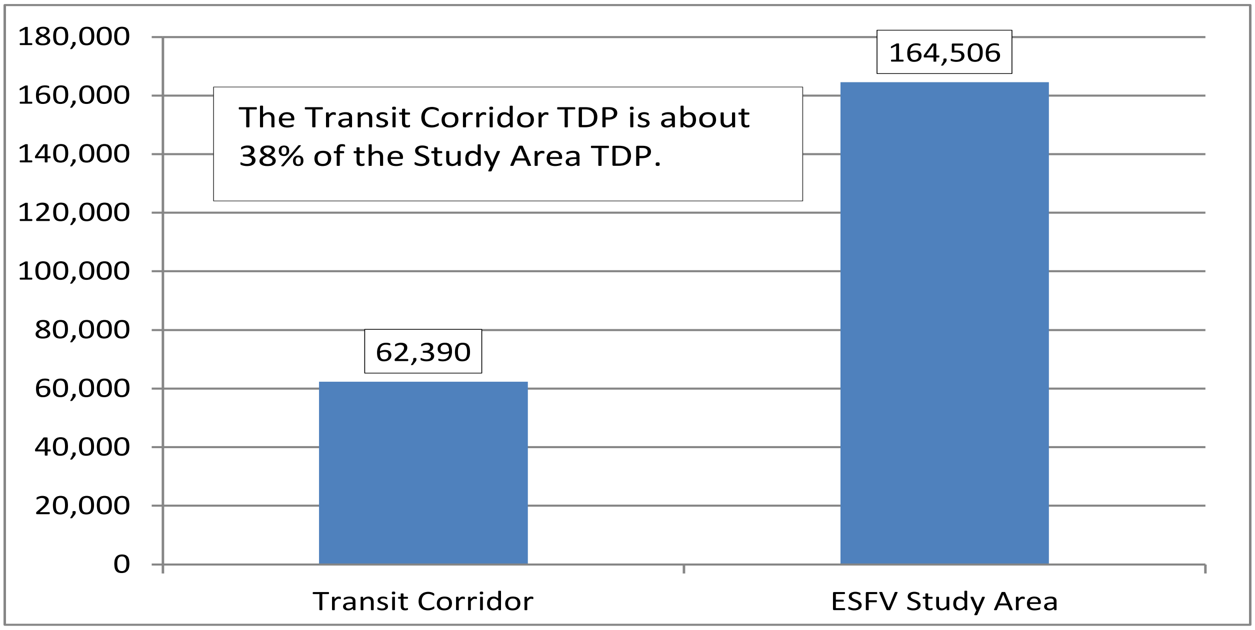
### Employment Distribution

Table 4.3-3 shows employment distribution by industry categories for the transit corridor and the ESFV study area for 2010.[3] The total estimated employment in the transit corridor (41,610) is about 30 percent of the total estimated employment in the ESFV study area (140,915). Education and Health jobs constitute the largest share of employment in each area at about 28 percent for the transit corridor and about 25 percent for the ESFV study area. The next two largest employment sectors in the transit corridor are Professional Services (12.8 percent) and Retail (12.4 percent). The next two largest employment sectors in the ESFV study area are also Professional Services (14.8 percent) and Retail Trade (12.6 percent). Together these three employment sectors—Education and Health, Professional Services and Retail—constitute about 52–53 percent of the total employment in both areas.

Table 4.3-4 shows the percentage of each employment sector for the transit corridor as a percentage of the ESFV study area to show relative employment concentrations. These percentages are then compared against the total employment percentage estimate for the transit corridor, about 30 percent of the ESFV study area. As shown in Table 4.3-4, Public Administration is relatively concentrated in the transit corridor—representing primarily the Van Nuys government center—and has about 60 percent of the total Public Administration employment in the study area. The Information sector is about 37 percent of Information employment in the ESFV study area. For the other sectors above the 30 percent overall average for the study area, Manufacturing (34 percent), and Education and Health (33 percent), and Other Services (33 percent) are only slightly higher. For Agriculture and Mining (84 percent), this higher percentage is out-weighted by the relatively small size of this sector in the study area.

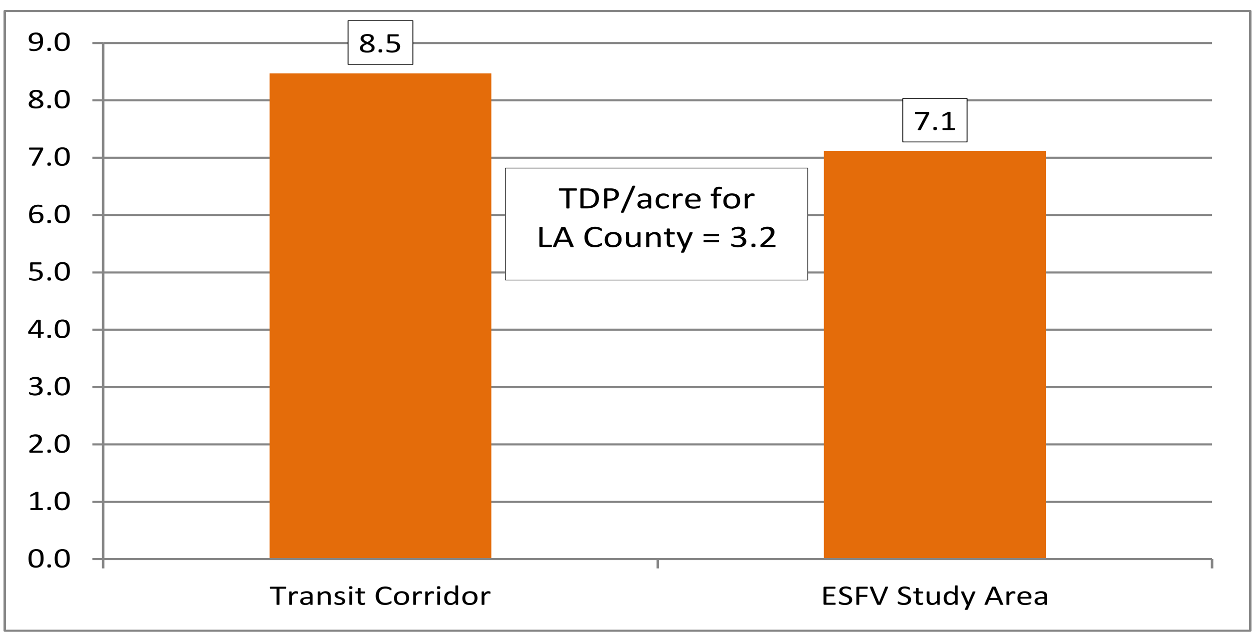
[3] Southern California Association of Governments, *2012 Regional Transportation Plan.* Available: <http://rtpscs.scag.ca.gov>. Accessed: March 25, 2013.

Figure 4.3-4: Transit-Dependent Population (TDP)[a] (2010)




[a] TDP is defined as persons < 18 or > 65 years old.
Sources: Stanley R. Hoffman Associates, Inc.; American Community Survey, *2009–2013, 5-Year Estimates*; Southern California Association of Governments, *2012 Regional Transportation Plan, Tier 2 Socioeconomic Data.*

Figure 4.3-5: Transit-Dependent Population per Acre (2010)




Sources: Stanley R. Hoffman Associates, Inc.; American Community Survey, *2009–2013, 5-Year Estimates;* Southern California Association of Governments, *2012 Regional Transportation Plan, Tier 2 Socioeconomic Data.*

### Table 4.3-3: Distribution of Employment by Sector (2010)

| | Transit Corridor | % Distribution | ESFV Study Area | % Distribution |
|---|---|---|---|---|
| Agriculture and Mining | 234 | 0.6% | 277 | 0.2% |
| Construction | 2,119 | 5.1% | 7,443 | 5.3% |
| Manufacturing | 3,652 | 8.8% | 10,636 | 7.5% |
| Wholesale Trade | 1,723 | 4.1% | 9,524 | 6.8% |
| Retail Trade | 5,141 | 12.4% | 17,724 | 12.6% |
| Transportation, Warehousing, Utilities | 1,758 | 4.2% | 5,929 | 4.2% |
| Information | 1,741 | 4.2% | 4,725 | 3.4% |
| FIRE | 1,807 | 4.3% | 7,716 | 5.5% |
| Professional Services | 5,310 | 12.8% | 20,890 | 14.8% |
| Education and Health | 11,470 | 27.6% | 35,079 | 24.9% |
| Arts, Ent, Recr, Accom, and Food | 3,163 | 7.6% | 12,154 | 8.6% |
| Other Services | 2,160 | 5.2% | 6,612 | 4.7% |
| Public Administration | 1,332 | 3.2% | 2,206 | 1.6% |
| **Total** | **41,610** | **100.0%** | **140,915** | **100.0%** |
| Source: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, *2012 Regional Transportation Plan, Tier 2 Socioeconomic Data.* | | | | |

### Table 4.3-4: Employment by Sector as Percent of Study Area (2010)

| | Transit Corridor | ESFV Study Area | Corridor as % of Study Area |
|---|---|---|---|
| Agriculture and Mining | 234 | 277 | 84% |
| Construction | 2,119 | 7,443 | 28% |
| Manufacturing | 3,652 | 10,636 | 34% |
| Wholesale Trade | 1,723 | 9,524 | 18% |
| Retail Trade | 5,141 | 17,724 | 29% |
| Transportation, Warehousing and Utilities | 1,758 | 5,929 | 30% |
| Information | 1,741 | 4,725 | 37% |
| FIRE | 1,807 | 7,716 | 23% |
| Professional Services | 5,310 | 20,890 | 25% |
| Education and Health | 11,470 | 35,079 | 33% |
| Arts, Ent, Recr, Accom and Food | 3,163 | 12,154 | 26% |
| Other Services | 2,160 | 6,612 | 33% |
| Public Administration | 1,332 | 2,206 | 60% |
| **Total** | **41,610** | **140,915** | **30%** |
| Source: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, *2012 Regional Transportation Plan, Tier 2 Socioeconomic Data.* | | | |

### Average Wages and Payroll Distribution

Table 4.3-5 shows average wages by employment category for 2010 based on California Employment Development Department data for the study area. Table 4.3-6 shows total payroll by employment categories (the product of average wages and employment by sector) in thousands of constant 2010 dollars for the transit corridor and ESFV study area.[4]

As shown in Table 4.3-5, the average wages at the study area level range from a low of $17,858 for Arts, Entertainment, Recreation, Accommodations and Food and $18,367 for Other Services to a high of $62,746 for Manufacturing and $61,738 for Information. When these average wages by sector are multiplied by the estimated employment by each sector, the total payroll for the transit corridor is estimated at $1.79 billion, about 30 percent of the total payroll of $5.97 billion estimated for the ESFV study area. The largest payroll sector for the transit corridor is Education and Health at about $572.7 million, or about 32 percent of the total estimated payroll in the transit corridor. Similarly, the largest payroll sector for the ESFV study area is also Education and Health at about $1.75 billion, or about 29 percent of the total estimated payroll in the study area. The estimated average wage for the transit corridor ($43,198) and the ESFV study area ($42,467) are very similar.

## 4.3.2.6 Parcel Data

### Property Valuation and Acreage

Part A of Table 4.3-7 and Figure 4.3-6 show assessed valuation for the study area ($30.8 billion) and parcels identified within the quarter-mile SCAG Tier 2 zones ($8.1 billion). Figure 4.3-6 displays a comparison of commercial, industrial and residential development assessed valuation. Residential valuation for the study area ($22.3 billion) represents about 72 percent of the total study area valuation, and residential valuation for the transit corridor ($5.6 billion) represents about 69 percent of the total transit corridor valuation. While the transit corridor represents an average of 26.4 percent of the total valuation of the study area, it also comprises a comparatively higher percentage of valuation for commercial, industrial, and multi-family residential parcels.

As shown in Part B of Table 4.3-7, the transit corridor comprised 26.6 percent of the total acreage within the study area. Multi-family land uses were relatively more concentrated at about 34.1 percent of the study area. As shown in Figure 4.3-7, examining the land use distributions, single-family residential acreage comprised the majority of the land uses in both the transit corridor (about 57 percent) and the study area (about 53 percent).

As shown in Part C of Table 4.3-7, the average assessed valuation per acre was estimated at $1,551,259 per acre in the transit corridor, which was similar to the average for the study area at $1,560,656 per acre. Also, valuation per acre was higher in the transit corridor compared to the study area for both commercial (1.17 times) and industrial land use (1.20 times), as shown in Table 4.3-7, Panel C.

[4] California Employment Development Department, *2010 Quarterly Census of Employment and Wages.* Available: <http://www.labormarketinfo.edd.ca.gov/qcew/>. Accessed: March 25, 2013.

### Table 4.3-5: Los Angeles County Annual Average Wages (2010)

| Employment Category | Amount |
|---|---|
| Agriculture and Mining | N/A |
| Construction | $43,989 |
| Manufacturing | $62,746 |
| Wholesale Trade | $41,927 |
| Retail Trade | $27,569 |
| Transportation, Warehousing and Utilities | $45,941 |
| Information | $61,738 |
| FIRE | $48,914 |
| Professional Services | $45,659 |
| Education and Health | $49,932 |
| Arts, Ent, Recr, Accom and Food | $17,858 |
| Other Services | $18,367 |
| Public Administration | $47,340 |

Sources: Stanley R. Hoffman Associates, Inc.; California Employment Development Department, *2010 Quarterly Census of Employment and Wages.*

### Table 4.3-6: Total Payroll Distribution (2010)

| | Transit Corridor | ESFV Study Area |
|---|---|---|
| Agriculture and Mining | N/A | N/A |
| Construction | $93,212,691 | $327,410,127 |
| Manufacturing | $229,148,392 | $667,366,456 |
| Wholesale Trade | $72,240,221 | $399,312,748 |
| Retail Trade | $141,732,229 | $488,632,956 |
| Transportation, Warehousing and Utilities | $80,764,278 | $272,384,189 |
| Information | $107,485,858 | $291,712,050 |
| FIRE | $88,387,598 | $377,420,424 |
| Professional Services | $242,449,290 | $953,816,510 |
| Education and Health | $572,720,040 | $1,751,564,628 |
| Arts, Ent, Recr, Accom and Food | $56,484,854 | $217,046,132 |
| Other Services | $39,672,720 | $121,442,604 |
| Public Administration | $63,056,880 | $104,432,040 |
| **Total** | **$1,787,355,051** | **$5,972,540,864** |
| **Estimated Average Wage** | **$43,198** | **$42,467** |

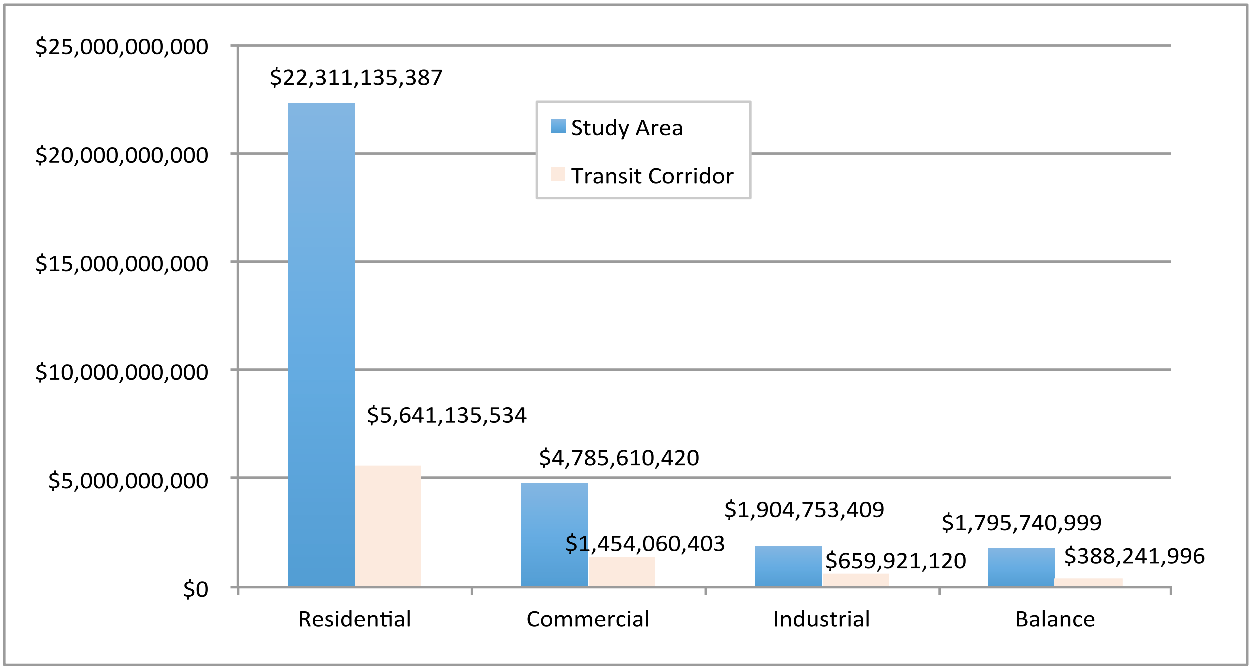
Source: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, *2012 Regional Transportation Plan, Tier 2 Socioeconomic Data.*

## Table 4.3-7: Property Valuation (2014)

| Performance Measures | ESFV Study Area | Transit Corridor | Corridor as percent of Study Area |
|---|---|---|---|
| **A. Assessed Valuation by Land Use** | | | |
| Commercial | $4,785,610,420 | $1,454,060,403 | 30.4% |
| Industrial | $1,904,753,409 | $659,921,120 | 34.6% |
| Single-Family Residential | $17,006,966,690 | $4,112,513,706 | 24.2% |
| Multiple-Family Residential | $5,304,168,697 | $1,528,621,828 | 28.8% |
| Public/Institutional | $1,014,783,181 | $220,443,976 | 21.7% |
| Miscellaneous | $20,222,957 | $2,653,434 | 13.1% |
| Vacant | $760,734,861 | $165,144,586 | 21.7% |
| **Total** | **$30,797,240,215** | **$8,143,359,053** | **26.4%** |
| **B. Total Acres by Land Use** | | | |
| Commercial | 2,281 | 591 | 25.9% |
| Industrial | 1,422 | 410 | 28.8% |
| Single-Family Residential | 10,390 | 2,998 | 28.9% |
| Multiple-Family Residential | 1,545 | 527 | 34.1% |
| Public/Institutional | 3,166 | 493 | 15.6% |
| Miscellaneous | 213 | 18 | 8.3% |
| Vacant | 717 | 213 | 29.8% |
| **Total** | **19,734** | **5,250** | **26.6%** |
| **C. Assessed Valuation per Acre** | | | |
| Commercial | $2,098,258 | $2,460,021 | 1.17 |
| Industrial | $1,339,588 | $1,609,712 | 1.20 |
| Single-Family Residential | $1,636,866 | $1,371,923 | 0.84 |
| Multiple-Family Residential | $3,432,759 | $2,899,460 | 0.84 |
| Public/Institutional | $320,499 | $447,445 | 1.40 |
| Miscellaneous | $95,017 | $151,019 | 1.59 |
| Vacant | $1,061,495 | $773,880 | 0.73 |
| **Average** | **$1,560,656** | **$1,551,259** | **0.99** |
| **D. Vacant Acres by Land Use** | | | |
| Commercial | 288 | 84 | 29.3% |
| Industrial | 80 | 30 | 38.2% |
| Single-Family Residential | 301 | 95 | 31.7% |
| Multiple-Family Residential | 5 | 2 | 36.3% |
| Public/Institutional | 27 | 0 | 1.2% |
| Miscellaneous | 16 | 1 | 5.2% |
| **Total** | **717** | **213** | **29.8%** |

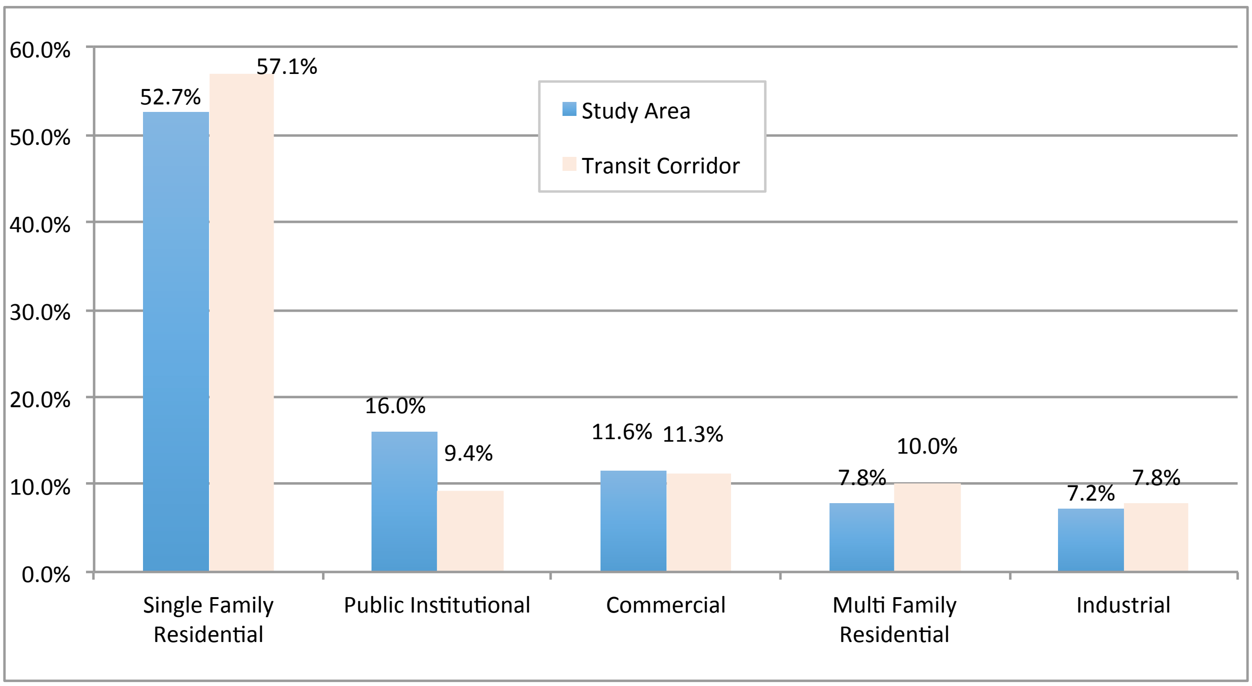
Sources: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, *2012 Regional Transportation Plan, Tier 2 Socioeconomic Data*; Los Angeles County Assessor's Parcel Data, 2014.

### Figure 4.3-6: Assessed Valuation (2014)




Sources: Stanley R. Hoffman Associates, Inc.; Los Angeles County Assessor's Parcel Data, 2014.

### Figure 4.3-7: Distribution of Land Use Acres (2014)



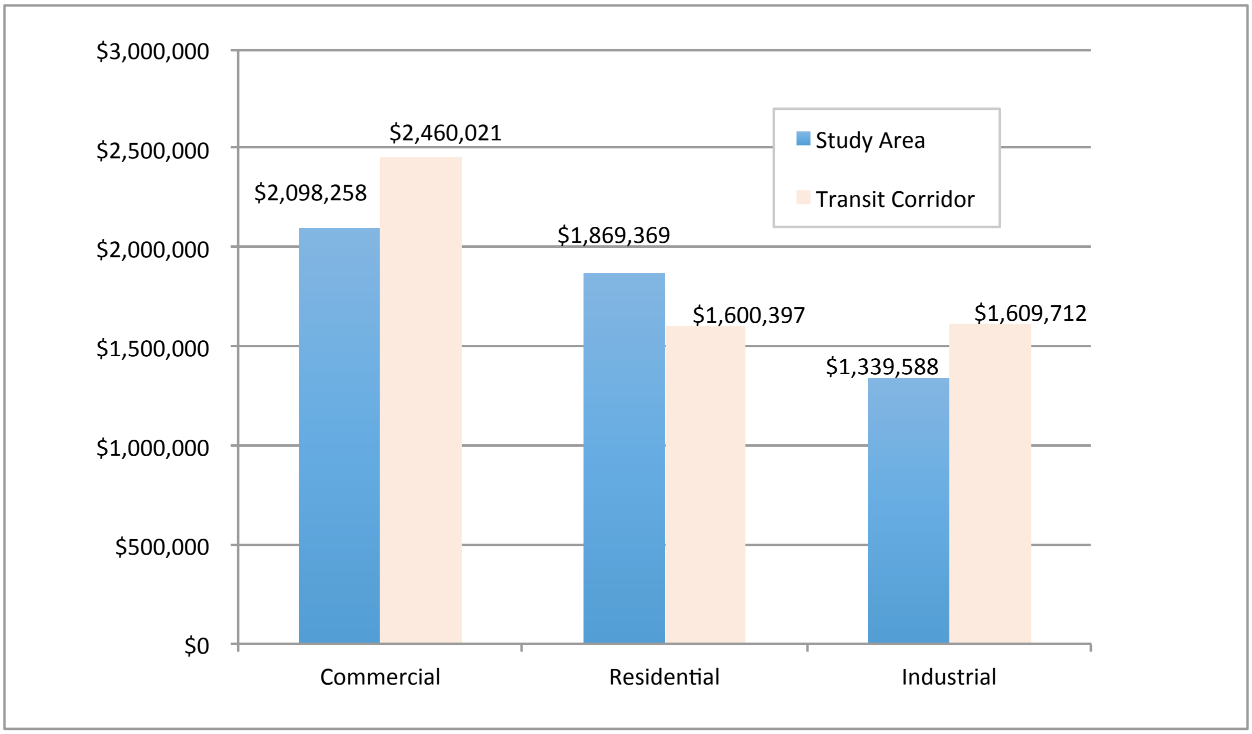

Sources: Stanley R. Hoffman Associates, Inc.; Los Angeles County Assessor's Parcel Data, 2014.

As shown in Part D of Table 4.3-7, vacant land in the transit corridor comprised almost 30 percent of the vacant land in the study area. Over 80 percent of the vacant land is within two categories in the study area: single-family residential (42 percent of total vacant) and commercial (40 percent of total vacant). This is very similar to the transit corridor with residential (45 percent of total vacant) and commercial (39 percent of total vacant).

### Property Valuation of Non-Residential Development

As shown in Figure 4.3-8, on a valuation per acre basis, commercial land use was estimated the highest at about $2.4 million per acre within the transit corridor; it was estimated about 14 percent lower at $2.1 million within the study area. Similarly, industrial land valuation was also estimated higher at $1.6 million per acre within the transit corridor, compared with about $1.3 million per acre within the study area. Residential land valuation had a different relationship with the estimated $1.6 million per acre valuation within the transit corridor actually about 16 percent lower than the estimate of about $1.9 million per acre within the study area.

### Figure 4.3-8: Assessed Valuation per Acre (2014)

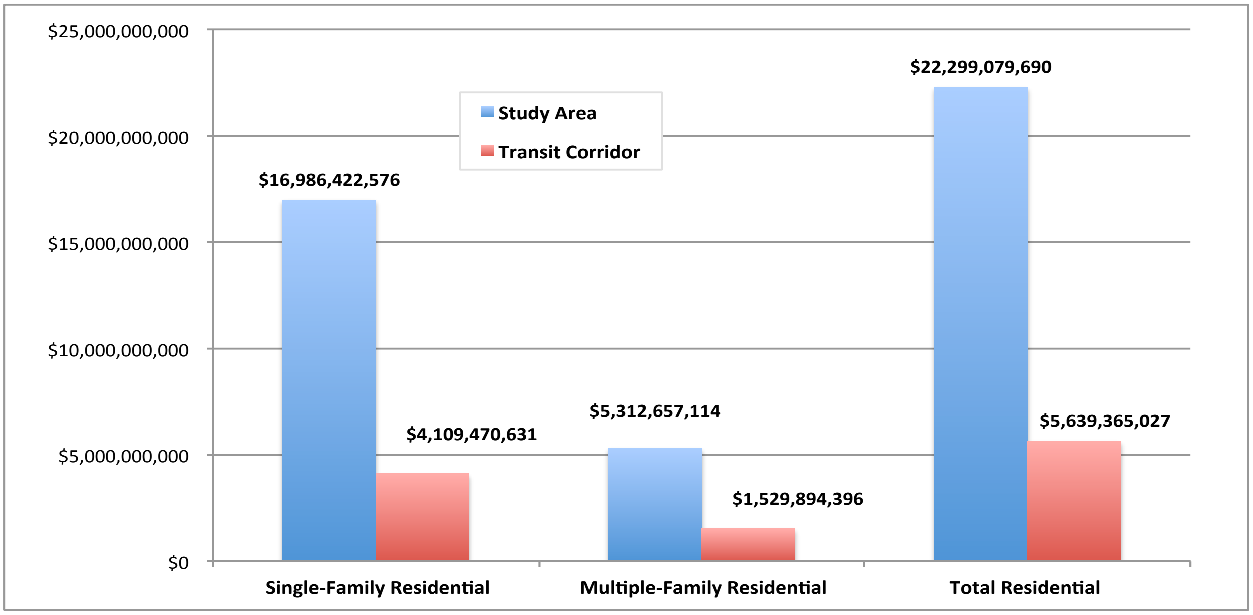



Sources: Stanley R. Hoffman Associates, Inc.; Los Angeles County Assessor's Parcel Data, 2014.

### Property Valuation of Residential Development

Figure 4.3-9 shows assessed valuation for single- and multiple-family residential development within the transit corridor and the study area. The estimated transit corridor total residential valuation of $5.6 billion comprised about 25 percent of the study area total valuation of $22.2 billion in 2014. As a percent of the total residential valuation, single-family residential land uses comprised about 73 to 76 percent of the total residential valuation for the study area and the transit corridor, respectively.

**Figure 4.3-9: Assessed Valuation of Residential Development (2014)**




Sources: Stanley R. Hoffman Associates, Inc.; Los Angeles County Assessor's Parcel Data, 2014.

## 4.3.2.7 Transit Supportive Land Use

Table 4.3-8 shows indicators for jobs-generating (Part A) land uses and residential (Part B) land uses by density; the indicators are discussed below.[5]

### Jobs-Generating Land Uses by Density

In 2010, commercial employment density for the transit corridor at 32.7 jobs per developed acre was slightly higher than that for the study area at 30.6 jobs per developed acre. Similarly, industrial employment density for the transit corridor at 18.4 jobs per developed acre was slightly lower compared to that for the study area at 19.4 jobs per developed acre.

In 2010, the transit corridor had an estimated jobs per household ratio of about 1.0, very similar to the study area ratio of 1.1.jobs per household.

### Residential Land Uses by Density

In 2010, population density, estimated as a ratio of residential population per developed residential acre, was estimated relatively higher at 47.4 persons per acre within the transit corridor compared to 38.1 persons per acre in the study area.

In 2010, household size within the corridor at 3.9 persons per household was relatively higher compared to the study area at 3.4 persons per household.

In 2010, households per developed residential acre were slightly higher within the transit corridor at 12.2 households per acre compared to 11.2 households per acre within the study area.

[5] Land use data for this section obtained from Los Angeles County Assessor's Parcel data for 2014, while demographic and employment information was obtained from the SCAG 2012 RTP Tier 2 dataset.

Table 4.3-8: Job-Generating and Residential Land Uses by Density (2010)

| | ESFV Study Area | Transit Corridor |
|---|---|---|
| **A. Jobs-Generating Land Uses by Density** | | |
| Commercial Employment Density (jobs per commercial acre) | 30.6 | 32.7 |
| Industrial Employment Density (jobs per industrial acre) | 19.4 | 18.4 |
| Total Jobs per Household | 1.1 | 1.0 |
| **B. Residential Land Uses by Density** | | |
| Population Density (persons per residential acre) | 38.1 | 47.4 |
| Persons per Household | 3.4 | 3.9 |
| Households per Acre | 11.2 | 12.2 |
| Sources: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, *2012 Regional Transportation Plan, Tier 2 Socioeconomic Data*; Los Angeles County Assessor's Parcel Data, 2014. | | |

# 4.3.3 Environmental Consequences, Impacts, and Mitigation Measures

The impacts of each of the project alternatives are discussed in detail below. For a summary of impacts by alternative, please see Table 4.3-15 at the end of this section.

## 4.3.3.1 No-Build Alternative

### Construction Impacts

Under the No-Build Alternative, no project improvements are proposed. Therefore, no parcel acquisitions would be required and no construction costs would occur under this alternative.

### Operational Impacts

No project improvements are proposed under this alternative and consequently no operational impacts would occur under the No-Build Alternative.

### Cumulative Impacts

The No-Build Alternative would not require acquisition of properties and consequently would not result in direct adverse effects that could contribute to cumulative adverse economic and fiscal impacts.

### Mitigation Measures

#### Construction Mitigation Measures

None Required.

#### Operational Mitigation Measures

None Required.

### Impacts Remaining After Mitigation

#### NEPA Finding

No adverse effects would occur.

#### CEQA Determination

According to CEQA, social and economic impacts are not considered environmental impacts.

## 4.3.3.2 TSM Alternative

### Construction Impacts

The TSM Alternative would require no parcel acquisitions and consequently construction would result in no adverse economic or fiscal impacts or effects.

The estimated cost to construct the relatively minor physical improvements (e.g., bus stop improvements and minor modifications to the roadway network including traffic signal improvements) proposed under the TSM Alternative is $8.6 million. The TSM Alternative would generate an estimated 111 jobs based on this estimated construction cost. Of these jobs, 66 would be generated directly by construction and 19 would be generated indirectly. An additional 26 jobs would be induced through increased household spending by direct and indirect employees.

Total labor income for the TSM Alternative would be about $6.8 million, with $4 million of this being the result of direct construction impacts. Labor income for jobs created via indirect impacts would be about $1.4 million. Labor income for induced jobs would also be about $1.4 million.

Total output for this alternative would be just over $16 million, $8.6 million of which would be generated directly by construction. Output generated by indirect impacts amounts to about $3.7 million. Induced impacts of construction could generate nearly $3.8 million of output.

The TSM Alternative would generate an estimated $8.5 million in value added, with about $4.1 million resulting from the direct impacts of construction. Indirect impacts would generate an estimated $2.1 million in value added. Induced value added would amount to about $2.4.

### Operational Impacts

The TSM Alternative would result in no adverse operational economic or fiscal impacts. Minor beneficial impacts could occur as result of a minor increase in the number of bus drivers that would be required to provide the increased bus frequencies.

### Cumulative Impacts

The TSM Alternative would not require acquisition of properties and consequently would not result in direct adverse effects that could contribute to cumulative adverse economic and fiscal impacts.

### Mitigation Measures

No negative impacts on the region's economy have been identified for this alternative; therefore, no mitigation would be required.

#### Construction Mitigation Measures

None required.

#### Operational Mitigation Measures

None required.

### Impacts Remaining After Mitigation

#### NEPA Finding

No adverse effects would occur.

#### CEQA Determination

According to CEQA, social and economic impacts are not considered environmental impacts.

## 4.3.3.3 BRT Alternatives (Build Alternatives 1 and 2)

### Alternative 1 – Curb-Running BRT

#### Construction Impacts

Alternative 1 – Curb-Running BRT would require no parcel acquisitions. Other than potential minor economic impacts on local businesses due to reduced visibility (due to sign blockage) and diminished access resulting from temporary sidewalk or lane closures, loss of on-street parking during construction, and permanent removal of on-street parking to accommodate the Alternative 1 alignment, no adverse fiscal and economic impacts would occur.

The construction costs for Alternative 1 are estimated at $260.0 million. Alternative 1 would generate an estimated 3,368 jobs. Of these jobs, an estimated 2,000 would be generated directly by construction and 577 would be generated indirectly. An additional 791 jobs would be induced through increased household spending by direct and indirect employees.

Total labor income for Alternative 1 would be about $206.6 million, with $120.8 million of this being the result of direct construction impacts. Labor income for jobs created via indirect impacts would be about $43.4 million.

Total economic output for this alternative would be about $486.8 million, $259.8 million of which would be generated directly by construction. Output generated by indirect impacts would amount to approximately $112.7 million. Induced impacts of construction would generate nearly $114.3 million of output.

Alternative 1 would generate about $257.7 million in value added, with about $123.4 million coming from direct impacts of construction. Indirect impacts would generate approximately $62.2 million in value added. Induced value added would amount to about $72.1 million.

#### Operational Impacts

Operational economic and fiscal impacts would be limited to the potential indirect impacts on local businesses due to diminished access that could occur where on-street parking would be removed to accommodate the Curb-Running BRT Alternative. No other adverse operational economic and fiscal impacts would occur.

### Cumulative Impacts

The Curb-Running BRT Alternative would not require acquisition of properties and consequently would not result in direct adverse effects that could contribute to cumulative adverse economic and fiscal impacts. The indirect economic and fiscal effects due to Curb-Running Build Alternative would be minimal and can be further reduced with implementation of mitigation measures; therefore, the Curb-Running Alternative would not contribute to any significant adverse cumulative fiscal and economic impacts.

### Mitigation Measures

No negative impacts on the region's economy have been identified for any of the build alternatives; therefore, no mitigation would be required. Nevertheless, the following mitigation measures would reduce impacts.

#### *Construction Mitigation Measures*

Construction would have temporary impacts on commercial and industrial businesses, particularly those near or adjacent to construction sites. Sidewalks or adjacent roadway lanes may be temporarily closed, thereby reducing business access. Business impacts could also include reduced visibility of commercial signs and businesses. These construction impacts could in turn have minor economic impacts on commercial establishments. A number of short-term measures would be undertaken to temper these impacts (please see Mitigation Measures MM-TRA-1 and MM-TRA-5 in the Executive Summary or Chapter 3 of this EIS/EIR).

#### *Operational Mitigation Measures*

None required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Potential effects would not be adverse.

#### *CEQA Determination*

According to CEQA, social and economic impacts are not considered environmental impacts.

## Alternative 2 – Median-Running BRT

### Construction Impacts

Alternative 2 – Median-Running BRT would not require the acquisition of any parcels. Therefore, adverse economic and fiscal impacts would be limited to potential impacts on local businesses due to reduced visibility (e.g., sign blockage) and diminished access resulting from sidewalk or lane closures, loss of on-street parking during construction, and permanent removal of on-street parking spaces to accommodate the Alternative 2 alignment.

The estimated construction cost for Alternative 2 is approximately $362 million. Alternative 2 would generate an estimated 4,693 jobs. Of these jobs, 2,788 would be generated directly by construction and 804 would be generated indirectly. An additional 1,101 jobs would be induced through increased household spending by direct and indirect employees.

Total labor income for Alternative 2 would be about $287.9 million, with $168.4 million of this being the result of direct construction impacts. Labor income for jobs created via indirect impacts would be about $60.5 million. Labor income for induced jobs would be about $59.1 million. Total Output for this alternative would be about $678.4 million, $362.0 million of which would be generated directly by construction. Output generated by indirect impacts would amount to about $157.1 million. Induced impacts of construction generate about $159.2 million of output.

The Median-Running BRT Alternative would generate an estimated $359.2 million in value added, with about $172.0 million coming from direct impacts of construction. Indirect impacts would generate about $86.7 million in value added.

#### Operational Impacts

Operational impacts would be the same as those described above for Alternative 1.

#### Cumulative Impacts

The Median-Running BRT Alternative would not require acquisition of properties and consequently would not result in direct adverse effects that could contribute to cumulative adverse economic and fiscal impacts. The indirect economic and fiscal effects due to the Median-Running Alternative would be minimal and can be further reduced with implementation of mitigation measures; therefore, this alternative would not contribute to any significant adverse cumulative fiscal and economic impacts.

#### Mitigation Measures

##### *Construction Mitigation Measures*

Construction would have temporary impacts on commercial and industrial businesses, particularly those near or adjacent to construction sites. Sidewalks or adjacent roadway lanes may be temporarily closed, thereby reducing business access. Business impacts could also include reduced visibility of commercial signs and businesses. These construction impacts could in turn have minor economic impacts on commercial establishments. A number of short-term measures would be undertaken to temper these impacts (please see Mitigation Measures MM-TRA-1 and MM-TRA-5 in the Executive Summary or Chapter 3 of this EIS/EIR).

##### *Operational Mitigation Measures*

None required.

#### Impacts Remaining After Mitigation

##### *NEPA Finding*

Potential effects would not be adverse.

##### *CEQA Determination*

According to CEQA, social and economic impacts are not considered environmental impacts.

# 4.3.3.4 Rail Alternatives (Alternatives 3 and 4)

## Alternative 3 – Low-Floor LRT Tram

### Construction Impacts

Alternative 3 could result in potential minor economic impacts on local businesses due to reduced visibility (e.g., sign blockage) and diminished access resulting from sidewalk or lane closures, loss of on-street parking during construction, and permanent removal of on-street parking spaces to accommodate the Alternative 3 alignment.

The parcel acquisitions and the economic and fiscal impacts resulting from those acquisitions that could occur under this alternative are discussed below.

#### *Parcel Acquisitions*

*Guideway, Stations, and TPSS*

Alternative 3 would require full or partial acquisition of approximately 28 parcels to construct the guideway, stations, and TPSS. The acquisitions would consist of 25 full acquisitions and three partial acquisitions. Eleven property acquisitions would be required along the alignment to accommodate the TPSS facilities, which would be spaced approximately 1 to 1.5 miles apart. In addition, full acquisitions of 15 parcels would be required to accommodate the Low-Floor LRT/Tram guideway at the southwest corner of San Fernando Road and Van Nuys Boulevard and provide the necessary curve to transition the alignment to San Fernando Road. These parcels contain commercial retail businesses, which would require relocation. Two parcels between Weidner Street and the SR-118 on-/off-ramp at San Fernando Road would be acquired to accommodate a station platform.

*MSF Sites*

In addition to ROW acquisitions required to construct the track and TPSS facilities associated with the rail alternatives, a number of parcels would be acquired to accommodate the MSF. The MSF site would require approximately 25 to 30 acres to provide enough space for storage of the maximum number of train vehicles and accommodate the associated operational needs, such as staff offices, dispatcher workstations, employee break rooms, operator areas, collision/body repair areas, paint booths, and wheel truing machines. Because of the space needs for the MSF, acquisition of between 37 and 61 parcels, depending on the MSF site selected, would be required. A discussion of the ROW acquisition requirements for each of the three proposed alternative MSF sites is presented below.

**MSF Option A:** MSF Option A would fully acquire 58 parcels between Calvert Street to the north, Oxnard Street to the south, and Kester Avenue to the west. The majority of the property that would be acquired consists of light manufacturing and commercial property, most of which contains businesses oriented toward automobile repair and supplies and other general commercial retail uses. Three parcels would also be fully acquired that are zoned for residential use but are currently developed as a single parking lot serving an adjacent warehouse business. One parcel (2241-024-014) zoned for industrial use appears to include approximately four housing units. Accordingly, residential displacement would occur under MSF Option A.

**MSF Option B:** MSF Option B would require 37 full acquisitions along Keswick Street and Raymer Street. A majority of the property that would be acquired consists of light manufacturing and commercial property, most of which contains businesses oriented toward automobile repair and supplies or raw materials supply and manufacturing.

**MSF Option C:** MSF Option C would require the acquisition of 42 parcels including 41 full acquisitions along Arminta Street and Cabrito Road. As with Option B, a majority of the property that would be acquired consists of light manufacturing and commercial property oriented toward automobile repair and raw materials supply and manufacturing.

### *Economic and Fiscal Impacts of Parcel Acquisitions*

The economic and fiscal impacts of Alternative 3, including the MSF site options, are summarized in Tables 4.3- 9 through 4.3-11 below and described in greater detail in the text that follows the tables. As shown in Table 4.3-9, the Total Assessed Value for Alternative 3 Option A, Option B, and Option C range from a low of about $40.6 million (MSF Option C) to a high of $45.9 million (MSF Option B), requiring potentially 32.1 acres (MSF Option A) to 36.7 acres (MSF Option B) of land.

As shown in Table 4.3-10, the number of parcels to be acquired ranges from 63 (MSF Option B) to 87 (MSF Option A) and the total acquistions square footage ranges from 1.2 million square feet (MSF Option A) to 1.4 million square feet (MSF Option B). Table 4.3-11 summarizes the economic impacts and identifies the affected number of firms, employment, output, value-added, and labor compensation, as well as the potential losses in property and sales tax revenue due to the parcel acquisitions.

**Table 4.3-9: Alternative 3 – Summary of Assessed Valuation and Parcel Acquisition Statistics**

| ALT 3 | Assessed Land Value | Assessed Improvement Value | Total Assessed Value | Building Sq. Ft. | Parcel Sq. Ft. | Acres | FAR | Value Per Acre |
|---|---|---|---|---|---|---|---|---|
| Option A | $23,602,035 | $17,312,249 | $40,914,284 | 460,223 | 1,397,068 | 32.1 | 0.33 | $1,275,691 |
| Option B | $26,943,151 | $19,044,182 | $45,987,333 | 405,371 | 1,599,168 | 36.7 | 0.25 | $1,252,656 |
| Option C | $24,285,429 | $16,282,455 | $40,567,884 | 485,528 | 1,433,459 | 32.9 | 0.34 | $1,232,778 |
| Sources: Stanley R. Hoffman Associates, Inc.; Los Angeles County Assessor's File, 2014. | | | | | | | | |

**Table 4.3-10: Alternative 3 – Summary of Total Parcel Square Footage and Estimated Acquired Square Footage**

| ALT 3 | No. of Parcels | Parcel Square Footage | KOA Parcel Acquisition Square Footage[a] | Difference | Percentage of Parcels Acquired |
|---|---|---|---|---|---|
| Option A | 90 | 1,397,068 | 1,232,118 | 164,950 | 88.2% |
| Option B | 63 | 1,599,168 | 1,430,828 | 168,340 | 89.5% |
| Option C | 68 | 1,433,459 | 1,273,168 | 160,291 | 88.8% |
| [a.] This is the parcel square footage estimated by KOA Corporation to be acquired.<br>Sources: Stanley R. Hoffman Associates, Inc.; Los Angeles County Assessor's File, 2014. | | | | | |

**Table 4.3-11: Alternative 3 – Summary of Estimated Employment and Fiscal Impacts**

| ALT 3 | Firms | Jobs | Output | Value Added | Labor Income | Property Tax | Sales Tax |
|---|---|---|---|---|---|---|---|
| Option A | 79 | 413 | $73,905,065 | $38,009,745 | $22,731,044 | $409,143 | $41,798 |
| Option B | 54 | 580 | $87,838,069 | $50,789,184 | $29,280,634 | $459,873 | $184,639 |
| Option C | 79 | 576 | $162,736,261 | $66,597,176 | $37,810,922 | $405,679 | $62,851 |
| Sources: Stanley R. Hoffman Associates, Inc.; IMPLAN Group, LLC, IMPLAN System (data and software), Copyright 2013. | | | | | | | |

*Alternative 3, MSF Option A*

**Property Tax Loss Analysis:** For Alternative 3, including MSF Option A, about $409,000 is estimated to be lost in property taxes from potential parcel acquisitions (under the 1 percent basic property tax levy). The loss would affect the operating budgets of local jurisdictions, special districts, and agencies. Almost 28 percent of the study area's property tax loss would be from the Los Angeles County General Fund, with about 26 percent of the estimated loss from the Los Angeles City General Fund. When the property revenues loss to the Los Angeles County Unified School District is combined with other K-12 educational revenue funds, approximately 40 percent of the total of $409,000 would be lost from their operating budget. The loss in tax revenue to other districts and agencies comprises a relatively small proportion of the total.

When property taxes lost are compared with the ¼ mile transit corridor and the study area, the loss ranges from only 0.5 percent of the overall property taxes generated in the transit corridor, to 0.4 to 0.6 percent for the fund categories. Similarly, when the estimated property tax lost is compared against the property taxes in the larger study area, the loss is even less at 0.1 percent for both the study area and the fund categories.

**Economic Impacts of Parcel Acquisitions:** Alternative 3, including MSF Option A's parcel acquisitions, would affect 413 jobs divided among 79 firms, which have a total output of about $73.9 million. Total labor income generated by the 413 jobs is about $22.7 million, which is 31 percent of the total output. Jobs are concentrated mostly in six industries, with Other Services (except Public Administration) accounting for the highest number of estimated employees at 102. The next largest sector in terms of employment is Manufacturing with an estimated 62 employees. Manufacturing also accounts for the highest level of output with nearly $30 million, over twice as much as the second highest output for Wholesale Trade at about $13 million. Value added, which is the combination of labor income, property type income, and indirect business taxes, is estimated at $38 million.

**Estimated Retail and Food Services Sales Tax Impact:** The estimated local sales tax lost by the potential parcel acquisitions for Alternative 3, including MSF Option A, is estimated at $41,798. This is based on the estimated employment lost from the associated parcel acquisitions that include employment from three main employment categories that generate taxable sales transactions. These employment categories are shown as follows with the average output per worker shown in parentheses: 1) food and beverage stores ($71,993); 2) food services, including restaurants and fast food establishments ($63,437); and 3) all other retail activities ($87,724). The total average output per store type was then multiplied by the number of estimated workers lost in each category to generate estimated total taxable sales transactions. The Food and Beverage Category was further factored by 30 percent to estimate the taxable transactions for grocery and convenience food stores. The resultant taxable retail sales transactions were then factored by 1 percent to estimate the local sales tax lost.

**Construction Cost Impacts:**. The construction costs for Alternative 3, including MSF Option A, are estimated to be over $1.0 billion. Alternative 3 Option A would generate an estimated 13,134 jobs. Of these jobs, 7,802 would be generated directly by construction and 2,250 would be generated indirectly. An additional 3,082 jobs would be induced through increased household spending by direct and indirect employees.

Total Output for this alternative would be about $1.9 billion, $1.0 billion of which would be generated directly by construction. Output generated by indirect impacts would amount to about $439.7 million. Induced impacts of construction could generate nearly $445.7 million of output.

*Alternative 3, MSF Option B*

**Property Tax Loss Analysis:** For Alternative 3, including MSF Option B, potential property acquisitions would result in a loss of about $460,000 (under the 1 percent basic property tax levy) from the operating budgets of local jurisdictions, special districts, and agencies. Almost 28 percent of the study area's property tax loss would be from the Los Angeles County General Fund, with about 26 percent of the estimated loss from the Los Angeles City General Fund. When the property revenues loss to the Los Angeles County Unified School District is combined with other K-12 educational revenue funds, approximately 40 percent of the total property tax loss would be from their operating budgets. Other districts and agencies make up a relatively small proportion of the total.

When property taxes lost are compared with the ¼ mile transit corridor and the study area, the loss ranges from only 0.6 percent of the property taxes generated in the transit corridor, to 0.4 to 0.7 percent for the fund categories. Similarly, when the estimated property tax lost is compared against the study area, the loss is even less at 0.1 percent of the overall property taxes, and ranges between 0.1 to 0.2 percent for the fund categories.

**Economic Impacts of Parcel Acquisitions:** Parcel acquisitions to construct Alternative 3, including MSF Option B, would affect 580 jobs in 54 firms. Labor income generated by the lost jobs amounts to about $29.3 million, which is almost exactly a third of these firms' total output of $87.8 million. Employment is dominated by Accommodation and Food Services at 242 employees and Whole Sale Trade at 142 employees. Together these industries provide over two thirds of the jobs affected by this alternative. In terms of output, Wholesale Trade is the largest industry, as its output of about $33 million is about twice as a high as Manufacturing, which is the second largest in this regard. Value added is estimated at $50.8 million.

**Estimated Retail and Food Services Sales Tax Impact:** The estimated local sales tax lost by the potential parcel acquisitions required to construct Alternative 3, including MSF Option B, is estimated at $184,639.

**Construction Cost Impacts:** The construction costs for Alternative 3, including MSF Option B, are estimated to be about $1.0 billion. Alternative 3 Option B would generate an estimated 13,419 total jobs or slightly more than Alternative 3 Option A. Of these jobs, 7,971 would be generated directly by construction and 2,299 would be generated indirectly. An additional 3,149 jobs would be induced through increased household spending by direct and indirect employees.

Total Output for this alternative would be just over $1.9 billion, about $1.0 billion of which would be generated directly by construction. Output generated by indirect impacts would amount to about $449.2 million. Induced impacts of construction would generate over $455.3 million of output.

*Alternative 3, MSF Option C*

**Property Tax Loss Analysis:** For Alternative 3, including MSF Option C, the parcel acquisitions would result in the loss of an estimated $406,000 in property taxes (under the 1 percent basic property tax levy) from the operating budgets of local jurisdictions, special districts and agencies. Almost 28 percent of the study area's property tax loss would be from the Los Angeles County General Fund, with about 26 percent from the Los Angeles City General Fund. When the property revenues loss to the Los Angeles County Unified School District is combined with other K-12 educational revenue funds, approximately 40 percent of the total property tax loss would be from their operating budgets. Other districts and agencies would make up a relatively small proportion of the total.

When property taxes lost are compared with the 0.25-mile transit corridor and the study area, the loss ranges from only 0.5 percent of the overall property taxes generated in the transit corridor, to 0.0 to 0.7 percent for the fund categories. Similarly, when the estimated property tax loss is compared against the study area, the loss is even less at 0.1 percent of the overall property taxes generated, and ranges between 0.0 to 0.2 percent for the fund categories.

**Economic Impacts of Parcel Acquisitions:** Alternative 3, including MSF Option C, would affect 576 jobs spread among 79 firms. The total output of these firms is $162.7 million. The labor income generated by the jobs lost under this option is just over $37.8 million, representing a much smaller portion (about 23 percent) of the total output than the other options. Manufacturing accounts for about 40 percent of all jobs affected by this option with 231, and also accounts for nearly 70 percent of the option's dollar output. For total employment, Wholesale Trade is the second largest industry with 74 workers and Retail Trade is third with 69. Value added is $66.6 million.

**Estimated Retail and Food Services Sales Tax Impact:** The estimated local sales tax that could be lost by the potential parcel acquisitions for Alternative 3, including MSF Option C, is estimated at $62,851.

**Construction Cost Impacts:** The construction costs for Alternative 3, including MSF Option C, are estimated to be about $1.0 billion. Alternative 3, including MSF Option C, would generate an estimated 13,165 jobs. Of these jobs, 7,820 would be generated directly by construction and 2,255 would be generated indirectly. An additional 3,090 jobs would be induced through increased household spending by direct and indirect employees.

Total Output for this alternative would be about $1.9 billion, $1.0 billion of which would be generated directly by construction. Output generated by indirect impacts would amount to approximately $440.7 million. Induced impacts of construction could generate $446.7 million of output.

### Operational Impacts

Operational economic and fiscal impacts would be limited to the potential indirect impacts on local businesses due to diminished access that could occur where on-street parking would be removed to accommodate the Alternative 3 – Low Floor LRT/Tram alignment. The loss of on-street parking spaces may mean that drivers would have to park on adjacent streets or in off-street lots or garages. While that may be an inconvenience, it does not constitute a substantial adverse effect under NEPA or a significant impact under CEQA. No other adverse operational economic and fiscal impacts would occur.

### Cumulative Impacts

Alternative 3 in conjunction with other related projects that require the acquisition of parcels and result in the long-term loss of income-generating jobs and tax revenue could potentially result in adverse cumulative economic and fiscal impacts under NEPA. However, the related projects identified within the study area (see Table 2-3 in Chapter 2) do not include any other major public infrastructure projects that would result in permanent loss of tax revenue or jobs. The vast majority of the related projects are residential, commercial, or industrial development projects that would generate long-term jobs and tax revenue.

Alternative 3 – Low Floor LRT/Tram Alternatives, Options A, B and C could potentially spur more significant increased mixed use development because of its more permanent, major investment into a fixed rail system that may incentivize the private sector to invest in more significant mixed use development projects at key station locations. However, due to the more localized nature of a Low-Floor LRT/Tram system, compared with a more regional serving LRT, it is not expected that this alternative would generate significant cumulative growth inducement impacts.

### Mitigation Measures

#### *Construction Mitigation Measures*

Construction would have temporary impacts on commercial and industrial businesses, particularly those near or adjacent to construction sites. Sidewalks or adjacent roadway lanes may be temporarily closed, thereby reducing business access. Business impacts could also include reduced visibility of commercial signs and businesses. These construction impacts could in turn have minor economic impacts on commercial establishments. A number of short-term measures would be undertaken to temper these impacts (please see Mitigation Measures MM-TRA-1 and MM-TRA-5 in the Executive Summary or Chapter 3 of this EIS/EIR).

#### *Operational Mitigation Measures*

None required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The potential effects would not be adverse under NEPA.

#### *CEQA Determination*

According to CEQA, social and economic impacts are not considered environmental impacts.

## Alternative 4 – LRT

### Construction Impacts

Alternative 4 could also result in potential minor economic impacts on local businesses due to reduced visibility (e.g., sign blockage) and diminished access resulting from sidewalk or lane closures, loss of on-street parking during construction, and permanent removal of on-street parking spaces to accommodate the Alternative 4 alignment.

### *Parcel Acquisitions*

*Guideway, Stations, and TPSS*

Alternative 4 would require the full or partial acquisition of approximately 55 parcels to construct the guideway, stations, and TPSS facilities. Of these 55 acquisitions, 44 would be full acquisitions and 11 would be partial acquisitions. TPSS facilities would be dispersed along the project alignment and require 13 property acquisitions, of which 12 would be full acquisitions and one would be a partial acquisition of a grocery store parking lot. The remaining 42 property acquisitions would be required to accommodate the project guideway and station platforms. Twenty-one such acquisitions, including 10 acquisitions in the City of San Fernando, would be located near the Alternative 4 terminus and would be required due to the partial relocation of Metrolink tracks to accommodate the Alternative 4 guideway and station platform at the Sylmar/San Fernando Metrolink Station. Within the City of San Fernando, land uses abut the existing Metrolink ROW, which is relatively narrow between Jessie Street and the Sylmar/San Fernando Metrolink Station. Additional space would be required to fully accommodate both the Metrolink and tracks/guideway. As such, small partial acquisitions of seven properties and three full acquisitions would be required in this location. As would occur under Alternative 3, full acquisitions of 16 parcels containing commercial properties would be required to accommodate the LRT guideway at the southwest corner of San Fernando Road and Van Nuys Boulevard to provide the necessary curve to transition the alignment to San Fernando Road. Two station platforms, the Roscoe Station and the Sherman Way Station, would require the acquisition of several commercial properties.

*MSF Sites*

In addition to ROW acquisitions required to construct the track and TPSS facilities associated with the LRT Alternative, a number of parcels would be acquired to accommodate the MSF. The MSF site would require approximately 25 to 30 acres to provide enough space for storage of the maximum number of train vehicles and accommodate the associated operational needs, such as staff offices, dispatcher workstations, employee break rooms, operator areas, collision/body repair areas, paint booths, and wheel truing machines. Because of the space needs for the MSF, acquisition of between 37 and 61 parcels, depending on the MSF site selected, would be required. A discussion of the ROW acquisition requirements for each of the three proposed alternative MSF sites is presented below.

**MSF Option A:** As described above under Alternative3, MSF Option A would require acquisition of 58 parcels between Calvert Street to the north, Oxnard Street to the south, and Kester Avenue to the west. Two additional full acquisitions would be required where Van Nuys Boulevard crosses the Metro Orange Line Busway in order to provide the necessary curve to transition the Alternative 4 guideway onto the Orange Line Busway ROW. Because the MSF Option A site would be located at the southern terminus of Alternative 4, as opposed to the areas surrounding the Van Nuys Metrolink Station under MSF Options B and C, a key difference in MSF Option A is the Van Nuys Metrolink station platform would only require partial acquisition of parcel 2215-001-912 at Keswick Street as opposed to the full acquisition under MSF Options B and C.

**MSF Option B:** MSF Option B would require 37 full acquisitions, as described above under Alternative 3. In order to connect Alternative 4 to the MSF Option B site, the Alternative 4 guideway would curve east off of Van Nuys Boulevard through a row of commercial buildings requiring 11 full acquisitions. This is required to provide a perpendicular crossing of Van Nuys Boulevard to access the MSF Option B site. In addition, partial acquisition and permanent underground easements below six private properties would be required where tunnel portions of the alignment would not be within public road ROW. No displacements would be required as a result of these underground easements.

**MSF Option C:** MSF Option C, as described above under Alternative 3, would require the acquisition of 42 properties, 41 of which would be full acquisitions. The MSF Option C connection for Alternative 4 would require the full acquisition of 11 commercial properties. The primary difference between the MSF Option C connection and the MSF Option B connection is there would be additional underground easements required below two additional properties for MSF Option C, as the tunnel portion of the alignment would be extended below these two private properties.

### *Economic and Fiscal Impacts of Parcel Acquisitions*

The economic and fiscal impacts due to the parcel acquisitions required to construct Alternative 4, including the MSF site options, are summarized in Tables 4.3- 12 through and 4.3-14 below and described in greater detail in the text that follows the tables. As shown in Table 4.3-12, the Total Assessed Value for Alternative 4 Option A, Option B, and Option C range from a low of about $65.8 million (MSF Option A) to a high of $94.0 million (MSF Option B), requiring potentially 60.5 acres (MSF Option A) to 72.2 acres (MSF Option B). Table 4.3-13 identifies the number of parcels that would be affected, which ranges from 102 (MSF Option B) to 118 (MSF Option A) and total square footage of the properties to be acquired, which ranges from 1.8 million square feet (MSF Option A) to 2.2 million square feet (MSF Option B). Table 4.3-14 identifies the affected number of firms, employment, output, value-added, and labor compensation and identifies the potential property and sales tax losses due to parcel acquisitions.

**Table 4.3-12: Alternative 4 – Summary of Assessed Valuation and Parcel Acquisition Statistics**

| Land Use | Assessed Land Value | Assessed Improvement Value | Total Assessed Value | Building Sq. Ft. | Parcel Sq. Ft. | Acres | FAR | Value Per Acre |
|---|---|---|---|---|---|---|---|---|
| Option A | $37,750,237 | $28,072,207 | $65,822,444 | 869,681 | 2,633,345 | 60.5 | 0.33 | $1,088,815 |
| Option B | $52,272,725 | $41,684,988 | $93,957,713 | 943,959 | 3,146,251 | 72.2 | 0.30 | $1,300,849 |
| Option C | $48,923,971 | $38,392,032 | $87,316,003 | 1,023,712 | 2,954,449 | 67.8 | 0.35 | $1,287,376 |
| Sources: Stanley R. Hoffman Associates, Inc.; Los Angeles County Assessor's File, 2014. | | | | | | | | |

**Table 4-13: Alternative 4 – Summary of Total Parcel Square Footage and Estimated Acquired Square Footage**

| ALT | No. of Parcels | Parcel Sq. Ft. | KOA Parcel Acquisition Sq. Ft.[a] | Difference | Percentage of Parcels Acquired |
|---|---|---|---|---|---|
| Option A | 118 | 2,633,345 | 1,755,281 | 878,064 | 66.7% |
| Option B | 102 | 3,146,251 | 2,245,671 | 900,580 | 71.4% |
| Option C | 106 | 2,954,449 | 2,060,321 | 894,128 | 69.7% |
| [a.] This is the parcel square footage estimated by KOA Corporation to be acquired.<br>Sources: Stanley R. Hoffman Associates, Inc.; Los Angeles County Assessor's File, 2014. | | | | | |

### Table 4.3-14: Alternative 4 – Summary of Estimated Employment and Fiscal Impacts

| ALT 4 | Firms | Jobs | Output | Value-Added | Labor Income | Property Tax | Sales Tax |
|---|---|---|---|---|---|---|---|
| Option A | 106 | 974 | $215,034,217 | $91,240,338 | $57,126,873 | $658,000 | $66,632 |
| Option B | 126 | 1,285 | $248,514,020 | $115,093,588 | $70,330,356 | $940,000 | $236,438 |
| Option C | 147 | 1,280 | $325,433,391 | $131,861,261 | $79,294,826 | $873,000 | $113,774 |
| Sources: Stanley R. Hoffman Associates, Inc.; IMPLAN Group, LLC, IMPLAN System (data and software), Copyright 2013. | | | | | | | |

*Alternative 4, MSF Option A*

**Property Tax Loss Analysis:** Under Alternative 4, including MSF Option A, it's estimated that property acquisitions would result in the loss of about $658,000 in property taxes (under the 1 percent basic property tax levy). The loss in property taxes would affect the operating budgets of local jurisdictions, special districts, and agencies. Almost 28 percent of the study area's property tax loss would be from the Los Angeles County General Fund, with about 26 percent of the estimated loss from the Los Angeles City General Fund. When the property revenues loss to the Los Angeles County Unified School District is combined with other K-12 educational revenue funds, approximately 40 percent of the total of $658,000 would be lost from their operating budgets.

When property taxes lost are compared with the ¼ mile transit corridor and the study area, the loss ranges from only 0.8 percent overall for the transit corridor, to 0.7 to 1.1 percent for the fund categories. Similarly, when the estimated property tax lost is compared against the study area, the loss is even less at 0.2 percent overall, and ranges between 0.2 and 0.3 percent for the fund categories.

**Economic Impacts of Parcel Acquisitions:** Alternative 4, including MSF Option A, would affect 106 firms containing a total of 974 jobs. Total labor income generated by the 974 jobs is about $57.1 million, which is about a quarter of the total output of $215 million. Manufacturing is the most significant industry in terms of both employment, with 289 jobs, and output, with $138.4 million. Educational Services provide the second highest number of jobs with 249, and also has the second highest output at $19.5 million. Value added is $91.2 million.

**Estimated Retail and Food Services Sales Tax Impact:** The estimated local sales tax lost by the potential parcel acquisitions for Alternative 4, including MSF Option A, is estimated at $66,632.

**Construction Cost Impacts:** The construction costs for Alternative 4, including MSF Option A, are estimated to be about $2.5 billion. The direct, indirect, and induced impacts of this construction work would generate an estimated 33,157 jobs. Of these jobs, 19,798 would be generated directly by construction and 5,637 would be generated indirectly. An additional 7,722 jobs would be induced through increased household spending by direct and indirect employees,

Total Output for this alternative would be about $4.8 billion, about $2.5 billion of which would be generated directly by construction. Output generated by indirect impacts would amount to about $1.1 billion. Induced impacts of construction would also generate about $1.1 billion of output.

*Alternative 4, MSF Option B*

**Property Tax Loss Analysis:** Alternative 4, including MSF Option B, could result in the loss of an estimated $940,000 in property taxes due to potential parcel acquisitions. The lost property taxes would affect the operating budgets of local jurisdictions, special districts, and agencies. Almost 28 percent of the study area's property tax loss would be from the Los Angeles County General Fund, with about 26 percent from the Los Angeles City General Fund. When the property revenues loss to the Los Angeles County Unified School District is combined with other K-12 educational revenue funds, approximately 40 percent of the total of $940,000 would be lost from their operating budgets.

When property taxes loss is compared with the ¼ mile transit corridor and the study area, the loss ranges from only 1.2 percent overall, for the transit corridor, to 1.1 to 1.4 percent for the fund categories. Similarly, when the estimated property tax lost is compared against the study area, the loss is even less at 0.3 percent overall, and ranges between 0.3 and 0.4 percent for the fund categories.

**Economic Impacts of Parcel Acquisitions:** Alternative 4, including MSF Option B, would affect 1,285 jobs (the highest among the three MSF options for Alternative 4) and 126 firms. The total labor income generated by the 1,285 jobs would be about $70.3 million, which is 28 percent of the option's total output. Manufacturing is again the most significant industry in terms of both employment, with 276 jobs, and output at about $132.2 million. Food Services has the second highest number of employees with 267, while Educational Services is third with 245. Value added is estimated at $115.1 million.

**Estimated Retail and Food Services Sales Tax Impact:** The estimated local sales tax lost by the potential parcel acquisitions for Alternative 4, including MSF Option B, is estimated at $236,438.

**Construction Cost Impacts:** The construction costs for Alternative 4, including MSF Option B, are estimated to be about $2.7 billion. The direct, indirect, and induced impacts of this construction work would generate an estimated 35,518 jobs. Of these jobs, 21,098 would be generated directly by construction and 6,085 would be generated indirectly. An additional 8,336 jobs would be induced through increased household spending by direct and indirect employees.

Alternative 4, including MSF Option B, would generate an estimated $2.7 billion in value added, with about $1.3 billion coming from direct impacts of construction. Indirect impacts would generate about $656.4 million in value added. Induced value added would amount to about $760.6 million.

*Alternative 4, MSF Option C*

**Property Tax Loss Analysis:** Alternative 4, including MSF Option C, could result in about $873,000 in lost property taxes, which would affect the operating budgets of local jurisdictions, special districts, and agencies. Almost 28 percent of the study area's property tax loss would be from the Los Angeles County General Fund, with about 26 percent from the Los Angeles City General Fund. When the property revenues loss to the Los Angeles County Unified School District is combined with other K-12 educational revenue funds, approximately 40 percent of the total of $873,000 would be lost to their operating budgets.

When property taxes lost are compared with the ¼ mile transit corridor and the study area, the loss ranges from only 0.5 percent overall, for the transit corridor, to 0.5 to 1.4 percent for the fund categories. Similarly, when the estimated property tax lost is compared against the study area, the loss is even less at 0.3 percent overall, and ranges between 0.1 and 0.4 percent for the fund categories.

**Economic Impacts of Parcel Acquisitions:** Alternative 4, including MSF Option C, could affect 1,280 jobs spread among 147 firms. Labor income for the option would total just under $79.3 million, which is about a quarter of the option's total output of roughly $325.4 million. This is the largest output among the three Alternative 4 options. Manufacturing is again the leading employer with 473 jobs, and has the highest output at about $226.6 million. Educational Services is the second leading employer with 246 workers, while Retail Trade is third with 120 workers. Value added is estimated at $131.9 million.

**Estimated Retail and Food Services Sales Tax Impact:** The estimated local sales tax lost by the potential parcel acquisitions for Alternative 4, including MSF Option C, is estimated at $113,774.

**Construction Cost Impacts:** The construction cost for Alternative 4 Option C is estimated to be just under $2.7 billion. The direct, indirect and induced impacts of this construction work would generate an estimated 34,372 jobs. Of these jobs, 20,417 would be generated directly by construction and 5,888 would be generated indirectly. An additional 8,067 jobs would be induced through increased household spending by direct and indirect employees.

Total Output for this alternative would be just under $5.0 billion, about $2.7 billion of which would be generated directly by construction. Output generated by indirect impacts amounts to about $1.2 billion. Induced impacts of construction would generate about $1.2 billion of output.

### Operational Impacts

Operational economic and fiscal impacts would be limited to the potential indirect impacts on local businesses due to diminished access that could occur where on-street parking would be removed to accommodate the Alternative 4 –LRT alignment. No other adverse operational economic and fiscal impacts would occur.

### Cumulative Impacts

The cumulative impacts would be to the same as those described above for Alternative 3, with the exception being that Alternative 4 has a greater potential to be growth inducing due to its higher carrying capacity, faster average speed, and generally higher per capita transit ridership.

### Mitigation Measures

#### *Construction Mitigation Measures*

Construction would have temporary impacts on commercial and industrial businesses, particularly those near or adjacent to construction sites. Sidewalks or adjacent roadway lanes may be temporarily closed, thereby reducing business access. Business impacts could also include reduced visibility of commercial signs and businesses. These construction impacts could in turn have minor economic impacts on commercial establishments. A number of short-term measures would be undertaken to temper these impacts (please see Mitigation Measures MM-TRA-1 and MM-TRA-5 in the Executive Summary or Chapter 3 of this EIS/EIR).

#### *Operational Mitigation Measures*

None required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The potential effects would not be adverse under NEPA.

#### *CEQA Determination*

According to CEQA, social and economic impacts are not considered environmental impacts.

### 4.3.3.5 Summary of Impacts by Alternative

A summary of the economic and fiscal impacts that would occur under each alternative is provided below in Table 4.3-15.

**Table 4.3-15: Summary of Potential Economic and Fiscal Impacts**

| Alternative | Effect on Property Tax Base | Economic Impacts of Parcel Acquisitions | Effect on Sales Tax Base | Construction Impacts |
|---|---|---|---|---|
| No Build | None | None | None | None |
| TSM | None | None | None | Construction costs of $8.6 million, total direct, indirect & induced jobs of 111/short-term benefit |
| Alt. 1 – Curb Running BRT | None | None | None | Construction costs of $260.0 million, total direct, indirect & induced jobs of 3,368/short-term benefit |
| Alt. 2 – Median Running BRT | None | None | None | Construction costs of $362.0 million, total direct, indirect & induced jobs of 4,693/short-term benefit |
| Alt. 3 – Low-Floor LRT/ Tram (MSF Option A) | Loss of $409,000 annually/less than significant | Loss of 413 jobs, 79 firms, and $22.7 million labor income/less than significant | Loss of $41,798 annually/ less than significant | Construction costs of $1.0 billion, total direct, indirect & induced jobs of 13,134/short-term benefit |
| Alt. 3 – Low-Floor LRT/ Tram (MSF Option B) | Loss of $460,000 annually/less than significant | Loss of 580 jobs, 54 firms, $29.3 million labor income/less than significant | Loss of $184,639 annually/ less than significant | Construction costs of $1.0 billion, total direct, indirect & induced jobs of 13,419/short-term benefit |
| Alt. 3 – Low-Floor LRT/ Tram (MSF Option C) | Loss of $406,000 annually/less than significant | Loss of 576 jobs, 79 firms, $37.8 million labor income/less than significant | Loss of $62,851 annually/ less than significant | Construction costs of $1.0 billion, total direct, indirect & induced jobs of 13,165/short-term benefit |
| Alt. 4 – LRT (MSF Option A) | Loss of $875,000 annually/less than significant | Loss of 1,280 jobs, 147 firms, $79.3 million labor income/less than significant | Loss of $113,774 annually/ less than significant | Construction costs of $2.5 billion, total direct, indirect & induced jobs of 33,157/short-term benefit |
| Alt. 4 – LRT (MSF Option B) | Loss of $940,000 annually/less than significant | Loss of 1,285 jobs, 126 firms, $70.3 million labor income/less than significant | Loss of $236,438 annually/ less than significant | Construction costs of $2.7 billion, total direct, indirect & induced jobs of 35,518/short-term benefit |
| Alt. 4 – LRT (MSF Option C) | Loss of $658,000 annually/Less than significant | Loss of 974 jobs, 106 firms, $57.1 million labor income/less than significant | Loss of $66,632 annually/ less than significant | Construction costs of $2.7 billion, total direct, indirect & induced jobs of 34,372/short-term benefit |
| Sources: Stanley R. Hoffman Associates, Inc., 2015. | | | | |

# 4.4 Communities and Neighborhoods

This section is based on and summarizes the information presented in the Community and Neighborhoods Impacts Report, which is included in Appendix J of this Draft EIS/EIR.

## 4.4.1 Regulatory Framework and Methodology

### 4.4.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's communities and neighborhoods impacts are listed below. For additional information regarding these regulations, please see the Communities and Neighborhoods Impacts Report in Appendix J of this Draft EIS/EIR.

#### Federal

- National Environmental Policy Act (NEPA)
- Civil Rights Act
- Executive Order 12898
- Uniform Relocation Assistance and Real Property Acquisition Policies Act (Uniform Act)

#### State

- California Environmental Quality Act (CEQA)
- California Relocation Act

#### Local

- Southern California Association of Governments (SCAG) 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy
- SCAG Regional Comprehensive Plan
- Metro Complete Streets Policy
- County of Los Angeles Bicycle Master Plan
- City of Los Angeles Great Streets Initiative
- City of Los Angeles 2010 Bicycle Plan
- City of Los Angeles Housing and Community Development Five-Year Consolidated Plan 2013–2017
- City of Los Angeles Land Use/Transportation Policy
- City of Los Angeles General Plan
- City of Los Angeles Special Districts and Overlay Zones
- Los Angeles River Revitalization Master Plan
- City of Los Angeles Hazard Mitigation Plan
- Pacoima/Panorama City Earthquake Disaster Assistance Project

- City of San Fernando General Plan
- The San Fernando Corridors Specific Plan
- City of San Fernando Transit-Oriented Development (TOD) Overlay Zone (Proposed)
- City of San Fernando Pacoima Wash Greenway Master Plan
- City of San Fernando Natural Hazard Mitigation Plan

### 4.4.1.2 Methodology

This analysis has been prepared in accordance with CEQA and NEPA. The following five steps were used to assess potential impacts from the project on the existing communities and neighborhoods in the project study area:

- Communities, neighborhoods, and special districts in the project study area were identified, described, and visually represented on a map of the project study area.
- Community issues and attitudes were described.
- Demographic information for the census tracts within the project study area was collected and compared to the demographics for the City and County of Los Angeles.
- Transportation facilities and policies were identified and described in the project study area.
- An assessment of the project's impacts on communities and neighborhoods was conducted.

The methodology for assessing the project's impacts on communities and neighborhoods was modeled after guidelines provided in *Community Impact Assessment: A Quick Reference for Transportation*, published by the U.S. Department of Transportation, Federal Highway Administration.[1] The reference guide lists several impacts to address in a community impact assessment:

#### Mobility and Access Impacts

- Changes in access to public transportation, businesses, and community resources
- Changes in pedestrian and bicycle access
- Changes in emergency access

#### Social and Economic Impacts

- Population, business, and employment growth
- Displacement of housing and people
- Changes in community cohesion and interaction
- Changes in quality of life or social values
- Short-term economic impacts from construction

[1] U.S. Department of Transportation, Federal Highway Administration. 1996. *Community Impact Assessment: A Quick Reference for Transportation.* September. Available: http://www.fhwa.dot.gov/environment/cia/quick_reference. Accessed: March 7, 2013.

### Physical Impacts

- Changes in land use patterns
- Changes in aesthetic character
- Safety impacts and other physical intrusions (e.g., dust, noise, and odors)
- Physical division of communities

## 4.4.1.3 CEQA Significance Thresholds

CEQA requires state and local government agencies to identify the significant environmental effects of proposed actions; however, CEQA does not describe specific significance thresholds. According to the Governor's Office of Planning and Research (OPR), significance thresholds for a given environmental effect are at the discretion of the lead agency and are the levels at which the lead agency finds the effects of the project to be significant.[2]

An economic or social change by itself is not to be considered a significant effect on the environment under CEQA; however, if a social or economic change results in a physical change, then social or economic changes may be considered in determining whether the physical change is significant. Because the project would result in physical changes to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

### State CEQA Guidelines

The State CEQA Guidelines define "significant effect on the environment" as: "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (State CEQA Guidelines, Section 15382).[3]

The State CEQA Guidelines do not describe specific significance thresholds. However, Appendix G of the State CEQA Guidelines lists a variety of potentially significant effects, which are often used as thresholds or guidance in developing thresholds for determining impact significance. Accordingly, for the purposes of this DEIS/DEIR, a project would normally have a significant effect on communities and neighborhoods if the project would:

- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.
- Induce substantial population growth in an area, either directly (for example by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.
- Displace substantial numbers of people necessitating the construction of replacement housing elsewhere.
- Substantially degrade the existing visual character or quality of the site and its surroundings.

---

[2] OPR (State of California, Governor's Office of Planning and Research). 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance.* September. Available: <http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 12, 2013.

[3] California Natural Resources Agency. 2010c. *State CEQA Guidelines, 14 CCR Section 15382.* Available: <http://ceres.ca.gov/ceqa/guidelines/art20.html>. Accessed: February 15, 2013.

- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.
- Physically divide an established community.

### L.A. CEQA Thresholds Guide

The *L.A. CEQA Thresholds Guide* for Transportation, Population and Housing, Population and Housing Displacement, Aesthetics, Hazards, Noise, Air Quality, and Land Use Compatibility, states that a determination of significance shall be made on a case-by-case basis, considering the following factors: [4]

#### *Transportation*

- The amount of pedestrian activity at project access points.
- Design features/physical configurations that affect the visibility of pedestrians and bicyclists to drivers entering and exiting the site, and the visibility of cars to pedestrians and bicyclists.
- The type of bicycle facility the project driveway(s) crosses and the level of utilization.
- The physical conditions of the site and surrounding area, such as curves, slopes, walls, landscaping or other barriers, that could result in vehicle/pedestrian, vehicle/ bicycle or vehicle/vehicle impacts.

#### *Population and Housing*

- The degree to which the project would cause growth (i.e., new housing or employment generators) or accelerate development in an undeveloped area that exceeds project/planned levels for the year of project occupancy/buildout and result in an adverse physical change in the environment.
- Whether the project would introduce unplanned infrastructure that was not previously evaluated in the adopted Community Plan or General Plan.
- The extent to which growth would result without implementation of the project.

#### *Population and Housing Displacement*

- The total number of residential units to be demolished, converted to market rate, or removed through other means as a result of the proposed project, in terms of net loss of market-rate and affordable units.
- The current and anticipated housing demand and supply of market rate and affordable housing units in the project area.

[4] City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide*. Available: <http://environmentla.com/programs/table_of_contents.htm>. Accessed: February 13, 2013.

- The land use and demographic characteristics of the project area and the appropriateness of housing in the area.
- Whether the project is consistent with adopted City and regional housing policies such as the Framework and Housing Elements, Housing and Urban Development Consolidated Plan and Comprehensive Housing Affordability Study policies, redevelopment plan, Rent Stabilization Ordinance, and the Regional Comprehensive Plan.

#### *Aesthetics*

- The amount or relative proportion of existing features or elements that substantially contribute to the valued visual character or image of a neighborhood, community, or localized area, which would be removed, altered, or demolished.
- The degree of contrast between proposed features and existing features that represent the area's valued aesthetic image.
- The degree to which the project would contribute to the area’s aesthetic value.

#### *Hazards*

- The degree to which the project may require a new, or interfere with an existing, emergency response or evacuation plan, and the severity of the consequences.

#### *Noise*

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 A-weighted decibels (dBA) or more at a noise sensitive use.
- Construction activities lasting more than 10 days in a 3-month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise sensitive use.
- Construction activities would exceed the ambient noise level by 5 dBA at a noise sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or anytime on Sunday.

#### *Air Quality*

The City of Los Angeles has not adopted specific citywide significance thresholds for air quality impacts.

#### *Land Use Compatibility*

- The extent of the area that would be impacted, the nature and degree of impacts, and the type of land uses within that area.
- The extent to which existing neighborhoods, communities, or land uses would be disrupted, divided or isolated, and the duration of the disruptions, which may include the loss of housing, businesses, or community resources.
- The number, degree, and type of secondary impacts to surrounding land uses that could result from implementation of the project.

# 4.4.2 Affected Environment/Existing Conditions

## 4.4.2.1 Study Area and Regional Setting

### Study Area

A project study area encompasses the area in which direct, and/or indirect effects associated with a project are likely to result. Ideally, the project study area should include all land, buildings, roadways, and transit facilities that could be directly and/or indirectly affected by a project. In addition, identification of areas using U.S. Census Bureau information and/or municipal boundaries helps to clearly define the demographic characteristics of communities that may be affected by a project. Other somewhat less measurable elements can be considered, including subdivisions, ethnic regions, or shopping areas that give residents a sense of belonging to their neighborhoods.

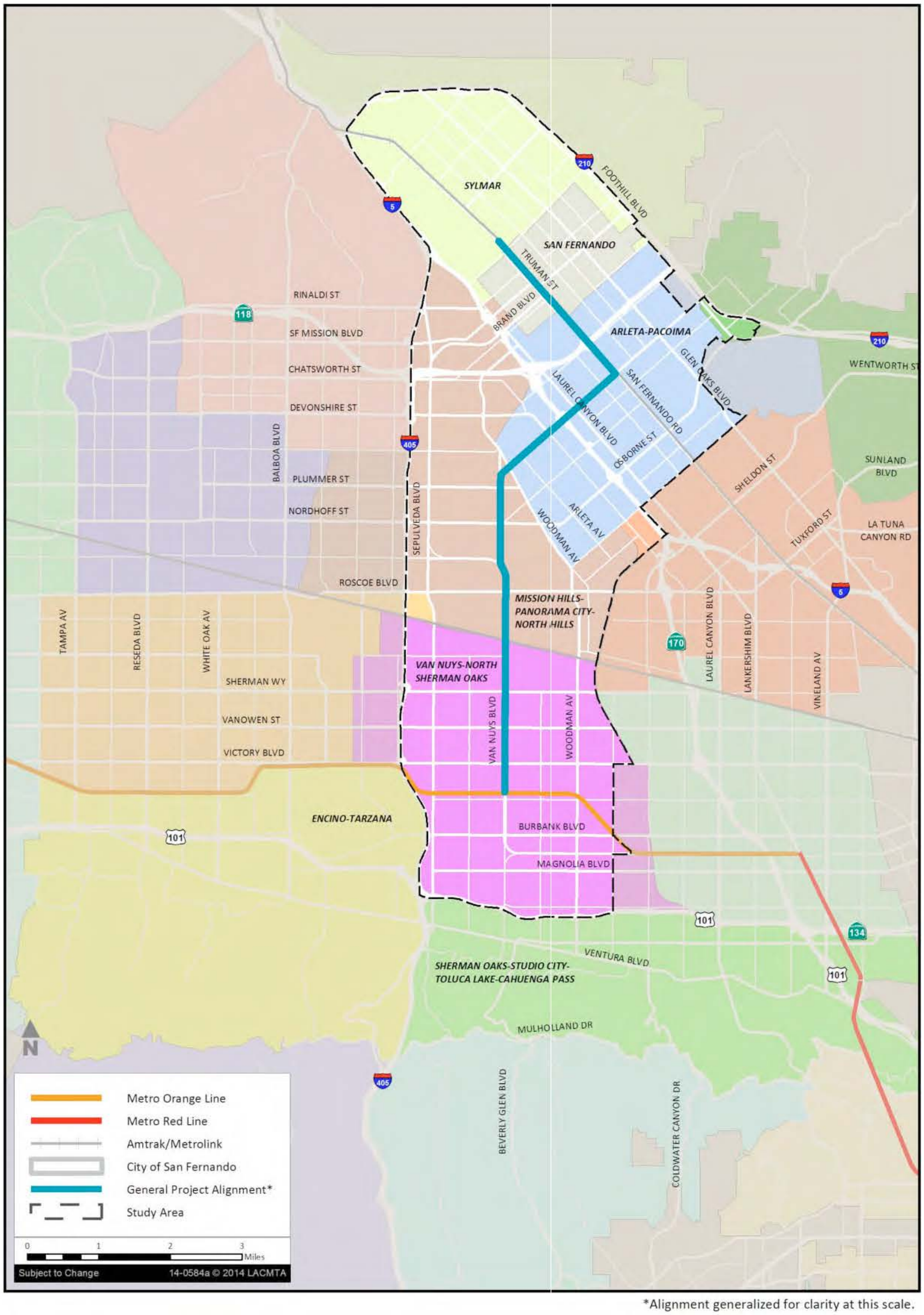
The project study area is located in the San Fernando Valley area of the City of Los Angeles (see Figure 4.4-1). The San Fernando Valley is an area with flat topography consisting of approximately 260 square miles, and is bounded by the Santa Susana Mountains to the northwest, the Simi Hills to the west, the Santa Monica Mountains and Chalk Hills to the south, the Verdugo Mountains to the east, and the San Gabriel Mountains to the northeast.

The project study area for the Communities and Neighborhoods impacts analyses is generally bounded by the San Diego Freeway (Interstate 405 [I-405]) to the west, the Ventura Freeway (US-101) to the south, Fulton Avenue and the Los Angeles River to the east, and the Foothill Freeway (Interstate 210 [I-210]) to the north. The project study area lies within the jurisdiction of both the Cities of Los Angeles and San Fernando. The project study area includes residential areas, local community resources, such as local transit stops, schools, parks, and shopping centers, and public facilities, such as the Van Nuys Civic Center.

### Regional Areas

A project study area is often compared with the surrounding region in order to gain perspective and identify similarities, differences, and relationships between the two areas. Generally, a region is defined as the jurisdiction that is larger than, but includes, the project study area, although some circumstances may dictate deviations from this standard. For the purpose of this Community and Neighborhood Impacts section, two regional comparisons are used: the County of Los Angeles and the City of Los Angeles. The City of San Fernando was not included as a regional area because the project study area is larger than the City of San Fernando; therefore, the City of San Fernando would not meet the definition of a regional area (i.e., an area that is larger than and includes the project study area).

## Figure 4.4-1: City of Los Angeles Community Planning Areas in the Study Area




Source: Esri, 2013; City of Los Angeles, 2013.

### 4.4.2.2 Community and Neighborhood Setting

#### City of Los Angeles Community Planning Areas (CPAs)

Each neighborhood in the City of Los Angeles is grouped with other neighborhoods and included in a City of Los Angeles CPA. Thirty-five separate CPAs were developed to guide land use and design policies within specific portions of the City of Los Angeles. Because these development guidelines define the existing and planned characteristics of neighborhood groups, their boundaries are an important factor when assessing cohesion within the neighborhoods they include. The CPAs that apply to the project study area, which are depicted in Figure 4.4-1, are as follows:

- Van Nuys – North Sherman Oaks Community Plan[5]
- Mission Hills – Panorama City – North Hills Community Plan[6]
- Arleta – Pacoima Community Plan[7]
- Sylmar Community Plan[8]

#### Neighborhoods

Several City of Los Angeles Certified Neighborhood Councils (neighborhoods) lie in or adjacent to the project area.[9] Some of the neighborhoods in the project study area have not yet been certified; however, their boundaries have been formally established and are used for the purposes of this report.

The neighborhoods are identifiable by signage posted throughout the project study area; these neighborhood designations contribute to community identity and overall cohesion. Within each neighborhood, areas of residential, commercial, industrial, religious, academic, and recreational uses are present. These land uses contribute to the cohesive layout of each individual neighborhood. The following neighborhoods are within the project study area and are shown in Figure 4.4-2:

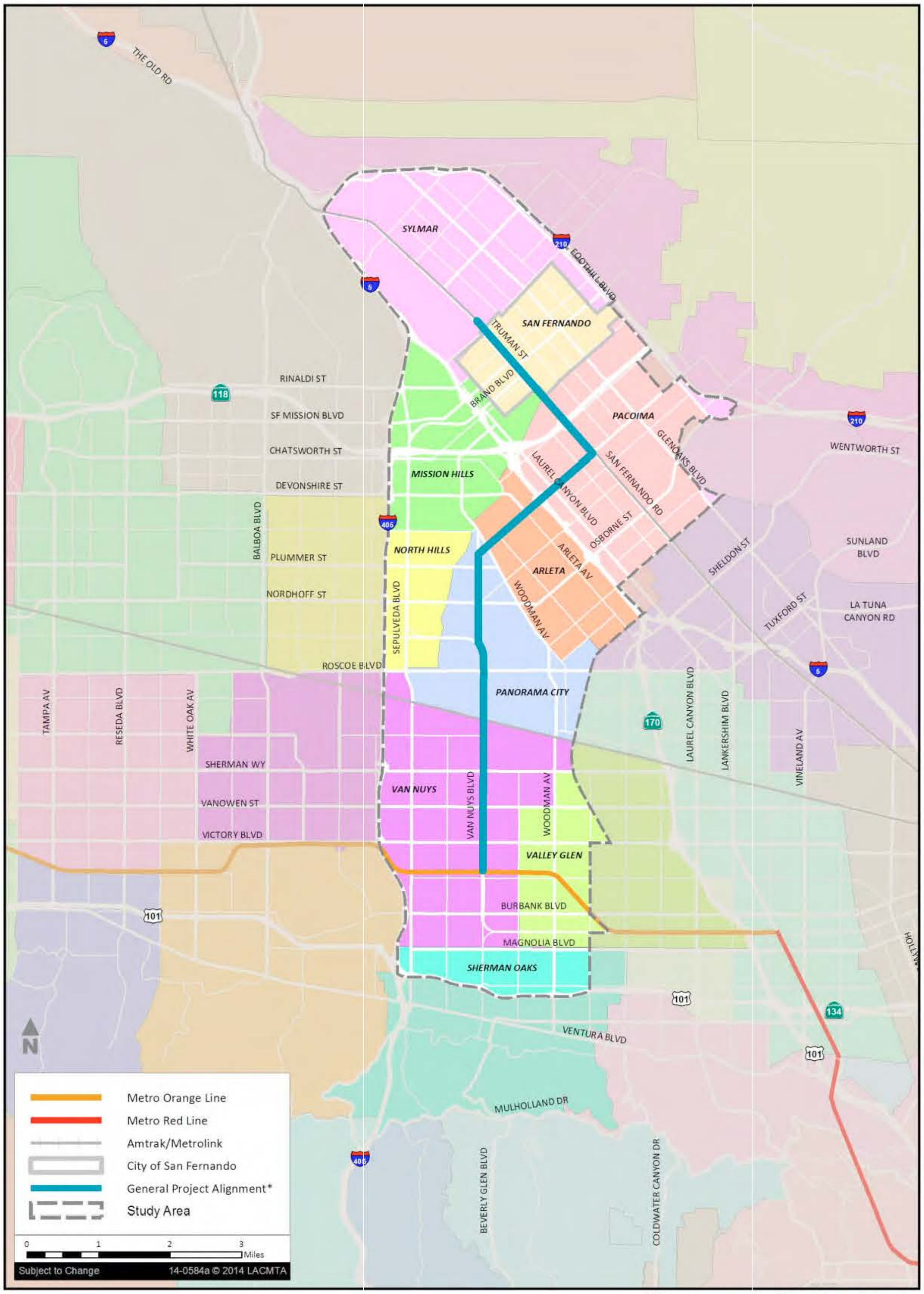
- Sherman Oaks
- Valley Glen
- Van Nuys
- Panorama City
- North Hills East
- Arleta
- Mission Hills
- Pacoima
- Sylmar

In addition to these City of Los Angeles neighborhoods, the City of San Fernando is included in the project study area.

---

[5] City of Los Angeles. 1998b. *Van Nuys-North Sherman Oaks Community Plan*. Adopted September 9. Available: <http://cityplanning.lacity.org/complan/pdf/vnycptxt.pdf>. Accessed: February 13, 2013.
[6] City of Los Angeles. 1999. *Mission Hills-Panorama City-North Hills Community Plan*. Adopted June 9. Available: <http://cityplanning.lacity.org/complan/pdf/msscptxt.pdf>. Accessed: February 13, 2013.
[7] City of Los Angeles. 1996. *Arleta-Pacoima Community Plan*. Approved November 6. Available: <http://cityplanning.lacity.org/complan/pdf/arlcptxt.pdf>. Accessed: February 13, 2013.
[8] City of Los Angeles. 1997. *Sylmar Community Plan.* Adopted August 8. Available: <http://cityplanning.lacity.org/complan/pdf/sylcptxt.pdf>. Accessed: February 16, 2013.
[9] City of Los Angeles Department of Neighborhood Development. n.d. *Neighborhood Council Map.* Available <www.lacityneighborhoods.com/map.htm>. Accessed: February 11, 2013.

## Figure 4.4-2: Neighborhoods in the Study Area




Source: Esri, 2013; City of Los Angeles, 2013.

## Special Districts

Within the City of Los Angeles CPA boundaries and the City of San Fernando, there are several special districts. These special districts are typically in areas that offer shopping and transportation opportunities in a central location to surrounding residential developments. The special districts that are critical to measuring community cohesion within the project study area are listed below and depicted in Figure 4.4-3. It is important to note that not all special districts within the project study area are listed because their primary purpose is to provide development design guidelines. The guidelines are discussed separately in the Land Use Impacts Report.

The following special districts are located within the project study area:

- Van Nuys Auto Row Business Improvement District (BID)[10]
- Van Nuys CBD Special Planning Area (SPA)
- Van Nuys Central Business District (CBD) Community Design Overlay District (CDO)[11]
- Panorama City CDO[12]
- Panorama City BID[13]
- Pacoima CDO[14]
- San Fernando Corridors SPA
- Sylmar BID[15]

## Targeted Neighborhood Initiatives (TNI)

Several TNIs are included in the project study area, as shown on Figure 4.4-3. These initiatives strategically revitalize Los Angeles neighborhoods through several community-driven neighborhood improvement programs, including transportation and pedestrian corridor improvements that provide street trees, street lights, benches, and bus shelters. There are four TNIs within the project study area:

- Van Nuys Boulevard TNI[16]
- Van Nuys TNI II[17]
- Pacoima Town Center TNI[18]
- Osborne Corridor TNI[19]

---

[10] City of Los Angeles. 2000. *Van Nuys Auto Row Business Improvement District*. March. Available: <http://cityplanning.lacity.org/complan/rproginfo/BID/bidmap/vnyauto.pdf>. Accessed: February 15, 2013.

[11] City of Los Angeles. 2004. *Van Nuys Central Business District Community Design Overlay District (CDO) Design Guidelines and Standards.* Revised August 16. Available: <http://cityplanning.lacity.org/complan/othrplan/pdf/vnycbdcdotxt.pdf>. Accessed: February 13, 2013.

[12] City of Los Angeles. 2003b. *Panorama City Community Design Overlay (CDO) Design Guidelines and Standards.* Approved March 27. Available: <http://cityplanning.lacity.org/complan/othrplan/pdf/PanoramaCityCDO_guidelines.pdf>. Accessed: February 15, 2013.

[13] City of Los Angeles. 2009. *Panorama City Business Improvement District*. Approved March.

[14] City of Los Angeles. 2003a. *Pacoima Community Design Overlay (CDO) Design Guidelines and Standards*. Approved May 22. Available: <http://cityplanning.lacity.org/complan/othrplan/pdf/PacoimaCDOGuidelines.pdf>. Accessed: February 13, 2013.

[15] Sylmar Chamber of Commerce. 2012. *The Vista at Sylmar.* Available: <http://www.sylmarchamber.com/sylmarbid.html>. Accessed: November 10, 2014.

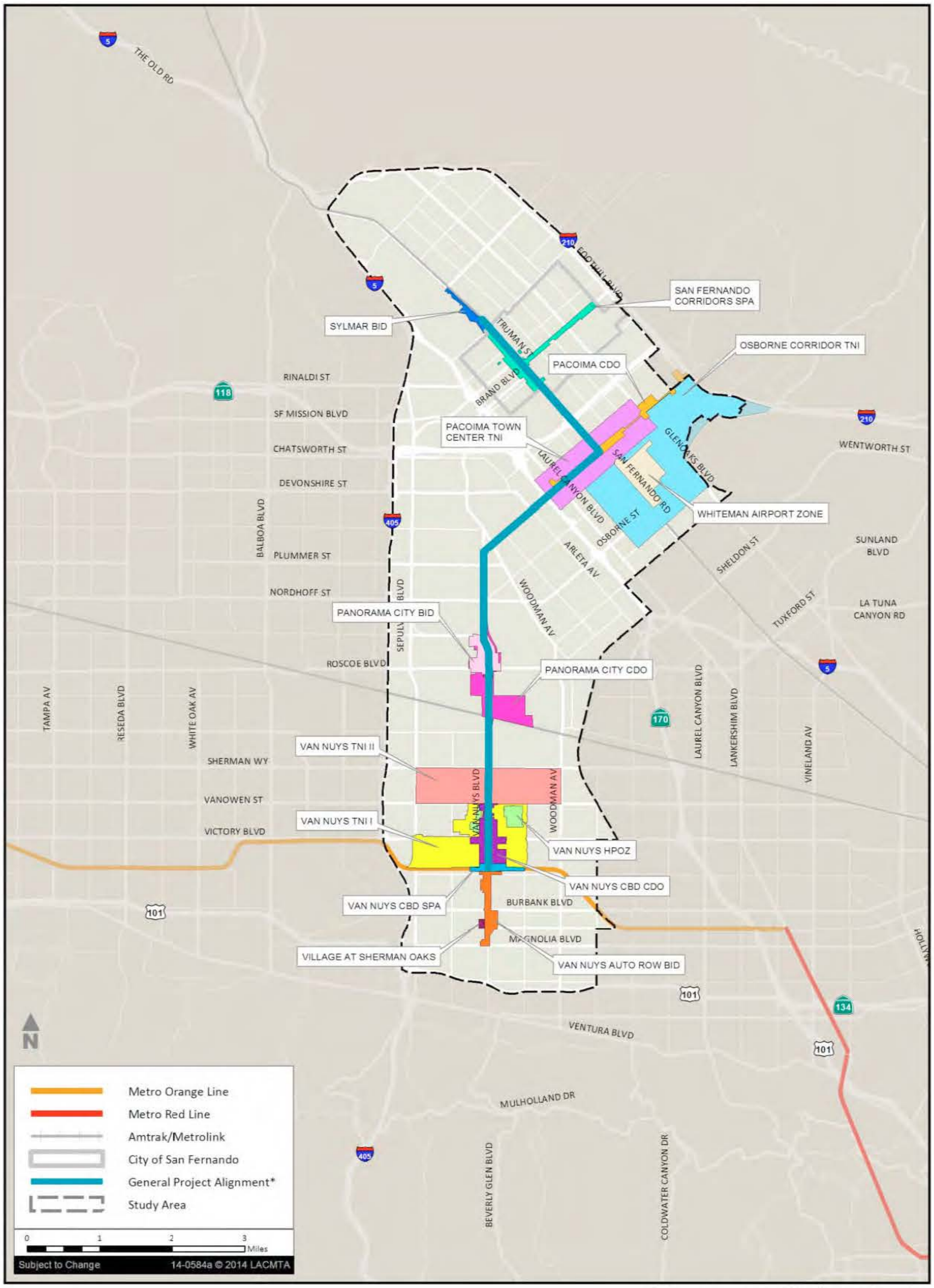
[16] City of Los Angeles. 2002. *Van Nuys Boulevard Targeted Neighborhood Initiative (TNI).* Available: <http://planning.lacity.org/complan/rproginfo/TNI/tniarea/vannuystni.htm>. Accessed: November 18, 2011.

[17] City of Los Angeles. 2001b. *Van Nuys Targeted Neighborhood Initiative (TNI II).* Available: <http://planning.lacity.org/complan/rproginfo/TNI/tniarea/vannuys2.htm>. Accessed: February 13, 2013.

[18] City of Los Angeles. 1998a. *Pacoima Town Center Targeted Neighborhood Initiative.* Available: <http://cityplanning.lacity.org/complan/rproginfo/TNI/tnimap/tni-paco.pdf>. Accessed: February 13, 2013.

[19] City of Los Angeles. 2001a. *Osborne Corridor Targeted Neighborhood Initiative (TNI).* Available: <http://cityplanning.lacity.org/complan/rproginfo/TNI/tnimap/osborncor.pdf>. Accessed: February 14, 2013.

## Figure 4.4-3: Special Districts, TNIs, and Special Zones in the Study Area




*Alignment generalized for clarity at this scale.

Source: Esri, 2013; City of Los Angeles, 2013.

## Special Zones

There are two special zones within the project study area (see Figure 4.4-3):

- **Van Nuys Historic Preservation Overlay Zone (HPOZ):** Within the Van Nuys HPOZ, lots are categorized by whether they have contributing features, non-contributing features, or if the parcel is undeveloped. The Van Nuys HPOZ Preservation Plan includes guidelines to preserve the historic character of the streetscape, including paving and curbs, signage, street furniture, utilities, street lights, and sidewalks.
- **Whiteman Airport Zone:** Whiteman Airport is outside of the project corridor, but is within the project study area, just 0.5 mile southeast of the project corridor; therefore, many parcels within the project study area fall within the Whiteman Airport Zone. To avoid the construction of hazards to air navigation, Los Angeles County's Aviation Division requests that parcels within this zone report projects to the department to ensure compliance with Federal Aviation Administration (FAA) requirements.[20]

## Businesses and Community Resources

Several businesses and community resources are located along the length of the project corridor, as discussed in the sections below.

### Businesses and Shopping Centers

The following businesses and shopping centers are located in the project study area:

- **Van Nuys Boulevard**
  - Near Van Nuys Boulevard and Covello Street, there are variety of businesses, including night clubs, restaurants, pharmacies, and sporting goods stores.
  - Near Van Nuys Boulevard and Keswick Street, there are furniture stores, restaurants, body shops, and car washes.
  - Near Van Nuys Boulevard and Vesper Boulevard, there are several major businesses, including Wells Fargo, Chase, Denny's, IHOP, and Pep Boys.
  - Near Van Nuys Boulevard and Lev Avenue, businesses include car dealerships, markets, phone retailers, and clothing stores.
  - Near Van Nuys Boulevard and Haddon Avenue, there are a number of used car dealerships, restaurants, CitiBank, a pawn shop, discount stores, dentists and clinics, liquor stores, and body shops.
- **San Fernando Road**
  - Near San Fernando Road and Paxton Avenue, there is a shopping mall, Plaza Pacoima, which includes major businesses such as a Costco, Best Buy, Subway, Panda Express, and Wells Fargo. In addition, there are a number of car-related businesses, such as several used car dealerships, tire shops, a few mechanics, and a car accessory shop. Other businesses include a family pool hall, a market, a uniform and safety supply shop, and a towing business.

[20] City of Los Angeles Department of Building and Safety. 2011. *Zoning Information File #2418*. Effective July 25.

  - Near San Fernando Road and San Fernando Mission Boulevard, there is the San Fernando Mall, which includes several businesses such as clothing stores, a party supply store, a few eateries, a night club, jewelry stores, bridal shops, beauty salons, a dentist, and a T-Mobile and Verizon retailer.
  - Near San Fernando Road and Paddock Street, there are several small shopping centers that include a variety of businesses, such as restaurants, a meat market, a beauty salon, and a barber shop.
- **Truman Street**
  - Near Truman Street and San Fernando Mission Boulevard, there is a shopping center, Mission Plaza, which contains a number of different restaurants, such as El Pollo Loco, IHOP, Starbucks, and Menchie's Frozen Yogurt, as well as a gym, a shoe store, several clothing stores, and an AT&T retailer.

### Schools

#### *Los Angeles Unified School District*

Public educational services in the project study area are provided by the Los Angeles Unified School District (LAUSD). The LAUSD comprises eight local districts with 219 year-round schools and 439 schools on the traditional school calendar (with a summer break). For some school facilities, the City of Los Angeles Department of Recreation and Parks has a joint use agreement with LAUSD, which allows use of recreational facilities after school hours. In addition, the LAUSD issues Civic Center permits that allow public use of school facilities for supervised not-for-profit recreational activities, meetings, and public discussions during non-school hours.

The following schools are located in the project study area and illustrated in the figures in the Parklands and Community Facilitates Impacts Report:

*Elementary Schools*

- Van Nuys Elementary School, serving 550 students, 6464 Sylmar Avenue, Van Nuys;
- Burton Street Elementary School, serving 690 students, 8111 Calhoun Avenue, Panorama City;
- Panorama City Elementary School, serving 761 students, 8600 Kester Avenue, Panorama City;
- Primary Academy for Success, serving 300 students, 9075 Willis Avenue, Panorama City;
- Liggett Street Elementary School, serving 786 students, 9373 Moonbeam Avenue, Panorama City;
- Beachy Avenue Elementary School, serving 645 students, 9757 Beachy Avenue, Arleta;
- Sharp Avenue Elementary School, serving 900 students, 13800 Pierce Street, Arleta;
- Telfair Avenue Elementary School, serving 1,100 students, 10975 Telfair Avenue, Pacoima;
- Osceola Elementary School, serving 450 students, 14940 Osceola Street, Sylmar; and
- Dyer Street Elementary School, serving 830 students, 14500 Dyer Street, Sylmar.

*Middle Schools*

- Pacoima Middle School, serving 1,600 students, 9919 Laurel Canyon Boulevard, Pacoima; and
- San Fernando Valley Middle School, serving 1,553 students, 130 North Brand Boulevard, San Fernando.

*High Schools*

- Van Nuys High School, serving 2,946 students, 6535 Cedros Avenue, Van Nuys;
- Will Rogers Continuation High School, serving 160 students, 14711 Gilmore Street, Van Nuys;
- Panorama High School, serving 2,210 students, 8015 Van Nuys Boulevard, Panorama City; and
- Arleta High School, serving 2,000 students, 14200 Van Nuys Boulevard, Pacoima.

*Other Schools*

- Pacoima Skills Center (adult), 13545 Van Nuys Boulevard, Pacoima.

#### *Private Educational Facilities*

In addition to public school facilities in the project study area, there are several other private educational facilities. The following schools are in the project study area and illustrated in the figures in the Parklands and Community Facilitates Impacts Report:

*Elementary Schools*

- Ararat Charter School, serving 312 students, 6555 Sylmar Avenue and 13400 Erwin Street, Van Nuys;
- Saint Ferdinand's School (preschool–8th), serving 266 students, 1012 Coronel Street, San Fernando; and
- Santa Rosa School (preschool–8th), serving 248 students, 668 S. Workman Street, San Fernando.

*Middle Schools*

- Nueva Esperanza Charter Academy, serving 210 students, 1218 North 4th Street, San Fernando.

*High Schools*

- Champs Charter High School (of the arts), serving 910 students, 6952 Van Nuys Boulevard, Van Nuys;
- Soledad Enrichment School (charter), number of students unavailable, 13452 Van Nuys Boulevard, Pacoima; and
- Lakeview Charter Academy, serving 215 students, 1445 Celis Street, San Fernando.

*Other Schools*

- Los Angeles ORT College, 14519 Sylvan Street, Van Nuys; and
- American Nursing School, 14545 Victory Boulevard, Van Nuys.

### Libraries

#### *City of Los Angeles Public Library System*

The majority of the project study area is serviced by branches of the LAPL system. The LAPL comprises six service areas, including the Central Southern Area, the Northeast Area, the East Valley Area, the West Valley Area, the Hollywood Area, and the Western Area. The project study area is in the limits of the East Valley Area.

The following City of Los Angeles libraries are in the project study area and illustrated in the figures in the Parklands and Community Facilitates Impacts Report:

- Van Nuys Branch Library, 6250 Sylmar Avenue, Van Nuys;
- Panorama City Branch Library, 14345 Roscoe Boulevard, Panorama City; and
- Pacoima Branch Library, 13605 Van Nuys Boulevard, Pacoima.

#### *County of Los Angeles Public Library System*

The City of San Fernando is serviced by the County of Los Angeles Public Library System. This county system provides service to unincorporated areas and 51 of the 88 cities of the County of Los Angeles. There is one county branch located in the project study area, as illustrated in the figures in the Parklands and Community Facilitates Impacts Report:

- San Fernando Branch Library, 217 North Maclay Avenue, San Fernando.

### Religious Facilities

The following religious facilities are in the project study area and illustrated in the figures in the Parklands and Community Facilitates Impacts Report:

- Kingdom Hall of Jehovah’s Witnesses, 14659 Erwin Street, Van Nuys;
- Iglesia De Dios Fuente, 14520 Friar Street, Van Nuys;
- First Presbyterian Church of Van Nuys, 14701 Friar Street, Van Nuys;
- Central Lutheran Church of Van Nuys, 6425 Tyrone Ave, Van Nuys;
- Christian Science Church, 14654 Hamlin Street, Van Nuys;
- Faith Compassion Ministry, 6518 Cedros Avenue, Van Nuys;
- God Answers Prayer Ministry, 14541 Hamlin Street, Van Nuys;
- Church of the Valley, 6565 Vesper Avenue, Van Nuys;
- Saint Elizabeth's Church, 6635 Tobias Avenue, Van Nuys;
- Kingdom of Jesus Christ, 14424 Vanowen Street, Van Nuys;
- First Lutheran Church, 6952 Van Nuys Boulevard, Van Nuys;
- Church on the Way, 6952 Van Nuys Boulevard, Van Nuys;
- Mark's Episcopal Church, 14646 Sherman Way, Van Nuys;
- Seventh-Day Adventist Church, 14615 Sherman Way, Van Nuys;
- Van Nuys Church of Christ, 14655 Sherman Way, Van Nuys;
- Sunrise Japanese Foursquare Church, 14705 Wyandotte Street, Van Nuys;
- Panorama Presbyterian Church, 14201 Roscoe Boulevard, Panorama City;
- Imam Bukhari Masjid, 8741 Van Nuys Boulevard, Panorama City;
- San Fernando Valley Interfaith, 14555 Osborne Street, Panorama City;
- Panorama SDA Church, 14517 Osborne Street, Panorama City;
- Panorama City Four Square Church, 14320 Nordhoff Street, Panorama City;

- Iglesia Ni Cristo (Church of Christ), 14308 Nordhoff St, Panorama City;
- Valley Church, 14301 Nordhoff Street, Panorama City;
- Ministerios Rhema Inc., 14246 Nordhoff Street, Panorama City;
- Universal Church, 9110 Van Nuys Boulevard, Panorama City;
- Iglesia Del Nazareno, 9260 Van Nuys Boulevard, Panorama City;
- Iglesia De Restauracion, 9936 Beachy Avenue, Arleta;
- Bible Baptist Church, 14101 Van Nuys Boulevard, Arleta;
- San Fernando Valley Southern Baptist, 10135 Arleta Avenue, Arleta;
- Greater Missionary Baptist Church, 13451 Vaughn Street, San Fernando;
- St. Alphonsa Syro-Malabar Catholic Church, 607 4th Street, San Fernando;
- First Church of Christ, 606 Chatsworth Drive, San Fernando ;
- Living Hope Community Church, 214 N Maclay Avenue, San Fernando;
- Saint Ferdinand Church, 1109 Coronel Street, San Fernando;
- Park Chapel African Methodist Episcopal Church, 1102 4th Street, San Fernando ;
- Calvary United Pentecostal Church, 1119 3rd Street, San Fernando;
- Lighthouse Christian Center, 1231 1st Street, San Fernando;
- Church of the Nazarene, 1420 4th Street, San Fernando;
- Liberty Missionary Baptist Church, 511 North Workman Street, San Fernando ;
- Santa Rosa Catholic Church, 668 Workman Street, San Fernando; and
- First Baptist Church of San Fernando, 215 Macneil Street, San Fernando.

### Hospitals and Medical Facilities

The following hospitals and medical facilities are located in the project study area and illustrated in the figures in the Parklands and Community Facilitates Impacts Report:

- San Fernando Valley Community Mental Health Center, 14660 Oxnard Street, Van Nuys;
- Valley Community Counseling, 6201 Van Nuys Boulevard, Van Nuys;
- Expert Care Health Group, 14532 Friar Street, Van Nuys;
- Victoria Medical Clinic, 14614 Victory Boulevard, Van Nuys;
- Family Medical Center, 14547 Victory Boulevard, Van Nuys;
- Cedars Health Clinic, 14649 Victory Boulevard, Van Nuys;
- Northeast Valley Health Corporation, 6551 Van Nuys Boulevard, Van Nuys;
- University Medical Care, 14600 Sherman Way #100, Van Nuys;
- Kidney Center of Van Nuys, 14624 West Sherman Way, Van Nuys;
- Mission Community Hospital, 14860 Roscoe Boulevard, Panorama City;
- Clinica Latino Americano, 8727 Van Nuys Boulevard, Panorama City;

- UCLA Early Head Start, 14423 Van Nuys Boulevard, Arleta;
- San Fernando Acupuncture Clinic, 820 San Fernando Road, San Fernando;
- Valley Family Center, 302 South Brand Boulevard, San Fernando;
- San Fernando Dental Center, 125 South Brand Boulevard, San Fernando;
- San Fernando Medical Center, 501 North Maclay Avenue, San Fernando;
- Aurora Medical Center, 405 North Maclay Avenue, San Fernando;
- Maya Chiropractic Center, 321 N Maclay Avenue, San Fernando Valley;
- Western Dental Center, 1101 Truman Street, San Fernando;
- Valley Care San Fernando Clinic, 1212 Pico Street, San Fernando;
- Santa Maria Dental Center, 1230 San Fernando Road, San Fernando; and
- Northeast Valley Health Corporation, 1600 San Fernando Road, San Fernando.

## Community Issues and Concerns

### Community Outreach Meetings

A series of community outreach meetings were held in order to gauge community concerns and potential issues that could arise within the project study area. Mobility, access, and traffic issues and concerns related to community and neighborhood impacts were expressed (please see the Community and Neighborhood Impacts Report in Appendix J for further details on these issues).

Outreach to the community, through public scoping meetings and other methods, will continue throughout the environmental review process. Community input is critical in assessing potential issues within the project study area; therefore, any additional information that is made available from future community outreach efforts will be taken into consideration in project development.

### City of Los Angeles Community Plans

In addition to community outreach efforts, issues and opportunities have been identified in City of Los Angeles community plan documents for each respective CPA (see the Community and Neighborhood Impacts Report in Appendix J for further details on these issues). The initial formation of these community plans involved community members who helped identify and define the needs, desires, resources, and unique nature of their communities. For this reason, the topics in the plans indicate what the citizens of each CPA value within their communities.

The City of San Fernando General Plan also contains information related to community issues.[21] A primary focus of the general plan is to involve a citizen's advisory committee to examine issues and patterns within the City of San Fernando limits.

[21] City of San Fernando. 1987. *City of San Fernando Revised General Plan.* Prepared by Castaneda & Associates. Available: <http://www.ci.san-fernando.ca.us/city_government/departments/comdev/forms_docs/General%20Plan%20-%20Complete.pdf>. Accessed: February 21, 2013.

### 4.4.2.3 Demographics

The discussion and tables/figures included in this section are based on the 2000 Census, 2010 Census, and 2006–2010 American Community Survey and intended to provide a thorough overview of the project study area characteristics compared to the City and County of Los Angeles. More detailed discussion of the content in the tables and figures is provided in the Community and Neighborhood Impacts Report, included as Appendix J to this DEIS/DEIR.

The official census is taken every 10 years, so the next census is scheduled for 2020. However, to validate the 2010 information with the most recent demographic information available, the 2010 information was checked for changes using 2016 estimates of population provided by SCAG or the U.S. Census Bureau. A spot check review of this data showed that for the total study area, the population changes were relatively small at 1.9 percent over the 2010-2016 period, compared to 6 percent for the 2000–2010 period. Los Angeles County by comparison shows very minor changes (3.2 percent population increase in 2016, compared to 3.1 in 2010), while the City of Los Angeles shows a 4.8 percent increase in population in 2016, compared to a 2.7 percent change in 2010.

Given the very minor changes in population estimates (ranging from 0.1 percent to 4.8 percent) in the study area, City, and County, the data below is still representative of the general demographic conditions in the project study area.

**Table 4.4-1: Population Change (2000 to 2010)**

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent Change | Number | Percent Change | Number | Percent Change |
| Total Population 2000 | 419,075 | N/A | 3,694,686 | N/A | 9,519,338 | N/A |
| Total Population 2010 | 444,378 | 6.0 | 3,792,621 | 2.7 | 9,818,605 | 3.1 |

Source: U.S. Census Bureau, 2000; 2010b

**Table 4.4-2: Racial and Ethnic Characteristics (2000)**

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Population | Number | Percent of Population | Number | Percent of Population |
| Total Population | 419,075 | 100.0 | 3,694,820 | 100.0 | 9,519,338 | 100.0 |
| White (NH) | 82,735 | 19.7 | 1,099,188 | 29.7 | 2,959,614 | 31.1 |
| African American (NH) | 18,818 | 4.5 | 401,986 | 10.9 | 901,472 | 9.5 |
| American Indian/ Alaska Native (NH) | 1,112 | 0.3 | 8,897 | 0.2 | 25,609 | 0.3 |
| Asian (NH) | 27,441 | 6.5 | 364,850 | 9.9 | 1,124,569 | 11.8 |
| Native Hawaiian/ Other Pacific Islander (NH) | 376 | 0.1 | 4,484 | 0.1 | 23,265 | 0.2 |
| Some Other Race | 673 | 0.2 | 9,065 | 0.2 | 19,935 | 0.2 |
| Two or More Races | 7,872 | 1.9 | 87,277 | 2.4 | 222,661 | 2.3 |
| Hispanic or Latino* | 280,049 | 66.8 | 1,719,073 | 46.5 | 4,242,213 | 44.6 |

Source: U.S. Census Bureau, 2000
* Because Hispanic or Latino populations are reported as an ethnic group and calculated as a percentage of all races, there is a slight margin of error. Total numbers may not always add up to 100 percent of the total population.

### Table 4.4-3: Racial and Ethnic Characteristics (2010)

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Population | Number | Percent of Population | Number | Percent of Population |
| Total Population | 444,378 | 100.0 | 3,792,621 | 100.0 | 9,818,605 | 100.0 |
| White (NH) | 71,259 | 16.0 | 1,086,908 | 28.7 | 2,728,321 | 27.8 |
| African American (NH) | 15,420 | 3.5 | 347,380 | 9.2 | 815,086 | 8.3 |
| American Indian/ Alaska Native (NH) | 785 | 0.2 | 6,589 | 0.2 | 18,886 | 0.2 |
| Asian (NH) | 31,662 | 7.1 | 420,212 | 11.1 | 1,325,671 | 13.5 |
| Native Hawaiian/ Other Pacific Islander (NH) | 378 | 0.1 | 4,300 | 0.1 | 22,464 | 0.2 |
| Some Other Race | 1,186 | 0.3 | 12,057 | 0.3 | 25,367 | 0.3 |
| Two or More Races | 5,152 | 1.2 | 76,353 | 2.0 | 194,921 | 2.0 |
| Hispanic or Latino* | 318,536 | 71.7 | 1,838,822 | 48.5 | 4,687,889 | 47.7 |

Source: U.S. Census Bureau, 2010b
* Because Hispanic or Latino populations are reported as an ethnic group and calculated as a percentage of all races, there is a slight margin of error. Total numbers may not always add up to 100 percent of the total population.

### Table 4.4-4: Age Characteristics (2000)

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Population | Number | Percent of Population | Number | Percent of Population |
| Total Population | 419,075 | 100.0 | 3,694,820 | 100.0 | 9,519,338 | 100.0 |
| Under 19 Years | 146,481 | 35.0 | 1,091,049 | 29.5 | 2,946,796 | 31.0 |
| 20 to 34 Years | 110,104 | 26.3 | 974,004 | 26.4 | 2,283,559 | 24.0 |
| 35 to 64 Years | 130,801 | 31.2 | 1,272,638 | 34.4 | 3,362,310 | 35.3 |
| 65 Years + | 31,689 | 7.6 | 357,129 | 9.7 | 926,673 | 9.7 |

Source: U.S. Census Bureau, 2000

### Table 4.4-5: Age Characteristics (2010)

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Population | Number | Percent of Population | Number | Percent of Population |
| Total Population | 444,378 | 100.0 | 3,792,621 | 100.0 | 9,818,605 | 100.0 |
| Under 19 Years | 138,990 | 31.3 | 994,460 | 26.2 | 2,711,958 | 27.6 |
| 20 to 34 Years | 108,875 | 24.5 | 953,443 | 25.1 | 2,228,519 | 22.7 |
| 35 to 64 Years | 159,937 | 36.0 | 1,448,022 | 38.2 | 3,812,429 | 38.8 |
| 65 Years + | 36,576 | 8.2 | 396,696 | 10.5 | 1,065,699 | 10.9 |

Source: U.S. Census Bureau, 2010b

## Table 4.4-6: Sex Characteristics (2000)

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Population | Number | Percent of Population | Number | Percent of Population |
| Total Population | 419,075 | 100.0 | 3,694,820 | 100.0 | 9,519,338 | 100.0 |
| Male | 210,811 | 50.3 | 1,841,805 | 49.8 | 4,704,105 | 49.4 |
| Female | 208,264 | 49.7 | 1,853,015 | 50.2 | 4,815,233 | 50.6 |

Source: U.S. Census Bureau, 2000

## Table 4.4-7: Sex Characteristics (2010)

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Population | Number | Percent of Population | Number | Percent of Population |
| Total Population | 444,378 | 100.0 | 3,792,621 | 100.0 | 9,818,605 | 100.0 |
| Male | 222,474 | 50.1 | 1,889,064 | 49.8 | 4,839,654 | 49.3 |
| Female | 221,904 | 49.9 | 1,903,557 | 50.2 | 4,978,951 | 50.7 |

Source: U.S. Census Bureau, 2010b

## Table 4.4-8: Median Household Income (2000)

| | Study Area | City of Los Angeles | County of Los Angeles |
|---|---|---|---|
| Median Household Income in the Past 12 Months* | $39,727 | $36,687 | $42,189 |

Source: U.S. Census Bureau, 2000
* Census question asks for income in the past 12 months of the year taken, in this case, 2000.

## Table 4.4-9: Median Household Income (2010)

| | Study Area | City of Los Angeles | County of Los Angeles |
|---|---|---|---|
| Median Household Income in the Past 12 Months* | $48,706 | $49,138 | $55,476 |

Source: U.S. Census Bureau, 2010a
* Census question asks for income in the past 12 months of the year taken, in this case, 2010.

### Table 4.4-10: Housing Units (2000)

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Housing Units | Number | Percent of Housing Units | Number | Percent of Housing Units |
| Total Housing Units | 122,204 | 100.0 | 1,337,706 | 100.0 | 3,270,909 | 100.0 |
| Occupied Units | 118,353 | 96.8 | 1,275,412 | 95.3 | 3,133,774 | 95.8 |
| Vacant Units | 3,850 | 3.2 | 62,294 | 4.7 | 137,135 | 4.2 |
| | Number | Percent of Occupied Units | Number | Percent of Occupied Units | Number | Percent of Occupied Units |
| Owner-Occupied | 53,076 | 44.8 | 491,882 | 38.6 | 1,499,744 | 47.9 |
| Renter-Occupied | 65,278 | 55.2 | 783,530 | 61.4 | 1,634,030 | 52.1 |

Source: U.S. Census Bureau, 2000

### Table 4.4-11: Housing Units (2010)

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Housing Units | Number | Percent of Housing Units | Number | Percent of Housing Units |
| Total Housing Units | 131,012 | 100.0 | 1,413,995 | 100.0 | 3,445,076 | 100.0 |
| Occupied Units | 123,381 | 94.2 | 1,318,168 | 93.2 | 3,241,204 | 94.1 |
| Vacant Units | 7,631 | 5.8 | 95,827 | 6.8 | 203,872 | 5.9 |
| | Number | Percent of Occupied Units | Number | Percent of Occupied Units | Number | Percent of Occupied Units |
| Owner-Occupied | 53,201 | 40.6 | 503,863 | 38.2 | 1,544,749 | 47.7 |
| Renter-Occupied | 70,179 | 53.6 | 814,305 | 61.8 | 1,696,455 | 52.3 |

Source: U.S. Census Bureau, 2010b

### Table 4.4-12: Household Size (2000)

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Households | Number | Percent of Households | Number | Percent of Households |
| Total Households | 118,353 | 100.0 | 1,275,412 | 100.0 | 3,133,774 | 100.0 |
| 1-Person Households | 22,567 | 19.1 | 363,457 | 28.5 | 771,854 | 24.6 |
| 2-Person Households | 25,131 | 21.2 | 339,493 | 26.6 | 820,368 | 26.2 |
| 3-Person Households | 18,637 | 15.7 | 190,933 | 15.0 | 494,369 | 15.8 |
| 4-Person Households | 19,143 | 16.2 | 167,395 | 13.1 | 465,159 | 14.8 |
| 5-Person Households | 13,777 | 11.6 | 100,303 | 7.9 | 277,327 | 8.8 |
| 6-Person Households | 8,313 | 7.0 | 53,993 | 4.2 | 146,730 | 4.7 |
| 7+-Person Households | 10,765 | 9.1 | 59,838 | 4.7 | 157,967 | 5.0 |

Source: U.S. Census Bureau, 2000

### Table 4.4-13: Household Size (2010)

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Households | Number | Percent of Households | Number | Percent of Households |
| Total Households | 128,586 | 100.0 | 1,318,168 | 100.0 | 3,241,204 | 100.0 |
| 1-Person Households | 23,231 | 18.1 | 373,529 | 28.3 | 784,928 | 24.2 |
| 2-Person Households | 26,751 | 20.8 | 356,194 | 27.0 | 853,003 | 26.3 |
| 3-Person Households | 20,679 | 16.1 | 200,443 | 15.2 | 526,937 | 16.3 |
| 4-Person Households | 21,336 | 16.6 | 174,043 | 13.2 | 486,027 | 15.0 |
| 5-Person Households | 15,497 | 12.1 | 101,385 | 7.7 | 283,566 | 8.8 |
| 6-Person Households | 8,837 | 6.9 | 52,087 | 4.0 | 144,956 | 4.5 |
| 7+-Person Households | 12,254 | 9.5 | 60,487 | 4.6 | 161,787 | 5.0 |

Source: U.S. Census Bureau, 2010b

### Table 4.4-14: Mode of Transportation to Work (2000)

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Estimated Workers | Number | Percent of Estimated Workers | Number | Percent of Estimated Workers |
| Total Estimated Workers | 156,400 | 100.0 | 1,494,895 | 100.0 | 3,858,750 | 100.0 |
| Car, Truck, or Van (alone) | 98,751 | 63.1 | 982,735 | 65.7 | 2,714,944 | 70.4 |
| Car, Truck, or Van (carpool) | 32,255 | 20.6 | 220,408 | 14.7 | 582,020 | 15.1 |
| Public Transportation (excludes taxis) | 12,881 | 8.2 | 150,697 | 10.1 | 250,834 | 6.5 |
| Bicycle | 802 | 0.5 | 9,052 | 0.6 | 24,015 | 0.6 |
| Taxi, Motorcycle, Other | 2,782 | 1.8 | 53,386 | 3.6 | 113,004 | 2.9 |
| Walk | 4,413 | 2.8 | 16,922 | 1.1 | 39,290 | 1.0 |
| Work at Home | 4,515 | 2.9 | 61,695 | 4.1 | 134,643 | 3.5 |

Source: U.S. Census Bureau, 2000

### Table 4.4-15: Mode of Transportation to Work (2010)

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Estimated Workers | Number | Percent of Estimated Workers | Number | Percent of Estimated Workers |
| Total Estimated Workers | 192,413 | 100.0 | 1,747,957 | 100.0 | 4,399,339 | 100.0 |
| Car, Truck, or Van (alone) | 131,142 | 68.2 | 1,175,818 | 67.3 | 3,173,055 | 72.1 |
| Car, Truck, or Van (carpool) | 32,218 | 16.7 | 188,666 | 10.8 | 497,964 | 11.3 |
| Public Transportation (excludes taxis) | 15,315 | 8.0 | 192,261 | 11.0 | 311,701 | 7.1 |
| Bicycle | 989 | 0.5 | 14,710 | 0.8 | 32,423 | 0.7 |
| Taxi, Motorcycle, Other | 2,052 | 1.1 | 24,630 | 1.4 | 57,930 | 1.3 |
| Walk | 4,409 | 2.3 | 61,811 | 3.5 | 125,816 | 2.9 |
| Work at Home | 6,290 | 3.3 | 90,061 | 5.2 | 200,450 | 4.6 |

Source: U.S. Census Bureau, 2010a

### Table 4.4-16: Transportation Dependency by Age (2000)

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Population | Number | Percent of Population | Number | Percent of Population |
| Total Population | 419,075 | 100.0 | 3,694,820 | 100.0 | 9,519,338 | 100.0 |
| Under 5 Years (not dependent) | 39,453 | 9.4 | 285,976 | 7.7 | 737,631 | 7.7 |
| 5 to 17 Years (dependent) | 93,905 | 22.4 | 695,335 | 18.8 | 1,930,345 | 20.3 |
| 18 to 64 Years (not dependent) | 254,028 | 60.6 | 2,356,380 | 63.8 | 5,924,689 | 62.2 |
| 65 Years + (dependent) | 31,689 | 7.6 | 357,129 | 9.7 | 926,673 | 9.7 |
| Total Dependent Population | 125,594 | 30.0 | 1,052,464 | 28.5 | 2,857,018 | 30.0 |

Source: U.S. Census Bureau, 2000

### Table 4.4-17: Transportation Dependency by Age (2010)

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Population | Number | Percent of Population | Number | Percent of Population |
| Total Population | 444,378 | 100.0 | 3,792,621 | 100.0 | 9,818,605 | 100.0 |
| Under 5 Years (not dependent) | 35,548 | 8.0 | 251,097 | 6.6 | 645,793 | 6.6 |
| 5 to 17 Years (dependent) | 88,696 | 20.0 | 623,428 | 16.4 | 1,756,415 | 17.9 |
| 18 to 64 Years (not dependent) | 283,558 | 63.8 | 2,521,400 | 66.5 | 6,350,698 | 64.7 |
| 65 Years + (dependent) | 36,576 | 8.2 | 396,696 | 10.5 | 1,065,699 | 10.9 |
| Total Dependent Population | 125,272 | 28.2 | 1,020,124 | 26.9 | 2,822,114 | 28.7 |

Source: U.S. Census Bureau, 2010b

### Table 4.4-18: Transportation Dependency by Vehicle Ownership (2000)

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Estimated Households | Number | Percent of Estimated Households | Number | Percent of Estimated Households |
| Total Estimated Households | 118,321 | 100.0 | 1,337,668 | 100.0 | 3,270,909 | 100.0 |
| No Vehicle Available | 15,254 | 12.9 | 210,770 | 15.8 | 393,309 | 12.0 |
| 1 or More Vehicles | 103,067 | 87.1 | 1,064,588 | 79.6 | 2,740,465 | 83.8 |

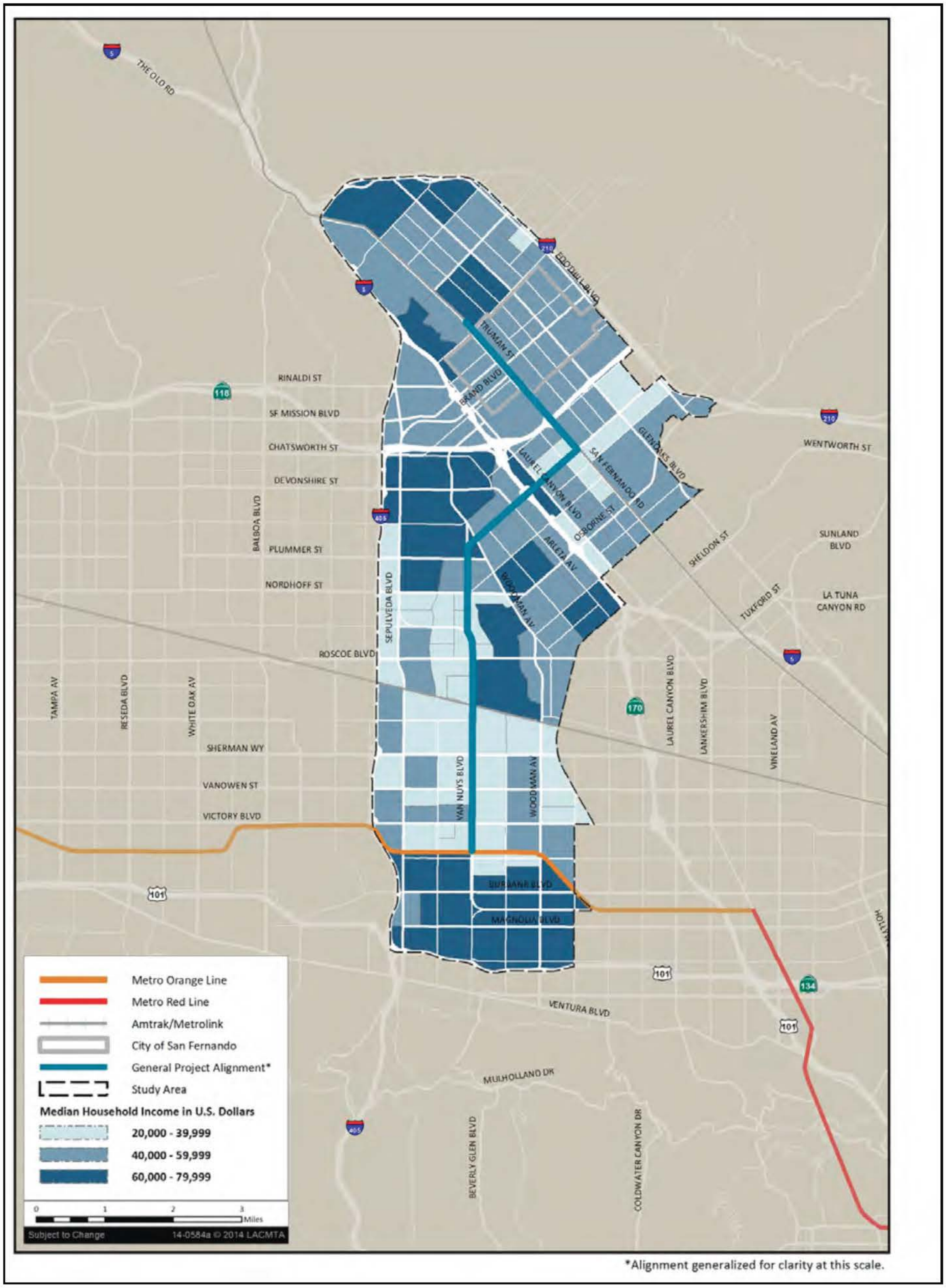
Source: U.S. Census Bureau, 2000

### Table 4.4-19: Transportation Dependency by Vehicle Ownership (2010)

| | Study Area | | City of Los Angeles | | County of Los Angeles | |
|---|---|---|---|---|---|---|
| | Number | Percent of Individuals over Age 16 | Number | Percent of Individuals over Age 16 | Number | Percent of Individuals over Age 16 |
| Total Individuals over Age 16 | 190,521 | 100.0 | 1,726,583 | 100.0 | 4,355,343 | 100.0 |
| No Vehicle Available | 9,737 | 5.1 | 126,225 | 7.3 | 207,074 | 4.8 |
| 1 or More Vehicles | 180,784 | 94.9 | 1,600,358 | 92.7 | 4,148,269 | 95.2 |

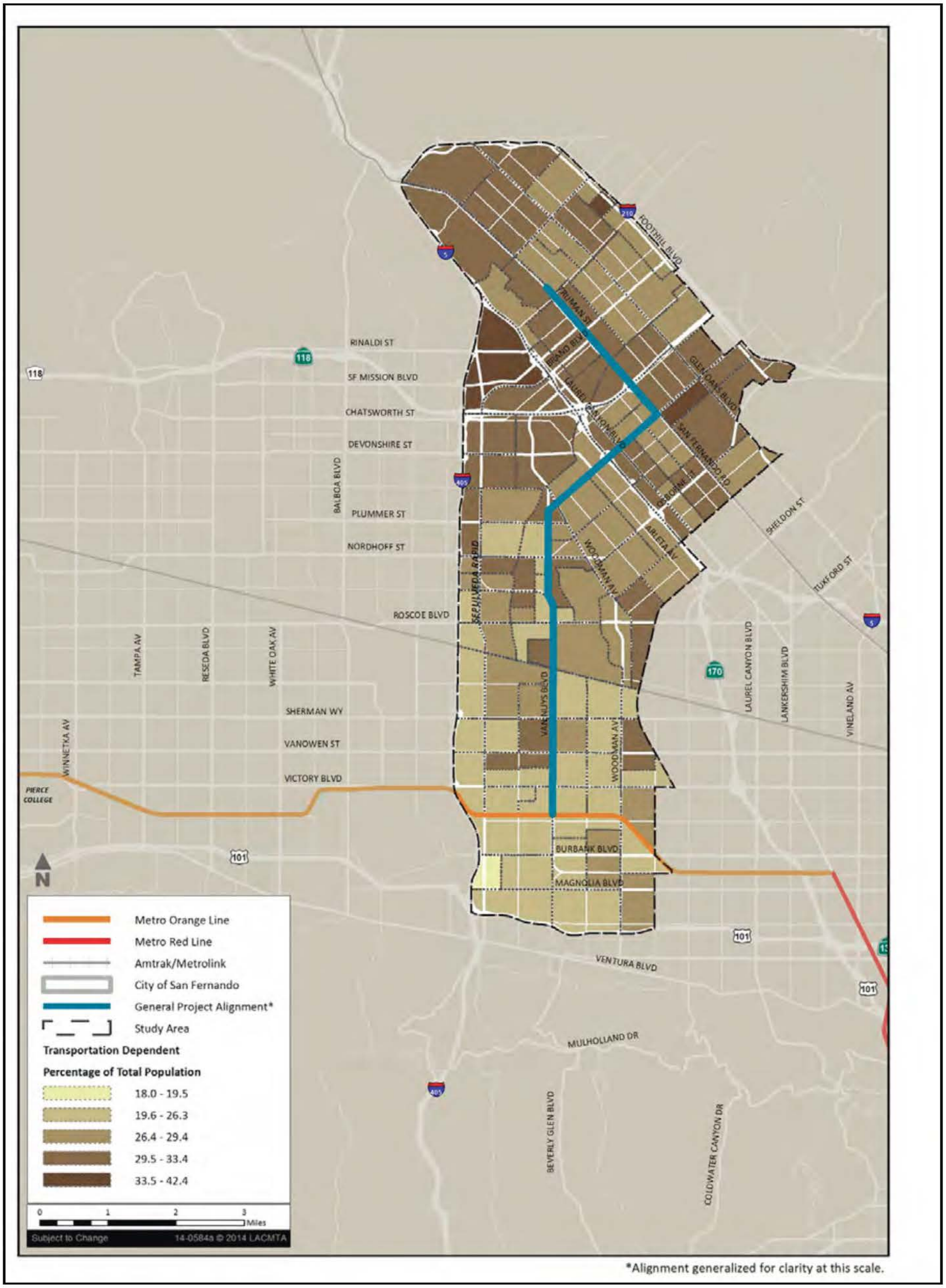
Source: U.S. Census Bureau, 2010a

## Figure 4.4-4: Median Household Income in the Study Area




Source: Esri, 2013; U.S. Census Bureau 2010

## Figure 4.4-5: Transportation Dependency by Age in the Study Area




Source: Esri, 2013; U.S. Census Bureau, 2010b

### 4.4.2.4 Transportation Facilities and Policies

#### Highway Facilities

Several main highway facilities border and traverse the project study area, including the U.S. 101, I-405, I-5, SR-118, and the I-210 freeways. The SR-170 freeway is approximately two miles to the east of the project study area. Highway facilities may serve to naturally delineate community areas or create boundaries. Highway facilities in the project study area provide regional access to and from Van Nuys Boulevard, Sepulveda Boulevard, San Fernando Road, and the transit facilities within the project corridor.

#### Public Transportation

The project study area also includes several mass-transit service facilities used by local populations, including:

- Van Nuys Boulevard Metro Rapid Bus
- Sepulveda Boulevard Metro Rapid Bus
- San Fernando Road Metro Rapid Bus
- Metro Orange Line
- Metrolink service to the Van Nuys station on the Ventura county Line
- Metrolink service to the Sylmar/San Fernando station on the Antelope Valley line
- Amtrak service between Santa Barbara/San Luis Obispo and Los Angeles Union Station/San Diego

Many of the transit routes have a direct relationship with the project study area because they cross over Van Nuys Boulevard or San Fernando Road, or they include stations along the project corridor.

#### Transportation Development Policies

According to the City of Los Angeles General Plan, transportation improvements within the greater Los Angeles area are focused on re-working the existing system, and transitioning to a more transit-based system that will encourage transit-oriented development and improve area circulation and health for area residents. Van Nuys Boulevard, in conjunction with other roadways within the project corridor, is part of a larger traffic congestion-relief plan for public transportation within the project study area and within the region.

## 4.4.3 Environmental Consequences, Impacts and Mitigation Measures

### 4.4.3.1 No-Build Alternative

#### Construction Impacts

The No-Build Alternative would not involve new transportation or infrastructure improvements beyond those projects currently under construction or projects that are funded for future construction. Therefore, the No-Build Alternative would result in no construction impacts on communities and neighborhoods.

## Operational Impacts

### Mobility and Access Impacts

The No-Build Alternative does not include any transportation or other proposed improvements, and therefore would not result in changes to existing mobility and access in the project study area. This alternative would not involve any new transportation infrastructure, construction, or major service changes beyond what is identified in Metro's 2009 Long-Range Transportation Plan (LRTP) and SCAG's 2016–2040 RTP/SCS. Existing Metro Rapid and local bus service would continue to operate along the project corridor and existing or planned pedestrian and bicycle projects would continue to be implemented on Van Nuys Boulevard and connecting east/west facilities. Therefore, the No-Build Alternative would not result in changes to existing or planned pedestrian and bicycle access, access to public transportation, or vehicular access to businesses and community resources, such as schools, school bus routes, shopping centers, libraries, churches, and hospitals, within the communities and neighborhoods in the project study area.

This alternative, however, would not achieve the improvements to mobility within the existing community that would result from the proposed build alternatives. Community mobility would continue to deteriorate with the increased regional traffic congestion that is expected between now and 2040, resulting in a long-term reduction in access to public transportation, businesses, and community resources, as well as reduced emergency vehicle access. In addition, this alternative would not result in any actions to implement Metro's Complete Streets Policy.

### Social and Economic Impacts

The No-Build Alternative would not result in changes to existing social and economic conditions in the study area. This alternative would not induce population growth, result in changes to businesses or employment rates, displace housing or people, result in urban decay impacts, or result in changes to community cohesion, interaction, quality of life, or social values. More information on economic impacts is provided in the Economic and Fiscal Impacts Report prepared for the project (Appendix V).

This alternative would not achieve the improvements to mobility within the existing community that would result from the proposed build alternatives. Under this alternative, worsening regional traffic congestion that is expected between now and 2040 may result in reduced access to local businesses, which could hinder local economic growth.

### Physical Impacts

The No-Build Alternative would not result in changes to the physical environment, including changes in aesthetic character or land use patterns, and would not result in safety impacts or introduce physical intrusions to communities and neighborhoods in the project study area. Under this alternative, transportation facilities would operate entirely within existing transportation corridors, and no physical barriers would be introduced that would divide the existing communities surrounding the project corridor. However, the No-Build Alternative would not achieve the improvements in circulation within the existing community that would result from the proposed build alternatives.

## Cumulative Impacts

Per CEQA Section 15130 (b), the cumulative impacts analysis can consider either a "list of past, present, and probable future projects producing related or cumulative impacts" or "a summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect." The cumulative impacts analysis below and for the other alternatives evaluated in this section are based on the approach that considers the cumulative projects, which are listed in Table 2-3 in Chapter 2.

The study area for the cumulative impacts analysis for all of the alternatives in this section consists of the communities and neighborhoods that would be affected by the proposed project. In general, the cumulative impacts study area encompasses the neighborhoods and communities adjacent to the project corridor.

Under the No-Build Alternative, there would be no impacts on communities and neighborhoods, and therefore, this alternative would not contribute to cumulative communities and neighborhoods impacts.

### Mitigation Measures

#### Construction Mitigation Measures

No construction mitigation measures are required.

#### Operational Mitigation Measures

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### NEPA Finding

No adverse effects under NEPA would occur.

#### CEQA Determination

No impacts under CEQA would occur.

## 4.4.3.2 TSM Alternative

### Construction Impacts

The TSM Alternative may include minor bus stop and roadway improvements as well as operational enhancements to the existing bus system. Given the very limited extent of potential physical improvements, construction activities would likely have no or very minimal impacts on any nearby communities and neighborhoods.

### Operational Impacts

#### Mobility and Access Impacts

The TSM Alternative is expected to result in beneficial changes to existing mobility and access in the project study area. This alternative includes enhanced bus frequencies for the existing Metro Rapid Bus 761 and the local 233 lines, which would provide additional mobility and access benefits for the communities and neighborhoods in the project study area. The existing bus stops along San Fernando Road would remain unchanged under the TSM Alternative. The TSM Alternative would maintain pedestrian and bicycle access, enhance access to public transportation through increased bus frequencies, and result in improved access to businesses and community resources, such as schools, school bus routes, shopping centers, libraries, churches, and hospitals, within the communities and neighborhoods in the project study area. In addition, this alternative could also result in beneficial changes to emergency vehicle access by reducing traffic congestion, as compared to the No-Build Alternative, facilitating faster response times for emergency services. However, given the limited extent of physical and operational improvements proposed under the TSM Alternative, substantial improvement in regional mobility would not occur. Therefore, notwithstanding the mobility improvements proposed under the TSM Alternative, community mobility would likely continue to deteriorate due to increased traffic congestion from regional growth and development between now and 2040. In addition, this alternative would not result in any actions to implement Metro's Complete Streets Policy.

### Social and Economic Impacts

More information on economic impacts is provided in the Economic and Fiscal Impacts Report prepared for the project, and included as Appendix V of this DEIS/DEIR. Implementation of the TSM Alternative is not expected to result in substantial social and economic changes in the project study area. More frequent bus service may require additional drivers, providing employment opportunities. However, given the small number of jobs that would be created and the existing substantial employment base and residential population in the San Fernando Valley, the TSM Alternative would not induce substantial population growth in the project study area. In addition, the proposed improvements under this alternative would not displace housing or people, and are not expected to result in substantial changes to community cohesion, interaction, quality of life, or social values.

Under the TSM Alternative, enhanced bus frequencies would increase the availability of transit service, which could stimulate the local economy by facilitating access to local businesses. However, this alternative would not substantially improve regional mobility, and community access would most likely continue to deteriorate. with increasing regional traffic congestion expected between now and 2040. Therefore, any social or economic benefits resulting from the TSM Alternative could eventually be negated by increased traffic congestion, which could result in a long-term reduction in access to local businesses.

### Physical Impacts

The TSM Alternative would include traffic signalization improvements, bus stop amenities and improvements, and bus schedule restructuring. This alternative would not be expected to result in substantial changes to the physical environment, including changes in aesthetic character and land use patterns, and would not result in safety impacts, or introduce substantial physical intrusions to communities and neighborhoods in the project study area. Minor modifications to the roadway network would be expected to enhance the existing transportation network, would comply with the Americans with Disabilities Act (ADA), and would not be expected to result in pedestrian, bicycle, and/or vehicle safety impacts. In addition, the TSM Alternative would operate entirely within existing transportation corridors, and would not introduce physical barriers that would divide the existing communities surrounding the project corridor. This alternative, however, would not achieve the improvements in transit service within the existing community that would result from the proposed build alternatives.

## Cumulative Impacts

The TSM Alternative would result in minor or beneficial impacts on communities and neighborhoods. Therefore, it would not contribute in any appreciable way to cumulative impacts that could occur due to implementation of other projects in the study area. Consequently, the TSM Alternative would not result in a cumulatively considerable contribution to a significant cumulative impact.

## Mitigation Measures

### Construction Mitigation Measures

No construction mitigation measures are required.

### Operational Mitigation Measures

No operational mitigation measures are required.

## Impacts Remaining After Mitigation

### NEPA Finding

Effects under NEPA would not be adverse or would be beneficial.

### CEQA Determination

Impacts under CEQA would be less than significant or beneficial.

# 4.4.3.3 BRT Alternatives (Build Alternatives 1 and 2)

## Alternative 1 – Curb-Running BRT

### Construction Impacts

#### *Mobility and Access Impacts*

Under Alternative 1, the Curb-Running BRT Alternative, construction of stations and the alignment would require temporary sidewalk, lane, and possibly road closures, and temporary removal of parking on Van Nuys Boulevard, San Fernando Road, Truman Street, and their cross streets. These closures could reduce pedestrian, bicycle, and vehicle mobility between communities and neighborhoods along the project corridor during construction and could also affect access to businesses and community resources, such as schools, school bus routes, shopping centers, libraries, churches, and hospitals.

Road and sidewalk closures, along with the addition of construction vehicles and equipment on primary streets in the City of Los Angeles and San Fernando, could also reduce public access to annual festivals and events in the various communities along the alignment. In addition, construction could disrupt traffic patterns and make public access to businesses and community resources more difficult. Lane closures, traffic detours, and designated truck routes associated with construction could also result in decreased access for emergency vehicles and delayed response times for emergency services.

Lane and/or road closures would be scheduled to minimize disruptions, and a Traffic Management Plan (TMP) would be approved in coordination with both the Cities of Los Angeles and San Fernando prior to construction. Therefore, mobility and access impacts during construction would not be adverse under NEPA and would be less than significant under CEQA.

#### *Social and Economic Impacts*

Construction of Alternative 1 would not be expected to result in substantial changes to the existing population in the project study area. Because of the temporary nature of construction jobs and given that a substantial employment base currently exists in the San Fernando Valley within commuting distance of the project corridor, employment opportunities that could occur due to construction of this alternative would not result in the migration of a substantial number of residents to the project study area and would not induce permanent substantial population growth in communities and neighborhoods in the project study area.

Construction activities would likely result in a decrease in accessibility to many businesses and result in the loss of on-street or off-street parking within construction zones. This could negatively affect business activity levels because the number of customers may temporarily decline. All attempts would be made to provide adequate detours and to minimize road closures; however, some consumers may avoid the area altogether, which could have an indirect effect on businesses within the project area. However, these impacts would be temporary, and after construction the project would provide improved mobility for more transit riders. The proposed project would also not be expected to result in urban decay impacts, as the project is a transit improvement project and not a development project that would displace several small businesses and other storefronts for the opening of a big box retailer or other development that would drastically change the character of the businesses and storefronts along Van Nuys Boulevard.

The required construction easements (i.e., the areas needed temporarily during construction in addition to the actual project footprint) would vary along the alignment, depending on the type of construction and the adjacent land use. Storage areas for construction equipment and materials would be established near the project alignment and used for equipment and material storage. The storage areas would be located within the right-of-way, parking lots, or vacant lands. No parcels would be acquired for Alternative 1, and no businesses would be displaced for the construction of this alternative. Therefore, social and economic impacts during construction would not be adverse under NEPA and would be less than significant under CEQA.

#### *Physical Impacts*

Construction of Alternative 1 would not likely result in changes to land use patterns or physical division of communities because construction would be short-term and would not affect land use designations or introduce barriers that would divide communities. However, construction activities would result in a number of other physical impacts and intrusions, including noise, dust, odors, and traffic delays resulting from haul trucks and construction equipment located on public streets and staging areas. Local neighborhoods, businesses, and community facilities, such as schools, school bus routes, shopping centers, libraries, churches, and hospitals, may be inconvenienced temporarily, and community activities could be disrupted by these activities. However, because these impacts would be temporary and would be avoided or minimized with implementation of mitigation measures, these impacts would not be adverse under NEPA and would be less than significant under CEQA.

Construction of Alternative 1 may also result in several visual impacts on viewers within and surrounding the project corridor, which would temporarily change the aesthetic and visual setting of communities and neighborhoods along the project alignment. Construction areas could be visible from residential land uses on some of the adjacent parcels, either directly through fencing, through entrance gates, or over fencing from second story and higher windows. Construction activities may include the use of considerable heavy equipment such as cranes and associated vehicles, including bulldozers, backhoes, graders, scrapers, and trucks, which could be visible from public streets, sidewalks, and adjacent properties. Viewers in the construction area may be affected by the presence of this equipment, as well as stockpiled construction-related materials. In addition, mature vegetation, including trees, could be temporarily removed from some areas. Construction impacts associated with noise, air quality, visual quality/aesthetics, and traffic could be reduced or minimized through construction management and abatement measures. Because these impacts would be temporary and would be avoided or minimized with implementation of mitigation measures, these impacts would not be adverse under NEPA and would be less than significant under CEQA.

Construction of Alternative 1 could also have temporary effects on public safety and security within the communities and neighborhoods along the proposed project alignment. During construction, motorists, pedestrians, and bicyclists would be exposed to additional safety hazards because of proximity to construction activities. The potential for safety and security impacts would be minimized by compliance with Occupational Safety and Health Administration (OSHA), California Occupational Safety and Health Administration (Cal/OSHA), and Metro safety and security programs, which are designed to reduce potential construction impacts. In addition, an adequate level of signage, construction barriers, and supervision of trained safety personnel would be implemented during the construction phase to ensure that pedestrian and motorist safety is maintained during construction. Because these impacts would be temporary and would be avoided or minimized with implementation of mitigation measures, these impacts would not be adverse under NEPA and would be less than significant under CEQA.

Incidents of crime adjacent to the project alignment would not likely increase during construction of Alternative 1. Theft of construction machinery and materials could occur at construction sites, but these incidents would be minimized through implementation of standard site security practices. Because these impacts would be temporary and would be avoided or minimized with implementation of mitigation measures, these impacts would not be adverse under NEPA and would be less than significant under CEQA.

During construction, Alternative 1 would result in significant impacts under CEQA on air quality in the neighborhoods and communities along the project alignment, due to increased pollutants and emissions during construction. The reader is referred to the air quality section of this chapter for more information on the significance and extent of these potential physical impacts.

### Operational Impacts

#### *Mobility and Access Impacts*

*Changes in Access to Public Transportation, Businesses, and Community Resources*

Under Alternative 1, the Curb-Running BRT line would enhance connections to public transportation within the project study area and across the region, in compliance with Metro's Complete Streets Policy. Although motorists would experience additional traffic congestion and delay (see Chapter 3) due to the reduction in the number of mixed-flow travel lanes along the project corridor, the dedication of the curb lanes to BRT service would improve access for transit riders to local businesses and community resources, such as schools, school bus routes, shopping centers, libraries, churches, and hospitals.

All curbside parking would be prohibited on Van Nuys Boulevard and San Fernando Road from the early morning to early evening, which could require vehicles to park further away from businesses and community resources. On-street parking would still be available on all connecting streets where parking is currently permitted, and many businesses and community resources may have dedicated parking lots that would provide sufficient off-street parking. In addition, more people may use transit as a result of the project, which could reduce the need for parking.

ADA regulations and California state law guarantee the civil rights of individuals with disabilities to receive equal access to all public transportation services. These laws require that transit services and vehicles be readily accessible to, and usable by, individuals with a wide range of disabilities and who use mobility aids, wheelchairs, attendants, service animals, and respirators or portable oxygen supplies.

Under this alternative, accommodations would be provided to ensure that stations and vehicles are accessible to all customers, including those with disabilities, in compliance with ADA guidelines. Designated areas for wheelchairs would be provided on transit vehicles with appropriate securement devices (tie-downs) and occupant restraints (seat belts). To ease boarding and exiting, customers with a disability and/or those who use a wheelchair would be allowed to board first and exit first. Transit operators would be responsible to use lift ramps appropriately, assist the customer in reaching the designated securement area, and apply the wheelchair securements, including the use of lap and shoulder belts (upon the request of the customer). Additional designated seating areas would be available for seniors and people with disabilities away from the wheelchair securement area. The provision of these accommodations would result in improved mobility and access for individuals with disabilities, which would be a minor beneficial impact under NEPA and a beneficial and less-than-significant impact under CEQA.

Access impacts would be minor and adverse under NEPA and less than significant under CEQA.

### *Changes in Pedestrian and Bicycle Access*

Alternative 1 would retain pedestrian access on sidewalks along the project corridor, in compliance with Metro's Complete Streets Policy. However, some pedestrian routes may be re-routed and would require additional walking distance because minor intersections would be permanently closed as part of project implementation. However, the increase in walking distances is not expected to be substantial because of the proximity of nearby alternative routes for pedestrians where minor intersection closures would occur. All existing Metro Rapid bus stops would be upgraded with ADA-compliant features. Other modifications required to accommodate the BRT improvements would also comply with ADA guidelines. Impacts on pedestrian access would be minor and adverse under NEPA and less than significant under CEQA.

The City's Bicycle Plan designates Van Nuys Boulevard as part of the "Backbone Bicycle Network," which plans an interconnected system facilitating mobility on key arterials. In addition, the City's Mobility Plans calls for dedicated bicycle lanes along the entire length of Van Nuys Boulevard. Under Alternative 1, the existing Class II bike lanes on Van Nuys Boulevard north of Parthenia Street would be removed to make room for the dedicated transit lanes. These changes would conflict with the City's Bicycle Plan and Mobility Plan because designated bicycle lanes on Van Nuys Boulevard would not be feasible with implementation of this alternative. An existing bikeway designated as part of the County's Master Bicycle Plan, located along the Metro-owned railroad right-of-way in the City of San Fernando, would remain under this alternative.

The City's Bicycle Plan and Mobility Plan include planned bicycle lanes on Woodman Avenue (one mile east of and parallel to Van Nuys Boulevard) between Ventura Boulevard and the Osborne Street and Nordhoff Street corridors. Bicycle lanes are also planned to connect the Osborne Street corridor to San Fernando Road. To use the planned bicycle lanes on Woodman Avenue, bicyclists would need to travel one mile to the east of Van Nuys Boulevard, which may be an inconvenience for some bicyclists depending on their final destination. In addition, under this alternative, bicycles would need to share a lane with other vehicles along the project corridor, which could result in safety impacts from the increased potential for bicycle collisions. Therefore, the removal of the Class II bike lanes and the decreased safety for bicyclists could substantially affect bicycle access along the project corridor. This would be an adverse effect under NEPA and significant impact under CEQA on bicycle access in adjacent communities and neighborhoods.

The City's General Plan Transportation Element designates Van Nuys Boulevard as a primary transit priority street, and the transit accommodations under this alternative would only be feasible with the removal of the bicycle lanes. In addition, as stated in Metro's Complete Streets Policy, a number of streets might not provide accommodations for all modes of transportation due to physical right-of-way constraints, which is the case for this alternative. The project would be consistent with Metro's Complete Streets Policy to prioritize public transit modes based on the transportation needs of the community, as designated in the City's General Plan Transportation Element. While public transit would be a priority along the corridor with project implementation, the project would also facilitate bicycle access in surrounding areas by providing bicycle accommodations at BRT stations and on buses, including bicycle racks, so that passengers may leave their bicycles at the stations or bring them onto buses.

The City of Los Angeles Great Streets Initiative proposes streetscape improvements to strengthen connections and improve walkability and bikeability along portions of Van Nuys Boulevard within the project corridor. The initiative includes creating plazas and parklets, implementing improvements to curbs, and installing street lighting, street trees, and street furniture. The City of Los Angeles Great Streets Initiative is being implemented in anticipation of the project; therefore, the project would not interfere with improvements associated with the initiative.

#### *Changes in Emergency Access*

Although Alternative 1 would result in additional congestion and delay for motorists along the corridor due to the reduction in the number of mixed-flow lanes to accommodate the dedicated BRT lanes, emergency vehicles would be permitted to enter the BRT lanes to avoid congestion in the mixed-flow lanes. In addition, with enhanced transit services, Alternative 1 may result in higher transit ridership, which could reduce traffic congestion over the long-term operation of the project and facilitate faster response times for police and fire protection services. Therefore, the impacts on emergency access would not be adverse under NEPA and would be less than significant under NEPA.

### *Social and Economic Impacts*

#### *Population, Business, and Employment Growth*

Alternative 1 is not expected to result in substantial changes to the existing population in the project study area. This alternative would not include the development of new housing or businesses that would directly induce population growth. Alternative 1 would include additional bus service and would therefore generate additional employment opportunities for bus drivers; however, there is currently a substantial employment base and residential population in the San Fernando Valley, and the employment opportunities would not be expected to result in substantial migration of additional residents to the project study area. Therefore, this alternative would not be expected to induce substantial population growth in existing communities and neighborhoods.

Alternative 1 could indirectly affect growth and development in the project study area by promoting planned development and redevelopment near station areas. The type of development expected around station areas would most likely include TOD, which is mixed-use residential and commercial development designed to maximize access to public transport. Alternative 1 may also attract businesses from other areas of the region to the immediate areas surrounding the proposed stations. However, because this alternative would be located in an urban area containing a limited number of vacant or underutilized parcels, it's not expected that this alternative would substantially change existing growth and development patterns. In addition, Alternative 1 would accommodate projected population growth for the region, and any development that could result around station areas is anticipated to be consistent with these current growth projections. TOD near station areas would also be consistent with the proposed City of San Fernando TOD Overlay Zone.

Under Alternative 1, enhanced transit service could stimulate the local economy by facilitating access to local businesses. In addition, business viability could improve because increased pedestrian traffic near the proposed stations would provide new customers. Therefore, this alternative would be expected to result in improved economic conditions for local businesses, and impacts would be minor and beneficial under NEPA. CEQA does not include significance thresholds for economic impacts, and therefore, no CEQA determination can be made for this impact. More information on economic impacts is provided in the Economic and Fiscal Impacts Report prepared for the project (see Appendix V).

#### *Displacement of Housing and People*

Alternative 1 would be constructed within the curb lanes of an existing roadway, and would not result in the displacement of any housing, people, or businesses. This alternative would not require any right-of-way acquisitions for the proposed alignment. In addition, this alternative would not require the construction or expansion of an MSF; therefore, no right-of-way acquisitions associated with an MSF would be required. No displacement impacts would result from this alternative.

#### *Changes in Community Cohesion and Interaction*

Alternative 1 would increase connectivity within the eastern San Fernando Valley area, and would result in more unified communities within the project study area, by providing additional transit services connecting these areas. Therefore, this alternative would be expected to enhance community cohesion and interaction. This impact would not be adverse or would be considered beneficial under NEPA. Under CEQA, this alternative would not divide an established community, and therefore, no impact would occur.

#### *Changes in Quality of Life or Social Values*

Alternative 1 would be expected to result in a long-term overall improved quality of life for the communities and neighborhoods in the project study area resulting from the availability of enhanced transit access to businesses and between communities. Alternative 1 would permanently improve community mobility by providing a new means of access that does not rely solely on driving, however, increased congestion for motorists could occur due to reduction in roadway capacity for mixed-flow traffic. The Curb-Running BRT line would be expected to enhance connections to other neighborhoods within the project study area and across the region. These enhancements could increase pedestrian traffic near the proposed stations, which would provide new potential customers and improve business viability. Therefore, this alternative would be expected to result in social and economic benefits for the communities and neighborhoods in the project study area. Impacts would not be adverse or would be considered beneficial under NEPA; and beneficial or less than significant under CEQA.

### *Physical Impacts*

#### *Changes in Land Use Patterns*

Alternative 1 would not be expected to result in substantial changes in land use patterns. While there would be some modifications to the project corridor (e.g., changes in bicycle lanes and loss of curbside parking), the project corridor is an existing transportation route with ongoing bus transit service; therefore, the proposed Curb-Running BRT operations would be consistent with existing bus operations and land use patterns.

Alternative 1 could indirectly affect development in the project study area by encouraging housing, employment, and commercial development within walking distance of the proposed transit stations along the project corridor. TOD near station areas would be consistent with the proposed City of San

Fernando TOD Overlay Zone, and would enhance the City's downtown area. In addition, because this alternative would be located in an urban area containing a limited number of vacant or underutilized parcels, it's not expected that this alternative would substantially change existing growth and development patterns. No adverse impacts would occur under NEPA or CEQA.

*Changes in Aesthetic Character*

This alternative would include new and upgraded bus stations, and the installation of dedicated BRT lanes. Because the City of Los Angeles has a contract with CBS Decaux for bus station design, Metro would confirm their legal ability to upgrade the stations with the City of Los Angeles. The proposed Curb-Running BRT vehicles would be similar to existing Metro buses. The project corridor is an existing transportation route with ongoing bus transit service; therefore, the proposed Curb-Running BRT operations would be consistent with existing bus operations, and no substantial changes in aesthetic character would result from this alternative. In addition, stations would include aesthetic enhancements, such as landscaping and canopies, which would be compatible with the existing character of surrounding communities and neighborhoods. No adverse effects or impacts would occur under NEPA or CEQA.

*Safety Impacts and Other Physical Intrusions*

Alternative 1 would not be expected to result in substantial physical intrusions (e.g., noise, dust, or odors) to the project corridor. While there would be some modifications to the project corridor (e.g., changes in bicycle lanes and loss of curbside parking), the project corridor is an existing transportation route with ongoing bus transit service; therefore, the proposed BRT operations would be consistent with existing bus operations and physical conditions. Impacts would not be adverse under NEPA and would be less than significant under CEQA.

Safety concerns at proposed BRT stations would be addressed both through design considerations (e.g., security cameras in station areas) and coordination with law enforcement personnel, including the Los Angeles County Sheriff's Department Transit Services Bureau. In addition, potential bus improvements under this alternative would follow the requirements of Metro's System Safety Program Plan, which would ensure worker and passenger safety, prevent crime, and allow for adequate emergency response. Therefore, Alternative 1 is not expected to result in a substantial increase in security risks in the project study area, as detailed in the Safety and Security Impacts Report prepared for the project. Impacts would not be adverse under NEPA and would be less than significant under CEQA.

Alternative 1 would run in mixed-flow curb lanes along San Fernando Road and Truman Streets, and would therefore result in the potential for conflicts with mixed-flow street traffic and other Metro bus operations. The potential for accidents could be highest initially, but would stabilize as people become accustomed to the new alignment. In addition, because existing bus service in the corridor operates in mixed-flow traffic, a substantial increase in accidents or collisions between buses and other motor vehicles is not anticipated to result from this alternative. Impacts would not be adverse under NEPA and would be less than significant under CEQA.

Alternative 1 would be designed in compliance with Metro design guidelines to ensure pedestrian, motorist, and bicyclist safety; however, the removal of approximately two miles of existing Class II bike lanes on Van Nuys Boulevard from Parthenia Street to Beachy Avenue would increase the potential for conflicts between bicyclists and buses in the proposed shared lane. Therefore, this alternative could result in safety impacts within the communities and neighborhoods in the project study area from the increased potential for bicycle collisions. This impact would be adverse under NEPA and potentially significant under CEQA.

*Physical Division of Communities*

Alternative 1 would operate entirely within existing transportation corridors, and would not introduce physical barriers that would divide existing communities in the project study area. No impacts would occur under NEPA or CEQA.

### Cumulative Impacts

Other present and reasonably foreseeable future projects in the area, including the cumulative projects in Table 2-3, could result in temporary impacts from construction activities, and impacts from past projects may also have resulted in temporary impacts. However, because these impacts are temporary, cumulative impacts would be less than significant. During construction, Alternative 1 could result in temporary adverse effects and significant impacts on mobility, access, bicycle and pedestrian safety, emergency response, visual character and quality, noise, and air quality on communities and neighborhoods along the project corridor. Construction impacts would be reduced or minimized through construction management and abatement measures, as detailed below (Mitigation Measures) and described in Section 4.5-Visual Quality and Aesthetics, Section 4.6-Air Quality; Section 4.8-Noise and Vibration, Section 4.14-Safety and Security, and Chapter 2-Transportation, Transit, Circulation, and Parking. Because construction impacts under Alternative 1 would also be temporary, and impacts would be minimized or mitigated through mitigation measures, the alternative's contribution to cumulative impacts during construction would be less than cumulatively considerable.

During operation, Alternative 1 would have some beneficial long-term effects under NEPA, and impacts would be beneficial and less than significant under CEQA, related to regional mobility, access, and social and economic conditions because this alternative would improve connections to public transportation, improve access to businesses and community resources, and increase community cohesion and interaction. By increasing transit ridership, Alternative 1 would reduce traffic congestion over the long-term operation of the project and would consequently facilitate response times for police and fire protection services. These community and neighborhood benefits would be beneficial under NEPA and CEQA. However, as discussed in Chapter 2, the reduction in roadway capacity due to conversion of the curb lanes to dedicated BRT lanes would result in significant traffic impacts at local intersections. Past projects have resulted in localized traffic impacts, and other present or reasonably foreseeable future projects in the area could further degrade traffic conditions in the area Therefore, cumulative impacts from past, present, and reasonably foreseeable future projects are significant. As a result, any adverse impacts from Alternative 1 would be considered cumulatively considerable.

Past projects have resulted in access and safety impacts, and other present or reasonably foreseeable future projects in the area, including the cumulative projects in Table 2-3, could further degrade access and safety in the study area. Therefore, cumulative impacts from past, present, and reasonably foreseeable future projects are significant. Alternative 1 would also result in a substantial adverse effect under NEPA and potentially significant impact under CEQA related to access and safety from the potential for bicycle and vehicle collisions, which would remain after implementation of proposed mitigation measures. As a result, any adverse impacts from Alternative 1 would be considered cumulatively considerable. Because the access and safety impacts to bicyclists in the communities and neighborhoods of the study area would remain significant and unavoidable after implementation of mitigation measures, the alternative's contribution to cumulative impacts would remain cumulatively considerable after mitigation.

### Mitigation Measures

The reader is referred to the following mitigation measures to reduce or avoid potential construction and operational impacts on communities and neighborhoods: MM-TRA-1 through MM-TRA-3 in Table ES-1 and Chapter 3, Transportation, Transit, Circulation, and Parking; MM-VIS-1 through MM-VIS-5 in Table ES-1 and Section 4.5, Visual Quality and Aesthetics; MM-AQ-1 through MM-AQ-7 in Table ES-1 and Section 4.6, Air Quality; MM-NOI-1a though MM-NOI-1d and MM-VIB-1 in Table ES-1 and Section 4.8, Noise and Vibration; and MM-SS-3 and MM-SS-8 in Table ES-1 and Section 4.14, Safety and Security. These measures include requirements to maintain access to businesses and residences within the adjacent neighborhoods and communities, detours, design and location of project elements to avoid obstructing views to and from the community, requirements for use of equipment and methods to reduce air quality emissions, attenuation of noise and vibration impacts to the extent feasible by use of alternate equipment or methods, or use of noise and vibration reducing track, and coordination with public safety and transit providers to ensure adequate access for emergency response to these communities and neighborhoods. During project operation and construction, these measures would minimize direct impacts that could adversely affect the quality of the human environment within the communities and neighborhoods of the study area.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The potential operational effects on bicycle access and safety would be adverse after mitigation. All other effects would not be considered adverse.

#### *CEQA Determination*

The potential operational impacts on bicycle access and safety would be significant after implementation of proposed mitigation measures. All other impacts would be less than significant.

## Alternative 2 – Median-Running BRT

### Construction Impacts

Construction impacts would be the same as those described above for Alternative 1.

### Operational Impacts

Operational impacts would be the same as those described above for Alternative 1, with the exceptions noted below.

#### *Mobility and Access Impacts*

*Changes in Access to Public Transportation, Businesses, and Community Resources*

Implementation of Alternative 2, the Median-Running BRT Alternative, would require restrictions on motor vehicle movements, which would be required to accommodate the Median-Running BRT facilities in an effort to eliminate vehicle conflicts. Left turns from Van Nuys Boulevard onto cross streets would be maintained at most of the currently signalized intersections; however, the dual left-turn lanes on northbound and southbound Van Nuys Boulevard at Sherman Way and at Roscoe Boulevard would be reduced to a single left-turn lane, and several left-turns in the Van Nuys Civic Center, between Calvert Street and Hartland Street, would be prohibited in order to accommodate median bus stop platforms. Unless otherwise prohibited, U-turns would be allowed from signalized left-turn lanes on Van Nuys Boulevard; therefore, vehicles that need to turn left to access businesses and community resources would continue to have access through U-turns from signalized left-turn lanes. This impact would not be considered adverse under NEPA and would be less than significant under CEQA.

*Changes in Pedestrian and Bicycle Access*

Alternative 2 would still allow pedestrians and bicyclists to access areas in the project corridor, in compliance with Metro's Complete Streets Policy, although minor changes would occur to pedestrian and bicycle circulation to allow for the proposed improvements. Current pedestrian movements across roadways at existing signal-controlled crosswalks would be maintained; however, other pedestrian crossings on Van Nuys Boulevard at unsignalized intersections would be prohibited to avoid potential conflicts between pedestrians and BRT vehicles. In addition, under this alternative, a barrier would be installed along the length of the alignment to prevent illegal pedestrian crossings of the BRT guideway. However, access to existing sidewalks on both sides of the roadway and connections at signalized crosswalks would be maintained.

These modifications to pedestrian movements and sidewalk widths would not be expected to substantially interfere with pedestrian access along the project corridor because adequate pedestrian facilities, sidewalks, and crosswalks, would be provided to ensure pedestrian access and safety. In addition, all Metro Rapid bus stops would include design elements that would be ADA compliant. Other modifications to the curb lanes to accommodate the Median-Running BRT improvements would also comply with ADA guidelines. Alternative 2 would result in bicycle access and safety impacts within the communities and neighborhoods in the project study area from the increased potential for bicycle collisions due to the removal of Class II bike lanes on Van Nuys Boulevard. This impact would be adverse under NEPA and significant under CEQA.

### *Physical Impacts*

*Physical Division of Communities*

Under this alternative, a barrier along the length of the alignment would be installed to prevent illegal pedestrian crossings of the BRT guideway. However, designated pedestrian walkways would also be installed to ensure that pedestrian access is maintained along both sides of the barrier, and that the barrier would not encroach on residential properties. The installation of barriers and fencing could be considered a physical intrusion by members of the communities and neighborhoods in the project study area. However, the Median-Running BRT Alternative would operate entirely within existing transportation corridors, and would not introduce physical barriers that would substantially affect access between the existing communities and neighborhoods in the project study area. Therefore, impacts would not be adverse under NEPA and would be less than significant under CEQA.

### Cumulative Impacts

The cumulative impacts that could occur due to implementation of Alternative 2 would be the same as those described above for Alternative 1.

### Mitigation Measures

The reader is referred to the following mitigation measures to reduce or avoid potential construction and operational impacts on communities and neighborhoods: MM-TRA-1 through MM-TRA-5 in Table ES-1 and Chapter 3, Transportation, Transit, Circulation, and Parking; MM-VIS-1 through MM-

VIS-5 in Table ES-1 and Section 4.5, Visual Quality and Aesthetics; MM-AQ-1 through MM-AQ-7 in Table ES-1 and Section 4.6, Air Quality; MM-NOI-1a though MM-NOI-1d and MM-VIB-1 in Table ES-1 and Section 4.8, Noise and Vibration; and MM-SS-3 and MM-SS-8 in Table ES-1 and Section 4.14, Safety and Security. The applicable measures from those sections are briefly summarized for Alternative 1 above.

#### Impacts Remaining After Mitigation

##### *NEPA Finding*

The potential operational effects on bicycle access and safety would be adverse, even after implementation of mitigation measures described in Chapter 3-Transportation, Transit, Circulation, and Parking; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security of this DEIS/DEIR. All other effects would not be considered adverse.

##### *CEQA Determination*

The potential operational impacts on bicycle access and safety would be significant even after implementation of proposed mitigation measures described in Chapter 3-Transportation, Transit, Circulation, and Parking; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security of this DEIS/DEIR. All other impacts would be less than significant.

## 4.4.3.4 Rail Alternatives (Alternatives 3 and 4)

### Alternative 3 – Low-Floor LRT/Tram

#### Construction Impacts

More extensive construction would be required to construct Alternative 3 facilities, which would include the OCS, TPSSs, and an MSF, than would be required for the BRT alternatives.

During construction, the construction contractor would choose staging locations among the parcels along the alignment to be acquired as needed for construction of Alternative 3. However, construction may require additional permanent right-of-way acquisitions and the permanent displacement of businesses.

Because it is anticipated that most businesses displaced during construction of Alternative 3 would be relocated to nearby properties, construction of this alternative would not be expected to result in substantial changes to the local economic conditions in the project study area. Local business viability may be temporarily affected by the relocations; however, after the businesses become established in their new sites and customers become accustomed to accessing businesses at their new locations, business viability would be expected to return to existing conditions.

Business displacements required for construction of Alternative 3 could result in substantial changes to the local neighborhood character, and potentially to the social fabric of the local community. Neighborhood residents or visitors may be accustomed to accessing businesses in their existing locations, and the displacement of those businesses could potentially be psychologically or socially disruptive, which could affect professional and social interactions. If relocation sites are available within proximity to the existing businesses, the disruptions to professional and social interactions may be temporary as residents become accustomed to accessing the displaced businesses at their new locations. However, this impact could be substantial and adverse under NEPA. Under CEQA, this alternative would not divide an established community, and therefore, no impact would occur.

Public controversy among community members and business owners could result from business displacements; therefore, early and ongoing public outreach is required to discuss potential concerns and communicate with property owners and community members. With implementation of mitigation measures, impacts on community cohesion and interaction could remain adverse under NEPA.

### Operational Impacts

The operational impacts of Alternative 3 would be the same as those described above for Alternatives 1 and 2, with the exceptions noted below.

#### *Mobility and Access Impacts*

*Changes in Access to Public Transportation, Businesses, and Community Resources*

Implementation of Alternative 3 would require restrictions on motor vehicle movements (left-turns) at unsignalized intersections, which would be required to accommodate the Low-Floor LRT/Tram facilities in an effort to eliminate vehicle conflicts. Unless otherwise prohibited, U-turns would be allowed from signalized left-turn lanes on Van Nuys Boulevard; therefore, vehicles that need to turn left to access businesses and community resources would continue to have access through U-turns from signalized left-turn lanes.

Most of the left turns from San Fernando Road would be prohibited through the City of San Fernando where a median dedicated guideway for the Low-Floor LRT/Tram vehicle is proposed between the Sylmar/San Fernando Metrolink Station and Wolfskill Street. In addition, in an effort to maintain the pedestrian-oriented retail character of San Fernando Road between San Fernando Mission Boulevard and Chatsworth Drive, a possible option for operation in this location would redirect through traffic off San Fernando Road along one block between Maclay Avenue and Brand Boulevard by means of turn restrictions. All existing turning movements would be maintained on San Fernando Road between Wolfskill Street and Van Nuys Boulevard where the Low-Floor LRT/Tram would share travel lanes with motor vehicles.

While restrictions on vehicle movements and loss of parking would present an inconvenience for vehicles traveling along the project corridor, vehicles would continue to have access to either side of the roadway at signalized intersections, and mobility and access by public transit would be enhanced under Alternative 3. On-street parking would still be available on all connecting streets where parking is currently permitted, and many businesses and community resources may have dedicated parking lots that would provide sufficient off-street parking. In addition, more people may use transit as a result of the project, which could reduce the need for parking; therefore, since access to businesses and community resources would be maintained, and access would be improved for transit users under this alternative, impacts would not be considered adverse under NEPA and would be less than significant under CEQA.

According to Metro fare policies, additional fares would not be required to transfer from existing Metro Rapid and local buses to Alternative 3. Therefore, the Low-Floor LRT/Tram service would not be cost-prohibitive and would comply with Metro fare policies. Public outreach will be conducted to ensure that community and neighborhood concerns, including fare policies, are addressed.

### *Changes in Pedestrian and Bicycle Access*

Alternative 3 would maintain the ability for pedestrians and bicyclists to access areas in the project corridor, in compliance with Metro's Complete Streets Policy, although minor changes to pedestrian and bicycle circulation to allow for the proposed improvements would be required. Current pedestrian movements across roadways at existing signal-controlled crosswalks would be maintained; however, other pedestrian crossings on Van Nuys Boulevard at unsignalized intersections would be prohibited to avoid potential conflicts between pedestrians and Low-Floor LRT/Tram vehicles. In addition, on Van Nuys Boulevard from the Metro Orange Line to El Dorado Avenue in Pacoima, the existing 13-foot-wide sidewalks on each side of the roadway would be narrowed to 10 feet to accommodate the installation of the Low-Floor LRT/Tram facilities while providing two travel lanes in each direction.

These modifications to pedestrian movements and sidewalk widths would not be expected to substantially interfere with pedestrian access along the project corridor. In addition, all stops would include design elements that would be ADA compliant. A pedestrian bridge would also be provided at the Sylmar/San Fernando Metrolink Station from the Low-Floor LRT/Tram platform to the parking lot. However, this alternative would result in bicycle access and safety impacts within the communities and neighborhoods in the project study area from the increased potential for bicycle collisions due to the removal of Class II bike lanes on Van Nuys Boulevard. This impact would be adverse under NEPA and significant under CEQA.

## *Social and Economic Impacts*

### *Displacement of Housing and People*

To assess the types of potential displacement from Alternative 3, conceptual engineering plans for the proposed alignment, station options, and rights-of-way were reviewed. When an acquisition is required, it typically results in either a partial or full acquisition of a parcel. A partial acquisition would result if a portion of the parcel is necessary to accommodate the project. A full acquisition would result under two circumstances: (1) when the majority of the property is required for the horizontal alignment because of insufficient right-of-way or the need to construct storage or maintenance facilities, and (2) when a severe loss of access reduces the useful operation of the property.

The majority of the Low-Floor LRT/Tram alignment would be constructed in the median of an existing roadway and would not require the displacement of businesses or residences along the majority of the project corridor. However, some areas of the project alignment would require commercial property acquisitions to accommodate the Low-Floor LRT/Tram facilities, including at Van Nuys Boulevard and Bessemer Street, the Van Nuys/San Fernando Station at Van Nuys Boulevard and El Dorado Avenue, at San Fernando Road and Pinney Street, and at the Paxton Station at San Fernando Road and Weidner Street. No residential properties would be displaced to accommodate the Low-Floor LRT/Tram alignment.

Alternative 3 would also require full right-of-way acquisitions for the construction of the MSF. The exact location of the proposed Low-Floor LRT/Tram MSF has yet to be determined; however, three potential locations have been selected for consideration along Van Nuys Boulevard at Aetna, Keswick, and Arminta Streets.

The MSF site at Aetna Street would require 60 full property acquisitions, which includes one parcel for a connection to the Low-Floor LRT/Tram alignment. The MSF site at Arminta Street would require 37 full property acquisitions, and the MSF site at Keswick Street would require 42 full property acquisitions; these MSF sites do not require any parcels for connections to the Low-Floor LRT/Tram alignment.

The potential MSF sites are primarily located on properties zoned as limited manufacturing, light manufacturing, commercial manufacturing, general commercial, and regional commercial. Three parcels zoned as medium residential would be acquired for the MSF site at Aetna Street; however, these parcels are developed with a single parking lot serving an adjacent warehouse business. The displacement of businesses would be required to construct the MSF sites. In addition, for the MSF site at Aetna Street, the displacement of four residential units on a parcel zoned for light manufacturing use would be required.

In addition to these full property acquisitions, partial property acquisitions would be required for TPSSs, which would be located near potential stations or at the MSF site, mostly in vacant lots, parking lots, and commercial sites. These partial acquisitions would not be expected to require the displacement or relocations of businesses.

Right-of-way acquisitions are discussed in further detail in the Real Estate and Acquisitions Impacts Report prepared for the project (see Appendix I). Each business and residence displaced by Alternative 3 would be given advance written notice and would be informed of their eligibility for relocation assistance and payments under the Uniform Act. Relocation assistance for the residents of the four residential units may not be required because these units are rental housing and would likely be vacated in advance of right-of-way acquisitions.

Although displaced businesses and residences required for the Low-Floor LRT/Tram facilities and MSF site may need to be relocated, a review of online commercial real estate listings revealed that there were several available properties within a short distance (1.5 miles) of the study area to accommodate the displaced businesses or residents.[22] Therefore, it is assumed that replacement buildings for displaced businesses and residences would be available within a reasonable distance from their existing locations, and the displacement would not necessitate the construction of a substantial number of additional buildings on properties that are currently undeveloped. Therefore, Alternative 3 would not be expected to result in substantial changes to existing population and housing characteristics in the project study area, or result in substantial development impacts to accommodate business or residential displacements. Furthermore, other businesses adjacent to the project corridor would be affected due to construction activities and, while access would be maintained, these businesses would likely experience loss of patronage due to the proximity of heavy construction near their storefronts. However, thee effects on the businesses would be temporary, and Metro has a business assistance program to provide direct assistance for businesses affected by construction. Once construction has been completed, businesses would operate as before and with improved transit, would be more accessible to more transit riders. While there may be some businesses that close or relocate due to the effects during construction, urban decay impacts are not anticipated because of the temporary nature of these impacts, and the improved access and visibility for these businesses during operations. Additionally, large-scale displacement of small businesses to develop the site with new businesses or residential properties would not occur as part of the proposed project. The proposed project would consist of improvements to existing transit service along the Van Nuys Boulevard and San Fernando Boulevard corridors.

[22] Loopnet.com property search by map area. Available: http://www.loopnet.com. Accessed October 5, 2016.

The economic impacts related to business displacements and relocations are discussed in further detail in the Economic and Fiscal Impacts Report (see Appendix V). Because it is anticipated that most displaced businesses would be relocated to nearby properties, Alternative 3 would not be expected to result in substantial changes to the local economic conditions in the project study area by the displacements. Local business viability may be temporarily affected by the relocations as customers become accustomed to accessing businesses at their new locations; however, after the businesses become established in their new sites, business viability would be expected to return to existing conditions. It is anticipated that where relocation would be required, it would result in the relocation of most of the jobs that would be potentially displaced. Therefore, there would be no net loss of jobs overall.

Public controversy among community members and business owners could result from business displacements; therefore, early and ongoing public outreach would be required to discuss potential concerns and communicate with property owners and community members. With the implementation of mitigation measures, displacement impacts would not be adverse under NEPA and would be less than significant under CEQA.

*Changes in Community Cohesion and Interaction*

Business displacements required for the Low-Floor LRT/Tram alignment and MSF site could result in substantial changes to local neighborhood character, and potentially the social fabric of the local community. Neighborhood residents or visitors may be accustomed to accessing businesses in their existing locations, and the displacement of those businesses could be psychologically or socially disruptive, and could affect professional and social interactions. If relocation sites are available within proximity to the existing business sites, the disruptions to professional and social interactions may be temporary as residents become accustomed to accessing the displaced businesses at their new locations. However, this impact would be adverse under NEPA. Under CEQA, this alternative would not divide an established community, and therefore, no impact would occur.

Public controversy among community members and business owners could result from business displacements; therefore, early and ongoing public outreach is required to discuss potential concerns and communicate with property owners and community members. With the implementation of mitigation measures, impacts on community cohesion and interaction could remain adverse under NEPA.

### *Physical Impacts*

*Changes in Aesthetic Character*

The project corridor is an existing transportation route in an urbanized area with ongoing bus transit service; therefore, the proposed Low-Floor LRT/Tram operations would be consistent with existing transportation uses, and no substantial changes in aesthetic character would result from this alternative along the majority of the project corridor. In addition, stations would include aesthetic enhancements, such as landscaping and canopies, which would be compatible with the existing character of surrounding communities and neighborhoods.

This alternative would require a number of elements to support vehicle operations, including median fences, an OCS, TPSSs, signaling, a pedestrian bridge at the Sylmar/San Fernando Metrolink station, and an MSF. These additional elements would result in substantial changes to the aesthetic character of some areas along the project corridor, especially in residential and recreational areas, and along the San Fernando Mall on San Fernando Road between Kittridge Street and San Fernando Mission

Boulevard. In the San Fernando Mall area, San Fernando Road narrows from a four-lane roadway (two lanes in each direction) to a two-lane roadway (one lane in each direction), and businesses are located relatively close to the roadway, making this area more pedestrian-oriented than other areas along the project corridor.

The following parks are also in proximity to the proposed improvements and could be affected by visual changes from this alternative:

- Blythe Street Park, 14740 Blythe Street, Van Nuys: This park is in proximity to the proposed MSF site at Arminta Street.
- Tobias Avenue Park, 9122 Tobias Avenue, Panorama City: This park is adjacent to the project corridor on Van Nuys Boulevard to the north of Nordhoff Street.
- Pacoima Wash Greenway: This greenway is a future proposed project that crosses under the project corridor south of Van Nuys Boulevard and Arleta Avenue, and at San Fernando Road to the south of La Rue Street in San Fernando.

Residential areas adjacent to the project corridor are in the following locations:

- Low-density residential areas are located adjacent to and south of the proposed MSF site at Aetna Street.
- Medium-density residential areas are located adjacent to and north of the proposed MSF site at Arminta Street.
- Medium-density residential areas are located adjacent to Van Nuys Boulevard between Parthenia Street and Plummer Street in Panorama City.
- Medium-, low-medium-, and low-density residential areas are located adjacent to Van Nuys Boulevard between just south of Woodman Avenue and Remick Avenue in Arleta.
- Low-medium density residential areas are located adjacent to and north/northeast of the Sylmar/San Fernando Metrolink Station.

The median fences, OCS, and pedestrian bridge, in particular, would introduce additional vertical elements that could substantially change the existing visual character and quality in these areas of the project corridor, especially for residents, pedestrians, and bicyclists, who would be expected to have high viewer sensitivity to their surroundings. Therefore, changes in aesthetic character due to Alternative 3 could be substantial in areas where sensitive viewers are located. As a result, the visual impacts on sensitive viewers in residential and recreational areas could be adverse under NEPA and significant under CEQA. Alternative 3's potential impacts on aesthetic character are also addressed in more detail in Section 4.5 of this DEIS/DEIR and in the Visual Quality and Aesthetics Impacts Report (see Appendix K).

### *Safety Impacts and Other Physical Intrusions*

Alternative 3 would not be expected to introduce substantial physical intrusions (e.g., noise, dust, or odors) to the project corridor. While there would be some modifications to the project corridor (e.g., changes in bicycle lanes and turning movements, the loss of curbside parking, and the addition of an OCS and TPSSs, median fences, a pedestrian bridge at the Sylmar/San Fernando Metrolink Station, and an MSF site), the project corridor is an existing transportation route in an urbanized area with ongoing bus transit service, and therefore, the proposed Low-Floor LRT/Tram operations would be consistent with existing transportation uses.

The Low-Floor LRT/Tram would run in mixed-flow lanes along San Fernando Road just north of Wolfskill Street, and would therefore result in the potential for conflicts with street traffic and Low-Floor LRT/Tram operations. The potential for accidents would be highest initially, but would stabilize as people become accustomed to the new alignment. In addition, potential Low-Floor LRT/Tram improvements under this alternative would be subject to Metro's System Safety Program Plan.

Low-Floor LRT/tram vehicles would not exceed the posted adjacent roadway speed limit, which is typically 35 miles per hour (mph). In addition, Metro would prepare grade crossing applications in coordination with local public agencies to further increase safety and reduce the potential for conflicts, accidents, and collisions.

Alternative 3 could result in several pedestrian safety concerns. Stations could present safety hazards if pedestrian traffic and movement are not considered, resulting in potential for collisions between pedestrians and Low-Floor LRT/Tram vehicles. In addition, the introduction of Low-Floor LRT/Tram vehicles in mixed-flow traffic lanes on San Fernando Road, just north of Wolfskill Street, would create a safety concern for pedestrians at intersection crossings where pedestrians would cross over the tracks. Similarly, a potential safety hazard could result if pedestrians attempt to cross streets and tracks illegally.

Pedestrian traffic control and channelization techniques (e.g., barriers and designated walkways) would be used to control pedestrian movements at intersections and encourage the use of designated pedestrian crossings. A pedestrian bridge would also be provided at the Sylmar/San Fernando Metrolink Station from the Low-Floor LRT/Tram platform to the parking lot. Photo 4.4-1 is an example of a typical pedestrian bridge that may be considered at this location, though details of the design would be finalized in the final design phase should this alternative be the selected alternative for construction. Metro would prepare grade crossing applications in coordination with local public agencies to further increase safety and reduce the potential for conflicts, accidents, and collisions.

While the proposed changes to the roadway network would be designed in compliance with Metro design guidelines to ensure pedestrian, motorist, and bicyclist safety, the removal of Class II bike lanes or replacement with shared bike lanes would increase the potential for conflicts between bicyclists and motor vehicles, reducing safety. Therefore, Alternative 3 could result in safety impacts within the communities and neighborhoods in the project study area from the potential for bicycle collisions. This potential impact could be adverse under NEPA and significant under CEQA.

**Photo 4.4-1: Example of a Typical Pedestrian Bridge**

Source: Metro, 2016.

### Cumulative Impacts

Past projects have resulted in community and visual impacts, and other present or reasonably foreseeable future projects in the area, including the cumulative projects in Table 2-3, could further degrade social and community interactions, and visual conditions in the area. Therefore, cumulative impacts from past, present, and reasonably foreseeable future projects are significant. As a result, any adverse impacts from Alternative 3 would be considered cumulatively considerable. The cumulative impacts that could occur due to implementation of Alternative 3 would be the same as those described above for Alternative 1, with the exception that Alternative 3 would result in potentially significant operational impacts on social and community interactions due to business displacements, and potentially significant operational visual impacts on sensitive viewers in the community. Because impacts from Alternative 3 would remain significant after implementation of mitigation measures, the alternative's contribution to cumulative community and visual impacts during operation remain cumulatively considerable, unlike the BRT alternatives.

### Mitigation Measures

The reader is referred to the following mitigation measures to reduce or avoid potential construction and operational impacts on communities and neighborhoods: MM-TRA-1 through MM-TRA-3 in Table ES-1 and Chapter 3, Transportation, Transit, Circulation, and Parking; MM-VIS-1 though MM-VIS-5 in Table ES-1 and Section 4.5, Visual Quality and Aesthetics; MM-AQ-1 through MM-AQ-7 in Table ES-1 and Section 4.6, Air Quality; MM-NOI-1a through MM-NOI-4b and MM-VIB-1 and MM-VIB-2 in Table ES-1 and Section 4.8, Noise and Vibration; and MM-SS-3 and MM-SS-8 in Table ES-1 and Section 4.14, Safety and Security. These measures include measures to maintain access to the local communities and neighborhoods in the study area, detours, design and location of project elements to avoid obstructing views to and from these communities, requirements for use of equipment and methods to reduce air quality emissions, attenuation of noise and vibration impacts to the extent feasible by use of alternate equipment or methods, or use of noise and vibration reducing track, and coordination with public safety and transit providers to ensure adequate access to communities and neighborhoods along the project corridor. During project operation and construction, these measures would minimize direct impacts that could adversely affect the quality of the human environment within the communities and neighborhoods in the study area.

In addition, the following measure is proposed:

> **MM-CN-1**: A formal educational and public outreach campaign shall be implemented to discuss potential community and neighborhood concerns, including relocations, visual/aesthetics changes, and fare policies, and to communicate information about the project with property owners and community members.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The potential operational effects on bicycle access and safety, construction and operational effects on social and community interactions from business displacements, and operational visual impacts on sensitive viewers in communities and neighborhoods would be adverse after mitigation. All other effects would not be considered adverse.

#### *CEQA Determination*

The potential operational impacts on bicycle access and safety, construction and operational impacts on social and community interactions from business displacements, and operational visual impacts on sensitive viewers would be significant after implementation of proposed mitigation measures. All other impacts would be less than significant.

## Alternative 4 – LRT

### Construction Impacts

Alternative 4, the LRT Alternative, would require the most extensive construction of the four build alternatives because of the subway portion of the alignment. Alternative 4 would also include construction of OCS, TPSSs, and MSF structures. Those structures or facilities would not be required for the BRT alternatives. As a consequence, Alternative 4 would result in greater construction impacts, compared to the BRT alternatives.

### Operational Impacts

The operational impacts of Alternative 4 would be the same as those described above for Alternative 3, with the exceptions noted below.

#### *Mobility and Access Impacts*

*Changes in Access to Public Transportation, Businesses, and Community Resources*

Under this alternative, vehicle movements and parking would be maintained along San Fernando Road and Truman Street where the LRT alignment would run along the Metro-owned railroad right-of-way. While restrictions on vehicle movements and loss of parking on Van Nuys Boulevard would present an inconvenience for vehicles traveling along the project corridor, vehicles would continue to have access to either side of the roadway at signalized intersections, and mobility and access by public transit would be enhanced under Alternative 4; therefore, vehicle access would be maintained under this alternative, and this impact would be minor and adverse under NEPA and less than significant under CEQA.

*Changes in Pedestrian and Bicycle Access*

The existing 13-foot-wide sidewalks on each side of the roadway would be narrowed to 10 feet to accommodate the installation of the LRT facilities, while providing two travel lanes in each direction, along Van Nuys Boulevard north of the subway portal near Rayen Street in Panorama City, where the LRT vehicles would resume a surface alignment in the roadway median and proceed to El Dorado Avenue in Pacoima.

These modifications to pedestrian movements and sidewalk widths would not be expected to substantially interfere with pedestrian access along the project corridor. In addition, all stops would include design elements that would be ADA compliant. A pedestrian bridge would also be provided at the Sylmar/San Fernando Metrolink Station from the LRT platform to the parking lot. Therefore, impacts would be minor and adverse under NEPA and less than significant under CEQA.

An existing bikeway designated as part of the County's Master Bicycle Plan, located along the Metro-owned railroad right-of-way in the City of San Fernando, would remain under this alternative. This bicycle path, also known as the Mission City Trail located in the City of San Fernando along the Metro-owned railroad right-of-way, would be maintained under this alternative because the right-of-way is sufficiently wide enough to allow the bicycle path to remain alongside a pair of LRT tracks and relocated tracks for Metrolink and Union Pacific trains. At the point where Alternative 4 crosses the bicycle path, near the intersection of Pinney Street and San Fernando Road, a signalized grade crossing would be provided. The bike path would be shifted from the east side of the railroad alignment to the west side of the tracks through the City of San Fernando to reduce the number of bike-rail crossings, reduce the amount of right-of-way acquisitions, and provide a better alignment of the railroad and LRT tracks.

Alternative 4 would result in bicycle access and safety impacts within the communities and neighborhoods in the project study area from the increased potential for bicycle collisions due to the removal of Class II bike lanes on Van Nuys Boulevard. This impact would be adverse under NEPA and significant under CEQA.

#### *Social and Economic Impacts*

##### *Displacement of Housing and People*

The majority of the LRT alignment would be constructed in the median of an existing roadway and would not require the displacement of businesses or residences along the majority of the project corridor. However, some areas of the project alignment would require commercial/industrial property acquisitions to accommodate the LRT facilities, including at the Sherman Way Station at Van Nuys Boulevard and Sherman Way, the Keswick Street Station at Van Nuys Boulevard and Keswick Street, the Roscoe Boulevard Station at Van Nuys Boulevard and Roscoe Boulevard, at the Pacoima Station at Van Nuys Boulevard and El Dorado Avenue, at San Fernando Road and Pinney Street, and along the Metro-owned railroad right-of-way between Maclay Avenue and Workman Street, and between Lazard Street and the Sylmar/San Fernando Metrolink Station. Partial property acquisitions would also be required at the Vanowen Station at Van Nuys Boulevard and Hartland Street, and along the Metro-owned railroad right-of-way between Wolfskill Street and Maclay Avenue. No residential properties would be displaced to accommodate the LRT alignment.

The MSF site at Aetna Street would require 64 full property acquisitions, which includes two parcels for a connection to the LRT alignment. The MSF site at Keswick Street would require 48 full property acquisitions, which includes 11 parcels for a connection to the LRT alignment. The MSF site at Arminta Street would require 53 full property acquisitions, which also includes 11 parcels for a connection to the LRT alignment.

#### *Physical Impacts*

##### *Safety Impacts and Other Physical Intrusions*

The LRT would run in a dedicated guideway along Van Nuys Boulevard from the Metro Orange Line to San Fernando Road, and then within the existing Metro-owned railroad right-of-way on separate dedicated tracks from Van Nuys Boulevard to the Sylmar/San Fernando Metrolink Station. Therefore, this alternative would not be expected to result in a substantial increase in accidents or collisions between LRT vehicles and other motor vehicles. Therefore, this impact would not be adverse under NEPA and would be less than significant under CEQA.

### Cumulative Impacts

The cumulative impacts that could occur due to implementation of Alternative 4 would be the same as those described above for Alternative 3.

### Mitigation Measures

The mitigation measures mentioned and discussed for Alternative 3 also apply to Alternative 4.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The potential operational effects on bicycle access and safety, construction and operational effects on social and community interactions from business displacements, and operational visual impacts on sensitive viewers in communities and neighborhoods would be adverse after mitigation. All other effects would not be considered adverse.

#### *CEQA Determination*

The potential operational impacts on bicycle access and safety, construction and operational impacts on social and community interactions from business displacements, and operational visual impacts on sensitive viewers would be significant after implementation of proposed mitigation measures. All other impacts would be less than significant.

# 4.5 Visual Quality and Aesthetics

## 4.5.1 Regulatory Framework and Methodology

### 4.5.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's visual quality and aesthetics impacts are listed below. For additional information regarding these regulations, please see the Visual Quality and Aesthetics Report in Appendix K of this Draft EIS/EIR.

#### Federal

- NEPA

#### State

- CEQA

#### Local

- City of Los Angeles (City of Los Angeles Land Use/Transportation Policy, Special Districts, Targeted Neighborhood Initiatives, and Streetscape Plans); and
- City of San Fernando (General Plan, San Fernando Corridors Specific Plan).

### 4.5.1.2 Methodology

The following steps were used to assess the existing visual setting of the project corridor:

- The existing visual character and quality were identified;
- Maps were prepared and photographs were taken to illustrate existing visual character and quality;
- Existing viewers, viewer exposure, and viewer response were evaluated; and
- An assessment of the project's impacts on visual resources was conducted using architectural renderings and visual simulations.

The existing visual quality of the project study area was evaluated using the methodology described in the Federal Highway Administration (FHWA) guidance document, *Visual Impact Assessment for Highway Projects*.[1] According to the guidance document, visual quality is evaluated by identifying the vividness, intactness, and unity present in the viewshed. Each of these elements was assessed to support subsequent comparisons with post-project conditions. FHWA states that this method should correlate with public judgments of visual quality well enough to predict those judgments. This approach is particularly useful in roadway planning because it does not presume that a highway project is necessarily an eyesore. This approach to evaluating visual quality can also help identify specific methods for mitigating each adverse impact that may result from a project.

[1] Federal Highway Administration. 1981. *Visual Impact Assessment for Highway Projects.* March.

A landscape is composed of two elements: 1) the underlying landform (e.g., mountains, valley, or beach), and 2) the land cover on it (water, vegetation, man-made development). A landscape unit (LU) is a portion of the regional landscape and can be thought of as an outdoor room that exhibits a distinct visual character. An LU will often correspond to a place or district that is commonly known among local viewers. Within the project study area, there are distinct transitions in the visual setting that correspond primarily to changes in land use.

Because of the high level of diversity in land use and visual character along the project corridor, seven LUs have been defined to capture the overall character and quality of different segments of the corridor (see Figure 4.5-1, below, and Figures 3-2 through 3-9 in the Visual Quality and Aesthetics Impacts Report in Appendix K). These LUs represent typical characteristics rather than every detail of the project corridor.

For the purpose of this report, a numerical rating between 1 and 7 was assigned to the vividness, intactness, and unity for each of the LUs (see Table 4.5-1). The lowest value was assigned a rating of 1, while 7 represents the highest value.

### Table 4.5-1: Visual Quality Numerical Ratings

| Rating | Description |
|---|---|
| 1 | Very Low |
| 2 | Low |
| 3 | Moderately Low |
| 4 | Moderate |
| 5 | Moderately High |
| 6 | High |
| 7 | Very High |
| Source: FHWA, 1981. | |

## Figure 4.5-1: Landscape Unit Overview


*Alignment generalized for this overview map only for clarity at this scale. Detailed alignments for each alternative are included on the map segments.

### 4.5.1.3 Significance Thresholds

#### NEPA

NEPA requires federal agencies to determine if an undertaking would significantly affect the environment; however, NEPA does not include specific significance thresholds. According to the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the determination of significance under NEPA is based on context and intensity.[2]

Context relates to the various levels of society where impacts could result, such as society as a whole, the affected region, the affected interests, and the locality. The intensity of an impact relates to several factors, including the degree to which the impact would affect public health and safety; the proximity of the project to sensitive resources; and the degree to which effects on the quality of the human environment are likely to be highly controversial or involve unique or unknown risks.

Under NEPA, the context and intensity of a project's impacts are discussed regardless of any thresholds levels, and mitigation measures are included where reasonable.

#### CEQA

CEQA requires state and local government agencies to identify the significant environmental effects of proposed actions; however, CEQA does not describe specific significance thresholds. According to the Governor's Office of Planning and Research, significance thresholds for a given environmental effect are at the discretion of the lead agency and are the levels at which the lead agency finds the effects of a project to be significant.

##### State CEQA Guidelines

The CEQA Guidelines define "significant effect on the environment" as: "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by a project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (CEQA Guidelines, 14 CCR Section 15382).[3]

The CEQA Guidelines do not describe specific significance thresholds. However, Appendix G of the CEQA Guidelines lists a variety of potentially significant effects. As outlined in Appendix G, a project may have a significant effect on visual and aesthetics resources if the project would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; and
- Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

[2] Code of Federal Regulations. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.*

[3] California Natural Resources Agency. 2010b. *State CEQA Guidelines, 14 CCR Section 15382.* Available: <http://ceres.ca.gov/ceqa/guidelines/art20.html>. Accessed: February 15, 2013.

### City of Los Angeles CEQA Thresholds

The *L.A. CEQA Thresholds Guide* states that a determination of significance for aesthetics and visual resources shall be made on a case-by-case basis, considering the following factors:[4]

#### *Aesthetics*

- The amount or relative proportion of existing features or elements that substantially contribute to the valued visual character or image of a neighborhood, community, or localized area, which would be removed, altered, or demolished;
- The amount of natural open space to be graded or developed;
- The degree to which proposed structures in natural open space areas would be effectively integrated into the aesthetics of the site, through appropriate design, etc.;
- The degree of contrast between proposed features and existing features that represent the area's valued aesthetic image;
- The degree to which a proposed zone change would result in buildings that would detract from the existing style or image of the area due to density, height, bulk, setbacks, signage, or other physical elements;
- The degree to which the project would contribute to the area's aesthetic value; and
- Applicable guidelines and regulations.

#### *Obstruction of Views*

- The nature and quality of recognized or valued views (such as natural topography, settings, man-made or natural features of visual interest, and resources such as mountains or the ocean);
- Whether the project affects views from a designated scenic highway, corridor, or parkway;
- The extent of obstruction (e.g., total blockage, partial interruption, or minor diminishment); and
- The extent to which the project affects recognized views available from a length of a public roadway, bike path, or trail, as opposed to a single, fixed vantage point.

#### *Shading*

- A project impact would normally be considered significant if shadow-sensitive uses would be shaded by project-related structures for more than three hours between the hours of 9:00 a.m. and 3:00 p.m. Pacific Standard Time (between late October and early April), or for more than four hours between the hours of 9:00 a.m. and 5:00 p.m. Pacific Daylight Time (between early April and late October).

#### *Nighttime Illumination*

- The change in ambient illumination levels as a result of project sources; and
- The extent to which project lighting would spill out of the project site and affect adjacent light-sensitive areas.

[4] City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide, K. Public Services.* Available: <http://www.ci.la.ca.us/ead/programs/Thresholds/K-Public%20Services.pdf>. Accessed: February 13, 2013.

# 4.5.2 Affected Environment/Existing Conditions

The study area runs generally north/south in the San Fernando Valley area of Los Angeles County. The project corridor is approximately 9.2 miles in length, and runs nearly one-quarter of the length of the valley floor. The San Fernando Valley is a topographically flat area consisting of approximately 260 square miles; however, there are several mountain ranges near or adjacent to the project corridor, including the Santa Monica Mountains to the south, the Verdugo Mountains to the east, the San Gabriel Mountains to the northeast, and the Santa Susana Mountains to the north and west (see Figure 3-1 in the Visual Quality and Aesthetics Impacts Report in Appendix K). The project corridor is located in an urbanized area with residential, commercial, industrial, recreation, schools, community centers, and other urban land uses. There are a number of residential and recreational areas in the mountainous regions from where the viewshed includes the project corridor.

## 4.5.2.1 Existing Scenic Vistas

Scenic vistas in the project study area include views of the surrounding mountains, which are visible from various locations along the project corridor and include the Santa Monica Mountains to the south, the Verdugo Mountains to the east, the San Gabriel Mountains to the northeast, and the Santa Susana Mountains to the north and west. Views of surrounding mountains are described for each LU in Section 4.5.2.3 below.

## 4.5.2.2 Existing Scenic Resources

Scenic resources in the project study area include existing landscaping elements, including rows of palm trees along Van Nuys Boulevard, and historic properties along the project corridor, which include the following:

- 14601-3 Aetna Street: This property is an example of Progress Works Administration (PWA) Moderne architecture and early infrastructure in the San Fernando Valley.
- 130 N. Brand Boulevard: This property is a junior high school campus with Classical Revival architecture.
- 1140 San Fernando Road: This property is a unique example of a J.C. Penney department store in a commercial strip, as opposed to a shopping mall.
- 1601 San Fernando Road: This property is an example of a Googie-style car wash on San Fernando Road.
- 6353 Van Nuys Boulevard: This property is an example of Streamline Moderne architecture that represents an early period of commercial development in the San Fernando Valley.
- 6551 Van Nuys Boulevard: This property is an example of New Formalist architecture and the work of Millard Sheets.
- 8201 Van Nuys Boulevard: This property is a rare example of Expressionist architecture.
- 8324 Van Nuys Boulevard: This property is part of a planned commercial strip for the successful post-war suburb of Panorama City.
- 9110 Van Nuys Boulevard: This property is a planned commercial strip for the successful post-war suburb of Panorama City, and is the work of master architect William Pereira.
- San Fernando Road: A portion of San Fernando Road between the southern end of Truman Street to North Lincoln Street/Victory Place is a historic alignment, dating from as early as 1871.

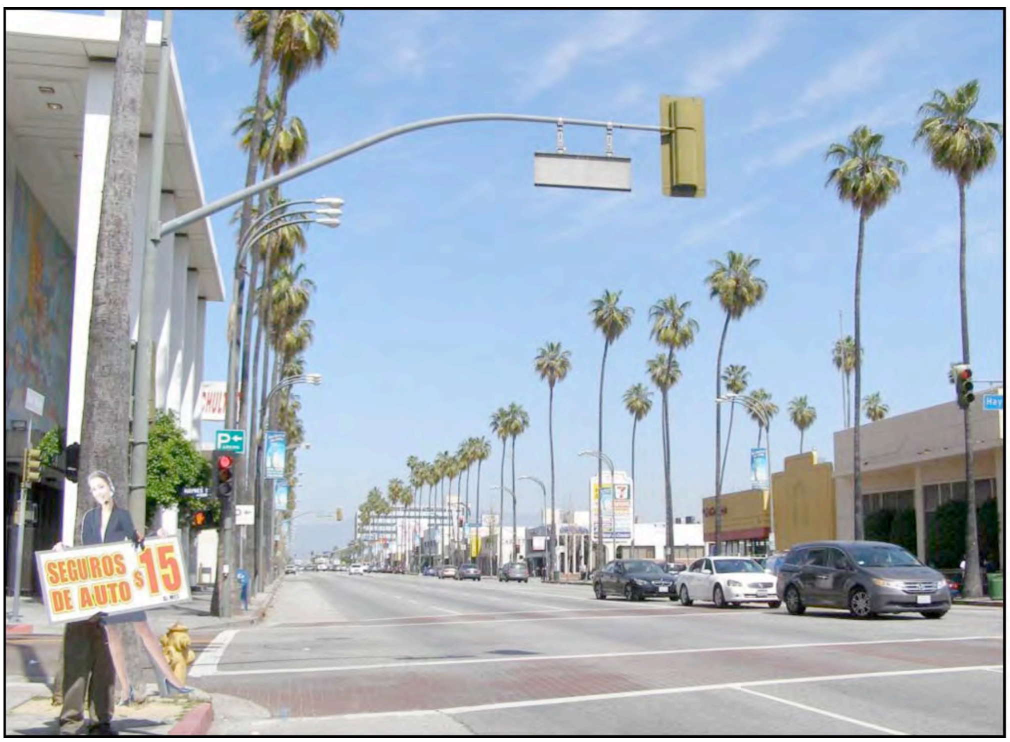
## 4.5.2.3 Existing Visual Character and Quality

### LU-1: Van Nuys Boulevard/Van Nuys Civic Center Unit

LU-1 includes the Van Nuys Boulevard corridor between approximately Calvert Street and Vanowen Street. This LU is in the Van Nuys – North Sherman Oaks Community Plan Area (CPA) and in the Van Nuys Community Design Overlay (CDO) District, Van Nuys Central Business District (CBD) CDO, and Van Nuys Targeted Neighborhood Initiative (TNI). This LU also includes historic properties at 14601-3 Aetna Street, 6353 Van Nuys Boulevard, and 6551 Van Nuys Boulevard. This segment of Van Nuys Boulevard is typically three vehicle lanes in each direction with a center median and/or turn lanes. There are parking spaces and sidewalks, but no bike lanes.

Typical views in LU-1 include the Van Nuys Boulevard corridor, bordered by parking, sidewalks, street trees, commercial buildings, signs on both sides of the corridor, and additional buildings visible in the background. In the northbound direction, the San Gabriel Mountains are visible; in the southbound direction, the Santa Monica Mountains are visible. Representative Viewpoint (RV)-1, representing views from LU-1, is facing slightly northeast on Van Nuys Boulevard at its intersection with Haynes Street on the west side of the roadway (see Figure 4.5-2, below).

**Figure 4.5-2: Representative Viewpoint 1**




Source: GPA, 2013.

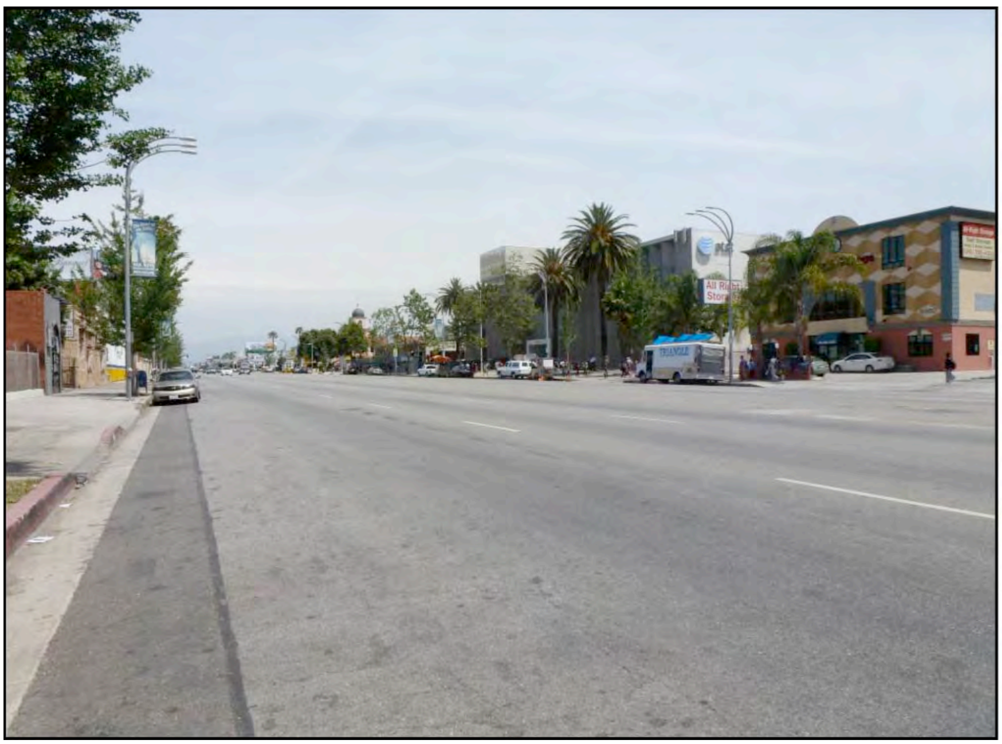
The visual quality of LU-1 has been quantified using the rating system described in Section 4.5.1.2. Overall, on a scale of 1 to 7, the visual quality of LU-1 is rated at approximately 5.7, which is high (see Table 3-1 in the Visual Quality and Aesthetics Impacts Report in Appendix K).

## LU-2: Van Nuys Boulevard/Van Nuys Commercial Unit

LU-2 includes Van Nuys Boulevard between approximately Vanowen Street and Titus Street. This LU is partially in the Van Nuys – North Sherman Oaks CPA and partially in the Mission Hills – Panorama City – North Hills CPA. This LU is within the Historic Preservation Overlay Zone (HPOZ), where lots are categorized by whether they have contributing features, non-contributing features, or if the parcel is undeveloped. A portion of the LU is also in the Van Nuys TNI II and Panorama City CDO District. This segment of Van Nuys Boulevard is typically three vehicle lanes in each direction with a center median and/or turn lanes. There are parking spaces and sidewalks on both sides of the roadway, but no bike lanes. LU-2 also passes under the Union Pacific Railroad just south of West Cabrito Road.

Typical views in LU-2 include the Van Nuys Boulevard corridor stretching from the foreground to the horizon, bordered by sidewalks, street trees, commercial buildings, tall light poles, and signs on both sides, with additional buildings visible in the background. Mountains are minimally visible in the background in both the northbound (Santa Susana) and southbound (Santa Monica) directions. RV-2, representing views from LU-2, is facing slightly northeast on Van Nuys Boulevard just north of Hartland Street on the west side of the roadway (see Figure 4.5-3).

### Figure 4.5-3: Representative Viewpoint 2



Source: GPA, 2014.

The visual character of LU-2 is that of a small to medium-scale urban commercial corridor. Van Nuys Boulevard, adjacent commercial buildings, and associated overhead signs are the dominant components in LU-2, which create a pattern of straight yet jagged lines in the landscape. Street trees soften these lines, and add color, texture and shading to the landscape; however, because they are planted intermittently they blend into the overall landscape.

The northbound views of the San Gabriel Mountains add visual interest in the LU, but these views are dominated by other features in the landscape. Buildings in LU-2 are of all different sizes, styles, and colors, and are spaced at different intervals, creating a high level of visual diversity in the landscape with no common theme. The roadway is wide, which creates a more open and exposed feel in this area. Overhead streetlights create a uniform line along the roadway; however, this is minimized by the variety of building features.

The visual quality of LU-2 has been quantified using the rating system described in Section 4.5.1.2 (see Table 3-2 in the Visual Quality and Aesthetics Impacts Report in Appendix K). Overall, on a scale of 1 to 7, the visual quality of LU-2 is rated at approximately 2, which is low.

## LU-3: Van Nuys Boulevard/Panorama City Commercial Unit

LU-3 includes Van Nuys Boulevard between approximately Titus Street and just north of Parthenia Street. This LU is in the Mission Hills – Panorama City – North Hills CPA, Panorama City CDO District, and Panorama City Business Improvement District (BID). This LU also includes historic properties at 8201 Van Nuys Boulevard and 8324 Van Nuys Boulevard. This segment of Van Nuys Boulevard is typically three vehicle lanes in each direction with a center median and/or turn lanes. There are parking spaces and sidewalks on both sides of the roadway, but no bike lanes. There is a large curve to the left along this section of Van Nuys Boulevard between Chase Street and Parthenia Street; Parthenia Street veers to the left while Van Nuys Boulevard turns again to the right and continues north.

Typical views in LU-3 include the Van Nuys Boulevard corridor, bordered by parking, sidewalks, street trees, signs on both sides of the corridor, and commercial buildings, with additional buildings visible in the background. In the northbound direction, a curve in Van Nuys Boulevard reduces views beyond the roadway corridor itself. RV-3, representing views from LU-3, is facing northeast on Van Nuys Boulevard just north of Chase Street on the west side of the roadway (see Figure 4.5-4).

### Figure 4.5-4: Representative Viewpoint 3


Source: GPA, 2014.



Metro

The visual character of LU-3 is that of a small to medium-scale urban commercial corridor. Van Nuys Boulevard and the adjacent commercial buildings are the dominant components in LU-3. They create a pattern of straight but jagged lines in the landscape that are partially softened by street trees. These trees also add color, texture, and shading to the landscape, which is otherwise dominated by concrete. There is a curve in the road through a portion of LU-3 that adds a gently curving line to the landscape.

The visual quality of LU-3 has been quantified in using the rating system described in Section 4.5.1.2 (see Table 3-3 in the Visual Quality and Aesthetics Impacts Report in Appendix K). Overall, on a scale of 1 to 7, the visual quality of LU-3 is rated at 3, which is moderately low.

## LU-4: Van Nuys Boulevard/Panorama City-Arleta Residential Unit

LU-4 includes Van Nuys Boulevard between approximately just north of Parthenia Street and just south of I-5 (see Figure 3-6 in the Visual Quality and Aesthetics Impacts Report in Appendix K). This LU is located partially within the Mission Hills – Panorama City – North Hills CPA and partially within the Arleta – Pacoima CPA. This LU also includes one historic property at 9110 Van Nuys Boulevard. This segment of Van Nuys Boulevard is typically two vehicle lanes in each direction with a center median and/or turn lanes. There are parking spaces and sidewalks on both sides of the roadway, but no bike lanes. This LU also crosses over the Pacoima Wash Diversion Channel.

Typical views in LU-4 include the Van Nuys Boulevard corridor, bordered by parking, sidewalks, overhead utility lines, landscaping, and apartment buildings. There is a curve in the road on Van Nuys Boulevard just north of Plummer Street, after which the I-5 overcrossing and the San Gabriel Mountains are visible in the background in the northbound direction. RV-4, representing views from LU-4, is facing slightly southeast on Van Nuys Boulevard just north of Vincennes Street on the west side of the roadway (see Figure 4.5-5).

The visual character of LU-4 is that of a residential neighborhood. The dominant components in this LU include Van Nuys Boulevard, adjacent apartment buildings, landscaping, and overhead power lines. In the northbound direction, the San Gabriel Mountains are dominant in the background. The roadway, buildings, and power lines create straight lines through the LU, which are softened in part by the dense vegetation, as well as the mountains in the background.

The vegetation also provides color, texture, and shading to the landscape in this LU. The roadway is narrower through this area, as well as the sidewalks, creating a more enclosed feel in the landscape. On the east side of the roadway, the sidewalk is separated from the street by a strip of grass or other landscaping, which provides additional visual separation and a perception of safety for pedestrians walking through this area.

The visual quality of LU-4 has been quantified using the rating system described in Section 4.5.1.2 (see Table 3-4 in the Visual Quality and Aesthetics Impacts Report in Appendix K). Overall, on a scale of 1 to 7, the visual quality of LU-4 is rated at 5, which is moderately high.

## Figure 4.5-5: Representative Viewpoint 4

Source: GPA, 2013.

## LU-5: Pacoima Commercial Unit

LU-5 includes Van Nuys Boulevard between approximately just south of I-5 and San Fernando Road. LU-5 is in the Arleta-Pacoima CPA, the Pacoima CDO District, and the Pacoima Town Center TNI. This segment of Van Nuys Boulevard is typically two vehicle lanes in each direction with a center median and/or turn lanes. There are parking spaces and sidewalks on both sides of the roadway, but no bike lanes. This LU also crosses under I-5 and over the UPRR railroad tracks.

Typical views in this LU include the Van Nuys Boulevard corridor, bordered by parking spaces, sidewalks, street trees, signs, utility lines, and commercial buildings, with additional buildings visible in the background. In the northbound direction, the San Gabriel Mountains are visible. RV-5, representing views from LU-5, is facing slightly southwest on Van Nuys Boulevard just south of El Dorado Avenue on the east side of the roadway (see Figure 4.5-6).

The visual character of LU-5 is that of a small to medium-scale urban commercial corridor. The dominant components in this LU are Van Nuys Boulevard, the adjacent commercial buildings, and overhead power lines. In the northbound direction, the San Gabriel Mountains are dominant in the background. The buildings, roadway, and overhead utilities create a pattern of straight lines in the landscape, which are partially softened by street trees. Trees also add color, texture, and shading to the landscape.

The visual quality of LU-5 has been quantified using the rating system described in Section 4.5.1.2 (see Table 3-5 in the Visual Quality and Aesthetics Impacts Report in Appendix K). Overall, on a scale of 1 to 7, the visual quality of LU-5 is rated at approximately 3.3, which is moderately low.

### Figure 4.5-6: Representative Viewpoint 5


Source: GPA, 2014.

## LU-6: San Fernando Road Unit

LU-6 includes the San Fernando Road corridor from Van Nuys Boulevard in the south to Kittridge Street in the north. LU-6 is in the Arleta-Pacoima CPA. A portion of the LU near Van Nuys Boulevard is also in the Pacoima Community Design Overlay area. The roadway is generally two lanes in each direction with street parking on portions of the south side of the roadway, and a Class 1 bike path adjacent to the east of the roadway. LU-6 crosses under SR-118 and over the Pacoima Wash Diversion Channel.

Typical views in LU-6 include the San Fernando Road corridor, bordered by parking spaces, sidewalks, streetlights, overhead utilities, sparse vegetation, and commercial/industrial buildings. On the north side of the road, the railroad tracks also are visible along the corridor. In the westbound direction, the Santa Susana Mountains are visible on the north side of the corridor to the northwest. RV-6, representing views from LU-6, is facing southeast on San Fernando Road just north of Pinney Street on the north side of the roadway (see Figure 4.5-7).

The visual character of LU-6 is that of an urban industrial corridor. The dominant components in this LU consist of San Fernando Road, adjacent commercial/industrial buildings, and the railroad tracks on the north side of the roadway. These components create a pattern of straight but jagged lines in the landscape. To the northeast, the San Gabriel Mountains are also a visually dominant feature in the corridor.

The scale and openness of the corridor create a more exposed feel for pedestrians but are slightly minimized by the larger mountains in the background. The varying sizes, styles, and colors of the buildings create a high level of visual diversity in the landscape with no common theme.

### Figure 4.5-7: Representative Viewpoint 6


Source: GPA, 2014.

The visual quality of LU-6 has been quantified in Table 3-6 using the rating system described in Section 4.5.1.2 (see Table 3-6 in the Visual Quality and Aesthetics Impacts Report in Appendix K). Overall, on a scale of 1 to 7, the visual quality of LU-6 is rated at approximately 3.3, which is moderately low.

## LU-7: San Fernando Mall Unit

LU-7 includes the San Fernando Road corridor, including the San Fernando Mall, from Kittridge Street to the Sylmar-San Fernando Metrolink. The San Fernando Mall begins at Kittridge Street, where San Fernando Road becomes one lane in each direction, and continues to San Fernando Mission Boulevard. This LU includes historic properties at 130 N. Brand Boulevard, 1140 San Fernando Road, 1601 San Fernando Road, and the historic segment of San Fernando Road between the southern end of Truman Street and North Lincoln Street/Victory Place. From San Fernando Mission Boulevard to the Sylmar-San Fernando Metrolink Station, the roadway is generally two lanes in each direction, and the visual setting within this area is similar to LU-6. Within the San Fernando Mall corridor, there are diagonal parking spaces on one side of the roadway, and parallel street parking on the other side of the roadway, which varies from block to block. There are no center medians or bike lanes along this section of the roadway.

Typical views in LU-7 include the San Fernando Road corridor, bordered by parking spaces, sidewalks, streetlights, landscaping, and storefronts. RV-7, representing views from LU-7, is facing south on San Fernando Road looking toward the intersection with Maclay Avenue (see Figure 4.5-8).

The visual character of LU-7 is that of a local retail shopping area. The dominant components in this LU are the San Fernando Mall corridor and the adjacent storefront, which create a pattern of straight lines in the landscape that is softened in part by the existing landscaped trees and planters. This vegetation adds texture to the landscape, which is otherwise dominated by concrete and parked cars.

### Figure 4.5-8: Representative Viewpoint 7

Source: GPA, 2014.

The visual quality of LU-7 has been quantified using the rating system described in Section 4.5.1.2 (see Table 3-7 in the Visual Quality and Aesthetics Impacts Report in Appendix K). Overall, on a scale of 1 to 7, the visual quality of LU-7 is rated at 4, which is moderate.

## LU-8: Truman Street Unit

LU-8 includes the Truman Street corridor from San Fernando Road to the Sylmar-San Fernando Metrolink Station. This LU is within the San Fernando Corridors SPA, and includes historic properties at 130 N. Brand Boulevard, 1140 San Fernando Road, and 1601 San Fernando Road. The roadway is generally two lanes in each direction with a center median or turn lanes. There is street parking along portions of the roadway, but no bike lanes.

Typical views in LU-8 include the Van Nuys Boulevard corridor, bordered by parking spaces, sidewalks, streetlights, landscaping, signs, and commercial buildings. The San Gabriel Mountains are highly visible in the background in the northbound direction. RV-8, representing views from LU-8, is facing northeast on Truman Street at its intersection with Maclay Avenue (see Figure 4.5-9).

The visual character of LU-8 is that of a local retail shopping area. The dominant components in this LU are Truman Street and the adjacent commercial buildings, which create a pattern of straight lines in the landscape that is softened in part by the existing street trees. These trees also add color and texture to the landscape, which is otherwise dominated by concrete. To the northeast, the San Gabriel Mountains are also a visually dominant feature in the corridor.

The visual quality of LU-8 has been quantified using the rating system described in Section 4.5.1.2 (see Table 3-8 in the Visual Quality and Aesthetics Impacts Report in Appendix K). Overall, on a scale of 1 to 7, the visual quality of LU-8 is rated at 4, which is moderate.

## Figure 4.5-9: Representative Viewpoint 8


Source: GPA, 2013.

### LU-9: Metrolink Railroad Unit

LU-9 includes the Metrolink Railroad from La Rue Street to the Sylmar-San Fernando Metrolink Station. The Metrolink railroad tracks run through an industrial area, northeast of Truman Street. There are industrial buildings located southwest of the railroad tracks and landscaped trees and vegetation are located adjacent to the Mission City Bike Trail (trail) just northeast of the railroad tracks. Chain-link and iron-rod fences separate the railroad tracks from the adjacent land uses. There are telephone poles and wires that span the length of the railroad tracks with light poles adjacent to the trail. This LU also includes historic properties at 130 N. Brand Boulevard, 1140 San Fernando Road, and 1601 San Fernando Road.

Typical views in LU-9 include the railroad tracks, landscaped trees, telephone poles, fences, and industrial buildings. RV-9, representing views from LU-9, is facing southeast from the entrance to the Mission City Bike Trail and looks down the railroad corridor (see Figure 4.5-10).

The visual character of LU-9 is that of a landscaped industrial area. The dominant components in this LU are the railroad tracks, industrial buildings, and adjacent landscaping. The trees and vegetation add texture to the landscape and contrast with the sharp lines of the industrial buildings and telephone poles.

The visual quality of LU-9 has been quantified using the rating system described in Section 4.5.1.2 (see Table 3-8 in the Visual Quality and Aesthetics Impacts Report in Appendix K). Overall, on a scale of 1 to 7, the visual quality of LU-9 is rated at 3, which is moderately low.

**Figure 4.5-10: Representative Viewpoint 9**

Source: GPA, 2014.

### 4.5.2.4 Existing Viewers and Viewer Response

Viewer groups were identified by researching and observing the land uses and circulation patterns throughout the project corridor. Viewers in the project corridor may shift between viewer groups at different times of the day. The user groups described below were identified for the project study area.

#### Drivers

The project corridor is heavily used by single-passenger cars. Drivers include those traveling to and from land uses in the project study area as well as those traveling through the area from other parts of the city and region. Drivers include bus, train, and other transit drivers as well.

#### Transit Riders

Multiple transit lines, including Metro Local and Metro Rapid bus service, the Metro Orange Line, the Metrolink Ventura Line commuter rail service, Amtrak inter-city rail service, and the Metrolink Antelope Valley Line commuter rail service, run along or across the project corridor. Transit riders include those riding the bus or train to/from or through the area.

#### People on Bicycles

There are currently 2 miles of Class II bike lanes along the project corridor on Van Nuys Boulevard from Parthenia Street to Beachy Avenue as well as a Class I bike path just east and adjacent to the alignment along San Fernando Road; additionally, people on bicycles may use sections that do not have bike lanes. Therefore, people on bicycles who may be traveling along Van Nuys Boulevard, along the San Fernando Road bike path, and/or intersecting roadways have been included as a viewer group. According to community outreach completed for the project, there is a high level of interest for bicycle lanes.

#### Pedestrians

Pedestrians include people walking either to or from land uses along the project corridor, or those traveling through the area. The pedestrian circulation system, which consists of sidewalks, crosswalks, street lighting, and street furniture, is generally well developed and complete, serving both adjacent residential and commercial land uses in the two corridors (the Van Nuys Boulevard corridor and the San Fernando Road/Truman Street corridor) as shown in Figure 4.14-1.

Sidewalk widths along Van Nuys Boulevard range from a minimum of 5 feet to a maximum of 20 feet, with most sidewalks ranging from 10 to 13 feet in width. Along San Fernando Road and Truman Street, the sidewalks range from a minimum of 7 feet to a maximum of 13 feet, with most sidewalks falling in the 8 to 12 foot range. There are sections of sidewalk where pedestrian accessibility is compromised by crossing driveways and obstructions protruding into the path of pedestrians. Crosswalks at signalized intersections have pedestrian indicators and push-button activation for pedestrian phases in the Cities of Los Angeles and San Fernando. Most intersections in the project study area allow pedestrian crossings along all four sides.

#### Residents

There are several residential neighborhoods along the project corridor, as well as others located on adjacent blocks that are within the project study area. Residential viewers are considered to be those who reside along the corridor itself and would see the project from their homes. According to the U.S. Census Bureau, there were 154,510 housing units and a total population of 492,164 individuals in the project study area in the year 2010.

#### Employees/Students

There are a number of employment centers along and adjacent to the project corridor. Employees at these businesses may view the project when arriving at or departing work, during lunch breaks, and potentially from inside their workplaces. There are also several schools located along or adjacent to the project corridor. Students may have similar viewing patterns as employees.

#### Visitors

There are a number of retail businesses in the project corridor, as well as government offices and medical complexes. There are a number of churches, libraries, and other community centers along the project corridor. Visitors, which would include shoppers, restaurant-goers, and civic building users, may view the project while arriving at or leaving a particular building.

#### Recreational Users

There are a number of parks along the project corridor. Recreational users may view the project when arriving at or leaving the facilities or from the facility park itself.

#### Outside Viewers

The Van Nuys Boulevard corridor is located in a very flat valley surrounded by steep hillsides. Residents and recreational users in the nearer hills would have views of the project.

### Viewer Sensitivity

Viewer sensitivity is defined as both the viewers' concern for scenic quality and the viewers' response to change in the visual resources that make up the view. Local values and goals may confer visual significance on landscape components and areas that would otherwise appear unexceptional in a visual resource analysis. Even when the existing appearance of a project site is uninspiring, a community may still object to projects that fall short of its visual goals. Analysts can learn about these special resources and community aspirations for visual quality through citizen participation procedures, as well as from local publications and planning documents.

#### Drivers

Drivers in the project corridor are moving along roadways, and would therefore not be expected to notice changes in visual character as much as viewers who are stationary. Drivers would also be travelling at a maximum of 35 miles per hour (mph), and would remain in the project corridor for a shorter period of time than people on bicycles or pedestrians. In addition, all of the roadway corridors in the project corridor are busy roadways and demand the careful attention of drivers using these roadways. Viewer sensitivity is considered low.

#### Transit Riders

Transit riders may have a higher concern for their visual surroundings, depending on what activities they choose to do during their trips along the project corridor. Because riding the bus is a passive activity, riders have the opportunity to read or do some other activity that would allow them to focus their eyes away from their surroundings. However, it is likely that many riders would spend some or all of their time looking out the window at their surroundings. These riders would be expected to be more concerned with changes in visual character. Viewer sensitivity is considered moderately high.

#### People on Bicycles

People on bicycles using the project corridor are moving along roadways, and would therefore not be expected to notice changes in visual character as much as viewers who are stationary. In addition, roadways within the project corridor are busy and demand the careful attention of people on bicycles. However, people on bicycles are travelling at a slower speed (an average of 10 mph) than engine-powered vehicles and would be in the project corridor during a longer period of time. Therefore, people on bicycles would be more sensitive to visual changes than drivers. Viewer sensitivity is considered moderate.

#### Pedestrians

Pedestrians may have a higher concern for their visual surroundings, in particular those that are in the area shopping or standing/sitting at one location waiting for a bus. For those that spend a lot of time in the project corridor, the ability to observe their surroundings may be of importance, and these users would be expected to be more concerned with changes in visual character. Viewer sensitivity is considered high.

#### Residents

Residents along the project corridor may have a higher concern for their visual surroundings since they may be able to view the roadway from their front yards and/or from inside their homes. Typically, people feel strongly about the visual character of areas surrounding their homes, and these viewers would be expected to be more concerned with changes in visual character. Viewer sensitivity is considered very high.

#### Employees/Students

Employees and students may be concerned about their visual surroundings, especially if they have views from their offices or classrooms. In addition, students may also spend time outdoors for recess or physical education activities. Because employees and students are pursuing activities during the day that would very likely take some attention away from their surroundings (e.g., looking at computers, reading), their concern about their visual surroundings may not be as high as for those viewers, such as residents, who may not be engaged in those types of activities throughout the day. However, employees and students are likely returning to the project corridor day after day, and would therefore be expected to have some concern about changes in the visual quality of their surroundings. Viewer sensitivity is considered moderately high.

#### Visitors

Visitors to the area may be more or less concerned with the visual character of an area, depending on the purpose of their visit, but they would not be as familiar with the existing visual character because they do not return to the project corridor on a daily basis, and therefore may not be as concerned with whether there has been a visual change. Viewer sensitivity is considered low to moderate.

#### Recreational Users

Recreational users may be more concerned about their visual surroundings because they either are pursuing passive activities or are specifically seeking a pleasant visual setting. Viewer sensitivity is considered very high.

#### Outside Viewers

Outside viewers may be more or less sensitive to their visual surrounding depending on their activities and their view of the project corridor. Hillside residents and hillside recreation viewers have been identified as potential viewers from outside of the project corridor. Residents outside of the corridor would be expected to have a high sensitivity to their surroundings. However, because the project corridor would not likely be the primary component of their view, concern may be less than if the project corridor were closer. Recreational users that may have views of the corridor from surrounding hillsides would also be concerned with the visual setting and changes in the visual character of the corridor if that would affect the quality of the views themselves. Viewer sensitivity is considered high.

### 4.5.2.5 Community Preferences

Community preferences are important for determining the potential visual impacts of a project. A good indicator of visual preferences in the community can be found in local design guidelines. There are a number of existing planning documents (see Section 4.5.1.1) that identify design preference within the project study area. Overall, these planning documents identify a strong desire to improve the visual appearance of these areas through building style and spacing, consistent streetscaping elements, and strategic placement of signage and other elements to create a cohesive aesthetic. These plans also are aligned in wanting to improve the pedestrian experience along the project corridor to attract more people and encourage a more thriving community center.

In addition to past outreach completed for existing community plans, a series of community outreach meetings were held in order to gauge community attitudes and potential issues that could arise in the project study area. Three rounds of community meetings were held in 2011-12, 2013, and 2014, and presentations on the project have been given to other key stakeholders including elected officials and community organizations.

According to the results of the community outreach to date, the majority of community members attending the outreach meetings prefer the LRT alternatives versus the BRT alternatives. One of the reasons given by a commenter for support of this option was that the “beauty” of the existing Expo Line is desired for the project. This comment is understood to mean that consistent visual elements, as seen with the transit features of the Expo Line, are viewed as aesthetically pleasing. Another commenter stated that streetcars with low floor entries look cutting edge and modern. Other comments were received in relation to a desire for additional landscaping along San Fernando Road to enhance the visual setting, and upgrading striping, lighting, paving, and signage to create visual continuity.

### 4.5.2.6 Existing Lighting, Glare, and Shading

Existing lighting, glare, and shading in the project study area are characteristic of a typical urban environment that includes the transportation route, adjacent commercial and residential buildings, and streetscape elements (light poles, street trees). Existing sources of light in the project study area include streetlights, headlights and taillights on cars and other vehicles in the roadway, and interior and exterior lighting from adjacent buildings. There are no major sources of glare in the project study area. Existing shading in the project area is from vehicles on the roadway, adjacent buildings, streetlights, and street trees.

## 4.5.3 Environmental Consequences, Impacts, and Mitigation Measures

### 4.5.3.1 No-Build Alternative

#### Construction Impacts

The No-Build Alternative would not involve new transportation or infrastructure improvements aside from other related projects currently under construction or funded for future construction. Therefore, the No-Build Alternative would have no visual or aesthetics construction impacts.

#### Operational Impacts

The No-Build Alternative would not result in any visual changes to the project corridor, except for those changes resulting from other planned projects, such as the various freeway and arterial roadway upgrades, expansions to the Metro Rapid bus system, and upgrades to the Metrolink system, as specified in Metro's Long Range Transportation Plan (LRTP) and the Southern California Association of Government's (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Therefore, there would be no visual impacts from this alternative. However, beneficial visual enhancements from the build alternatives, such as improvements to visual quality in station areas, would not result under the No-Build Alternative.

#### Cumulative Impacts

Per CEQA Section 15130 (b), the cumulative impacts analysis can consider either a "list of past, present, and probable future projects producing related or cumulative impacts" or "a summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect." The cumulative impacts analysis below is based on the approach that considers cumulative projects listed in Table 2-3 of this EIS/EIR.

The study area for cumulative visual impacts consists of those areas that have views of the project corridor and those areas that can be seen from locations along the project corridor.

Under the No-Build Alternative, there would be no impacts on visual and aesthetic resources; therefore, this alternative would not contribute to any cumulative impacts on these resources.

### Mitigation Measures

#### Construction Mitigation Measures

No construction mitigation measures are required.

#### Operational Mitigation Measures

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### NEPA Finding

No adverse effects under NEPA would occur.

#### CEQA Determination

No impacts under CEQA would occur.

## 4.5.3.2 TSM Alternative

### Construction Impacts

The TSM Alternative may include minor bus stop and roadway improvements, as well as operational enhancements to the bus system. Given the very limited extent of potential physical improvements, construction activities would likely have no or very minimal impacts on visual and aesthetic resources.

### Operational Impacts

Under the TSM Alternative, minor visual change could occur as a result of traffic signalization improvements and bus stop amenities/improvements. These improvements would not be expected to result in substantial changes to the existing visual character or quality in the project corridor, and would not be expected to affect any existing scenic vistas, scenic resources, or add any substantial sources of light or glare. Therefore, impacts would not be adverse or would be beneficial under NEPA, and less than significant and beneficial under CEQA. It should also be noted the TSM Alternative would not result in the more extensive potential visual enhancements that could occur under the build alternatives (Alternatives 1 to 4), such as improvements to visual quality in station areas.

### Cumulative Impacts

The TSM Alternative would have no or negligible adverse effects on visual and aesthetic resources. As a consequence, the TSM Alternative would not contribute in any appreciable way to cumulative impacts on visual and aesthetic resources that might occur due to other projects in the study area. Therefore, the TSM Alternative would not result in a cumulatively considerable contribution to a significant cumulative impact.

## Compliance Requirements and Design Features

The TSM Alternative would be designed in accordance with local codes and ordinances. This would include visual and aesthetic elements including siting and height restrictions, structure scale, streetscaping features, and landscape design.

## Mitigation Measures

### Construction Mitigation Measures

No construction mitigation measures are required.

### Operational Mitigation Measures

No operational mitigation measures are required.

## Impacts Remaining After Mitigation

### NEPA Finding

Effects under NEPA would not be adverse or would be beneficial.

### CEQA Determination

Impacts under CEQA would be less than significant and beneficial.

# 4.5.3.3 BRT Alternatives (Alternatives 1 and 2)

## Alternative 1 – Curb-Running BRT

### Construction Impacts

Construction of Alternative 1 could result in temporary visual impacts within and surrounding the project corridor. Construction areas along the entire length of the project corridor would be visible to all viewer groups identified in Section 4.5.2 above from areas within and adjacent to the project corridor, including residential and recreational areas. Construction activities in staging areas and at proposed stations may include the use of construction lighting, and large equipment such as cranes and associated vehicles, including bulldozers, backhoes, graders, scrapers, and trucks, which could be visible from public streets, sidewalks, and adjacent properties.

Construction lighting could spill over onto adjacent properties, and could result in glare that could adversely affect the clarity of nighttime views in the area. All viewer groups near the construction areas may be affected by the presence of equipment, as well as stockpiled construction-related materials. In addition, mature vegetation, including trees, may need to be temporarily or permanently removed from some areas. These activities could adversely affect visual character and quality along the project corridor. Therefore, Construction activities would result in substantial adverse effects on all viewer groups under NEPA and significant impacts under CEQA.

### Operational Impacts

#### *Scenic Vistas*

Scenic vistas in the project study area include views of the surrounding mountains, which are visible from various locations along the project corridor and include the Santa Monica Mountains to the south, the Verdugo Mountains to the east, the San Gabriel Mountains to the northeast, and the Santa Susana Mountains to the north and west. As discussed in Section 4.5.2 above, views of surrounding mountains are visible in several LUs, including LU-1, LU-2, LU4, LU-5, LU-6, and LU-8. In some LUs, the surrounding mountains are minimally visible, such as in LU-2; and in some LUs, the surrounding mountains are a visually dominant feature in the background, such as in LU-4, LU-5, LU-6, and LU-8. Drivers, transit riders, people on bicycles, and pedestrians would be expected to have more fleeting views of scenic vistas because they are moving along the project corridor, while pedestrians, employees/students, and visitors would be expected to have longer views.

The primary visual elements included as part of Alternative 1 would be the addition of BRT vehicles, changes to existing parking and vehicle lanes, bus station upgrades, and sidewalk widening (see Figure 4.5-11). Along Van Nuys Boulevard, the BRT buses would operate within dedicated bus lanes on the outside curb lanes of the existing roadway; and along San Fernando Road and Truman Street, they would operate in mixed-flow lanes.

The addition of buses along outside curb lanes or within mixed-flow lanes would not be expected to substantially change or adversely affect existing views along the project corridor. Upgraded stations would include canopies, which could limit views for viewers directly adjacent to or underneath the canopies; however, views in the corridor as a whole would not be substantially affected. (Because the City of Los Angeles has a contract with CBS Decaux for bus station design, Metro would confirm their legal ability to upgrade the stations with the City of Los Angeles.) Widened sidewalks would not be expected to result in changes to scenic vistas. Impacts would not be adverse under NEPA and would be less than significant under CEQA.

#### *Scenic Resources*

Scenic resources in the project study area include existing landscaping elements, including rows of palm trees along Van Nuys Boulevard, and historic properties along the project corridor in LUs 1, 2, 3, 4, 7, 8, and 9. As discussed in Section 4.5.2 above, existing landscaping elements, such as trees and other vegetation, serve to soften views and add color and texture in several LUs, including LU-2, LU3, LU-5, LU-7, LU-8, and LU-9.

Under Alternative 1, the addition of buses along outside curb lanes or within mixed-flow lanes would not be expected to substantially affect visual resources along the project corridor, because they would operate within existing vehicle lanes and would not require any alterations to existing landscaping or adjacent properties. Station upgrades and sidewalk widening could result in impacts on existing landscaping, but existing visual resources, such as the rows of palm trees along Van Nuys Boulevard, would be preserved. In addition, no historic properties would be adversely affected under this alternative. Impacts would not be adverse under NEPA and would be less than significant under CEQA.

**Figure 4.5-11: Illustrative View of Curb-Running BRT Alternative**


Source: KOA, 2015.

### *Visual Character and Quality*

Visual character and quality vary by LU, as discussed in Section 4.5.2. Under Alternative 1, the addition of buses along outside curb lanes or within mixed-flow lanes would not be expected to substantially affect the visual character of the project corridor, because they would operate within existing vehicle lanes, and the corridor would remain dedicated to transportation. The removal of parking along the outside curb lanes could enhance the visual quality of the corridor by creating a higher visual unity along the corridor. Station upgrades and sidewalk widening could also result in a more cohesive landscape design along the corridor with canopies, additional street trees, and benches that would provide a more unified appearance in station areas, as illustrated in Figure 4.5-1. Post-project visual quality, and change from pre-project conditions, is summarized as follows:

- LU-1 (Van Nuys Boulevard/Van Nuys Civic Center Unit): The Curb-Running BRT Alternative would not be expected to affect vividness in LU-1, which would remain high at 6. Station upgrades would be expected to slightly increase intactness in LU-1, which would remain high at 7. Station upgrades and parking removal would also be expected to slightly increase unity in LU-1, which would be high at 6. Following implementation of the Curb-Running BRT Alternative, visual quality in this LU would be increased from moderately high to high at 6.3.
- LU-2 (Van Nuys Boulevard/Van Nuys Commercial Unit): The Curb-Running BRT Alternative would not be expected to affect vividness in LU-2, which would remain low at 2. Station upgrades would be expected to slightly increase intactness in LU-2, which would increase from low to moderately low at 3. Station upgrades and parking removal would also be expected to slightly

increase unity in LU-2, which would increase from low to moderately low at 3. Following implementation of the Curb-Running BRT Alternative, visual quality in this LU would be increased from low to moderately low at 2.7.

- LU-3 (Van Nuys Boulevard/Panorama City Commercial Unit): The Curb-Running BRT Alternative would not be expected to affect vividness in LU-3, which would remain moderate at 4. Station upgrades would be expected to slightly increase intactness in LU-3, which would increase from moderately low to moderate at 4. Station upgrades and parking removal would also be expected to slightly increase unity in LU-3, which would increase from low to moderately low at 3. Following implementation of the Curb-Running BRT Alternative, visual quality in this LU would be increased from moderately low to moderate at 3.7.
- LU-4 (Van Nuys Boulevard/Panorama City-Arleta Residential Unit): The Curb-Running BRT Alternative would not be expected to affect vividness in LU-4, which would remain high at 6. Station upgrades would be expected to slightly increase intactness in LU-4, which would increase from moderate to moderately high at 5. Station upgrades and parking removal would also be expected to slightly increase unity in LU-4, which would increase from moderately high to high at 6. Following implementation of the Curb-Running BRT Alternative, visual quality in this LU would remain moderately high at 5.7.
- LU-5 (Pacoima Commercial Unit): The Curb-Running BRT Alternative would not be expected to affect vividness in LU-5, which would remain moderate at 4. Station upgrades would be expected to slightly increase intactness in LU-5, which would increase from moderately low to moderate at 4. Station upgrades and parking removal would also be expected to slightly increase unity in LU-5, which would increase from moderately low to moderate at 4. Following implementation of the Curb-Running BRT Alternative, visual quality in this LU would increase from moderately low to moderate at 4.
- LU-6 (San Fernando Road Unit): Because buses would operate in mixed-flow lanes in this area, the Curb-Running BRT Alternative would not be expected to affect vividness in LU-6, which would remain moderate at 4. Station upgrades would be expected to slightly increase intactness in LU-6, which would increase from moderately low to moderate at 4. Station upgrades and parking removal would also be expected to slightly increase unity in LU-6, which would increase from moderately low to moderate at 4. Following implementation of the Curb-Running BRT Alternative, visual quality in this LU would increase from moderately low to moderate at 4.
- LU-7 (San Fernando Mall Unit): Because the buses would not operate along San Fernando Road in the San Fernando Mall area, the Curb-Running BRT Alternative would not be expected to affect vividness, intactness, or unity in LU-7. Following implementation of the Curb-Running BRT Alternative, visual quality in this LU would remain moderate at 4.
- LU-8 (Truman Street Unit): Because buses would operate in mixed-flow lanes in this area, the Curb-Running BRT Alternative would not be expected to affect vividness in LU-8, which would remain moderately high at 5. Station upgrades and parking removal would be expected to slightly increase intactness in LU-8, which would increase from moderate to moderately high at 5. Station upgrades would also be expected to slightly increase unity in LU-8, which would increase from moderately low to moderate at 4. Following implementation of the Curb-Running BRT Alternative, visual quality in this LU would remain moderate at 4.7.
- LU-9 (Metrolink Railroad Unit): Because the buses would not operate along the railroad tracks, the Curb-Running BRT Alternative would not be expected to affect vividness, intactness, or unity in LU-9. Following implementation of the Curb-Running BRT Alternative, visual quality in this LU would remain moderately low at 3.

Overall, visual quality would increase slightly under Alternative 1.

Unlike visual quality impacts, visual character impacts are based on viewer response and the sensitivity of viewer groups. Along the project corridor, viewer response would be expected to vary by viewer group and location, and would be dependent on sensitivity, exposure, and awareness. Residents, employees, and recreational users would be expected to have the greatest response to visual change, based on these three criteria; therefore, viewer response would likely be the greatest in the residential and recreational areas, where visual changes relate to Alternative 1 would be most noticeable. Because the curb-running buses would operate within existing vehicle lanes, and because bus station upgrades would likely result in an overall minor improvement to visual character and quality, viewer response would be expected to be low and positive. In addition, portions of the project corridor along San Fernando Road and Truman Street, where buses would operate within mixed-vehicle lanes, would likely result in a lower response. Impacts would not be adverse or would be beneficial under NEPA and would be less than significant or beneficial under CEQA.

#### *Lighting, Glare, and Shading*

Because the project study area is in a developed, urban area, there is a substantial amount of existing lighting and glare. Current lighting and glare sources in the project study area include streetlights, buildings and other structures, vehicles, and other various sources. Shading sources include buildings, other structures, utilities, and vegetation. The primary elements included under Alternative 1 that could result in lighting, glare, and shading are the station upgrades and additional buses. These elements would not be expected to result in a substantial change in existing lighting, glare, or shading along the project corridor. Shading related to the bus station canopies would be a beneficial change for station users. Impacts would not be adverse or would be beneficial under NEPA and would be less than significant or beneficial under CEQA.

### Cumulative Impacts

Per CEQA Section 15130 (b), the cumulative impacts analysis can consider either a “list of past, present, and probable future projects producing related or cumulative impacts” or “a summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect.” The cumulative impacts analysis below is based on the approach that considers cumulative projects listed in Table 2-3 of this EIS/EIR.

The study area for cumulative visual impacts consists of those areas that have views of the project corridor and those areas that can be seen from locations along the project corridor.

During construction, Alternative 1 would result in temporary adverse effects on visual and aesthetic resources. Construction impacts would be minimized or mitigated through mitigation measures, and would be reduced to levels that are less than significant. Other present and reasonably foreseeable future projects in the area could result in temporary visual or aesthetic impacts from construction activities, and impacts form past projects may also have resulted in temporary impacts. However, because these impacts are temporary, cumulative impacts would be less than significant. Because impacts under Alternative 1 would also be temporary, and impacts would be minimized or mitigated through mitigation measures, the alternative’s contribution to cumulative impacts during construction would not be cumulatively considerable.

Operational impacts would not be adverse, or would be beneficial under NEPA, and would be less than significant and beneficial under CEQA. Past projects have resulted in a highly urbanized landscape along the project corridor from the construction of buildings, transportation infrastructure, and other structures that have adversely affected scenic vistas, scenic resources, and visual character and quality. In addition, other present or reasonably foreseeable future projects in the area could further degrade the visual character and quality of the area, though this is unlikely as the related projects mostly consist of infill development projects that would not drastically change the existing visual and aesthetic setting along the corridor. Because views in the corridor as a whole would not be substantially affected, operational cumulative impacts would be less than significant. Furthermore, because impacts resulting from Alternative 1 would be minimized or mitigated through mitigation measures, the alternative's contribution to cumulative impacts during operation would not be cumulatively considerable, after implementation of mitigation measures.

### Compliance Requirements and Design Features

Alternative 1 would be designed in accordance with local codes and ordinances. This would include visual and aesthetic elements including siting and height restrictions, structure scale, streetscaping features, and landscape design.

### Mitigation Measures

#### *Construction Mitigation Measures*

**MM-VIS-1:** Construction staging shall be located away from residential and recreational areas, and shall be screened to minimize visual intrusion into the surrounding landscape. The screening shall be a height and type of material that is appropriate for the context of the surrounding land uses. There shall be Metro-branded art and community-relevant messaging on the perimeter of the construction staging walls. Lighting within construction areas shall face downward and shall be designed to minimize spillover lighting into adjacent properties.

#### *Operational Mitigation Measures*

While impacts would be less than significant before mitigation, the following measures are recommended to further reduce potential impacts:

**MM-VIS-2:** Vegetation removal shall be minimized, and shall be replaced following construction either in-kind or following the landscaping design palette for the project, which would be prepared in consultation with the Cities, including the City Tree Removal Policy and replacement ratio.

**MM-VIS-3:** Scenic resources, including landscape elements such as rows of palm trees (along Van Nuys Boulevard) or mature trees (along San Fernando Road) and uniform lighting, shall be preserved, where feasible.

**MM-VIS-4:** Lighting associated with the project shall be designed to face downward and minimize spillover lighting into adjacent properties, in particular residential and recreational properties.

**MM-VIS-5:** Infrastructure elements shall be designed with materials that minimize glare.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The potential construction effects on visual and aesthetic resources would not be adverse after implementation of proposed mitigation measures. The potential operational effects on visual and aesthetic resources would not be adverse or would be beneficial.

#### *CEQA Determination*

The potential construction impacts on visual and aesthetic resources would be less than significant after implementation of proposed mitigation measures. The potential operational effects on visual and aesthetic resources would be less than significant or beneficial.

## Alternative 2 – Median-Running BRT

### Construction Impacts

Construction impacts would be the same as those described above for Alternative 1.

### Operational Impacts

Scenic vistas in the project study area include views of the surrounding mountains, which are visible from various locations along the project corridor and include the Santa Monica Mountains to the south, the Verdugo Mountains to the east, the San Gabriel Mountains to the northeast, and the Santa Susana Mountains to the north and west. As discussed in Section 4.5.2 above, views of surrounding mountains are visible in several LUs, including LU-1, LU-2, LU4, LU-5, LU-6, and LU-8. In some LUs, the surrounding mountains are minimally visible, such as in LU-2; in some LUs, the surrounding mountains are a visually dominant feature in the background, such as in LU-4, LU-5, LU-6, and LU-8. Drivers, transit riders, people on bicycles, and pedestrians would be expected to have more fleeting views of scenic vistas because they are moving along the project corridor, while pedestrians, employees/students, and visitors would be expected to have longer views. Scenic resources in the project study area include existing landscaping elements, including rows of palm trees along Van Nuys Boulevard, and historic properties along the project corridor.

The primary visual elements included as part of Alternative 2 would be the addition of bus stop platforms and railings (on the backside of bus stop platforms) in the roadway median, a barrier along the entire length of the median bus lanes, the addition of BRT vehicles, changes to existing parking and vehicle lanes, and sidewalk widening (see Figure 4.5-12).

Operational impacts would be the same as those described above for Alternative 1. New stations in the median would present a new vertical feature in the landscape that could partially block views of the roadway corridor and surrounding mountains in several LUs along the project corridor; however, views in the corridor as a whole would not be substantially affected. Street trees would be removed along the corridor for implementation of this alternative, but the landmark trees within the Van Nuys Civic Center and downtown San Fernando would be minimally affected. Post-project visual qualities, and changes from pre-project conditions, are summarized as follows:

- LU-1 (Van Nuys Boulevard/Van Nuys Civic Center Unit): The new median bus stations associated with the Median-Running BRT Alternative could detract from vividness in LU-1, which would be reduced from high to moderately high at 5. New stations in the median would create new vertical features in the landscape that may limit views directly adjacent to or within the stations; however, views in LU-1 as a whole would not be substantially affected. Station upgrades would be expected to slightly increase intactness in LU-1, which would remain high at 7. Station upgrades and parking removal would also be expected to slightly increase unity in LU-1, which would be high at 6. Following implementation of the Median-Running BRT Alternative, visual quality in this LU would be increased from moderately high to high at 6.

## Figure 4.5-12: Illustrative View of Median-Running BRT Alternative


Source: KOA, 2015.

- LU-2 (Van Nuys Boulevard/Van Nuys Commercial Unit): The Median-Running BRT Alternative would not be expected to affect vividness in LU-2, which would remain low at 2. New stations and station upgrades would be expected to slightly increase intactness in LU-2, which would increase from low to moderately low at 3. New stations, station upgrades, and parking removal would also be expected to slightly increase unity in LU-2, which would increase from low to moderately low at 3. Following implementation of the Median-Running BRT Alternative, visual quality in this LU would be increased from low to moderately low at 2.7.
- LU-3 (Van Nuys Boulevard/Panorama City Commercial Unit): The Median-Running BRT Alternative would not be expected to affect vividness in LU-3, which would remain moderate at 4. New stations, station upgrades, and parking removal would be expected to slightly increase intactness in LU-3, which would increase from moderately low to moderate at 4. New stations and station upgrades would also be expected to slightly increase unity in LU-3, which would increase from low to moderately low at 3. Following implementation of the Median-Running BRT Alternative, visual quality in this LU would be increased from moderately low to moderate at 3.7.
- LU-4 (Van Nuys Boulevard/Panorama City-Arleta Residential Unit): The median running buses and new median bus stations associated with the Median-Running BRT Alternative could detract from vividness in LU-4, which would be reduced from high to moderate at 4. New stations in the median would create new vertical features in the landscape that may limit views directly adjacent to or within the stations; however, views in LU-4 as a whole would not be substantially affected. New stations and station upgrades would be expected to slightly increase intactness in LU-4, which would increase from moderate to moderately high at 5. New stations, station upgrades, and

parking removal would also be expected to slightly increase unity in LU-4, which would increase from moderately high to high at 6. Following implementation of the Median-Running BRT Alternative, visual quality in this LU would remain moderately high at 5.

- LU-5 (Pacoima Commercial Unit): The Median-Running BRT Alternative would not be expected to affect vividness in LU-5, which would remain moderate at 4. New stations and station upgrades would be expected to slightly increase intactness in LU-5, which would increase from moderately low to moderate at 4. New stations, station upgrades, and parking removal would also be expected to slightly increase unity in LU-5, which would increase from moderately low to moderate at 4. Following implementation of the Median-Running BRT Alternative, visual quality in this LU would increase from moderately low to moderate at 4.
- LU-6 (San Fernando Road Unit): Because buses would operate within mixed-flow lanes in this area, the Median-Running BRT Alternative would not be expected to affect vividness in LU-6, which would remain moderate at 4. Station upgrades would be expected to slightly increase intactness in LU-6, which would increase from moderately low to moderate at 4. Station upgrades would also be expected to slightly increase unity in LU-6, which would increase from moderately low to moderate at 4. Following implementation of the Median-Running BRT Alternative, visual quality in this LU would increase from moderately low to moderate at 4.
- LU-7 (San Fernando Mall Unit): Because the buses would not operate along San Fernando Road in the San Fernando Mall area, the Median-Running BRT Alternative would not be expected to affect vividness, intactness, or unity in LU-7. Following implementation of the Median-Running BRT Alternative, visual quality in this LU would remain moderate at 4.
- LU-8 (Truman Street Unit): Because buses would operate within mixed-flow lanes in this area, the Median-Running BRT Alternative would not be expected to affect vividness in LU-8, which would remain moderately high at 5. Station upgrades would be expected to slightly increase intactness in LU-8, which would increase from moderate to moderately high at 5. Station upgrades would also be expected to slightly increase unity in LU-8, which would increase from moderately low to moderate at 4. Following implementation of the Median-Running BRT Alternative, visual quality in this LU would remain moderate at 4.7.
- LU-9 (Metrolink Railroad Unit): Because the buses would not operate along the railroad tracks, the Median-Running BRT Alternative would not be expected to affect vividness, intactness, or unity in LU-9. Following implementation of the Median-Running BRT Alternative, visual quality in this LU would remain moderately low at 3.

Overall, visual quality would increase slightly under Alternative 2.

Unlike visual quality impacts, visual character impacts are based on viewer response and the sensitivity of viewer groups. Along the project corridor, viewer response would be expected to vary by viewer group and location, and would be dependent on sensitivity, exposure, and awareness. Residents, employees, and recreational users would be expected to have the greatest response to visual change, based on these three criteria; therefore, viewer response would likely be the greatest in the residential and recreational areas, where visual changes relate to the Median-Running Bus Alternative would be most noticeable. New median stations could affect visual character in certain portions of the project corridor by including additional vertical elements on the existing landscape; however, because the median-running buses would operate within an existing roadway corridor, and because bus station upgrades would likely result in an overall minor improvement to visual character and quality, viewer response would be expected to be low and positive. In addition, portions of the project corridor along San Fernando Road and Truman Street, where buses would operate within mixed-vehicle lanes, would likely result in a lower response.

Operational impacts under Alternative 2 would be considered adverse or beneficial under NEPA, and less than significant or beneficial under CEQA.

#### Cumulative Impacts

The cumulative impacts that could occur due to implementation of Alternative 2 would be the same as those described above for Alternative 1.

#### Compliance Requirements and Design Features

Alternative 2 would be designed in accordance with local codes and ordinances. This would include visual and aesthetic elements including siting and height restrictions, structure scale, streetscaping features, and landscape design.

#### Mitigation Measures

##### *Construction Mitigation Measures*

See mitigation measure MM-VIS-1 above under Alternative 1.

##### *Operational Mitigation Measures*

See mitigation measures MM-VIS-2 through MM-VIS-5 above under Alternative 1.

#### Impacts Remaining After Mitigation

##### *NEPA Finding*

The potential construction effects on visual and aesthetic resources would not be adverse after implementation of proposed mitigation measures. The potential operational effects on visual and aesthetic resources would not be adverse or would be beneficial.

##### *CEQA Determination*

The potential construction impacts on visual and aesthetic resources would be less than significant after implementation of proposed mitigation measures. The potential operational effects on visual and aesthetic resources would be less than significant or beneficial.

## 4.5.3.4 Rail Alternatives (Alternatives 3 and 4)

### Alternative 3 – Low-Floor LRT/Tram

#### Construction Impacts

Construction of Alternative 3 could result in temporary visual impacts within and surrounding the project corridor. Construction areas along the entire length of the project corridor would be visible to all viewer groups identified in Section 4.5.2 above, from areas within and adjacent to the project corridor, including residential and recreational areas. Construction activities in staging areas and at proposed stations may include the use of construction lighting, and large equipment such as cranes and associated vehicles, including bulldozers, backhoes, graders, scrapers, and trucks, which could be visible from public streets, sidewalks, and adjacent properties.

Construction lighting could spill over onto adjacent properties, and could result in glare that could adversely affect the clarity of nighttime views in the area. All viewer groups near the construction areas may be affected by the presence of equipment, as well as stockpiled construction-related materials. In addition, mature vegetation, including trees, may need to be temporarily or permanently removed from some areas. These activities could adversely affect visual character and quality along the project corridor.

Unlike the BRT alternatives, more extensive construction would be required to construct Alternative 3 facilities, which would include the Overhead Contact System (OCS), Traction Power Substations (TPSS), a pedestrian bridge at the Sylmar/San Fernando Metrolink station, maintenance and storage facility (MSF), and larger station platforms than the BRT alternatives. Construction activities would be completed over a longer duration than the BRT alternatives. Although construction impacts on visual quality and aesthetics may be more extensive, they would be to the same as those described above for the BRT alternatives. Consequently, construction activities from Alternative 3 would result in substantial adverse effects on all viewer groups under NEPA and significant impacts under CEQA.

### Operational Impacts

#### *Scenic Vistas*

Scenic vistas in the project study area include views of the surrounding mountains, which are visible from various locations along the project corridor and include the Santa Monica Mountains to the south, the Verdugo Mountains to the east, the San Gabriel Mountains to the northeast, and the Santa Susana Mountains to the north and west. As discussed in Section 4.5.2 above, views of surrounding mountains are visible in several LUs, including LU-1, LU-2, LU4, LU-5, LU-6, and LU-8. In some LUs, the surrounding mountains are minimally visible, such as in LU-2; in some LUs, the surrounding mountains are a visually dominant feature in the background, such as in LU-4, LU-5, LU-6, and LU-8. Drivers, transit riders, people on bicycles, and pedestrians would be expected to have more fleeting views of scenic vistas because they are moving along the project corridor, while pedestrians, employees/students, and visitors would be expected to have longer views.

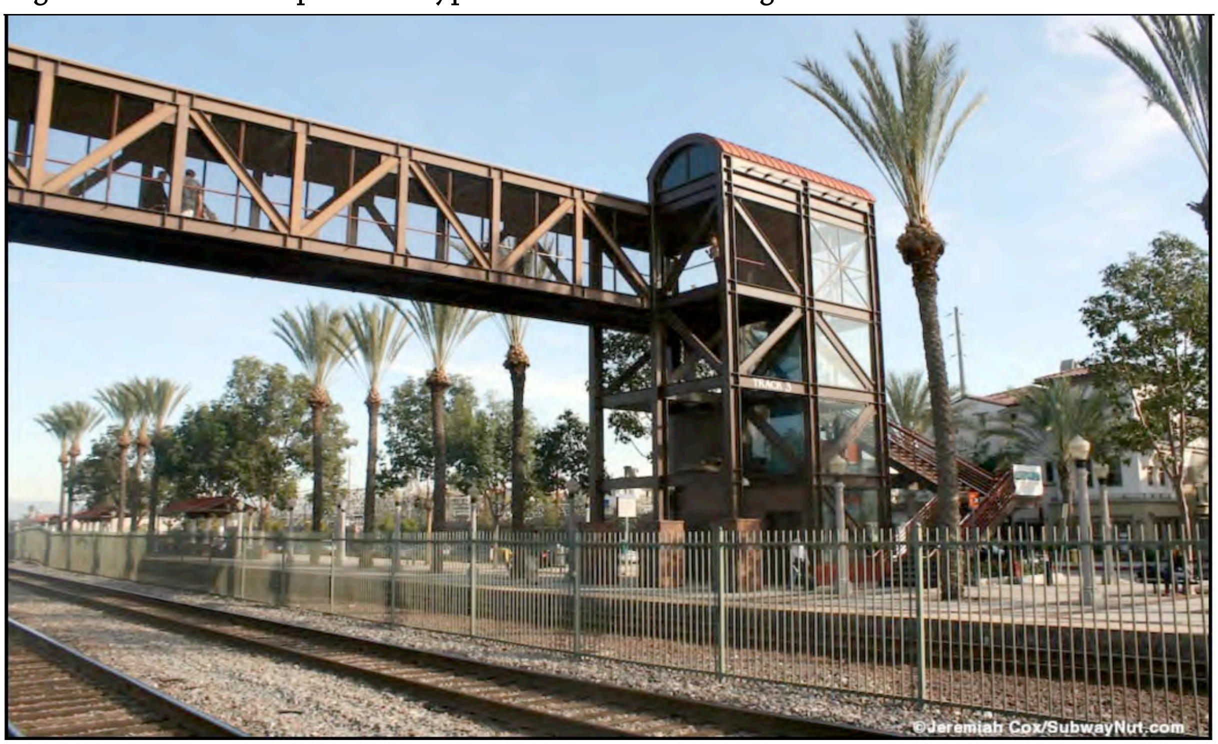
The primary visual elements included as part of Alternative 3 would be the new low-floor LRT/tram cars, OCS, median stations and fencing, railroad crossing gates, TPSSs, the pedestrian bridge at the Sylmar/San Fernando Metrolink Station, the MSF, and changes in parking, lanes, and sidewalks (see Figures 4.5-13, 4.5-14, 4.5-15, and 4.5-16).New stations and the OCS in the median or along mixed-flow lanes, and the pedestrian bridge at the Sylmar/San Fernando Metrolink Station would present new vertical features in the landscape that could partially block views of the roadway corridor and surrounding mountains in several LUs along the project corridor.

New stations along the outside edge of the roadway would present new vertical features in the landscape, and may limit views directly adjacent to or within the stations; however, views in the corridor as a whole would not be substantially affected by these stations because the visual changes would be localized around station areas. Sidewalks would be narrowed in some areas, but this would not be expected to substantially affect views along the corridor. The MSF would not substantially affect existing views because the facility would replace existing commercial and industrial buildings, and the facility would typically look similar to existing buildings and would not include any structures or features that would be substantially taller than existing buildings. In addition, the TPSSs would only be 12 to 14 feet high, and would not be expected to substantially block views of scenic vistas.

## Figure 4.5-13: Illustrative View of Low-Floor LRT/Tram Alternative


Source: KOA, 2015.

## Figure 4.5-14: Example of a Typical Pedestrian Bridge




Source: Metro, n.d.

## Figure 4.5-15: Example of a Typical MSF

Source: Metro, 2015.

## Figure 4.5-16: Example of a Typical TPSS

Source: Google, 2015.

The OCS, in particular, would substantially affect existing views of scenic vistas. The OCS poles would be approximately 30 feet tall and typically located every 90 to 170 feet along the tram tracks. Currently, the surrounding mountains are visually dominant features in several LUs, but the vertical elements proposed under Alternative 3 would substantially detract from existing views because of their height, and because they would be located throughout the corridor. Therefore, overall impacts on scenic vistas would be substantial and adverse under NEPA, and significant under CEQA.

### *Scenic Resources*

Scenic resources in the project study area include existing landscaping elements, including rows of palm trees along Van Nuys Boulevard, and historic properties along the project corridor in LUs 1, 2, 3, 4, 7, 8, and 9. As discussed in Section 4.5.2 above, existing landscaping elements, such as trees and other vegetation, serve to soften views and add color and texture in several LUs, including LU-2, LU3, LU-5, LU-7, LU-8, and LU-9.

Under Alternative 3, the addition of Low-Floor LRT/Tram cars and stations along the roadway median or within mixed-flow lanes could require the removal of existing landscaping along certain segments of the corridor, since there are areas where the medians are landscaped. Construction of plazas could also result in impacts on existing resources from the removal of landscaping; in particular, the mature trees found along San Fernando Road in downtown San Fernando would be affected (see Tree Inventory Report in Appendix EE). In addition, TPSSs and MSFs along the side of the roadway would result in impacts on existing landscaping and historic properties with the construction of additional vertical elements that could partially block views of these resources. However, views in the corridor as a whole would not be substantially affected by stations, plazas, TPSSs, or MSFs because the visual changes would be localized around these areas. In addition, vegetation removal would be minimized along the project corridor, and no historic properties would be removed to construct the tram facilities.

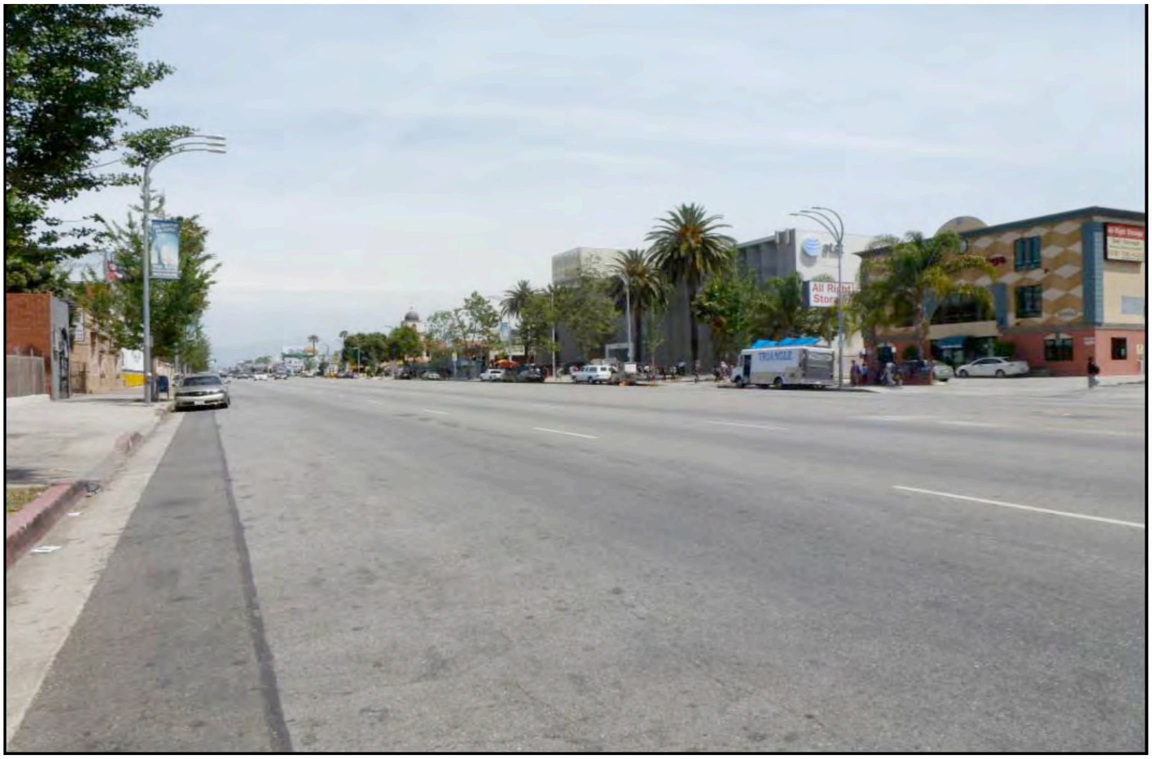
The OCS, in particular, would substantially affect existing views of scenic resources. The OCS poles would be approximately 30 feet tall and typically located every 90 to 170 feet along the tram tracks. Currently, existing landscaping elements, such as trees and other vegetation, serve to soften views and add color and texture in several LUs, but the vertical elements proposed under Alternative 3 would substantially detract from existing views because of their height, and because they would be located throughout the corridor. Therefore, overall impacts on scenic resources would be substantial and adverse under NEPA, and significant under CEQA.

### *Visual Character and Quality*

Visual character and quality vary by LU, as discussed in Section 4.5.2. Under Alternative 3, the addition of low-floor LRT/tram cars along the roadway would affect the visual character of the project corridor, since these cars would run along a dedicated guideway, they would have the OCS that would be a new and visible vertical feature, and would have a different appearance than the existing buses (see Figures 4.5-17, 4.5-18, 4.5-19, and 4.5-20). In addition, new stations in the median and along the sides of the roadway would present new vertical features in the landscape that could affect existing visual character and quality by limiting views directly adjacent to or within the stations; however, views in the corridor as a whole would not be substantially affected by these stations.

The MSF would not be expected to affect existing visual character and quality substantially because the MSF would replace existing industrial/commercial buildings and would have a similar appearance as the replaced buildings (see Figure 4.5-15). In addition, the MSF would be located in commercial and industrial zones, and would have similar visual characteristics as the adjacent and surrounding commercial and industrial facilities. The TPSSs along the side of the roadway could disrupt the visual unity along the corridor slightly, and affect visual quality (see Figure 4.5-16).

## Figure 4.5-17: Photograph before Implementation of Alternative 3 at RV-2

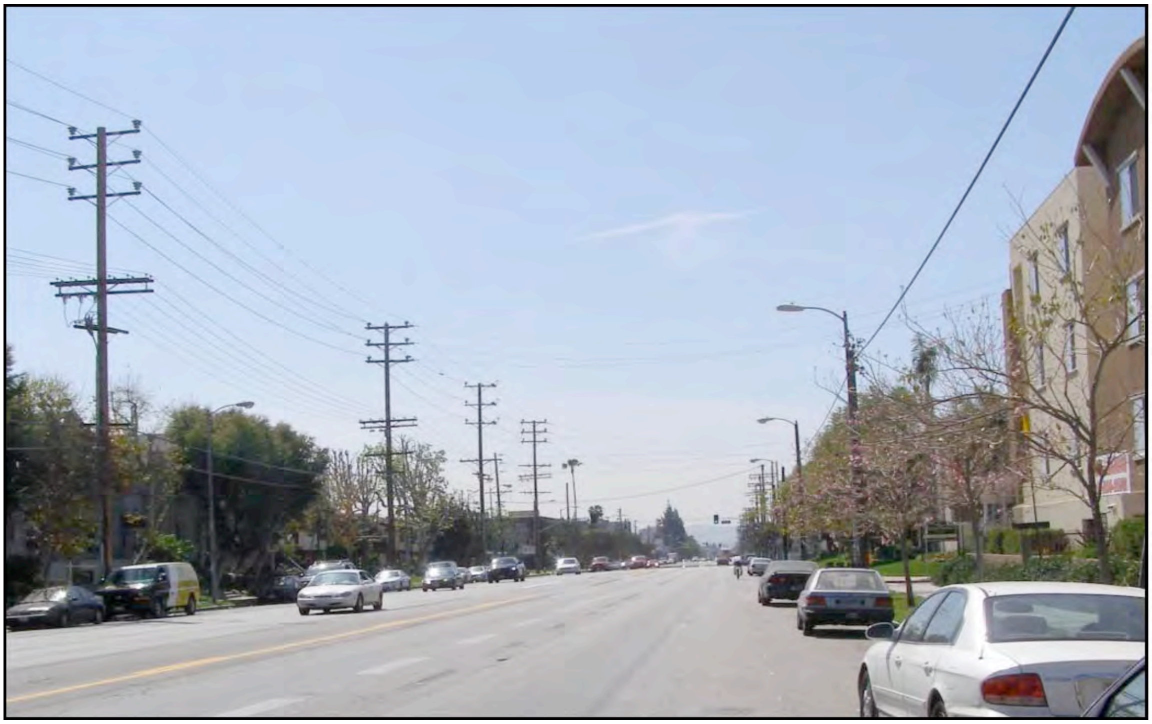


Location: Van Nuys Boulevard just north of Hartland Street; Source: GPA, 2014.

## Figure 4.5-18: Visual Simulation after Implementation of Alternative 3 at RV-2

Location: Van Nuys Boulevard just north of Hartland Street; Source: GPA, 2014.

### Figure 4.5-19: Photograph before Implementation of Alternative 3 at RV-4



Location: Van Nuys Boulevard just north of Vincennes Street; Source: GPA, 2013.

### Figure 4.5-20: Visual Simulation after Implementation of Alternative 3 at RV-4

Location: Van Nuys Boulevard just north of Vincennes Street; Source: GPA, 2014.

However, the removal of parking along the outside curb lanes could enhance the visual quality of the corridor by creating a higher visual unity along the corridor.

Post-project visual quality and changes from pre-project conditions are summarized as follows:

- LU-1 (Van Nuys Boulevard/Van Nuys Civic Center Unit): The tram cars and the OCS associated with the Low-Floor LRT/Tram Alternative could detract from vividness in LU-1, which would be reduced from high to moderately low at 3. New stations in the median would create new vertical features in the landscape that may limit views directly adjacent to or within the stations; however, views in LU-1 as a whole would not be substantially affected. New median stations would be expected to slightly increase intactness in LU-1, which would remain high at 7. New stations and parking removal would also be expected to slightly increase unity in LU-1, which would be high at 6. Following implementation of the Low-Floor LRT/Tram Alternative, visual quality in this LU would remain moderately high at 5.3.
- LU-2 (Van Nuys Boulevard/Van Nuys Commercial Unit): The Low-Floor LRT/Tram Alternative would not be expected to affect vividness in LU-2, which would remain low at 2. New stations would be expected to slightly increase intactness in LU-2, which would increase from low to moderately low at 3. New stations and parking removal would also be expected to slightly increase unity in LU-2, which would increase from low to moderately low at 3. Following implementation of the Low-Floor LRT/Tram Alternative, visual quality in this LU would be increased from low to moderately low at 2.7.
- LU-3 (Van Nuys Boulevard/Panorama City Commercial Unit): The Low-Floor LRT/Tram Alternative would not be expected to affect vividness in LU-3, which would remain moderate at 4. New stations would be expected to slightly increase intactness in LU-3, which would increase from moderately low to moderate at 4. New stations and parking removal would also be expected to slightly increase unity in LU-3, which would increase from low to moderately low at 3. Following implementation of the Low-Floor LRT/Tram Alternative, visual quality in this LU would be increased from moderately low to moderate at 3.7.
- LU-4 (Van Nuys Boulevard/Panorama City-Arleta Residential Unit): The tram cars and the OCS associated with the Low-Floor LRT/Tram Alternative could detract from vividness in LU-4, which would be reduced from high to moderately low at 3. New stations in the median would create new vertical features in the landscape that may limit views directly adjacent to or within the stations; however, views in LU-4 as a whole would not be substantially affected. Tram cars, the OCS, and new stations would also be expected to slightly detract from intactness in LU-4, which would decrease from moderate to moderately low at 3. The tram line, new stations, and parking removal would be expected to slightly increase unity in LU-4, which would increase from moderately high to high at 6. Following implementation of the Low-Floor LRT/Tram Alternative, visual quality in this LU would be reduced from moderately high to moderate at 4.
- LU-5 (Pacoima Commercial Unit): Because of the proximity to views of the Santa Monica Mountains, the Low-Floor LRT/Tram Alternative could detract from vividness in LU-5, which would be reduced from moderate to moderately low at 3. New stations in the median would create new vertical features in the landscape that may limit views directly adjacent to or within the stations; however, views in LU-5 as a whole would not be substantially affected. New stations and parking removal would be expected to slightly increase intactness in LU-5, which would increase from moderately low to moderate at 4. New stations would also be expected to slightly increase unity in LU-5, which would increase from moderately low to moderate at 4. Following implementation of the Low-Floor LRT/Tram Alternative, visual quality in this LU would remain moderately low at 3.7.

- LU-6 (San Fernando Road Unit): Because of the proximity to views of the San Gabriel Mountains, the Low-Floor LRT/Tram Alternative could detract from vividness in LU-6, which would be reduced from moderate to moderately low at 3. New stations would create new vertical features in the landscape that may limit views directly adjacent to or within the stations; however, views in LU-5 as a whole would not be substantially affected. New stations would be expected to slightly increase intactness in LU-6, which would increase from moderately low to moderate at 4. New stations and parking removal would also be expected to slightly increase unity in LU-6, which would increase from moderately low to moderate at 4. Following implementation of the Low-Floor LRT/Tram Alternative, visual quality in this LU would remain moderately low at 3.7.
- LU-7 (San Fernando Mall Unit): The tram cars and OCS associated with the Low-Floor LRT/Tram Alternative could detract from vividness in LU-7, which would be reduced from moderately high to moderately low at 3. New stations would create new vertical features in the landscape that may limit views directly adjacent to or within the stations; however, views in LU-5 as a whole would not be substantially affected. The proposed pedestrian overcrossing would create a new vertical feature in the landscape that may limit views directly adjacent to the overcrossing; however, views in LU-7 as a whole would not be substantially affected. New stations would be expected to slightly increase intactness in LU-7, which would increase from moderate to moderately high at 5. New stations and parking removal would also be expected to slightly increase unity in LU-7, which would increase from moderately low to moderate at 4. Following implementation of the Low-Floor LRT/Tram Alternative, visual quality in this LU would remain moderate at 4.
- LU-8 (Truman Street Unit): Because the tram would not operate along Truman Street, the Low-Floor LRT/Tram Alternative would not be expected to affect vividness, intactness, or unity in LU-8. Following implementation of the Low-Floor LRT/Tram Alternative, visual quality in this LU would remain moderate at 4.
- LU-9 (Metrolink Railroad Unit): Because the tram would not operate along the railroad tracks, the Low-Floor LRT/Tram Alternative would not be expected to affect vividness, intactness, or unity in LU-9. The proposed pedestrian overcrossing would create a new vertical feature in the landscape that may limit views directly adjacent to the overcrossing; however, views in LU-7 as a whole would not be substantially affected. Following implementation of the Low-Floor LRT/Tram Alternative, visual quality in this LU would remain moderately low at 3.

Visual quality would increase slightly, decrease slightly, or remain the same under Alternative 3, depending on the LU. Therefore, the impacts of Alternative 3 on the visual quality of the project corridor would not be adverse or would be beneficial under NEPA and less than significant or beneficial under CEQA.

Unlike visual quality impacts, visual character impacts are based on viewer response and the sensitivity of viewer groups. Along the project corridor, viewer response would be expected to vary by viewer group and location, and would be dependent on sensitivity, exposure, and awareness. Residents, employees, and recreational users would be expected to have the greatest response to visual change, based on these three criteria, and viewer response would likely be the greatest in the residential and recreational areas, where visual changes related to Alternative 3 would be most noticeable. Multiple elements of this alternative, including the new stations and the OCS in the median, and the pedestrian bridge at the Sylmar/San Fernando Metrolink Station, could affect both visual character and quality in certain sections of the project corridor. Viewer response in residential areas along Van Nuys Boulevard could likely be moderate and may be negative because this alternative would result in the highest level of change to the visual character in this area. However, in other areas, new stations could result in an overall minor improvement to visual character and quality; therefore, overall viewer response would be expected to be moderate and positive, with the exception of residential areas. However, in those residential areas or other areas where there are sensitive viewer groups and where Alternative 3 would require new vertical elements, impacts on visual character could be substantial and adverse under NEPA and significant under CEQA.

#### *Lighting, Glare, and Shading*

Because the project study area is located in a developed, urban area, there is a substantial amount of existing lighting and glare. Current lighting and glare sources in the project study area include streetlights, buildings and other structures, vehicles, and other various sources. Shading sources include buildings, other structures, utilities, and vegetation. The primary elements included under Alternative 3 that could result in lighting, glare, and shading are the tram cars, the OCS, new stations, TPSSs, and the MSF. These elements would not be expected to result in a substantial change in existing lighting, glare, or shading along the project corridor, with the exception of residential areas where elements of this alternative could increase nighttime lighting. Impacts would not be adverse or would be beneficial under NEPA and less than significant or beneficial under CEQA.

### Cumulative Impacts

During construction, the cumulative impacts that could occur due to implementation of Alternative 3 would be the same as those described above for Alternatives 1 and 2. Because construction impacts from past, present, and reasonably foreseeable future projects are temporary, cumulative impacts are less than significant. Because impacts under Alternative 3 would also be temporary, and impacts would be minimized or mitigated through mitigation measures, the alternative’s contribution to cumulative impacts during construction would not be cumulatively considerable.

During operation, Alternative 3 would result in potentially significant operational visual impacts on sensitive viewer groups. Past projects have resulted in a highly urbanized landscape along the project corridor from the construction of buildings, transportation infrastructure, and other structures that have adversely affected scenic vistas, scenic resources, and visual character and quality. In addition, other present or reasonably foreseeable future projects in the area could further degrade the visual character and quality of the area, though this is unlikely as the related projects mostly consist of infill development projects that would not drastically change the existing visual and aesthetic setting along the corridor. Therefore, cumulative impacts from past, present, and reasonably foreseeable future projects are significant. As a result, any adverse impacts from Alternative 3 would be considered cumulatively considerable. Because impacts from Alternative 3 would remain significant after implementation of mitigation measures, the alternative’s contribution to cumulative impacts during operation would be cumulatively considerable, unlike the BRT alternatives.

### Compliance Requirements and Design Features

Alternative 3 would be designed in accordance with local codes and ordinances. This would include visual and aesthetic elements including siting and height restrictions, structure scale, streetscaping features, and landscape design.

### Mitigation Measures

#### *Construction Mitigation Measures*

Please see mitigation measures MM-VIS-1 above under Alternative 1.

#### *Operational Mitigation Measures*

Please see mitigation measures MM-VIS-2 through MM-VIS-5 above under Alternative 1.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The potential construction effects on visual and aesthetic resources would not be adverse after implementation of proposed mitigation measures. The potential operational effects would not be adverse or would be beneficial on visual quality, but would remain adverse on scenic views, scenic resources, and visual character.

#### *CEQA Determination*

The potential construction impacts on visual and aesthetic resources would be less than significant after implementation of proposed mitigation measures. The potential operational impacts would be less than significant or beneficial on visual quality, but would be significant on scenic views, scenic resources, and visual character.

## Alternative 4 – LRT

### Construction Impacts

Construction of Alternative 4 could result in temporary visual impacts within and surrounding the project corridor. Construction areas along the entire length of the project corridor would be visible to all viewer groups identified in Section 4.5.2 above, from areas within and adjacent to the project corridor, including residential and recreational areas. Construction activities in staging areas and at proposed stations may include the use of construction lighting, and large equipment such as cranes and associated vehicles, including bulldozers, backhoes, graders, scrapers, and trucks, which could be visible from public streets, sidewalks, and adjacent properties.

Construction lighting could spill over onto adjacent properties, and could result in glare that could adversely affect the clarity of nighttime views in the area. All viewer groups near the construction areas may be affected by the presence of equipment, as well as stockpiled construction-related materials. In addition, mature vegetation, including trees, may need to be temporarily or permanently removed from some areas. These activities could adversely affect visual character and quality along the project corridor.

The LRT Alternative would include construction of the OCS, TPSSs, construction of a pedestrian bridge at the Sylmar/San Fernando Metrolink station, an MSF, and larger station platforms than the BRT alternatives. However, Alternative 4 would require the most extensive construction of the four build alternatives because of the subway portion of the alignment.

Cut-and-cover activities to construct the subway portion would be conducted over a 60-month period, and would result in substantial visual changes to the alignment because of the extent of ground disturbance that would be required, as well as the amount of construction-related materials and equipment required for these activities. Therefore, Alternative 4 would result in the greatest construction impacts, compared to the other alternatives; however, aside from the cut-and-cover activities, the types and level of significance of the impacts would be the same as those described above for Alternative 3. Consequently, construction activities would result in substantial adverse effects on all viewer groups under NEPA and significant impacts under CEQA.

### Operational Impacts

#### *Scenic Vistas*

Scenic vistas in the project study area include views of the surrounding mountains, which are visible from various locations along the project corridor and include the Santa Monica Mountains to the south, the Verdugo Mountains to the east, the San Gabriel Mountains to the northeast, and the Santa Susana Mountains to the north and west. As discussed in Section 4.5.2 above, views of surrounding mountains are visible in several LUs, including LU-1, LU-2, LU4, LU-5, LU-6, and LU-8. In some LUs, the surrounding mountains are minimally visible, such as in LU-2; in some LUs, the surrounding mountains are a visually dominant feature in the background, such as in LU-4, LU-5, LU-6, and LU-8. Drivers, transit riders, people on bicycles, and pedestrians would be expected to have more fleeting views of scenic vistas because they are moving along the project corridor, while pedestrians, employees/students, and visitors would be expected to have longer views.

The primary visual elements included as part of Alternative 4 would be the new LRT cars and OCS, median stations and fencing, railroad crossing gates, TPSSs, the pedestrian bridge at the Sylmar/San Fernando Metrolink Station, the MSF, and changes in parking, lanes, and sidewalks (see Figures 4.5-14, 4.5-15, 4.5-16, and 4.5-21). This alternative would also include a subway segment along approximately 2.5 miles of the corridor between Vanowen Street and Nordhoff Street. Along the north end of the corridor, the LRT would be located along the UPRR railroad tracks from the Van Nuys Boulevard/San Fernando Road intersection to the project terminus on the north. The MSF would not substantially affect existing views because the facility would replace existing commercial and industrial buildings, and the facility would typically look similar to existing buildings and would not include any structures or features that would be taller than existing buildings. In addition, the TPSSs would only be 12 to 14 feet high, and would not be expected to substantially block views of scenic vistas.

New stations and the OCS in the median, and the pedestrian bridge at the Sylmar/San Fernando Metrolink Station would present new vertical features in the landscape that could partially block views of the roadway corridor and surrounding mountains in several LUs along the project corridor. New stations along the outside edge of the roadway would also present new vertical features in the landscape, and may limit views directly adjacent to or within the stations; however, views in the corridor as a whole would not be substantially affected by these stations. Sidewalks would be narrowed in some areas, but this would not be expected to substantially affect views.

The OCS, in particular, would substantially affect existing views of scenic vistas. The OCS poles would be approximately 30 feet tall and typically located every 90 to 170 feet along the LRT tracks. Currently, the surrounding mountains are visually dominant features in several LUs, but the vertical elements proposed under Alternative 3 would substantially detract from existing views because of their height, and because they would be located throughout the corridor. Therefore, overall impacts on scenic vistas would be substantial and adverse under NEPA, and significant under CEQA.

## Figure 4.5-21: Illustrative View of LRT Alternative

Source: KOA, 2015.

### *Scenic Resources*

Scenic resources in the project study area include existing landscaping elements, including rows of palm trees along Van Nuys Boulevard, and historic properties along the project corridor in LUs 1, 2, 3, 4, 7, 8, and 9. As discussed in Section 4.5.2 above, existing landscaping elements, such as trees and other vegetation, serve to soften views and add color and texture in several LUs, including LU-2, LU3, LU-5, LU-7, LU-8, and LU-9.

Under Alternative 4, the addition of LRT cars and stations along the roadway median or within mixed-flow lanes could require the removal of existing landscaping along certain segments of the corridor, since there are areas where the medians are landscaped with rows of palm trees, such as along Van Nuys Boulevard in the Van Nuys Civic Center area. Construction of plazas could also result in impacts on existing resources from the removal of landscaping, including street trees (e.g., the landmark rows of palm trees along Van Nuys Boulevard in the Van Nuys Civic Center area). In addition, TPSSs and MSFs along the side of the roadway would result in impacts on existing landscaping and historic properties with the construction of additional vertical elements that could partially block views of these resources. However, views in the corridor as a whole would not be substantially affected by stations, plazas, TPSSs, or MSFs because the visual changes would be localized around these areas. In addition, vegetation removal would be minimized along the project corridor, and no historic properties would be removed to construct the LRT facilities.

The OCS, in particular, would substantially affect existing views of scenic resources. The OCS poles would be approximately 30 feet tall and typically located every 90 to 170 feet along the LRT tracks. Currently, existing landscaping elements, such as trees and other vegetation, serve to soften views and add color and texture in several LUs, but the vertical elements proposed under Alternative 3 would substantially detract from existing views because of their height, and because they would be located throughout the corridor. Therefore, overall impacts on scenic resources would be substantial and adverse under NEPA, and significant under CEQA.

### *Visual Character and Quality*

Under Alternative 4, the addition of LRT cars along the roadway would affect the visual character of the project corridor, since these cars would run along a dedicated guideway, they would have the OCS that would be a new and visible vertical feature, and would have a different appearance compared to the existing buses (see Figures 4.5-22 through 4.5-31).

In addition, new stations in the median and along the sides of the roadway would create new vertical features in the landscape that could affect existing visual character and visual quality by limiting views directly adjacent to or within the stations; however, views in the corridor as a whole would not be substantially affected by these stations. The MSF would not be expected to affect existing visual character and quality substantially because the MSF would replace existing industrial/commercial buildings and would have a similar appearance as the replaced buildings (see Figure 4.5-15). In addition, the MSF would be located in commercial and industrial zones, and would have similar visual characteristics as adjacent and surrounding commercial and industrial facilities. The TPSSs located along the side of the roadway could disrupt the visual unity along the corridor slightly, and affect visual quality (see Figure 4.5-16). However, the removal of parking along the outside curb lanes could enhance the visual quality of the corridor by creating a higher visual unity along the corridor. Post-project visual quality and changes from pre-project conditions are summarized as follows:

- LU-1 (Van Nuys Boulevard/Van Nuys Civic Center Unit): The LRT cars and the OCS associated with the LRT Alternative could detract from vividness in LU-1, which would be reduced from high to moderately low at 3. New stations in the median would create new vertical features in the landscape that may limit views directly adjacent to or within the stations; however, views in LU-1 as a whole would not be substantially affected. New median stations would be expected to slightly increase intactness in LU-1, which would remain high at 7. Stations and parking removal would also be expected to slightly increase unity in LU-1, which would be high at 6. Following implementation of the LRT Alternative, visual quality in this LU would remain moderately high at 5.3.
- LU-2 (Van Nuys Boulevard/Van Nuys Commercial Unit): Because the LRT would be underground throughout LU-2, this alternative would not be expected to affect vividness, intactness, or unity in LU-2. Following implementation of the LRT Alternative, visual quality in this LU would remain low at 2.
- LU-3 (Van Nuys Boulevard/Panorama City Commercial Unit): The LRT Alternative would not be expected to affect vividness in LU-3, which would remain moderate at 4. New stations would be expected to slightly increase intactness in LU-3, which would increase from moderately low to moderate at 4. New stations and parking removal would also be expected to slightly increase unity in LU-3, which would increase from low to moderately low at 3. Following implementation of the LRT Alternative, visual quality in this LU would be increased from moderately low to moderate at 3.7.

## Figure 4.5-22: Photograph before Implementation of Alternative 4 at RV-1


Location: Van Nuys Boulevard and Haynes Street; Source: GPA, 2013

## Figure 4.5-23: Visual Simulation after Implementation of Alternative 4 at RV-1

Location: Van Nuys Boulevard and Haynes Street; Source: GPA, 2014.

## Figure 4.5-24: Photograph before Implementation of Alternative 4 at RV-3


Location: Van Nuys Boulevard just north of Chase Street; Source: GPA, 2014.

## Figure 4.5-25: Visual Simulation after Implementation of Alternative 4 at RV-3


Location: Van Nuys Boulevard just north of Chase Street; Source: GPA, 2014.

## Figure 4.5-26: Photograph before Implementation of Alternative 4 at RV-5


Location: Van Nuys Boulevard just south of El Dorado Avenue; Source: GPA, 2014.

## Figure 4.5-27: Visual Simulation after Implementation of Alternative 4 at RV-5


Location: Van Nuys Boulevard just south of El Dorado Avenue; Source: GPA, 2014.

## Figure 4.5-28: Photograph before Implementation of Alternative 4 at RV-6


Location: San Fernando Road just north of Pinney Street; Source: GPA, 2014.

## Figure 4.5-29: Visual Simulation after Implementation of Alternative 4 at RV-6


Location: San Fernando Road just north of Pinney Street; Source: GPA, 2014.

## Figure 4.5-30: Photograph before Implementation of Alternative 4 at RV-9

Location: UPRR railroad corridor near entrance to Mission City Bike Trail just south of Hubbard Street; Source: GPA, 2014.

## Figure 4.5-31: Visual Simulation after Implementation of Alternative 4 at RV-9

Location: UPRR railroad corridor near entrance to Mission City Bike Trail just south of Hubbard Street; Source: GPA, 2014.

- LU-4 (Van Nuys Boulevard/Panorama City-Arleta Residential Unit): The LRT cars and the OCS associated with the LRT Alternative could detract from vividness in LU-4, which would be reduced from high to moderately low at 3. LRT cars, the OCS, and new stations would also be expected to slightly detract from intactness in LU-4, which would decrease from moderate to moderately low at 3. New stations in the median would create new vertical features in the landscape that may limit views directly adjacent to or within the stations; however, views in LU-4 as a whole would not be substantially affected. The LRT line, new stations, and parking removal would be expected to slightly increase unity in LU-4, which would increase from moderately high to high at 6. Following implementation of the LRT Alternative, visual quality in this LU would be reduced from moderately high to moderate at 4.
- LU-5 (Pacoima Commercial Unit): Because of the proximity to views of the Santa Monica Mountains, the LRT Alternative could detract from vividness in LU-5, which would be reduced from moderate to moderately low at 3. New stations in the median would create new vertical features in the landscape that may limit views directly adjacent to or within the stations; however, views in LU-5 as a whole would not be substantially affected. New stations would be expected to slightly increase intactness in LU-5, which would increase from moderately low to moderate at 4. New stations and parking removal would also be expected to slightly increase unity in LU-5, which would increase from moderately low to moderate at 4. Following implementation of the LRT Alternative, visual quality in this LU would remain moderately low at 3.7.
- LU-6 (San Fernando Road Unit): Because the LRT Alternative would not operate along San Fernando Road, this alternative would not be expected to affect vividness, intactness, or unity in LU-6. Following implementation of the LRT Alternative, visual quality in this LU would remain moderately low at 3.3.
- LU-7 (San Fernando Mall Unit): Because the LRT Alternative would not operate along San Fernando Road, this alternative would not be expected to affect vividness, intactness, or unity in LU-7. Following implementation of the LRT Alternative, visual quality in this LU would remain moderate at 4.
- LU-8 (Truman Street Unit): Because the LRT Alternative would not operate along Truman Street, this alternative would not be expected to affect vividness, intactness, or unity in LU-8. Following implementation of the LRT Alternative, visual quality in this LU would remain moderate at 4.
- LU-9: Under the LRT Alternative, the existing single rail track would be removed and replaced with double tracks to serve commuter and freight rail operations, and the Mission City Bike Trail would be moved from the east side to the west side of the tracks through the City of San Fernando. Because the LRT Alternative would operate along existing railroad tracks, this alternative would not be expected to substantially affect vividness, intactness, or unity in LU-9. The proposed pedestrian overcrossing would create a new vertical feature in the landscape that may limit views directly adjacent to the overcrossing; however, views in LU-9 as a whole would not be substantially affected. Following implementation of the LRT Alternative, visual quality in this LU would remain moderately low at 3.

As discussed above, visual quality would increase slightly, decrease slightly, or remain the same under the LRT Alternative, depending on the LU. Therefore, the impacts of Alternative 4 on visual quality would not be adverse, or would be beneficial under NEPA and less than significant or beneficial under CEQA.

Unlike visual quality impacts, visual character impacts are based on viewer response and the sensitivity of viewer groups. Along the project corridor, viewer response would be expected to vary by viewer group and location, and would be dependent on sensitivity, exposure, and awareness. Residents, employees, and recreational users would be expected to have the greatest response to visual change and viewer response would likely be the greatest in the residential and recreational areas, where visual changes related to the LRT Alternative would be most noticeable. Multiple elements of this alternative, including the new stations and the OCS in the median, and the pedestrian bridge at the Sylmar/San Fernando Metrolink Station, could affect both visual character and quality in certain sections of the project corridor. Viewer response in residential areas along Van Nuys Boulevard would likely be moderate and may also be negative because this alternative would result in the highest level of change to visual character in this area. However, in other areas, the new stations would also result in an overall minor improvement to visual character and quality; therefore, overall viewer response would be expected to be moderate and positive. However, in those residential areas or other areas where there are sensitive viewer groups and where Alternative 4 would require new vertical elements, impacts on visual character would be substantial and adverse under NEPA and significant under CEQA.

#### *Lighting, Glare, and Shading*

Lighting, glare, and shading impacts under Alternative 4 would be the same as those described for Alternative 3. Impacts would not be adverse under NEPA and would be less than significant under CEQA

### Cumulative Impacts

The cumulative impacts that could occur due to implementation of Alternative 4 would be the same as those described above for Alternative 3.

### Compliance Requirements and Design Features

Alternative 4 would be designed in accordance with local codes and ordinances. This would include visual and aesthetic elements including siting and height restrictions, structure scale, streetscaping features, and landscape design.

### Mitigation Measures

#### *Construction Mitigation Measures*

Please see mitigation measure MM-VIS-1 above under Alternative 1.

#### *Operational Mitigation Measures*

Please see mitigation measures MM-VIS-2 through MM-VIS-5 above under Alternative 1.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The potential construction effects on visual and aesthetic resources would not be adverse after implementation of proposed mitigation measures. The potential operational effects would be potentially adverse on scenic views, scenic resources, and visual character, and would not be adverse or would be beneficial on visual quality.

### *CEQA Determination*

The potential construction impacts on visual and aesthetic resources would be less than significant after implementation of proposed mitigation measures. The potential operational impacts would be potentially significant on scenic views, scenic resources, and visual character, and less than significant or beneficial on visual quality.

# 4.6 Air Quality

## 4.6.1 Regulatory Framework and Methodology

### 4.6.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's air quality impacts are listed below. For additional information regarding these regulations, please see the Air Quality Technical Report in Appendix L of this Draft EIS/EIR.

#### Federal

- Federal Clean Air Act (CAA);
- Transportation Conformity Requirements; and
- Mobile-Source Air Toxics.

#### State

- California Clean Air Act.

#### Local

- South Coast Air Quality Management District's, Air Quality Management Plan; and
- Regional Comprehensive Plan.

### 4.6.1.2 Methodology

The proposed project would generate construction-related and operational emissions. The methodology used to evaluate construction and operational effects is described below.

Project construction would be a source of fugitive dust and exhaust emissions that could have temporary effects on local air quality. Such emissions would result from earthmoving and the use of heavy equipment as well as land clearing, ground excavation, cut-and-fill operations, and the reconstruction of roadways. Dust emissions can vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing weather. A major portion of dust emissions for the proposed project would most likely be caused by construction traffic in temporary construction areas.

Construction emissions have been quantified (see Section 4.6.3 below) using the CalEEMod model, which has been approved by the South Coast Air Quality Management District (SCAQMD) for emissions estimation within the South Coast Air Basin (Basin). To determine the significance of potential construction air quality impacts, the calculated daily emissions were measured against applicable SCAQMD local and regional significance thresholds.

The durations of construction used for the purposes of calculating construction-period emissions are shorter or equal to those discussed in the February 2015 Construction Methods and Impacts Report. Although they may differ, the compressed construction schedule for the purposes of calculating emissions represents a conservative approach in that emissions are concentrated into a shorter timeframe, thereby yielding higher estimates of single-day maximums. Actual single-day emissions could be less than those identified in this section, but this DEIS-DEIR assumes a "worst-case" scenario if construction were to be done under a compressed schedule. If construction actually occurs under a longer schedule, single-day emissions would be less than what was analyzed for this DEIS-DEIR.

The primary operational emissions associated with the proposed project would be carbon monoxide (CO), fine particulate matter ($PM_{10}$ and $PM_{2.5}$), ozone precursors (reactive organic gasses [ROG] and nitrogen oxides [$NO_X$]), and carbon dioxide ($CO_2$) emitted as vehicle exhaust. In addition to emissions from vehicle exhaust, $PM_{10}$ and $PM_{2.5}$ can result from vehicular travel on paved roads (entrained dust). With respect to criteria pollutants, the evaluation of transportation conformity is done by affirming that the proposed project is included in the currently conforming RTP and FTIP modeling lists. In addition, estimates of criteria pollutant exhaust emissions (ozone precursors, CO, $PM_{10}$, and $PM_{2.5}$) are quantified by using CT-EMFAC2014 emissions factors. Re-entrained dust emissions are calculated using the emission factor equation found in the EPA's Compilation of Air Pollutant Emission Factors, AP-42, Section 13.2.1.[1]

Each of the build alternatives was compared against existing conditions, which "normally constitute[s] the baseline physical conditions by which a lead agency determines whether an impact is significant," under Section 15125(a) of the CEQA Guidelines. Because Alternative 3 would have the greatest traffic impacts, the Existing (2012) with Alternative 3 scenario presents the worst-case for air quality relative to any of the other "Existing Plus Project" scenarios. Thus, in order to evaluate, analyze and compare each of the alternatives, the qualitative analysis for the other build alternatives extrapolates from the quantitative analysis for the Existing with Alternative 3 scenario. In addition, the emissions of each of the build alternatives have been evaluated against the No-Build Alternative for a future baseline (2040) analysis.

The potential impacts related to localized CO hot-spot emissions are evaluated following the methodology prescribed in the Transportation Project-Level Carbon Monoxide Protocol (CO Protocol) developed for the California Department of Transportation (Caltrans) by the Institute of Transportation Studies at the University of California, Davis.[2] The potential impacts related to localized particulate matter were evaluated using the EPA and FHWA's guidance manual, Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and $PM_{10}$ Nonattainment and Maintenance Areas.[3] MSAT emissions were evaluated using FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents[4] and California-specific guidance from Caltrans.[5,6]

[1] U.S. Environmental Protection Agency. 2013b. *Compilation of Air Pollutant Emission Factors*. AP-42, Section 13.2.1.
[2] Garza, V., P. Graney, D. Sperling. 1997. *Transportation Project-level Carbon Monoxide Protocol.* Developed for Caltrans by the Institute of Transportation Studies at the University of California, Davis.
[3] U.S. Environmental Protection Agency and Federal Highway Administration. 2015. *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and $PM_{10}$ Nonattainment and Maintenance Areas.*
[4] Federal Highway Administration. 2016. *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*. October.
[5] Brady, Mike. January 6, 2010—email to ICF regarding the analysis of MSATs in Caltrans documents.
[6] California Air Resources Board. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective.* Available: <http://www.arb.ca.gov/ch/landuse.htm>. April.

## Transportation Conformity

### Regional Conformity

The proposed project is located in an extreme nonattainment area for the federal 8-hour ozone standard. The extreme nonattainment designation differs from other nonattainment designations because the South Coast Air Basin has greater pollutant concentrations than other nonattainment areas and has therefore been granted a longer compliance schedule under the federal CAA. Because ozone and its precursors are regional pollutants, the proposed project must be evaluated under the transportation conformity requirements described earlier. An affirmative regional conformity determination must be made before the proposed project can proceed. A determination of conformity can be made if the proposed project is described, as currently proposed, in an EPA-approved RTP and FTIP.

### Project-Level Conformity

The proposed project is located in an attainment/maintenance area for the federal CO standard. Consequently, the evaluation of transportation conformity for CO is required. The CO transportation conformity analysis is based on the CO Protocol. The CO Protocol details a qualitative step-by-step procedure to determine whether project-related CO concentrations have the potential to generate new air quality violations, worsen existing violations, or delay attainment of the CAAQS or NAAQS for CO. If the screening procedure reveals that such a potential may exist, then the CO protocol details a quantitative method to ascertain project-related CO impacts.

The proposed project is located in an attainment/maintenance area for the federal $PM_{10}$ standard and a nonattainment area for the federal $PM_{2.5}$ standard. On March 10, 2006, EPA published a final rule that establishes the transportation conformity criteria and procedures for determining which transportation projects must be analyzed for local air quality effects in $PM_{2.5}$ and $PM_{10}$ nonattainment and maintenance areas. The final rule requires $PM_{10}$ and $PM_{2.5}$ hot-spot analyses to be performed for any Project of Air Quality Concern (POAQC) or any other project identified by the $PM_{2.5}$ State Implementation Plan (SIP) as a localized air quality concern.

In December 2010, FHWA and EPA issued a guidance document titled *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and $PM_{10}$ Nonattainment and Maintenance Areas*.[7] POAQCs are certain highway and transit projects that involve significant levels of diesel traffic or any other project identified in the $PM_{2.5}$ or $PM_{10}$ SIP as a localized air quality concern.

Because the proposed project would be located in an area classified as a nonattainment area for the $PM_{2.5}$ standards, a determination must be made as to whether it would result in a $PM_{10}$ or $PM_{2.5}$ hot spot. This determination will be made by the SCAG Transportation Conformity Working Group (TCWG).

[7] U.S. Environmental Protection Agency and Federal Highway Administration. 2015. *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and $PM_{10}$ Nonattainment and Maintenance Areas.*

### 4.6.1.3 CEQA Significance Thresholds

CEQA requires state and local government agencies to identify the significant environmental effects of proposed actions; however, CEQA does not describe specific significance thresholds. According to the Governor's Office of Planning and Research, significance thresholds for a given environmental effect are at the discretion of the Lead Agency and are at the levels at which the Lead Agency finds the effects of the project to be significant.[8]

The State CEQA Guidelines define a significant effect on the environment as: "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (State CEQA Guidelines, Section 15382).

The State CEQA Guidelines do not describe specific significance thresholds. However, Appendix G of the State CEQA Guidelines lists a variety of potentially significant effects, which are often used as thresholds or guidance in developing thresholds for determining impact significance.

As outlined in Appendix G, a project may have a significant effect on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality management plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people; or
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

The State CEQA Guidelines also state that the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the determinations above.

Based on the SCAQMD's regulatory role in the Basin, the significance thresholds and analysis methodologies outlined in the SCAQMD *CEQA Air Quality Handbook* (as updated per their website), *Localized Significance Threshold Methodology for CEQA Evaluations*, and *Particulate Matter (PM)* $_{2.5}$ *Significance Thresholds and Calculation Methodology* guidance documents were used in evaluating project impacts.[9,10]

---

[8] OPR (State of California, Governor's Office of Planning and Research). 2016. *2016 California Environmental Quality Act (CEQA Statute and Guidelines.* Available: <http://resources.ca.gov/ceqa/docs/2016_CEQA_Statutes_and_Guidelines.pdf >. Accessed: July 11, 2016.

[9] South Coast Air Quality Management District. 2003. *Localized Significance Threshold Methodology for CEQA Evaluations*. June.

[10] South Coast Air Quality Management District. 2006. *Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology.* October.

### Construction Emissions

According to criteria set forth in the SCAQMD CEQA Air Quality Handbook, Localized Significance Threshold Methodology for CEQA Evaluations, and Particulate Matter $(PM)_{2.5}$ Significance Thresholds and Calculation Methodology guidance documents, the project would have a significant impact on construction emissions if any of the following were to occur:

- Regional emissions from both direct and indirect sources exceed any of the following SCAQMD prescribed threshold levels: (1) 75 pounds a day for ROG, (2) 100 pounds per day for $NO_X$, (3) 550 pounds per day for CO, (4) 150 pounds per day for $PM_{10}$ or sulfur oxides ($SO_X$), and (5) 55 pounds per day for $PM_{2.5}$; or
- Localized emissions from on-site construction equipment and site disturbance activity exceed any of the following SCAQMD-prescribed threshold levels: (1) 80 pounds per day for $NO_X$, (2) 498 pounds per day for CO, (3) 5 pounds per day for $PM_{10}$, and (4) 3 pounds per day for $PM_{2.5}$.[11]

The SCAQMD thresholds are used as the basis for the determination of significance for construction-period emissions.

### Operations Emissions

According to criteria set forth in the SCAQMD *CEQA Air Quality Handbook*, the project would have a significant impact with regard to operational emissions if:

- Regional emissions from both direct and indirect sources would exceed any of the following SCAQMD prescribed threshold levels: (1) 55 pounds a day for ROG, (2) 55 pounds per day for $NO_X$, (3) 550 pounds per day for CO, (4) 150 pounds per day for $PM_{10}$ or $SO_X$, and (5) 55 pounds per day for $PM_{2.5}$ (South Coast Air Quality Management District 1993 and 2006);
- Localized emissions from on-site sources exceed any of the following SCAQMD prescribed threshold levels: (1) 80 pounds per day for $NO_X$, (2) 498 pounds per day for CO, (3) 1 pounds per day for $PM_{10}$, and (4) 1 pounds per day for $PM_{2.5}$;[12] or
- The project would cause an exceedance of the California 1-hour or 8-hour CO standards of 20 or 9 ppm, respectively, at an intersection or roadway within 0.25 mile of a sensitive receptor.[13]

The SCAQMD thresholds are used as the basis for the determination of significance for operational emissions.

### Toxic Air Contaminant Emissions

According to guidelines provided in the SCAQMD *CEQA Air Quality Handbook*, the project would have a significant impact from toxic air contaminants (TACs) if:

- On-site stationary sources emit carcinogenic or TACs that individually or cumulatively exceed the maximum individual cancer risk of ten in one million (1.0 x 10-5) or an acute or chronic hazard index of 1.0;

[11] Derived from SCAQMD Localized Significance Threshold Tables—SRA 7 (East San Fernando Valley), 1-acre site, 25-meter receptor distance.
[12] Ibid.
[13] Where the CO standard is exceeded at the intersection, a project would result in a significant impact if the incremental increase due to the project is equal to or greater than 1.0 ppm for the California 1-hour CO standard or 0.45 ppm for the 8-hour CO standard.

- Hazardous materials associated with on-site stationary sources result in an accidental release of air toxic emissions or acutely hazardous materials, posing a threat to public health and safety; or
- The project would be occupied primarily by sensitive individuals within 0.25 mile of any existing facility that emits TACs, which could result in a health risk from pollutants identified in District Rule 1401.[14]

#### L.A. CEQA Thresholds Guide

The *L.A. CEQA Thresholds Guide* identifies the SCAQMD significance criteria, described above, to determine impacts.

### 4.6.1.4 Sensitive Receptors

Some population groups, such as children, the elderly, and acutely and chronically ill persons, especially those with cardio-respiratory diseases, are considered more sensitive to air pollution than others. Sensitive receptors within the project vicinity include multi-family residential land uses and schools located along the routes. Proposed construction activities would occur adjacent to sensitive receptors in some instances; for analysis purposes, however, a 25-meter receptor distance was used in the evaluation of localized impacts, as the SCAQMD localized significance threshold for a 25-meter receptor distance is the most conservative published threshold. The 25-meter receptor distance allows for the lowest emissions, and is therefore most protective of health.

## 4.6.2 Affected Environment/Existing Conditions

### 4.6.2.1 Description of Relevant Pollutants

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. These regulated air pollutants are known as “criteria air pollutants” and are categorized as primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide, ROGs, $NO_X$, sulfur dioxide ($SO_2$), and most fine particulate matter ($PM_{10}$, $PM_{2.5}$), including lead (Pb) and fugitive dust, are primary air pollutants. Of these, CO, $SO_2$, $PM_{10}$, and $PM_{2.5}$ are criteria pollutants. ROG and $NO_X$ are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone and nitrogen dioxide ($NO_2$) are the principal secondary pollutants.

The proposed project is located within the Los Angeles County portion of the Basin that fails to meet federal standards for ozone ($O_3$), particulate matter ($PM_{2.5}$) and lead (Pb) and, therefore, is considered a federal nonattainment area for those pollutants.

Presented below is a description of each of the primary and secondary criteria air pollutants and their known health effects.

**Carbon Monoxide** (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation.[15]

[14] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. November.
[15] South Coast Air Quality Management District. 2005. *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning*.

**Reactive Organic Gases** (ROG) are compounds made up primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROG are emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROG but rather by reactions of ROG to form secondary pollutants such as ozone.[16]

**Nitrogen Oxides** ($NO_X$) serve as integral participants in the process of photochemical smog production. The two major forms of $NO_X$ are nitric oxide (NO) and nitrogen dioxide ($NO_2$). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. $NO_2$ is a reddish-brown irritating gas formed by the combination of NO and oxygen. $NO_X$ acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.

**Nitrogen Dioxide** ($NO_2$) is a by-product of fuel combustion. The principal form of $NO_2$ produced by combustion is NO, but NO reacts with oxygen to form $NO_2$, creating the mixture of NO and $NO_2$ commonly called $NO_X$. $NO_2$ acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, $NO_2$ is only potentially irritating. There is some indication of a relationship between $NO_2$ and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 parts per million (ppm). $NO_2$ absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. $NO_2$ also contributes to the formation of PM10. $NO_X$ are also precursors to the formation of both $O_3$ and PM2.5.[17,18]

**Sulfur Dioxide** ($SO_2$) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. Fuel combustion is the primary source of $SO_2$. At high concentrations $SO_2$ may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, $SO_2$ may do greater harm by injuring lung tissue. A primary source of $SO_2$ emissions is high sulfur content coal. Gasoline and natural gas have very low sulfur content and hence do not release significant quantities of $SO_2$.[19]

**Particulate Matter** (PM) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized. Inhalable course particles, or PM10, include the particulate matter with a diameter of 10 microns (10 millionths of a meter or 0.0004 inch) or less. Inhalable fine particles, or PM2.5, have a diameter of 2.5 microns (i.e., 2.5 millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind on arid landscapes also contributes substantially to local particulate loading. Both PM10 and PM2.5 may adversely affect the human respiratory system, especially in those people who are naturally sensitive or susceptible to breathing problems.[20]

[16] *Ibid.*
[17] *Ibid.;* South Coast Air Quality Management District. 2007 *Air Quality Management Plan.*
[18] South Coast Air Quality Management District. 2005. *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.*
[19] Ibid.
[20] Ibid.

Fugitive dust primarily poses two public health and safety concerns. The first concern is that of respiratory problems attributable to the particulates suspended in the air. The second concern is that of motor vehicle accidents caused by reduced visibility during severe wind conditions. Fugitive dust may also cause significant property damage during strong windstorms by acting as an abrasive material agent (much like sandblasting).[21]

**Ozone** ($O_3$), or smog, is one of a number of substances called photochemical oxidants that are formed when ROG and $NO_X$ (both by-products of the internal combustion engine) react with sunlight. $O_3$ is present in relatively high concentrations in the South Coast Air Basin (Basin or SCAB), and the damaging effects of photochemical smog are generally related to the concentrations of $O_3$. $O_3$ poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Additionally, $O_3$ has been tied to crop damage, typically in the form of stunted growth and premature death. $O_3$ can also act as a corrosive, resulting in property damage such as the degradation of rubber products.[22]

### Toxic Air Contaminants

With respect to criteria pollutants, federal and state ambient air quality standards (AAQS) represent the exposure level (with an adequate margin of safety) deemed safe for humans. No AAQS exist for TACs because there is no exposure level deemed safe for humans. Pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, CARB has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risk they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health risks, a similar factor, called a Hazard Index, is used to evaluate risk. In the early 1980s, CARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Toxic Air Contaminant Identification and Control Act (AB 1807, CARB 1999) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, CARB 1999) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

In August 1998, CARB identified particulate emissions from diesel-fueled engines as TACs. In September 2000, CARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce diesel $PM_{10}$ emissions and the associated health risk by 85% by 2020.

## 4.6.2.2 Regional Setting

The project site is located within the South Coast Air Basin, an approximately 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the distinctive climate of the Basin, which is a coastal plain with connecting broad valleys and low hills.

[21] Ibid.
[22] Ibid.

The Southern California region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography) and human influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of pollutants throughout the Basin, making it an area of high pollution potential.

The greatest air pollution impacts throughout the Basin occur from June through September. These are attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing, which frequently reduce pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day. Ozone concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Basin and adjacent desert. Over the past 30 years, substantial progress has been made in reducing air pollution levels in southern California.

The SCAQMD has recently completed the Multiple Air Toxics Exposure Study IV (MATES IV), which was an ambient air monitoring and evaluation study conducted in the Basin.[23] MATES IV was a follow-up to previous air toxics studies in the Basin and is part of the SCAQMD Governing Board Environmental Justice Initiative. Compared to previous studies of air toxics in the Basin, MATES IV found a decreasing risk for air toxics exposure, with the population weighted risk down by 57% from the analysis in MATES III. While there has been improvement in air quality regarding air toxics, the risks are still unacceptable and are higher near sources of emissions such as ports and transportation corridors. Diesel particulate matter continues to dominate the risk from air toxics. The highest risks are found near the port area, an area near central Los Angeles, and near transportation corridors. The results from the MATES IV study underscore that a continued focus on reduction of toxic emissions, particularly from diesel engines, is needed to reduce air toxics exposure.

The MATES IV study concluded that the average carcinogenic risk throughout the Basin, attributed to TACs, is approximately 418 in one million. As the MATES-IV study was being prepared, the California Environmental Protection Agency Office of Environmental Health Hazard Assessment (OEHHA) adopted revised methods for estimating cancer risks, which resulted in a Basin-wide cancer risk of 1,023 in one million. This revised figure represents a change in methodology of risk calculations taking into account age sensitivity factors and breathing rates to a greater extent than previous efforts. Mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.) represent the greatest contributors, at 90%. About 68% of all risk is attributed to diesel particulate matter emissions.

#### 4.6.2.3 Local Climate

Local climate conditions are considered, as they affect the dispersion and chemical reactions of air pollutants. Data from the Western Regional Climate Center's San Fernando climate monitoring station were used to characterize the eastern project vicinity climate conditions because it is nearest to the project alignment. The average project study area summer (August) high and low

[23] South Coast Air Quality Management District. 2015. *Final Report: Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-IV)*. May. Available : < http://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15.pdf?sfvrsn=7>. Accessed: July 11, 2016.

temperatures are 92.2 degrees Fahrenheit (°F) and 56.3°F, respectively, while the average winter (January) high and low temperatures are 65.0°F and 42.8°F, respectively. The average annual rainfall is 17.7 inches.[24]

The wind monitoring station located nearest to the project site is in Reseda; therefore, data from the Reseda wind monitoring station was used to characterize project study area wind conditions. Wind patterns (provided in the appendix to the Air Quality Technical Report – see Appendix L) in the project vicinity display a multi directional flow, with winds primarily from the east–southeast, at an average speed of 4 miles per hour. Calm wind conditions are present 12% of the time.

#### 4.6.2.4 Project Vicinity Mobile-Source Emissions

The estimate of daily vehicle miles traveled (VMT) that occurs within the project vicinity under the existing/baseline condition is approximately 5.3 million. The estimate of local mobile source emissions generated by this existing level of VMT is included in the Air Quality Technical Report in Appendix L.

#### 4.6.2.5 Local Ambient Pollutant Concentrations

SCAQMD has divided the Basin into air monitoring areas and maintains a network of air quality monitoring stations located throughout the Basin. The project site is located in the Eastern San Fernando Valley Monitoring Area (i.e., Source Receptor Area [SRA] Number 7), which was served by the Burbank-West Palm Avenue monitoring station through mid-2014. Monitoring data is presented below in Table 4.6-1.

Using existing (2013) traffic data, local CO concentrations were calculated at the most congested intersections within the project vicinity. Of the 83 intersections that were evaluated for project traffic impacts, 14 were selected for the CO hot-spot assessment. Intersections that currently operate at congested levels of service (LOS) D, E, and/or F during either the AM or PM peak hour were modeled. If the intersection was LOS D, E, or F during either the AM or PM peak hour, that intersection was modeled for both periods. The local CO concentrations are presented below in Table 4.6-2. As shown therein, 1-hour and 8-hour concentrations are below the respective CAAQS of 20 parts per million (ppm) and 9.0 ppm, respectively, at all intersection locations.

[24] Western Regional Climate Center. 2013. *Los Angeles Area, California Climate Summaries.* San Fernando, California (047759). Available: <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5115>. Accessed: July 29, 2013.

### Table 4.6-1: Air Quality Data from Burbank-West Palm Avenue Station (CARB 70069)

| Pollutant Standards | 2013 | 2014 | 2015 |
|---|---|---|---|
| **Ozone ($O_3$)** | | | |
| *State Standard (1-Hour Average = 0.09 ppm); National Standard (8-Hour Average = 0.075 ppm)* | | | |
| Maximum Concentration 1-Hour Period (ppm) | 0.110 | 0.091 | N/A |
| Maximum Concentration 8-Hour Period (ppm) | 0.083 | 0.079 | N/A |
| Days State 1-Hour Standard Exceeded | 4 | 0 | N/A |
| Days National 8-Hour Standard Exceeded | 6 | 1 | N/A |
| **Nitrogen Dioxide ($NO_2$)** | | | |
| *State Standard (1-Hour Average = 0.18 ppm)* | | | |
| Maximum 1-Hour Concentration | 0.072 | 0.073 | N/A |
| Days State Standard Exceeded | 0 | 0 | N/A |
| **Suspended Particulates ($PM_{10}$)** | | | |
| *State Standard (24-Hour Average = 50 μg/m³); National Standard (24-Hour Average = 150 μg/m³)* | | | |
| Maximum State 24-Hour Concentration | 51 | 58 | N/A |
| Maximum National 24-Hour Concentration | 53 | 68 | N/A |
| Days Exceeding State Standard | 1 | 1 | N/A |
| Days Exceeding National Standard | 0 | 0 | N/A |
| **Suspended Particulates ($PM_{2.5}$)** | | | |
| *National Standard (24-Hour Average = 35 μg/m³)* | | | |
| Maximum 24-Hour Concentration | 45.1 | 64.6 | N/A |
| Days Exceeding National Standard | 4 | 2 | N/A |

Notes:
Monitoring data summaries provided in the appendix.
ppm = parts per million
μg/m³ = microgram per cubic meter
N/A = Data not available; the Burbank-West Palm Avenue Station closed June 30, 2014.
Source: California Air Resources Board 2016.

## Table 4.6-2: Baseline Conditions (Year 2013) at Congested Intersections—Local Area Carbon Monoxide Concentrations

| Intersection | Peak Period[a] | Maximum 1-Hour Concentration (ppm)[b] | Maximum 8-Hour Concentration (ppm)[e] |
|---|---|---|---|
| San Fernando Rd & Paxton St | AM | 7.9 | 6.5 |
| | PM | 8.1 | 6.6 |
| Laurel Canyon Blvd & Van Nuys Blvd | AM | 8.2 | 6.7 |
| | PM | 8.2 | 6.7 |
| Arleta Ave & Van Nuys Blvd | AM | 8.1 | 6.6 |
| | PM | 8.2 | 6.7 |
| Van Nuys Blvd & Nordhoff St | AM | 8.0 | 6.6 |
| | PM | 8.2 | 6.7 |
| Van Nuys Blvd & Chase St | AM | 8.0 | 6.6 |
| | PM | 7.7 | 6.3 |
| Van Nuys Blvd & Saticoy St | AM | 8.2 | 6.7 |
| | PM | 8.2 | 6.7 |
| Van Nuys Blvd & Sherman Way | AM | 7.9 | 6.5 |
| | PM | 8.2 | 6.7 |
| Van Nuys Blvd & Vanowen St | AM | 8.0 | 6.6 |
| | PM | 8.2 | 6.7 |
| Van Nuys Blvd & Burbank Blvd | AM | 8.4 | 6.8 |
| | PM | 8.7 | 7.0 |
| Van Nuys Blvd & Magnolia Blvd | AM | 8.3 | 6.8 |
| | PM | 8.2 | 6.7 |
| Van Nuys Blvd & Ventura Blvd | AM | 8.0 | 6.6 |
| | PM | 8.0 | 6.6 |
| Sepulveda Blvd & Burbank Blvd | AM | 8.5 | 6.9 |
| | PM | 8.6 | 7.0 |
| Sepulveda Blvd & Magnolia Blvd | AM | 7.8 | 6.4 |
| | PM | 7.9 | 6.5 |
| Sepulveda Blvd & Ventura Blvd | AM | 7.9 | 6.5 |
| | PM | 8.7 | 7.0 |

Notes:
ppm = parts per million
Source: ICF Caline4 and EMFAC Emissions Modeling, SCAQMD 2003, KOA 2013.

#### 4.6.2.6 Existing Health Risk in Surrounding Area

According to the most current SCAQMD inhalation cancer risk data (Mobile Air Toxics Exposure Study MATES IV Carcinogenic Interactive Map), the project study area is located within a cancer risk zone of approximately 640 to 1,040 cases per one million people.[25] This is largely due to the project study area's proximity to the Interstate 405, Interstate 5, State Route 210 and State Route 118 freeways. The alignment travels through 11 different areas mapped by MATES-IV; the alignment travels through only one area that has a higher cancer risk than the Basin-wide average. For comparison, the average cancer risk in the Basin is 1,023 cases per million people. The purpose of the comparison is to demonstrate that the existing risks in the study area are not substantially different than the Basin-wide average. There are 11 different areas that the alignment runs through (from the MATES-IV interactive map), each with its own cancer risk. Only one of the 11 areas through which the alignment runs would be greater than the Basin-wide average cancer risk.

## 4.6.3 Environmental Consequences, Impacts, and Mitigation Measures

#### 4.6.3.1 No-Build Alternative

### Construction Impacts

While the No-Build Alternative would not preclude: 1) future construction of other transportation system improvements, 2) general maintenance to improve local transportation system operation, or 3) incorporation of safety enhancements, none of the project improvements proposed under the TSM Alternative or Alternatives 1 to 4 would occur under the No-Build Alternative. Since no improvements would be constructed under the No-Build Alternative, and because it is not considered to be a "project" under CEQA or NEPA, it would not result in any construction impacts and no further analysis is required.

### Operational Impacts

#### Regional Criteria Pollutant Emissions

The No-Build Alternative would not include any project improvements and would not generate any operational air quality impacts. However, under the No-Build Alternative, emissions would continue to be generated in the future by motor vehicles operating in the study area. The regional VMT and travel speed profile predicted to occur under the No-Build Alternative (i.e., year 2012 and 2040 baseline scenarios) would generate the regional emissions estimates presented in Table 4.6-3. The emissions of each of the build alternatives have been evaluated against the No-Build Alternative (i.e., future year 2040 baseline) emissions (see Table 4.6-3) to determine the impacts of the build alternatives under CEQA and NEPA.

[25] South Coast Air Quality Management District. n.d. *Draft Mobile Air Toxics Exposure Study MATES IV Carcinogenic Risk Interactive Map.* Available: http://www3.aqmd.gov/webappl/OI.Web/OI.aspx?jurisdictionID=AQMD.gov&shareID=73f55d6b-82cc-4c41-b779-4c48c9a8b15b. Accessed: July 11, 2016.

### Table 4.6-3: No-Build Alternative Regional Criteria Pollutant Emissions (2012 and 2040)

| Project Alternative | Daily Emissions in Pounds per Day | | | | |
|---|---|---|---|---|---|
| | ROG | CO | $NO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| 2012 No Build | 187,182 | 2,223,083 | 707,749 | 63,339 | 33,706 |
| 2040 No Build | 60,862 | 530,143 | 168,455 | 62,523 | 25,606 |
| Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors. | | | | | |

## Localized Criteria Pollutant Emissions

Within an urban setting, vehicle exhaust is the primary source of localized pollutant concentrations. The primary localized pollutants of concern are CO and PM. Discussions of each pollutant are provided below.

### *Carbon Monoxide Hot-spot Analysis*

The highest CO concentrations are generally found close to congested intersections. Local CO concentrations are a function of intersection LOS. Higher CO concentrations are found at poor LOS intersection locations (i.e., LOS D through F). Under typical meteorological conditions, CO concentrations tend to decrease as the distance from the emissions source (i.e., congested intersection) increases. For purposes of providing a conservative worst-case impact analysis, CO concentrations are typically analyzed at the most congested intersection locations. If impacts are less than significant at congested intersection locations, impacts would also be less than significant at more distant sensitive receptor locations.

The No-Build Alternative proposes no project improvements and thus would not result in any CO impacts. However, No-Build Alternative (i.e., future 2040 baseline) conditions provide the basis against which to compare the proposed build alternatives. Specifically, the potential for local traffic redistribution to occur as a result of improvements under the build alternatives and could result in changes in LOS and delay. As a consequence, in the discussions for the build alternatives below, the build alternatives intersection LOS and delay statistics have been compared to No-Build Alternative (future year 2040 baseline) conditions to identify intersections where LOS and delay statistics would worsen. Identified intersection locations have been evaluated for local CO impacts under each build alternative discussion below. No-Build Alternative intersection LOS and delay statistics information is provided in the Air Quality Technical Report in Appendix L.

### *Particulate Matter Hot-spot Analysis*

EPA specifies in 40 CFR 93.123(b)(1) that only “projects of air quality concern” are required to undergo a $PM_{2.5}$ and $PM_{10}$ hot-spot analysis. EPA defines projects of air quality concern as certain highway and transit projects that involve significant levels of diesel traffic or any other project that is identified by the PM2.5 SIP as a localized air quality concern. Since the No-Build Alternative is not considered to be a “project” under CEQA or NEPA, no evaluation of the impacts of the No-Build Alternative is required.

#### *Toxic Air Contaminant Emissions*

The regional VMT and travel speed profile predicted to occur under the No-Build Alternative (i.e., future year 2040 baseline conditions) would generate the regional MSAT emissions estimates presented in Table 4.6-4. Build alternative MSAT emissions have been evaluated (see discussions below for Alternatives 1 to 4) against these No-Build Alternative (future 2040 baseline) MSAT emissions to determine the build alternatives' impacts under CEQA and NEPA.

Table 4.6-4: No-Build Alternative MSAT Emissions

| Pollutant Name | Daily Emissions Pounds per Day[26] |
|---|---|
| Benzene | 1,302 |
| Acrolein | 39 |
| Acetaldehyde | 1,053 |
| Formaldehyde | 2,379 |
| Butadiene | 196 |
| Naphthalene | 75 |
| POM | 38 |
| Diesel PM | 497 |
| DEOG | 12,356 |
| Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors. | |

## Cumulative Impacts

The No-Build Alternative does not include any new project improvements that would occur under the TSM or build alternatives and thus would not result in additional pollutant emissions that would contribute to cumulative air quality impacts.

## Mitigation Measures

### Construction Mitigation Measures

No construction mitigation measures are required.

### Operational Mitigation Measures

No operational mitigation measures are required.

[26] It should be noted that there are no quantitative thresholds for MSATs as there are for criteria pollutants, and this analysis follows FHWA guidance by quantifying project impacts with respect to MSATs and then making a determination based on the relative contribution to an issue. In cases where MSAT emissions would be more substantial than those of this project, a health risk assessment would be conducted.

### Impacts Remaining After Mitigation

#### NEPA Finding

No adverse effects would occur under NEPA.

#### CEQA Determination

No impacts would occur under CEQA.

## 4.6.3.2 TSM Alternative

### Construction Impacts

Bus service enhancements anticipated to occur under the TSM Alternative would not require construction of a new, or expansion of an existing, MSF, and no substantial physical improvements would be constructed. Consequently, no or very minor amounts of criteria pollutant emissions or toxic air contaminant emissions would be generated. No significant or substantial adverse construction-related impacts under CEQA or NEPA would occur as result of the TSM Alternative.

### Operational Impacts

#### Regional Criteria Pollutant Emissions

Under the TSM Alternative, the existing Metro Division 15 MSF would be used to support the bus service enhancements without major modifications, and therefore, no increase in criteria pollutant emissions from stationay sources would occur.

With respect to mobile-source emissions, operation of the TSM Alternative would involve criteria pollutant emissions from motor vehicles operating in the vicinity of the project. As demonstrated for the 2012 Alternative 3 scenario in Table 4.6-19, there would be net reductions or negligible increases in operational emissions of criteria pollutants relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, traffic operations under the TSM Alternative would have less delay and more efficient operating speeds than Alternative 3, which would result in lower emissions from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario, net critieria pollutant emissions under the 2012 TSM Alternative scenario would be no more than those identified in Table 4.6-19.

The proposed project’s requirement to demonstrate transportation conformity ensures that project emissions are accounted for in the SIP, which demonstrated attainment of the federal ozone standard. Because no SCAQMD thresholds would be exceeded under the 2012 TSM Alternative scenario and operational emissions are accounted for in the SIP, impacts would be less than significant under CEQA and would not be adverse under NEPA.

As shown in Table 4.6-5, regional criteria pollutant emissions under the 2040 TSM Alternative scenario would not exceed any of the SCAQMD thresholds for criteria pollutants.

### Table 4.6-5: TSM Alternative Regional Criteria Pollutant Emissions

| Project Alternative | Daily Emissions in Pounds per Day | | | | |
|---|---|---|---|---|---|
| | ROG | CO | $NO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| 2040 TSM | 60,870 | 530,155 | 168,480 | 62,523 | 25,606 |
| 2040 No-Build | 60,862 | 530,143 | 168,455 | 62,523 | 25,606 |
| Net Project Emissions | 8 | 12 | 25 | (< 1) | < 1 |
| SCAQMD Thresholds | 55 | 550 | 55 | 150 | 55 |
| Exceed Threshold | No | No | No | No | No |

Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors.

#### Localized Criteria Pollutant Emissions

Traffic redistribution effects anticipated to occur under the TSM Alternative would be negligible. As such, there would be no material change in intersection traffic volumes and peak-hour LOS occurring under the TSM Alternative when compared to the No-Build Alternative. Since localized emissions concentrations are a function of traffic volumes and peak-hour LOS, no meaningful change in localized pollutant concentrations are anticipated to occur under the TSM Alternative when compared to the No-Build Alternative. Impacts, if they occur, would be less than significant under CEQA and would not be adverse under NEPA. No mitigation measures are necessary.

#### Toxic Air Contaminant Emissions

The regional VMT and travel speed profile predicted to occur under the TSM Alternative would generate the regional MSAT emissions estimates presented in Table 4.6-6. As shown therein, there would be no material change in regional MSAT pollutant emissions under the TSM Alternative when compared to the No-Build Alternative. Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES model forecasts a combined reduction of over 80% in the total annual emission rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 100%. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project. Impacts would be less than significant under CEQA and would not be adverse under NEPA.

### Cumulative Impacts

The South Coast Air Basin is the study area for evaluation of cumulative impacts for air quality. SCAQMD has responsibility for managing the Basin’s air resources, and is responsible for bringing the Basin into attainment for federal and state air quality standards. Given the TSM Alternative would result in no or negligible increases in pollutant emissions, it would not appreciably contribute to any cumulative air quality impacts (also please see the cumulative impacts discussion for the Alternatives 1 through 4 below).

Table 4.6-6: TSM Alternative MSAT Emissions

| Pollutant Name | Daily Emissions (pounds per day) | | |
|---|---|---|---|
| | TSM Alternative | No-Build Alternative | Net Emissions |
| Benzene | 1,302 | 1,302 | < 1 |
| Acrolein | 39 | 39 | < 1 |
| Acetaldehyde | 1,053 | 1,053 | < 1 |
| Formaldehyde | 2,380 | 2,379 | < 1 |
| Butadiene | 196 | 196 | < 1 |
| Naphthalene | 75 | 75 | < 1 |
| POM | 38 | 38 | < 1 |
| Diesel PM | 497 | 497 | < 1 |
| DEOG | 12,358 | 12,356 | 2 |

Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors.

## Mitigation Measures

### Construction Mitigation Measures

No construction mitigation measures are required.

### Operational Mitigation Measures

No operational mitigation measures are required.

## Impacts Remaining After Mitigation

### NEPA Finding

No adverse effects would occur under NEPA.

### CEQA Determination

No or less-than-significant impacts would occur under CEQA.

# 4.6.3.3 BRT Alternatives (Alternatives 1 and 2)

## Alternative 1 – Curb-Running BRT

### Construction Impacts

Project construction under Alternative 1 would result in the short-term generation of criteria pollutant emissions. Emissions would include: (1) fugitive dust generated from curb/pavement demolition, site work, and other construction activities; (2) hydrocarbon (ROG) emissions related to the application of architectural coatings and asphalt pavement; (3) exhaust emissions from powered construction equipment; and (4) motor vehicle emissions associated with construction equipment, worker commute, and debris-hauling activities.

During construction, the proposed project would be subject to SCAQMD Rule 403 (Fugitive Dust). SCAQMD Rule 403 does not require a permit for construction activities, per se, but rather sets forth requirements for all construction sites (as well as other fugitive dust sources) in the Basin. In general, Rule 403 prohibits a project from causing or allowing emissions of fugitive dust from construction (or other fugitive dust source) to remain visible in the atmosphere beyond the property line of the emissions source.

The total amount of construction, the duration of construction, and the intensity of construction activity would have a substantial effect on the amount of daily construction pollutant emissions, pollutant concentrations, and the resulting impacts occurring at any one time. As such, the emissions forecasts provided herein reflect a specific set of conservative assumptions based on the expected construction scenario wherein a relatively large amount of construction would occur in a relatively intensive manner. Because of these conservative assumptions, actual emissions would likely be less than those forecasted. For example, if construction is delayed or occurs over a longer time period, emissions would be reduced because of: (1) a more modern and cleaner burning construction equipment fleet mix, and/or (2) a less intensive build-out schedule (i.e., lower daily emissions occurring over a longer time interval).

For the purposes of this impact analysis, Alternative 1 construction assumes an 18-month construction period. However, it should be noted that work would generally proceed in a linear sequence so most locations would be affected for a shorter period than 18 months. Combustion exhaust and fugitive dust ($PM_{10}$ and $PM_{2.5}$) mass emissions were estimated using the SCAQMD-recommended CalEEMod, version 2013.2.2. Detailed construction equipment use assumptions (quantity and use hours), among other assumptions, are documented in the CalEEMod modeling output sheets provided in the appendix to the Air Quality Technical Report (see Appendix L). Fugitive $PM_{10}$ and $PM_{2.5}$ emissions estimates take into account compliance with SCAQMD Rule 403. Construction-period emissions anticipated to occur under Alternative 1 are discussed below.

### *Criteria Pollutant Emissions*

The estimate of construction-period regional mass emissions is shown in Table 4.6-7. As shown therein, regional emissions are not expected to exceed the SCAQMD regional emissions thresholds. Impacts would be less than significant under CEQA and would not be adverse under NEPA.

#### Table 4.6-7: Alternative 1 – Estimated Worst-case Regional Construction Mass Emissions (pounds per day)

| Construction Year/Facility | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| **Year 2017** | | | | | | |
| Roadway Improvements, Sidewalks/Curbs, and Stations | 6 | 63 | 49 | <1 | 10 | 6 |
| **Year 2018** | | | | | | |
| Roadway Improvements, Sidewalks/Curbs, and Stations | 39 | 56 | 46 | <1 | 10 | 6 |
| Maximum Daily Emissions | 39 | 63 | 49 | <1 | 10 | 6 |
| Regional Construction Threshold | 75 | 100 | 550 | 150 | 150 | 55 |
| Exceed Thresholds? | No | No | No | No | No | No |
| Source: CalEEMod emissions modeling by ICF International 2015. | | | | | | |

With respect to local impacts, SCAQMD has developed a set of local mass emission thresholds to evaluate localized impacts. According to SCAQMD, only those emissions that occur on site are to be considered in the localized significance threshold (LST) analysis. Consistent with SCAQMD LST evaluation guidelines, emissions related to haul truck and employee commuting activity during construction are not considered in the evaluation of localized impacts. As shown in Table 4.6-8, localized PM10 and PM2.5 emissions during construction would exceed local thresholds. As such, short-term local mass emissions would be significant under CEQA and adverse under NEPA prior to implementation of mitigation measures.

### Table 4.6-8: Alternative 1 – Estimated Maximum Localized Construction Mass Emissions (pounds per day)

| Construction Phase | $NO_X$ | CO | $PM_{10}$[a] | $PM_{2.5}$[a] |
|---|---|---|---|---|
| Median Improvements, Sidewalks/Curbs, and Stations | 63 | 49 | 10 | 6 |
| Localized Significance Thresholds [b] | 80 | 498 | 4 | 3 |
| Exceed Thresholds? | No | No | Yes | Yes |

[a] $PM_{10}$ and $PM_{2.5}$ emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.
[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).
Source: CalEEMod emissions modeling by ICF International 2015.

#### *Toxic Air Contaminant Emissions*

With respect to construction-period impacts, the greatest potential for TAC emissions would be related to DPM emissions associated with heavy equipment operations during project construction. Construction activities associated with the project would be sporadic, transitory, and short term in nature. The assessment of cancer risk is typically based on a 70-year exposure period; however, Alternative 1 construction is anticipated to have a duration of approximately 18 months. Because exposure to diesel exhaust would be well below the 70-year exposure period, project construction is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, project-related toxic emission impacts during construction would be less than significant under CEQA and would not be adverse under NEPA.

### Operational Impacts

#### *Regional Criteria Pollutant Emissions*

Under Alternative 1, the existing Metro Division 15 MSF would be used to support the bus service enhancements without major modifications, and therefore, no increase in criteria pollutant emissions from stationary sources would occur.

With respect to mobile-source emissions, operation of Alternative 1 would involve criteria pollutant emissions from motor vehicles operating in the vicinity of the project. As demonstrated for the 2012 Alternative 3 scenario in Table 4.6-19, there would be net reductions or negligible increases in operational emissions of criteria pollutants relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, traffic operations under Alternative 1 would have less delay and more efficient operating speeds than Alternative 3, which would result in lower emissions from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario, net criteria pollutant emissions under the 2012 Alternative 1 scenario would be no more than those identified in Table 4.6-19.

The proposed project's requirement to demonstrate transportation conformity ensures that project emissions are accounted for in the SIP, which demonstrated attainment of the federal ozone standard. Because no SCAQMD thresholds would be exceeded under the 2012 Alternative 1 scenario and operational emissions are accounted for in the SIP, impacts would be less than significant under CEQA and would not be adverse under NEPA.

As shown in Table 4.6-9, regional criteria pollutant emissions under the 2040 Alternative 1 scenario would exceed the SCAQMD threshold for $NO_X$, but would not exceed the thresholds for any other pollutant. Such increases would occur as a result of changes in auto circulation patterns and speeds.

### Table 4.6-9: Alternative 1 – Regional Criteria Pollutant Emissions

| Project Alternative | Daily Emissions in Pounds per Day | | | | |
|---|---|---|---|---|---|
| | ROG | CO | $NO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| 2040 Alternative 1 | 60,912 | 530,156 | 168,528 | 62,519 | 25,604 |
| 2040 No Build | 60,862 | 530,143 | 168,455 | 62,523 | 25,606 |
| Net Project Emissions | 49 | 12 | 73 | (4) | (1) |
| SCAQMD Thresholds | 55 | 550 | 55 | 150 | 55 |
| Exceed Threshold | No | No | Yes | No | No |
| Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors. | | | | | |

### *Carbon Monoxide Hot-Spot Analysis*

Based on ambient air monitoring data collected by SCAQMD, the Basin has continually met state and federal ambient air quality standards for CO since 2003. As such, the Basin was reclassified to attainment/maintenance status from serious nonattainment, effective June 11, 2007. While the *Final 2016 Air Quality Management Plan* (AQMP) is the most recent AQMP, no additional regional or hot-spot CO modeling has been conducted to demonstrate attainment of the 8-hour average CO standard since the analysis provided in the 2003 AQMP.

Since local CO concentrations are a function of: 1) intersection traffic volumes, 2) peak-hour intersection LOS, 3) CO emissions factors [idle and grams/mile], and 4) the ambient CO background concentration; it is possible to identify which, if any, of the most congested intersection locations anticipated to exist under Alternative 1 have a potential to violate state or federal CO standards. The Alternative 1 intersections included in the Air Quality Technical Report in Appendix L meet the following criteria: 1) intersection LOS and/or delay would worsen under Alternative 1 when compared to the No-Build Alternative, and 2) the intersection would operate at LOS F.

Total intersection approach volumes under Alternative 1 would not exceed the maximum total intersection approach volume identified for a 2003 attainment demonstration intersection, during the AM or PM peak-hour period. In addition, the eastern San Fernando Valley is predicted to have an 8-hour CO background concentration of 5.5 ppm at year 2020 (farthest SCAQMD prediction), compared to an 8-hour background concentration of 7.8 ppm used for the 2003 attainment demonstration analysis. And finally, the CO idle and 5-mph emissions factors for year 2035 (farthest year emissions factors available) are predicted to be 8.7 grams/hour and 1.5 grams/mile, respectively. This compares to CO idle and 5-mph emissions factors of 341.4 grams/hour and 13.9 grams/mile, respectively, used for the 2003 AQMP attainment demonstration.

To summarize: 1) maximum intersection approach volumes under Alternative 1 would be less than the maximum intersection approach volume used for the 2003 AQMP attainment demonstration, 2) idle emissions would be considerably less (97% reduction) than those used for the 2003 AQMP attainment demonstration, and 3) grams/mile emissions would be considerably less (89% reduction) than those used for the 2003 AQMP attainment demonstration. As such, there would be no potential for Alternative 1 CO emissions at any intersection location to result in an exceedance of either the NAAQS or CAAQS for CO. Impacts would be less than significant under CEQA and would not be adverse under NEPA.

### *Particulate Matter Hot-Spot Analysis*

The EPA has specified a quantitative method for analyzing localized $PM_{2.5}$ or $PM_{10}$ concentrations from operational traffic titled, *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and $PM_{10}$ Nonattainment and Maintenance Areas* in November 2015. EPA specifies in 40 CFR 93.123(b)(1) that only "projects of air quality concern" are required to undergo a $PM_{2.5}$ and $PM_{10}$ hot-spot analysis. EPA defines projects of air quality concern as certain highway and transit projects that involve significant levels of diesel traffic or any other project that is identified by the $PM_{2.5}$ SIP as a localized air quality concern. A discussion of Alternative 1 compared to projects of air quality concern, as defined by 40 CFR 93.123(b)(1), is provided below:

**New or expanded highway projects that have a significant number of or significant increase in diesel vehicles**. Alternative 1 proposes to add curb-running BRT service along selected roadway corridors in the eastern San Fernando Valley. While the proposed improvements would have some effect on local traffic volumes, the effect on the number of diesel-powered vehicles that use the affected roadway facility or any adjacent facilities would be negligible.

**Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.** Alternative 1 is proposing to add curb-running BRT service along selected roadway corridors in the eastern San Fernando Valley. The primary project objective is to improve both existing and future mobility, and reduce congestion. Alternative 1 would have no effect on diesel truck traffic volumes.

**New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.** Alternative 1 would not use any diesel-powered vehicles. In addition, the Metro bus fleet contains no diesel-powered buses, and Metro does not intend to acquire any diesel-powered buses. No diesel-powered transit buses would be used to provide service to any bus or rail terminal.

**<u>Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.</u>** Alternative 1 would not expand any bus terminal, rail terminal, or related transfer point that would increase the number of diesel vehicles congregating at any single location.

**<u>Projects in or affecting locations, areas, or categories of sites that are identified in the PM2.5- or PM10-applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation</u>**. The project vicinity is not in or affecting an area or location identified in any $PM_{10}$ or $PM_{2.5}$ implementation plan. The immediate project area is not considered to be a site of violation or possible violation.

The discussion provided above indicates that Alternative 1 would not be considered a project of air quality concern, as defined by 40 CFR 93.123(b)(1). Alternative 1 would not generate new air quality violations, worsen existing violations, or delay attainment of national AAQS for $PM_{2.5}$ and $PM_{10}$. Potential impacts would be less than significant under CEQA and would not be adverse under NEPA.

### *Toxic Air Contaminant Emissions*

The regional VMT and travel speed profile predicted to occur under Alternative 1 would generate the regional MSAT emissions estimates presented in Table 4.6-10, below. As shown in the table, there would be no material change in regional MSAT pollutant emissions under Alternative 1 when compared to the No-Build Alternative. Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES model forecasts a combined reduction of over 80% in the total annual emission rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 100%. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project. Impacts would be less than significant under CEQA and would not be adverse under NEPA.

### Table 4.6-10: Alternative 1 – MSAT Emissions

| Pollutant Name | Daily Emissions (pounds per day) | | |
|---|---|---|---|
| | Alternative 1 | No-Build Alternative | Net Emissions |
| Benzene | 1,303 | 1,302 | 1 |
| Acrolein | 39 | 39 | < 1 |
| Acetaldehyde | 1,053 | 1,053 | < 1 |
| Formaldehyde | 2,380 | 2,379 | 1 |
| Butadiene | 196 | 196 | < 1 |
| Naphthalene | 75 | 75 | < 1 |
| POM | 38 | 38 | < 1 |
| Diesel PM | 497 | 497 | (< 1) |
| DEOG | 12,359 | 12,356 | 3 |
| Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors. | | | |

## Cumulative Impacts

California is divided geographically into 15 air basins for the purpose of managing the air resources of the state on a regional basis. Each air basin generally has similar meteorological and geographic conditions throughout. Local districts are responsible for preparing the portion of the SIP applicable within their boundaries.

The proposed project is located in the South Coast Air Basin; and as such, the Basin is the appropriate study area for evaluation of cumulative impacts for air quality. The South Coast Air Quality Management District (SCAQMD) has responsibility for managing the Basin's air resources, and is responsible for bringing the Basin into attainment for federal and state air quality standards. To achieve this goal, the SCAQMD prepares/updates the Basin's AQMP every 4 years.

The "on-road emissions" AQMP budgets are developed based on the regional transportation planning documents that are prepared by SCAG. The proposed project is included in the SCAG 2016-2040 RTP/SCS under Project ID 1TR0706 (for the BRT Alternatives) and ID S1160326 (for all build alternatives). The proposed project has been incorporated into amendment 17-02 to the SCAG 2017 FTIP under project ID LA0G1301. The 2016-2040 RTP/SCS was found by FHWA and FTA to be in conformity with the SIP on June 1, 2016. The 2017 FTIP amendment, in which the project is listed, was found to be in conformity on February 21, 2017 (see Appendix A).

Per State CEQA Guidelines Section 15130 (d), where a project is included in an approved regional transportation plan (among other land use plans) that adequately address the effected resource area, no additional analysis is required. Because the proposed project is listed, as currently proposed, in the region's currently conforming SCAG 2016-2040 RTP/SCS and 2017 FTIP regional transportation planning documents, project emissions would not be cumulatively considerable.

### *Compliance Requirements and Design Features*

The project would comply with all applicable SCAQMD Rules, which include Rule 403 (fugitive dust), Rule 431.2 (sulfur content of liquid fuels) and Rule 1113 (architectural coatings), among other rules.

## Mitigation Measures

### *Construction Mitigation Measures*

The following measures are prescribed and shall be implemented to reduce short-term construction emissions that exceed SCAQMD significance thresholds:

**MM-AQ-1 (All Build Alternatives)**: Construction vehicle and equipment trips and use shall be minimized to the extent feasible and unnecessary idling of heavy equipment shall be avoided.

**MM-AQ-2 (All Build Alternatives):** Solar powered, instead of diesel powered, changeable message signs shall be used.

**MM-AQ-3 (All Build Alternatives):** Electricity from power poles, rather than from generators, shall be used where feasible.

**MM-AQ-4 (All Build Alternatives):** Engines shall be maintained and tuned per manufacturer's specifications to perform at EPA certification levels and to perform at verified standards applicable to retrofit technologies. Periodic, unscheduled inspections shall be conducted to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.

**MM-AQ-5 (All Build Alternatives):** Any tampering with engines shall be prohibited and continuing adherence to manufacturer's recommendations shall be required.

**MM-AQ-6 (All Build Alternatives):** New, clean (diesel or retrofitted diesel) equipment meeting the most stringent applicable federal or state standards shall be used and the best available emissions control technology shall be employed. Tier 4 engines shall be used for all construction equipment. If non-road construction equipment that meets Tier 4 engine standards is not available, the Construction Contractor shall be required to use the best available emissions control technologies on all equipment.

**MM-AQ-7 (All Build Alternatives):** EPA-registered particulate traps and other appropriate controls shall be used where suitable to reduce emissions of diesel particulate matter (PM) and other pollutants at the construction site.

#### *Operational Mitigation Measures*

All impacts would be less than significant under CEQA and not adverse under NEPA. No mitigation measures are necessary.

### Impacts Remaining After Mitigation

With the implementation of the mitigation measures identified above, construction emissions under Alternative 1 would be reduced, but would exceed the LSTs for $PM_{10}$ and $PM_{2.5}$, as shown in Table 4.6-11. Based on the reduction of emissions, effects under NEPA would not be adverse. However, based on the emissions of $PM_{10}$ and $PM_{2.5}$ exceeding the LSTs, impacts would remain significant under CEQA after the implementation of proposed mitigation measures.

### Table 4.6-11: Alternative 1 – Estimated Mitigated Maximum Localized Construction Mass Emissions (pounds per day)

| Construction Activity | $NO_X$ | CO | $PM_{10}$[a] | $PM_{2.5}$[a] |
|---|---|---|---|---|
| Median Improvements, Sidewalks/Curbs, and Stations | 14 | 31 | 8 | 4 |
| Localized Significance Thresholds [b] | 80 | 498 | 4 | 3 |
| Exceed Thresholds? | No | No | Yes | Yes |

[a] $PM_{10}$ and $PM_{2.5}$ emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.
[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).
Source: CalEEMod emissions modeling by ICF International 2015.

#### *NEPA Finding*

Construction effects would not be adverse under NEPA after the implementation of mitigation measures. Operational effects would not be adverse under NEPA.

#### *CEQA Determination*

Construction of Alternative 1 would not result in the emission of criteria pollutants in excess of regional thresholds, but emissions would be higher than SCAQMD LSTs for $PM_{10}$ and $PM_{2.5}$. Therefore, construction impacts under Alternative 1 would be significant under CEQA after the implementation of proposed mitigation measures.

The operation of Alternative 1 would result in a decrease, or a minor increase, in the emissions of criteria pollutants, and would have no or minimal effects on the emission of MSAT pollutants. In addition, no localized operational impacts related to hot-spots for CO or particulate matter were identified. Operational impacts under Alternative 1 would be less than significant under CEQA.

## Alternative 2 – Median-Running BRT

### Construction Impacts

Project construction under Alternative 2 would result in the short-term generation of criteria pollutant emissions, similar to those described for Alternative 1. During construction of Alternative 2, the proposed project would be subject to SCAQMD Rule 403 (Fugitive Dust), which does not require a permit for construction activities, per se, but rather sets forth requirements for all construction sites (as well as other fugitive dust sources) in the Basin.

For the purpose of this impact analysis, Alternative 2 construction assumes a 24-month construction-period duration. However, it should be noted that work would generally proceed in a linear sequence so most locations would be affected for a shorter period than 24 months. Combustion exhaust and fugitive dust ($PM_{10}$ and $PM_{2.5}$) mass emissions were estimated using the SCAQMD-recommended CalEEMod, version 2013.2.2 as described for Alternative 1. Construction-period emissions anticipated to occur under Alternative 2 are discussed below.

#### *Criteria Pollutant Emissions*

The estimate of construction-period regional mass emissions is shown in Table 4.6-12. As shown in the table, regional emissions are not expected to exceed the SCAQMD regional emissions thresholds. Impacts would be less than significant under CEQA and would not be adverse under NEPA.

With respect to local impacts, SCAQMD has developed a set of local mass emission thresholds to evaluate localized impacts. According to SCAQMD, only those emissions that occur on-site are to be considered in the LST analysis. Consistent with SCAQMD LST evaluation guidelines, emissions related to haul truck and employee commuting activity during construction are not considered in the evaluation of localized impacts. As shown in Table 4.6-13, localized $PM_{10}$ and $PM_{2.5}$ emissions during construction would exceed local thresholds. As such, short-term local mass emissions would be significant under CEQA and adverse under NEPA prior to implementation of mitigation measures.

### Table 4.6-12: Alternative 2 – Estimated Worst-case Regional Construction Mass Emissions (pounds per day)

| Construction Year/Facility | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| **Year 2017** | | | | | | |
| Median Improvements, Sidewalks/Curbs, and Stations | 6 | 73 | 56 | <1 | 11 | 7 |
| **Year 2018** | | | | | | |
| Median Improvements, Sidewalks/Curbs, and Stations | 6 | 66 | 53 | <1 | 10 | 6 |
| **Year 2019** | | | | | | |
| Median Improvements, Sidewalks/Curbs, and Stations | 34 | 15 | 19 | <1 | 2 | 1 |
| Maximum Daily Emissions | 34 | 73 | 56 | <1 | 11 | 6 |
| Regional Construction Threshold | 75 | 100 | 550 | 150 | 150 | 55 |
| Exceed Thresholds? | No | No | No | No | No | No |
| Source: CalEEMod emissions modeling by ICF International 2015. | | | | | | |

### Table 4.6-13: Alternative 2 – Estimated Maximum Localized Construction Mass Emissions (pounds per day)

| Construction Activity | $NO_X$ | CO | $PM_{10}$[a] | $PM_{2.5}$[a] |
|---|---|---|---|---|
| Median Improvements, Sidewalks/Curbs, and Stations | 73 | 56 | 11 | 7 |
| Localized Significance Thresholds [b] | 80 | 498 | 4 | 3 |
| Exceed Thresholds? | No | No | Yes | Yes |

[a] $PM_{10}$ and $PM_{2.5}$ emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.
[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).
Source: CalEEMod emissions modeling by ICF International 2015.

#### *Toxic Air Contaminant Emissions*

With respect to construction-period impacts, the greatest potential for TAC emissions would be related to DPM emissions associated with operation of heavy construction equipment. Construction activities associated with the project would be sporadic, transitory, and short term in nature. The assessment of cancer risk is typically based on a 70-year exposure period; however, Alternative 2 construction is anticipated to have a duration of approximately two years. Because exposure to diesel exhaust would be well below the 70-year exposure period, project construction is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, project-related toxic emission impacts during construction would be less than significant under CEQA and would not be adverse under NEPA.

## Operational Impacts

### *Regional Criteria Pollutant Emissions*

Under Alternative 2, the existing Metro Division 15 MSF would be used to support bus service enhancements without major modifications, and therefore, no increase in criteria pollutant emissions from stationay sources would occur.

With respect to mobile-source emissions, operation of Alternative 2 would involve criteria pollutant emissions from motor vehicles operating in the vicinity of the project. As demonstrated for the 2012 Alternative 3 scenario in Table 4.6-19, there would be net reductions or negligible increases in operational emissions of criteria pollutants relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, traffic operations under Alternative 2 would have less delay and more efficient operating speeds than Alternative 3, which would result in lower emissions from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario, net criteria pollutant emissions under the 2012 Alternative 2 scenario would be no more than those identified in Table 4.6-19.

The proposed project's requirement to demonstrate transportation conformity ensures that project emissions are accounted for in the SIP, which demonstrated attainment of the federal ozone standard. Because no SCAQMD thresholds would be exceeded under the 2012 Alternative 2 scenario and operational emissions are accounted for in the SIP, impacts would be less than significant under CEQA and would not be adverse under NEPA.

As shown in Table 4.6-14, regional criteria pollutant emissions under the 2040 Alternative 2 scenario would exceed the SCAQMD threshold for $NO_X$, but would not exceed the thresholds for any other pollutant. Such increases would occur as a result of changes in auto circulation patterns and speeds.

#### Table 4.6-14: Alternative 2 – Regional Criteria Pollutant Emissions

| Project Alternative | Daily Emissions in Pounds per Day | | | | |
|---|---|---|---|---|---|
| | ROG | CO | $NO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| 2040 Alternative 2 | 60,874 | 530,144 | 168,527 | 62,518 | 25,604 |
| 2040 No Build | 60,862 | 530,143 | 168,455 | 62,523 | 25,606 |
| Net Project Emissions | 11 | 1 | 71 | (4) | (2) |
| SCAQMD Thresholds | 55 | 550 | 55 | 150 | 55 |
| Exceed Threshold | No | No | Yes | No | No |
| Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors. | | | | | |

### *Carbon Monoxide Hot-Spot Analysis*

As discussed under the CO hot-spot analysis for Alternative 1 above, the Basin has continually met the state and federal ambient air quality standards for CO since 2003. Since high-volume, congested intersections are primary determinants of CO impacts, intersections projected to experience the most congested conditions under Alternative 2 were identified.

As discussed in the Air Quality Technical Report in Appendix L, total intersection approach volumes under Alternative 2 would not exceed the maximum total intersection approach volume identified for a 2003 attainment demonstration intersection, during the AM or PM peak-hour period. In addition, as discussed in the CO hot-spot analysis for Alternative 1 above, the eastern San Fernando Valley is predicted to have lower future background CO concentrations and idle and 5-mph emission factors would be lower than those used for the 2003 AQMP attainment demonstration.

Based on Alternative 2's lower intersection approach volumes, idle emissions, and grams/mile emissions relative to the 2003 AQMP attainment demonstration, there would be no potential for Alternative 2 CO emissions at any intersection location to result in an exceedance of either the NAAQS or CAAQS for CO. Impacts would be less than significant under CEQA and would not be adverse under NEPA.

#### *Particulate Matter Hot-Spot Analysis*

For the same reasons identified in the particulate matter hot-spot analysis for Alternative 1 above, Alternative 2 would not be considered a project of air quality concern, as defined by 40 CFR 93.123(b)(1). Alternative 2 would not generate new air quality violations, worsen existing violations, or delay attainment of national AAQS for $PM_{2.5}$ and $PM_{10}$. Potential impacts would be less than significant under CEQA and would not be adverse under NEPA.

#### *Toxic Air Contaminant Emissions*

The regional VMT and travel speed profile predicted to occur under Alternative 2 would generate the regional MSAT emissions estimates presented in Table 4.6-15, below. As shown in the table, there would be no material change in regional MSAT pollutant emissions under Alternative 2 when compared to the No-Build Alternative. Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES model forecasts a combined reduction of over 80% in the total annual emission rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 100%. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project. Impacts would be less than significant under CEQA and would not be adverse under NEPA.

### Cumulative Impacts

Cumulative impacts would be the same as the cumulative impacts described above for Alternative 1.

#### *Compliance Requirements and Design Features*

Compliance requirements and design features included under Alternative 1 would also be included under Alternative 2.

### Mitigation Measures

#### *Construction Mitigation Measures*

Mitigation measures MM-AQ-1 through MM-AQ-7 described under Alternative 1 would be implemented to mitigate impacts under Alternative 2.

### Table 4.6-15: Alternative 2 – MSAT Emissions

| Pollutant Name | Daily Emissions (pounds per day) | | |
|---|---|---|---|
| | Alternative 2 | No-Build Alternative | Net Emissions |
| Benzene | 1,303 | 1,302 | < 1 |
| Acrolein | 39 | 39 | < 1 |
| Acetaldehyde | 1,053 | 1,053 | < 1 |
| Formaldehyde | 2,380 | 2,379 | 1 |
| Butadiene | 196 | 196 | < 1 |
| Naphthalene | 75 | 75 | < 1 |
| POM | 38 | 38 | < 1 |
| Diesel PM | 497 | 497 | (< 1) |
| DEOG | 12,359 | 12,356 | 3 |
| Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors. | | | |

### *Operational Mitigation Measures*

No mitigation measures are necessary.

### Impacts Remaining After Mitigation

With the implementation of proposed mitigation measures MM-AQ-1 through MM-AQ-7, construction emissions under Alternative 2 would be reduced, but would exceed the LSTs for $PM_{10}$ and $PM_{2.5}$, as shown in Table 4.6-16. Based on the reduction of emissions with implementation of mitigation, effects under NEPA would not be adverse. However, based on the emissions of $PM_{10}$ and $PM_{2.5}$ exceeding the LSTs, impacts would remain significant under CEQA after the implementation of proposed mitigation measures.

### Table 4.6-16: Alternative 2 – Estimated Mitigated Maximum Localized Construction Mass Emissions (pounds per day)

| Construction Activity | $NO_X$ | CO | $PM_{10}$[a] | $PM_{2.5}$[a] |
|---|---|---|---|---|
| Median Improvements, Sidewalks/Curbs, and Stations | 24 | 38 | 9 | 5 |
| Localized Significance Thresholds [b] | 80 | 498 | 4 | 3 |
| Exceed Thresholds? | No | No | Yes | Yes |

[a] $PM_{10}$ and $PM_{2.5}$ emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.
[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).
Source: CalEEMod emissions modeling by ICF International 2015.

#### *NEPA Finding*

Construction effects would not be adverse under NEPA after implementation of proposed mitigation measures. Operational effects would not be adverse under NEPA.

#### *CEQA Determination*

Construction of Alternative 2 would not result in the emission of criteria pollutants in excess of regional thresholds, but emissions would be higher than SCAQMD LSTs for $PM_{10}$ and $PM_{2.5}$. Therefore, construction impacts under Alternative 2 would be significant under CEQA after the implementation of proposed mitigation measures.

The operation of Alternative 2 would result in a decrease, or a minor increase, in the emissions of criteria pollutants, and would have no or minimal effects on the emission of MSAT pollutants. In addition, no localized operational impacts related to hot-spots for CO or particulate matter were identified. Operational impacts under Alternative 2 would be less than significant under CEQA.

# 4.6.3.4 Rail Alternatives (Alternatives 3 and 4)

## Alternative 3 – Low-Floor LRT/Tram

### Construction Impacts

Construction of Alternative 3 would result in the short-term generation of criteria pollutant emissions, as described for Alternative 1 above. During construction of Alternative 3, the proposed project would be subject to SCAQMD Rule 403 (Fugitive Dust), which does not require a permit for construction activities, per se, but rather sets forth requirements for all construction sites (as well as other fugitive dust sources) in the Basin.

For the purpose of this impact analysis, Alternative 3 construction assumes a 24-month construction-period duration. However, it should be noted that work would generally proceed in a linear sequence along the project corridors so most locations would be affected by construction for a shorter period than 24 months. Combustion exhaust and fugitive dust ($PM_{10}$ and $PM_{2.5}$) mass emissions were estimated using the SCAQMD-recommended CalEEMod, version 2013.2.2. Detailed construction equipment use assumptions (quantity and use hours), among other assumptions, are documented in the CalEEMod modeling output sheets provided in the appendix to this Air Quality Report. Fugitive $PM_{10}$ and $PM_{2.5}$ emissions estimates take into account compliance with SCAQMD Rule 403. Construction-period emissions anticipated to occur under Alternative 3 are discussed below.

#### *Criteria Pollutant Emissions*

The estimate of construction-period regional mass emissions is shown in Table 4.6-17. As shown in the table, regional emissions for ROG and NOx are expected to exceed the SCAQMD regional emissions thresholds. Impacts would be significant under CEQA and adverse under NEPA prior to implementation of mitigation measures.

### Table 4.6-17: Alternative 3 – Estimated Worst-case Regional Construction Mass Emissions (pounds per day)

| Construction Year/Facility | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| **Year 2017** | | | | | | |
| Maintenance Facility | 6 | 67 | 53 | <1 | 11 | 14 |
| Track Installation, Sidewalks/Curbs, and Stations | 8 | 91 | 70 | <1 | 13 | 8 |
| Pedestrian Bridge and TPSS Facilities | 3 | 20 | 16 | <1 | 1 | 1 |
| Concurrent Year 2017 Emissions | 17 | 178 | 139 | <1 | 25 | 22 |
| **Year 2018** | | | | | | |
| Maintenance Facility | 81 | 24 | 20 | <1 | 2 | 2 |
| Track Installation, Sidewalks/Curbs, and Stations | 7 | 82 | 66 | <1 | 12 | 7 |
| Pedestrian Bridge and TPSS Facilities | 3 | 18 | 16 | <1 | 1 | 1 |
| Concurrent Year 2018 Emissions | 91 | 124 | 102 | <1 | 15 | 10 |
| **Year 2019** | | | | | | |
| Maintenance Facility **(Complete)** | — | — | — | — | — | — |
| Track Installation, Sidewalks/Curbs, and Stations | 36 | 18 | 34 | <1 | 2 | 1 |
| Pedestrian Bridge and TPSS Facilities **(Complete)** | — | — | — | — | — | — |
| Concurrent Year 2019 Emissions | 36 | 18 | 34 | <1 | 2 | 1 |
| Maximum Daily Emissions | 91 | 178 | 139 | <1 | 25 | 22 |
| Regional Construction Threshold | 75 | 100 | 550 | 150 | 150 | 55 |
| Exceed Thresholds? | Yes | Yes | No | No | No | No |
| Source: CalEEMod emissions modeling by ICF International 2015. | | | | | | |

With respect to local impacts, SCAQMD has developed a set of local mass emission thresholds to evaluate localized impacts. According to SCAQMD, only those emissions that occur on site are to be considered in the LST analysis. Consistent with SCAQMD LST evaluation guidelines, emissions related to haul truck and employee commuting activity during construction are not considered in the evaluation of localized impacts. As shown in Table 4.6-18, localized $PM_{10}$ and $PM_{2.5}$ emissions during construction would exceed local thresholds. As such, short-term local mass emissions would be significant under CEQA and adverse under NEPA prior to implementation of mitigation measures.

### Table 4.6-18: Alternative 3 – Estimated Maximum Localized Construction Mass Emissions (pounds per day)

| Construction Activity | $NO_X$ | CO | $PM_{10}$[a] | $PM_{2.5}$[a] |
|---|---|---|---|---|
| Maintenance Facility | 67 | 53 | 11 | 14 |
| Track Installation, Sidewalks/Curbs, and Stations | 91 | 70 | 13 | 8 |
| Pedestrian Bridge and TPSS Facilities | 20 | 16 | 1 | 1 |
| Localized Significance Thresholds [b] | 80 | 498 | 4 | 3 |
| Exceed Thresholds? | Yes | No | Yes | Yes |

[a] $PM_{10}$ and $PM_{2.5}$ emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.
[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).
Source: CalEEMod emissions modeling by ICF International 2015.

#### *Toxic Air Contaminant Emissions*

With respect to construction-period impacts, the greatest potential for TAC emissions would be related to DPM emissions associated with operation of heavy construction equipment. Construction activities associated with the project would be sporadic, transitory, and short term in nature. The assessment of cancer risk is typically based on a 70-year exposure period; however, Alternative 3 construction is anticipated to have a duration of approximately two years. Because exposure to diesel exhaust would be well below the 70-year exposure period, project construction is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, project-related toxic emission impacts during construction would be less than significant under CEQA and would not be adverse under NEPA.

### Operational Impacts

#### *Regional Criteria Pollutant Emissions*

Operation of Alternative 3 would involve criteria pollutant emissions from the new MSF, transit vehicle propulsion, and from motor vehicles operating in the vicinity of the project, as shown for the 2012 Alternative 3 scenario in Table 4.6-19. Most of the emissions related to the maintanence facility and transit vehicle propulsion would occur outside the Basin, as much of the electricity consumed in the region is produced elsewhere.

Emissions from motor vehicles operating in the project vicinity, however, would occur entirely within the Basin. As shown in Table 4.6-19, compared to 2012 No Build scenario, the 2012 Alternative 3 scenario would result in a net decrease in emissions of ROG, CO, and $NO_X$, and negligible increases in PM10 and PM2.5 emissions, and no SCAQMD thresholds would be exceeded. The proposed project's requirement to demonstrate transportation conformity ensures that project emissions are accounted for in the SIP, which demonstrated attainment of the federal ozone standard. Because no SCAQMD thresholds would be exceeded under the 2012 Alternative 3 scenario and operational emissions are accounted for in the SIP, impacts would be less than significant under CEQA and would not be adverse under NEPA.

### Table 4.6-19: Alternative 3 – Regional Criteria Pollutant Emissions (2012)

| Project Alternative | Daily Emissions in Pounds per Day | | | | |
|---|---|---|---|---|---|
| | ROG | CO | $NO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| Maintenance Facility | 2 | < 1 | < 1 | < 1 | < 1 |
| Transit Vehicle Propulsion | 1 | 7 | 8 | 1 | 1 |
| *Traffic Emissions* | | | | | |
| 2012 Alternative 3 | 187,173 | 2,223,028 | 707,736 | 63,338 | 33,706 |
| 2012 No-Build | 187,182 | 2,223,083 | 707,749 | 63,339 | 33,706 |
| 2012 Net Project Emissions | (9) | (55) | (13) | (1) | (< 1) |
| **Net Project Emissions** | **(6)** | **(48)** | **(4)** | **< 1** | **< 1** |
| SCAQMD Thresholds | 55 | 550 | 55 | 150 | 55 |
| Exceed Threshold | No | No | No | No | No |
| Source: ICF, 2016; calculated using CalEEMod and 2014 Metro Rail energy data. | | | | | |

As shown in Table 4.6-20, ROG and NOx emissions are anticipated to exceed the SCAQMD thresholds under the 2040 Alternative 3 scenario due to changes in automobile circulation patterns and speeds. All other criteria pollutant emissions under the 2040 Alternative 3 scenario would not exceed SCAQMD thresholds.

### Table 4.6-20: Alternative 3 – Regional Criteria Pollutant Emissions (2040)

| Project Alternative | Daily Emissions in Pounds per Day | | | | |
|---|---|---|---|---|---|
| | ROG | CO | $NO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| Maintenance Facility | 2 | < 1 | < 1 | < 1 | < 1 |
| Transit Vehicle Propulsion | 1 | 7 | 8 | 1 | 1 |
| *Traffic Emissions* | | | | | |
| 2040 Alternative 3 | 61,008 | 530,592 | 168,966 | 62,524 | 25,607 |
| 2040 No-Build | 60,862 | 530,143 | 168,455 | 62,523 | 25,606 |
| **2040 Net Project Emissions** | **148** | **456** | **519** | **2** | **2** |
| SCAQMD Thresholds | 55 | 550 | 55 | 150 | 55 |
| Exceed Threshold (2040) | Yes | No | Yes | No | No |
| Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors. | | | | | |

#### *Carbon Monoxide Hot-Spot Analysis*

As discussed under the CO hot-spot analysis for Alternative 1 above, the Basin has continually met the state and federal ambient air quality standards for CO since 2003. Since high-volume, congested intersections are primary determinants of CO impacts, intersections projected to experience the most congested conditions under Alternative 3 in 2012 and 2040 were identified.

As discussed in the Air Quality Technical Report (see Appendix L), total intersection approach volumes under Alternative 3 for both 2012 and 2040 would not exceed the maximum total intersection approach volume identified for a 2003 attainment demonstration intersection during the AM or PM peak-hour period. As discussed in the CO hot-spot analysis for Alternative 1, the eastern San Fernando Valley is predicted to have lower future background CO concentrations and idle and 5 mph emission factors would be lower than those used for the 2003 AQMP attainment demonstration.

Based on Alternative 3's lower intersection approach volumes, idle emissions, and grams/mile emissions relative to the 2003 AQMP attainment demonstration, there would be no potential for Alternative 3 CO emissions at any intersection to result in an exceedance of either the NAAQS or CAAQS for CO. Impacts would be less than significant under CEQA and not adverse under NEPA.

#### *Particulate Matter Hot-Spot Analysis*

For the same reasons identified in the particulate matter hot-spot analysis for Alternative 1 above, Alternative 3 would not be considered a project of air quality concern, as defined by 40 CFR 93.123(b)(1). Alternative 3 would not generate new air quality violations, worsen existing violations, or delay attainment of national AAQS for $PM_{2.5}$ and $PM_{10}$. Potential impacts would be less than significant under CEQA and would not be adverse under NEPA.

#### *Toxic Air Contaminant Emissions*

The regional VMT and travel speed profile predicted to occur under Alternative 3 would generate the regional MSAT emissions estimates presented in Table 4.6-21 for the 2012 Alternative 3 scenario and in Table 4.6-22 for the 2040 Alternative 3 scenario. As shown in the tables, there would be reductions in MSAT emissions in the 2012 scenario and no material change in regional MSAT pollutant emissions under the 2040 Alternative 3 scenario when compared to the corresponding No-Build Alternative scenarios. Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES model forecasts a combined reduction of over 80% in the total annual emission rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 100%. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project. Impacts would be less than significant under CEQA and would not be adverse under NEPA.

### Cumulative Impacts

Cumulative impacts would be the same as the cumulative impacts described for Alternative 1 and emissions would not be cumulatively considerable.

#### *Compliance Requirements and Design Features*

Compliance requirements and design features included under Alternative 1 would also be included under Alternative 3.

### Mitigation Measures

#### *Construction Mitigation Measures*

Mitigation measures MM-AQ-1 through MM-AQ-7 described under Alternative 1 would also mitigate construction-period impacts under Alternative 3.

### Table 4.6-21: Alternative 3 – MSAT Emissions (2012)

| Pollutant Name | Daily Emissions (pounds per day) | | |
|---|---|---|---|
| | Alternative 3 | No-Build Alternative | Net Emissions |
| Benzene | 4,326 | 4,326 | (< 1) |
| Acrolein | 146 | 146 | (< 1) |
| Acetaldehyde | 3,238 | 3,238 | (< 1) |
| Formaldehyde | 7,503 | 7,503 | (< 1) |
| Butadiene | 714 | 714 | (< 1) |
| Naphthalene | 220 | 220 | (< 1) |
| POM | 183 | 183 | (< 1) |
| Diesel PM | 12,973 | 12,973 | (< 1) |
| DEOG | 36,944 | 36,946 | (2) |
| Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors. | | | |

### Table 4.6-22: Alternative 3 – MSAT Emissions (2040)

| Pollutant Name | Daily Emissions (pounds per day) | | |
|---|---|---|---|
| | Alternative 3 | No-Build Alternative | Net Emissions |
| Benzene | 1,305 | 1,302 | 3 |
| Acrolein | 40 | 39 | 0 |
| Acetaldehyde | 1,056 | 1,053 | 3 |
| Formaldehyde | 2,385 | 2,379 | 6 |
| Butadiene | 197 | 196 | < 1 |
| Naphthalene | 75 | 75 | < 1 |
| POM | 38 | 38 | < 1 |
| Diesel PM | 497 | 497 | < 1 |
| DEOG | 12,389 | 12,356 | 33 |
| Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors. | | | |

#### *Operational Mitigation Measures*

No mitigation measures are necessary.

### Impacts Remaining After Mitigation

Without the implementation of proposed mitigation measures, construction-period emissions for ROG and $NO_x$ were forecasted to exceed the SCAQMD regional emissions thresholds under Alternative 3. As shown in Table 4.6-23, with the implementation of proposed mitigation measures MM-AQ-1 through MM-AQ-7, $NO_x$ emissions would be reduced to below regional thresholds. ROG emissions, however, would exceed regional emissions thresholds. Although emissions would be reduced, regional effects under NEPA would be adverse after mitigation due to the exceedance of the $NO_x$ regional threshold. Regional impacts would remain significant under CEQA after the implementation of proposed mitigation measures.

### Table 4.6-23: Alternative 3 – Estimated Mitigated Worst-Case Regional Construction Mass Emissions (pounds per day)

| Construction Year/Facility | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| **Year 2017** | | | | | | |
| Maintenance Facility | 2 | 27 | 43 | <1 | 10 | 4 |
| Track Installation, Sidewalks/Curbs, and Stations | 3 | 41 | 51 | <1 | 11 | 5 |
| Pedestrian Bridge and TPSS Facilities | <1 | 4 | 15 | <1 | <1 | <1 |
| Concurrent Year 2017 Emissions | 6 | 72 | 109 | <1 | 21 | 9 |
| **Year 2018** | | | | | | |
| Maintenance Facility | 81 | 3 | 20 | <1 | <1 | <1 |
| Track Installation, Sidewalks/Curbs, and Stations | 3 | 39 | 51 | <1 | 10 | 5 |
| Pedestrian Bridge and TPSS Facilities | <1 | 4 | 15 | <1 | <1 | <1 |
| Concurrent Year 2018 Emissions | 85 | 46 | 86 | <1 | 11 | 5 |
| **Year 2019** | | | | | | |
| Maintenance Facility **(Complete)** | — | — | — | — | — | — |
| Track Installation, Sidewalks/Curbs, and Stations | 35 | 3 | 37 | <1 | 2 | 1 |
| Pedestrian Bridge and TPSS Facilities **(Complete)** | — | — | — | — | — | — |
| Concurrent Year 2019 Emissions | 35 | 3 | 37 | <1 | 2 | 1 |
| Maximum Daily Emissions | 85 | 72 | 109 | <1 | 21 | 9 |
| Regional Construction Threshold | 75 | 100 | 550 | 150 | 150 | 55 |
| Exceed Thresholds? | Yes | No | No | No | No | No |
| Source: CalEEMod emissions modeling by ICF International 2015. | | | | | | |

With the implementation of mitigation measures MM-AQ-1 through MM-AQ-7, construction emissions under Alternative 3 would be reduced, but would exceed the LSTs for ROG, $PM_{10}$ and $PM_{2.5}$, as shown in Table 4.6-24. Based on the reduction of emissions, effects under NEPA would not be adverse. However, based on the emissions of ROG, $PM_{10}$, and $PM_{2.5}$ exceeding the LSTs, localized impacts would remain significant under CEQA after the implementation of proposed mitigation measures.

### *NEPA Finding*

Construction effects would be adverse under NEPA after the implementation of mitigation measures. Operational effects would not be adverse under NEPA.

### *CEQA Determination*

Construction impacts under Alternative 3 would be significant under CEQA after the implementation of mitigation measures. Operational impacts under Alternative 3 would be less than significant under CEQA.

### Table 4.6-24: Alternative 3 – Estimated Mitigated Maximum Localized Construction Mass Emissions (pounds per day)

| Construction Activity | $NO_X$ | CO | $PM_{10}$[a] | $PM_{2.5}$[a] |
|---|---|---|---|---|
| Maintenance Facility | 67 | 53 | 11 | 14 |
| Track Installation, Sidewalks/Curbs, and Stations | 91 | 70 | 13 | 8 |
| Pedestrian Bridge and TPSS Facilities | 20 | 16 | 1 | 1 |
| Localized Significance Thresholds [b] | 80 | 498 | 4 | 3 |
| Exceed Thresholds? | Yes | No | Yes | Yes |

[a] $PM_{10}$ and $PM_{2.5}$ emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.
[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).
Source: CalEEMod emissions modeling by ICF International 2015.

## Alternative 4 – LRT

### Construction Impacts

Construction of Alternative 4 would result in the short-term generation of criteria pollutant emissions, as described for Alternative 1. During construction of Alternative 4, the proposed project would be subject to SCAQMD Rule 403 (Fugitive Dust), which does not require a permit for construction activities, per se, but rather sets forth requirements for all construction sites (as well as other fugitive dust sources) in the Basin.

For the purpose of this impact analysis, Alternative 4 construction assumes a 30-month construction-period duration. Work would generally proceed in a linear sequence along the project corridors so most locations would be affected for a shorter period than 30 months. However, extensive work would occur at underground station locations. Combustion exhaust and fugitive dust ($PM_{10}$ and $PM_{2.5}$) mass emissions were estimated using the SCAQMD-recommended CalEEMod, version 2013.2.2. Detailed construction equipment use assumptions (quantity and use hours), among other assumptions, are documented in the CalEEMod modeling output sheets provided in the appendix to this Air Quality Report provided as Appendix L. Fugitive $PM_{10}$ and $PM_{2.5}$ emissions estimates take into account compliance with SCAQMD Rule 403. Both cut-and-cover and tunnel boring construction methods are included in the analysis below. Construction-period emissions anticipated to occur under Alternative 4 are discussed below.

#### *Criteria Pollutant Emissions*

The estimate of construction-period regional mass emissions is shown in Table 4.6-25. As shown in the table, regional emissions for ROG and NOx are expected to exceed the SCAQMD regional emissions thresholds under the cut-and-cover and tunnel boring options. Impacts would be significant under CEQA and adverse under NEPA prior to implementation of mitigation measures.

### Table 4.6-25: Alternative 4 – Estimated Worst-case Regional Construction Mass Emissions (pounds per day)

| Construction Year/Facility | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| **Year 2017** | | | | | | |
| Maintenance Facility | 6 | 67 | 53 | <1 | 14 | 8 |
| At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations | 8 | 101 | 77 | <1 | 16 | 8 |
| Bridges and TPSS Facilities | 3 | 20 | 16 | <1 | 1 | 1 |
| Underground Stations and Tunnel (Cut-and-Cover) | 24 | 307 | 232 | 1 | 33 | 16 |
| Underground Stations and Tunnel (Bore) | 11 | 118 | 91 | 0 | 17 | 10 |
| Concurrent Year 2017 Emissions – cut and cover | 41 | 495 | 378 | 1 | 64 | 33 |
| Concurrent Year 2017 Emissions – tunnel boring | 28 | 306 | 237 | <1 | 48 | 27 |
| **Year 2018** | | | | | | |
| Maintenance Facility | 81 | 24 | 20 | <1 | 2 | 1 |
| At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations | 8 | 92 | 73 | <1 | 15 | 8 |
| Bridges and TPSS Facilities | 3 | 18 | 16 | <1 | 1 | 1 |
| Underground Stations and Tunnel (Cut-and-Cover) | 23 | 281 | 224 | 1 | 28 | 14 |
| Underground Stations and Tunnel (Bore) | 10 | 107 | 86 | 0 | 16 | 10 |
| Concurrent Year 2018 Emissions – cut and cover | 115 | 415 | 333 | 1 | 46 | 24 |
| Concurrent Year 2018 Emissions – tunnel boring | 102 | 241 | 195 | <1 | 34 | 20 |
| **Year 2019** | | | | | | |
| Maintenance Facility **(Complete)** | — | — | — | — | — | — |
| At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations | 30 | 15 | 21 | <1 | 3 | 1 |
| Bridges and TPSS Facilities **(Complete)** | — | — | — | — | — | — |
| Underground Stations and Tunnel (Cut-and-Cover) | 5 | 38 | 36 | <1 | 3 | 1 |
| Underground Stations and Tunnel (Bore) | 5 | 38 | 36 | <1 | 2 | 1 |
| Concurrent Year 2019 Emissions – cut and cover | 35 | 53 | 57 | <1 | 4 | 2 |
| Concurrent Year 2019 Emissions – tunnel boring | 35 | 53 | 57 | <1 | 4 | 2 |
| Maximum Daily Emissions – cut and cover | 112 | 462 | 353 | <1 | 49 | 29 |
| Maximum Daily Emissions – tunnel boring | 102 | 302 | 234 | <1 | 38 | 20 |
| Regional Construction Threshold | 75 | 100 | 550 | 150 | 150 | 55 |
| Exceed Threshold (cut and cover)? | Yes | Yes | No | No | No | No |
| Exceed Threshold (tunnel boring)? | Yes | Yes | No | No | No | No |
| Source: CalEEMod emissions modeling by ICF International 2015. | | | | | | |

With respect to local impacts, SCAQMD has developed a set of local mass emission thresholds to evaluate localized impacts. According to SCAQMD, only those emissions that occur on site are to be considered in the LST analysis. Consistent with SCAQMD LST evaluation guidelines, emissions related to haul truck and employee commuting activity during construction are not considered in the evaluation of localized impacts. As shown in Table 4.6-26, localized NOx, $PM_{10}$ and $PM_{2.5}$ emissions during construction would exceed local thresholds. As such, short-term local mass emissions would be significant under CEQA and adverse under NEPA without implementation of mitigation measures.

### Table 4.6-26: Alternative 4 – Estimated Maximum Localized Construction Mass Emissions (pounds per day)

| Construction Activity | $NO_X$ | CO | $PM_{10}$[a] | $PM_{2.5}$[a] |
|---|---|---|---|---|
| Maintenance Facility | 67 | 53 | 11 | 6 |
| At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations | 101 | 77 | 13 | 6 |
| Bridges and TPSS Facilities | 20 | 16 | 1 | 1 |
| Underground Stations and Tunnel (Cut-and-Cover) | 274 | 207 | 24 | 1116 |
| Underground Stations and Tunnel (Bore) | 118 | 91 | 17 | 10 |
| Localized Significance Thresholds [b] | 80 | 498 | 4 | 3 |
| Exceed Thresholds? | Yes | No | Yes | Yes |

[a] $PM_{10}$ and $PM_{2.5}$ emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.
[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).
Source: CalEEMod emissions modeling by ICF International 2015.

#### *Toxic Air Contaminant Emissions*

With respect to construction-period impacts, the greatest potential for TAC emissions would be related to DPM emissions associated with heavy equipment operations during project construction. Construction activities associated with the project would be sporadic, transitory, and short term in nature. The assessment of cancer risk is typically based on a 70-year exposure period; however, Alternative 4 construction is anticipated to have duration of approximately 30 months. Because exposure to diesel exhaust would be well below the 70-year exposure period, project construction is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, project-related toxic emission impacts during construction would be less than significant under CEQA and would not be adverse under NEPA.

### Operational Impacts

#### *Regional Criteria Pollutant Emissions*

Operation of Alternative 4 would involve criteria pollutant emissions from the maintenance facility, transit vehicle propulsion, and from motor vehicles operating in the vicinity of the project. Most of the emissions related to the maintanence facility and transit vehicle propulsion would occur outside the Basin, as much of the electricity consumed in the region is produced elsewhere. Emissions from motor vehicles operating in the project vicinity, however, would occur entirely within the Basin.

As demonstrated for the 2012 Alternative 3 scenario in Table 4.6-19, there would be net reductions or negligible increases in operational emissions of criteria pollutants relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, traffic operations under Alternative 4 would have less delay and more efficient operating speeds than Alternative 3, which would result in lower emissions from motor vehicles operating in the project vicinity. Furthermore, Alternative 4 would result in the greatest ridership of any of the build alternatives and would displace the greatest number of vehicle trips. On the basis of the less extensive traffic impacts and greatest transit ridership relative to the 2012 Alternative 3 scenario, net critieria pollutant emissions under the 2012 Alternative 4 scenario would be no more than those identified in Table 4.6-19. Because no SCAQMD thresholds would be exceeded under the 2012 Alternative 4 scenario and operational emissions are accounted for in the SIP, impacts would be less than significant under CEQA and would not be adverse under NEPA.

The regional VMT and travel speed profile predicted to occur under the 2040 Alternative 4 scenario would generate the regional criteria pollutant emissions estimates presented in Table 4.6-27. As shown in the table, regional criteria pollutant emissions under Alternative 4 would not exceed the SCAQMD thresholds.

### Table 4.6-27: Alternative 4 – Regional Criteria Pollutant Emissions

| Project Alternative | Daily Emissions in Pounds per Day | | | | |
|---|---|---|---|---|---|
| | ROG | CO | $NO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| Maintenance Facility | 2 | < 1 | < 1 | < 1 | < 1 |
| Vehicle Propulsion | 1 | 7 | 8 | 1 | 1 |
| *Traffic Emissions* | | | | | |
| 2040 Alternative 4 | 60,787 | 529,989 | 168,313 | 62,514 | 25,602 |
| 2040 No Build | 60,862 | 530,143 | 168,455 | 62,523 | 25,606 |
| Net Project Emissions | (73) | (134) | (147) | (8) | (3) |
| SCAQMD Thresholds | 55 | 550 | 55 | 150 | 55 |
| Exceed Threshold | No | No | No | No | No |
| Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors. | | | | | |

### *Carbon Monoxide Hot-Spot Analysis*

As discussed under the CO hot-spot analysis for Alternative 1 above, the Basin has continually met the state and federal ambient air quality standards for CO since 2003. Since high-volume, congested intersections are primary determinants of CO impacts, intersections projected to experience the most congested conditions under Alternative 4 were identified.

As discussed in the Air Quality Technical Report (see Appendix L), total intersection approach volumes under Alternative 4 would not exceed the maximum total intersection approach volume identified for a 2003 attainment demonstration intersection, during the AM or PM peak-hour period. In addition, as discussed in the CO hot-spot analysis for Alternative 1 above, the eastern San Fernando Valley is predicted to have lower future background CO concentrations and idle and 5-mph emission factors would be lower than those used for the 2003 AQMP attainment demonstration.

Based on Alternative 4's lower intersection approach volumes, idle emissions, and grams/mile emissions relative to the 2003 AQMP attainment demonstration, there would be no potential for Alternative 4 CO emissions at any intersection to result in an exceedance of either the NAAQS or CAAQS for CO. Impacts would be less than significant under CEQA and would not be adverse under NEPA.

#### *Particulate Matter Hot-Spot Analysis*

For the same reasons identified in the particulate matter hot-spot analysis for Alternative 1 above, Alternative 4 would not be considered a project of air quality concern, as defined by 40 CFR 93.123(b)(1). Alternative 4 would not generate new air quality violations, worsen existing violations, or delay attainment of national AAQS for $PM_{2.5}$ and $PM_{10}$. Potential impacts would be less than significant under CEQA and would not be adverse under NEPA.

#### *Toxic Air Contaminant Emissions*

The regional VMT and travel speed profile predicted to occur under Alternative 4 would generate the regional MSAT emissions estimates presented in Table 4.6-28. As shown in the table, there would be no material change in regional MSAT pollutant emissions under Alternative 4 when compared to the No-Build Alternative. Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES model forecasts a combined reduction of over 80% in the total annual emission rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 100%. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project. Impacts would be less than significant under CEQA and would not be adverse under NEPA.

### Table 4.6-28: Alternative 4 – MSAT Emissions

| Pollutant Name | Daily Emissions (pounds per day) | | |
|---|---|---|---|
| | Alternative 4 | No-Build Alternative | Net Emissions |
| Benzene | 1,301 | 1,302 | (1) |
| Acrolein | 39 | 39 | (< 1) |
| Acetaldehyde | 1,052 | 1,053 | (1) |
| Formaldehyde | 2,378 | 2,379 | (2) |
| Butadiene | 196 | 196 | (< 1) |
| Naphthalene | 75 | 75 | (< 1) |
| POM | 38 | 38 | (< 1) |
| Diesel PM | 497 | 497 | (< 1) |
| DEOG | 12,347 | 12,356 | (9) |
| Source: ICF, 2016; calculated using regional VMT and CT-EMFAC2014 emissions factors. | | | |

### Cumulative Impacts

Cumulative impacts would be the same as the cumulative impacts described for Alternative 1, and Alternative 4 emissions would not be cumulatively considerable.

#### *Compliance Requirements and Design Features*

Compliance requirements and design features included under Alternative 1 would also be included under Alternative 4.

### Mitigation Measures

#### *Construction Mitigation Measures*

Mitigation measures MM-AQ-1 through MM-AQ-7 described for Alternative 1 would also be implemented to mitigate impacts under Alternative 4.

#### *Operational Mitigation Measures*

No mitigation measures are necessary.

### Impacts Remaining After Mitigation

Without the implementation of mitigation measures, construction-period emissions for ROG and $NO_x$ were forecasted to exceed the SCAQMD regional emissions thresholds under Alternative 4. As shown in Table 4.6-29, with the implementation of proposed mitigation measures MM-AQ-1 through MM-AQ-7, ROG and $NO_x$ emissions would continue to exceed regional emissions thresholds. Although emissions would be reduced with mitigation, regional effects under NEPA would be adverse due to the exceedances of the ROG and $NO_x$ regional thresholds. Impacts would remain significant under CEQA after the implementation of mitigation measures.

With the implementation of proposed mitigation measures, construction emissions under Alternative 4 would be reduced, but would exceed the LSTs for ROG, $PM_{10}$ and $PM_{2.5}$, as shown in Table 4.6-30. Based on the reduction of emissions, localized effects under NEPA would not be adverse. However, based on the emissions of $PM_{10}$ and $PM_{2.5}$ exceeding the LSTs, localized impacts would remain significant under CEQA after the implementation of proposed mitigation measures.

#### *NEPA Finding*

Construction effects would be considered adverse after the implementation of mitigation measures. Operation effects would not be adverse under NEPA.

#### *CEQA Determination*

Construction of Alternative 4 would result in the emission of ROGs and $NO_x$ in excess of regional thresholds, neither of which would be reduced below the thresholds following the implementation of mitigation measures. In addition, construction of Alternative 4 would exceed the LSTs for ROG, $PM_{10}$, and $PM_{2.5}$ after the implementation of mitigation measures. Construction impacts under Alternative 4 would be significant under CEQA after the implementation of mitigation measures.

### Table 4.6-29: Alternative 4 – Estimated Mitigated Worst-case Regional Construction Mass Emissions (pounds per day)

| Construction Year/Facility | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| **Year 2017** | | | | | | |
| Maintenance Facility | 2 | 27 | 43 | <1 | 10 | 4 |
| At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations | 4 | 52 | 59 | <1 | 11 | 5 |
| Bridges and TPSS Facilities | <1 | 4 | 15 | <1 | <1 | <1 |
| Underground Stations and Tunnel (Cut-and-Cover) | 16 | 231 | 213 | 1 | 29 | 12 |
| Underground Stations and Tunnel (Bore) | 4 | 49 | 71 | <1 | 11 | 6 |
| Concurrent Year 2017 Emissions – cut and cover | 22 | 313 | 331 | 1 | 50 | 21 |
| Concurrent Year 2017 Emissions – tunnel boring | 10 | 132 | 188 | 1 | 32 | 14 |
| **Year 2018** | | | | | | |
| Maintenance Facility | 81 | 3 | 20 | <1 | <1 | <1 |
| At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations | 4 | 48 | 58 | <1 | 11 | 5 |
| Bridges and TPSS Facilities | 0 | 4 | 15 | <1 | <1 | <1 |
| Underground Stations and Tunnel (Cut-and-Cover) | 15 | 215 | 210 | 1 | 24 | 11 |
| Underground Stations and Tunnel (Bore) | 4 | 46 | 70 | <1 | 11 | 5 |
| Concurrent Year 2018 Emissions – cut and cover | 101 | 271 | 303 | 1 | 36 | 16 |
| Concurrent Year 2018 Emissions – tunnel boring | 89 | 102 | 164 | <1 | 22 | 10 |
| **Year 2019** | | | | | | |
| Maintenance Facility **(Complete)** | — | — | — | — | — | — |
| At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations | 29 | 2 | 21 | <1 | 2 | 1 |
| Bridges and TPSS Facilities **(Complete)** | — | — | — | — | — | — |
| Underground Stations and Tunnel (Cut-and-Cover) | 1 | 9 | 36 | <1 | 1 | <1 |
| Underground Stations and Tunnel (Bore) | 1 | 9 | 36 | <1 | 1 | <1 |
| Concurrent Year 2019 Emissions – cut and cover | 31 | 10 | 57 | <1 | 3 | 1 |
| Concurrent Year 2019 Emissions – tunnel boring | 31 | 10 | 57 | <1 | 3 | 1 |
| Maximum Daily Emissions – cut and cover | 101 | 313 | 331 | 1 | 50 | 21 |
| Maximum Daily Emissions – tunnel boring | 89 | 132 | 188 | 1 | 32 | 14 |
| Regional Construction Threshold | 75 | 100 | 550 | 150 | 150 | 55 |
| Exceed Threshold (cut and cover)? | Yes | Yes | No | No | No | No |
| Exceed Threshold (tunnel boring)? | Yes | Yes | No | No | No | No |

Source: CalEEMod emissions modeling by ICF International 2015.

### Table 4.6-30: Alternative 4 – Estimated Maximum Localized Construction Mass Emissions (pounds per day)

| Construction Activity | $NO_X$ | CO | $PM_{10}$[a] | $PM_{2.5}$[a] |
|---|---|---|---|---|
| Maintenance Facility | 27 | 43 | 10 | 4 |
| At-Grade Track Installation, Sidewalks/Curbs, Aboveground Stations | 52 | 59 | 11 | 5 |
| Bridges and TPSS Facilities | 4 | 15 | <1 | <1 |
| Underground Stations and Tunnel (Cut-and-Cover) | 231 | 213 | 29 | 12 |
| Underground Stations and Tunnel (Bore) | 49 | 71 | 11 | 6 |
| Localized Significance Thresholds [b] | 80 | 498 | 4 | 3 |
| Exceed Thresholds? | Yes | No | Yes | Yes |

[a] $PM_{10}$ and $PM_{2.5}$ emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.
[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).
Source: CalEEMod emissions modeling by ICF International 2015.

The operation of Alternative 4 would result in decreased emissions of criteria and MSAT pollutants. In addition, no localized operational impacts related to hot-spots for CO or particulate matter were identified. Therefore, operational impacts under Alternative 4 would be less than significant under CEQA.

# 4.7 Climate Change

## 4.7.1 Regulatory Framework and Methodology

### 4.7.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's climate change impacts are listed below. For additional information regarding these regulations, please see the Climate Change Technical Report in Appendix BB of this Draft EIS/EIR.

#### Federal

The following federal regulations are applicable to the proposed project:

- Section 202(a) of the Clean Air Act
- National Clean Car Program

#### State

The following state regulations are applicable to the proposed project:

- Executive Order (EO) S-3-05
- EO S-01-07 (January 18, 2007)
- EO B-30-15
- Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006
- AB 1493, Pavley, Vehicular Emissions: Greenhouse Gases, 2002
- Senate Bill (SB) 97
- SB 375, Sustainable Communities and Climate Protection Act of 2008
- SB 391 Chapter 585, 2009 California Transportation Plan
- SB 32 Global Warming Solutions Act of 2006 (passed in 2016)

#### Local

The following local and regional agencies and regulations are applicable to the proposed project:

- Southern California Association of Governments 2016-2040 RTP/SCS
- South Coast Air Quality Management District Air Quality Management Plan
- City of Los Angeles Green LA: An Action Plan to Lead the Nation in Fighting Global Warming
- City of Los Angeles ClimateLA
- City of Los Angeles Sustainable City pLAn
- Metro 2012 Climate Action and Adaptation Plan
- Metro Green Construction Policy

### 4.7.1.2 Methodology

The proposed project would generate construction-related and operational emissions. The methodology used to evaluate construction and operational effects is described below.

#### Evaluation of Construction-Period Impacts

Project construction would be a source of greenhouse gases (GHG) emissions. Such emissions would result from earthmoving and the use of heavy equipment as well as land clearing, ground excavation, cut-and-fill operations, and the reconstruction of roadways. Construction-period GHG emissions are quantified by using the California Emissions Estimator Model (CalEEMod) (version 2013.2.2). CalEEMod has been approved by SCAQMD for emissions estimations within the South Coast Air Basin. Consistent with SCAQMD-recommended methodology, total construction-period emissions are amortized over a 30-year period, then added to the opening-year GHG emissions total to arrive at the annual tons per year total, which accounts for construction and operations emissions.

#### Evaluation of Operational Impacts

Operational GHG emissions would result from transit vehicle and maintenance facility operations as well as changes in local VMT related to local traffic redistribution, changes in roadway network travel speeds, and mode-shift effects that would occur because of the proposed project.

CalEEMod was used to estimate emissions related to maintenance facility operations that would result from trips made by workers; facility energy demands related to lighting, temperature control, and water conveyance; and area sources, such as the use of consumer products, periodic application of architectural coatings, the use of landscaping equipment, etc., that would occur during long-term project operations. In calculating mobile-source emissions, CalEEMod relies on EMFAC2011 emissions factors and default trip generation rates and distances. Area-source emissions were compiled using CalEEMod default assumptions.

Fixed guideway transit vehicle operations emissions were calculated by applying Los Angeles Department of Water and Power carbon intensity factors to the annual estimate of system electricity demand. Propulsion and station electricity demand were established by determining the per-mile energy demand for Metro's existing LRT lines and applying that consumption rate to the proposed 9.2-mile alignment.

Emissions related to changes in local VMT and roadway network travel speeds were calculated using traffic data (VMT apportioned into 5 mph speed bins) that were derived from a micro-simulation model that captures project effects and CT-EMFAC2014 emissions factors.

Each of the build alternatives was compared against existing conditions, which "normally constitute[s] the baseline physical conditions by which a lead agency determines whether an impact is significant," under Section 15125(a) of the CEQA Guidelines. Because Alternative 3 would have the greatest traffic impacts, the Existing (2012) with Alternative 3 scenario presents the worst-case for GHG emissions relative to any of the other "Existing Plus Project" scenarios. Thus, in order to evaluate, analyze, and compare each of the alternatives, the qualitative analysis for the other build alternatives extrapolates from the quantitative analysis for the Existing (2012) with Alternative 3 scenario. In addition, the emissions of each of the build alternatives have been evaluated against the No-Build Alternative for a future baseline (2040) analysis.

### 4.7.1.3 CEQA Significance Thresholds

CEQA requires state and local government agencies to identify the significant environmental effects of proposed actions. According to the Governor's Office of Planning and Research, significance thresholds for a given environmental effect are at the discretion of the Lead Agency and are the levels at which the Lead Agency finds the effects of the project to be significant.

#### State CEQA Guidelines

The State CEQA Guidelines define a significant effect on the environment as: "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (State CEQA Guidelines, Section 15382).

The State CEQA Guidelines do not describe specific significance thresholds. However, Appendix G of the State CEQA Guidelines lists a variety of potentially significant effects, which are often used as thresholds or guidance in developing thresholds for determining impact significance. Accordingly, for the purposes of this EIS/EIR, a project would have a significant effect due to GHG emissions under CEQA, if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

The State CEQA Guidelines also state that the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the determinations above.

Although SCAQMD has a regulatory role in the South Coast Air Basin, it has not adopted or proposed any quantitative thresholds that would be applicable to the proposed project. As such, project GHG emissions are evaluated for consistency with California's AB 32 (Global Warming Solutions Act of 2006) emissions reduction goals to determine significance.

### 4.7.1.4 *L.A. CEQA Thresholds Guide*

The City's *L.A. CEQA Threshold Guide* does not contain thresholds for climate change impacts related to GHG emissions. As such, project GHG emissions are evaluated for consistency with AB 32 emissions reduction goals to determine significance.

## 4.7.2 Affected Environment/Existing Conditions

### 4.7.2.1 Description of Relevant Pollutants

GHGs include $CO_2$, $CH_4$, $N_2O$, and fluorinated gases. Presented below is a description of each GHG and their known sources.

**Carbon dioxide ($CO_2$)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, respiration, and also as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

**Methane ($CH_4$)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and the decay of organic waste in municipal solid waste landfills.

**Nitrous oxide ($N_2O$)** is emitted during agricultural and industrial activities as well as during the combustion of fossil fuels and solid waste.

**Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as High Global Warming Potential gases.

**Chlorofluorocarbons (CFCs)** are GHGs and covered under the 1987 Montreal Protocol. CFCs are used in refrigeration, air-conditioning, packaging, insulation, solvents, or aerosol propellants. Because they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are being replaced by other compounds that are GHGs and covered under the Kyoto Protocol.

**Perfluorocarbons (PFCs)** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [$CF_4$] and perfluoroethane [$C_2F_6$]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are also used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they are strong GHGs.

**Sulfur Hexafluoride ($SF_6$)** is a colorless gas that is soluble in alcohol and ether and slightly soluble in water. $SF_6$ is a strong GHG and used primarily in electrical transmission and distribution systems as a dielectric.[1]

**Hydrochlorofluorocarbons (HCFCs)** contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent than CFCs. They have been introduced as temporary replacements for CFCs and are also GHGs.

**Hydrofluorocarbons (HFCs)** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances in items that serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs.

### 4.7.2.2 California GHG Emissions

California is the second-largest emitter of GHGs in the United States (Texas is the largest GHG emitter) and the sixteenth largest GHG emitter in the world.[2] However, because of more stringent air pollutant emission regulations and mild climate, in 2011, California ranked fourth lowest in carbon emissions per capita and fifth lowest among states (including the District of Columbia) in $CO_2$ emissions per unit economic output.[3] In 2010, California produced 452 million metric tons (MMT) of

[1] An electrical insulator that is highly resistant to the flow of an electric current.

[2] California Energy Commission. 2006. *Our Changing Climate, Assessing the Risks to California, 2006 Biennial Report*. California Climate Change Center, California Energy Commission Staff Paper, Sacramento, CA. Report CEC-500-2006-077.

[3] U.S. Energy Information Administration. 2014. State-Level Energy-Related Carbon Dioxide Emissions, 2000-2011. Available: <http://www.eia.gov/environment/emissions/state/analysis/pdf/stateanalysis.pdf>. Tables 5 and 8.

$CO_2$-equivalent ($CO_2e$)[4] emissions, of which, 38% were from transportation sources, 21% from activities related to electric power generation, and 19% from industrial sources.[5] Other major sources of state GHG emissions include mineral production, waste combustion and land use, and forestry changes. Agriculture, forestry, commercial, and residential activities compose the balance of California's GHG emissions.[6]

Climate change could affect the natural environment in California in the following ways, among others:

- Rising sea levels along the California coastline, particularly in San Francisco and the San Joaquin Delta due to ocean expansion.
- Extreme heat conditions, such as heat waves and very high temperatures, which could last longer and become more frequent.
- An increase in heat-related human deaths, infectious diseases, and a higher risk of respiratory problems caused by deteriorating air quality.
- Reduced snow pack and streamflow in the Sierra Nevada, affecting winter recreation and water supplies.
- Potential increase in the severity of winter storms, affecting peak streamflows and flooding.
- Changes in growing season conditions that could affect California agriculture, causing variations in crop quality and yield.
- Changes in the distribution of plant and wildlife species due to changes in temperature, competition from colonizing species, changes in hydrologic cycles, changes in sea levels, and other climate-related effects.

These changes in California's climate and ecosystems are occurring at a time when California's population is expected to increase from 34 million to 59 million (i.e., by 2040) (California Energy Commission [CEC] 2005). As such, the number of people that could be affected by climate change, as well as the amount of anthropogenic GHG emissions expected under a "business as usual" scenario, is expected to increase. Changes similar to those noted above for California would also occur in other parts of the world, with regional variations in resources affected and vulnerability to adverse effects. GHG emissions in California are attributable to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors (CEC 2006) as well as natural processes.

### 4.7.2.3 Project Vicinity Mobile-Source Emissions

The estimate of daily VMT that occurs within the project vicinity under the existing/baseline condition is approximately 5.3 million. This generates approximately 996,578 metric tons of $CO_2e$ emissions per year.

[4] GHG emissions, other than $CO_2$, are commonly converted into $CO_2$ equivalents, which take into account the differing global warming potential (GWP) of different gases. For example, the Intergovernmental Panel on Climate Change (IPCC) finds that $N_2O$ has a GWP of 310, and $CH_4$ has a GWP of 21. Thus, the emission of 1 ton of $N_2O$ and 1 ton of $CH_4$ is represented as the emission of 310 tons of $CO_2e$ and 21 tons of $CO_2e$, respectively. This allows for the summation of different GHG emissions into a single total.

[5] California Air Resources Board. 2013. *California Greenhouse Gas Inventory for 2000–2010 by Category, as Defined in the Scoping Plan.*

[6] *Ibid.*

# 4.7.3 Environmental Consequences, Impacts, and Mitigation Measures

## 4.7.3.1 No-Build Alternative

### Construction Impacts

No construction activities would be undertaken under the No-Build Alternative, and no construction-related GHG emissions would be generated.

### Operational Impacts

The No-Build Alternative would not involve any new project facilities or services and as a consequence, it would not generate new GHG emissions and no project-related impacts under CEQA or NEPA would occur as a result of the No-Build Alternative. However, future conditions in the year 2040 under the No-Build Alternative represent the future baseline against which the proposed project alternatives are compared. As shown in Table 4.7-1, traffic operations in 2012 and 2040 under No-Build conditions would result in the annual emission of approximately 72 MMT of $CO_2e$ under the 2012 scenario and approximately 61 MMT of $CO_2e$ under the 2040 scenario. Emissions were calculated using traffic data from the SCAG region (VMT apportioned into 5 mph speed bins) that were derived from a traffic micro-simulation model and CT-EMFAC2014 emissions factors. The fleet assumed by the model takes into consideration the fuel-efficiency of the most recent vehicle models as well as older models that will continue to be in operation (and are phased out over time). Due to regional population growth, more cars are assumed to be in operation in 2040 relative to existing conditions.

#### Table 4.7-1. Baseline Conditions – GHG Emissions

| Phase | $CO_2e$ (metric tons) |
|---|---|
| **Operation** | |
| 2012 Traffic Emissions | 71,942,145 |
| 2040 Traffic Emissions | 60,993,074 |
| Source: Emissions modeling by ICF (2016) (See Appendix A of the Climate Change Technical Report). | |

#### Potential for Conflict with GHG Reduction Plans

The No-Build Alternative would not involve construction and would not affect capacity on roadways in the project vicinity. It would not conflict with the Metro Climate Action and Adaptation Plan, GreenLA, ClimateLA, Sustainable City pLAn, SB 375, or AB 32 Scoping Plan measures, nor would it be inconsistent with the goals of reducing local and statewide GHG emissions. No project-related impacts under CEQA or NEPA would occur as a result of the No-Build Alternative; however, the No-Build Alternative would not include transit system improvements that could help achieve the goals of those plans.

### Cumulative Impacts

No impact would occur under the No-Build Alternative; therefore, it would not contribute to any cumulative GHG impacts.

## Mitigation Measures

### Construction Mitigation Measures

No construction mitigation measures would be required.

### Operational Mitigation Measures

No operational mitigation measures would be required.

## Impacts Remaining After Mitigation

### NEPA Finding

No effects would occur as a result of construction and operation of the No-Build Alternative.

### CEQA Determination

No impacts would occur as a result of construction and operation of the No-Build Alternative.

# 4.7.3.2 TSM Alternative

## Construction Impacts

The TSM Alternative may include minor physical improvements to bus stops and roadways; consequently, there would be no or very minor construction-related GHG emissions.

## Operational Impacts

Operation of the TSM Alternative would involve GHG emissions stemming from the use of motor vehicles. As demonstrated for the 2012 Alternative 3 scenario in Table 4.7-5, there would be net reductions in operational GHG emissions relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, operations under the TSM Alternative would have less delay and more efficient operating speeds than Alternative 3, which would result in lower emissions from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario and due to the fact that the TSM Alternative would not have emissions associated with a new MSF or LRT/tram propulsion, operational GHG emissions reductions under the 2012 TSM Alternative scenario would be greater than those identified in Table 4.7-5. Due to the reduction in GHG emissions under the 2012 TSM Alternative scenario, no significant impacts would occur under CEQA and no adverse effects would occur under NEPA.

As shown in Table 4.7-2, traffic operations in 2040 under the TSM Alternative condition would result in the annual emission of approximately 3,000 MT of CO2e over the future (2040) baseline condition vehicle emissions, an increase of 0.005%. Emissions were calculated using traffic data (VMT apportioned into 5 mph speed bins) that were derived from a traffic micro-simulation model and CT-EMFAC2014 emissions factors. The TSM Alternative would result in a negligible increase in GHG emissions compared with the baseline due to increased bus service and lower operational efficiency of roadways in the project vicinity. Lower operational efficiency of roadways would result from additional delays on project vicinity roadways relative to 2040 baseline conditions. Impacts are addressed below.

### Table 4.7-2. TSM Alternative – GHG Emissions in Year 2040

| Phase | $CO_2e$ (metric tons) |
|---|---|
| **Operation** | |
| Traffic Emissions | 60,996,107 |
| 2040 Baseline Traffic Emissions | 60,993,074 |
| *Net Operational Emissions* | 3,033 |
| **TOTAL** | **3,033** |
| **Percent Change Compared to 2040 Baseline** | **0.005%** |
| Source: Emissions modeling by ICF (2016) (See Appendix A of the Climate Change Technical Report). | |

### Potential for Conflict with GHG Reduction Plans

SB 375 supports the state's climate action goals to reduce GHG emissions through coordinated transportation and land use planning with the goal of more sustainable communities. Specifically, SB 375 requires regional transportation plans to include a policy element that describes the transportation issues in the region, identifies and quantifies regional needs, and describes the desired short-range and long-range transportation goals, and pragmatic objective and policy statements. SB 375 also recommended the quantification of indicators of means of travel and transit accessibility.

As directed by SB 375, SCAG's primary goal with the RTP/SCS is to provide a vision for future growth in Southern California that will decrease per capita greenhouse gas emissions from automobiles and light trucks, with goals of a 8% reduction by 2020 and an 18% reduction by 2035. The 2016-2040 RTP/SCS identifies improved accessibility and mobility as one of its goals (p. 64). The TSM Alternative would increase bus frequencies and transit capacity, which would support the RTP/SCS goal of improved accessibility and mobility in its implementation of SB 375. Therefore, the TSM Alternative would not conflict with the goals of SB 375 and the SCAG RTP/SCS.

The Metro Climate Action and Adaptation Plan identifies the goal of reducing Metro's GHG emissions per boarding by 5% from 2010 to 2020. As identified in the Transportation Impacts Report, operation of the TSM Alternative would result in approximately 500 new transit trips per day (KOA 2015). Given that increased ridership would be achieved along the alignment compared with the future 2040 baseline conditions, the TSM Alternative would contribute to a decrease in GHG emissions from Metro buses per boarding, as additional transit boardings would occur with a marginal increase in service. The increase in GHG emissions under the TSM Alternative would occur as a result of minor increases in congestion due to the additional buses on the street network. Despite an overall increase in GHG emissions occurring as a result of increased congestion, the TSM Alternative would reduce Metro's emissions per transit boarding and would not conflict with the 5% GHG emissions reduction per boarding goal.

The Sustainable City pLAn outlines GHG emissions reductions goals of 45% by 2025, 60% by 2035, and 80% by 2050 compared to 1990 baseline emissions as well as reductions in VMT per capita and increases in the percentage of trips made by walking, biking, and transit. Operation of the TSM Alternative would result in new transit trips, thereby contributing to reductions in VMT per capita and increases in the percentage of trips made by transit. Because mode-shift from cars to more efficient public transit vehicles would occur, the TSM Alternative would not conflict with the plan's GHG reduction goals.

Operation of the TSM Alternative is predicted to result in GHG emissions of approximately 3,000 metric tons (MT) over the future (2040) baseline conditions (an increase of 0.005%) based on vehicles operating at less efficient speeds due to increased congestion. However, this estimate could be offset by future transportation-source GHG emissions reductions as the project vicinity becomes more transit-oriented and sustainable over time. Changes in development patterns would lead to higher levels of mode-shift from passenger vehicle to transit, bicycle, and walking trips.

Overall, the TSM Alternative would not conflict with the AB 32, SB 32, SB 375, and Metro and City of Los Angeles goals to reduce GHG emissions by providing the transportation infrastructure necessary to enable more sustainable communities. No significant impacts would occur under CEQA, and no adverse effects would occur under NEPA.

## Cumulative Impacts

GHG emissions and climate change are exclusively cumulative impacts; there are no non-cumulative GHG emissions impacts from a climate change perspective. Climate change is the result of cumulative global emissions. No single project, when considered in isolation, can cause climate change because a single project's emissions are not enough to change the radiative balance of the atmosphere. Because climate change is the result of GHG emissions and GHGs are emitted by innumerable sources worldwide, global climate change will have a significant cumulative impact on the natural environment as well as human development and activity. As such, GHGs and climate change are cumulatively considerable, even though the contribution may be individually limited (SCAQMD 2008). SCAQMD methodology and thresholds are thus cumulative in nature.

As discussed above, the project would not exceed the threshold of significance and would be consistent with adopted plans and regulations that aim to reduce GHG emissions. Therefore, the project would not contribute to a cumulatively significant impact related to GHG emissions and climate change.

## Mitigation Measures

### Construction Mitigation Measures

No construction mitigation measure would be required.

### Operational Mitigation Measures

No operational mitigation measures would be required.

## Impacts Remaining After Mitigation

### NEPA Finding

No adverse effects would occur under NEPA.

### CEQA Determination

No significant impacts would occur under CEQA.

### 4.7.3.3 BRT Alternatives (Build Alternatives 1 and 2)

#### Alternative 1 – Curb-Running BRT

##### Construction Impacts

Construction activities under Alternative 1 would involve roadway and sidewalk modifications as well as the installation of canopies at stops. These activities would result in the emission of approximately 1,280 metric tons of $CO_2e$ over the course of the construction period, as shown in Table 4.7-3. Consistent with SCAQMD-recommended methodology, construction-period emissions were amortized over a 30-year period, resulting in an annual equivalent of approximately 43 metric tons of $CO_2e$.

**Table 4.7-3. Alternative 1 – GHG Emissions in Year 2040**

| Phase | $CO_2e$ (metric tons) |
|---|---|
| **Operation** | |
| Traffic Emissions | 60,995,897 |
| 2040 Baseline Traffic Emissions | 60,993,074 |
| *Net Operational Emissions* | 2,823 |
| **Construction** | |
| Roadway, Sidewalks, and Stations | 1,281 |
| *30-Year Amortization of Construction Emissions* | 43 |
| **TOTAL** | **2,857** |
| **Percent Change Compared to 2040 Baseline** | **0.005%** |
| Source: Emissions modeling by ICF (2016) (See Appendix A of the Climate Change Technical Report). | |

##### Operational Impacts

Operation of Alternative 1 would involve GHG emissions stemming from the use of motor vehicles. As demonstrated for the 2012 Alternative 3 scenario in Table 4.7-5, there would be net reductions in operational GHG emissions relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, operations under Alternative 1 would have less delay and more efficient operating speeds than Alternative 3, which would result in lower emissions from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario and due to the fact that Alternative 1 would not have emissions associated with a new MSF or LRT/tram propulsion, operational GHG emissions reductions under the 2012 Alternative 1 scenario would be greater than those identified in Table 4.7-5. Due to the reduction in GHG emissions under the 2012 Alternative 1 scenario, no significant impacts would occur under CEQA and no adverse effects would occur under NEPA.

As shown in Table 4.7-3, traffic operations in 2040 under Alternative 1 would result in the annual emission of approximately 2,800 MT of $CO_2e$ above future (2040) baseline vehicle emissions, an increase of 0.005%. Emissions were calculated using traffic data (VMT apportioned into 5 mph speed bins) that were derived from a traffic micro-simulation model and CT-EMFAC2014 emissions factors.

Including the amortized construction emissions, total GHG emission resulting from the implementation of Build Alternative 1 would be 0.005% greater than under the future (2040) baseline condition. The projected increases in GHG generation are due to construction emissions as well as increased bus service and the lower operational efficiency of roadways in the project vicinity due to a reduction in roadway capacity for mixed-flow traffic. Impacts related to GHG emissions are discussed below.

### *Potential for Conflict with GHG Reduction Plans*

Alternative 1 would involve the implementation of a curb-running BRT service in dedicated lanes. As directed by SB 375, SCAG's primary goal with the RTP/SCS is to provide a vision for future growth in Southern California that will decrease per capita GHG emissions from automobiles and light trucks, with goals of an 8% reduction by 2020 and an 18% reduction by 2035. The 2016-2040 RTP/SCS identifies improved accessibility and mobility as one of its goals (p. 64). Alternative 1 would introduce BRT service capable of increasing transit capacity, which would support the RTP/SCS goal of improved accessibility and mobility in its implementation of SB 375. Although Alternative 1 would result in greater GHG emissions than under the future (2040) baseline condition, it would not conflict with the goals of SB 375 and the SCAG RTP/SCS in that it would provide a new transit service that would contribute to a larger rapid transit network. Such rapid transit systems are a recognized method of achieving transportation-related GHG emissions reductions.

The Metro Climate Action and Adaptation Plan identified the goal of reducing Metro's GHG emissions per boarding by 5% from 2010 to 2020. As identified in the Transportation Impacts Report, operation of Alternative 1 would result in approximately 3,000 new transit trips per day (KOA 2015). Given that increased ridership would be achieved with an increase of 10 Metro buses operating along the alignment compared with the future (2040) baseline, Alternative 1 would contribute to a decrease in GHG emissions per boarding and would not conflict with the 5% GHG emissions reduction per boarding goal. In addition, construction activities would comply with the Metro Green Construction Policy.

The Sustainable City pLAn outlines goals of GHG emission reductions of 45% by 2025, 60% by 2035, and 80% by 2050 in comparison to 1990 baseline emissions, as well as reductions in VMT per capita and increases in the percentage of trips made by walking, biking, and transit. Operation of Alternative 1 would result in new transit trips, thereby contributing to reductions in VMT per capita and increases in the percentage of trips made by transit. Because mode-shift from cars to more efficient public transit vehicles would occur, Alternative 1 would not conflict with the pLAn GHG reduction goals.

Although the Alternative 1 year 2040 traffic scenario predicts a certain level of mode-shift from passenger vehicle to transit, bicycle, and walking trips based on existing land use patterns, additional mode-shift would very likely occur as a result of future transit-oriented development (TOD)/redevelopment that this project may facilitate. Since these potential changes are not well understood and would be difficult to quantify, the potential future transportation-source GHG emissions reductions were not included in the modeling.

Without considering future mode-shift to transit, bicycling, and walking, the operation of Alternative 1 is predicted to result in GHG emissions reductions under the 2012 scenario and increases of approximately 2,800 MT (a 0.005% increase) over the future (2040) baseline condition based on vehicles operating at less efficient speeds due to increased congestion. However, future transportation-source GHG emissions reductions could offset this minimal increase as the project vicinity becomes more transit-oriented and sustainable over time. Changes in development patterns would lead to higher levels of mode-shift from passenger vehicle to transit, bicycle, and walking trips.

Overall, Alternative 1 does not conflict with the AB 32, SB 32, SB 375, and Metro and City of Los Angeles goals to reduce GHG emissions by providing the transportation infrastructure necessary to enable more sustainable communities. No significant impact would occur under CEQA, and no adverse effects would occur under NEPA.

### Cumulative Impacts

See Cumulative Impacts discussion for the TSM Alternative. Alternative 1 would not exceed the threshold of significance and would be consistent with adopted plans and regulations that aim to reduce GHG emissions. Therefore, the project would not result in a cumulatively considerable impact related to GHG emissions and climate change.

### Mitigation Measures

#### *Construction Mitigation Measures*

No construction mitigation measures are required.

#### *Operational Mitigation Measures*

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

No adverse effects would occur under NEPA.

#### *CEQA Determination*

No significant impacts would occur under CEQA.

## Alternative 2 – Median-Running BRT

### Construction Impacts

Construction activities under Alternative 2 would involve roadway, bus stop, and sidewalk modifications to allow for a median-running BRT service. These activities would result in the emission of approximately 2,170 metric tons of $CO_2e$, as shown in Table 4.7-4. Consistent with SCAQMD-recommended methodology, construction-period emissions were amortized over a 30-year period, resulting in an annual equivalent of approximately 72 MT of $CO_2e$.

### Table 4.7-4. Alternative 2 – GHG Emissions in Year 2040

| Phase | $CO_2e$ (metric tons) |
|---|---|
| **Operation** | |
| Traffic Emissions | 60,993,238 |
| 2040 Baseline Traffic Emissions | 60,993,074 |
| *Net Operational Traffic Emissions* | 165 |
| **Construction** | |
| Roadway, Sidewalks, and Stations | 2,168 |
| *30-Year Amortization of Construction Emissions* | 72 |
| **TOTAL** | **237** |
| **Percent Change Compared to 2040 Baseline** | **0.0004%** |
| Source: Emissions modeling by ICF (2015) (See Appendix A of the Climate Change Technical Report). | |

## Operational Impacts

Operation of Alternative 2 would involve GHG emissions stemming from the use of motor vehicles in the project vicinity. As demonstrated for the 2012 Alternative 3 scenario in Table 4.7-5, there would be net reductions in operational GHG emissions relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, operations under Alternative 2 would have less delay and more efficient operating speeds than Alternative 3, which would result in lower emissions from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario and due to the fact that Alternative 2 would not have emissions associated with a new MSF or LRT/tram propulsion, operational GHG emissions reductions under the 2012 Alternative 2 scenario would be greater than those identified in Table 4.7-5. Due to the reduction in GHG emissions under the 2012 Alternative 2 scenario, no significant impacts would occur under CEQA and no adverse effects would occur under NEPA.

As shown in Table 4.7-4, without considering future mode shift to transit, bicycle, and walking, traffic operations in 2040 under Alternative 2 would result in the annual emission of approximately 165 MT of $CO_2e$ above future (2040) baseline condition vehicle emissions, an increase of less than one-thousandth of 1%. The projected increases in GHG generation are due to construction emissions as well increased bus service and the lower operational efficiency of roadways in the project vicinity. Emissions were calculated using traffic data (VMT apportioned into 5 mph speed bins) that were derived from a traffic micro-simulation model and CT-EMFAC2014 emissions factors.

Including the amortized construction emissions, total GHG emission resulting from the implementation of Alternative 2 would be 0.0004% greater than the future (2040) baseline condition. Impacts due to GHG emissions are discussed below.

### *Potential for Conflict with GHG Reduction Plans*

Alternative 2 would introduce a BRT service capable of increasing transit capacity, which would support the RTP/SCS goal of improved access and capacity in its implementation of SB 375. Therefore, Alternative 2 would not conflict with the goals of SB 375 and the SCAG RTP/SCS.

Alternative 2 would contribute to a decrease in GHG emissions per boarding and would not conflict with the 5% GHG emissions reduction per boarding goal identified in the Metro Climate Action and Adaptation Plan. Alternative 2's construction activities would also comply with the Metro Green Construction Policy.

Alternative 2 would not conflict with the Sustainable City pLAn GHG reduction goals.

Although the Alternative 2 year 2040 traffic scenario predicts a certain level of mode-shift from passenger vehicle to transit, bicycle, and walking trips based on existing land use patterns, additional mode-shift may occur as a result of future TOD/redevelopment that this project may facilitate. Since these potential changes are not well understood and would be speculative to establish, the potential future transportation-source GHG emissions reductions are not quantified.

The operation of Alternative 2 is predicted to result in GHG emissions reductions compared to 2012 existing conditions. Without considering future mode shift, emissions would increase approximately 165 MT over the future (2040) baseline conditions (a 0.0004% increase) based on vehicles operating at less efficient speeds due to increased congestion. However, this estimate could be offset by future transportation-source GHG emissions reductions as the project vicinity becomes more transit-oriented and sustainable over time. Changes in development patterns would lead to higher levels of mode-shift from passenger vehicle to transit, bicycle, and walking trips.

Overall, Alternative 2 does not conflict with the AB 32, SB 32, SB 375, and Metro and City of Los Angeles goals to reduce GHG emissions by providing the transportation infrastructure necessary to enable more sustainable communities. No significant impacts would occur under CEQA, and no adverse effects would occur under NEPA.

## Cumulative Impacts

See Cumulative Impacts discussion for the TSM Alternative. Alternative 2 would not exceed the threshold of significance and would be consistent with adopted plans and regulations that aim to reduce GHG emissions. Therefore, the project would not result in a cumulatively considerable impact related to GHG emissions and climate change.

## Mitigation Measures

### *Construction Mitigation Measures*

No construction mitigation measures are required.

### *Operational Mitigation Measures*

No operational mitigation measures are required.

## Impacts Remaining After Mitigation

### *NEPA Finding*

No adverse effects would occur under NEPA.

### *CEQA Determination*

No significant impacts would occur under CEQA.

## 4.7.3.4 Rail Alternatives (Build Alternatives 3 and 4)

### Alternative 3 – Low-Floor LRT/Tram

#### Construction Impacts

Construction activities under Alternative 3 would involve roadway and sidewalk modifications to allow for median-running Low-Floor LRT/Tram service. In addition, Alternative 3 would involve construction of a MSF, a pedestrian bridge to the Sylmar/San Fernando Metrolink station, and the installation of approximately nine TPSS units. In total, these activities would result in the emission of approximately 4,025 metric tons of $CO_2e$, as shown in Table 4.7-5. Consistent with SCAQMD-recommended methodology, construction-period emissions were amortized over a 30-year period, resulting in an annual equivalent of approximately 134 metric tons of $CO_2e$.

#### Table 4.7-5. Alternative 3 – GHG Emissions in Year 2012

| Phase | $CO_2e$ (metric tons) |
|---|---|
| **Operation** | |
| Traffic Emissions | 71,941,386 |
| 2012 Baseline Traffic Emissions | 71,942,145 |
| *Net Operational Traffic Emissions* | (760) |
| Maintenance Facility | 1,416 |
| Vehicle Propulsion and Stations | 12,904 |
| **Construction** | |
| Roadway/Track, Sidewalks, Stations | 3,116 |
| Maintenance Facility | 562 |
| TPSS, Bridges, and Other | 347 |
| 30-Year Amortization of Construction Emissions | 134 |
| **TOTAL** | **13,694** |
| **Percent Change Compared to 2012 Baseline** | **0.019%** |
| Source: Emissions modeling by ICF (2016) (See Appendix A of the Climate Change Technical Report). | |

#### Operational Impacts

Operation of Alternative 3 would involve GHG emissions stemming from the use of motor vehicles, operation of the MSF, and electricity consumption for vehicle propulsion and station operation. As shown in Table 4.7-5, project operation under the 2012 Alternative 3 scenario would result in reductions of 760 metric tons in mobile-source GHG emissions relative to the 2012 No Build scenario. However, because of the amortized construction emissions, as well as the ongoing transit vehicle propulsion and maintenance facility emissions, the 2012 Alternative 3 scenario would result in a 0.019% increase in emissions over the 2012 baseline scenario. Traffic emissions were calculated using traffic data (VMT apportioned into 5 mph speed bins) that were derived from a traffic micro-simulation model and CT-EMFAC2014 emissions factors. Operation of the MSF would be responsible for an additional 1,420 metric tons of $CO_2e$ emitted annually. LRT vehicle propulsion and station operation would result in the emission of 12,900 metric tons of $CO_2e$ per year.

The projected increases in GHG emissions under Alternative 3 are due to construction activities as well as the introduction of the Low-Floor LRT/Tram service, which would result in emissions from the electricity used to power it. Because Alternative 3 would result in an increase in GHG emissions compared with the 2012 No Build scenario, such changes would be significant under CEQA. No adverse effects would occur under NEPA, as the increase would result from the provision of an additional high-capacity transit service in an urban setting and would not represent a substantial increase in the context of global GHG emissions.

In the longer term, as shown in Table 4.7-6, traffic operations under the 2040 Alternative 3 scenario would result in the annual emission of approximately 44,000 MT of $CO_2e$ above future (2040) baseline condition vehicle emissions, an increase of approximately 0.072%. Including the amortized construction emissions, implementation of Alternative 3 would result in a 0.096% increase in GHG emissions compared with the future (2040) baseline emissions.

### Table 4.7-6. Alternative 3 – GHG Emissions in Year 2040

| Phase | $CO_2e$ (metric tons) |
|---|---|
| **Operation** | |
| Traffic Emissions | 61,037,093 |
| 2040 Baseline Traffic Emissions | 60,993,074 |
| *Net Operational Traffic Emissions* | 44,019 |
| Maintenance Facility | 1,416 |
| Vehicle Propulsion and Stations | 12,904 |
| **Construction** | |
| Roadway/Track, Sidewalks, Stations | 3,116 |
| Maintenance Facility | 562 |
| TPSS, Bridges, and Other | 347 |
| 30-Year Amortization of Construction Emissions | 134 |
| **TOTAL** | **58,473** |
| **Percent Change Compared to 2040 Baseline** | **0.096%** |
| Source: Emissions modeling by ICF (2016) (See Appendix A of the Climate Change Technical Report). | |

### *Potential for Conflict with GHG Reduction Plans*

Alternative 3 would introduce a Low-Floor LRT/Tram service capable of increasing transit capacity, which would support the RTP/SCS goal of improved access and capacity in its implementation of SB 375. Therefore, Alternative 3 would not conflict with the goals of SB 375 and the SCAG RTP/SCS.

The Metro Climate Action and Adaptation Plan identifies the goal of reducing Metro's GHG emissions per boarding by 5% from 2010 to 2020. As identified in the Transportation Impacts Report, operation of Alternative 3 would result in approximately 8,500 new transit trips (KOA 2015). Given that increased ridership on energy-efficient Low-Floor LRT/Tram vehicles would be achieved without substantially increasing GHG emissions relative to the future (2040) baseline, Alternative 3 would not conflict with the 5% GHG emissions reduction per boarding. In addition, construction activities would comply with the Metro Green Construction Policy.

Alternative 3 would not conflict with the Sustainable City pLAn GHG reduction goals. Although the Alternative 3 year 2040 traffic scenario predicts a certain level of mode-shift from passenger vehicle to transit, bicycle, and walking trips based on existing land use patterns, additional mode-shift may occur as a result of future TOD/redevelopment that this project may facilitate. Since these potential changes are not well understood and would be speculative to establish, the potential future transportation-source GHG emissions reductions are not quantified.

Without considering future mode-shift to transit, bicycle, and walking, the operation of Alternative 3 is predicted to result in GHG emissions of approximately 58,000 MT $CO_2e$ over the future (2040) baseline conditions (an increase of 0.096%) based on vehicles operating at less efficient speeds due to increased congestion. However, this estimate could be offset by future transportation-source GHG emissions reductions as the project vicinity becomes more transit-oriented and sustainable over time. Changes in development patterns would lead to higher levels of mode-shift from passenger vehicle to transit, bicycle, and walking trips.

Overall, Alternative 3 does not conflict with the AB 32, SB 32, SB 375, and Metro and City of Los Angeles goals to reduce GHG emissions by providing the transportation infrastructure necessary to enable more sustainable communities. Alternative 3 would be supportive of these policies in the long run since it would improve transit service and result in mobility improvements by providing increased capacity to move more people more efficiently along the corridor. However, in the interim, Alternative 3 would result in an increase of GHG emissions over future baseline conditions due to the lower vehicle speed and increased congestion in the mixed-flow vehicle lanes. Therefore, Alternative 3 would result in a significant impact for GHG emissions under CEQA.

### Cumulative Impacts

See Cumulative Impacts discussion for the TSM Alternative. Alternative 3 would result in significant impacts because it would increase GHG emissions over the baseline conditions related to transit vehicle propulsion, station, and MSF operation. Therefore, the project would result in a cumulatively considerable impact related to GHG emissions and climate change.

### Mitigation Measures

#### *Construction Mitigation Measures*

No construction mitigation measures would be required.

#### *Operational Mitigation Measures*

The GHG emissions increases from the implementation of Alternative 3 would result primarily from transit vehicle propulsion, with additional emissions increases associated with station and MSF operation, which are necessary for project operation. Feasible mitigation measures to reduce GHG emissions have been explored. As specified in Metro's June 2012 Climate Action and Adaptation Plan, Metro has investigated on-board storage of regenerative braking energy for all new rail cars. A study prepared for Bay Area Rapid Transit found that regenerative braking energy storage in combination with different propulsion systems and changes to lighting and ventilation could result in a per-mile reduction of electricity of 43% (Metro 2010).

### Impacts Remaining After Mitigation

#### *NEPA Finding*

No adverse effects would occur under NEPA.

#### *CEQA Determination*

Impacts would be significant and unavoidable under CEQA.

## Alternative 4 – LRT

### Construction Impacts

Alternative 4 would involve construction activities and changes to roadways and sidewalks to accommodate LRT service. This would include the construction of a tunnel and three subterranean stations. In addition, Alternative 4 would involve construction of a MSF, a pedestrian bridge to the Sylmar/San Fernando Metrolink station, the LRT and heavy rail bridges over the Pacoima Wash, and the installation of approximately 10 TPSS units. MSF Site 2 and the cut-and-cover method of tunnel construction were assumed because these would result in the greatest impacts with respect to GHG emissions. In total, these activities would result in the emission of approximately 19,900 metric tons of $CO_2e$, as shown in Table 4.7-6. Consistent with SCAQMD-recommended methodology, construction-period emissions were amortized over a 30-year period, resulting in an annual equivalent of approximately 663 metric tons of $CO_2e$.

### Operational Impacts

Operation of Alternative 4 would involve GHG emissions stemming from the use of motor vehicles, operation of the MSF, and electricity consumption for vehicle propulsion and station operation. As demonstrated for the 2012 Alternative 3 scenario in Table 4.7-5, there would be net reductions in operational GHG emissions from motor vehicles operating in the project vicinity relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, operations under Alternative 4 would have less delay and more efficient operating speeds than Alternative 3, which would result in lower emissions from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario, operational traffic GHG emissions reductions under the 2012 Alternative 4 scenario would be greater than those identified in Table 4.7-5. Although there would be emissions associated with the new MSF and LRT vehicle propulsion under the 2012 Alternative 4 scenario that would not occur under the 2012 No Build scenario, the reductions in emissions from motor vehicles would offset the emissions from the MSF and LRT propulsion such that overall operational emissions would be minor. Due to the minor change in GHG emissions under the 2012 Alternative 4 scenario, no significant impacts would occur under CEQA and no adverse effects would occur under NEPA.

As shown in Table 4.7-7, traffic operations in 2040 under Alternative 4 would result in the annual emissions reduction of approximately 29,000 MT of $CO_2e$ compared with the future (2040) baseline condition vehicle emissions, a decrease of 0.05%. Emissions were calculated using traffic data (VMT apportioned into 5 mph speed bins) that were derived from a traffic micro-simulation model and CT-EMFAC2014 emissions factors. Operation of the MSF would be responsible for an additional 1,420 metric tons of $CO_2e$ emitted annually. LRT vehicle propulsion and station operation would result in the emission of 12,900 metric tons of $CO_2e$ per year.

### Table 4.7-7. Alternative 4 – GHG Emissions in Year 2040

| Phase | $CO_2e$ (metric tons) |
|---|---|
| **Operation** | |
| Traffic Emissions | 60,964,076 |
| 2040 Baseline Traffic Emissions | 60,993,074 |
| *Net Operational Traffic Emissions* | (28,998) |
| Maintenance Facility | 1,416 |
| Vehicle Propulsion and Stations | 12,904 |
| **Construction** | |
| Roadway/Track, Sidewalks, Aboveground Stations | 3,618 |
| Tunnels and Belowground Stations (Cut and Cover) | 15,366 |
| Maintenance Facility | 562 |
| TPSS, Bridges, and Other | 347 |
| 30-Year Amortization of Construction Emissions | 663 |
| **TOTAL** | **(14,015)** |
| **Percent Change Compared to 2040 Baseline** | **(0.023%)** |
| Source: Emissions modeling by ICF (2016) (See Appendix A of the Climate Change Technical Report). | |

Including the amortized construction emissions, implementation of Alternative 4 would result in a 0.023% reduction in GHG emissions compared with future (2040) baseline conditions.

### *Potential for Conflict with GHG Reduction Plans*

Alternative 4 would provide new LRT service capable of increasing transit capacity, which would support the RTP/SCS goal of improved access and capacity in its implementation of SB 375. Therefore, Alternative 4 would not conflict with the goals of SB 375 and the SCAG RTP/SCS.

The Metro Climate Action and Adaptation Plan identified the goal of reducing Metro's GHG emissions per boarding by 5% from 2010 to 2020. As identified in the Transportation Impacts Report, operation of Alternative 4 would result in approximately 8,600 new transit trips (KOA 2015). Given that increased ridership would be achieved while decreasing overall GHG emissions relative to the future (2040) baseline conditions, Alternative 4 would contribute to a decrease in GHG emissions per boarding and would not conflict with the 5% GHG emissions reduction per boarding. In addition, construction activities would comply with the Metro Green Construction Policy.

Alternative 4 would not conflict with the Sustainable City pLAn GHG reduction goals.

Although the Alternative 4 year 2040 traffic scenario predicts a certain level of mode-shift from passenger vehicle to transit, bicycle, and walking trips based on existing land use patterns, additional mode-shift may occur as a result of future TOD/redevelopment that this project may facilitate. Since these potential changes are not well understood and would be speculative to establish, the potential future transportation-source GHG emissions reductions are not quantified.

The operation of Alternative 4 is predicted to result in GHG emissions reductions or minor increases under the 2012 Alternative 4 scenario. In addition, GHG emissions reductions of approximately 15,000 MT below the future (2040) baseline conditions would occur based on predicted future travel behavior and existing land use patterns (i.e., non-TOD). This estimate would likely be reduced further by future transportation-source GHG emissions reductions as the project vicinity becomes more transit-oriented and sustainable over time. Changes in development patterns would lead to higher levels of mode-shift from passenger vehicle to transit, bicycle, and walking trips.

Overall, Alternative 4 would not conflict with the AB 32, SB 32, SB 375, and Metro and City of Los Angeles' goals to reduce GHG emissions by providing the transportation infrastructure necessary to enable more sustainable communities.

### Cumulative Impacts

Alternative 4 could result in increases in GHG emissions over existing baseline conditions, as reductions in emissions from motor vehicles in the project vicinity may not completely offset emissions resulting from operation of the new MSF, LRT vehicle propulsion, and stations. The net increase in GHG emissions that could occur under the 2012 Alternative 4 scenario would contribute to significant cumulative climate change impacts from the proposed project in combination with past, present, and reasonably foreseeable anthropogenic and natural sources of GHG emissions. The contribution of Alternative 4, however, would diminish over time. As demonstrated in Table 4.7-7, by 2040, overall emissions from Alternative 4 would be less than both the 2040 No Build scenario and 2012 No Build scenario. However, based on the results of the 2012 Alternative 4 impacts scenario, and for the purposes of this EIS/EIR, the GHG emissions from Alternative 4 are considered to be cumulatively considerable under CEQA.

### Mitigation Measures

#### *Construction Mitigation Measures*

No construction mitigation measures are required.

#### *Operational Mitigation Measures*

The GHG emissions increases from the implementation of Alternative 4 would result primarily from transit vehicle propulsion, with additional emissions increases associated with station and MSF operation, which are necessary for project operation. Feasible mitigation measures to reduce GHG emissions have been explored. As specified in Metro's June 2012 Climate Action and Adaptation Plan, Metro has investigated on-board storage of regenerative braking energy for all new rail cars. A study prepared for Bay Area Rapid Transit found that regenerative braking energy storage in combination with different propulsion systems and changes to lighting and ventilation could result in a per-mile reduction of electricity of 43% (Metro 2010).

### Impacts Remaining After Mitigation

#### *NEPA Finding*

No adverse effects would occur under NEPA.

#### *CEQA Determination*

No significant impacts would occur under CEQA.

# 4.8 Noise and Vibration

## 4.8.1 Regulatory Framework and Methodology

### 4.8.1.1 Regulatory Framework

#### Federal

Federal noise and vibration impact assessment methodology is defined in the FTA (2006) *Transit Noise and Vibration Impact Assessment* guidance manual. The FTA Guidance Manual provides prediction procedures and impact criteria for noise and vibration from transit sources and the criteria apply to transit projects seeking federal funds. The FTA assessment procedures and criteria are well suited to compare noise impacts among different transit modes and project alternatives. Therefore, noise and vibration criteria from the FTA Guidance Manual are applied to the BRT, LRT, TSM, and no-build alternatives for the project.

The FTA Guidance Manual also includes prediction procedures and impact criteria for noise and vibration from construction.

#### State

The State of California has published the *Guidelines for the Preparation and Content of the Noise Element for the General Plan*. These state guidelines are meant to provide sufficient information concerning community noise environment so that noise may be effectively considered in the land use planning process. In contrast with the FTA criteria and guidelines, the state noise guidelines were not developed to apply specifically to transit projects and are not relevant to a transit noise impact assessment.

The State of California does not have limits or guidelines for vibration from transit systems or vibration during construction. The State of California also does not have limits for construction noise, and instead defers to the limits put forth in local ordinances.

While the State of California does not provide specific limits for noise and vibration from transit projects, it does provide the following checklist to evaluate potential noise and vibration impacts in Appendix G of the State CEQA Guidelines:

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
b) Would the project result in exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?
c) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?
d) For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?
e) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Questions (a), (c), and (d) in the checklist are evaluated using the standards in the local *L.A. CEQA Thresholds Guide*. Question (b) in the checklist is evaluated using the vibration impact thresholds from the FTA Guidance Manual. Question (e) in the checklist is not relevant to this project.

### Local

The City of Los Angeles has prepared the *L.A. CEQA Thresholds Guide*, which specifies noise criteria for railroad and vehicular noise sources. The *L.A. CEQA Thresholds Guide* noise limits are applied to the BRT, LRT, TSM, and no-build alternatives for the project.

The City of San Fernando has adopted a noise control ordinance as part of its municipal code. However, the ordinance exempts trains operated in conformity with and regulated by any federal or state agency. Therefore, the FTA operational noise threshold should be applied for the project to comply with the City of San Fernando noise ordinance.

The City of Los Angeles construction noise regulations are addressed in the City of Los Angeles Municipal Code Chapter IV Section 41.40 and the *L.A. CEQA Thresholds Guide*. The City of Los Angeles Municipal Code prohibits construction work between the hours of 9 p.m. and 7 a.m. in commercial and residential areas. The *L.A. CEQA Thresholds Guide* provides noise limits for construction activities.

The City of San Fernando addresses construction noise in its municipal code in Section 34-31. The City of San Fernando Municipal Code prohibits construction noise between the hours of 6 p.m. and 7 a.m. on weekdays and 6 p.m. and 8 a.m. on Saturdays, or at any time on Sundays or on federal holidays. The code also limits noise sources associated with construction to 70 dB measured at the property line. The project may file an application with the City for a variance from the noise code.

There are no local regulations from the City of Los Angeles or the City of San Fernando that address operational vibration or construction vibration.

## 4.8.1.2 Methodology

The noise assessment methodology follows the Detailed Noise Assessment guidelines outlined in the FTA Guidance Manual. The basic approach used to identify potential noise impacts is:

1. **Identify sensitive receivers**. Noise-sensitive land uses along the corridor are identified using aerial photography and field visits. Sensitive receivers are grouped into clusters based on their location relative to the proposed track and their land use. The land uses that qualify as noise-sensitive are defined in the FTA Guidance Manual and include spaces where quiet is an important element of their intended uses such as concert halls, residential land uses where people sleep such as houses or hotels, and institutional land uses such as schools or churches.
2. **Determine existing conditions**. Existing noise levels were measured throughout the project corridor. FTA noise impact thresholds are a function of the measured existing noise levels.
3. **Apply prediction models**. The noise prediction models in the FTA Guidance Manual use standard formulas to characterize noise from light-rail vehicles (LRVs) and BRT vehicles. Measurements of noise at existing light rail and bus rapid transit systems are also incorporated into the prediction model.
4. **Evaluate receivers for predicted impact**. The prediction models are used to estimate future noise for each cluster of sensitive receivers. Predictions for each cluster are compared to the applicable FTA impact thresholds and CEQA thresholds to identify potential noise impacts.
5. **Evaluate mitigation options**. Mitigation options are evaluated for all clusters of sensitive receivers where the predicted noise levels exceed the applicable threshold.

The vibration assessment methodology follows the Detailed Vibration Assessment guidelines outlined in the FTA Guidance Manual. The approach for the vibration assessment is similar to the approach for the noise assessment and follows the same basic steps. The primary differences are:

- The propagation of the vibration through the ground must be based on measurements while the propagation of noise through air can be based on standard attenuation formulas.
- Existing vibration is usually not a consideration when assessing vibration impacts because it is relatively rare for people to be exposed to perceptible ground-borne vibration unless they are near a construction site or near roadways with large potholes and heavy vehicles. However, existing vibration is taken into consideration for sensitive receivers located near existing rail operations.
- Outdoor spaces are not considered sensitive to ground-borne vibration. In contrast, outdoor spaces where quiet is important for their intended function are considered noise sensitive.
- Vibration assessment is applicable only for FTA based evaluation of LRT operations. A vibration assessment is not required for evaluation of BRT operations because vibration from buses on a smooth roadway is usually below the threshold of human perception.

Noise and vibration impacts from construction were also assessed using the procedures in the FTA Guidance Manual. Actual construction noise and vibration levels would depend on the means and methods decided upon by the contractor, which are not available at this time. The predicted construction noise and vibration levels are based on hypothetical scenarios developed from similar projects for the purposes of modeling.

## 4.8.1.3 Significance Thresholds

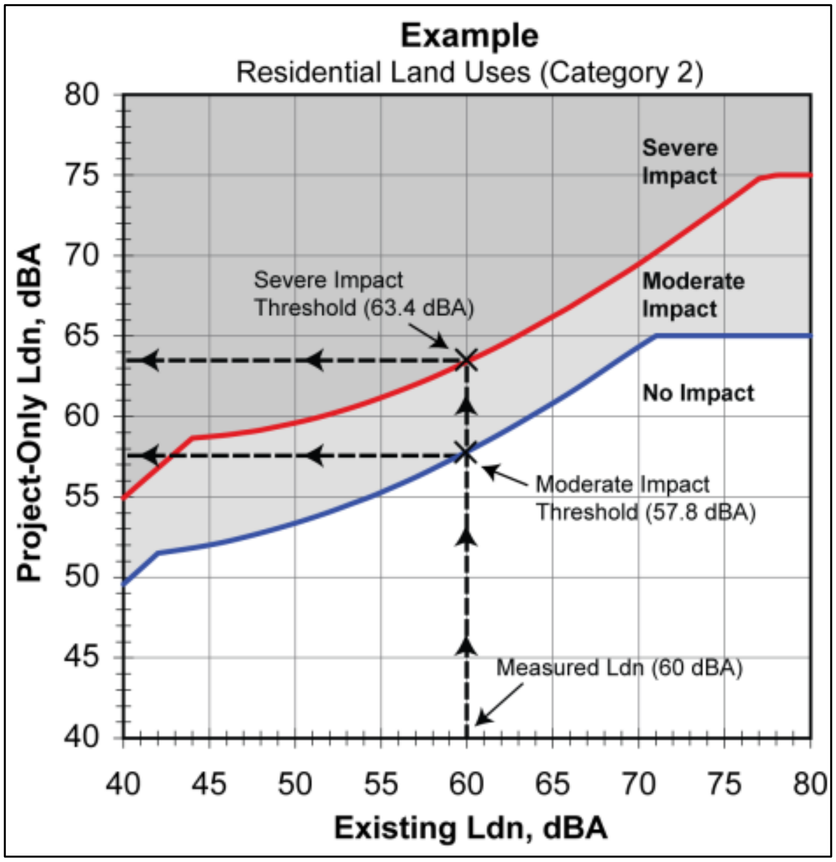
### NEPA

#### Operational Noise

The FTA has established specific operational noise and vibration criteria for transit projects in the FTA Guidance Manual. The FTA Guidance Manual presents both moderate and severe noise impact thresholds. The severe noise impact criteria are used as the NEPA noise significance thresholds for the project; however, noise mitigation is also considered for any locations where moderate noise impact is identified. The FTA noise impact threshold is a sliding scale based on existing noise exposure and land use of sensitive receivers. The basic concept of the FTA impact thresholds is that more project noise is allowed in areas where existing noise exposure is higher. The FTA impact thresholds for residential (Category 2) land uses are presented graphically in Figure 4.8-1. The figure illustrates how to determine the moderate and severe noise impact thresholds for an existing day/night noise level of 60 dBA. The FTA impact thresholds for all uses are presented with more detail in Chapter 2 of the *East San Fernando Valley Transit Corridor Noise and Vibration Impacts Report* (ATS Consulting 2015) (see Appendix M of this EIS/EIR).

The FTA has not established standardized construction noise criteria for transit projects and instead defers to state and local guidelines. Therefore, there are no federal significance thresholds for construction noise that are applicable to the project and the state and local significance thresholds for construction noise will be used to assess potential for impact.

## Figure 4.8-1 – FTA Noise Impact Criteria for Residential Land Uses




Source: ATS Consulting, 2012.Construction Noise

### Operational Vibration

The FTA vibration impact criteria are based on the maximum indoor vibration level as a light-rail vehicle passes. The detailed vibration impact thresholds from the FTA Guidance Manual are used as the NEPA vibration significance threshold. The detailed vibration impact threshold for residential land uses is 72 VdB in any 1/3 octave band. A 1/3 octave band is a range of frequencies and each 1/3 octave band is referred to by the center frequency of that band. Table 4.8-1 shows the FTA vibration criteria for a detailed assessment. The FTA vibration impact thresholds for all land uses are presented with more detail in Chapter 2 of the *East San Fernando Valley Transit Corridor Noise and Vibration Impacts Report* (see Appendix M of this EIS/EIR).

### Construction Vibration

The FTA Guidance Manual does include recommended impact thresholds for construction vibration to reduce the risk of potential damage to structures. The FTA Guidance Manual provides four different thresholds for four different building categories that are used as the federal significance thresholds. Those limits are presented in Table 4.8-2.

**Table 4.8-1: FTA Vibration Impact Thresholds**

| Land Use | Max Lv (VdB) | Description of Use |
|---|---|---|
| Workshop | 90 | Distinctly feelable vibration. Appropriate to workshops and non-sensitive areas. |
| Office | 84 | Feelable vibration. Appropriate to offices and non-sensitive areas. |
| Residential Day | 78 | Barely fellable vibration. Adequate for computer equipment and low-power optical microscopes (up to 20X). |
| Residential Night | 72 | Vibration not feelable, but ground-borne noise may be audible inside quiet rooms. Suitable for medium-power optical microscopes (100X) and other equipment of low sensitivity. |

[1] RMS velocity in decibel (VdB) ref 1 micro-inch/second
*Source: FTA Guidance Manual, 2006*

**Table 4.8-2: Construction Vibration Damage Criteria**

| Building Category | PPV (in/sec) | Approximate Lv (VdB)[1] |
|---|---|---|
| I. Reinforced-concrete, steel or timber (no plaster) | 0.5 | 102 |
| II. Engineered concrete and masonry (no plaster) | 0.3 | 98 |
| III. Non-engineered timber and masonry buildings | 0.2 | 94 |
| IV. Buildings extremely susceptible to vibration damage | 0.12 | 90 |

[1] RMS velocity in decibel (VdB) ref 1 micro-inch/second
*Source: FTA Guidance Manual, 2006*

## CEQA

### Operational Noise

The thresholds set forth for noise in the *L.A. CEQA Thresholds Guide* are used as CEQA operational noise significance thresholds for the proposed project. The *L.A. CEQA Thresholds Guide* presents the following impact criteria that are adopted as the CEQA noise significance thresholds:

- If the existing $L_{dn}$ is 67 dBA or greater at residential and institutional land uses and the project will cause noise in $L_{dn}$ at the noise-sensitive receiver to increase by 3 decibels or more.
- The project would cause noise in $L_{dn}$ at any noise-sensitive receiver to increase by 5 decibels or more.

### Construction Noise

The construction noise limits from the *L.A. CEQA Thresholds Guide* are used as the significance threshold for construction noise. Based on the guide, there would be a significant impact on noise levels from construction if:

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise-sensitive use;
- Construction activities lasting more than 10 days in a three-month period would exceed ambient exterior noise levels by 5 dBA or more at a noise-sensitive use; or
- Construction activities would exceed the ambient noise level by 5 dBA at a noise-sensitive use between the hours of 9 p.m. and 7 a.m. Monday through Friday, before 8 a.m. or after 6 p.m. on Saturday, or at any time on Sunday.

### Operational and Construction Vibration

There are no state or local operational or construction vibration criteria that are applicable to the project. Therefore, the NEPA significance thresholds defined in the FTA Guidance Manual are also used as the CEQA significance thresholds for the vibration impact assessment.

## 4.8.2 Affected Environment/Existing Conditions

A noise measurement program was carried out to document the existing noise levels at sensitive receivers throughout the project corridor. The primary noise source throughout the Van Nuys Boulevard portion of the project corridor is motor vehicle traffic. Along the San Fernando Road/Truman Street portion of the corridor, the primary sources of noise include motor vehicle and train traffic, including train horns. The existing noise measurements also capture all other environmental noises, including emergency sirens, airplanes, and pedestrians.

The measurement sites were selected to represent a range of existing noise conditions at representative sensitive receiver locations throughout the project corridor. Short term (1-hour) noise measurements were conducted at 12 locations with primarily daytime use, such as schools and churches. Long-term (24-hour) noise measurements were conducted at nine residential land uses where people sleep and are sensitive to nighttime noise. Long-term and short-term measurement locations are shown in Tables 4.8-3 and 4.8-4 and Figure 4.8-2.

The 1-hour $L_{eq}$ measured at the short-term sites ranged from 62 dBA to 71 dBA. The 24-hour $L_{dn}$ measured at the long-term sites ranged from 54 dBA to 76 dBA. The noisiest measurement sites were near the Metrolink ROW, and the high noise levels are most likely due to horn noise from the freight and Metrolink trains. The lowest noise levels were measured at second-row sites that had an intervening row of buildings between the microphone location and Van Nuys Boulevard. The intervening row of buildings was shielding the traffic noise from Van Nuys Boulevard, which is the dominant noise source throughout most of the project area.

The primary existing vibration source in the project study area along Van Nuys Boulevard is vehicular traffic. Vehicular traffic does not generally cause perceptible vibration, and when it does, the source can usually be traced to bumps in the roadway surface such as potholes or wide expansion joints. Because the existing environmental vibration is often too low to be noticed by humans, the FTA Guidance Manual recommends only a limited survey of existing vibration conditions where there are existing sources of perceptible vibration, such as existing train lines.

## Table 4.8-3: Summary of Short-Term Noise Measurement Results

| Site Label | Measurement Location | Distance to Nearest Major Roadway | Start of Measurement | | $L_{eq}$ (1-hr) (dBA) |
|---|---|---|---|---|---|
| | | | Date | Time | |
| ST-1 | San Fernando Middle School<br>130 N Brand Boulevard | 30 ft | 3/14/13 | 11:19 | 62 |
| ST-2 | Pacoima Branch Library<br>13605 Van Nuys Boulevard | 30 ft | 1/20/12 | 14:53 | 71 |
| ST-3 | Mary Immaculate School<br>10390 Remick Avenue | 390 ft | 1/20/12 | 14:46 | 65 |
| ST-4 | Arleta High School<br>14200 Van Nuys Boulevard | 45 ft | 1/19/12 | 15:21 | 70 |
| ST-5 | Imam Bukhari Masjid<br>8741 Van Nuys Boulevard | 45 ft | 1/19/12 | 14:02 | 69 |
| ST 6 | Western Beauty Institute<br>8612 Van Nuys Boulevard | 30 ft | 1/25/12 | 13:57 | 71 |
| ST 7 | Panorama High School<br>8015 Van Nuys Boulevard | 40 ft | 1/19/12 | 12:41 | 71 |
| ST 8 | UEI College<br>7335 Van Nuys Boulevard | 70 ft | 1/18/12 | 13:55 | 65 |
| ST 9 | ICDC College<br>14434 Sherman Way | 150 ft | 1/18/12 | 14:10 | 62 |
| ST 10 | CHAMPS Charter High School<br>6952 Van Nuys Boulevard | 50 ft | 1/24/12 | 11:19 | 69 |
| ST 11 | Preferred College of Nursing<br>6551 Van Nuys Boulevard | 20 ft | 1/20/12 | 12:19 | 70 |
| ST 12 | Los Angeles ORT College<br>14159 Sylvan Street | 195 ft | 1/24/12 | 14:13 | 62 |

Source: ATS Consulting, 2013

## Table 4.8-4: Summary of Long-Term Noise Measurement Results

| Site Label | Measurement Location | Distance[1] | Start of Measurement | | $L_{dn}$ (dBA) |
|---|---|---|---|---|---|
| | | | Date | Time | |
| LT-1 | 12171 San Fernando Rd | 365 ft (this is to NT)[3] | 3/05/13 | 16:00 | 68 |
| LT-2 | 101 Park Avenue | 145 ft (this is to NT)[3] | 3/05/13 | 16:00 | 76 |
| LT-3 | 13642 Pinney Street | 255 ft[2] | 1/25/12 | 15:00 | 62 |
| LT-4 | 1396 Bartee Street | 45 ft | 1/19/12 | 16:00 | 72 |
| LT-5 | 9301 Van Nuys Boulevard | 50 ft | 1/19/12 | 14:00 | 69 |
| LT-6 | 8924 Van Nuys Boulevard | 35 ft | 3/04/13 | 13:00 | 73 |
| LT-7 | 8801 Tilden Avenue | 290 ft[2] | 2/28/13 | 15:00 | 54 |
| LT-8 | 7467 Sylmar Avenue | 285 ft[2] | 1/26/12 | 16:00 | 58 |
| LT-9 | 5322 Circle Drive | 175 ft[2] | 1/18/12 | 11:00 | 62 |

[1] Distance to closest lane of traffic on Van Nuys Boulevard, Sepulveda Boulevard, or Ventura Boulevard.
[2] The measurement location is a second-row receiver. There is an intervening row of buildings between the measurement location and the project.
[3] Distance to the existing Metrolink/freight tracks. The dominant noise source in this area is horn noise from Metrolink and freight trains.

Source: ATS Consulting, 2013.

Figure 4.8-2: Map of Noise and Vibration Measurement Sites




Metro

The primary existing vibration source on the San Fernando Road portion of the corridor is the train traffic on the existing Metrolink tracks. An existing vibration measurement was performed at the San Fernando Middle School Auditorium, which is next to the Metrolink ROW along San Fernando Road. The measurement duration was approximately one hour, during which one Metrolink and one freight train passed by. The measured vibration of the Metrolink train was 61 VdB and the measured vibration of the freight train was 54 VdB at distance of 550 feet from the existing tracks.

## 4.8.3 Environmental Consequences, Impacts, and Mitigation Measures

This section presents the results of the noise and vibration impact assessment for the six alternatives:

1. No-Build Alternative
2. TSM Alternative
3. Alternative 1: Curb-Running BRT
4. Alternative 2: Median-Running BRT
5. Alternative 3: Low-Floor LRT/Tram
6. Alternative 4: LRT

### 4.8.3.1 No-Build Alternative

#### Construction Impacts

Under the No-Build Alternative, no new infrastructure would be built within the study area as part of the project. Therefore, there would be no construction noise or vibration impacts associated with the No-Build Alternative.

#### Operational Impacts

There is no predicted change in the noise or vibration levels for the No-Build Alternative; therefore, the noise levels for the No-Build Alternative would not exceed the NEPA or CEQA significance thresholds.

#### Cumulative Impacts

The No-Build Alternative would result in no noise impact and no vibration impacts, so it would not contribute to any cumulative impacts.

#### Mitigation Measures

No noise or vibration mitigation measures are recommended or required for the No-Build Alternative.

#### Impacts Remaining After Mitigation

##### NEPA Finding

No adverse noise or vibration effects would occur.

##### CEQA Determination

No noise or vibration impacts would occur.

### 4.8.3.2 TSM Alternative

#### Construction Impacts

The TSM Alternative would include relatively low-cost transit service improvements such as increased bus frequencies, or very minor improvements to bus stops and the roadway network. Because proposed physical improvements would only require light construction equipment and any construction would be of very short duration, less-than-significant impacts under CEQA and no adverse construction noise or vibration impacts under NEPA are expected to occur under the TSM Alternative.

#### Operational Impacts

The TSM Alternative would add 20 additional buses to the existing Metro bus lines in the project area. The proposed increase in bus volume would result in a 1.5-decibel increase in bus noise (peak-hour $L_{eq}$). However, bus noise is only one part of the existing noise environment. A 1.5-decibel increase in bus noise would result in a less than 1-decibel increase in overall noise levels, because the overall noise levels are dominated by the automobile traffic noise. The TSM Alternative may also include minor enhancements to the roadway network; however, those changes would probably have a negligible effect on future operational noise levels.

The changes in noise levels as a result of the TSM Alternative would not exceed the NEPA or CEQA noise significance thresholds at any sensitive receiver clusters.

It is unusual for rubber-tired vehicles such as buses on smooth roadways to cause perceptible vibration. The FTA Guidance Manual advises that no vibration impact is likely and no analysis is needed for rubber-tired vehicles operating on a smooth roadway. Therefore, vibration from additional bus volumes or minor changes to the roadway network that would be part of the TSM Alternative would not exceed the NEPA or CEQA vibration significance thresholds at any sensitive receivers.

#### Cumulative Impacts

The cumulative impacts assessment for this and the other alternatives uses the planning document Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) from 2012 and regional traffic projected under that plan, as well the cumulative projects list in Table 2-3 in Chapter 2 to determine if the possible effects of the project are individually limited but cumulatively considerable with respect to noise and vibration.

The study area for the cumulative impacts analysis encompasses the area along the project corridor where project construction or operational noise and vibration could be perceptible at nearby uses. For cumulative construction noise impacts, this area would extend approximately 500 feet from the construction area. For construction vibration impacts, the cumulative impacts study area would extend 50 feet. For operational cumulative noise impacts, this area would extend approximately 175 feet from the roadway and for operational vibration impacts the area would extend 50 feet.

##### Construction Impacts

Under the TSM Alternative, only very minor construction activities would occur, which would be limited to specific locations (e.g., bus stops) within the roadway right-of-way. Additionally, construction would occur only during daytime hours, and would be short in duration. Therefore, as described above, it's anticipated the TSM Alternative would result in less-than-significant construction noise or vibration impacts under CEQA and non-adverse impacts under NEPA. Given the minimal amount of construction, the TSM Alternative would not contribute to any significant cumulative noise and vibration impacts within the cumulative impacts study area.

#### Operational Impacts

Roadway noise is the primary source of noise in the corridor, so increases in roadway traffic volumes over time due to cumulative growth and development could also increase ambient noise levels in the area. A possibly significant source of future noise along the San Fernando Road portion of the corridor is the California High-Speed Rail (CAHSR) Project. The SCAG RTP/SCS planning document identifies the CAHSR Project as a project that may be completed and operational before the 2040 Horizon Year.

Noise generated by the TSM Alternative and future increases in roadway traffic are expected to result in a less than 2-decibel increase in community noise levels. This increase is less than cumulatively considerable. Noise contributions from the TSM Alternative would be limited to sensitive receivers along Van Nuys Boulevard and the CAHSR Project would be located in the Metrolink ROW along San Fernando Road. Because the TSM Alternative and CAHSR Project would affect different sensitive receivers, the TSM Alternative would not contribute to a cumulatively considerable impact associated with CAHSR.

The TSM Alternative would result in no adverse vibration impacts; therefore, it would not contribute to any cumulative vibration impacts.

### Mitigation Measures

No noise or vibration mitigation measures are required or recommended for the TSM Alternative.

### Impacts Remaining After Mitigation

#### NEPA Finding

Noise effects would not be adverse. No vibration effects would occur.

#### CEQA Determination

Noise impacts would be less than significant. No vibration impacts would occur.

## 4.8.3.3 BRT Alternatives (Build Alternatives 1 and 2)

### Alternative 1 – Curb-Running BRT

#### Construction Impacts

The construction of the Curb-Running BRT Alternative would require the use of heavy earthmoving equipment, pneumatic tools, generators, concrete pumps, and similar equipment. Project construction would typically take place between the hours of 7 a.m. and 9 p.m. within the city of Los Angeles, in accordance with the Los Angeles Municipal Code and between 7 a.m. and 6 p.m. within the city of San Fernando, in accordance with the San Fernando City Code. If it is necessary for construction to occur outside of these hours, Metro may seek a variance from Municipal Code requirements.

Actual construction noise levels would depend on means and methods decided upon by the contractor, which are not available at this time. The predicted construction noise levels are based on a hypothetical scenario for the purposes of modeling. The predicted noise level from a typical 8-hour work-shift is 86 dBA (8-hour $L_{eq}$) at 50 feet, which is about 15 to 20 decibels higher than the ambient noise level. The NEPA and CEQA significance threshold is construction noise levels exceeding existing ambient noise levels by 10 dBA or more at a sensitive land use. Therefore, the Curb-Running BRT Alternative could result in a significant adverse construction noise impact/effect under CEQA and NEPA.

Many construction activities, such as pavement breaking, and the use of tracked vehicles, such as bulldozers, could result in noticeable levels of ground-borne vibration. These activities would be limited in duration and vibration levels are likely to be well below thresholds for minor cosmetic building damage. However, the predicted vibration levels for equipment that produces the highest levels of vibration, such as a vibratory roller, are about equal to the construction vibration NEPA and CEQA significance threshold for non-engineered and timber masonry buildings at a distance of 25 feet. Mitigation measures are proposed for these high-vibration-generating activities if they should occur closer than 25 feet to residences.

### Operational Impacts

Changes in noise levels as a result of the Curb-Running BRT Alternative would occur as a result of the increase in bus traffic. The additional bus traffic would operate in the curb-side lane. The predicted noise levels would not exceed the NEPA or CEQA significance thresholds at any sensitive receiver clusters. The predicted increase in future noise levels compared to existing noise levels is less than 2 decibels. However, predicted noise levels would exceed the FTA moderate noise impact threshold at three clusters of receivers for the Curb-Running BRT Alternative (the NEPA significance threshold is the FTA severe noise impact threshold). The moderate impacts were predicted at the residential sensitive receivers located closest to Van Nuys Boulevard between Plummer Street and Tupper Street as a result of introducing additional bus traffic in the curb-running lanes. FTA guidance for moderate impacts is that noise mitigation should be considered and adopted when it is considered reasonable. The FTA Guidance Manual recommends taking into account the number of affected sites, the increase over existing noise levels, and the cost of mitigation among other factors. The increase over existing noise levels as a result of the project is no more than one decibel. Therefore, the moderate noise impacts are not considered an adverse effect and no noise mitigation is required.

It is unusual for rubber-tired vehicles such as buses on smooth roadways to cause perceptible vibration. The FTA Guidance Manual advises that no vibration impact is likely and no analysis is needed for rubber-tired vehicles operating on a smooth roadway. Therefore, vibration from the Curb-Running BRT Alternative would not exceed the NEPA or CEQA significance thresholds at any sensitive receivers.

### Cumulative Impacts

The resource study area for the cumulative impacts analysis encompasses the area where increases in project construction or operational noise and vibration would be perceptible. For cumulative construction noise impacts, this area would extend approximately 500 feet from the construction area. For construction vibration impacts, the cumulative impacts study area would extend 50 feet. For operational cumulative noise impacts, this area would extend approximately 175 feet from the proposed LRT tracks or BRT lane and for operational vibration impacts the area would extend approximately 50 feet.

#### *Construction Impacts*

Under the Curb-Running BRT Alternative, construction of the proposed project would require heavy equipment and, therefore, could result in significant increases in ambient noise levels. Although recommended construction noise mitigation measures would reduce temporary construction noise impacts due to the proposed project to a less-than significant level, the residual increases in noise levels due to the Curb-Running BRT Alternative, when combined with increased noise generated by other sources or projects in the vicinity of the study area, could result in adverse cumulative noise impacts. The significance of cumulative noise impacts would depend on the locations of other proposed projects and potential sources of noise and the extent to which they would increase noise levels within the study area during construction of the Curb-Running BRT Alternative. Although it is not possible to predict with certainty which future projects would contribute to cumulative noise levels and quantify the increase in noise levels, nonetheless, because the construction noise levels associated with the Curb-Running BRT Alternative could increase ambient noise levels by as much as 15 to 20 decibels, the project's contribution would be cumulatively considerable over the temporary construction period.

Because vibration impacts are evaluated based on single-event levels, the fact that the cumulative vibration impacts study area is limited to within 50 feet of project construction activities, and because mitigation measures are proposed that would reduce vibration generated by Curb-Running BRT Alternative construction activities to a less-than-significant level, the probability is very low that a BRT construction activity and another single-event activity would occur simultaneously and in very close proximity and would result in a significant cumulative impact. Therefore, during construction, the proposed BRT Alternative and other projects are not expected to result in significant cumulative vibration impacts on sensitive uses within the study area.

#### *Operational Impacts*

Because roadway noise is the primary source of noise along the Van Nuys Boulevard portion of the corridor, increases in roadway traffic volumes over time due to cumulative growth and development could also increase ambient noise levels in the area. However, future increases in roadway traffic are expected to result in a less than 1-decibel increase in community noise levels, which is insignificant. Along Van Nuys Boulevard, the estimated long-term cumulative increase in noise levels due to the Curb Running BRT Alternative and future traffic growth would also be minimal (less than 2 decibels); therefore, Alternative 1 is not expected to result in cumulatively considerable or significant cumulative operational noise impacts.

A possibly significant source of future noise along the San Fernando Road portion of the corridor is the CAHSR Project. If the CAHSR Project is constructed in the Metrolink ROW along San Fernando Road, it would likely result in a significant noise impact and require noise mitigation. It's not known whether CAHSR noise impacts could be mitigated to a less-than-significant level. Therefore, although the potential increase in noise levels along San Fernando Road due to the Curb-Running BRT Alternative would be negligible, noise generated by this alternative combined with other future sources of noise along San Fernando Road, such as the CAHSR Project, could potentially result in significant cumulative noise impacts.

The Curb-Running BRT Alternative would result in no vibration impacts, so it would not contribute to any cumulative vibration impacts.

### Mitigation Measures

#### *Construction Mitigation Measures*

Construction noise impacts can be reduced with operational methods, scheduling, equipment choice, and acoustical treatments. The following best-practice noise mitigation measures shall be implemented to minimize annoyance from construction noise:

**MM-NOI-1a:** Specific measures to be employed to mitigate construction noise impacts shall be developed by the contractor and presented in the form of a Noise Control Plan. The Noise Control Plan shall be submitted for review and approval before the beginning of construction noise activities.

**MM-NOI-1b**: The contractor shall adequately notify the public of construction operations and schedules no less than 72 hours in advance of construction through a construction notice with confirmed details and a look-ahead briefing several weeks in advance.

**MM-NOI-1c**: If a noise variance from Section 41.40(a) of the Los Angeles Municipal Code is sought for nighttime construction work, a noise limit shall be specified. The contractor shall employ a combination of the noise-reducing approaches listed in MM-NOI-1d to meet the noise limit.

**MM-NOI-1d**: Where feasible, the contractor shall use the following noise-reducing approaches:

- The contractor shall use specialty equipment with enclosed engines and/or high-performance mufflers.
- The contractor shall locate equipment and staging areas as far from noise-sensitive receivers as possible.
- The contractor shall limit unnecessary idling of equipment.
- The contractor shall install temporary noise barriers to enclose stationary noise sources, such as compressors, generators, laydown and staging areas, and other noisy equipment.
- The contractor shall reroute construction-related truck traffic away from residential buildings to the extent practicable.
- The contractor shall sequence the use of equipment so that simultaneous use of the loudest pieces of equipment is avoided as much as practicable.
- The contractor shall avoid the use of impact equipment and, where practicable, use non-impact equipment. Non-impact equipment could include electric or hydraulic-powered equipment rather than diesel and gasoline-powered equipment where feasible.
- The contractor shall use portable noise control enclosures for welding in the construction staging are.
- The contractor shall use lined or covered storage bins, conveyors, and chutes with noise-deadening material for truck loading and operations.
- When feasible, contractor shall use strobe lights or other OSHA-accepted methods rather than back-up alarms during nighttime construction.

**MM-VIB-1:** Where equipment, such as a vibratory roller, that produces high levels of vibration is used near buildings, the Construction Vibration Control Plan shall also include mitigation measures to minimize vibration impact during construction. Recommended construction vibration mitigation measures that shall be considered and implemented where feasible include:

- The contractor shall minimize the use of tracked vehicles.
- The contractor shall avoid vibratory compaction.
- The contractor shall monitor vibration levels near sensitive receivers during activities that generate high vibration levels to ensure thresholds are not exceeded.

#### *Operational Mitigation Measures*

No operational noise or vibration mitigation measures are required or recommended for the Curb-Running BRT Alternative.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The noise and vibration from construction of the Curb-Running BRT Alternative would be temporary; however, due to the increase in noise levels above ambient levels, the Curb-Running BRT Alternative would result in adverse effects, even after implementation of proposed mitigation measures.

The noise from operation of the Curb-Running BRT Alternative would not result in adverse effects.

Operation of the Curb-Running BRT Alternative would result in no adverse vibration effects.

#### *CEQA Determination*

The noise and vibration from the construction of the Curb-Running BRT Alternative would be temporary; however, due to the increase in noise levels above ambient levels, the Curb-Running BRT Alternative would still result in significant and unavoidable impacts, even with mitigation incorporated.

The noise from operation of the Curb-Running BRT Alternative would result in a less-than-significant impact.

Operation of the Curb-Running BRT Alternative would result in no adverse vibration impacts.

## Alternative 2 – Median-Running BRT

### Construction Impacts

Impacts resulting from the construction of Alternative 2 would be the same as those under Alternative 1 (i.e., the predicted noise levels would exceed the NEPA or CEQA significance thresholds before mitigation).

### Operational Impacts

Impacts resulting from the operation of Alternative 2 would be the same as those under Alternative 1; therefore, operation of Alternative 2 would not exceed the NEPA or CEQA significance thresholds at any sensitive receivers.

### Cumulative Impacts

Alternative 2’s contribution to any cumulative impacts would be the same as those described above for Alternative 1.

### Mitigation Measures

#### *Construction Mitigation Measures*

Mitigation measures MM-NOI-1a-d and MM-VIB-1 (see discussion above for Alternative 1) are proposed.

##### *Operational Mitigation Measures*

No noise or vibration mitigation measures are required or recommended for operation of the BRT Median-Running Alternative.

#### Impacts Remaining After Mitigation

##### *NEPA Finding*

Noise and vibration from construction of the Median-Running BRT Alternative would be temporary; however, due to the increase in noise levels above ambient levels, the Median-Running BRT Alternative would result in an adverse effect, even with implementation of proposed mitigation measures.

The noise from the operation of the Median-Running BRT Alternative would not result in an adverse effect. Operation of the Median-Running BRT Alternative would result in no adverse vibration effects.

##### *CEQA Determination*

The noise and vibration from the construction of the Median-Running BRT Alternative would be temporary; however, due to the increase in noise levels above ambient levels, the Median-Running BRT Alternative would still result in a significant and unavoidable impact, even with mitigation incorporated.

The noise from operation of the Median-Running BRT Alternative would result in a less-than-significant impact.

Operation of the Median-Running BRT Alternative would result in no adverse vibration impacts.

## 4.8.3.4 Rail Alternatives (Build Alternatives 3 and 4)

### Alternative 3 – Low-Floor LRT/Tram

#### Construction Impacts

Construction of the Low-Floor LRT/Tram Alternative would require the use of heavy earth-moving equipment, pneumatic tools, generators, concrete pumps, and similar equipment. Project construction would typically take place between the hours of 7 a.m. and 9 p.m. in the city of Los Angeles in accordance with the Los Angeles Municipal Code and between the hours of 7 a.m. and 6 p.m. in the city of San Fernando in accordance with the San Fernando City Code. If it is necessary for construction to occur outside of these hours, Metro may seek a variance from Municipal Code requirements. Generally, the Low-Floor LRT/Tram Alternative, as well as the LRT Alternative, would result in more extensive construction than the two BRT alternatives.

Actual construction noise levels would depend on means and methods decided upon by the contractor, which are not available at this time. The predicted construction noise levels are based on a hypothetical scenario for the purposes of modeling. The predicted noise level from a typical 8-hour work-shift is 87 dBA (8-hour $L_{eq}$) at 50 feet, which is about 15 to 20 decibels higher than the ambient noise level. The NEPA and CEQA significance threshold pertains to construction noise levels that exceed existing ambient noise levels by 10 dBA or more at a sensitive land use. Therefore, noise from construction of the Low-Floor LRT/Tram Alternative would result in a significant impact.

Many construction activities, such as pavement breaking and the use of tracked vehicles such as bulldozers could result in noticeable levels of ground-borne vibration. These activities would be limited in duration and vibration levels are likely to be well below thresholds for minor cosmetic building damage. However, the predicted vibration levels for equipment that produces the highest levels of vibration, such as a vibratory roller, is about equal to the construction vibration NEPA and CEQA significance threshold for non-engineered and timber masonry buildings at a distance of 25 feet. Mitigation measures are recommended for these high-vibration-generating activities if they were to be used within 25 feet of sensitive receivers.

### Operational Impacts

Changes in noise levels as a result of the Low-Floor LRT/Tram Alternative would occur as a result of the introduction of Low-Floor LRT/Tram vehicles and removal of all existing buses from Van Nuys Boulevard in the project area. The predicted noise levels would exceed the NEPA and CEQA significance thresholds at three clusters of residences:

- **A cluster of two single-family residences west of El Dorado Avenue on Pinney Street.** Two factors contribute to the high predicted noise levels at these sensitive receivers: (1) they are located near a curve in the Low-Floor LRT/Tram alignment and wheel squeal at curves can increase noise levels by up to 10 decibels; and (2) they are behind existing buildings that would be removed as a part of the project. The removal of the buildings would result in an increase in traffic noise at the sensitive receivers. The existing noise level at these sensitive receivers is 54 dBA $L_{dn}$ and the predicted future noise level with the project is 70 dBA $L_{dn}$.
- **A cluster of eight single-family residences east of El Dorado Avenue on Pinney Street.** The two factors that contribute to the high predicted noise levels at these sensitive receivers are the same as those for the residences west of El Dorado Avenue: (1) they are located near a curve where wheel squeal may cause noise levels to increase by up to 10 decibels; and (2) they are behind buildings that would be removed as part of the project, which would result in an increase in traffic noise. The existing noise level at these sensitive receivers is 54 dBA $L_{dn}$ and the predicted future noise level with the project is 73 dBA $L_{dn}$.
- **A cluster of a multi-family residential building and a motel on San Fernando Road north of Hubbard Avenue.** The Low-Floor LRT/Tram would be running on San Fernando Road, about 30 feet from the nearby buildings. Because San Fernando Road is not as wide as Van Nuys Boulevard, the Low-Floor LRT/Tram is closest to sensitive receivers in this area, resulting in higher predicted noise levels. The existing noise level at these sensitive receivers is 68 dBA $L_{dn}$ and the predicted future noise level with the project is 71 dBA $L_{dn}$.

Moderate noise impacts are predicted at an additional 30 clusters of sensitive receivers, which extend along much of Van Nuys Boulevard. FTA guidance for moderate impacts is that noise mitigation should be considered and adopted when it is considered reasonable. The FTA Guidance Manual recommends taking into account the number of affected sites, the increase over existing noise levels, and the cost of mitigation among other factors. Details, such as the predicted levels and locations of all sensitive receivers, are included in the *Noise and Vibration Impacts Report* (see Appendix M of this EIS/EIR) and should be considered before mitigation measures are finalized.

Traction power substation (TPSS) units are the only ancillary equipment associated with the Low-Floor LRT/Tram Alternative that has the potential to cause noise impacts. There are 12 proposed TPSS sites and the sites are the same for the Low-Floor LRT/Tram Alternative and the LRT Alternative. Noise impact is predicted at five clusters of sensitive receivers, which are all located within 15 feet of a TPSS site. The TPSS sites near the adversely affected receivers are sites: 4A, 6A, 6B, 7A, and 8A. Figures showing the locations of the TPSS sites are included in the *Noise and Vibration Impacts Report* (see Appendix M of this EIS/EIR).

There are three MSF Options associated with the Low-Floor LRT/Tram Alternative. The noise sources associated with MSFs include carwashes, blowdown facilities, repair shops, train movements across track switches, and vehicle traffic into and out of the facility. The predicted noise impacts associated with each MSF Option are:

- **MSF Option A (straddling the Orange Line between Kester Avenue and Vesper Avenue):** Predicted noise levels exceed the NEPA significance threshold at one cluster and exceeds the CEQA significance threshold at two clusters of sensitive receivers.
- **MSF Option B (south of the Metrolink tracks on the west side of Van Nuys Boulevard):** Predicted noise levels do not exceed the NEPA or CEQA significance thresholds at any sensitive receivers.
- **MSF Option C (north of the Metrolink tracks on the west side of Van Nuys Boulevard):** Predicted noise levels exceed the NEPA significance threshold at one cluster of sensitive receivers and exceed the CEQA significance threshold at three clusters of sensitive receivers.

The locations of the clusters where predicted noise levels exceed the NEPA and CEQA significance thresholds are shown in Figure 4.8-3. The predicted noise levels for sensitive receivers near the MSF sites are presented in the *Noise and Vibration Impacts Report* (see Appendix M of this EIS/EIR).

### *Ground-borne Vibration and Ground-borne Noise Levels*

The predicted vibration levels would exceed the NEPA and CEQA significance threshold at 17 clusters of sensitive residential receivers and one institutional land use. There are 634 residential units within the clusters where impacts are predicted to occur. Vibration propagation measurements showed that there is very efficient vibration propagation through the area where vibration impact is predicted. The residential units where vibration impact is predicted are located on Van Nuys Boulevard between Parthenia Street and Woodman Avenue. There is also one additional residential cluster where vibration impact is predicted located on San Fernando Road just north of Hubbard Avenue. Where vibration impact was predicted at residences, the levels exceeded the threshold by about 5 decibels. Five decibels above the limit for residences is equal to the limit for daytime land uses and is a level of vibration that is compatible with schools and offices.

The locations of the clusters where predicted vibration levels exceed the NEPA and CEQA significance thresholds are shown in Figure 4.8-3. Detailed tables, including predicted vibration levels, are presented in the *Noise and Vibration Impacts Report* (see Appendix M of this EIS/EIR).

Typically, impacts from ground-borne noise levels are not assessed for at-grade transit systems because the airborne noise masks the ground-borne noise. There is no tunnel section associated with the Low-Floor LRT/Tram Alternative, so ground-borne noise levels are not assessed.

## Cumulative Impacts

The resource study area for the cumulative impacts analysis encompasses the area where project construction or operational noise and vibration would be perceptible. For cumulative construction noise impacts, this area would extend approximately 500 feet from the construction area. For construction vibration impacts, the cumulative impacts study area would extend 50 feet. For operational cumulative noise impacts, this area would extend approximately 175 feet from the proposed LRT tracks and for operational vibration impacts the area would extend approximately 150 feet.

## Figure 4.8-3: Map of Predicted Operational Impacts for Low-Floor LRT/Tram Alternative


Metro

### *Construction Impacts*

Construction of the Low-Floor LRT/Tram Alternative would require heavy equipment and, therefore, could result in significant increases in ambient noise levels. Recommended construction noise mitigation measures (see below) would reduce temporary construction noise levels; however, temporary construction noise impacts would still remain significant and unavoidable.

The residual increases in noise levels due to the Low-Floor LRT/Tram Alternative, when combined with increased noise generated by other sources or projects in the vicinity of the study area, could result in adverse cumulative noise impacts. The significance of cumulative noise impacts would depend on the locations of other proposed projects and potential sources of noise and the extent to which they would increase noise levels within the study area during construction of the Low-Floor LRT/Tram Alternative. Although it's not possible to predict with certainty what future projects would contribute to cumulative noise levels and to quantify the increase in noise levels; nonetheless, because the construction noise levels associated with the Low-Floor LRT/Tram Alternative could increase ambient noise levels by as much as 15 to 20 decibels, the project's contribution would be cumulatively considerable over the temporary construction period.

Because vibration impacts are evaluated based on single-event levels, the fact that the cumulative vibration impacts study area is limited to within 50 feet of project construction activities, and because mitigation measures are proposed (see below) that would reduce vibration generated by the Low-Floor LRT/Tram Alternative construction activities to a less-than-significant level, the probability is very low that a project construction activity and another single-event activity would occur simultaneously and in very close proximity and would result in a significant cumulative impact. Therefore, during construction, the proposed Low-Floor LRT/Tram Alternative and other projects are not expected to result in significant cumulative vibration impacts on sensitive uses within the study area.

### *Operational Impacts*

Because roadway noise is the primary source of existing noise in the corridor, increases in roadway traffic volumes over time due to cumulative growth and development could also increase ambient noise levels in the area. However, future increases in roadway traffic are expected to result in a less than 1-decibel increase in community noise levels. The estimated increase in noise from the Low-Floor LRT/Tram Alternative, however, would be significant. Consequently, the cumulative impacts due to operational noise from Alternative 3 and roadway traffic would be significant. However, the mitigation measures identified below would reduce the operational noise impacts due to Alternative 3 to a less-than-significant level; therefore, the noise impacts of Alternative 3 would not be cumulatively considerable after mitigation.

A possibly significant source of noise along the San Fernando Road portion of the corridor is the CAHSR Project. If the CAHSR Project were constructed in the Metrolink ROW on San Fernando Road, it would likely result in a significant noise impact and require noise mitigation. However, it is not known whether CAHSR noise impacts could be mitigated to a less-than-significant level. Therefore, although the potential increase in noise levels along San Fernando due to the Low-Floor LRT/Tram Alternative would be less than significant after mitigation, remaining noise due to the Low-Floor LRT/Tram Alternative, when combined with other future sources of noise along San Fernando Road, such as the CAHSR Project, would be cumulatively considerable or significant.

Because vibration impact is evaluated based on single-event levels and because it is unlikely that a Low-Floor LRT/Tram vehicle and other potential vibration sources, such as the HSR train cars, would simultaneously pass by a vibration-sensitive use within 150 feet, operation of the Low-Floor LRT/Tram Alternative is not expected to result in significant cumulative vibration impacts.

## Mitigation Measures

### *Construction Mitigation Measures*

Mitigation Measures NOI-1a-d and VIB-1 are proposed (see discussion above for Alternative 1).

### *Operational Mitigation Measures*

Predicted noise levels exceed the NEPA and CEQA significance thresholds at three clusters of sensitive receivers. At the two clusters of sensitive receivers located near the intersection of Van Nuys Boulevard and San Fernando Road where a row of buildings would be removed and where there is a curve in the track alignment the following measures will be incorporated:

> **MM-NOI-2a:** A sound wall shall be constructed at the northern edge of the alignment where the Low-Floor LRT/Tram curves to transition between Van Nuys Boulevard and San Fernando Road, in the area bounded by Pinney Street, El Dorado Avenue, Van Nuys Boulevard, and San Fernando Road. The sound wall shall be constructed to mitigate the increase in traffic noise levels that would result from removing the row of buildings in this area. Sound walls should be constructed in such a fashion as to not impair the Train Operator vision triangle –sightlines.

> **MM-NOI-2b:** Friction control shall be incorporated into the design for the curve at Van Nuys Boulevard and San Fernando Road. Friction control may consist of installing lubricators on the rail or using an onboard lubrication system that applies lubrication directly to the wheel.

The recommended measure for the third cluster where predicted noise levels exceed the NEPA and CEQA significance thresholds is to specify and procure low-noise vehicles (see MM-NOI-2c below). Low-noise vehicles would reduce the predicted noise level by 2 to 3 decibels at all receivers. A sound wall would not be a feasible mitigation measure because there is a narrow right-of-way making it difficult to accommodate a sound wall and because a sound wall might create a visual impact.

If specifying a low-noise vehicle is not a feasible mitigation measure, building sound insulation shall be considered as an alternative. Improving building sound insulation increases the outdoor-to-indoor noise reduction and is often the best choice where sound walls are not feasible or reasonable. Specifying a low-noise vehicle is the preferred mitigation measure because it would reduce noise levels in exterior areas of the impacted receivers and it would have the benefit of reducing noise levels at all receivers throughout the project area.

> **MM-NOI-2c:** Metro shall specify and procure low-noise vehicles with a reference sound level of 75 dBA $L_{max}$ at 50 feet and 50 mph for a 2-car train on ballast-and-tie track. Manufacturers could meet this level using a combination of vehicle skirts, a well-designed suspension, and under-car absorption. If specifying a low-noise vehicle is not feasible, Metro shall improve building insulation at the noise-sensitive uses significantly affected by transit vehicle noise. If sound insulation is used, the sound insulation should reduce project noise to below 45 dBA $L_{dn}$ inside the residence.

Noise impacts are also predicted near five of the proposed TPSS sites. The measures that are proposed to mitigate noise from the TPSS units are:

> **MM-NOI-3a**: The following noise limit shall be included in the purchase specifications for the TPSS units: TPSS noise shall not exceed 50 dBA at a distance of 50 feet from any part of a TPSS unit.

> **MM-NOI-3b**: The TPSS units shall be located within the parcel as far from sensitive receivers as feasible. If possible, the cooling fans shall be oriented away from sensitive receivers.

**MM-NOI-3c**: If necessary, a sound enclosure shall be built around the TPSS unit to further reduce noise levels at sensitive receivers to below the applicable impact threshold.

Noise impacts are predicted at sensitive receivers near MSF Option A and C. Proposed measures to mitigate MSF noise include:

**MM-NOI-4a:** Low-impact frogs shall be used at crossovers, where feasible. Monoblock, or WBM frog, is a low-impact frog that may be appropriate for the heavy use at a maintenance facility. Where low-impact frogs are not feasible, a noise study shall be completed when the MSF layout is finalized to determine where sound walls are necessary to mitigate noise levels.

**MM-NOI-4b:** The MSF facility shall be laid out with the noisiest operations located away from sensitive receivers wherever possible. For example, the open façade of the carwash facility shall not directly face sensitive receivers if feasible. When the layout of the MSF facility is finalized, a noise assessment shall be completed to determine if sound walls are necessary to mitigate noise levels.

Predicted vibration levels could be reduced to below the NEPA and CEQA significance thresholds at all sensitive receivers with traditional floating slab track. A floating slab consists of a concrete slab supported by rubber or steel springs. Floating slab is the most expensive vibration mitigation measure; however, it provides the most reduction in vibration levels. Further investigation may show that vibration levels could be reduced to below the applicable thresholds with a less expensive option, such as a continuous mat floating slab.

**MM-VIB-2:** The contractor shall install a floating-slab track where predicted vibration levels would exceed the NEPA and CEQA significance thresholds. Or alternatively, the contractor may install a less expensive option, such as a continuous mat floating slab or a vibration isolated embedded track system such as QTrack, if further investigation confirms that the alternative method would reduce vibration levels below the applicable thresholds.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The noise and vibration from construction of the Low-Floor LRT/Tram Alternative would be temporary; however, due to the increase in noise levels above ambient levels, the Low-Floor LRT/Tram Alternative would result in adverse effects, even with implementation of proposed mitigation measures.

The noise and vibration from operation of the Low-Floor LRT/Tram Alternative would not result in adverse effects with implementation of proposed mitigation measures.

#### *CEQA Determination*

The noise and vibration from construction of the Low-Floor LRT/Tram Alternative would be temporary; however, due to the increase in noise levels above ambient levels, the Low-Floor LRT/Tram Alternative would still result in a significant and unavoidable impact, even with implementation of proposed mitigation measures.

The noise and vibration from operation of the Low-Floor LRT/Tram Alternative would result in less-than-significant impacts with implementation of proposed mitigation measures. The predicted noise levels associated with the Low-Floor LRT/Tram Alternative and the reduction that could be achieved with the mitigation is presented in the *East San Fernando Valley Transit Corridor Noise and Vibration Impacts Report* (see Appendix M of this EIS/EIR).

## Alternative 4 – LRT

### Construction Impacts

Impacts resulting from the construction of Alternative 4 would be the same as those that would occur under Alternative 3, and the proposed mitigation measures for Alternative 3 above would also apply to construction of Alternative 4. One exception is that Alternative 4 includes tunneling, which is not included in Alternative 3. Noise impacts from tunnel boring machines are expected to be less-than-significant, because operations take place under ground.

Recently, a tunnel boring machine was used for the Metro Gold Line Eastside Extension. No noise complaints associated with ground-borne noise from the TBM or mine trains used for the Gold Line were received. Ground-borne noise and vibration impacts associated with tunneling are likely to be less than significant because tunneling will only take place within the Van Nuys Boulevard street ROW. However, an assessment of tunneling operations should be including in the Construction Vibration Control Plan required by mitigation measure MM-VIB-1 because ground-borne noise and vibration levels from tunneling are highly dependent on the means and methods selected by the contractor. If the Metro ground-borne noise limits or ground-borne vibration limits are exceeded during tunneling, the contractor will be required to take actions to reduce vibrations to acceptable levels. Such actions could include reducing the muck train speed, additional rail and tie isolation, and more frequent rail and wheel maintenance.

### Operational Impacts

Changes in noise levels as a result of the LRT Alternative would occur as a result of the introduction of LRVs and a decrease in the volume of buses. The predicted noise levels would exceed the NEPA and CEQA significance thresholds at two clusters of residences:

- **A cluster of two single-family residences west of El Dorado Avenue on Pinney Street.** Two factors contribute to the high predicted noise levels at these sensitive receivers: (1) they are located near a curve in the LRT alignment and wheel squeal at curves can increase noise levels by up to 10 decibels and (2) they are behind existing buildings that would be removed as a part of the project. The removal of the buildings would result in an increase in traffic noise at the sensitive receivers. The existing noise level at these sensitive receivers is 54 dBA $L_{dn}$ and the predicted future noise level with the project is 70 dBA $L_{dn}$.
- **A cluster of eight single-family residences east of El Dorado Avenue on Pinney Street**. The two factors that contribute to the high predicted noise levels at these sensitive receivers are the same as those for the residences west of El Dorado Avenue: (1) they are located near a curve where wheel squeal may cause noise levels to increase by up to 10 decibels and (2) they are behind buildings that would be removed as part of the project which would result in an increase in traffic noise. The existing noise level at these sensitive receivers is 54 dBA $L_{dn}$ and the predicted future noise level with the project is 72 dBA $L_{dn}$.

Moderate noise impacts are predicted at an additional 59 clusters of sensitive receivers, which extend along much of Van Nuys Boulevard. FTA guidance for moderate impacts is that noise mitigation should be considered and adopted when it is considered reasonable. The FTA Guidance Manual recommends taking into account the number of affected sites, the increase over existing noise levels, and the cost of mitigation among other factors. These details are included in the *Noise and Vibration Impacts Report* (see Appendix M in this EIS/EIR) and should be considered before mitigation measures are finalized.

TPSS units are the only ancillary equipment associated with the LRT Alternative that has the potential to cause noise impact. There are 12 proposed TPSS sites and the sites are the same as those proposed for the Low-Floor LRT/Tram Alternative. Noise impact is predicted to occur at five clusters of sensitive receivers, which are all located within 15 feet of a TPSS site. The TPSS sites near the adversely affected receivers are: 4A, 6A, 6B, 7A, and 8A. Figures showing the locations of the TPSS sites are included in the *Noise and Vibration Impacts Report* (see Appendix M of this EIS/EIR).

There are three MSF Options associated with the LRT Alternative. The noise sources associated with MSFs include carwashes, blowdown facilities, repair shops, train movements across track switches, and vehicle traffic into and out of the facility. The predicted noise impacts associated with each MSF Option are:

- **MSF Option A (straddling the Orange Line between Kester Avenue and Vesper Avenue):** Predicted noise levels would exceed the NEPA significance threshold at one cluster and would exceed the CEQA significance threshold at two clusters of sensitive receivers.
- **MSF Option B (south of the Metrolink tracks on the west side of Van Nuys Boulevard):** Predicted noise levels would not exceed the NEPA or CEQA significance thresholds at any sensitive receivers.
- **MSF Option C (north of the Metrolink tracks on the west side of Van Nuys Boulevard):** Predicted noise levels would exceed the NEPA significance threshold at one cluster of sensitive receivers and would exceed the CEQA significance threshold at three clusters of sensitive receivers.

The locations of the clusters where predicted noise levels would exceed the NEPA and CEQA significance thresholds are shown in Figure 4.8-4.

### *Ground-borne Vibration and Ground-borne Noise Levels*

The predicted vibration levels would exceed the NEPA and CEQA significance threshold at 21 clusters of residential receivers and two institutional land uses. There are a total of 630 residential units within the clusters of sensitive receivers where vibration impacts are predicted. Vibration propagation measurements showed that there is very efficient vibration propagation through the area where vibration impact is predicted. The residential units where vibration impact is predicted are located on Van Nuys Boulevard between Parthenia Street and Woodman Avenue. The majority of the vibration impacts predicted for the LRT Alternative were also predicted for the Low-floor LRT/Tram Alternative. Where vibration impact is predicted at residences, the levels exceed the threshold by about 5 decibels. Five decibels above the limit for residences is equal to the limit for daytime land uses, and is a level of vibration that is compatible with schools and offices.

Potential impacts from ground-borne noise were assessed for the clusters of sensitive receivers that are near the tunnel section, because they would not be exposed to airborne noise from the LRVs. Impact from ground-borne noise is predicted at four clusters of residential sensitive receivers and six institutional land uses. Ground-borne noise impact is predicted at the clusters of sensitive receivers closest to the tunnel section. The predicted ground-borne noise levels exceed the significance threshold by 1 to 17 decibels.

For the LRT Alternative, the alignment would vary slightly depending on the location of the MSF. There are three proposed MSF facility locations. For MSF Option B, an additional ground-borne vibration impact is predicted at one residential cluster and additional ground-borne noise impact is predicted at two additional clusters.

The locations of the clusters where predicted vibration levels would exceed the NEPA and CEQA significance thresholds are shown in Figure 4.8-4. Detailed tables including predicted vibration levels are presented in the *Noise and Vibration Impacts Report* (see Appendix M of this EIS/EIR).

### Cumulative Impacts

Alternative 4's contribution to any cumulative impacts would be the same as those described above for Alternative 3.

### Mitigation Measures

#### *Construction Mitigation Measures*

Mitigation Measure NOI-1 and VIB-1 are proposed (see discussion above for Alternative 1). Tunneling impacts would be addressed in the Construction Noise Control Plan (NOI-1) and in the Construction Vibration Control Plan (VIB-1).

#### *Operational Mitigation Measures*

Mitigation Measures NOI-2, NOI-3, NOI-4, and VIB-2 (see discussion above for Alternative 3) are proposed. Mitigation Measure VIB-2 shall also be implemented where predicted ground-borne noise levels would exceed the NEPA and CEQA significance thresholds.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The noise and vibration from construction of the LRT Alternative would be temporary; however, due to the increase in noise levels above ambient levels, the LRT Alternative would result in adverse effects, even with implementation of proposed mitigation measures.

The noise and vibration from operation of the LRT Alternative would not result in adverse effects with implementation of proposed mitigation measures.

#### *CEQA Determination*

The noise and vibration from construction of the LRT Alternative would be temporary; however, due to the increase in noise levels above ambient levels, the LRT Alternative would still result in significant and unavoidable impacts, even with implementation of proposed mitigation measures.

The noise and vibration from operation of the LRT Alternative would result in less-than-significant impacts with implementation of proposed mitigation measures.

## Figure 4.8-4: Map of Predicted Operational Impacts for LRT Alternative

# 4.9 Geology, Soils, and Seismicity

## 4.9.1 Regulatory Framework and Methodology

### 4.9.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's geological impacts are listed below. For additional information regarding these regulations, please see the Geotechnical Report in Appendix O of this Draft EIS/EIR.

#### Federal

- The National Flood Insurance Program (NFIP)

#### State

- The Alquist-Priolo Geologic Hazards Zone (APEFZ) Act[1]
- The Seismic Hazards Mapping Act of 1990

#### Local

- Metro Design Criteria (Metro, 2012)

### 4.9.1.2 Methodology

Impacts associated with the geotechnical considerations have been identified from a review of available published and unpublished literature that includes, but is not limited to, the Safety Element of the Los Angeles City General Plan; official APEFZ maps; official seismic hazard zone maps; and geologic and topographic maps and other publications of the California Geological Survey (CGS), U.S. Geological Survey (USGS), and the California Division of Oil and Gas.

### 4.9.1.3 Significance Thresholds

#### NEPA

NEPA does not include specific significance thresholds. According to the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the determination of significance under NEPA is based on context and intensity.[2]

Context relates to the various levels of society where effects could result, such as society as a whole, the affected region, the affected interests, and the locality. The intensity of an effect relates to several factors, including the degree to which public health and safety would be affected; the proximity of a project to sensitive resources; and the degree to which effects on the quality of the human environment are likely to be highly controversial or involve unique or unknown risks.

[1] Bryant, W. A. and E.W. Hart, 2007, Fault Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zone Maps, California Division of Mines and Geology Special Publication 42, Interim Revision 2007.
[2] Code of Federal Regulations. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index*. Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 15, 2013.

## CEQA

CEQA requires state and local government agencies to identify the significant environmental effects of proposed actions; however, CEQA does not describe specific significance thresholds. According to the Governor's Office of Planning and Research, significance thresholds for a given environmental effect are at the discretion of the Lead Agency and are at the levels at which the Lead Agency finds the effects of the project to be significant.[3]

### State CEQA Guidelines

The State CEQA Guidelines define a significant effect on the environment as: "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (State CEQA Guidelines, Section 15382).[4]

The State CEQA Guidelines do not describe specific significance thresholds. However, Appendix G of the State CEQA Guidelines lists a variety of potentially significant effects, which are often used as thresholds or guidance in developing thresholds for determining impact significance. Accordingly, for the purposes of this EIS/EIR, a project would normally have a significant geology/soils impact, under CEQA, if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving:
  - Rupture of a known earthquake fault, as delineated on the most recent APEFZ Map for the area or based on other substantial evidence of a known fault,
  - Strong seismic ground shaking,
  - Seismic-related ground failure, including liquefaction, or
  - Landslides;
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Be located on expansive soil creating substantial risks to life or property; or
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater.

### L.A. CEQA Thresholds

The *L.A. CEQA Thresholds Guide*[5] states that a project would normally have a significant geologic hazard, landform, or soil sedimentation and erosion impact if it would:

- Cause or accelerate geologic hazards, which would result in substantial damage to structures or infrastructure, or expose people to substantial risk of injury;

[3] OPR (State of California, Governor's Office of Planning and Research). 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September.
[4] AEP. 2012. *California Environmental Quality Act (CEQA) Statute and Guidelines.* Reproduced with permission from the California Resources Agency.
[5] City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide*, E. Geology.

- Constitute a geologic hazard to other properties by causing or accelerating instability or erosion;
- Accelerate natural processes of wind and water erosion and sedimentation, resulting in sediment runoff or deposition, which would not be contained or controlled on-site; or
- Destroy, permanently cover, or materially and adversely modify one or more distinct and prominent geologic or topographic features; such features may include, but are not limited to, hilltops, ridges, hill slopes, canyons, ravines, rock outcrops, water bodies, streambeds, and wetlands.

## 4.9.2 Affected Environment/Existing Conditions

The following description of geologic and soil conditions in the study area is based on information provided in the Geotechnical Report, which is included in Appendix O to this EIS/EIR.

### 4.9.2.1 Geologic Units and Structure in the Eastern San Fernando Valley

The project area along Van Nuys Boulevard is located in the eastern portion of the San Fernando Valley, north of the Santa Monica Mountains, south of the San Gabriel Mountains, southeast of the foothills of the Santa Susana Mountains, and west of the Verdugo Hills. This portion of the San Fernando Valley ranges in elevation from approximately 1,100 feet above mean sea level (MSL) at the northeast end to 640 feet MSL at the Los Angeles River, a drop of 460 feet over the length of the study area. Ground surface generally slopes to the south and southwest because of a merger of alluvial fan surfaces, except at the far southern end, where slopes adjacent to the Santa Monica Mountains are to the north and northeast.

The San Fernando Valley is a geologic area underlain by a thick (several thousand feet) sequence of Tertiary age[6] sedimentary bedrock overlain by younger alluvial deposits. Older and younger Quaternary (Holocene[7] through early Pleistocene[8]) alluvial fan deposits consist predominantly of sand, silt, and gravel/boulders, along with smaller amounts of clay-rich materials. Descriptions of materials encountered in most borings drilled into these deposits for unrelated previous projects at various locations along the project area consist of loose to moderately dense sand. These deposits have been historically saturated to within 10 feet below the ground surface (bgs) near the south end of the project area to approximately 35 feet bgs at the northeast end and deeper within approximately 220 feet in the area of San Fernando Road and Van Nuys Boulevard. Deposits along the alignment south of approximately Vanowen Street are considered susceptible to liquefaction, as are deposits at/near the intersection of San Fernando Road and Hubbard Street at the northeast end of the project area.

Most soils within the project area have been modified and disturbed by grading and earthmoving associated with development, which includes the placement of artificial fill. Therefore, it is unlikely that significant areas of undisturbed native soils are present along the surface of the proposed alignment. Project area soil types are described below:

**Af – Artificial Fill:** artificial fill is located along the freeways in the study area (U.S. 101, I-210, SR-118, and I-5) and at Hanson Dam; this is noted by the CGS (1997, 1998). Other fill materials likely exist in areas scattered across the San Fernando Valley and, therefore, even though not shown on published maps, potentially exist to some extent in the project area. These fills may be engineered and compacted to modern standards or may be undocumented with unknown properties. In general, it

[6] The Tertiary age occurred from 65 to 2 million years ago.
[7] The Holocene epoch began 10,000 years ago.
[8] The Pleistocene epoch began about 2 million years ago and ended 10,000 years ago.

can be expected that the engineered fill materials will be predominantly sand, silt, and fine gravel due to the ease of compaction. Locally present undocumented fills may contain larger materials (cobble, boulders) and trash (e.g., organic matter, metal, concrete, wood).

**Qf – Alluvial Fan Deposits (Holocene):** The Qf deposits extend into the San Fernando Valley from the larger canyons to the north and east of the project area (e.g., Pacoima and Tujunga Canyons, respectively). The map view of these deposits is typically an irregular linear ribbon, some of which passes beneath portions of the proposed alignment. Qf deposits generally consist of unconsolidated gravelly, sandy, or silty alluvial deposits with cobbles and boulders on active and recently active alluvial fans.

**Qyf – Young Alluvial Fan Deposits (Holocene-Late Pleistocene):** Young alluvial fans cover a slightly greater percentage of the proposed alignment area than the alluvial fan deposits. As described by Yerkes and Campbell (2005),[9] Qyf consists of unconsolidated gravel, sand, and silt, coarser-grained closer to the mountains deposited from flooding streams and debris flows. The alluvial fan surfaces can show slight to moderate pedogenic soil development including clay development and cementation.

**Qof – Old Alluvial Fan Deposits (Late-Middle Pleistocene):** Qof is the undifferentiated older alluvial fan deposits (Yerkes and Campbell, 2005). Qof is found along San Fernando Road as it approaches Hubbard Street from the southeast. Qof consists of slightly to moderately consolidated silt, sand, and gravel deposits on incised alluvial fans; surfaces can show moderately to well-developed pedogenic soils.

## 4.9.2.2 Groundwater

Groundwater levels are shallow at the southern end of the project area near the Los Angeles River and become deeper at the northern end of the project area near the foothills. Based on the review of the Caltrans logs of test borings and California Geological Survey LOTBs and CGS data, groundwater was detected in the previous borings near elevation 635 feet MSL, approximately 25 bgs at the southern end. Borings at the northern end did not encounter groundwater. Historically, groundwater has been as high as the ground surface at the southern end of the project area near the Los Angeles River (CGS,1997).[10] The historically high groundwater levels specified by the CGS are shown on Figure 3-3 in the Geotechnical Report included in Appendix O.

## 4.9.2.3 Faulting and Earthquake Potential

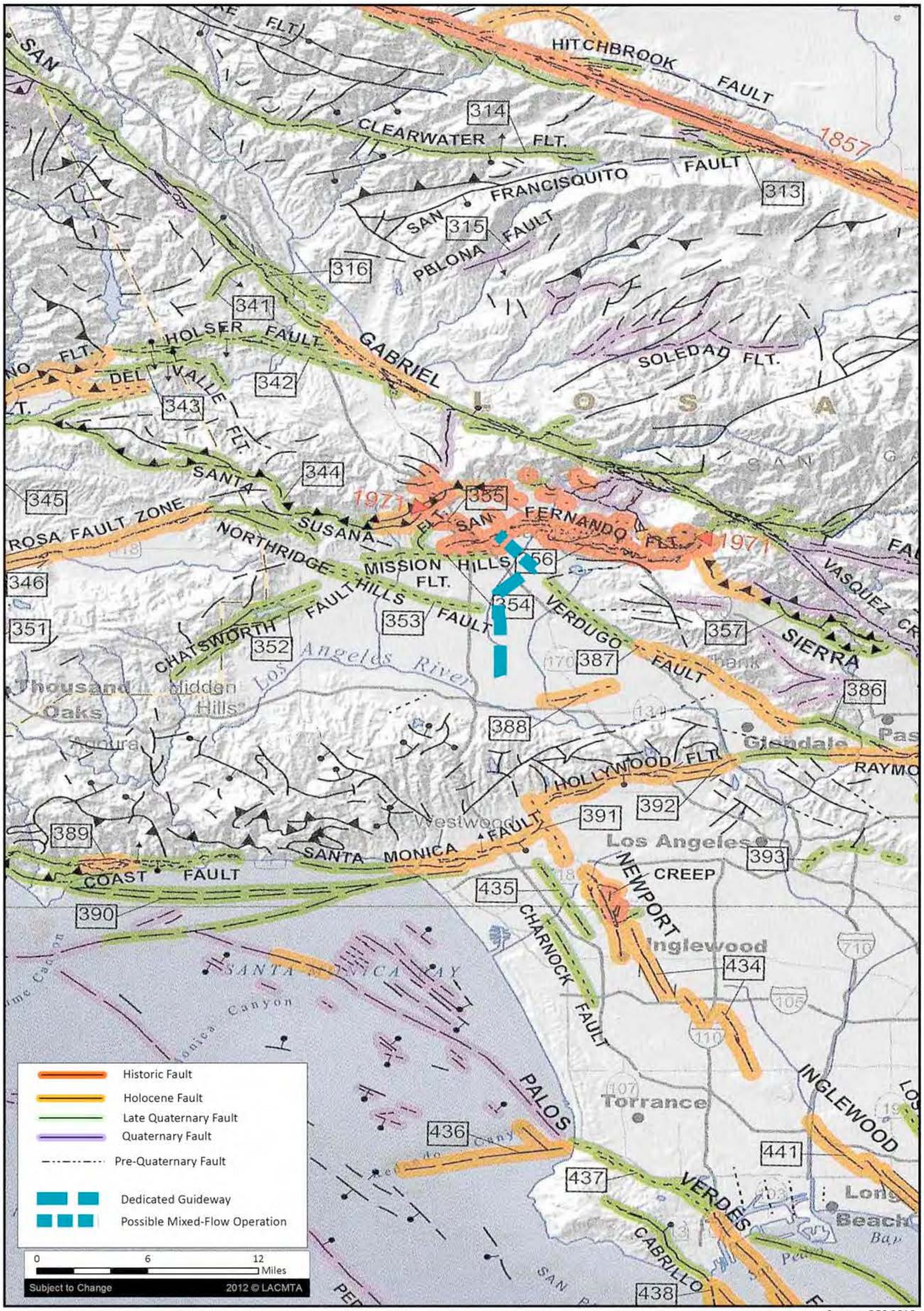
Plate tectonics and the forces that affect the earth's crust affect all of Southern California geology and seismicity. Faults are formed at the plate boundaries and other stress points within tectonic plates. Faults adjacent to, within, and beneath the City of Los Angeles and San Fernando Valley areas may be classified as inactive, potentially active, or active. Figure 4.9-1 identifies known faults in the region (CGS, 2010).[11] Regional faults of concern are strike slip faults (e.g., San Andreas, San Jacinto, Elsinore, Newport-Inglewood), normal, reverse, and thrust faults (e.g., Santa Monica-Hollywood, Sierra Madre-San Fernando, Palos Verdes, Raymond, and Verdugo), and buried (blind) thrust faults (e.g., Puente Hills, Northridge, and Elysian Park). This seismotectonic setting has been a part of the evolution of the Los Angeles County landscape for the past 5 million years.

[9] Yerkes, R. F. and Campbell, R. H., 2005, Preliminary Geologic Map of the Los Angeles 30' x 60' Quadrangle, Southern California U.S. Department of the Interior U.S. Geological Survey Open File Report 2005-1019, Scale 1:100000.

[10] California Geological Survey, 1997 (Revised 2001), Seismic Hazard Zone Report 008, Seismic Hazard Zone Report for the Van Nuys 7.5-Minute Quadrangle, Los Angeles County, California, 1997 (Revised 2001).

[11] California Geological Survey, 2010, Fault Activity Map of California, Geologic Data Map No. 6, Compilation and Interpretation by Charles W. Jennings and William A. Bryant.

## Figure 4.9-1: Fault Map




Source: CGS 2010.

Metro

The surface faults of most concern for the project area with respect to strong ground shaking are the Verdugo, San Fernando, Santa Monica-Hollywood, Oak Ridge, Newport-Inglewood, and San Andreas faults. Other smaller faults, such as the Mission Hills and Northridge Hills north and west of the project area, and the possible North Hollywood fault south and east of the project area, are of lesser concern due to their lower likelihood of independently generating moderate to large earthquakes. There remains uncertainty with regard to the earthquake characteristics of blind thrust faults (e.g., Elysian Park, Puente Hills, and Northridge) because they are buried; the Northridge blind thrust (source of the 1994 Northridge earthquake) underlies the northeastern San Fernando Valley at a depth of several thousand feet. Additional descriptions of the San Fernando, Verdugo and Northridge Hills, and possible North Hollywood faults are included below because each fault crosses or projects toward the project area, and each could produce ground rupture or ground deformation in a significant earthquake centered in this portion of the San Fernando Valley.

**San Fernando Fault:** The active Sierra Madre fault zone marks the southern margin of uplift of the western San Gabriel Mountains; the fault within the zone affecting the project area is the north-dipping San Fernando. Mapped San Fernando faults are within the APEFZ and the City of Los Angeles Fault Rupture Study Area (FRSA) at the intersection of San Fernando Road and Hubbard Street. The San Fernando fault (also divided by some into the San Fernando, Mission Wells, and Reservoir fault segments) ruptured most significantly in the 1971 San Fernando earthquake. Ground rupture occurred approximately 1,000 feet northeast of the above-named intersection. Offsets measure approximately 3 inches of left lateral and 10 inches of vertical displacement. The overall ratio of horizontal to vertical movement across the San Fernando fault zone in the 1971 earthquake was 1.9:1.39 (horizontal:vertical), and the maximum oblique displacement was 7.9 feet. Vertical movement within limited areas appears to have been greater in magnitude for bedrock sites 3.3 feet, less for older alluvium sites (1.6 feet), and substantially less for younger alluvium sites (2+ inches).

**Verdugo Fault:** The northwest-southeast trending Verdugo fault is the major bounding structure of the eastern San Fernando Valley and is considered active, although not within an APEFZ. Within the project area, the Verdugo fault is less well studied, but at a minimum, data from the neighboring cities of Glendale and Burbank indicate the fault would be considered potentially active.

**Northridge Hills Fault:** The 2010 State Fault Map shows the eastern end of the Northridge Hills fault stopping just west of the proposed alignment. A paleoseismic evaluation of the Northridge Hills fault has been conducted nearer the center of the fault's trend in the community of Northridge. The Northridge Hills fault has been described as a fault-propagation fold above an underlying blind thrust fault dipping northward at about 45 degrees; the fault is considered potentially active. This means that the fault has not yet broken the ground to the surface, but could cause local uplift, tilting, and ground deformation.

**Possible Fault in North Hollywood (Unnamed Fault L 66a):** The CSG shows this fault projecting from approximately 1/4 mile on the east toward the southern portion of the project area south of U.S. 101. The fullest description of this fault indicates it is defined on the 1901 and 1928 USGS topographic maps as an elevation change across a possible low, south-facing break in slope in younger Holocene alluvial deposits. This feature is also associated with an area of subsidence north of the Benedict Canyon fault and is suggestive of down-on-the-south movement affecting Holocene deposits. The fault lies outside any City of Los Angeles FRSA.

### 4.9.2.4 Surface Faulting/Ground Rupture Hazard

The anticipated (average) amount of surface fault rupture on any given fault trace for the maximum earthquake can be inferred from measurements of offsets caused by past earthquakes. In general, these estimates range from zero to about 1 foot for magnitudes under M6.0, and from 1 foot to 10 feet or more for magnitudes between M6.0 and 7.5. Many variables affect the amount of surface rupture, including the depth of the earthquake hypocenter where the strain energy is released. Site-specific study is typically conducted to refine such estimates for a fault segment at a given project site.

A portion of the project area on San Fernando Road near the existing Sylmar/San Fernando Metrolink Station is within an APEFZ for the San Fernando fault. Additionally, the Verdugo fault is located within the project area and is considered to have potential ground rupture and differential uplift. The potential for earthquake activity and ground rupture is known for the San Fernando fault and not well understood for the Verdugo fault.

### 4.9.2.5 Seismic Ground Motion

The site is located within a seismically active region. The characteristics of nearby known faults are summarized in Table 4.9-1.

**Table 4.9-1: Major Fault Characterization in the Project Vicinity**

| Fault | Approximate Distance[1] (miles) | Type of Fault | Maximum Earthquake Magnitude[2] (Mw) |
|---|---|---|---|
| Verdugo | 3.1 | Reverse | 6.9 |
| Sierra Madre (San Fernando) | 5.0 | Reverse | 6.7 |
| Sierra Madre Connected | 5.0 | Reverse | 7.3 |
| Northridge | 7.2 | Thrust | 6.9 |
| Santa Susana, Alt 1 | 7.2 | Reverse | 6.9 |
| Hollywood | 9.5 | Strike Slip | 6.7 |
| Sierra Madre | 9.7 | Reverse | 7.2 |
| San Gabriel | 10 | Strike Slip | 7.3 |
| Santa Monica Connected, Alt 1 | 11 | Strike Slip | 7.3 |
| Santa Monica, Alt 1 | 11 | Strike Slip | 6.6 |
| Santa Monica Connected, Alt 2 | 11 | Strike Slip | 7.4 |
| Elysian Park (Upper) | 11 | Reverse | 6.7 |
| Newport-Inglewood, Alt 1 | 13 | Strike Slip | 7.2 |
| Newport-Inglewood Connected, Alt 1 | 13 | Strike Slip | 7.5 |
| Newport-Inglewood Connected, Alt 2 | 13 | Strike Slip | 7.5 |

Notes:
1. Distances measured from intersection of Roscoe Boulevard and Van Nuys Boulevard.
2. The maximum earthquake magnitude values are based on the Ellsworth relation.
Source: USGS National Seismic Hazard Maps 2008.

### 4.9.2.6 Liquefaction Potential and Seismic Settlement

Liquefaction occurs when saturated, low relative density, low plastic materials are transformed from a solid to a near-liquid state. This phenomenon occurs when moderate to severe ground shaking causes pore-water pressure to increase. Site susceptibility to liquefaction is a function of the depth, density, soil type, and water content of granular sediments, along with the magnitude and frequency of earthquakes in the surrounding region. Saturated sands, silty sands, and unconsolidated silts within 50 feet of the ground surface are most susceptible to liquefaction. Liquefaction-related phenomena include lateral spreading, ground oscillation, flow failures, loss of bearing strength, subsidence, and buoyancy effects.

The expected level of ground shaking in the project area is high. However, for liquefaction to take place, groundwater must be present. According to CGS historical high groundwater maps, there is shallow groundwater (less than 50 feet bgs) at the southern end of the project alignment from approximately Vanowen Street to the southern limit of the project area and near the northeast end of the project area along Hubbard Street. These portions of the project area are potentially susceptible to liquefaction. A seismic hazard zone map, based on data produced by the CGS, is presented in Figure 4.9-2.

### 4.9.2.7 Landslide and Slope Instability

The project site is not located within a landslide potential zone designated on a CGS seismic hazard map or areas designated by the City of Los Angeles Hillside Ordinance (City of Los Angeles, 2004). Based on the level topography of the site, the landslide potential at the site is judged to be low.

### 4.9.2.8 Scour Potential

Scour is not a design concern at this time because the drainage channels within the project site are concrete-lined.

### 4.9.2.9 Corrosion Potential

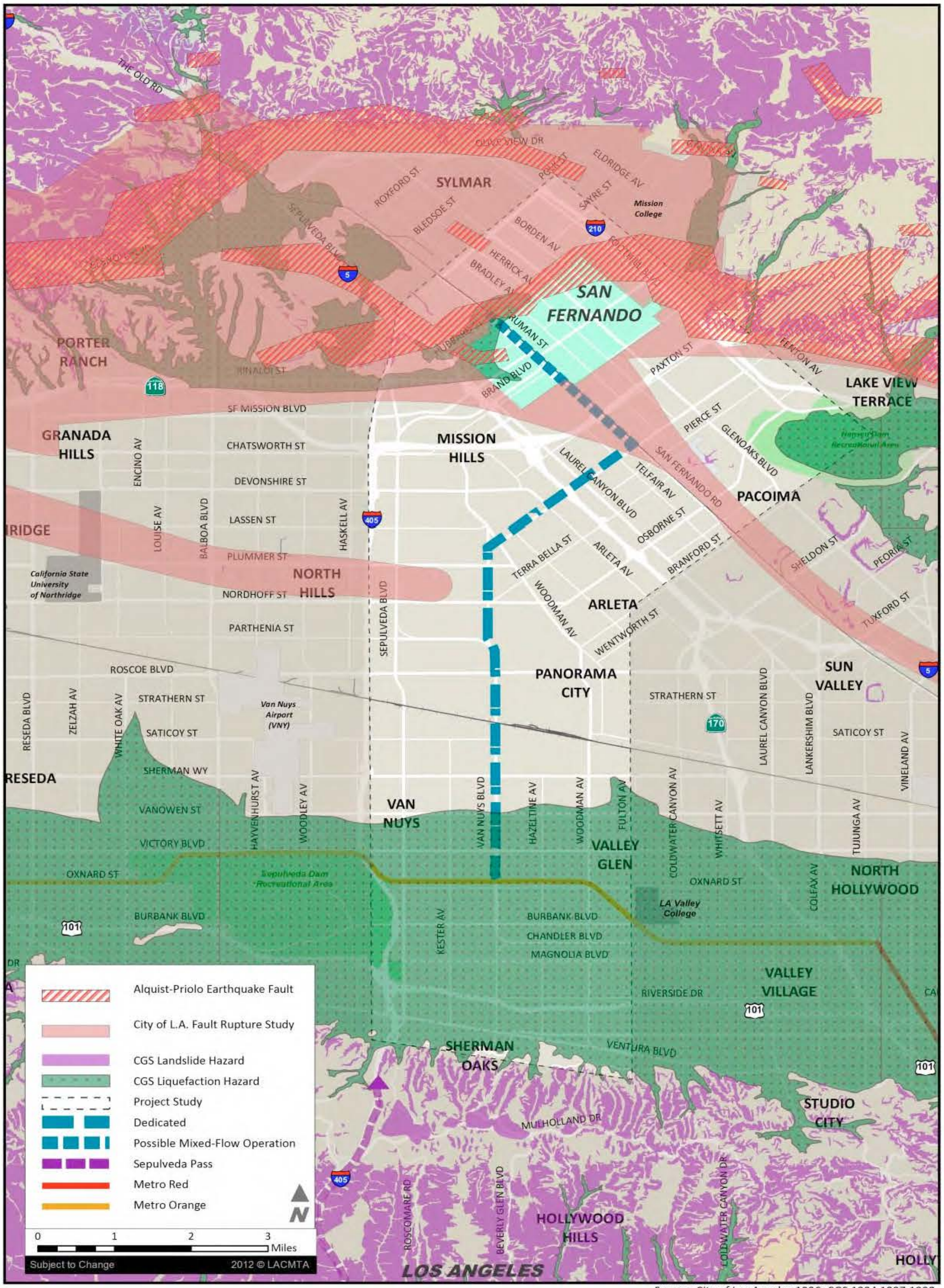
No corrosion test results from subsurface soils were available for the project site. Sands, silty sands, and silts are expected at the site. Generally, sands and silty sands do not present a corrosive environment.

### 4.9.2.10 Flooding and Inundation

FEMA's NFIP maps the flooding potential of Los Angeles County and associated areas. Figure 4.9-3 depicts those flood zones as presented by the City of Los Angeles Safety Element (1996).[12] The project area crosses a 100-year floodplain at the Los Angeles River and a 500-year floodplain at the Pacoima Wash and Pacoima Diversion Channel. The City of Los Angeles Safety Element (1996) also summarizes inundation potential from dam failures and water storage facility failures. These areas are shown on Figure 4.9-4. The project area is located within a potential inundation zone.

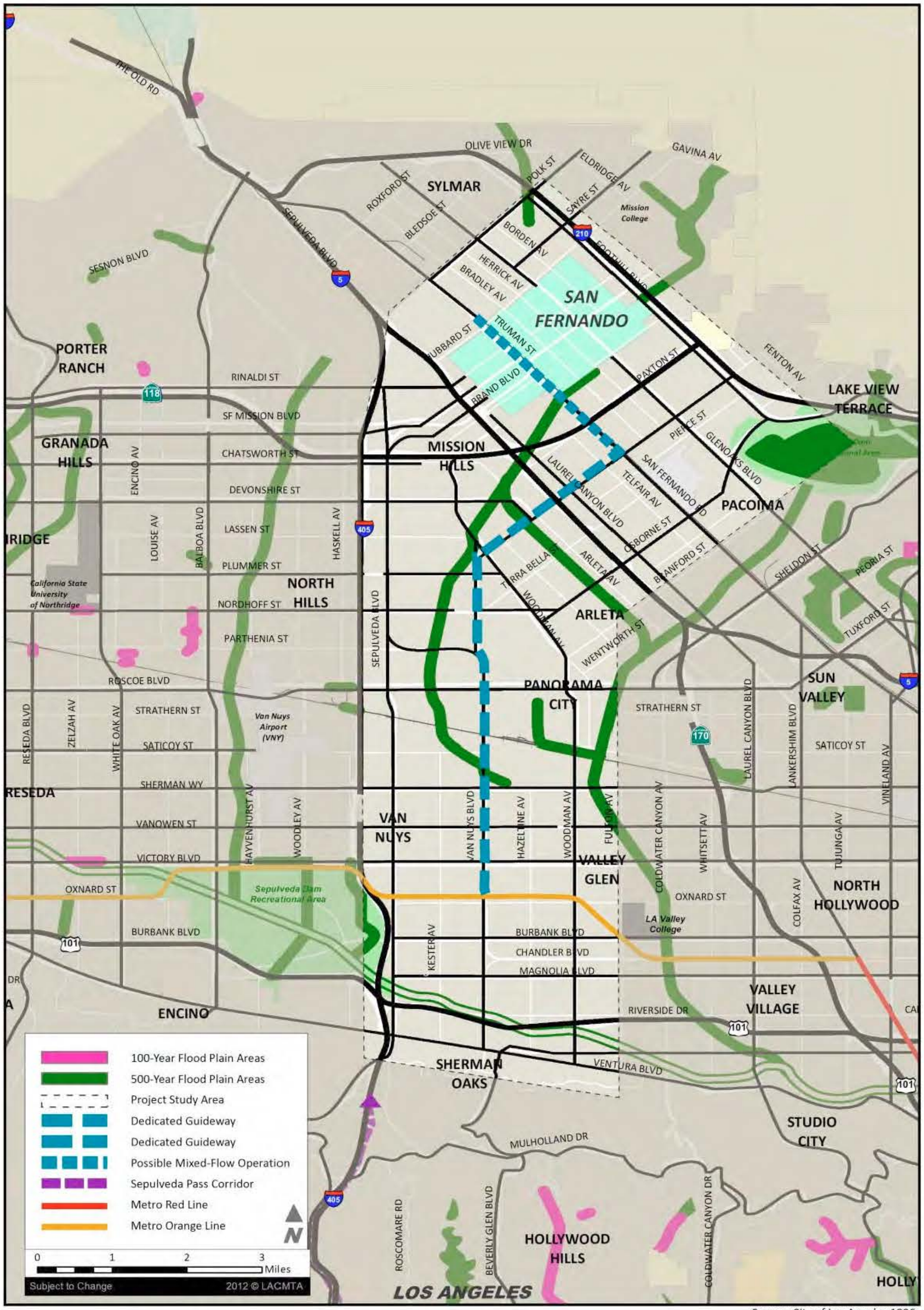
[12] City of Los Angeles, 1996, Safety Element of the Los Angeles City General Plan, Department of City Planning, Los Angeles, California, City Plan Case No. 95-0371, Adopted November 26, 1996.

## Figure 4.9-2: Seismic Hazard Zones



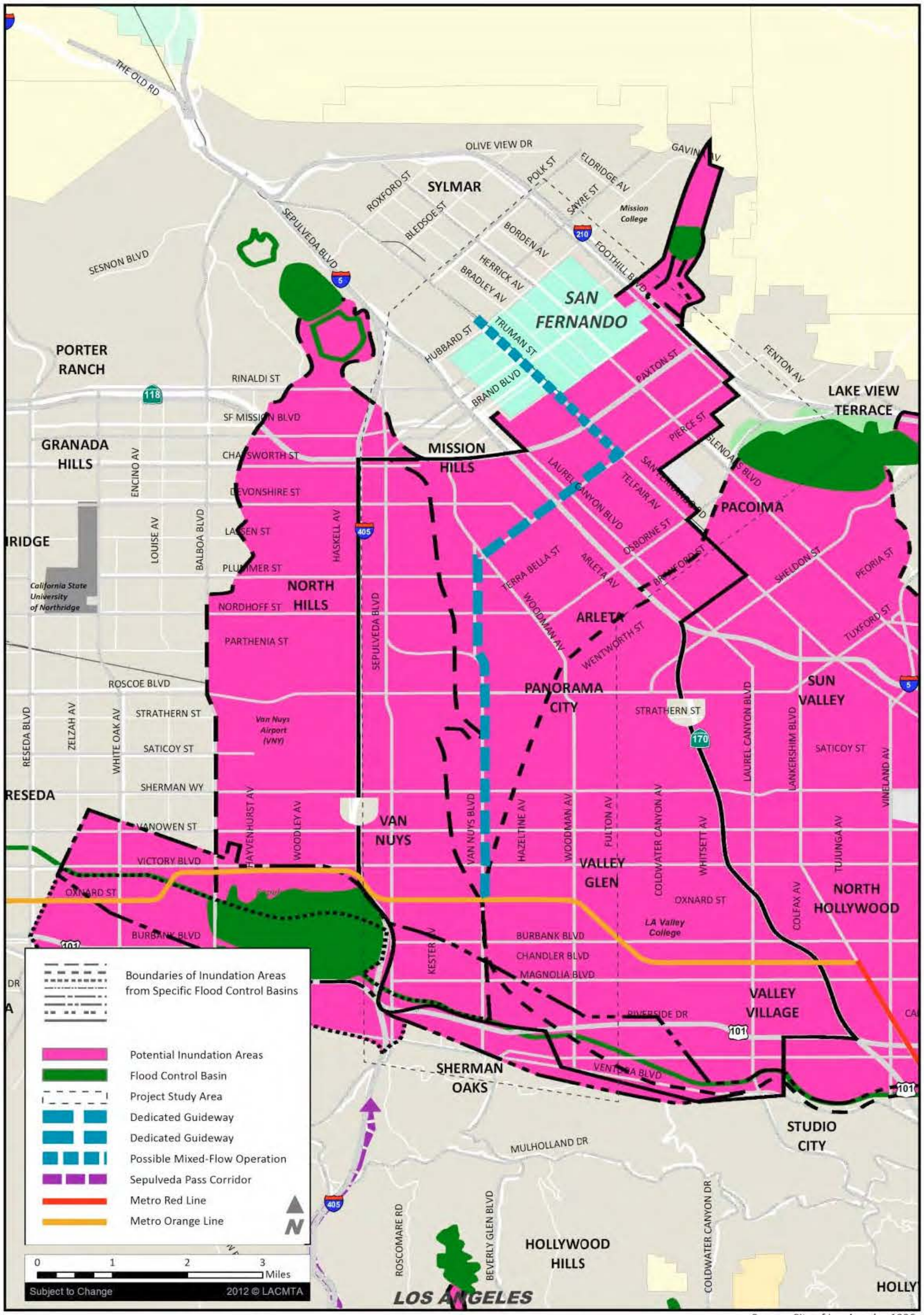

Source: City of Los Angeles 1996; CGS 1994,1997,1998.

## Figure 4.9-3: Flood Plain Area




Source: City of Los Angeles 1996.

## Figure 4.9-4: Inundation Areas




Source: City of Los Angeles 1996.

### 4.9.2.11 Methane

In 2004, the City of Los Angeles identified methane gas intrusion into buildings as a potential hazard in some areas of the city and incorporated construction standards to mitigate the potential hazard into the Los Angeles Municipal Code (LAMC). All new buildings and paved areas located in a methane zone or methane buffer zone are required to comply with the requirements of the Methane Mitigation Standards established by the Superintendent of Buildings.

The City of Los Angeles Department of Building and Safety (LADBS) has defined the following areas as a Methane Hazard Site because a portion of the parcel is located within a Methane Zone/Methane Buffer Zone.

- Van Nuys Boulevard between Saticoy Street and Sherman Way.
- Van Nuys Boulevard between approximately 500 feet north of Plummer Street to San Fernando Road.
- San Fernando Road between Van Nuys Boulevard and the City of San Fernando eastern city limits.

According to the LADBS, " ... if any portion of a parcel fell within the methane impact area or its buffer zone, the entire parcel was subject to investigation." The site investigation shall be conducted under the supervision of a licensed Architect or registered Engineer or Geologist and shall be performed by a testing agency approved by LADBS. The licensed Architect, registered Engineer or Geologist shall indicate in a report to LADBS, the testing procedure, the testing instruments used to measure the concentration and pressure of the methane gas. The measurements of the concentration and pressure of the methane gas shall be used to determine the Design Methane Concentration and the Design Methane Pressure.

### 4.9.2.12 Mineral Resources

Although limited oil and gas exploration and pumping from proven reserves have occurred in the areas surrounding the project site, the proposed alignment passes through the Pacoima Oil field (Hesson, 1993). According to the Wildcat Maps and the California Department of Conservation Division of Gas and Geothermal Resources digital wells database, the wells within the project study area and vicinity are idle or abandoned dry wells. Several plugged and abandoned dry holes are located within approximately a block of the project alignment. The locations of these wells are shown on Figure 3-8 in the Geotechnical Report contained in Appendix O.

Abandoned wells and dry holes represent potential vertical migration pathways for crude oil, methane, $H_2S$, and other compounds, and can represent potential hazards for nearby buildings and occupants. The California Department of Conservation/Division of Oil, Gas, and Geothermal Resources (DOGGR) regulates drilling and abandonment of wells and dry holes. DOGGR regulations evolved over time to address problems and hazards identified in older wells. As a result, there are fewer problems associated with recently plugged wells and dry holes. Nevertheless, even when a well is plugged in accordance with DOGGR regulations, leaks can occur later.

# 4.9.3 Environmental Consequences, Impacts and Mitigation Measures

## 4.9.3.1 No-Build Alternative

### Construction Impacts

The No-Build Alternative would not result in any project-related construction activities along the project alignment. Therefore, there would be no geological construction impacts as a result of the No-Build Alternative.

### Operational Impacts

Under this alternative, no new project facilities would be constructed; therefore, the No-Build Alternative would not result in any new operational impacts.

### Cumulative Impacts

The No-Build Alternative would not contribute to any cumulative impacts.

### Mitigation Measures

#### Construction Mitigation Measures

No construction mitigation measures are required.

#### Operational Mitigation Measures

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### NEPA Finding

No adverse effect under NEPA would occur.

#### CEQA Determination

No impact under CEQA would occur.

## 4.9.3.2 TSM Alternative

### Construction Impacts

The TSM Alternative would consist of cost-efficient service improvements and could include minor physical improvements to the roadway network and to bus stops. Given the very limited amount of construction that could occur under this alternative, geological and flooding hazards in the project area are not likely to affect or be affected by construction activities. Therefore, no impacts/effects would occur during construction

## Operational Impacts

The TSM Alternative proposes minor improvements to transit service such as increased bus frequencies and bus schedule restructuring and could include minor physical improvements to the roadway network (e.g., signalization improvements) and bus facilities (bus stop amenities/improvements).

The East San Fernando Valley Transit Corridor, like other sites in Southern California, would be subjected to strong ground shaking during a seismic event. Although new structures would be small in scale and limited to bus stop amenities such as new canopies or signage, those improvements could experience strong seismic ground shaking and pose a hazard to bus patrons and passers-by. However, given the small size of the bus stop structures and the fact they would be constructed in accordance with current building codes, the potential risks would be minimal. Operation of this alternative would also not cause or accelerate geologic hazards or increase soil instability because the physical improvements would be minor and constructed on flat terrain in a developed urban area. Potential geological impacts and effects would be less than significant under CEQA and non-adverse under NEPA.

## Cumulative Impacts

The cumulative impacts analysis for geology, soils, and seismicity is based on the cumulative projects list method of cumulative analysis, as described by CEQA Guidelines, Section 15130, subd. (b)(1)(A), and for the TSM and build alternatives, refers to the projects listed in Table 2-3. These projects are located within or in the neighborhoods and communities surrounding the proposed project alignment. Even though geology and seismicity are regional issues, in general, geologic hazards are site specific, so a more localized study area is appropriate for the analysis of geology, soils, and seismicity. Consequently, it’s unlikely that related and proposed projects would contribute to cumulative geological hazards impacts, due to the site-specific nature of geologic hazards. One exception would be when subsurface excavations result in ground and differential settlement that could affect adjacent properties. Other nearby projects, including the cumulative projects listed in Table 2-3, would also include excavation activities that could result in the potential settlement of soilsand settlement impacts on nearby properties. However, given the limited amount of construction that is anticipated to occur under the TSM Alternative, including minimal excavation, this alternative would not result in a cumulatively considerable contribution to a significant cumulative impact on ground and differential settlement.

## Mitigation Measures

### Construction Mitigation Measures

No construction mitigation measures would be required.

### Operational Mitigation Measures

No operational mitigation measures would be required.

## Impacts Remaining After Mitigation

### NEPA Finding

Effects under NEPA would not be be adverse.

### CEQA Determination

Impacts under CEQA would be less than significant.

## 4.9.3.3 BRT Alternatives (Alternatives 1 and 2)

### Alternative 1 – Curb-Running BRT

#### Construction Impacts

Potential impacts due to construction of Alternative 1 would be similar to those that would occur as result of a typical construction project and would require avoiding damage to existing utilities and taking measures to prevent undermining of existing structures and reducing potential geologic/soils hazards to construction workers. Compliance with best construction practices and adherence to regulatory requirements would reduce potential risks to existing structures, the public, and construction workers. Therefore, the construction impacts/effects under this alternative would be less than significant under CEQA and non-adverse under NEPA.

#### Operational Impacts

As discussed above, the East San Fernando Valley Transit Corridor would be subjected to strong ground shaking during a seismic event. As a consequence, structures constructed under the Curb-Running BRT Alternative, which would include new traffic and pedestrian signs and bus stop canopies, could experience strong seismic ground shaking and pose a hazard to riders and passers-by.

On the north end of the alternative alignment, the Sylmar/San Fernando Metrolink Station is located with an APEFZ as previously discussed. The Curb-Running BRT Alternative would include the following project components subject to faulting on the northern end of the alignment: new paving and rehabilitation or resurfacing of existing pavement along San Fernando Road, a new bus stop with canopy, and new traffic and pedestrian signs.

The portion of the alternative alignment south of Vanowen Street is located in a liquefaction zone, as previously discussed. The proposed traffic and pedestrian signs, and bus stop canopies south of Vanowen Street would be subject to liquefaction.

The project site is located outside a landslide hazard zone. No steep slopes were observed within the project area and no significant fill slopes are proposed.

Since, the project would be designed and constructed in compliance with regulatory requirements and current building codes, the operational geological impacts and effects of the Curb-Running BRT Alternative would be less than significant under CEQA and non-adverse under NEPA.

The Curb-Running BRT alignment is not located within a designated 100-year floodplain. The BRT alignment would, however, cross 500-year flood plain areas at three locations as shown on Figure 4.9-3. The BRT alignment is also located in a dam failure inundation zone. Although flooding could cause damage to proposed BRT facilities, the risk of substantial flooding would be low and the proposed project would not cause or exacerbate existing flooding risks. Therefore, the impacts would be less than significant under CEQA and the effects would be non- adverse under NEPA.

#### Cumulative Impacts

See discussion above for the TSM Alternative.

#### *Compliance Requirements and Design Features*

Construction and design would be performed in accordance with Metro's Design Criteria, the latest federal and state seismic and environmental requirements, and state and local building codes.

### Mitigation Measures

#### *Construction Mitigation Measures*

No mitigation measures are required.

#### *Operational Mitigation Measures*

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Effects under NEPA would not be adverse.

#### *CEQA Determination*

Impacts under CEQA would be less than significant.

## Alternative 2 – Median-Running BRT

### Construction Impacts

The Median-Running BRT Alternative would result in the same impacts as the Curb-Running BRT Alternative.

### Operational Impacts

The Median-Running BRT Alternative would result in operational impacts that would be the same as those described above for the Curb-Running BRT Alternative. Consequently, the operational geological impacts of this alternative would be less than significant under CEQA and the effects under NEPA would not be adverse.

### Cumulative Impacts

See discussion above for the TSM Alternative.

#### *Compliance Requirements and Design Features*

Compliance requirements and design features described under Alternative 1 would also be included under Alternative 2.

### Mitigation Measures

#### *Construction Mitigation Measures*

No construction mitigation measures would be required.

#### *Operational Mitigation Measures*

No operational mitigation measures would be required.

#### Impacts Remaining After Mitigation

##### *NEPA Finding*

Effects under NEPA would not be adverse.

##### *CEQA Determination*

Impacts under CEQA would be less than significant.

## 4.9.3.4 Rail Alternatives (Build Alternatives 3 and 4)

### Alternative 3 – Low-Floor LRT/Tram

#### Construction Impacts

The Low-Floor LRT/Tram alternative would result in the same geological construction impacts as the BRT alternatives.

#### Operational Impacts

On the north end of the alignment for Low-Floor LRT/Tram Alternative, the proposed pedestrian bridge for the Sylmar/San Fernando Metrolink Station is located with an APEFZ (see Figure 4.9-1). In addition, the Pacoima Wash Bridge on San Fernando Road is located in the City of Los Angeles FRSA (see Figure 4.9-1). If further studies indicate that there is a potential for fault rupture at the proposed Sylmar/San Fernando Metrolink Station pedestrian crossing and/or the Pacoima Wash Bridge on San Fernando Road, the fault rupture hazards to these project facilities could be significant.

Other project structures along the alignment including the Pacoima Channel Bridge, traffic and pedestrian signs, and train stop canopies would be subject to strong seismic ground shaking and could pose a hazard to riders and passers-by. In addition, the proposed catenary wires, traffic and pedestrian signs, and train stop canopies south of Vanowen Street would be subject to potential liquefaction hazards. The catenary wires would move during a seismic event and the system, like other light rail systems currently operated by Metro, would need to be inspected prior to continuing service.

Since the project would be designed in compliance with current building codes and regulatory requirements, the impacts/effects during operation of the Low-Floor LRT/Tram Alternative would be less than significant under CEQA and non-adverse under NEPA.

The flooding risks that could affect or be affected by the Low-Floor LRT/Tram Alternative would be the same as those described above for the BRT alternatives.

#### Cumulative Impacts

See discussion above for the TSM Alternative. The only difference for Alternative 3 is that this alternative would require construction of an MSF site, though excavation would be limited to an above-ground habitable building that would not be substantially tall or include deep excavation needs, such as for footings. As a result, this alternative would not result in a cumulatively considerable contribution to a significant cumulative impact on ground and differential settlement.

#### *Compliance Requirements and Design Features*

Compliance requirements and design features described above under Alternative 1 would also be included under Alternative 3.

### Mitigation Measures

#### *Construction Mitigation Measures*

No construction mitigation measures are required.

#### *Operational Mitigation Measures*

To reduce and minimize potential geologic hazards to project facilities and operations, the following measures shall be implemented.

> **MM-GEO-1:** Metro design criteria require probabilistic seismic hazard analyses (PSHA) to estimate earthquake loads on structures. These analyses take into account the combined effects of all nearby faults to estimate ground shaking. During Final Design, site-specific PSHAs shall be used as the basis for evaluating the ground motion levels along the project corridor. The structural elements of the proposed project shall be designed and constructed to resist or accommodate appropriate site-specific estimates of ground loads and distortions imposed by the design earthquakes and conform to Metro's *Design Standards for the Operating and Maximum Design Earthquakes*. The concrete structures are designed according to the *Building Code Requirements for Structural Concrete* (ACI 318) by the American Concrete Institute.
>
> **MM-GEO-2:** At liquefaction or seismic settlement prone areas, evaluations by geotechnical engineers shall be performed during Final Design to provide estimates of the magnitude of the anticipated liquefaction or settlement. Based on the magnitude of evaluated liquefaction, either structural design, or ground improvement (such as deep soil mixing) or deep foundations to non-liquefiable soil (such as drilled piles) measures shall be selected. Site-specific design shall be selected based on State of California guidelines and design criteria set forth in the *Metro Seismic Design Criteria*.

### Impacts Remaining After Mitigation

NEPA Finding

Effects would not be adverse.

#### *CEQA Determination*

Impacts would be less than significant.

## Alternative 4 – LRT

### Construction Impacts

The LRT Alternative would result in construction impacts that would be the same as those of the Low-Floor LRT/Tram Alternative, the exception being that under this alternative, the tunneling and deep excavations during construction could cause vertical and lateral movement of the existing soils adjacent to the improvements. Therefore, tunneling required to construct the LRT Alternative could result in the potentially significant adverse impacts/effects due to ground settlement and differential settlement immediately above the alignment and on adjacent buildings and structures.

The LRT Alternative could also be affected by groundwater hazards during construction. Groundwater levels are shallow at the southern end of the LRT Alternative alignment near the Los Angeles River and become deeper at the northern end of the project area. The southern end of the proposed tunnel structure would potentially be located below historical high groundwater levels, and consequently groundwater may be encountered during construction of the tunnel, a potentially significant hazard.

However, because the LRT Alternative would be designed and constructed in compliance with current building codes and regulatory requirements, as previously discussed, which would reduce the potential risks posed by the hazards above. Additionally, the potential for settlement during construction of the LRT tunnel, which could be a significant hazard, would be further reduced as a result of implementation of the design measures described below.

### Operational Impacts

The operational impacts of the LRT Alternative would be the same as those for the Low-Floor LRT/Tram Alternative, except that unlike the Low-Floor Tram/LRT Alternative, this alternative would include a tunnel. Because of the presence of alluvial soils, the tunnel segment of the alignment could be susceptible to seismic-induced settlement and ground loss, a potentially significant hazard. Experience in California and worldwide shows that tunnels perform well during earthquake ground shaking, exhibiting no significant damage or collapse. Since they are embedded in the ground, they move with the ground, and thus, their motion is not magnified by the pendulum effect that occurs when an aboveground structure is shaken by an earthquake. As an example, during the Northridge Earthquake in 1994, Metro's Segment 1 Red Line tunnels received ground motions at the level of the Operating Design Earthquake without damage. Inspection was performed and the system was reopened for service the following day, with greatly increased ridership because highways were closed due to earthquake damage to bridges. Another example is the 1989 Loma Prieta earthquake that shook San Francisco, collapsing key elevated highways but leaving the Bay Area Rapid Transit tunnel system unaffected. Following an inspection of the tunnels, the system was quickly reopened.

The structural elements of Alternative 4 would be designed and constructed to resist or accommodate the appropriate site-specific estimates of ground loads and distortions imposed by the design earthquakes and conform to Metro's Design Standards for the Operating and Maximum Design Earthquakes. The concrete structures would be designed according to the Building Code Requirements for Structural Concrete by the American Concrete Institute (ACI 318).

Metro will implement Standard Operating Procedures in seismic areas to detect earthquakes and will provide back-up power, lighting, and ventilation systems to increase safety during tunnel or station evacuations in the event of loss of power due to an earthquake. For example, seismographs are located in 11 of the existing Metro Red/Purple Line stations to detect ground motions and trigger Standard Operating Procedures (SOP #8 – Earthquakes) by the train operators and controllers. Operating procedures are dependent on the level of earthquake and include stopping or holding trains, gas monitoring, informing passengers, communications with Metro's Central Control, and inspecting for damage. With the incorporation of these techniques and mitigation Measures MM-GEO-3 through MM-GEO-5, ground shaking does not present a significant impact to this alternative, including all stations and station entrances.

Portions of the alternative alignment are located adjacent to a City of Los Angeles Methane Zone. The proposed tunnel could be affected by hazardous subsurface gases in the area adjacent to the City of Los Angeles Methane Zone along Van Nuys Boulevard between Saticoy Street and Sherman Way. Tunnels and stations would be designed to provide a redundant protection system against gas intrusion hazard, such as those described in the City of Los Angeles Municipal Code, Chapter IX, Building Regulations, Article 1, Division 71, Methane Seepage Regulations. In compliance with these regulations, specific requirements are determined according to the actual methane levels and pressures detected on a site, and the identified specific requirements would be incorporated into the design and construction. Therefore, hazardous subsurface gas (methane) impacts would be minimized.

Most gases, if present, are purged from the tunnels simply by the action of trains running through the tunnels. During non-revenue operations, air velocity must be maintained at a minimum of 100 feet per minute. This air velocity is the minimum that the ventilation system must achieve to direct hazardous gases toward the nearest point of extraction and prevent gases from accumulating during the hours when the trains are not operating. Additional measures would be incorporated into the design of this alternative to further minimize impacts as described in mitigation measures MM-GEO-3 through MM-GEO-5. With incorporation of these mitigation measures the risks associated with subsurface methane gas would be minimized.

The flooding risks that could affect or be affected by the LRT Alternative would be the same as those described above for the other build alternatives, except that unlike the other build alternatives, portions of the LRT Alternative would be below grade and could be a conduit for the flow of water if precautions are not taken, a potentially significant hazard. However, the portals for stations would be designed to ensure their protection from floodwaters. By complying with Metro's Design Standards, the impacts would not be adverse under NEPA and would be less than significant under CEQA.

Because the LRT Alternative would be designed in compliance with current building codes and regulatory requirements, the risks posed by the geological hazards identified above would be reduced and therefore, the resulting impacts would be less than significant under CEQA and non-adverse under NEPA.

#### Cumulative Impacts

See discussion above for the TSM Alternative. However, the LRT Alternative, unlike the other alternatives, could result in substantial settlement impacts due to tunneling and the construction of the proposed underground stations. However, the underground portion of the alignment under Alternative 4 is not located in an area identified as having a high risk of liquefaction or seismic settlement. The only component of Alternative 4 that would involve deeper excavation and is located within an area of increased risk for liquefaction or settlement is MSF site Option A. However, as mentioned under the discussion for Alternative 3, excavation for the MSF site would be limited to an above-ground habitable building that would not be substantially tall or include deep excavation needs, such as for footings that would increase the risk of settlement impacts on adjacent properties. Furthermore, mitigation measures MM-GEO-2, and compliance with regulatory requirements and design features would further minimize this impact so as to not result in a cumulatively considerable contribution to a significant cumulative impact on ground and differential settlement. Although the project and cumulative impacts could be significant, compliance with proposed design and mitigation measures would reduce potential impacts to a less-than-significant level.

##### *Compliance Requirements and Design Features*

Compliance requirements and design features described above under Alternative 1 would also be included under Alternative 4.

#### Mitigation Measures

##### *Construction Mitigation Measures*

No construction mitigation measures are required.

### *Operational Mitigation Measures*

Operational mitigation measures included under Alternative 3 would also be included under Alternative 4. In addition, the following measures would also apply to Alternative 4, with regards to potential geologic or seismic impacts occurring with operation of the subway segment of the alignment.

**MM-GEO-3:** In addition to design measures, as Metro has implemented on the existing Red Line, it shall implement standard operating procedures (SOP) in seismic areas to detect earthquakes and shall provide back-up power, lighting, and ventilation systems to increase safety during tunnel or station evacuations in the event of loss of power due to an earthquake. For example, seismographs are located in 11 of the existing Metro Red/Purple Line stations to detect ground motions and trigger SOPs (SOP#8 –Earthquake) by the train operators and controllers. Operating procedures are dependent on the level of earthquake and include stopping or holding trains, gas monitoring, informing passengers, communications with Metro's Central Control, and inspecting for damage.

**MM-GEO-4:** As with the existing Red or Purple Lines and the Metro Gold Line Eastside Extension, Metro shall install gas monitoring and detection systems with alarms, as well as ventilation equipment to dissipate gas to safe levels according to Metro's current design criteria and Cal/OSHA standards for a safe work environment. Measures shall include, but are not limited to, the following for both tunnel and station operation:

- High volume ventilation systems with back-up power sources
- Gas detection systems with alarms
- Emergency ventilation triggered by the gas detection systems
- Automatic equipment shut-off
- Maintenance and operations personnel training
- Gas detection instrumentation is set to send alarms to activate ventilation systems and evacuate the structures as follows: methane gas – minor alarm at 10 percent of the lower explosive limit (LEL) (activate ventilation) and major alarms at 20 percent of LEL (evacuation of area)
- Hydrogen sulfide – minor alarm at 8 parts per million (ppm) and major alarm at 10 ppm.

**MM-GEO-5:** Tunnels and stations shall be designed to provide a redundant protection system against gas intrusion hazard. The primary protection from hazardous gases during operations is provided by the physical barriers (tunnel and station liner membranes) that keep gas out of tunnels and stations. As with the existing Metro Red and Purple Lines and the Metro Gold Line Eastside Extension, tunnels and stations shall be designed to exclude gas to below alarm levels (GEO-4) and include gas monitoring and detection systems with alarms, as well as ventilation equipment to dissipate gas.

- At stations in elevated gassy ground(e.g., Van Nuys Metrolink Station and Sherman Way Station), construction shall be accomplished using slurry walls – or similar methods such as continuous drilled piles – to provide a reduction of gas inflow both during and after construction than would occur with conventional soldier piles and lagging.
- Other station design concepts to reduce gas and water leakage are the use of additional barriers; compartmentalized barriers to facilitate leak sealing; and flexible sealants, such as poly-rubber gels, along with high-density polyethylene-type materials used on Metro's underground stations.

- Consideration of secondary station walls to provide additional barriers or an active system (low or high pressure barrier) shall also be studied during Final Design to further to determine if they will be incorporated into the Final design of the tunnel and stations.
- The evaluations for station and tunnel construction materials shall include laboratory testing programs such as those conducted for the Metro Gold Line Eastside Extension during development of the double gasket system and material testing for long-term exposure to the ground conditions for materials such as rubber gaskets used for tunnel segment linings. Testing programs shall examine:
  - Segment leakage – gasket seal under pressure before, during, and after seismic movements. This will include various gasket materials and profiles (height and width).
  - Gasket material properties – effective life and resistance to deterioration when subjected to man-made and natural contaminants, including methane, asphaltic materials, and hydrogen sulfide.
  - Alternative products to high-density polyethylene products such as poly-rubber gels, now in use in ground containing methane in other cities. Methods for field testing high-density polyethylene joints. These are now being used for landfill liners and water tunnels under internal water pressure.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

# 4.10 Hazardous Waste and Materials

## 4.10.1 Regulatory Framework and Methodology

### 4.10.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's hazardous materials impacts are listed below. For additional information regarding these regulations, please see the Hazardous Materials Technical Report in Appendix P of this Draft EIS/EIR.

#### Federal

- Resource Conservation and Recovery Act (RCRA);
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA);
- Superfund Amendments and Reauthorization Act (SARA);
- Toxic Substance Control Act; and
- Federal Occupational Safety and Health Act.

#### State

- California Hazardous Waste Control Law, California Health and Safety Code, Division 20, Chapter 6.5;
- Carpenter-Presley-Tanner Hazardous Substance Account Act, California Health and Safety Code, Division 20, Chapter 6.8;
- State of California Safety and Health Act;
- Unified Hazardous Waste and Hazardous Materials Management Regulatory Program;
- Waters Bill of 1985 (Business Emergency Plan/Hazardous Materials Business Plan);
- La Follette Bill of 1986 (Risk Management Plan); and
- South Coast Air Quality Management District Rule 1403.

#### Local

Local jurisdictions, departments, and documents that regulate and oversee issues related to hazardous materials within the project study area are listed below:

- The City of Los Angeles Department of Building and Safety;
- The City of Los Angeles Bureau of Sanitation, Industrial Waste Management Division;
- The City of Los Angeles Fire Department, Hazardous Materials Divisions;
- The City of Los Angeles Fire Department, Underground Storage Tank Division;
- Uniform Fire Code; and
- Los Angeles Municipal Code – Methane and Methane Buffer Zones.

### 4.10.1.2 Methodology

The methodology used to identify potential impacts consisted of locating potentially hazardous sites and comparing their locations with the route of the proposed project. A Phase I Environmental Site Assessment (ESA) was prepared by DYA in April 2013 (see Appendix P) in which hazardous assessment documents previously prepared for the project were reviewed and potential hazards on the project site were evaluated.

### 4.10.1.3 Significance Thresholds

#### NEPA

NEPA does not include specific significance thresholds. According to the Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of NEPA, the determination of significance under NEPA is based on context and intensity.[1] Context relates to the various levels of society where effects could result, such as society as a whole, the affected region, the affected interests, and the locality. The intensity of an effect relates to several factors, including the degree to which public health and safety would be affected; the proximity of a project to sensitive resources; and the degree to which effects on the quality of the human environment are likely to be highly controversial or involve unique or unknown risks.

The CEQA thresholds (described below) encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its impacts. Therefore, the CEQA thresholds listed below also apply to NEPA for the project and its alternatives.

#### CEQA

CEQA requires state and local government agencies to identify the significant environmental effects of proposed actions; however, CEQA does not describe specific significance thresholds. According to the Governor's Office of Planning and Research, significance thresholds for a given environmental effect are at the discretion of the Lead Agency and are at the levels at which the Lead Agency finds the effects of the project to be significant.[2]

##### State CEQA Guidelines

The State CEQA Guidelines define a significant effect on the environment as: "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (State CEQA Guidelines, Section 15382).[3]

The State CEQA Guidelines do not describe specific significance thresholds. However, Appendix G of the State CEQA Guidelines lists a variety of potentially significant effects, which are often used as thresholds or guidance in developing thresholds for determining impact significance. Accordingly, for the purposes of this EIS/EIR, a project would normally have a significant hazardous waste and materials impact, under CEQA, if it would:

[1] Code of Federal Regulations. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index*.
[2] OPR (State of California, Governor's Office of Planning and Research). 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September.
[3] AEP. 2015. *California Environmental Quality Act (CEQA) Statute and Guidelines.*

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or wastes within one-quarter mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and as a result, would create a safety hazard for people residing or working in the project area;
- Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures to a significant risk or loss, injury, or death involving wildland fires including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

The only public use airport or private airstrip within two miles of the proposed project alignment is Whiteman Airport, located just under a mile southeast of the intersection of Van Nuys Boulevard and San Fernando Road. However, the proposed project is a transit improvement project on an existing transit corridor and would not propose tall elevated structures or buildings that would create a safety hazard for people residing or working in the project area, nor have an effect on existing operations of Whiteman Airport. The proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wild-land fires since the proposed project corridor is not located in a wild-land fire hazard area, but rather is located in an urban environment. For information regarding the proposed project's potential to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, please see Section 4.14 Safety and Security in this EIS/EIR.

### L.A. CEQA Thresholds Guide

The *L.A. CEQA Thresholds Guide* addresses impacts with respect to hazards under Section F, including F.1 Risk of Upset/Emergency Preparedness and F.2 Human Health Hazards. The L.A. CEQA Thresholds Guide (pages F.1-3 and ) states that the determination of significance for risk of upset/emergency preparedness impacts shall be made on a case-by-case basis, considering the following factors:

- The regulatory framework;
- The probable frequency and severity of consequences to people or property as a result of a potential accidental release or explosion of a hazardous substance;
- The degree to which the project may require a new, or interfere with an existing emergency response or evacuation plan, and the severity of consequences; and
- The degree to which project design will reduce the frequency or severity of a potential accidental release or explosion of a hazardous substance.

For human health hazards, the L.A. CEQA Thresholds Guide (pages F.2-3 and F.2-4) states that the determination of significance shall be made on a case-by-case basis, considering the following factors:

- The regulatory framework for the health hazard;
- The probable frequency and severity of consequences to people from exposure to the health hazard; and
- The degree to which project design would reduce the frequency of exposure or severity of consequences of exposure to the health hazard.

## 4.10.2 Affected Environment/Existing Conditions

The ESA prepared for the project site focused on potential hazardous substances that may be encountered by construction activities associated with the project. The components of the transit alternatives that may require earthwork are summarized below.

- Excavations as deep as 10 feet below the ground surface (bgs) at the centers and as deep as 5 feet bgs at the shoulders of existing street ROWs for at-grade portions of the alternatives including the station, TPSS, and MSF locations.
- Below-grade segment of dedicated guideway along Van Nuys Boulevard between Vanowen Street and Osborn Street that would consist of approximately 1,300 lineal feet of open-cut trench and approximately 12,000 lineal feet of tunnel constructed using cut-and-cover or tunnel boring machine (TBM) techniques. The bottom of the below-grade segment may be as deep as approximately 90-100 feet bgs and may require shoring involving deep excavations, such as cast-in-drilled-hole (CIDH) piles.
- Widening and/or structurally retrofitting existing culvert crossings and bridges along the potential corridor alignments to accommodate the proposed Low-Floor LRT/Tram and LRT improvements may require excavations of approximately 15 feet bgs.
- Replacing the Pacoima Wash Bridge on Metro ROW and constructing the new pedestrian bridge at the Metrolink San Fernando Station may require excavations greater than 50 feet bgs for CIDH piles. The ROW is owned by Metro, and Metrolink trains currently operate on this ROW. Metrolink has been made aware of the project, and Metro will continue coordinating with Metrolink through its Regional Rail Department.
- Constructing the pedestrian bridge at the San Fernando Metrolink Station could potentially be supported on CIDH piles as the foundation system.
- Under Alternative 4, relocating an existing 72-inch-diameter storm drain pipeline located within the existing Van Nuys Boulevard ROW may require excavations as deep as 15 feet bgs.

The ESA identified facilities located within one-quarter mile of the project ROW that might reasonably be anticipated to emit hazardous emissions or handle hazardous or acutely hazardous material. Due to the large volume of site inventory and supporting data, a summary of the sites that have potentially recognizable environmental concerns (REC) directly related to the project is provided below.

### 4.10.2.1 National Priority List

Soil and groundwater contamination is potentially present in the area of the Pacoima Wash Bridge adjacent to San Fernando Road. Contamination in this area has historically been caused by several adjacent sites that are listed under the National Priority List (NPL) and EnviroStor databases. Contaminants included volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), heavy metals, and total petroleum hydrocarbons (TPH). Research of nearby database sites in the area indicates that groundwater may be as shallow as 45 feet bgs.

### 4.10.2.2 Underground Storage Tanks and Leaking Underground Storage Tanks

Registered underground storage tanks (USTs) could be an environmental concern when they are within, or immediately adjacent to, the project ROW. Leaking underground storage tanks (LUSTs) cases could potentially contaminate the groundwater. UST and LUSTs within ¼ mile of the project alignment are shown on Figure 4.10-1. UST and LUSTs were determined to have a potential to result in impacts to the project if they met the following criteria:

- LUSTS have caused soil and groundwater contamination within ⅛ mile of the project ROW. The assumption being that contamination would have generally occurred below a depth of 2 feet bgs and may have encroached on the project ROW from multiple former auto stations.
- USTs have caused undocumented soil and groundwater contamination adjacent to the project ROW. The assumption being that contamination would have generally occurred below a depth of 5 feet bgs.

### 4.10.2.3 Oil Wells

Limited oil and gas exploration and pumping from proven reserves have occurred in the areas surrounding the project ROW. The Wildcat Maps and the California Department of Conservation Division of Gas and Geothermal Resources (DOGGR) identified two former plugged and abandoned dry hole wells that exist adjacent to the proposed project ROW, and several that are located within approximately a block of the project alignment. The locations of these wells are shown on Figure 4.10-2.

### 4.10.2.4 Spills

A record of releases of hazardous substances contaminating soil within and adjacent to the project ROW were registered in the Emergency Response and Notification System (ERNS) database. The assumption being that contamination would have generally occurred within the upper 5 feet of soil.

### 4.10.2.5 Polychlorinated Biphenyl

Potential polychlorinated biphenyl– (PCB-) containing equipment, such as electrical transformers and substations were present adjacent to the project ROW at the northwest corner of the intersection of Van Nuys Boulevard and Kewen Avenue. PCBs may be encountered within the upper 5 feet of soil adjacent to the electrical transformers and substations.

### 4.10.2.6 Asbestos-Containing Material

Asbestos-containing material (ACM) may be present in the existing bridge crossings at the Pacoima Diversion Channels. Existing structures located within areas of proposed ROW acquisitions may also contain ACM.

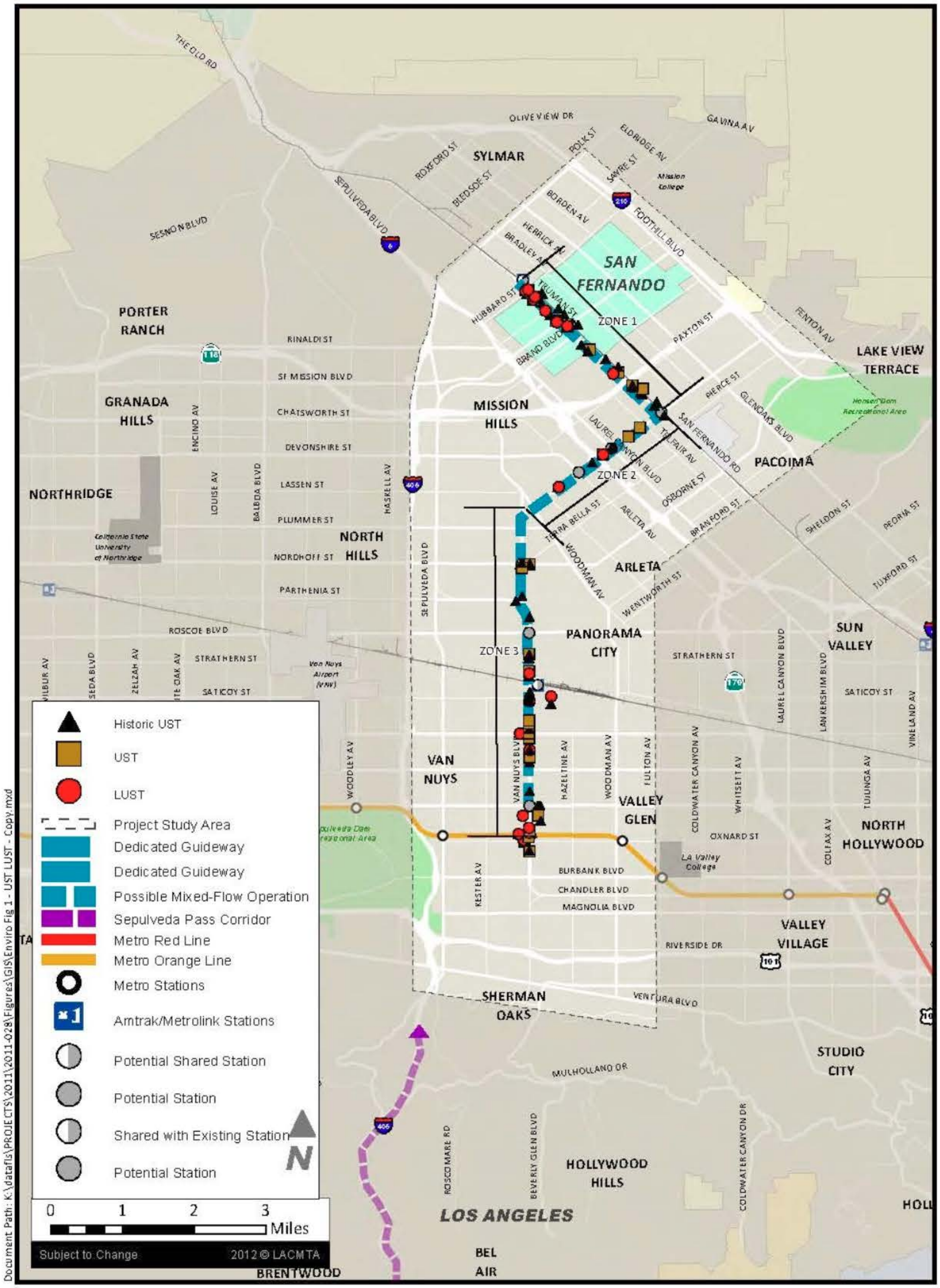
### 4.10.2.7 Arsenic from Weed Killer

Railroad operations have historically been known to use various substances for weed control within the railroad ROW. Near-surface soils within the Metro Orange Line ROW may contain arsenic from weed killers (herbicides) commonly used in the past by railroads.

### 4.10.2.8 Railroad Ties

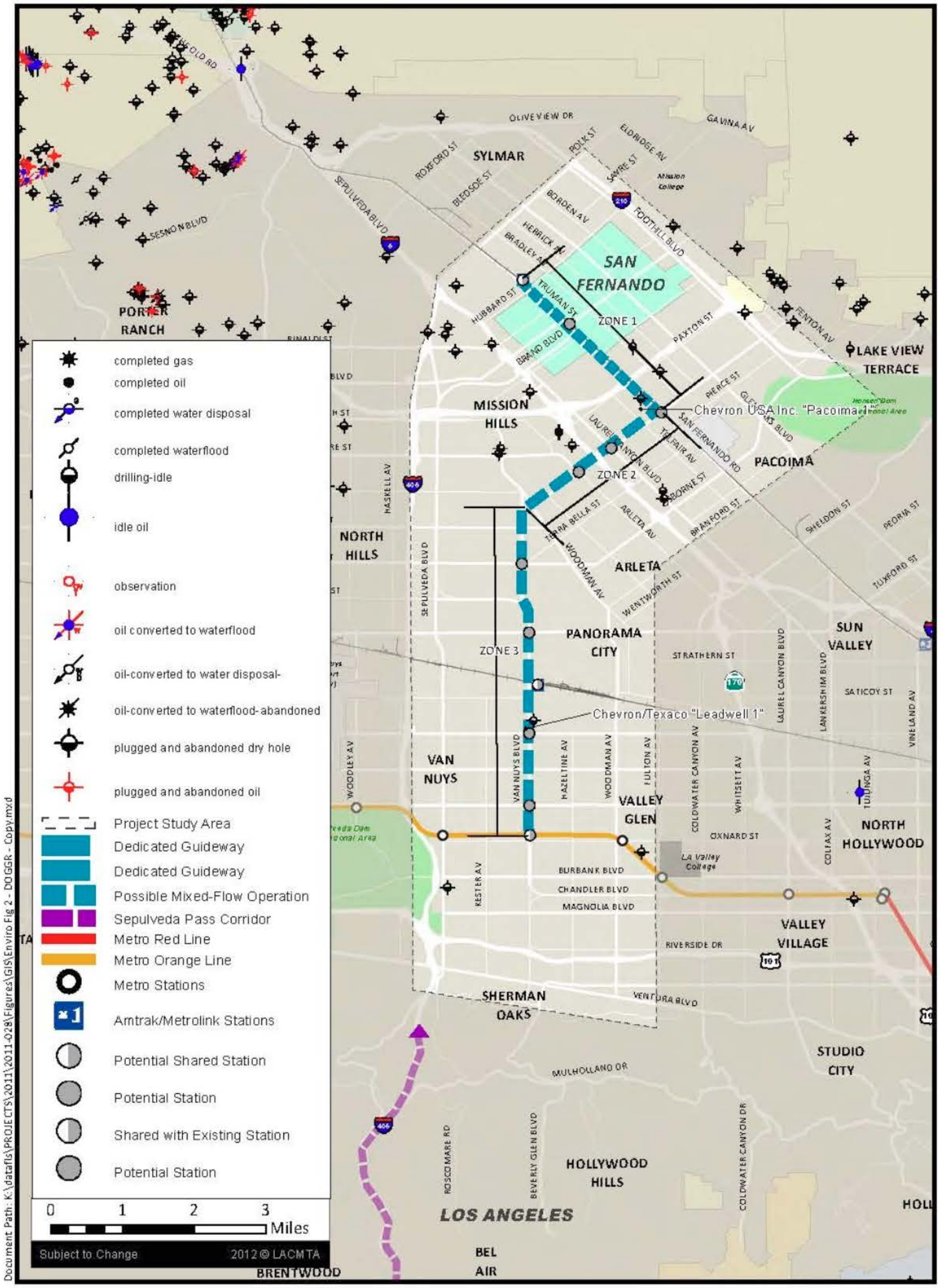
Railroad ties may be present beneath Van Nuys Boulevard. Railroad ties are commonly treated with various chemicals for preservation including, but not limited to, creosote, pentachlorophenol, and metallic arsenates.

## Figure 4.10-1: UST and LUSTs




Source: EDR, 2014

## Figure 4.10-2: DOGGR Wells




Document Path: K:\datafls\PROJECTS\2011\2011-028\Figures\GIS\Enviro Fig 2 - DOGGR - Copy.mxd

Source: California Department of Conservation, DOGGR .



Metro

### 4.10.2.9 Lead

Soils adjacent to paved areas within the project ROW may contain aerially deposited lead (ADL) from vehicle exhaust. Lead and other heavy metals such as chromium may be present within yellow thermoplastic paint markings on the pavement. These surfacing materials should be tested for LBP prior to removal.

Existing structures located within areas of proposed ROW acquisitions should be evaluated for suspect lead-based paint (LBP) as part of site-specific ESAs.

### 4.10.2.10 Manufacture, Storage, or Release of Hazardous Materials

Properties potentially to be acquired are listed on multiple databases and should be evaluated further for contaminants that were manufactured, stored, or released from the facility if the properties will be acquired.

### 4.10.2.11 Underground Injection Control Wells

An existing underground injection control well was located adjacent to the proposed tunnel, along Van Nuys Boulevard, of the LRT Alternative.

### 4.10.2.12 Dry Cleaners

Portions of the project alignment are adjacent to former or current dry cleaners, and the soil and groundwater along the portions of the project alignment that are adjacent to former and current dry cleaners may contain perchloroethylene (PCE).

## 4.10.3 Environmental Consequences, Impacts, and Mitigation Measures

### 4.10.3.1 No-Build Alternative

#### Construction Impacts

The No-Build Alternative would not result in any project-related construction along the project alignment. Therefore, there would be no construction impacts related to hazardous materials under this alternative.

#### Operational Impacts

The No-Build Alternative would not result in new project facilities; therefore, there would be no operational impacts related to hazardous materials under this alternative.

#### Cumulative Impacts

No cumulative impacts would occur.

## Mitigation Measures

### Construction Mitigation Measures

No construction mitigation measures are required.

### Operational Mitigation Measures

No operational mitigation measures are required.

## Impacts Remaining After Mitigation

### NEPA Finding

No adverse effects under NEPA would occur.

### CEQA Determination

No impacts under CEQA would occur.

# 4.10.3.2 TSM Alternative

## Construction Impacts

The amount of construction that would occur under this alternative would be very minor and would be generally limited to minor roadway modifications and bus stop amenities/improvements. Consequently, it's unlikely that significant amounts of materials, soil or groundwater containing hazardous materials or wastes would be encountered during construction. Therefore, potential construction impacts would be less than significant under CEQA and non-adverse under NEPA.

## Operational Impacts

The TSM Alternative would include relatively low-cost transit service improvements, such as increased bus frequencies and minor modifications to the roadway network. Increased bus service could result in increased use of hazardous materials required to operate and maintain the bus fleet. Improper handling of these hazardous materials could result in spills adversely affecting the environment or public health. However, the increased use of hazardous materials is not expected to be substantial. Additionally, hazardous materials would be stored, used, and disposed of in accordance with federal, state, and local regulations, and Metro's standard operating procedures.

Other impacts that could also occur include release of lubricants contained in bus vehicles due to mechanical failure, an accident (collisions with other motor vehicles could result in release of lubricants and fuels in those vehicles, as well), or other incidents. However, emergency responders and maintenance personnel are equipped to contain the volume of contaminants that may be released. Additionally, potential incidents that would result in the release of more than minor amounts of hazardous materials are expected to occur infrequently. Therefore, the TSM Alternative would result in a less-than-significant impact under CEQA and a non-adverse effect under NEPA.

## Cumulative Impacts

The TSM Alternative would result in very minimal construction. Furthermore, the handling, treatment, and disposal of contaminated materials encountered by the proposed as well as related projects would be conducted in accordance with all applicable federal, state, and local regulations. Therefore, it is not expected that this alternative would contribute to any significant cumulative impacts with regard to hazardous waste and materials.

#### Compliance Requirements and Design Features

Compliance with the federal, state, and local regulations listed in Section 4.10.1.1 governing the investigation, testing, handling, treatment, transport, and disposal of hazardous wastes and materials would minimize potential impacts due to encountering hazardous materials. The project would also comply with all applicable SCAQMD Rules relevant to hazardous waste and materials including Rule 403 (fugitive dust).

### Mitigation Measures

#### Construction Mitigation Measures

No construction mitigation measures would be required.

#### Operational Mitigation Measures

No operational mitigation measures would be required.

### Impacts Remaining After Mitigation

#### NEPA Finding

Effects under NEPA would not be adverse.

#### CEQA Determination

Impacts under CEQA would be less than significant.

## 4.10.3.3 BRT Alternatives (Alternatives 1 and 2)

### Alternative 1 – Curb-Running BRT

#### Construction Impacts

Construction of proposed improvements may encounter hazardous materials during grading and excavation within the ROW. The construction work associated with this alternative would generally be limited to within the upper 5 feet of soil. The ESA indicated that in or adjacent to the project ROW, there are potential instances of LUSTs and hazardous substances from industrial activities. In addition, it is likely that lead and arsenic may have been deposited within the soil along the project alignment and may occur at hazardous levels. Also, as noted above, any yellow thermoplastic paint markings on pavement to be removed may contain lead and other heavy metals such as chromium.

The risk of encountering hazardous materials is a potentially significant impact under CEQA and an adverse effect under NEPA. However, these impacts/effects would be eliminated or reduced to less than significant or non-adverse as a result of compliance with the requirements and design features and implementation of the mitigation measures described below. In addition, dust created from construction activities may contain hazardous contaminants, a potentially significant impact under CEQA and adverse effect under NEPA.

Construction equipment contains fuel, hydraulic oil, lubricants, and other hazardous materials, which could be released accidentally during operation of the equipment, a potentially significant impact under CEQA and an adverse effect under NEPA. Compliance with federal, state, and local regulations, however, would reduce the impact to less than significant under CEQA and minor adverse under NEPA.

### Operational Impacts

The Curb-Running BRT Alternative would result in the same impacts as those described above for the TSM Alternative. To the extent this alternative increases bus vehicle service miles beyond what would occur under the TSM Alternative, it would result in a proportionately greater potential for operational hazardous materials impacts. However, the impacts/effects are still expected to be less than significant under CEQA and non-adverse under NEPA.

### Cumulative Impacts

The study area for the cumulative impacts discussion consists of the area within a quarter mile of the project ROW. That study area was identified because it has a high probability of capturing all areas that might be significantly affected by the combined impacts of the proposed and related projects. The cumulative impacts study area is also consistent with the project study area as defined above and the area for which database searches were conducted to document potential RECs.

The study area is characterized by urban uses including industrial, commercial, residential, institutional, and infrastructure uses with few vacant parcels and limited open space. As a consequence, construction of other related projects could encounter soils or groundwater contaminated by current or historical uses. Similar to the project, disturbance of contaminated soils or groundwater could expose workers, the public, and environment to increased hazards and result in cumulative hazardous materials impacts. The extent of potential cumulative impacts would depend on the location and extent of construction, the level of any on-site contamination, as well as construction practices and methods.

The BRT and LRT build alternatives would require more significant construction resulting in a higher probability that contaminated soils or groundwater would be encountered during construction. However, compliance with the regulatory requirements and implementation of the additional measures described below would ensure that the combined effects of the build alternatives and related projects in the study area would be minimized and would be less than significant.

#### *Compliance Requirements and Design Features*

The compliance requirements and design features applicable under the TSM Alternative are also applicable to Alternative 1.

### Mitigation Measures

#### *Construction Mitigation Measures*

**MM-HAZ-1 (All Build Alternatives)**: An environmental investigation shall be performed during design for above-grade or below-grade transit structures, stations, and the maintenance yard. The environmental investigation shall collect soil, groundwater, and/or soil gas samples to delineate potential areas of contamination that may be encountered during construction or operations. The environmental investigation shall include the following:

- Properties potentially to be acquired are listed on multiple databases and shall be evaluated further for contaminants that were manufactured, stored, or released from the facility. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.

- Phase II subsurface investigations for potential impacts from adjoining current or former UST sites and nearby LUST sites may be recommended pending the selection of the preferred alternative, potential ROW acquisitions, the depth of excavation, and the result of a review of archives on file with the City of Los Angeles Fire Department (LAFD) and RWQCB.
- A Phase II subsurface investigation to evaluate potential presence of PCE shall be performed along the portions of the project alignment that are adjacent to former and current dry cleaners. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.
- If construction encroaches into the two former plugged and abandoned dry-hole oil exploration wells mapped adjacent to the proposed project ROW, the project team shall consult with DOGGR regarding the exact locations of the abandoned holes and the potential impact of the wells on proposed construction.
- The locations of proposed improvements involving excavations adjacent to (within 50 feet of) the electrical substation shall be screened prior to construction by testing soils within 5 feet of the existing ground surface for PCBs. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.
- Buildings that will be demolished shall have a comprehensive ACM inspection prior to demolition. In addition, ACM may be present in the existing bridge crossings at the Pacoima Diversion Channels. If improvements associated with the corridor alternative selected for final design will disturb the existing bridge crossings, then these structures shall be evaluated for suspect ACM. If ACM is found, it shall be removed, and transported to an approved disposal location according to state law.
- Areas along the project alignment where soil may be disturbed during construction shall be tested for ADL according to Caltrans ADL testing guidelines. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.
- Lead and other heavy metals, such as chromium, may be present within yellow thermoplastic paint markings on the pavement. These surfacing materials shall be tested for LBP prior to removal. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.
- Former railroad ROWs that crossed or were adjacent to the project ROW may contain hazardous materials from the use of weed control, including herbicides and arsenic, and may also contain Treated Wood Waste (TWW). Soil sampling for potentially hazardous weed control substances shall be conducted for health and safety concerns in the event that construction earthwork involves soil removal from the former railroad ROWs. If encountered during construction, railroad ties designated for reuse or disposal (including previously salvaged railroad ties in the project ROW) shall be managed or disposed of as TWW in accordance with Alternative Management Standards provided in CCR Title 22 Section 67386.

**MM-HAZ-2 (All Build Alternatives):** The contractor shall implement a Worker Health and Safety Plan prior to the start of construction activities. All workers shall be required to review the plan, receive training if necessary, and sign the plan prior to starting work. The plan shall identify properties of concern, the nature and extent of contaminants that could be encountered during excavation activities, appropriate health and environmental protection procedures and equipment, emergency response procedures including the most direct route to a hospital, and contact information for the Site Safety Officer.

**MM-HAZ-3(All Build Alternatives):** The contractor shall implement a Contaminated Soil/Groundwater Management Plan during construction to establish procedures to follow if contamination is encountered in order to minimize associated risks. The plan shall be prepared during the final design phase of the project, and the construction contractor shall be held to the level of performance specified in the plan. The plan shall include procedures for the implementation of the following measures:

- Contacting appropriate regulatory agencies if contaminated soil or groundwater is encountered
- Sampling and analysis of soil and/or groundwater known or suspected to be impacted by hazardous materials
- The legal and proper handling, storage, treatment, transport, and disposal of contaminated soil and/or groundwater shall be delineated and conducted in consultation with regulatory agencies and in accordance with established statutory and regulatory requirements in Section 4.10.1.1 of this EIS/EIR
- Implementation of dust control measues such as soil wetting, wind screens, etc., for contaminated soil
- Groundwater collection, treatment, and discharge shall be performed according to applicable standards and procedures listed in Section 4.10.1.1 of this EIS/EIR

**MM-HAZ-4 (All Build Alternatives):** The contractor shall properly maintain equipment and properly store and manage related hazardous materials, so as to prevent motor oil, or other potentially hazardous substances used during construction, from spilling onto the soil. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.

#### *Operational Mitigation Measures*

No operational hazardous materials impacts were identified that would require mitigation measures.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Effects under NEPA would not be adverse.

#### *CEQA Determination*

Impacts under CEQA would be less than significant.

## Alternative 2 – Median-Running BRT

### Construction Impacts

The Median-Running BRT Alternative would result in the same construction impacts as the Curb-Running BRT Alternative.

### Operational Impacts

The operational impacts of the Median-Running BRT Alternative would be the same as those described above for the Curb-Running BRT Alternative.

### Cumulative Impacts

See discussion above for Alternative 1 – Curb-Running BRT.

#### *Compliance Requirements and Design Features*

See the discussion above for Alternative 1.

### Mitigation Measures

#### *Construction Mitigation Measures*

See Mitigation Measures MM-HAZ-1 through MM-HAZ-5 listed above for Alternative 1.

#### *Operational Mitigation Measures*

No operational hazardous materials impacts were identified that would require mitigation measures.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Effects under NEPA would not be adverse.

#### *CEQA Determination*

Impacts under CEQA would be less than significant.

# 4.10.3.4 Rail Alternatives (Build Alternatives 3 and 4)

## Alternative 3 – Low-Floor LRT/ Tram

### Construction Impacts

The Low-Floor LRT/Tram Alternative would result in the same impacts as those for the BRT alternatives. Additional impacts that could occur include the potential for encountering groundwater contaminated by VOCs due to the deeper construction excavations for the retrofit or replacement of structures crossing the Pacoima Wash or the foundations for the new pedestrian crossing at the San Fernando Metrolink Station. The potential for encountering hazardous materials during construction under this alternative is a potentially significant impact under CEQA and an adverse effect under NEPA. These potential impacts/effects, however, can be reduced to a less-than-significant impact or non-adverse effect by complying with the requirements and design features and implementation of the mitigation measures described below.

The Low-Floor LRT/Tram Alternative would also include MSF and TPSS facilities, unlike the BRT alternatives described above. The ESA indicated historical land usage as auto repair facilities, waste transfer facilities, manufacturing, and other industrial purposes at the potential properties to be acquired for the proposed MSF and TPSS sites. During demolition of the existing structures, LBP and ACM may be encountered in waste building materials. The construction work for the proposed MSF and TPSS sites would generally include excavations in the upper 5 to 10 feet of soil and may encounter subsurface hazardous waste residue from spills or releases from the former facilities, a potentially significant impact under CEQA and an adverse effect under NEPA. Construction of the MSF and TPSS facilities would include removal of existing hazardous materials within the construction footprint. The removal, handling, and disposal of hazardous materials would be conducted in accordance with all applicable federal, state, and local regulations, and would comply with the design features and mitigation measures, which would reduce the potential impacts to less than significant under CEQA and non-adverse under NEPA.

### Operational Impacts

The Low-Floor LRT/Tram Alternative would include an MSF, which will use and store hazardous materials including fuels, lubricants, and paints, for maintenance of the rail vehicles. Compliance with federal, state, and local regulations, and adherence to Metro's standard operating procedures, would reduce operational impacts/effects to less than significant under CEQA and non-adverse under NEPA. Additionally, it should be noted that the Low-Floor LRT/Tram vehicles, unlike the bus vehicles in the BRT alternatives above, would be electrically powered and would not contain fuels (i.e., natural gas) that could be released to the environment in the event of an accident or mechanical failure.

### Cumulative Impacts

See discussion above for Alternative 1.

#### *Compliance Requirements and Design Features*

See discussion above for Alternative 1.

### Mitigation Measures

#### *Construction Mitigation Measures*

See mitigation measures MM-HAZ-1 through MM-HAZ-5 above.

#### *Operational Mitigation Measures*

No operational hazardous materials impacts were identified that would require mitigation measures.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Effects under NEPA would not be adverse.

#### *CEQA Determination*

Impacts under CEQA would be less than significant.

## Alternative 4 – LRT

### Construction Impacts

The LRT Alternative would result in the same construction impacts as the Low-Floor LRT/Tram Alternative for the at-grade portions of the project. The cut and cover/tunneling portion of this alternative could consist of excavations as deep as 80 feet with piles extending deeper. The ESA indicated that adjacent to the project ROW, there are instances of LUSTs from former auto stations, and some of these facilities may extend into the project ROW because Van Nuys Boulevard may have been widened over time. Abandoned wells and dry holes represent potential vertical migration pathways for crude oil, methane, H2S, and other compounds, and can represent potential hazards for nearby buildings and occupants. The California Department of Conservation/Division of Oil, Gas, and Geothermal Resources (DOGGR) regulates drilling and abandonment of wells and dry holes. DOGGR regulations evolved over time to address problems and hazards identified in older wells. As a result, there are fewer problems associated with recently plugged wells and dry holes. Nevertheless, even when a well is plugged in accordance with DOGGR regulations, leaks can occur later. Methane and hydrogen sulfide are considered hazardous because of their explosive properties. Hydrogen sulfide is also highly toxic when inhaled – at levels much lower than its explosive limits. If structures are not designed to prevent gas intrusion, these gases can seep into tunnels and other excavations from surrounding soils and result in hazardous conditions.

The potential exists for encountering wells during construction if the tunnel is not aligned to avoid these wells or the wells are not identified. Based on the existing information, design of Alternative 4's underground segment, including stations, alignment, and station entrances has avoided oil wells where these are definitely known, and during final design, additional studies and testing as outlined in mitigation measures MM-HAZ-1 and MM-HAZ-5 would be performed to further ensure all oil wells are identified and re-abandoned or removed according to approved California State Department of Oil, Gas, and Geothermal Resources procedures prior to tunneling.

Additionally, the proposed tunnel would cross beneath a portion of the former General Motors Plant and other manufacturing and industrial sites, which may contain soils containing hydrocarbons, VOCs, and other hazardous waste constituents. The possibility of encountering hazardous materials is a potentially significant impact under CEQA and an adverse effect under NEPA. However, these impacts would be reduced to less than significant with compliance with the requirements and design features and implementation of mitigation measures.

In addition, on the southern end of the proposed tunnel, the structure would potentially be located below historically high groundwater levels, which may be contaminated with hazardous materials, a potentially significant impact under CEQA and adverse effect under NEPA. If groundwater is encountered during construction, any wastewater generated would require laboratory testing to determine appropriate disposal. Compliance with regulatory requirements and mitigation measures would reduce potential effects to less than significant or non-adverse.

### Operational Impacts

The LRT Alternative would result in types of operational hazardous materials impacts that would be the same as those that would occur under the Low-Floor LRT/Tram Alternative. However, the tunnel and below grade stations, which are unique to this alternative, have the potential for vapor intrusion from soil and groundwater contamination, which would be a significant impact under CEQA and an adverse effect under NEPA.

### Cumulative Impacts

See the discussion above for Alternative 1.

### Mitigation Measures

#### *Compliance Requirements and Design Features*

See the discussion above for Alternative 1.

#### *Construction Mitigation Measures*

Please see mitigation measures MM-HAZ-1 through MM-HAZ-5 above. The following mitigation measure is also proposed.

**MM-HAZ-5:** In addition to the environmental studies identified above in MM-HAZ-1, the environmental investigation for the LRT Alternative shall include the following:

- If reconstruction of the Pacoima Wash bridge on San Fernando Road is proposed, the construction spoils (e.g., excavated soils, cuttings generated during installation of CIDH piles), including those in contact with the groundwater, shall be contained and tested for total chromium, 1,4-dioxane, trichloroethylene (TCE), and PCE to determine appropriate disposal.
- Phase II subsurface investigation shall be performed along the below-grade segment of the corridor to evaluate the need for environmental remediation measures during construction. The Phase II site investigation shall include the installation of groundwater monitoring wells for the tunneling portion of the alternative.
- An existing underground injection control well is located adjacent to the proposed tunnel along Van Nuys Boulevard for the LRT corridor alternative. The design team shall consult with California Department of Conservation to evaluate the potential impact of the well on the proposed improvements that could encounter groundwater and are located within ⅛ mile of the well.
- To evaluate for the presence of deeper soil contamination and VOCs in groundwater at cut and cover/tunnel excavation locations, soil borings shall be performed and groundwater monitoring wells shall be installed. Soil sampling shall include environmental screening for contamination by visual observations and field screening for VOCs with a photoionization detector (PID). Based on field screening, soil samples shall be analyzed for the suspected chemicals by a certified laboratory. Groundwater samples shall be analyzed for VOCs.
- A Contaminated Soil/Groundwater Management Plan shall be prepared during final design that describes appropriate methods and measures to manage contamination encountered during construction.

#### *Operational Mitigation Measures*

**MM-HAZ-6:** Engineering controls shall be implemented to increase ventilation in the below-grade structures, if vapor intrusion from soil and groundwater contamination is above regulatory levels.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Effects under NEPA would not be adverse.

#### *CEQA Determination*

Impacts under CEQA would be less than significant.

# 4.11 Energy

## 4.11.1 Regulatory Framework and Methodology

### 4.11.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's energy impacts are listed below. For additional information regarding these regulations, please see the Energy Technical Report in Appendix R of this Draft EIS/EIR.

#### Federal

The following federal regulations are applicable to the proposed project:

- The Energy Policy and Conservation Act of 1975 (EPCA)
- Moving Ahead for Progress in the 21st Century Act (MAP-21)
- The Energy Independence and Security Act of 2007

#### State

The following state agency and regulations are applicable to the proposed project:

- California Energy Commission
- Executive Order S-3-05
- AB 32: Global Warming Solutions Act
- AB 2076, Reducing Dependence on Petroleum

#### Local

The following local and regional regulations and policies are applicable to the proposed project:

- Southern California Association of Governments Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)
- Metro Energy and Sustainability Policy (June 2007)
- Metro Energy Conservation and Management Plan (September 2011)
- Metro Sustainability Implementation Plan(December 2012)
- Metro Green Construction Policy (July 2011)
- Metro Climate Action and Adaptation Plan (June 2012)
- Los Angeles Department of Water and Power: Power Integrated Resource Plan (December 2012)
- Los Angeles Municipal Code (June 2015)
- Los Angeles Green Building Code (December 2010)

# 4.11.1.2 Methodology

## Construction

The estimate of construction-related energy use was calculated by applying the U.S. Environmental Protection Agency (USEPA)-derived carbon dioxide equivalent ($CO_2e$) emissions per gallon of fuel to the total $CO_2e$ emissions estimated using the California Emissions Estimator Model™ (CalEEMod) in the air quality emissions analysis prepared for the proposed project. The Air Quality Technical Report includes details on construction equipment and activity assumptions that were used to estimate $CO_2e$ emissions. Emissions were then converted to million British thermal units (MMBTU) using energy unit conversion factors.

## Operation

To estimate operational automobile traffic energy consumption, future (2040) local VMT and roadway network travel speeds were calculated using traffic data (VMT apportioned into 5 mph speed bins) derived from a micro-simulation model that captures project effects. The VMT-by-speed-bin data were used as inputs in CT-EMFAC2014, which is Caltrans' tool for estimating pollutant emissions from on-road vehicles. The outputs for $CO_2e$ were converted to MMBTU using conversion factors. The year 2040 was chosen for the definition of future baseline conditions, primarily due to the need to match the future baseline year of the Metro Travel Demand Model.

Each of the build alternatives was compared against existing conditions, which "normally constitute[s] the baseline physical conditions by which a lead agency determines whether an impact is significant," under Section 15125(a) of the CEQA Guidelines. Because Alternative 3 would have the greatest traffic impacts, the Existing (2012) with Alternative 3 scenario presents the worst-case relative to any of the other "Existing Plus Project" scenarios. Thus, in order to evaluate, analyze, and compare each of the alternatives, the qualitative analysis for the other build alternatives extrapolates from the quantitative analysis for the Existing (2012) with Alternative 3 scenario. In addition, the energy consumption of each of the build alternatives have been evaluated against the No-Build Alternative for a future baseline (2040) analysis.

Bus propulsion energy use was estimated by determining the number of round trips that would be completed under each of the build alternatives to meet the headway goals and multiplying that number by the length of the bus line. The resulting bus VMT was multiplied by the energy intensity of CNG buses per vehicle mile to determine the annual consumption.

For rail Alternatives 3 and 4, CalEEMod was used to estimate emissions from MSF operation that would result from trips made by workers and direct energy electricity and natural gas consumption. The $CO_2e$ emissions were converted to MMBTU. Although three different locations are being considered for the MSF, all would operate in the same manner, and are therefore considered functional equivalents.

Energy estimates for rail vehicle propulsion and station operation under Alternatives 3 and 4 were calculated based on the 2014 energy consumption of Metro's existing LRT lines (the Blue, Gold, Green, and Expo lines). The average per-mile energy consumption was applied to the length of the proposed 9.2-mile alignment and converted to MMBTU. The figure was then increased by 10% to account for proposed 24-hour service.

Energy estimates provided herein are not intended to be used for energy planning purposes; they are used as a standard method to conservatively assess the relative impacts of each of the alternatives. Actual energy use would vary based on the age and efficiency of equipment, operational characteristics, technological changes, and other factors.

### 4.11.1.3 Significance Thresholds

Significance thresholds are used to determine whether a project may have a significant environmental effect. The significance thresholds, as defined by federal and state regulations and guidelines, are discussed below.

#### NEPA

NEPA does not include specific significance thresholds. According to the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the determination of significance under NEPA is based on context and intensity.[1]

Context relates to the various levels of society where effects could result, such as society as a whole, the affected region, the affected interests, and the locality. The intensity of an effect relates to several factors, including the degree to which public health and safety would be affected; the proximity of a project to sensitive resources; and the degree to which effects on the quality of the human environment are likely to be highly controversial or involve unique or unknown risks.

Under NEPA, the context and intensity of the project's effects are discussed in this Land Use section regardless of any thresholds levels, and mitigation measures would be included where reasonable.

Although there are no specific NEPA criteria for analyzing impacts to energy resources, 40 CFR Section 1502.16(e) and (f) direct that EISs shall include a discussion of the "energy requirements and conservation potential of various alternatives," "natural or depletable resource requirements and conservation potential of various alternatives," and, if applicable, mitigation measures.

#### CEQA

CEQA requires state and local government agencies to identify the significant environmental effects of proposed actions; however, CEQA does not describe specific significance thresholds. According to the Governor's Office of Planning and Research, significance thresholds for a given environmental effect are at the discretion of the Lead Agency and are at the levels at which the Lead Agency finds the effects of the project to be significant.[2]

##### State CEQA Guidelines

The State CEQA Guidelines define a significant effect on the environment as: "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (State CEQA Guidelines, Section 15382).[3]

[1] Code of Federal Regulations. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index*.
[2] OPR (State of California, Governor's Office of Planning and Research). 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September.
[3] AEP. 2012. *California Environmental Quality Act (CEQA) Statute and Guidelines.* Reproduced with permission from the California Resources Agency.

The State CEQA Guidelines do not describe specific significance thresholds. However, Appendix G of the State CEQA Guidelines lists a variety of potentially significant effects, which are often used as thresholds or guidance in developing thresholds for determining impact significance. Additionally, Section 15126.4(a)(1)[4] provides further guidance on determining the significance of energy impacts. Accordingly, for the purposes of this EIS/EIR, a project would normally have a significant energy impact under CEQA if it would:

- Result in the wasteful, inefficient, or unnecessary consumption of energy; or
- Result in a substantial increase in demand or transmission service, resulting in the need for new or expanded sources of energy supply or new or expanded energy delivery systems or infrastructure, the construction of which could cause significant impacts on the environment.

Additionally, Appendix F to the State CEQA Guidelines recommends consideration of the following impact possibilities and potential energy conservation measures when preparing an EIR:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project, including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
- The effects of the project on local and regional energy supplies and requirements for additional capacity.
- The effects of the project on peak- and base-period demands for electricity and other forms of energy.
- The degree to which the project complies with existing energy standards.
- The effects of the project on energy resources.
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

### L.A. CEQA Thresholds Guide

The *L.A. CEQA Thresholds Guide* (2006) provides further guidance for determining the significance of impacts on utilities and service systems. With respect to energy, a determination of impacts would be made on a case-by-case basis by considering the following factors:

- The extent to which the project would require new (off-site) energy supply facilities and distribution infrastructure or capacity-enhancing alterations to existing facilities;
- Whether and when the needed infrastructure was anticipated by adopted plans; and
- The degree to which the project design and/or operations incorporate energy conservation measures, particularly those that go beyond City requirements.

[4] California Public Resources Code, Title 14, Division 6, Chapter 3, California Environmental Quality Act Guidelines, Section 15126.4(a)(1).

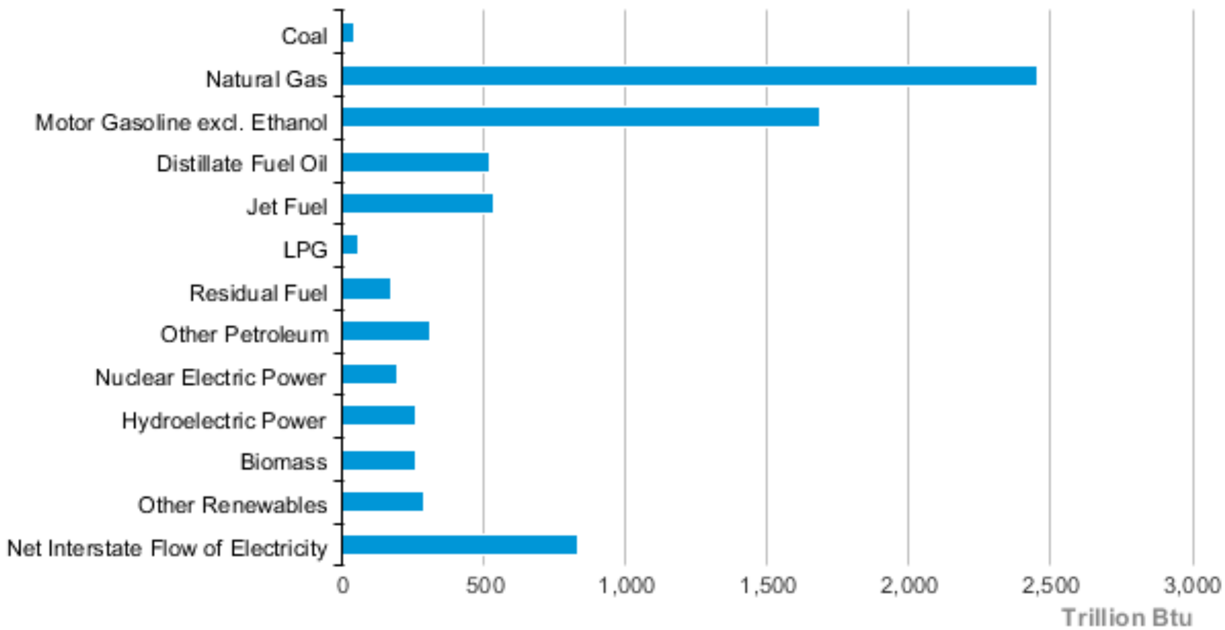
# 4.11.2 Affected Environment/Existing Conditions

## 4.11.2.1 Energy Consumption

### Statewide Energy Consumption

Energy consumption can be accounted for in a number of ways, with fuel source (i.e. gasoline, natural gas, or coal) and end-use sector (i.e., transportation or residential energy use) being among the most common. As shown in Figure 4.11-1, California's most prevalent fuel source is natural gas, representing 32% of the state's energy consumption, and is the fuel source responsible for over 60% of in-state electricity generation.[5,6] Motor gasoline accounts for 22% of statewide energy consumption and petroleum-based fuels other than motor gasoline represent a combined 21% of California's energy use.

**Figure 4.11-1: California Energy Consumption Estimates by Source, 2012**




Source: U.S. Energy Information Administration. 2014a.

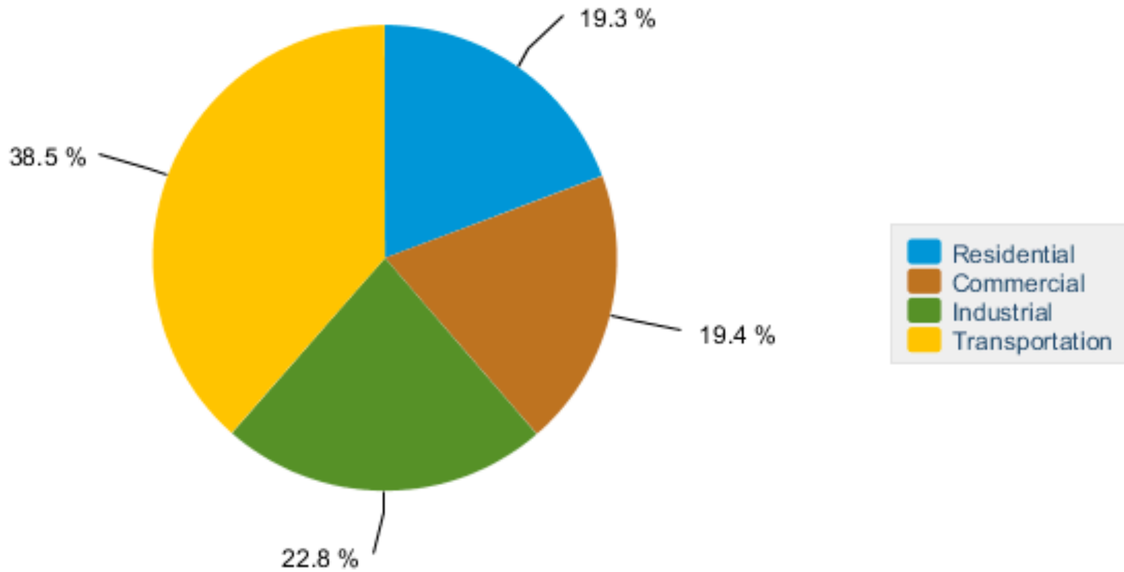
Figure 4.11-2 shows California energy use by end-use sector. The transportation sector is responsible for largest share of the state's energy use, accounting for just under 40% of the California total. Residential, commercial, and industrial users are each responsible for roughly one-fifth of energy use.[7]

Energy resources for transportation include gasoline, natural gas, biofuels, and electricity, with petroleum-based fuels accounting for 96% of the state's transportation needs.[8]

---

[5] U.S. Energy Information Administration. 2014a. *California Energy Consumption Estimates by Source, 2012.* Available: <http://www.eia.gov/state/?sid=CA#tabs-1>. Accessed: December 10, 2014.
[6] California Energy Commission. 2014. *California Energy Almanac: 2013 Total System Power in Gigawatt Hours.* Available: <http://energyalmanac.ca.gov/electricity/total_system_power.html >. Accessed: December 10, 2014.
[7] U.S. Energy Information Administration. 2014b. *California Energy Consumption by End-Use Sector, 2012.* Available: <http://www.eia.gov/state/?sid=CA#tabs-1>. Accessed: December 10, 2014.
[8] California Energy Commission. 2013. *Energy Almanac*. California Petroleum Statistics and Data. Available: <http://energyalmanac.ca.gov/petroleum/index.html>. Accessed: February 14, 2013.

### Figure 4.11-2: California Energy Consumption by End-Use Sector, 2012




Source: U.S. Energy Information Administration. 2014b.

In the 2011 Integrated Energy Policy Report, CEC staff forecasted that future gasoline consumption may range from a decline of 15.6% from 2009 levels to an increase of 3.6% by 2030, based respectively on low and high petroleum fuel demand scenarios. The CEC projects diesel consumption to increase by between 22% and 50% compared to 2009 levels, and expects an increase in the consumption of alternative fuels. CEC estimates the consumption of natural gas as a transportation fuel to increase at a compound annual rate of more than 3% with natural gas consumption by 2030, representing 87% to 96% above 2009 levels.[9] Presently, after ethanol, natural gas is the most consumed alternative fuel for transportation use in California, with electricity consumption ranked third.[10]

## Regional Energy Consumption

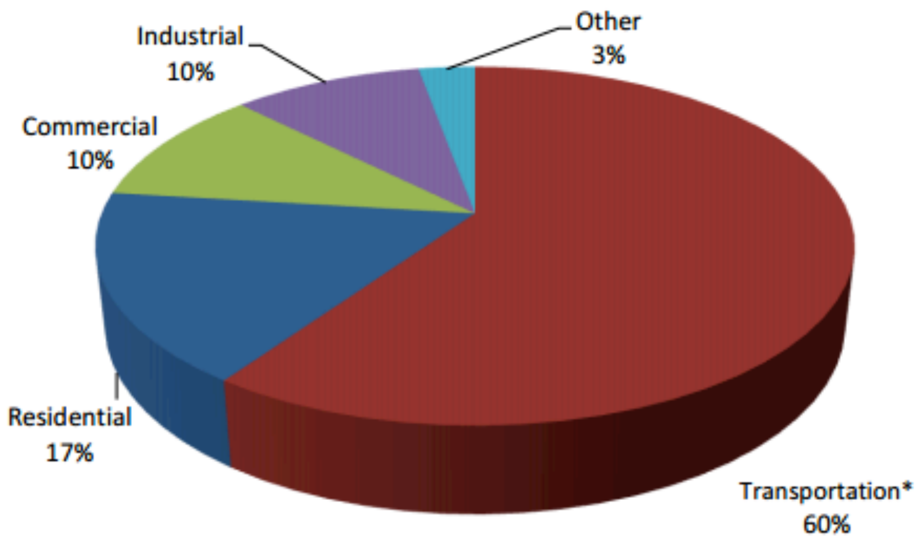
Southern California's energy consumption differs from the state as a whole in that a greater proportion of the energy consumed in the region is for the purposes of transportation, owing to the high density of population that relies on freeways and local roads for mobility, two major ports that serve as a hub for the movement of goods, as well as three large airports. As shown in Figure 4.11-3, approximately 60% of energy used in the South Coast Air Basin (which comprises all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside counties) is transportation-related.[11]

[9] California Energy Commission. 2012. *2011 Integrated Energy Policy Report.* February. Available: <http://www.energy.ca.gov/2011publications/CEC-100-2011-001/CEC-100-2011-001-CMF.pdf>. Accessed: February 14, 2013.

[10] California Energy Commission. 2011. *Transportation Energy Forecasts and Analyses for the 2011 Integrated Energy Policy Report.* Draft staff report. August. Report No. CEC-600-2011-007-SD. Available: <http://energy.ca.gov/2011publications/CEC-600-2011-007/CEC-600-2011-007-SD.pdf>. Accessed: February 17, 2013.

[11] South Coast Air Quality Management District. 2012. *2012 Air Quality Management Plan.* Chapter 10: Energy and Climate. Available: <http://www.aqmd.gov/aqmp/2012aqmp/Final/Ch10.pdf>. Accessed: February 18, 2013.

### Figure 4.11-3: Share of Energy Use in South Coast Basin in 2008 ("Transportation" includes off-road sources)




According to SCAG's 2016-2040 RTP/SCS, the six-county SCAG region (Ventura, Los Angeles, Orange, San Bernardino, Riverside, and Imperial counties) is expected to add approximately 3.8 million people by 2040.[12] This additional population growth is expected to pose transportation challenges for the region, as travel demand in California will likely increase.

Transportation energy consumption reflects the type and number of vehicles, the extent of their use, and their fuel economy. According to the SCAG 2012–2035 RTP/SCS, the six-county region's transportation network supports a daily total of approximately 445.8 million VMT, almost half of which occurs in Los Angeles County. Even with implementation of the 2012 RTP/SCS measures intended to reduce VMT, projections show that the Los Angeles region will experience a 16.3% increase in VMT by 2035.[13] The addition of alternative modes of transportation could result in a change in the dynamics of all vehicle classes with regard to VMT. Changes in VMT, in turn, could affect regional energy consumption. A reduction in VMT through alternative modes of transportation could lower energy needs and reduce pollutant emissions.

As stated in the SCAG 2012-2035 RTP/SCS, the daily total VMT in the SCAG transportation network is approximately 445.8 million VMT; of this six-county total, the daily total VMT in the Los Angeles County is approximately 225.6 million VMT.

[12] Southern California Association of Governments. 2016. 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy. Available: <http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf>. Accessed: July 20, 2016.

[13] Southern California Association of Governments. 2012. *2012–2035 Regional Transportation Plan/Sustainable Communities Strategy*. April. Available: <http://rtpscs.scag.ca.gov/Documents/2012/final/f2012RTPSCS.pdf>. Accessed: February 13, 2013.

Metro's contribution to regional energy consumption includes on-road vehicle fuel use (which is primarily compressed natural gas, or CNG) and electricity for rail vehicle propulsion and maintenance and administrative facility operation. Metro's bus fleet is now fueled by CNG. In 2011, Metro's fleet, excluding vanpool services, used over 41 million gallons of gasoline-equivalent (GGE) fuels. When accounting for gasoline used in vanpools, Metro's gasoline use accounts for 6% of all fuel use, when compared on a GGE basis. Metro's electric power comes from several sources including the Los Angeles Department of Water and Power (over 50% of all power), Southern California Edison, and Pasadena Water and Power. In 2011, Metro's rail lines consumed approximately 164 million kilowatt hours (kWh) of electricity and Metro facilities used 97 million kWh of electricity.[14]

## 4.11.3 Environmental Consequences, Impacts, and Mitigation Measures

### 4.11.3.1 No-Build Alternative

#### Construction Impacts

The No-Build Alternative would not include construction of any project-related facilities or infrastructure; therefore, no impacts or effects under CEQA and NEPA would occur.

#### Operational Impacts

Under the No-Build Alternative, no new project facilities, infrastructure, or development would be constructed as part of East San Fernando Valley Transit Corridor Project. The No-Build Alternative would not result in an increase in the consumption of energy and no energy infrastructure would be required to meet project demands. Consequently, no operational energy impacts or effects would occur. The projected conditions under the No-Build Alternative represent the existing and future baselines (for year 2012 and 2040, respectively) against which the proposed build alternatives are compared to determine project impacts. Existing and future (2040) baseline bus propulsion energy for the 233 and 761 bus lines is shown in Table 4.11-1.

**Table 4.11-1: Existing (2012) and Future (204O) Baseline Operational Energy Consumption – Bus Lines 233 and 761**

| Baseline Conditions | Operational (Annual MMBTU) |
|---|---|
| 2012 Traffic Energy | 927,114,152 |
| 2040 Traffic Energy | 786,014,117 |
| Bus Propulsion Energy (233 and 761 Bus Lines) | 60,484 |
| Source: ICF, 2015. | |

[14] Los Angeles County Metropolitan Transportation Authority. 2012. *Moving Towards Sustainability, 2012 Metro Sustainability Report Using Operational Metrics.* Available: <http://www.metro.net/projects_studies/sustainability/images/Sustainability_Report.pdf>. Accessed: February 21, 2013.

### Cumulative Impacts

The No-Build Alternative would not result in any construction impacts; therefore, it would not contribute to any cumulative impacts.

### Mitigation Measures

#### Construction Mitigation Measures

No mitigation measures are required.

#### Operational Mitigation Measures

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### NEPA Finding

No adverse effects would occur under NEPA.

#### CEQA Determination

No impacts would occur under CEQA.

## 4.11.3.2 TSM Alternative

### Construction Impacts

The TSM Alternative would consist of relatively low-cost transit service improvements, such as increased bus frequencies, and minor physical improvements. Construction activities that would occur under the TSM Alternative would be limited to minor roadway modifications and bus stop enhancements. As such, construction would require minimal amounts of energy and construction activities would comply with the Metro Green Construction Policy. No buildings subject to energy standards required by Title 24 of the California Code of Regulations would be constructed under the TSM Alternative. Construction impacts on energy would be less than significant under CEQA and non-adverse under NEPA.

### Operational Impacts

The TSM Alternative would result in both direct and indirect operational energy consumption impacts. Direct impacts could include electricity consumption and fuel consumption due to enhanced operating hours and increased bus frequencies for the existing Metro Rapid Line 761 and Local Line 233. Operation of the TSM Alternative would not result in a substantial increase in demand for electricity, as the additional buses would be accommodated at the existing Division 15 MSF and no new maintenance facilities would be required. The enhanced bus operating hours and increased bus frequencies would result in an estimated increase in consumption of approximately 12,000 MMBTU of CNG, or 570,000 GGE. This would represent a 20% increase in CNG consumption for the 233 and 761 bus lines due to the TSM Alternative, compared to existing baseline conditions for the 233 and 761 bus lines. This increase is not substantial relative to Metro's annual consumption of more than 40 million GGE (Metro 2014). Given that Metro has access to CNG fueling stations and non-transit vehicle drivers would maintain their access to the extensive network of fueling stations, no new or expanded infrastructure would be required to meet the energy demands. The TSM Alternative would not change the existing operations of buses along San Fernando Road or Truman Street, so there would not be any change to the existing energy demand along those corridors.

Indirect effects on energy consumptions of the TSM Alternative would occur as a result of changes to traffic circulation. As demonstrated for the 2012 Alternative 3 scenario in Table 4.11-8, there would be net reductions in fuel consumption by motor vehicles operating in the project vicinity relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, operations under the TSM Alternative would result in less delay and more efficient operating speeds than Alternative 3, which would result in lower fuel consumption from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario, the reduction in energy consumption by traffic in the project vicinity would at least partially offset the energy consumption from enhanced and more frequent bus service.

Although net increases in overall operational energy consumption associated with the 2012 TSM Alternative scenario could occur, any increases would be minor, and would not constitute a wasteful, inefficient, or unnecessary consumption of energy. Furthermore, no new energy infrastructure would be required that would result in significant impacts on the environment. Therefore, impacts related to operational energy use that could occur under the 2012 TSM Alternative scenario would be less than significant under CEQA and non-adverse under NEPA.

In the longer term, the 2040 TSM Alternative would result in an annual 2,600-mile reduction in regional VMT relative to the 2040 No-Build Alternative. However, the speeds at which vehicles within the project vicinity would operate would be less efficient and result in a negligible net increase in fuel consumption (see Energy Technical Report in Appendix R). As shown in Table 4.11-2, the TSM Alternative would result in a projected increase of approximately 51,000 MMBTU or 0.006% compared to future (2040) baseline conditions. This increase would not be substantial.

### Table 4.11-2: TSM Alternative – Operational Energy Consumption

| Comparison to Future (2040) Baseline | Operational (Annual MMBTU) | Percent Change |
|---|---|---|
| Net Traffic Energy | 39,087 | 0.005% |
| Net Bus Propulsion Energy (233 and 761 Bus Lines) | 11,918 | 19.70% |
| **Net Total** | **51,005** | **0.006%** |
| Source: ICF, 2016. | | |

No new buildings subject to energy standards required by Title 24 of the California Code of Regulations would be constructed and operated under the TSM Alternative.

## Cumulative Impacts

This cumulative impacts discussion is applicable to each of the proposed project build alternatives as well as the TSM Alternative. The study area for this cumulative energy impacts analysis is Los Angeles County, within which nearly all project-related electricity, fuel, and natural gas consumption would occur. Because each energy resource is managed by different entities, the specific approach to the cumulative analysis is identified below.

With the exception of instances in which projects require the physical development of new power generation, transmission, or fueling facilities, energy use impacts are cumulative impacts in that all energy consumed comes from a common resource pool. No new power generation, transmission, or fueling facilities would be required for implementation of the proposed project.

### Electricity

For the purposes of electricity consumption, this cumulative impact discussion uses the projections/plans approach identified in CEQA Guideline 15130 (b)(1), specifically the projections contained within the LADWP 2014 Power Integrated Resource Plan.

Electricity consumption would be required for operational lighting and accessory features at stops/stations, MSF operation, fixed guideway vehicle propulsion (for Alternatives 3 and 4), and may be necessary for a minority of the components of construction.

The LADWP 2014 Power Integrated Resource Plan was used for this cumulative electricity impact analysis. The resource study area is the LADWP service area covered by the plan, which includes the City of Los Angeles and surrounding areas.[15] The LADWP 2014 Power Integrated Resource Plan projects future energy demand in the LADWP service area. LADWP sales, net energy for load forecasting, peak demand forecast, and hourly allocation are based on:

- An economic forecast of Los Angeles County from the Los Angeles Modeling Group of the University of California, Los Angeles (Anderson Forecast Project);
- Demographic information from the California Department of Finance, Demographic Research Unit; and
- A construction forecast from McGraw-Hill construction services.

LADWP has been contacted, via mailed letter, regarding the energy requirements of fixed guideway vehicle service for rail Alternatives 3 and 4. It is anticipated that forecasting efforts have allowed for new energy consumption levels sufficient to meet the demands of fixed guideway transit vehicle propulsion. However, increased electricity consumption associated with the proposed project in combination with future projects within LADWP's service area may require new electricity transmission infrastructure or the rehabilitation of existing electricity infrastructure to meet that increased demand and maintain adequate levels of service, notwithstanding future savings resulting from increased energy efficiencies. Although regional utility providers have planned for long-term increases in demand, new supply and delivery infrastructure facilities could be required to meet increased regional demands, the construction of which could result in impacts to the environment. However, the project's contribution to such impacts would not be substantial enough to affect potential increases in energy demand, and therefore, impacts related to electricity would not be cumulatively considerable.

### Gasoline and Diesel Fuel

For the purposes of fuel consumption, this cumulative impact discussion uses the list of past, present, and reasonably foreseeable projects list approach identified in CEQA Guideline 15130 (b)(1). The proposed project, in combination with the projects identified in Table 2-2 and numerous other projects, require the use of gasoline and diesel fuel for construction and for vehicles associated with operation.

[15] LADWP's overall service area includes parts of the Owens Valley, but because of the limited developable land and slow rates of growth, energy forecasts are not considered in the *2012 Power Integrated Resource Plan* (LADWP 2012:A-2).

Direct diesel and gasoline consumption would result from the use of construction vehicles and equipment as well as from employee and maintenance trips during operation. Indirect fuel consumption would result from redistribution of trips that would occur from capacity changes along the proposed alignment. All alternatives except for Alternative 4 would result in increased fuel use compared to the No-Build Alternative. The proposed project, in combination with regional population growth, and more people traveling by motor vehicles, additional gasoline and diesel fuel infrastructure may be required to meet motor vehicle fuel demands in the future. Such increases may be at least partially offset by increasing fuel economy standards for vehicles, but new supply and delivery infrastructure facilities could be required to meet increased regional demand, the construction of which could result in impacts to the environment. However, the project's contribution to such impacts would not be substantial, as the project's gasoline and diesel fuel requirements would be small and could be met by the extensive network of fueling stations found throughout Los Angeles County. Therefore, impacts related to gasoline and diesel fuel would not be cumulatively considerable.

### Natural Gas

For the purposes of natural gas consumption, this cumulative impact uses the list of past, present, and reasonably foreseeable projects list approach identified in CEQA Guideline 15130 (b)(1). The proposed project, in combination with the projects identified in Table 2-2 and numerous other projects, require the use of natural gas, primarily for building operation, but also for some construction equipment and vehicles.

Natural gas would be consumed by Metro buses during and following construction and may be consumed by some construction equipment and during operation of the MSF. Net increases in natural gas consumption would occur under the TSM Alternative and Alternatives 1 and 2. The proposed project, in combination with increasing demand for natural gas due to projected regional population growth, may require new or expanded natural gas infrastructure. Such increases in demand may be at least partially offset by increased energy efficiency of buses, buildings, and other users of natural gas, but new supply and delivery infrastructure facilities could be required to meet increased regional demand, the construction of which could result in impacts to the environment. The project's contribution to such impacts would not be substantial, as the project's natural gas requirements would be small and could be met by existing natural gas resources. Therefore, impacts related to natural gas would not be cumulatively considerable.

## Mitigation Measures

### Construction Mitigation Measures

No mitigation measures would be necessary.

### Operational Mitigation Measures

No mitigation measures would be necessary.

## Impacts Remaining After Mitigation

### NEPA Finding

Effects would not be adverse under NEPA.

### CEQA Determination

Impacts would be less than significant under CEQA.

# 4.11.3.3 BRT Alternatives (Alternatives 1 and 2)

## Alternative 1 – Curb-Running BRT

### Construction Impacts

Under Alternative 1, modifications to roadways, sidewalks, and bus stops would be required. As shown in Appendix A of the Energy Technical Report (see Appendix R) and Table 4.11-3, approximately 18,000 MMBTU would be consumed during the construction of Alternative 1, most of which would be in the form of diesel fuel used by construction equipment and vehicles. Although an estimated 127,000 gallons of fuel would be consumed by construction vehicles and equipment, the

**Table 4.11-3: Alternative 1 – Construction Energy Consumption**

| Alternative | Construction (MMBTU) |
|---|---|
| Curb-Running BRT Alternative | 17,618 |
| Source: ICF, 2015. | |

fuel consumption would be temporary in nature and would represent a negligible increase in regional demand, and an insignificant amount relative to the more than 18 billion gallons of on-road fuels used in the state in 2013 (California Energy Commission 2014b). Given the extensive network of fueling stations throughout the project vicinity and the fact that construction would be short-term, it's anticipated that no new or expanded sources of energy or infrastructure would be required to meet the energy demands due to Alternative 1 construction activities. Additionally, construction activities would comply with the Metro Green Construction Policy and all construction equipment would be maintained in accordance with manufacturers' specifications so equipment performance would not be compromised. Therefore, Alternative 1 would not result in the wasteful or inefficient use of energy. Impacts related to regional energy supply, demand, and conservation during the construction period would be less than significant under CEQA and non-adverse under NEPA.

### Operational Impacts

Alternative 1 would introduce BRT service in the curb lanes of existing corridor roadways. With improved bus travel times and headways, approximately 3,000 additional boardings per day are expected (KOA 2015). In order to maintain the desired peak period headways of 6 minutes for the 761X line and 8 minutes for the 233X line, 10 additional buses would be required. The use of additional buses on the 233X and 761X lines would increase the amount of CNG consumed by approximately 27,000 MMBTU (or 687,000 GGE), which is a 44% increase compared with existing baseline conditions for 233 and 761 bus line operations. Given Metro's overall annual use of more than 40 million GGE of CNG, such increases would not adversely affect overall regional supplies or demand and no additional energy infrastructure is expected to be required due to implementation of Alternative 1.

As demonstrated for the 2012 Alternative 3 scenario in Table 4.11-8, there would be net reductions in fuel consumption by motor vehicles operating in the project vicinity relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, operations under Alternative 1 would result in less delay and more efficient operating speeds than Alternative 3, which would result in lower fuel consumption from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario, the reduction in energy consumption by traffic in the project vicinity would at least partially offset the increase in energy consumption from enhanced and increased bus service.

Electricity consumption due to Alternative 1 would be associated with proposed lighting and other electrical facilities (e.g., electronic signage or ticketing machines) at new bus stops. No new MSF would be required, as the Division 15 MSF would accommodate the increased number of buses, and no other large structures that would consume electricity would be developed under this alternative. The electricity consumed by bus stop infrastructure would be minimal and would not require new energy supplies or infrastructure.

No buildings or structures subject to energy standards required by Title 24 of the California Code of Regulations, CALGreen Building Code, or internal Metro policies related to LEED Silver accreditation would be constructed under Alternative 1.

Although net increases in overall operational energy consumption associated with the 2012 Alternative 1 scenario could occur, any increases would be minor, and would not constitute a wasteful, inefficient, or unnecessary consumption of energy. Furthermore, no new energy infrastructure would be required that would result in significant impacts on the environment. Therefore, impacts related to operational energy use that could occur under the 2012 Alternative 1 scenario would be less than significant under CEQA and non-adverse under NEPA.

In the longer term, although Alternative 1 would reduce regional VMT by 36,000 miles annually, the less efficient speeds at which vehicles would operate due to increased roadway congestion would result in a net increase in fuel consumption of approximately 36,000 MMBTU, an increase of 0.005% compared to the future (2040) baseline conditions (see Table 4.11-4 and the Energy Technical Report Appendix R). Given the extensive network of fueling stations throughout the project vicinity and the slight increase in transportation-related energy consumption, operation of Alternative 1 would not substantially affect the regional supply of and demand for gasoline or require substantial new energy infrastructure.

### Table 4.11-4: Alternative 1 – Operational Energy Consumption

| Comparison to Future (2040) Baseline Conditions | Operational (Annual MMBTU) | Percent Change |
|---|---|---|
| Net Traffic Energy | 36,378 | 0.005% |
| Net Bus Propulsion Energy (233 X and 761X Bus Lines) | 26,816 | 44.33% |
| **Net Total** | **63,193** | **0.01%** |
| Source: ICF, 2016. | | |

### *Compliance Requirements and Design Features*

In order to minimize energy consumption, the construction contractor would implement energy conserving best management practices (BMPs), as feasible, in accordance with Metro's Energy and Sustainability Policy. BMPs would include, but would not be limited to the following: implementing a construction energy conservation plan; using energy-efficient equipment; consolidating material delivery to ensure efficient vehicle use; scheduling delivery of materials during non-rush hours to maximize vehicle fuel efficiency; encouraging construction workers to carpool; and maintaining equipment and machinery in good working condition. With the implementation of these measures, this alternative would not lead to a wasteful, inefficient, or unnecessary usage of fuel or energy.

### Cumulative Impacts

See cumulative impacts discussion for the TSM Alternative.

### Mitigation Measures

#### *Construction Mitigation Measures*

No mitigation measures would be necessary.

#### *Operational Mitigation Measures*

No mitigation measures would be necessary.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

## Alternative 2 – Median-Running BRT

### Construction Impacts

Under Alternative 2, modifications to roadways and sidewalks would be required in order to construct the dedicated median guideway and new median at-grade stations necessary for median-running BRT service along Van Nuys Boulevard, as well as infrastructure needed to operate in mixed-flow along San Fernando Road. As shown in the Energy Technical Report (see Appendix R) and Table 4.11-5, approximately 30,000 MMBTU would be consumed during the construction of Alternative 2, most of which would be in the form of diesel fuel used by construction equipment and vehicles. Although an estimated 215,000 gallons of fuel would be consumed by construction vehicles and equipment, the fuel consumption would be temporary in nature and would represent a negligible increase in regional demand, and an insignificant amount relative to the more than 18 billion gallons of on-road fuels used in the state in 2013 (California Energy Commission 2014b). Given the extensive network of fueling stations throughout the project vicinity and the fact that construction would be short-term, no new or expanded sources of energy or infrastructure are expected to be required to meet the energy demands due to Alternative 2 construction activities. Additionally, construction activities would comply with the Metro Green Construction Policy and all construction equipment would be maintained in accordance with manufacturers' specifications so equipment performance would not be compromised. Therefore, Alternative 2 would not result in the wasteful or inefficient use of energy. Impacts related to regional energy supply, demand, and conservation during the construction period would be less than significant under CEQA and non-adverse under NEPA.

### Table 4.11-5: Alternative 2 – Construction Energy Consumption

| Alternative | Construction (MMBTU) |
|---|---|
| Median-Running BRT Alternative | 29,816 |
| Source: ICF, 2015. | |

### Operational Impacts

Alternative 2 would provide BRT service in the median of existing corridor roadways. With improved bus travel times and headways, approximately 3,000 additional boardings per day are expected (KOA 2015). In order to maintain the desired peak period headways of 6 minutes for the 761X line and 8 minutes for the 233 line, 10 additional buses would be required. The use of additional buses on the 233X and 761X lines would increase the amount of CNG used by approximately 27,000 MMBTU (or 687,000 GGE), which is 44% greater than existing baseline conditions for 233 and 761 bus line operations. Given Metro's overall annual use of more than 40 million GGE of CNG, such increases would not substantially affect regional supplies or demand and no additional energy infrastructure is expected to be required due to implementation of Alternative 2.

As demonstrated for the 2012 Alternative 3 scenario in Table 4.11-8, there would be net reductions in fuel consumption by motor vehicles operating in the project vicinity relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, operations under Alternative 2 would have less delay and more efficient operating speeds than Alternative 3, which would result in lower fuel consumption from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario, the reduction in energy consumption by traffic in the project vicinity would at least partially offset the increase in energy consumption from enhanced and more frequent bus service. Although net increases in overall operational energy consumption associated with the 2012 Alternative 2 scenario could occur, any increases would be minor, and would not constitute a wasteful, inefficient, or unnecessary consumption of energy. Furthermore, no new energy infrastructure would be required that would result in significant impacts on the environment. Therefore, impacts related to operational energy use to the 2012 Alternative 2 scenario would be less than significant under CEQA and non-adverse under NEPA.

In the longer term, although implementation of Alternative 2 would reduce regional VMT by 36,000 miles annually, the less efficient speeds at which vehicles would operate due to increased roadway congestion would result in a net increase in fuel consumption of approximately 2,000 MMBTU per year, an increase of 0.0003% compared to the future (2040) baseline conditions (see Table 4.11-6 and the Energy Technical Report in Appendix R). Given the extensive network of fueling stations throughout the project vicinity and the slight increase in transportation-related energy consumption, operation of Alternative 2 would not substantially affect regional supply of, and demand for, gasoline or require substantial new energy infrastructure.

**Table 4.11-6: Alternative 2 – Operational Energy Consumption**

| Comparison to Future (2040) Baseline Conditions | Operational (Annual MMBTU) | Percent Change |
|---|---|---|
| Net Traffic Energy | 2,121 | 0.0003% |
| Net Bus Propulsion Energy (233X and 761X Bus Lines) | 26,816 | 44.33% |
| **Net Total** | **28,937** | **0.004%** |
| Source: ICF, 2016. | | |

#### *Compliance Requirements and Design Features*

See Compliance Requirements and Design Features described under Alternative 1.

### Cumulative Impacts

See cumulative impacts discussion for the TSM Alternative.

### Mitigation Measures

#### *Construction Mitigation Measures*

No mitigation measures would be necessary.

#### *Operational Mitigation Measures*

No mitigation measures would be necessary.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

# 4.11.3.4 Rail Alternatives (Alternatives 3 and 4)

## Alternative 3 – Low-Floor LRT/Tram

### Construction Impacts

Construction of Alternative 3 would provide a dedicated fixed guideway in the Van Nuys Boulevard median and a mixed-flow lane along San Fernando Road for Low-Floor LRT/Tram service. An MSF, new at-grade stations, a pedestrian bridge to the Sylmar Metrolink station, modifications to sidewalks and roadways, and the installation of TPSS units would also be constructed. Diesel fuel for construction vehicles and equipment would be the primary source of energy used throughout the course of the construction period. In total, the four-year construction period would result in the consumption of approximately 55,000 MMBTU (see Table 4.11-7 and Appendix R). Although an estimated 400,000 gallons of fuel would be consumed, the fuel consumption would be temporary in nature and would represent a negligible increase in regional demand, and an insignificant amount relative to the more than 18 billion gallons of on-road fuels used in the state in 2013 (California Energy Commission 2014b). Given the extensive network of fueling stations throughout the project vicinity and the fact that construction would be short-term, no new or expanded sources of energy or infrastructure would be required to meet the energy demands due to Alternative 3 construction activities. Additionally, construction activities would comply with the Metro Green Construction Policy and all construction equipment would be maintained in accordance with manufacturers' specifications so equipment performance would not be compromised. Therefore, Alternative 3 would not result in the wasteful or inefficient use of energy. Impacts related to regional energy supply, demand, and conservation during the construction period would be less than significant under CEQA and non- adverse under NEPA.

### Table 4.11-7: Alternative 3 – Construction Energy Consumption

| Alternative | Construction (MMBTU) |
|---|---|
| Median-Running Low-Floor LRT/Tram Alternative | 55,366 |
| Source: ICF, 2015. | |

### Operational Impacts

Under Alternative 3, Low-Floor LRT/Tram vehicles would operate within the median of an existing transportation right-of-way on Van Nuys Boulevard and in mixed-flow traffic on San Fernando Road. With improved transit travel times and headways, approximately 8,500 additional boardings per day are expected (KOA 2015).

As shown in Table 4.11-8, under the 2012 Alternative 3 scenario, there would be reductions in energy consumption from motor vehicle operating in the project vicinity (by approximately 10,000 MMBTU, or 0.001%) from mobile sources as well as from reduced bus service, which would shift to increases in energy consumption over time due to projected increases in congestion. Given the extensive network of fueling stations throughout the project vicinity and the slight increase in transportation-related energy consumption under the 2040 scenario, operation of Alternative 3 would not substantially affect regional supply of and demand for gasoline or require substantial new energy infrastructure.

The MSF would result in the consumption of both fuels and electricity. Approximately 11,000 MMBTU would be consumed annually due to the fuels consumed by employee, supplier, and maintenance motor vehicle trips to and from the MSF. Annual MSF electricity consumption would total approximately 3,000 MMBTU. Operation of the MSF would also result in natural gas consumption. The total amount of energy consumed by the MSF is presented in Table 4.11-8 above. Although the MSF would result in the consumption of energy, it should be noted that proposed MSF buildings would be designed and constructed in compliance with mandatory Title 24 and the CALGreen Building Code requirements and would achieve a minimum of LEED Silver rating, as specified in the Metro Sustainability Implementation Plan.

### Table 4.11-8: Alternative 3 – Operational Energy Consumption (2012)

| Component | Operational (Annual MMBTU) | Percent Change |
|---|---|---|
| 2012 Net Traffic Energy | (9,789) | (0.001%) |
| Net Bus Propulsion Energy (233S and 761S Bus Lines) | (24,107) | (39.86%) |
| MSF Energy | 14,925 | N/A |
| Low-Floor LRT/Tram/Station Energy | 68,645 | N/A |
| **Net Total** | **49,674** | **0.005%** |
| Source: ICF, 2016. | | |

Other components of Alternative 3 that would require energy in the form of electricity consumption include the Low-Floor LRT/Tram propulsion systems, and lighting and accessory equipment at station platforms. The electricity consumed by these facilities is included in Table 4.11-8 (see Appendix A of the Energy Technical Report for additional details).

Although Alternative 3 would introduce a new consumer of electricity in the LADWP service area, the 70,000 MMBTU (20 million kWh) represents a infinitesimally small portion of the 85.3 million MMBTU (25,000 GWh) of electricity that LADWP projects selling to customers in the year 2030 (LADWP 2014). As specified in Metro's June 2012 Climate Action and Adaptation Plan, Metro has investigated on-board storage of regenerative braking energy for all new rail cars. A study prepared for Bay Area Rapid Transit found that regenerative braking energy storage in combination with different propulsion systems and changes to lighting and ventilation could result in a per-mile reduction of electricity of 43% (Metro 2010).

A letter was sent to LADWP on September 30, 2015 identifying the projected energy consumption required for Alternative 3 and requesting confirmation that there would be sufficient energy available to meet the proposed project's demands. Although a response was not received, Metro will continue to follow up with LADWP, and details of the correspondence will be included in the FEIR-FEIS. Although new electricity consumption for vehicle propulsion and station operation along a fixed guideway would be required, the increase in energy would be negligible and would not require new electricity infrastructure beyond that which is existing or has been previously planned.

MSF, tram vehicle propulsion, and station operation would result in net increases in energy consumption relative to the 2012 No Build Alternative, but overall energy consumption under the 2012 Alternative 3 scenario would increase by less than 0.01%. Therefore, impacts under the 2012 Alternative 3 scenario would be less than significant under CEQA and non-adverse under NEPA.

In the longer term, the 2040 Alternative 3 scenario would reduce regional VMT by approximately 9,000 miles annually. However, traffic operations would be constrained by the frequency of Low-Floor LRT/Tram vehicles along the alignment and the decreased speeds at which automobile traffic would operate due to decreased roadway capacity, which would result in a net increase in fuel consumption of approximately 567,000 MMBTU per year, an increase of 0.07% compared to future (2040) baseline conditions (see Table 4.11-9 and the Energy Technical Report in Appendix R). This increase in fuel consumption from vehicle operation would not occur immediately, however.

### *Compliance Requirements and Design Features*

Per the Metro Sustainability Implementation Plan, the MSF under Alternative 3 would be required to meet LEED Silver requirements at a minimum. Also, as specified in the 2012 Metro Climate Action and Adaptation Plan, regenerative braking on all fixed guideway vehicles would be implemented by 2020 in order to achieve energy and GHG reduction goals.

**Table 4.11-9: Alternative 3 – Operational Energy Consumption (2040)**

| Component | Operational (Annual MMBTU) | Percent Change |
|---|---|---|
| 2040 Net Traffic Energy | 567,721 | 0.072% |
| Net Bus Propulsion Energy (233S and 761S Bus Lines) | (24,107) | (39.86%) |
| MSF Energy | 14,925 | N/A |
| Low-Floor LRT/Tram/Station Energy | 68,645 | N/A |
| **Net Total** | **626,734** | **0.080%** |

Source: ICF, 2016.

In addition, in order to minimize energy consumption, the construction contractor would implement energy conserving BMPs, as feasible, in accordance with Metro's Energy and Sustainability Policy. BMPs would include, but would not be limited to the following: implementing a construction energy conservation plan; using energy-efficient equipment; consolidating material delivery to ensure efficient vehicle use; scheduling delivery of materials during non-rush hours to maximize vehicle fuel efficiency; encouraging construction workers to carpool; and maintaining equipment and machinery in good working condition. With the implementation of these measures, the build alternatives would not lead to a wasteful, inefficient, or unnecessary usage of fuel or energy.

## Cumulative Impacts

See cumulative impacts discussion for the TSM Alternative.

## Mitigation Measures

### *Construction Mitigation Measures*

No mitigation measures would be necessary.

### *Operational Mitigation Measures*

No mitigation measures would be necessary.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

## Alternative 4 – LRT

### Construction Impacts

Alternative 4 would involve the construction of a LRT system within a 9.2-mile corridor along Van Nuys Boulevard and San Fernando Road/Metrolink railroad right-of-way. The LRT alignment along Van Nuys Boulevard would include an underground segment 2.5 miles in length. Alternative 4 would also involve construction of an MSF, new stations, a pedestrian bridge to the Sylmar Metrolink station, modifications to sidewalks and roadways, and the installation of approximately 10 TPSS units. For the purposes of estimating construction-related energy consumption, the plan for MSF Site 1 was assumed, as it would have the largest square footage and greatest demolition requirements. Also, the cut-and-cover construction method for the tunnel was assumed, as this would be the most energy-intensive construction method. If less energy-intensive options are carried forward, construction-related energy consumption for Alternative 4 would be less that what is identified below.

Diesel fuel for construction vehicles and equipment would be the primary source of energy used throughout the course of the construction period. In total, the five-year construction period would result in the consumption of approximately 274,000 MMBTU (see Table 4.11-10 and the Energy Technical Report in Appendix R). Although fuel would be consumed by construction vehicles and equipment, the estimated consumption would be limited to the construction period. An estimated 1.975 million gallons of fuel would be consumed, but the fuel consumption would be temporary in nature and would represent a negligible increase in regional demand, and an insignificant amount relative to the more than 18 billion gallons of on-road fuels used in the state in 2013 (California Energy Commission 2014b). Given the extensive network of fueling stations throughout the project vicinity and the fact that construction would be short-term, no new or expanded sources of energy or infrastructure would be required to meet the energy demands due to Alternative 4 construction activities. Additionally, construction activities would comply with the Metro Green Construction Policy and all construction equipment would be maintained in accordance with manufacturers' specifications so equipment performance would not be compromised. Therefore, Alternative 4 would not result in the wasteful or inefficient use of energy. Impacts related to regional energy supply, demand, and conservation during the construction period would be less than significant under CEQA and non-adverse under NEPA.

### Table 4.11-10: Alternative 4 – Construction Energy Consumption

| Alternative | Construction (MMBTU) |
|---|---|
| Median-Running Low-Floor LRT/Tram Alternative | 273,600 |
| Source: ICF, 2015. | |

### Operational Impacts

Alternative 4 would introduce LRT service within and beneath an existing transportation right-of-way along Van Nuys Boulevard and along San Fernando Road/Metrolink railroad right-of-way. With improved transit travel times and headways, approximately 8,600 additional transit vehicle boardings per day are expected (KOA 2015).

It is anticipated that there would be a reduction in CNG fuel use by Metro buses, as Alternative 4 would involve the maintenance of service along the existing 233 line, and the 761 line would be modified to serve only areas south of the project limits. Relative to the existing baseline operations of the 233 and 761 bus lines, there would be a 1,600 MMBTU reduction in CNG consumption for bus propulsion resulting from the reduced service on the 761S bus line, which represents a 3% reduction.

The MSF would result in the consumption of both fuels and electricity. Approximately 11,000 MMBTU would be consumed annually due to the fuels consumed by employee, supplier, and maintenance vehicle trips to and from the MSF. Annual MSF electricity consumption would total approximately 3,000 MBTU. Operation of the MSF would also result in natural gas consumption. The total amount consumed by the MSF is presented in Table 4.11-11. Although the MSF would result in the consumption of energy, it should be noted that proposed MSF buildings would be designed and constructed in compliance with mandatory Title 24 and the CALGreen Building Code requirements and would achieve a minimum of LEED Silver rating, as specified in the Metro Sustainability Implementation Plan.

#### Table 4.11-11: Alternative 4 – Operational Energy Consumption

| Component | Operational (Annual MMBTU) | Percent Change |
|---|---|---|
| Net Traffic Energy | (373,696) | (0.048%) |
| Net Bus Propulsion Energy (233 and 761S) | (1,625) | (2.69%) |
| MSF Energy | 14,925 | N/A |
| LRT/Station Energy | 68,645 | N/A |
| **Net Total** | **(291,752)** | **(0.037%)** |

Source: ICF, 2016.

Other components of Alternative 4 that would require energy in the form of electricity consumption include the LRT propulsion systems, and lighting and accessory equipment at station platforms. The electricity consumed by these facilities is included in Table 4.11-11 (see Appendix R for additional details).

Energy use for vehicle propulsion and station operation is based on the average per-mile 2014 energy consumption for existing Metro LRT lines applied to the proposed project. Approximately 70,000 MMBTU would be required annually to operate the 9.2-mile line. Although the LRT system under Alternative 4 would increase the consumption of electricity in the LADWP service area, the 70,000

MMBTU (20 million kWh) represents a infinitesimally small portion of the 85.3 million MMBTU (25,000 GWh) of electricity that LADWP projects selling to customers in the year 2030 (LADWP 2014). As specified in the June 2012 Climate Action and Adaptation Plan, Metro plans to include on-board storage of regenerative braking energy for all new rail cars. A study prepared for Bay Area Rapid Transit found that regenerative braking energy storage in combination with different propulsion systems and changes to lighting and ventilation could result in a per-mile reduction of electricity of 43% (Metro 2010).

A letter has been sent to LADWP identifying the projected energy consumption required for Alternative 4 and requesting confirmation that there would be sufficient energy available to meet the proposed project's demands. Although increased electricity consumption for vehicle propulsion and station operation along a fixed guideway would be required, it is anticipated that the increase in energy would be negligible and would not require new electricity infrastructure beyond that which is existing or has been previously planned.

As demonstrated for the 2012 Alternative 3 scenario in Table 4.11-8, there would be net reductions in fuel consumption by motor vehicles operating in the project vicinity relative to the 2012 No Build scenario. Because roadway capacity would be reduced by the greatest amount under Alternative 3 relative to the other build alternatives, Alternative 3 represents a worst-case with respect to traffic flow. By extension, operations under Alternative 4 would result in less delay and more efficient operating speeds than Alternative 3, which would result in lower fuel consumption from motor vehicles operating in the project vicinity. On the basis of the less extensive traffic impacts relative to the 2012 Alternative 3 scenario, the reduction in energy consumption by traffic and bus service in the project vicinity would at least partially offset the increase in energy consumption from the operation of the new MSF, LRT vehicle propulsion, and stations.

Although net increases in overall operational energy consumption associated with the 2012 Alternative 3 scenario could occur, any increases would be minor, and would not constitute a wasteful, inefficient, or unnecessary consumption of energy. Furthermore, no new energy infrastructure would be required that would result in significant impacts on the environment. Therefore, impacts related to operational energy use to the 2012 Alternative 4 scenario would be less than significant under CEQA and non-adverse under NEPA.

In the longer term, the 2040 Alternative 4 scenario would reduce regional VMT by approximately 70,000 annually, which would result in fuel consumption reductions of approximately 374,000 MMBTU per year, a decrease of 0.05% compared to the future (2040) baseline condition under the No-Build Alternative (see Table 4.11-11 and the Energy Technical Report in Appendix R). Given the projected reduction in fuel consumption, Alternative 4 would not adversely affect the regional supply of, and demand for, gasoline.

As indicated in the table above, total annual operational energy consumption under the 2040 Alternative 4 scenario would be approximately 292,000 MMBTU less than the 2040 baseline conditions, much of which would be attributable to energy savings associated with the reduction of fuel use by private vehicles.

### *Compliance Requirements and Design Features*

Per the Metro Sustainability Implementation Plan, the MSF under Alternative 4 would be required to meet LEED Silver requirements at a minimum. Also, as specified in the 2012 Metro Climate Action and Adaptation Plan, regenerative braking on all fixed guideway vehicles would be implemented by 2020 in order to achieve energy and GHG reduction goals.

In addition, in order to minimize energy consumption, the construction contractor would implement energy conserving BMPs, as feasible, in accordance with Metro's Energy and Sustainability Policy. BMPs would include, but would not be limited to the following: implementing a construction energy conservation plan; using energy-efficient equipment; consolidating material delivery to ensure efficient vehicle use; scheduling delivery of materials during non-rush hours to maximize vehicle fuel efficiency; encouraging construction workers to carpool; and maintaining equipment and machinery in good working condition. With the implementation of these measures, the build alternatives would not lead to a wasteful, inefficient, or unnecessary usage of fuel or energy.

### Cumulative Impacts

See cumulative impacts discussion for the TSM Alternative.

### Mitigation Measures

#### *Construction Mitigation Measures*

No significant impacts would occur and mitigation measures would not be necessary.

#### *Operational Mitigation Measures*

No significant impacts would occur and mitigation measures would not be necessary.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

# 4.12 Ecosystems and Biological Resources

## 4.12.1 Regulatory Framework and Methodology

### 4.12.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's ecosystems and biological impacts are listed below. For additional information regarding these regulations, please see the *Biological Resources Impacts Report* in Appendix N of this Draft EIS/EIR.

#### Federal

Federal ecosystems/biological resources regulations that would be applicable to the proposed project include:

- Federal Endangered Species Act
- Migratory Bird Treaty Act
- Federal Noxious Weed Act
- Federal Clean Water Act
- Fish and Wildlife Coordination Act

#### State

The following state ecosystems/biological resources regulations would be applicable to the proposed project:

- California Endangered Species Act
- California Department of Fish and Wildlife Regulations
  - Protected Species in the Fish and Game Code
  - California Native Plant Protection Act and Natural Community Conservation Planning Act
  - Streambed Alteration Agreements
  - Bird/Raptor Protections in the Fish and Game Code
- Porter-Cologne Water Quality Control Act

#### Local

The following local ecosystems/biological resources would be applicable to the proposed project:

- Los Angeles County General Plan
- City of Los Angeles General Plan
  - Section 6: Endangered Species
  - Section 12: Habitats

- City of Los Angeles Native Tree Protection Ordinance
- City of San Fernando Comprehensive Tree Management Program Ordinance

## 4.12.1.2 Methodology

The analysis in this section is based on the *East San Fernando Valley Transit Corridor Ecosystems/Biological Resources Impacts Report*.

### Literature Review

A comprehensive literature review was conducted to evaluate the environmental setting of the biological study area and identity potential special-status plant communities and species that may be found on the site. The review included a search of the California Natural Diversity Database[1] and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants[2] for the Newhall, Mint Canyon, Agua Dulce, Oat Mountain, San Fernando, Sunland, Canoga Park, Van Nuys, Burbank, Topanga, Beverly Hills, and Hollywood 7.5-minute USGS quadrangles. In addition, U.S. Fish and Wildlife Service (USFWS), Carlsbad office, species occurrence data (3/5/2013) and designated critical habitat data were reviewed. Recent aerial photographs were also reviewed to assess the biological study area with respect to potential habitat for plants and wildlife. Furthermore, the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (2013) was reviewed and available soils data did not cover the biological study area. Soil data from the Los Angeles County Department of Public Works was also reviewed (southeastern and west San Fernando Valley area). The soil data were then evaluated to determine the potential for rare plants to occur.

For this section, "special-status" species are those that are: listed, proposed for listing, or candidates for listing under the federal ESA as threatened or endangered; listed or candidates for listing under the CESA as threatened or endangered; listed as rare under the Native Plant Protection Act; a state species of special concern or fully protected species; or are on the California Rare Plant Rank as 1B, 2, or 3. Plants with a California Rare Plant Rank of 1B are rare, threatened, or endangered in California and elsewhere and are rare throughout their range with the majority of them endemic to California. Most of the plants that are ranked 1B have declined significantly over the last century. Plants with a California Rare Plan Rank of 2 are rare, threatened, or endangered in California, but more common elsewhere. Except for being common beyond the boundaries of California, plants with a California Rare Plant Rank of 2 would have been ranked 1B. Nearly all of the plants constituting California Rare Plant Rank 3 are taxonomically problematic. Plants with a California Rare Plant Rank of 3 are ones for which more information is needed for these species to fall under one of the other ranks or to reject them from rank classification altogether. All of the plants constituting California Rare Plant Rank 1B or 2 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. Some of the plants constituting California Rare Plant Rank 3 meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing.

[1] California Department of Fish and Wildlife. 2013. *California Natural Diversity Database*. Sacramento, CA: Wildlife Habitat Data Analysis Branch, Habitat Conservation Division. Accessed: February 25, 2013.

[2] California Native Plant Society. 2013. *Inventory of Rare and Endangered Plants* (online edition, v7-11). Sacramento, CA. Available: <http://www.cnps.org/inventory>. Accessed: February 25, 2013.

The *LA CEQA Thresholds Guide* (2006) defines a Sensitive Biological Resource as follows:

- A plant or animal that is currently listed by a state or federal agency(ies) as endangered, threatened, rare, protected, sensitive or a Species of Special Concern or federally listed critical habitat;
- A plant or animal that is currently listed by a state or federal agency(ies) as a candidate species or proposed for state or federal listing; or
- A locally designated or recognized species or habitat.

## Field Investigation

A site visit was conducted between 9:30 a.m. and 1:15 p.m. on February 27, 2013, by an ICF biologist/arborist. The site visit focused on mapping vegetation, assessing jurisdictional resources, and conducting habitat assessments for special-status plants and wildlife. Weather conditions during the site visit consisted of temperatures ranging from 15.5˚C to 22.7˚C (60˚F to 73˚F), winds ranging from 0 to 5 mph, and clear skies with no cloud cover. Visibility was good.

To evaluate biological and regulatory conditions, a 500-foot buffer from the centerline of the project corridor, which was extended as necessary to include the traction power substation (TPSS) and maintenance and storage facility (MSF) locations, was established as the biological resource study area. The biological resource study area was evaluated to determine the presence, absence, or likelihood of occurrence of special-status species and vegetation types. General biological resource issues with the potential to pose a constraint to the project through applicable laws and regulations were also evaluated. The field effort included hand mapping natural vegetation communities and developing detailed field notes to identify the extent and character of potential jurisdictional drainage features. This included compiling compendia of wildlife and relevant plant species observed, natural vegetation communities and their composition, observed soil types, animal sign, and both natural and anthropogenic (human) disturbances that may affect use of the biological study area by relevant species. Focused plant and wildlife surveys were not performed during the site visit.

Parameters evaluated for special-status plants included topography, soil condition, elevation, hydrology, operational activities, and the life history needs of the specific species. Special-status parameters for wildlife included connectivity to documented and potentially occurring habitat, hydrology, access to the site, foraging and nesting habitat, the site's operational activities, and the life history needs of each species.

All plant and wildlife species observed during the site visit were recorded in field notes. Plants were detected and identified through direct sight. Plants were identified to the species level based on previous experience with the species or through use of the Jepson Manual, Vascular Plants of California (2012). Special-status rankings for plant species were identified through a review of the CNPS online inventory of rare and endangered plants. Wildlife species were detected by sight, calls, tracks, scat, or other sign. Special-status rankings for wildlife were identified through a review of the California Department of Fish and Game *Special Animals List* (2011).

## Vegetation Mapping

Vegetation mapping was conducted in the field using Google Earth aerials dated August 26, 2013. During the vegetation mapping, any areas of special-status habitat under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and/or CDFW were noted (see results in Figure 2-1, Biological Resources Map). Where possible, the vegetation mapping followed the classifications defined in *A Manual of California Vegetation* (Sawyer et al. 2009); however, Holland (1986) was also consulted.

### Impact Analysis Approach

The significance thresholds listed below were used to determine whether an impact would be significant. The biological resource study area considered the geographical extent of physical disturbance related to the project. Potential effects on special-status species and natural communities within the biological resource study area were evaluated according to the highest likelihood of occurrence of each resource.

The impact analysis compares all project alternatives to existing conditions. Direct impacts are those impacts that are caused by the project and occur at the same time and place as the actions that may cause the impacts (State CEQA Guidelines, Section 15358). Indirect impacts are impacts caused by the project and are later in time or farther removed in distance from the actions that cause the impacts, but are still reasonably foreseeable (State CEQA Guidelines, Section 15358). Short-term or temporary impacts can be direct or indirect, and are those that occur over a short timeframe of a project (examples include construction-related indirect impacts and staging area direct impacts that will be returned to pre-project conditions). Long-term or permanent impacts can also be direct or indirect, and are those that will occur through the life of a project (examples include the permanent footprint of a project, indirect operational impacts, and maintenance activities).

## 4.12.1.3 Significance Thresholds

### NEPA

NEPA does not include specific significance thresholds. According to the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the determination of significance under NEPA is based on context and intensity. The CEQA thresholds (described below) encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its impacts. Therefore, the CEQA thresholds listed below also apply to NEPA for the proposed project and its alternatives.

In addition, impacts on biological resources could be considered significant if the project would result in adverse modification of U.S. Army Corps of Engineers regulated non-wetland waters of the United States (WoUS) under Section 404 of the Clean Water Act.

### CEQA

CEQA does not describe specific significance thresholds. According to the Governor's Office of Planning and Research (OPR), significance thresholds for a given environmental effect are made at the discretion of the lead agency and are the levels at which the lead agency finds the effects of the project to be significant (OPR 1994).

With respect to the California Fish and Game Code and the regulation of state waters, a significant impact could occur if a project would result in:

- Adverse modification of CDFW jurisdictional authority over rivers, streams, and lakes under California Fish and Game Code Section 1602; or
- Adverse modification of State Water Resources Control Board regulation of discharges into state waters.

The State CEQA Guidelines define a significant effect on the environment as: "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (State CEQA Guidelines, Section 15382).

The State CEQA Guidelines do not describe specific significance thresholds. However, the State CEQA Guidelines lists a variety of potentially significant effects. As outlined in Appendix G of the State CEQA Guidelines, a project may have a significant effect on ecosystems/biological resources if the project would result in and of the following conditions:

- A substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS.
- A substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

## L.A. CEQA Thresholds Guide

According to the *L.A. CEQA Thresholds Guide* (2006), a project would normally have a significant impact on ecosystems/biological resources if it would result in:

- The loss of individuals, or the reduction of existing habitat, of a state or federal listed endangered, threatened, rare, protected, or candidate species, or a Species of Special Concern or federally listed critical habitat.
- The loss of individuals or the reduction of existing habitat of a locally designated species or a reduction in a locally designated natural habitat or plant community.
- Interference with wildlife movement/migration corridors that may diminish the chances for long-term survival of a sensitive species.
- The alteration of an existing wetland habitat.
- Interference with habitat such that normal species behaviors are disturbed (e.g., from the introduction of noise, light) to a degree that may diminish the chances for long-term survival of a sensitive species.

## Study Area

To evaluate biological and regulatory conditions and potential direct and indirect effects, the study area for the impacts analysis was defined as encompassing a 500-foot buffer from the centerline of the project corridor, which was extended as necessary to include the TPSS and MSF locations.

# 4.12.2 Affected Environment/Existing Conditions

The biological resources study area is urbanized, but supports urban park space and ornamental landscaping. Three drainage features intersect the biological resource study area. These are, from south to north, the Pacoima Wash (twice; at Van Nuys Blvd and again at Truman St.), the Pacoima Diversion Canal, and East Canyon Creek (see Figure 2-1, Biological Resources Map).

## 4.12.2.1 Vegetation Communities

Developed areas dominate the biological resources study area and, for this report, include impervious surfaces and ornamental landscaping. Within the biological resources study area, developed areas consist of roadways, sidewalks, driveways and parking areas, loading docks, restaurants, retail businesses, equipment and supply storage facilities (e.g., for landscaping and building material suppliers), residences, and transit stations. Ornamental vegetation is present along much of the corridor and in the residential areas. In addition, a number of mature western sycamores are planted as street trees at various locations along the corridor, and young coast live oak (*Quercus agrifolia*) plantings are at Tobias Avenue Park, just north of Nordhoff Street.

Ornamental plant species observed to be common within the biological resource study area include, though are not limited to:

- Italian cypress (*Cupressus sempervirens*),
- Lemon-scented gum tree (*Eucalyptus citriodora*),
- Fig tree (*Ficus microcarpa*),
- Ginkgo (*Ginkgo biloba*),
- Jacaranda (*Jacaranda mimosifolia*),
- Crape myrtle (*Lagerstroemia indica*),
- American sweet gum (*Liquidambar styraciflua*),
- Flaxleaf paperbark (*Melaleuca linariifolia*),
- Olive tree (*Olea europaea*),
- Canary Island date palm (*Phoenix canariensis*),
- Canary Island pine (*Pinus canariensis*),
- Italian stone pine (*Pinus pinea*),
- Fern pine (*Podocarpus gracilior*),
- Holly oak (*Quercus ilex*),
- Peruvian pepper-tree (*Schinus molle*),
- Coast redwood (*Sequoia sempervirens*),
- Queen palm (*Syagrus romanzoffianum*),
- Mexican fan palm (*Washingtonia robusta*), and
- Turf grasses.

In addition, western sycamore and coast live oak, which are clearly planted within the ornamental landscaping, were the only tree species observed that are native to southern California. A small amount of weedy native annuals and short-lived perennials are also scattered in the ornamental areas.

Ruderal/disturbed areas are dirt areas (e.g., abandoned parkways, railroad rights-of-way) that have been or are currently subject to intensive disturbance; these areas preclude any natural community. Plant species occurring in disturbed areas are typically opportunistic, invasive species. Such species are adapted to rapid colonization of soils that have been recently exposed or compacted, amended, or otherwise greatly altered. Open areas in the biological resource study area exhibit fairly high to very high degrees of past disturbance. The most extensive areas in the biological resource study area are the vacant lots along the alignment; these areas are largely bare dirt or overgrown. Plant species found in these areas of the biological resource study area include a moderate variety of disturbance-adapted species, such as common horseweed (*Conyza canadensis*), Bermuda grass (*Cynodon dactylon*), crabgrass (*Digitaria sanguinalis*), telegraph weed (*Heterotheca grandiflora*), prickly lettuce (*Lactuca serriola*), cheeseweed (*Malva parviflora*), smilo grass (*Piptatherum miliaceum*), Russian-thistle (*Salsola tragus*), and common sow thistle (*Sonchus oleraceus*).

#### 4.12.2.2 Soils

Soils within the biological resource study area are compacted throughout, except in landscaped areas, and nearly devoid of vegetation, except for planted street trees and shrubbery. Several soil types are mapped within the biological resource study area and include Hanford fine sandy loam, Hanford gravelly sandy loam, Hanford silt loam, Ramona loam, Tujunga sandy loam, Yolo fine sandy loam, Yolo sandy loam, and Yolo loam.[3] Soil results are in Figure 3-1, Soil Resources Map of the *Ecosystems/Biological Resources Impacts Report* (see Appendix N) prepared for the proposed project.

#### 4.12.2.3 Wildlife

Overall wildlife abundance and species richness appear to be low because of the urbanized nature of the biological resources study area. However, nine species of birds were observed during the site visit. These include house sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), rock pigeon (*Columba livia*), American crow (*Corvus brachyrhynchos*), California gull (*Larus californicus*), northing mockingbird (*Mimus polyglottos*), cliff swallow (*Petrochelidon pyrrhonota*), black phoebe (*Sayornis nigricans*), and European starling (*Sturnus vulgaris*). All of these are common, widespread species and strongly adapted to human-altered landscapes with intensive use.

#### 4.12.2.4 Wildlife Corridors

Although the Pacoima Wash, Pacoima Diversion Canal, and East Canyon Creek are waterways, which are typically considered potential wildlife movement corridors, each is a concrete channel that supports little to no plant growth. Furthermore, all are located in an urbanized environment. Therefore, they would not be expected to function as significant wildlife movement corridors. Both the Hansen and Sepulveda Dams are upstream of the aforementioned jurisdictional resources.[4] Sensitive species within these dams have limited potential to utilize these downstream wildlife corridors.

[3] Los Angeles County Department of Public Works. 2006. *2006 Hydrology Manual, Appendix B Hydrologic Maps*. Los Angeles County Department of Public Works. Available: <http://ladpw.org/wrd/publication/engineering/2006_Hydrology_Manual/2006%20Hydrology%20Manual-Divided.pdf>. Accessed: March 1, 2013.

[4] Jurisdictional resources are rivers, creeks, streambeds, channels, spillways, culverts, or other water features that are found to be under the jurisdiction of one or all of the following agencies: U.S. Army Corps of Engineers, California Regional Water Quality Control Board, and California Department of Fish and Wildlife.

### 4.12.2.5 Critical Habitat

A review of USFWS critical habitat maps indicates that no critical habitat has been mapped within the biological resources study area.[5]

### 4.12.2.6 Raptor Foraging

The site was evaluated for its potential to support raptor foraging. No raptors or raptor nests were observed within or in the vicinity of the biological resource study area during the visit. Because of the urban character of the biological resource study area, it does not support quality raptor foraging habitat.

### 4.12.2.7 Nesting Birds

Ornamental landscaping, including mature trees, throughout the biological resource study area has the potential to provide nesting habitat for birds. Common native urban bird species that may nest in ornamental landscaping include lesser goldfinch (*Carduelis pinus*), Brewer's blackbird (*Euphagus cyanocephalus*), northern mockingbird, common raven (*Corvus corax*), American crow, Anna's hummingbird (*Calypte anna*), house finch, and hooded oriole (*Icterus cucullatus*). In addition, there is reasonable potential for buildings and bridges/overpasses to support nesting opportunities for native birds that are common in urbanized areas, such as American kestrel, house finch, black phoebe, cliff swallow, northern rough-winged swallow (*Stelgidopteryx serripennis*), and white-throated swift (*Aeronautes saxatalis*). A few species, primarily killdeer (*Charadrius vociferus*), may choose to nest on bare ground within the biological resources study area. Refer to Figure 3-2 of the *Ecosystems/Biological Resources Impacts Report* (see Appendix N) for representational photographs of potential nesting and roosting habitat as observed within the biological resources study area.

### 4.12.2.8 Tree Protection

Ornamental trees are present within the biological resource study area, including a number of mature western sycamores scattered throughout Van Nuys Boulevard and young coast live oak plantings in Tobias Avenue Park, just north of Nordhoff Avenue also along Van Nuys Boulevard. It is likely that the majority of observed western sycamores and coast live oaks exceed the City of Los Angeles requirement regarding a four-inch diameter above breast height and may qualify as protected trees under City of Los Angeles ordinance. Within the City of San Fernando, there may be heritage trees located within the biological resources study area. The City of San Fernando determines heritage trees on a case by case basis.[6] For an inventory of street trees along the project alignment, please see Appendix EE of this DEIS/DEIR.

### 4.12.2.9 Jurisdictional Resources

The proposed project would not require in-water work or work that would affect wetlands. The following text discusses the potential for other jurisdictional resources affected by the project. The Pacoima Wash, a concrete open box culvert with a flat bottom, intersects the biological resources study area at the approximate midway point, just south of Saticoy Street. At this point, the wash ceases to be a surface water feature and transitions to become part of the city's underground stormwater system. Minimal surface flows were present during the site assessment. At that time, water within the approximately 20-foot-wide (from top of banks) wash, consisted of seasonal runoff

[5] U.S. Fish and Wildlife Service. 2013. Carlsbad office database of threatened and endangered species; dated March 5, 2013.
[6] Ruiz, Ron. Public Works Director. City of San Fernando. Email Conversation. March 26, 2013.

from adjacent developed areas. There are trace amounts of vegetation within the wash bottom. The Pacoima Wash is again intersected at San Fernando Road just north of the State Route 118. At this point, the wash is a trapezoidal channel with a concrete bottom, approximately 65 feet wide at the top of banks and bottom approximately 12 feet wide at toe of slopes, and similar to downstream with respect to the relative lack of vegetation (well below one percent). The *Ecosystems/Biological Resources Impacts Report* (see Appendix N) included as an appendix a representational photograph of the Pacoima Wash as observed within the biological resources study area.

The Pacoima Diversion Canal intersects the biological resources study area, crossing Van Nuys Boulevard near the northern end of the biological resources study area, just southwest of Interstate (I) 5. The canal is a trapezoidal channel with a concrete bottom, approximately 120 feet wide at the top of the banks, and similar to the Pacoima Wash with trace amounts of vegetation present.

The East Canyon Creek, a concrete open box culvert with a flat bottom, intersects the biological resources study area at the approximate north end point of the study area, crossing from near Sayre Street and underneath San Fernando Road. Minimal surface flows were present during the reconnaissance-level site assessment. At that time, water within the approximately 20-foot-wide from top of banks wash consisted of seasonal runoff from adjacent developed areas. There are trace amounts of vegetation within the wash bottom. Refer to Figure 3-3 in the *Ecosystems/Biological Resources Impacts Report* (see Appendix N) for a representational photograph of the East Canyon Creek as observed within the biological resources study area.

The East Canyon Creek, Pacoima Wash, and Pacoima Diversion Canal possess hydrologic connectivity to downstream waters that eventually flow to the Los Angeles River. The Los Angeles River has been determined to be a Traditionally Navigable Water (TNW) by USACE. Therefore, all three open channels that intersect the biological resources study area will most likely be determined to be jurisdictional by the U.S. Army Corp of Engineers, California Department of Fish and Wildlife, and Regional Water Quality Control Board. See jurisdictional resources results in Figure 2-1, Biological Resources Map of the *Ecosystems/Biological Resources Impacts Report*.

### 4.12.2.10 Sensitive Plant Communities

After the literature review and initial field visit, it was determined that, due to the urbanized conditions, none of the 12 natural communities initially evaluated have potential to occur within the biological resources study area.

### 4.12.2.11 Special-Status Species

During the literature review, a total of 50 special-status plants were initially determined to have some potential to occur within the geographical vicinity of the biological resources study area. However, given the observed conditions during the initial field evaluation, none of the species were judged to have the potential to occur within the biological resources study area. No plants with special status were detected during any of the current fieldwork; however, the fieldwork was not conducted during the peak blooming period for many of the species listed. Table 3.1, included in the *Ecosystems/Biological Resources Impacts Report* (see Appendix N) lists the special-status plant species reviewed and their likelihood of occurrence in the biological resources study area. The determinations are based on a combination of factors (e.g., the species' requirements with respect to soils, hydrology, habitats, elevation range, and disturbance tolerance) along with consideration of biological resources study area conditions and observed resources. Because the natural habitats that may have previously existed in the biological resources study area have since been converted to residential and industrial development, essentially no habitat for special-status plant species exists.

### 4.12.2.12 Special-Status Wildlife

Table 3.2 included in the *Ecosystems/Biological Resources Impacts Report* (see Appendix N) lists the special-status wildlife species and their likelihood of occurrence in the biological resources study area. The determinations are based on a combination of factors (e.g., the species' requirements with respect to soils, hydrology, habitats, elevation range, and disturbance tolerance), along with consideration of biological resources study area conditions and observed resources. The discussion below summarizes that information.

Of the 33 special-status animal species reviewed for potential occurrence, three special-status bat species, pallid bat (*Antrozous pallidus*), western yellow bat (*Lasiurus xanthinus*), and big free-tailed bat (*Nyctinomops macrotis*), were judged to have at least some reasonable potential for occurrence within the biological resources study area. The existing bridges over the Pacoima Wash, Pacoima Diversion Canal, and East Canyon Creek; the existing overpasses at I-5, State Route 118, and the Union Pacific Railroad (on Van Nuys Boulevard); and the adjacent vegetation (in particular, palm trees and trees with cavities, crevices, exfoliating bark, and bark fissures) may support roosting habitat for special-status bat species.

The USFWS database has records of Santa Ana sucker (*Catostomus santaanae*) (federally threatened and state sensitive) (3.75 miles to the east), coastal California gnatcatcher (*Polioptila californica californica*) (federally threatened and state sensitive) (2.6 miles to the east), least Bell's vireo (*Vireo bellii pusillus*) (federally and state listed endangered) (1.62 miles to the east), and southwestern willow flycatcher (*Empidonax traillii extimus*) (federally and state listed endangered) (2.3 miles to the east), occurring within the Hansen Dam Recreational Area, which is outside the northeast portion of the biological resources study area. Also, within the Hansen Dam Recreational Area is USFWS designated critical habitat for the Santa Ana sucker. The USFWS and CNDDB database also have records of least Bell's vireo (0.75 miles to the west) within the Sepulveda Dam Recreation Area, which is outside the southwest portion of the biological resources study area. Due to the urbanized conditions within the biological resources study area, habitat supporting these threatened and endangered species is not expected to occur.

The CNDDB lists western pond turtle (*Emys marmorata*) (3.2 miles to the east), Sierra Madre yellow-legged frog (*Rana muscosa*) (4.6 miles to the east), arroyo chub (3.3 miles to the east), and Santa Ana speckled dace (*Rhinichthys osculus* ssp.) (3.3 miles to the east) as being present at the Hansen Dam Recreational Area, but they are not expected to occur in the Los Angeles River, the Pacoima Wash, the Pacoima Diversion Canal, and the East Canyon Creek because they are concrete-lined and do provide suitable habitat.

## 4.12.3 Environmental Consequences, Impacts, and Mitigation Measures

No riparian habitat or sensitive natural communities occur within the biological resources study area; therefore, none of the alternatives discussed below would have an impact/effect on riparian habitat or sensitive natural communities under CEQA and NEPA. No further discussion of these biological resources is required.

Additionally, the biological resources study area does not overlap with any adopted habitat conservation plan, natural community conservation plan, or any other approved local, regional, or state habitat conservation plan. Therefore, implementation of any of the alternatives would not affect any adopted plan and no impact/effect would occur under CEQA or NEPA. No further discussion of impacts on these resources is required.

## 4.12.3.1 No-Build Alternative

### Construction Impacts

The No-Build Alternative represents projected conditions without implementation of the project. Since no construction is proposed under this alternative, it would not result in changes to the environment and; therefore, no impacts under CEQA and no effects under NEPA to biological resources would occur.

### Operational Impacts

The No-Build Alternative represents projected conditions without implementation of the project. Because no new transportation infrastructure would be built within the project study area with exception of those projects already planned, programmed, and funded, implementation of the No-Build Alternative would not cause new impacts on the ecosystem and changes to existing conditions. Under CEQA, no operational impacts on biological resources would occur. Because there would be no change in the existing environment, for the purposes of NEPA, this alternative would have no adverse effect on biological resources within the biological resources study area.

### Cumulative Impacts

No impacts would occur under construction or operation; therefore, the No-Build Alternative would not contribute to any cumulative impacts.

### Mitigation Measures

#### Construction Mitigation Measures

No construction mitigation measures would be required.

#### Operational Mitigation Measures

No operational mitigation measures would be required.

### Impacts Remaining After Mitigation

#### NEPA Finding

The No-Build Alternative would not result in adverse effects under NEPA.

#### CEQA Determination

The No-Build Alternative would result in no impacts under CEQA.

## 4.12.3.2 TSM Alternative

### Construction Impacts

The TSM Alternative proposes transportation systems upgrades, which may include relatively low-cost transit service improvements and minor physical improvements that would be limited to the public roadway right-of-way. As a consequence, no or very minor construction impacts or adverse effects would occur.

### Operational Impacts

The TSM Alternative emphasizes transportation systems upgrades, which may include relatively low-cost transit service improvements, such as increased bus frequencies. Because the buses would operate along existing roadways in a developed urban area, no adverse operational impacts or effects on ecosystems/biological resources are expected to occur.

### Cumulative Impacts

The TSM Alternative would result in no or very minor construction impacts/effects and no operational impacts or effects. As a consequence, it would not contribute any significant cumulative impacts.

### Mitigation Measures

#### Construction Mitigation Measures

No construction mitigation measures would be required.

#### Operational Mitigation Measures

No operational mitigation measures would be required.

### Impacts Remaining After Mitigation

#### NEPA Finding

The TSM Alternative would result in no effects or no adverse effects under NEPA.

#### CEQA Determination

The TSM Alternative would result in no impacts or less than significant impacts under CEQA.

## 4.12.3.3 BRT Alternatives

### Alternative 1– Curb-Running BRT

#### Construction Impacts

##### *Special-status Plants*

Because the project area is already disturbed due to urban development and infrastructure including sidewalks, buildings, roadways, parking areas, retail businesses, etc., the site currently possesses almost no value to special-status plant species. No special-status plant species, as documented in Table 3-1 of the *Ecosystems/Biological Resources Impacts Report,* are expected to occur within the biological resources study area. Therefore, construction of this alternative would have no impact and no effect on special-status plants.

##### *Special-status Animals*

There is a potential for pallid bat (*Antrozous pallidus*), western yellow bat (*Lasiurus xanthinus*), and big free-tailed bat (*Nyctinomops macrotis*) to occur in the biological resources study area. No bats or signs of bats (i.e., urine staining and guano droppings) were visually observed at the time of the site visits; however, it should be noted that specific focused surveys for bats were not conducted. The existing bridges over the Pacoima Wash, Pacoima Diversion Canal, and East Canyon Creek; the existing overpasses at I-5, State Route 118, and the Union Pacific Railroad (on Van Nuys Boulevard); and adjacent vegetation (in particular, palm trees and trees with cavities, crevices, exfoliating bark, and bark fissures) may support roosting habitat for special-status bat species. Construction of this alternative would not require modification of these structures but construction activities may require removal of adjacent vegetation, which could disturb or destroy bat roost sites, a potentially significant impact under CEQA and adverse effect under NEPA.

Implementation of Mitigation Measure BIO-1 would reduce the impact or effect on bats due to removal of trees occupied by roost sites or removal of other roosting habitat to a less-than-significant level under CEQA and non-adverse under NEPA.

### *Migratory Bird Treaty Act/California Fish and Game Code*

Although there is a lack of natural plant communities within the biological resources study area, the ornamental landscaping, including mature trees, provides marginal foraging and nesting habitat for a small number of small mammals, reptiles, and invertebrates. The ornamental landscaping could provide a source of prey for a variety of common and special-status birds (including passerines and both local and wintering raptors) and large mammal species.

The biological resources study area supports nesting birds throughout the urban landscape. As currently proposed, this alternative would include upgrades to all existing Metro Rapid bus stops (18 in total) including stops at the Sylmar/San Fernando Metrolink station and Metro Orange Line Van Nuys station. Upgrades would consist of bus stop canopies installed at each location that would be approximately 13 feet in height. Modifications to bus stop lengths are also proposed and the modified bus stops would range between 80 feet and 150 feet in length. Proposed improvements under this alternative could require removal of vegetation where there are nesting birds present. As a consequence, vegetation removal could result in impacts to nesting birds, which would be a violation of the Migratory Bird Treaty Act and/or California Fish and Game Code. To ensure compliance with the Migratory Bird Treaty Act and Fish and Game Code, Mitigation Measure BIO-2 is proposed. The biological impact/effect of lost nests for common urban bird species would be less than significant under CEQA and not adverse under NEPA.

### *Jurisdictional Waters*

Three jurisdictional drainages, the Pacoima Wash, the Pacoima Diversion Canal, and East Canyon Creek all occur within the proposed alignment for this alternative. Under this alternative, only street level modifications would be made along the existing roads. No work, including reinforcement of structures, would be needed at the bridges. Therefore, implementation of this alternative would not directly affect a federal or state jurisdictional drainage under CEQA or NEPA. However, please see Mitigation Measure BIO-3 for best management practices that would be required when working near jurisdictional drainages to avoid or minimize potential indirect effects.

### *Wildlife Corridors*

The Pacoima Wash, Pacoima Diversion Canal, and East Canyon Creek are concrete channel waterways, are not expected to function as significant wildlife movement corridors. As a consequence and because no construction activities are proposed in the channels that would block movement through the area; no impact/affect to wildlife movement would occur under CEQA or NEPA.

#### *Conflict with Local Policies*

Two tree species that occur in the biological resources study area are protected under the City of Los Angeles Tree Ordinance 177404: coast live oak and western sycamore. The City of San Fernando Comprehensive Tree Management Program Ordinance (Ordinance No. 1539) does not specify "protected" trees as does the City of Los Angeles. However, Ordinance No. 1539 does require prior consultation with the public works director regarding removal or trimming of "city-owned trees," which are any trees on public property.

Construction of new bus stop canopies could require the removal of trees protected by the City of Los Angeles and/or City of San Fernando tree ordinances. Removal of protected trees would conflict with the city ordinances, which would be a significant impact under CEQA and adverse effect under NEPA. If protected trees are to be removed, implementation of Mitigation Measure BIO-4 would be required to ensure compliance with city ordinances. The biological consequence of removing or trimming urban trees would be less than significant under CEQA and would not be an adverse effect under NEPA with implementation of Mitigation Measure BIO-4.

### Operational Impacts

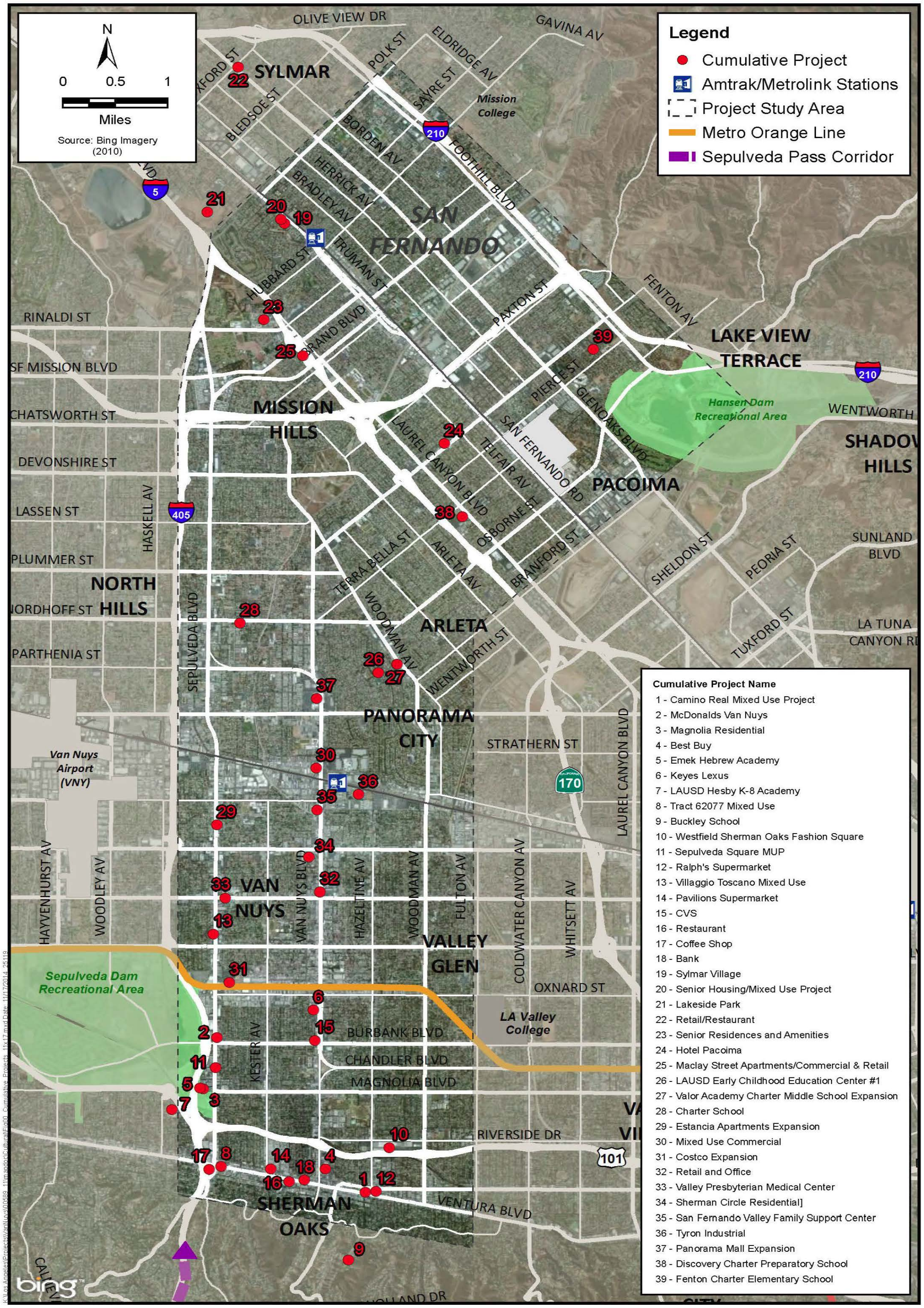
This alternative proposes the conversion of existing curb lanes to dedicated curb-running bus lanes. It would also include upgrades to all currently existing Metro Rapid bus stops (18 in total) including stops at the Sylmar/San Fernando Metrolink station and Metro Orange Line Van Nuys station. Upgrades would consist of canopies installed at each location and modification to the bus stop lengths. Because the project is planned within an existing urban neighborhood and regional commercial setting, and wildlife species in the area are urban-tolerant, operation of this alternative would result in no impact under CEQA and no effect under NEPA on biological resources in the study area.

### Cumulative Impacts

This cumulative impacts analysis for biological resources is based on the related projects list method of cumulative impacts analysis, as described by CEQA Guidelines, Section 15130, subd. (b)(1)(A). Figure 4.12-1 shows the locations of these related projects (see Table 2-3 in Chapter 2 for more details on these related projects) and generally defines the study area for the ecosystems/biological resources cumulative impacts discussion. The study area in Figure 4.12-1 is the appropriate study area as the alignment of the proposed project is located in an urban, developed environment which lacks sufficient suitable native habitat that would attract species from a larger geographic area.

The biological resources study area supports only marginally suitable foraging, nesting, and roosting habitat for wildlife species. The biological resources study area has no potential to support a high diversity of native plants. Most wildlife species that could be expected to use the project site are species that are adapted to urban environments and disturbances caused by human-induced activities. Therefore, the related projects are not expected to result in significant cumulative impacts to biological resources. Since the related projects and implementation of Alternative 1 would have limited adverse effects on the diversity and abundance of native flora and fauna in the region and because any biological resources impacts due to the build alternatives would be mitigated with implementation of the mitigation measures identified below, implementation of Alternative 1 (and the other build alternatives) would not result in a cumulatively considerable contribution to significant cumulative impacts on regional flora and fauna.

# Figure 4.12-1: Locations of Related Projects



## Mitigation Measures

### *Construction Mitigation Measures*

#### MM-BIO-1: Avoid and Minimize Project-Related Impact on Special-Status Bat Species

In the maternity season (April 15 through August 31) prior to the commencement of construction activities, a field survey shall be conducted by a qualified biologist to determine the potential presence of colonial bat roosts (including palm trees) on or within 100 feet of the project boundaries. Should a potential roost be identified that will be affected by proposed construction activities, a visual inspection and/or one night emergence survey shall be used to determine if it is being used as a maternity-roost.

To avoid any impacts on roosting bats resulting from construction activities, the following measures shall be implemented:

#### Bridges and Overpasses

- Should potential bat roosts be identified that will require removal, humane exclusionary devices shall be used. Installation would occur outside of the maternity season and hibernation period (February 16-April 14 and August 16-October 30, or as determined by a qualified biologist) unless it has been confirmed as absent of bats. If the roost has been determined to have been used by bats, the creation of alternate roost habitat shall be required, with CDFW consultation. The roost shall not be removed until it has been confirmed by a qualified biologist that all bats have been successfully excluded.
- Should an active maternity roost be identified, a determination (in consultation with the California Department of Fish and Wildlife or a qualified bat expert) shall be made whether indirect effects of construction-related activities (i.e., noise and vibration) could substantially disturb roosting bats. This determination shall be based on baseline noise/vibrations levels, anticipated noise-levels associated with construction of the proposed project, and the sensitivity to noise-disturbances of the bat species present. If it is determined that noise could result in the temporary abandonment of a day-roost, construction-related activities shall be scheduled to avoid the maternity season (April 15 through August 31), or as determined by the biologist.

#### Trees

All trees to be removed as part of the project shall be evaluated for their potential to support bat roosts. The following measures would apply to trees to be removed that are determined to provide potential bat roost habitat by a qualified biologist.

- If trees with colonial bat roost potential require removal during the maternity season (April 15 through August 31), a qualified bat biologist shall conduct a one-night emergence survey during acceptable weather conditions (no rain or high winds, night temperatures above 52˚F) or if conditions permit, physically examine the roost for presence or absence of bats (such as with lift equipment) before the start of construction/removal. If the roost is determined to be occupied during this time, the tree shall be avoided until after the maternity season when young are self-sufficiently volant.
- If trees with colonial bat roost potential require removal during the winter months when bats are in torpor, a state in which the bats have significantly lowered their physiological state, such as body temperature and metabolic rate, due to lowered food availability. (October 31 through February 15, but is dependent on specific weather conditions), a qualified bat

biologist shall physically examine the roost if conditions permit for presence or absence of bats (such as with lift equipment) before the start of construction. If the roost is determined to be occupied during this time, the tree shall be avoided until after the winter season when bats are once again active.

- Trees with potential colonial bat habitat can be removed outside of the maternity season and winter season (February 16 through April 14 and August 16 through October 30, or as determined by a qualified biologist) using a two-step tree trimming process that occurs over 2 consecutive days. On Day 1, under the supervision of a qualified bat biologist, Step 1 shall include branches and limbs with no cavities removed by hand (e.g., using chainsaws). This will create a disturbance (noise and vibration) and physically alter the tree. Bats roosting in the tree will either abandon the roost immediately (rarely) or, after emergence, will avoid returning to the roost. On Day 2, Step 2 of the tree removal may occur, which would be removal of the remainder of the tree. Trees that are only to be trimmed and not removed would be processed in the same manner; if a branch with a potential roost must be removed, all surrounding branches would be trimmed on Day 1 under supervision of a qualified bat biologist and then the limb with the potential roost would be removed on Day 2.
- Trees with foliage (and without colonial bat roost potential), such as sycamores, that can support lasiurine bats, shall have the two-step tree trimming process occur over one day under the supervision of a qualified bat biologist. Step 1 would be to remove adjacent, smaller, or non-habitat trees to create noise and vibration disturbance that would cause abandonment. Step 2 would be to remove the remainder of tree on that same day. For palm trees that can support western yellow bat (the only special-status lasiurine species with the potential to occur in the project area), shall use the two-step tree process over two days. Western yellow bats may move deeper within the dead fronds during disturbance. The two-day process will allow the bats to vacate the tree before removal.

### MM BIO-2: Avoid Impacts on Nesting Birds (including raptors)

To avoid any impacts on migratory birds, resulting from construction activities that may occur during the nesting season, March 1 through August 31, the following measure shall be implemented:

- A qualified biologist shall conduct a preconstruction survey of the proposed construction alignment with a 150-foot buffer for passerines and 500-feet for raptors around the site. This preconstruction survey shall commence no more than 3 days prior to the onset of construction, such as clearing and grubbing and initial ground disturbance.
- If a nest is observed, an appropriate buffer shall be established, as determined by a qualified biologist, based on the sensitivity of the species. For nesting raptors, the minimum buffer shall be 150 feet. The contractor shall be notified of active nests and directed to avoid any activities within the buffer zone until the nests are no longer considered to be active by the biologist.

### MM BIO-3: Jurisdictional Waters

Any work resulting in materials that could be discharged into jurisdictional features shall adhere to strict best management practices (BMPs) to prevent potential pollutants from entering any jurisdictional feature. Applicable BMPs to be applied shall be included in the Stormwater Pollution Prevention Plan and/or Water Quality Management Plan and shall include, but not be limited to, the following BMPs as appropriate:

- Containment around the site shall include use of temporary measures such as fiber rolls to surround the construction areas to prevent any spills of slurry discharge or spoils recovered during the separation process;
- Downstream drainage inlets shall be temporarily covered to prevent discharge from entering the storm drain system;
- Construction entrances/exits shall be properly set up so as to reduce or eliminate the tracking of sediment and debris offsite by including grading to prevent runoff from leaving the site, and establishing "rumble racks" or wheel water points at the exit to remove sediment from construction vehicles;
- Onsite rinsing or cleaning of any equipment shall be performed in contained areas and rinse water shall be collected for appropriate disposal;
- Use of a tank on work sites to collect the water for periodic offsite disposal;
- Soil and other building materials (e.g., gravel) stored onsite shall be contained and covered to prevent contact with stormwater and offsite discharge; and
- Water quality of runoff shall be periodically monitored before discharge from the site and into the storm drainage system.

#### MM BIO-4: A Project Tree Report Shall Be Approved by the City of Los Angeles and City of San Fernando

Prior to construction, the contractor shall review the approved alternative alignment to determine whether any trees protected by the City of Los Angeles Tree Ordinance 177404 and City of San Fernando Comprehensive Tree Management Program Ordinance (Ordinance No. 1539) will be removed or trimmed. A tree report must be prepared, by a qualified arborist, for the project and approved by each city. Trees approved for removal (or replacement) shall be done in accordance to the specifications outlined in the city ordinances.

### *Operational Mitigation Measures*

No mitigation measures are required.

## Impacts Remaining After Mitigation

Less than significant.

### *NEPA Finding*

Biological resources impacts would not be adverse following implementation of proposed mitigation measures.

### *CEQA Determination*

Biological resources impacts would be less than significant following implementation of proposed mitigation measures.

## Alternative 2–Median-Running BRT

### Construction Impacts

#### *Special-status Species*

Impacts from this alternative would be of the same nature as those expected under Alternative 1 described above. Thus, similar to Alternative 1, this alternative would not result in impacts or effects on any special-status plant species. This alternative would construct BRT lanes along a dedicated median alignment, which would require removal of existing median islands, road widening in other areas, and construction of new bus stop canopies, some of which have trees potentially used by nesting birds and/or bat species. Alternative 2 would not require the modification of any bridge or overpass structures, but may require removal of adjacent vegetation, which could disturb or destroy bat roost sites. Construction activities would also result in increases in noise, movement, and vibration at the bridges over the Pacoima Wash, Pacoima Diversion Canal, and East Canyon Creek and the existing overpasses at I-5, State Route 118, and the Union Pacific Railroad (on Van Nuys Boulevard). This alternative could result in potentially significant impacts under CEQA and adverse effects under NEPA to nesting birds or roosting bats due to construction activities that would remove vegetation used by special-status bat species. However, Mitigation Measures BIO-1 and BIO-2 would reduce potential impacts to less than significant under CEQA and non-adverse under NEPA.

#### *Jurisdictional Waters*

Only street level modifications would be made along the existing roads under Alternative 2. No work, including reinforcement of bridge structures, would be needed within existing drainage channels. Therefore, implementation of this alternative would not directly affect a federal or state jurisdictional drainage under CEQA or NEPA. However, please see Mitigation Measure BIO-3 for best management practices that would be implemented when working near jurisdictional drainages to avoid or minimize potential indirect effects.

#### *Wildlife Corridors*

No construction activities are proposed in the channels that would block movement through the area; therefore, no impact/affect to wildlife movement would occur under CEQA or NEPA.

#### *Conflict with Local Policies*

This alternative would require the removal of trees. Removal of any protected trees would conflict with city ordinances, which would be a potentially significant impact under CEQA and an adverse effect under NEPA. If protected trees are removed, implementation of Mitigation Measure BIO-4 would be required to ensure compliance with city ordinances. The biological consequence of removing or trimming urban trees would be less than significant under CEQA and would not be an adverse effect under NEPA with implementation of Mitigation Measure BIO-4.

### Operational Impacts

This alternative would construct a BRT line along a dedicated median alignment, which would remove existing median islands from San Fernando Road in the north and the Metro Orange Line in the south. Because the project is planned within an existing urban setting and wildlife species in the area are urban-tolerant, operation of this alternative would result in no impacts under CEQA and no effect under NEPA on biological resources in the study area.

### Cumulative Impacts

Cumulative impacts would be the same as the cumulative impacts described above for Alternative 1.

### Mitigation Measures

#### *Construction Mitigation Measures*

Mitigation Measures BIO-1 through BIO-4 would be required (see discussion above for Alternative 1).

#### *Operational Mitigation Measures*

No mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Biological resources impacts would not be adverse following implementation of proposed mitigation measures.

#### *CEQA Determination*

Biological resources impacts would be less than significant following implementation of proposed mitigation measures.

# 4.12.3.4 Rail Alternatives

## Alternative 3–Low-Floor LRT/Tram

### Construction Impacts

Impacts expected under this alternative would be the same as construction impacts anticipated to occur under Alternatives 1 and 2. Construction would result in increased noise, movement, and vibration at the bridges over the Pacoima Wash, Pacoima Diversion Canal, and East Canyon Creek and the existing overpasses at I-5, State Route 118, and the Union Pacific Railroad (on Van Nuys Boulevard). A MSF would also be constructed under this alternative (at one of three alternate sites under consideration). Construction of the MSF could affect nesting birds and/or tree roosting bats if trees are to be removed to make way for the new MSF structures.

Alternative 3 could result in potentially significant impacts under CEQA and adverse effects under NEPA to nesting birds or roosting bats if construction activities remove vegetation where nesting birds are present or affect structures or vegetation used by special-status bat species. However, Mitigation Measures BIO-1 and BIO-2 would reduce potential impacts to less than significant under CEQA and non-adverse under NEPA.

#### *Jurisdictional Waters*

Only street level modifications would be made along the existing roads under Alternative 3. No work, including reinforcement of bridge structures, would occur within existing drainage channels. Therefore, implementation of this alternative would not directly affect a federal or state jurisdictional drainage under CEQA or NEPA. However, please see Mitigation Measure BIO-3 for best management practices that would be required when working near jurisdictional drainages to avoid or minimize potential indirect effects.

#### *Wildlife Corridors*

This alternative would not substantially interfere with the movement of resident or migratory fish or wildlife species, or with established resident or migratory wildlife corridors, or impede use as a wildlife nursery site. Potential impacts would be less than significant under CEQA and non-adverse under NEPA.

#### *Conflict with Local Policies*

If protected trees are removed, implementation of Mitigation Measure BIO-4 would be required to ensure compliance with city ordinances. The biological consequence of removing or trimming urban trees would be less than significant under CEQA and would not be an adverse effect under NEPA with implementation of Mitigation Measure BIO-4.

### Operational Impacts

Operation of proposed facilities, including the MSF and TPSSs, would generally result in no impacts under CEQA and no effects under NEPA on biological resources in the study area. However, the overhead catenary system lines for this alternative would affect avian species by potentially increasing line collisions and electrocution risks. In addition, increased noise, motion and vibration could affect bat roosts on the underside of the bridge crossings over the Pacoima Wash, Pacoima Diversion Canal, and East Canyon Creek and the existing overpasses at I-5, State Route 118, and the Union Pacific Railroad (on Van Nuys Boulevard). However, because the project is planned within an existing urban area and wildlife species in the area are urban-tolerant, the overhead contact system lines and train operations would have a less-than-significant impact on common bird species and bat roosts under CEQA and no adverse effect under NEPA.

### Cumulative Impacts

Cumulative impacts would be the same as cumulative impacts described for Alternative 1. See discussion above for Alternative 1.

### Mitigation Measures

#### *Construction Mitigation Measures*

Mitigation Measures BIO-1 through BIO-4 are proposed (see discussion above under Alternative 1).

#### *Operational Mitigation Measures*

No mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Biological resources impacts would not be adverse following implementation of proposed mitigation measures.

#### *CEQA Determination*

Biological resources impacts would be less than significant following implementation of proposed mitigation measures.

## Alternative 4–LRT

### Construction Impacts

#### *Special-status Species*

Impacts from this alternative would be the same as those expected to occur under Alternatives 2 and 3. This alternative would require removal of existing median islands, road widening in other areas, construction of new bus stop canopies, some of which have trees potentially used by nesting birds and/or bat species.

Two bridge upgrades are proposed for this alternative: One bridge at Van Nuys Boulevard where it crosses over the Pacoima Diversion Canal, and one adjacent to San Fernando Road as it crosses over the Pacoima Wash. The existing bridges could be used by nesting birds and/or bat species. Construction would also result in increases in noise, movement, and vibration at the bridges over the Pacoima Wash, the Pacoima Diversion Canal, and East Canyon Creek and the existing overpasses at I-5, State Route 118, and the Union Pacific Railroad (on Van Nuys Boulevard).

A MSF would also be constructed under this alternative (at one of three alternate sites under consideration). Construction of the MSF could affect nesting birds and/or tree roosting bats if trees are to be removed to make way for the new MSF structures. In addition, three underground stations would be constructed at Sherman Way, Van Nuys Boulevard, and Roscoe Boulevard, respectively. No impacts on biological resources are anticipated for the underground segment of this alternative.

Alternative 4 could result in potentially significant impacts under CEQA and adverse effects under NEPA to nesting birds or roosting bats if construction activities remove vegetation where nesting birds are present or affect structures or vegetation used by special-status bat species. However, Mitigation Measures BIO-1 and BIO-2 would reduce potential impacts to less than significant under CEQA and non-adverse under NEPA.

#### *Jurisdictional Waters*

Two bridge upgrades are proposed under this alternative; crossing over the Pacoima Diversion Canal and Pacoima Wash, and are located at Van Nuys Boulevard and along San Fernando Road, within the Metro ROW. As a consequence, this alternative could affect WoUS, waters of the state (WoS), and CDFW jurisdictional streambeds. Project-related impacts on WoUS would require permitting under Section 404 of the Clean Water Act (CWA), most likely in the form of a Nationwide Permit 14 if project-related impacts on WoUS are less than 0.5 acre. Impacts on WoUS/WoS would also trigger the need for a Section 401 Certification, issued by the RWQCB. Acquisition of these permits would ensure compliance with CWA (Section 401 and 404). A streambed Alteration Agreement, as regulated by Section 1602 of the California Fish and Game Code, would be required for project-related impacts on a CDFW jurisdictional streambed.

If permanent impacts on WoUS/WoS and CDFW unvegetated streambeds are unavoidable, compensatory mitigation may be required under section 401 and 404 of the CWA and Section 1602 of the California Fish and Game Code. This is expected to be required at a minimum 1:1 ratio. Final compensatory mitigation will be determined during the aquatic permitting process. In addition, temporary impacts would be required to be restored to pre-project conditions at the location of these impacts. Impacts on WoUS/WoS and CDFW streambeds would be less than significant under CEQA and would not be adverse under NEPA after compliance with regulatory permit requirements and implementation of mitigation measure MM BIO-3 described above.

#### *Wildlife Corridors*

This alternative would not substantially interfere with the movement of resident or migratory fish or wildlife species, or with established resident or migratory wildlife corridors, or impede use as a wildlife nursery site. Potential impacts would be less than significant under CEQA and non-adverse under NEPA.

#### *Conflict with Local Policies*

This alternative would require the removal of trees. Removal of any protected trees would conflict with city ordinances, which would be a potentially significant impact under CEQA and an adverse effect under NEPA. If protected trees are removed, implementation of Mitigation Measure BIO-4 would be required to ensure compliance with city ordinances. The biological consequence of removing or trimming urban trees would be less than significant under CEQA and would not be an adverse effect under NEPA with implementation of Mitigation Measure BIO-4.

### Operational Impacts

The operation of proposed facilities, including the MSF and TPSSs, would generally result in no impacts under CEQA and no effects under NEPA on biological resources. However, installation of the overhead catenary system lines for the LRT Alternative would potentially have an impact on avian species by increasing line collisions and electrocution risks. In addition, increased noise, motion, and vibration from LRT vehicles could affect bat roosts on the underside of the bridge crossings over the Pacoima Wash, Pacoima Diversion Canal, and East Canyon Creek and the existing overpasses at I-5, State Route 118, and the Union Pacific Railroad (on Van Nuys Boulevard). However, because the project is planned within an existing urban area, and wildlife species in the area are urban-tolerant, the overhead contact system lines and LRT operations would result in less-than-significant impacts on common bird species and bats under CEQA and non-adverse effects under NEPA.

### Cumulative Impacts

Cumulative impacts would be the same as cumulative impacts described for Alternative 1. See discussion above for Alternative 1.

### Mitigation Measures

#### *Construction Mitigation Measures*

Mitigation Measures BIO-1 through BIO-4 are proposed (see discussion above under Alternative 1).

#### *Operational Mitigation Measures*

No operational mitigation measures would be required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Biological resources impacts would not be adverse following implementation of proposed mitigation measures.

#### *CEQA Determination*

Biological resources impacts would be less than significant following implementation of proposed mitigation measures.

# 4.13 Water Resources/Hydrology and Water Quality

## 4.13.1 Regulatory Framework and Methodology

### 4.13.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's hydrology and water quality impacts are listed below. For additional information regarding these regulations, please see the *Water Resources Technical Report* in Appendix Q of this Draft EIS/EIR.

#### Federal

- Clean Water Act (Sections 303, 402)
- Executive Order 11988
- Federal Emergency Management Agency (Flood Disaster Protection Act of 1973, National Flood Insurance Reform Act of 1994)
- Rivers and Harbors Act

#### State

- Porter-Cologne Water Quality Control Act of 1969
- National Pollutant Discharge Elimination System
- Construction General Permit
- Industrial Permit

#### Local

- Water Quality Control Plan for the Los Angeles Region
- General Waste Discharge Requirements for Low-threat Discharges to Surface Water
- County of Los Angeles Municipal Stormwater NPDES Permit (MS4 Permit)
- Los Angeles County Stormwater Program
- Master Drainage Plan for Los Angeles County
- Standard Urban Stormwater Mitigation Plan
- Stormwater and Runoff Pollution Control Ordinance of the County of Los Angeles
- Los Angeles County Flood Control Act
- Metro Water Action Plan
- City of San Fernando Stormwater Program
- City of Los Angeles Stormwater Program
- City of Los Angeles Municipal Code
- The Los Angeles Specific Plan for Management of Flood Hazards (Ordinance 172081)

- City of Los Angeles Stormwater Ordinance
- City of Los Angeles Low Impact Development Ordinance

## 4.13.1.2 Methodology

The impact section addresses the adverse effects of the alternatives based on an analysis of the water and hydrologic resources and stormwater conveyance facilities described in the existing conditions section. The analysis considers:

- Construction and operation activities that could affect surface water runoff and drainage;
- Impacts related to surface runoff from impervious surfaces;
- Floodplains and groundwater resources;
- Required permits; and
- Whether project stormwater drainage and water quality requirements are met during construction and operation.

## 4.13.1.3 Significance Thresholds

Significance thresholds are used to determine whether a project may have a significant environmental effect. The significance thresholds, as defined by federal and state regulations and guidelines, are discussed below.

### NEPA

NEPA does not include specific significance thresholds. According to the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the determination of significance under NEPA is based on context and intensity.[1]

Context relates to the various levels of society where effects could result, such as society as a whole, the affected region, the affected interests, and the locality. The intensity of an effect relates to several factors, including the degree to which public health and safety would be affected; the proximity of a project to sensitive resources; and the degree to which effects on the quality of the human environment are likely to be highly controversial or involve unique or unknown risks.

Under NEPA, the context and intensity of the project's effects are discussed in this Land Use section regardless of any thresholds levels, and mitigation measures would be included where reasonable.

### CEQA

CEQA requires state and local government agencies to identify the significant environmental effects of proposed actions; however, CEQA does not describe specific significance thresholds. According to the 2016 CEQA Guidelines (15064.7. Thresholds of Significance), each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative, or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant.

[1] Code of Federal Regulations. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index*.

### State CEQA Guidelines

The State CEQA Guidelines define a significant effect on the environment as: "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (State CEQA Guidelines, Section 15382).

The State CEQA Guidelines do not describe specific significance thresholds. However, Appendix G of the State CEQA Guidelines lists a variety of potentially significant effects, which are often used as thresholds or guidance in developing thresholds for determining impact significance. Accordingly, for the purposes of this EIS/EIR, a project would normally have a significant impact on existing water resources, hydrology, and water quality, under CEQA, if it would:

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or offsite.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or offsite.
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff
- Otherwise substantially degrade water quality.
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.
- Expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow.[2]

### L.A. CEQA Thresholds Guide

According to the *L.A.CEQA Thresholds Guide,* a project would normally have a significant impact on surface water hydrology if it would:

- Cause flooding during the projected 50-year developed storm event, which would have the potential to harm people or damage property or sensitive biological resources
- Substantially reduce or increase the amount of surface water in a water body
- Result in a permanent, adverse change to the movement of surface water sufficient to produce a substantial change in the current or direction of water flow or

[2] Due to the low risk of seiche, tsunami, or mudflow in the project area, these impacts are not addressed in the Environmental Consequences/Environmental Impacts section below.

- A project would normally have a significant impact on surface water quality if discharges associated with the project would create pollution, contamination or nuisance as defined in Section 13050 of the California Water Code (CWC) or that cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Basin Plan (i.e., beneficial uses, 303(d)-listed impairments, and water quality objectives) for the receiving water body

## 4.13.2 Affected Environment/Existing Conditions

### 4.13.2.1 Surface Hydrology

Precipitation in the San Fernando Valley is characterized by intermittent rain during winter months and negligible rain during summer months; 85 percent of the annual precipitation occurs from November to March. Although precipitation normally occurs as rainfall, winter snow is common in the higher elevations of the San Gabriel Mountains. As is typical of many semi-arid regions, the Los Angeles area experiences a wide variation in monthly and seasonal precipitation totals.

Precipitation may flow into surface reservoirs and groundwater basins or run off to the ocean. Short-term water storage is in surface reservoirs and long-term storage is in groundwater basins. The amount of infiltration to groundwater basins is dependent upon the slope, the soil type, and the intensity and duration of rainfall. Because most of the greater Los Angeles area is either paved or developed, a great deal of runoff occurs. Flood control structures have been constructed to channel runoff through inhabited areas to minimize flooding and to aid in recharging groundwater storage units.

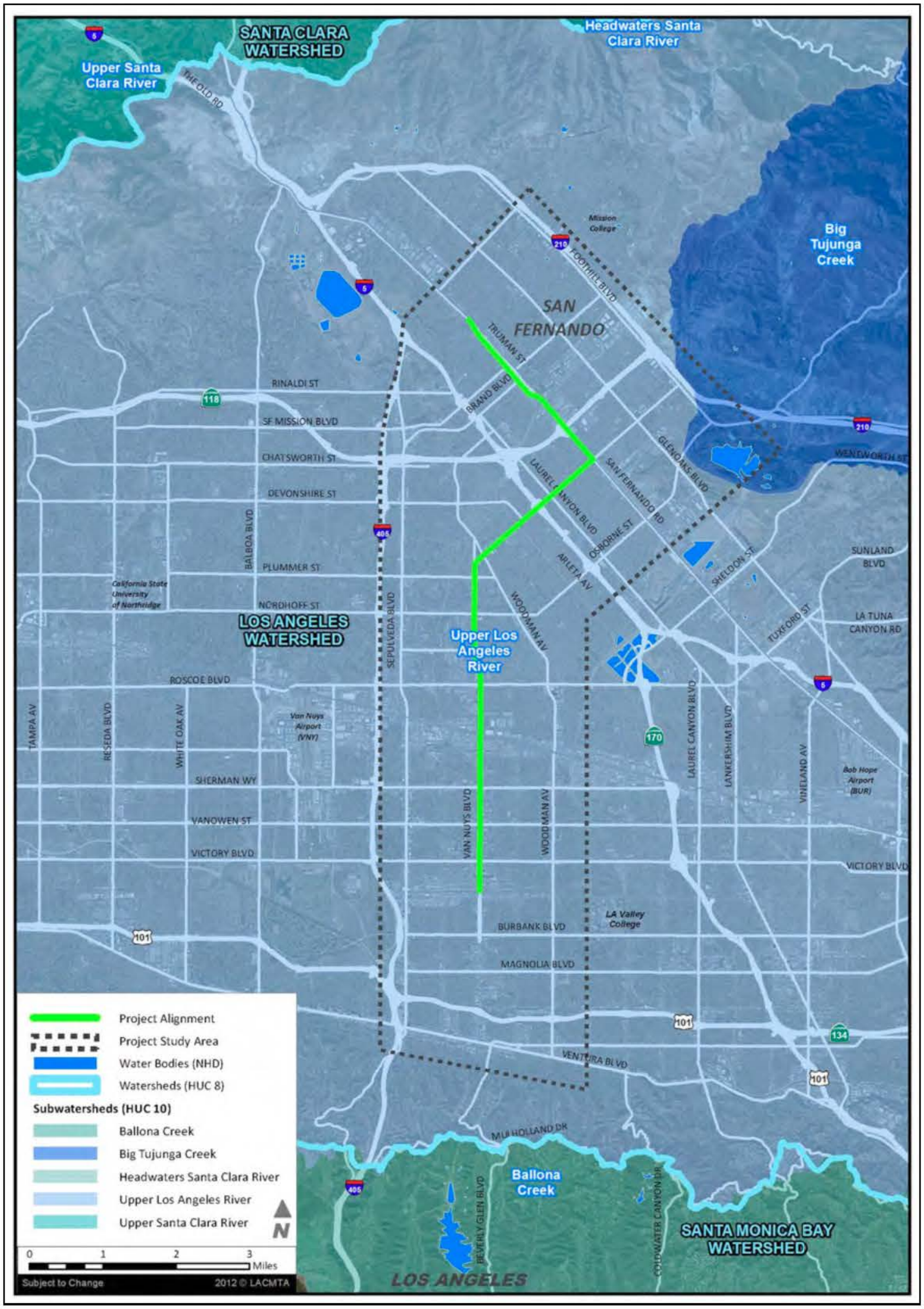
### 4.13.2.2 Regional Surface Hydrology

The project site is located within the northwestern area of the Los Angeles River Watershed (Upper Los Angeles River Watershed) in the San Fernando Valley. The project is located primarily within the Los Angeles subwatershed within the upper Los Angeles River Watershed. Surface water in the San Fernando Valley drains out of the Valley through the Los Angeles River, which flows in an east-west direction and crosses the project corridor at the south end.

The Los Angeles River Watershed (HUC12-I80701050206) covers a land area of approximately 834 square miles. The Los Angeles River has evolved from an uncontrolled, meandering river providing a valuable source of water for early inhabitants to a major flood protection waterway. A small area in the northern portion of the project area is located within the Big Tujunga Creek subwatershed in the Hansen Flood Control Basin area as well. Watersheds and subwatersheds within the project vicinity are shown in Figure 4.13-1.

The Los Angeles River flows from the southwest side of the San Fernando Valley through the Los Angeles Coastal Plain to San Pedro Bay. Within the project study area, it is located approximately 0.5 mile north of the Metro Orange Line right-of-way at the west end of the Metro Orange Line corridor, crosses the Metro Orange Line corridor 0.5 mile west of the Balboa Station, and is 1.5 miles south of the Metro Orange Line right-of-way at the east end of the Metro Orange Line corridor. The Los Angeles River, has been channelized, and lined with concrete along most of its course for flood control purposes. Within the Sepulveda Flood Control Basin, the floor of the channel is unlined, allowing percolation of water from the channel into the ground.

# Figure 4.13-1: Watersheds and Subwatersheds within the Project Vicinity




Source: ICF International, 2015.



Metro

Numerous tributaries, most of which have intermittent flow, discharge into the Los Angeles River. These include the Arroyo Calabasas, Bell Creek, Aliso Wash, Browns Canyon Wash, Chatsworth Creek, Pacoima Wash, Tujunga Wash, and Verdugo Wash. These washes and creeks are primarily concrete-lined within the urban areas. Flows in the Los Angeles River system are highly variable. Dry season flows are comprised chiefly of excess irrigation water applied in urban areas, controlled release of reservoirs, and municipal and industrial wastewater including effluent from the Tillman and Los Angeles-Glendale sewage treatment plants. During the wet season, flows in the Los Angeles River are augmented by stormwater runoff that varies with storm duration, intensity, and frequency.

The Los Angeles Department of Public Works is tasked with finding ways to restore or revitalize the channels within the watershed and, thereby, provide significant opportunities for recreation use and aesthetic improvements along the waterways in the Los Angeles metropolitan area while protecting the Los Angeles Basin from major flooding.

### 4.13.2.3 Local Surface Water Hydrology

The project area is highly urbanized with few natural areas or drainage features. Hydrological features within the project study area are shown in Figure 4.13-2.

There are four major waterways crossing the project corridor. The crossings are located as follows:

1. Pacoima Wash at San Fernando Road;
2. Pacoima Wash at Van Nuys Boulevard;
3. Pacoima Channel at Van Nuys Boulevard; and
4. Pacoima South Channel at Van Nuys Boulevard

Other major surface water resources in the vicinity of the project corridor are Caballero Creek, Bull Creek, and the Tujunga Wash. Caballero Creek drains an area of approximately 10 square miles, most of which lies within the Santa Monica Mountains. The creek flows only intermittently. It crosses the Metro Orange Line Corridor as a box culvert approximately 0.4 mile east of the Reseda Station and joins the Los Angeles River 1 mile to the north. Bull Creek drains an area of approximately 150 square miles, including large areas within the San Gabriel and Santa Susana Mountains. Bull Creek is regulated by the Upper Van Norman Dam and Lake, which is located approximately 7 miles north of the Metro Orange Line. It crosses the Metro Orange Line as a concrete lined channel 0.2 miles east of the Balboa Station and joins the Los Angeles River 0.6 mile to the south within the Sepulveda Basin. The Tujunga Wash drains an area of approximately 150 square miles, including large areas within the San Gabriel Mountains. The Tujunga Wash is regulated by the Hansen Dam and Flood Control Basin, which is located approximately 5 miles north of the Metro Orange Line. In the vicinity of the Metro Orange Line it flows through two branches; the main concrete-lined flood control channel crosses the project corridor 0.9 miles west of the Laurel Canyon Station, and the Central Branch of the Tujunga Wash crosses the Metro Orange Line corridor 0.4 miles west of the North Hollywood Station as a box culvert. Both branches flow into the Los Angeles River 2 miles to the southeast of the crossings in Studio City.

Drainage within the project area is primarily dependent on a network of existing storm drains and drainage channels. The Pacoima Wash, which is a tributary of the Los Angeles River, begins in the north and flows southerly and crosses the project corridor at San Fernando Road. Beginning from the north on San Fernando Road, the flow is easterly and discharges into Pacoima Wash, then easterly from Pacoima Wash to Van Nuys Boulevard, then southerly on Van Nuys Boulevard and discharges

## Figure 4.13-2: Hydrological Features within the Project Vicinity


Source: ICF International, 2015.

into the I-5 drainage system, then southerly from I-5 and discharges into the Pacoima Channel, then southerly on Van Nuys Boulevard from the Pacoima Channel and discharges into the South Channel of the Pacoima Wash at the Metrolink railroad tracks, then southerly on Van Nuys Boulevard from the Metrolink railroad tracks and discharges into the Los Angeles River, and then surface flow continues southerly on Van Nuys Boulevard from the Los Angeles River and is conveyed northerly in a closed system in Van Nuys Boulevard back to the Los Angeles River. Additionally, surface flows that are not intercepted at intersections on Van Nuys Boulevard, continue to flow in the easterly direction on the cross streets.

A major storm drain line runs through the Van Nuys Boulevard corridor and San Fernando Road Corridor within the project study area. The typical tributary area captured by these main storm drain lines are within two city blocks of the corridor. Storm drain pipe sizes range from 42 to 72 inches. Maintenance and jurisdiction of these facilities varies between the City of Los Angeles and County of Los Angeles. The Pacoima Wash Control Channel crosses the project corridor along San Fernando Road approximately 0.5 mile west of SR-118. The crossing is a single-span bridge. The channel is a trapezoidal concrete lined channel with a 12-foot bottom width and 1.5:1 side slopes with a depth of 16 feet.

The project alignment crosses the Pacoima Wash Diversion Channel 600 feet west of Arleta Avenue. The channel is a trapezoidal concrete lined channel. The depth of the channel is 20.4 feet. The bottom width is 30 feet with 2.25:1 side slopes.

The project alignment crosses the South Channel of the Pacoima Wash along Van Nuys Boulevard at the under crossing of the Metrolink right-of-way near the Van Nuys Metrolink Station. The South Channel is north of the Metrolink right-of-way and transitions to the south of the Metrolink right-of-way on the east side of Van Nuys Boulevard.

The project alignment crosses the Pacoima Wash Channel along Van Nuys Boulevard at mid-block between Covello Street and Valero Street. At this location, the open channel transitions to a box culvert that proceeds west underneath Van Nuys Boulevard.

## Surface Water Quality

The project area is highly urbanized which generally captures contaminants from roads, vehicles and household wastes. Urbanized impervious surfaces are known for concentrating and redirecting flows that carry such contaminants into local waterways. In more recent years, municipalities have been implementing best management practices (BMPs) to help protect water quality.

In accordance with the federal CWA and state Porter-Cologne Water Quality Control Act, TMDLs have been developed and incorporated into the Basin Plan for some pollutants identified on the 303(d) list as causing contamination in project sites receiving waters. For other pollutants listed on the 303(d) list (e.g., Section 303[d] of the Clean Water Act), TMDLs are scheduled for development, undergoing development, or in the process of review by the SWRCB.

CWA Section 303(d) List of Impaired Waters within the project vicinity are listed in the *Water Resources Technical Report* (see Appendix Q). The Pacoima Wash and Pacoima Diversion Channel are not listed as being impaired for anything on the 303(d) List.

## Groundwater Supply and Recharge

The study area is located within the San Fernando Valley Groundwater Basin (Department of Water Resources Groundwater Basin Number: 4-12), which is part of the South Coast Hydrologic Region. The San Fernando Basin is the largest of the four basins in the Upper Los Angeles River Area

(ULARA). The basin consists of 112,000 acres and comprises 91.2 percent of the total valley fill in the ULARA. It is bounded on the east and northeast by the San Rafael Hills, the Verdugo Mountains, and the San Gabriel Mountains; on the north by the San Gabriel Mountains and the eroded south limb of the Little Tujunga Syncline, which separates it from the Sylmar Basin; on the northwest and west by the Santa Susana Mountains and Simi Hills; and on the south by the Santa Monica Mountains.

The City of Los Angeles Department of Water and Power (LADWP) provides customers with water from three sources: local groundwater and water imported through the State Water Project (SWP) and Metropolitan Water District of Southern California, which transports water from the California Aqueduct and Colorado River Aqueduct. In areas where local groundwater is available, LACWD owns and operates groundwater production wells that are used to pump the water from the groundwater basin to the surface. All of the groundwater pumped by the City of San Fernando is extracted from the Sylmar Basin. However, groundwater has been found to be contaminated in the San Fernando Groundwater Basin, as described below.

The elevation of groundwater within a basin varies with the amount of water being pumped out of the basin and the amount of recharge returning water to the basin. The basin is adjudicated, and therefore pumping of groundwater is controlled by the ULARA Watermaster in order to prevent groundwater levels from declining. Despite this, groundwater levels in the San Fernando Basin have undergone a general decline during recent years. Probable causes of this decline include increased urbanization and runoff leaving the basin, reduced artificial recharge, and continued groundwater extractions by the three major pumping parties in the basin—the Cities of Los Angeles, Burbank, and Glendale. The ULARA Watermaster continues to monitor this situation, and efforts to reverse this trend are underway. The long-term solution will require the close cooperation of the three major pumping parties (Upper Los Angeles River Area Watermaster 2013).

Groundwater flow in the San Fernando Valley is generally eastward, parallel to the course of the Los Angeles River. The highly non-uniform character of the soils in the San Fernando Valley results in local "perched" aquifers that are not connected to deeper groundwater. A geotechnical survey conducted for the proposed project found that groundwater depths in the vicinity of the project varied from 15 to more than 100 feet below the ground surface during the dry season, with depth to groundwater generally increasing from west to east. Groundwater levels are shallow at the southern end of the project area near the Los Angeles River and become deeper at the northern end of the project area near the foothills, as shown in Figure 3-3 of the *Water Resources Technical Report* (see Appendix Q).

## Groundwater Quality

The groundwater quality in the basin is characterized as having a calcium sulfate-bicarbonate water type in the western part of the basin and calcium bicarbonate in the eastern part of the basin. Groundwater impairments based on a number of investigations have determined there is volatile organic compounds (VOCs) contamination in the basin. Such VOCs include trichloroethylene (TCE), and perchloroethylene (PCE). In addition, petroleum compounds, chloroform, nitrate, sulfate and heavy metals are all other impairments in the basin.

The beneficial uses of the groundwater in the San Fernando Basin are described in the *Water Resources Technical Report* (see Appendix Q).

Groundwater in the ULARA Basins has significant contamination issues. A number of the groundwater production wells are located with the bounds of a Superfund area. Elevated concentrations of VOCs, such as TCE and PCE, as well as other contaminants, such as hexavalent chromium have prompted the City of Los Angeles to discontinue pumping at numerous production wells (MWD, 2007). Emerging contaminants, such as 1.4 dioxane, have also been found in concentrations high enough to necessitate the alteration of groundwater pumping operations.

In addition, perchlorate, a constituent of regional concern has been detected in 2 wells above the notification level of 6 μg/L, one in the Sylmar Basin and one in the eastern end of the San Fernando Basin (MWD 2007). In these areas of contamination, wells have been removed from service or the groundwater is being blended or treated to meet state drinking water standards as discussed below. In the San Fernando Basin, the estimated capacity of all the wells that have been removed from service due to elevated contamination levels is approximately 200 cfs or 396 AF/day (MWD 2007). In addition to the contaminants in the San Fernando groundwater basin, one well was removed from service in the Sylmar basin due to elevated TCE levels.

## Flooding

A few small areas within the project study area were identified as being within the FEMA 100-year flood zone (Zone A); one of which crosses the proposed project alignment, as shown in Figure 4.13-3. However, the FEMA maps indicate that the 100-year storm event is fully contained within the County flood channels and drainage facilities. The following areas within the project study area are FEMA-designated Flood Zone A:

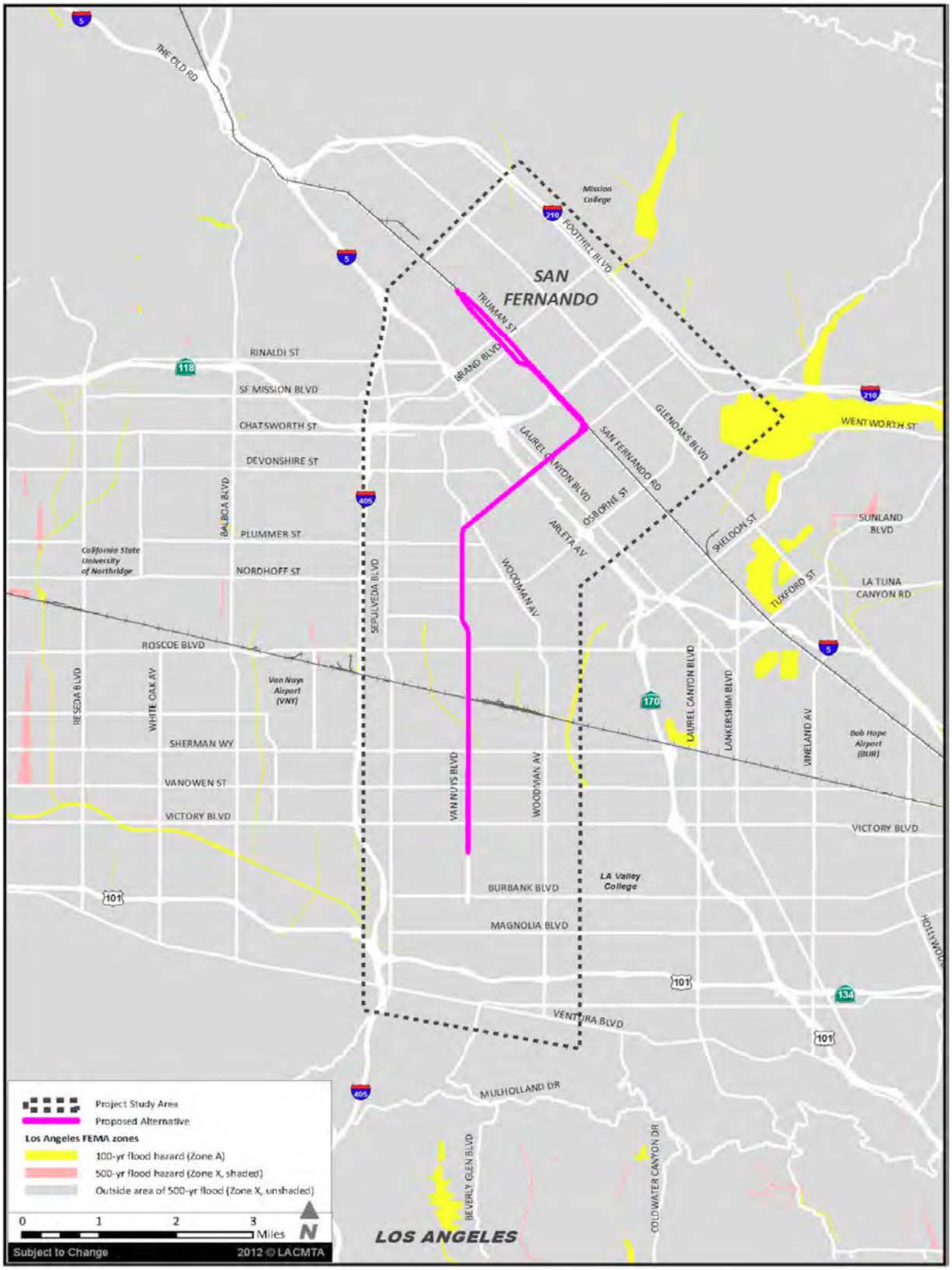
- A portion of the Pacoima Wash Channel that begins just west of the proposed project alignment and then crosses it just north of Sherman Way.
- A portion of the Pacoima Wash in the north of the project study area near Foothill Boulevard.
- An unnamed drainage ditch near the Metrolink Railroad Tracks just east of the proposed project alignment.
- A portion of the Tujunga Wash Control Channel east of the proposed project alignment.
- A small portion of the Los Angeles River near the Sepulveda Dam. The part of the Metro Orange Line that is within the Sepulveda Flood Control Basin lies above the maximum design flood elevation everywhere except for a 1,000-foot stretch immediately west of the Woodley Station.
- The Hansen Flood Control Basin in the northeast portion of the project study area.

Los Angeles County historic flooding records show that since 1811, the Los Angeles River has flooded 30 times (on average once every 6.1 years). But averages are deceiving, for the Los Angeles Basin goes through periods of drought and then periods of above average rainfall. Between 1889 and 1891 the river flooded every year, and from 1941 to 1945, the river flooded five times. Conversely, from 1896 to 1914, a period of 18 years, and again from 1944 to 1969, a period of 25 years, the river did not have serious floods.

## Dams and Levees

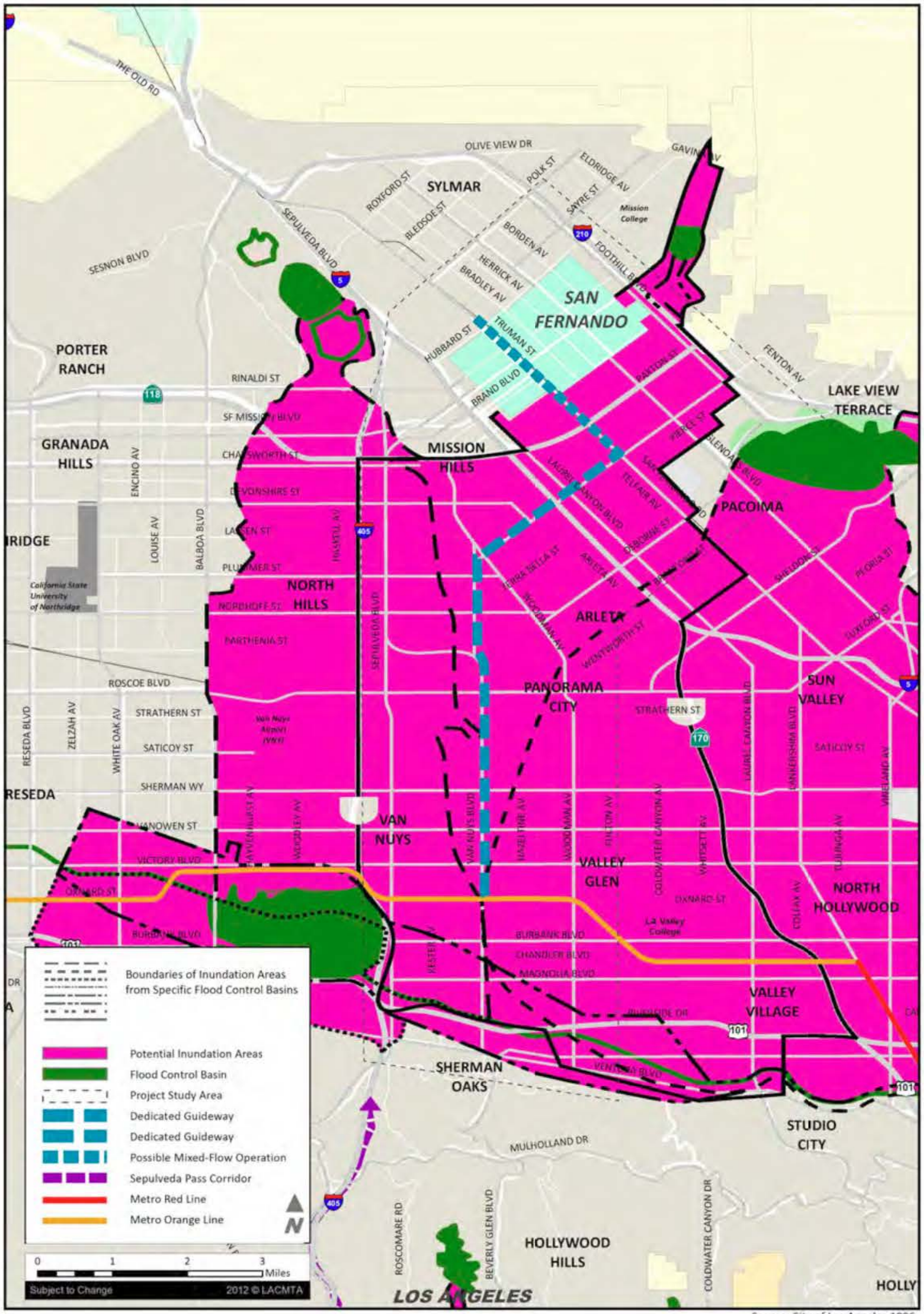
There are reservoirs and associated dams located within the project vicinity. Although the likelihood is low, dams within the project vicinity may be at risk of failure should a major earthquake or other catastrophic event occur. If they fail, it could cause flooding within the project study area. As shown in Figure 4.13-4, the City of Los Angeles Safety Element (1996) summarizes inundation potential from dam failures and water storage facility failures.

## Figure 4.13-3: FEMA Flood Zones within the Project Vicinity




Source: ICF International, 2015.

## Figure 4.13-4: Inundation Areas within the Project Vicinity




Source: Diaz•Yourman & Associates, 2015.

There are eight reservoirs located upstream and downstream of the project and they are as follows:

- Chatsworth Reservoir;
- Sepulveda Flood Control Basin[3];
- Upper Van Norman Lake;
- Lower Van Norman Reservoir;
- Los Angeles Reservoir;
- Pacoima Spreading Grounds;
- Hansen Flood Control Basin; and
- Encino Reservoir.

Only portions of the Sepulveda and Hansen Flood Control Basins are located in the project study area.

The Los Angeles River is partially located within the Sepulveda Dam and the Flood Control Basin. Both are owned and maintained by the USACE, who constructed the facilities in 1941 following the Flood Control Act of 1936. The Sepulveda Dam is an earth filled structure consisting of an earth embankment with a concrete spillway near the center. The dam is 15,444 feet long and has a maximum height of 57 feet above the streambed. The basin has a storage capacity of 17,425 acre feet at the crest of the raised spillway, which is located at an elevation of 710 feet above sea level. During a maximum design flood (greater magnitude the 100-year flood event), the basin can hold 17,563 acre feet of water, cresting at an elevation of 717 feet.

The Hansen Dam and Flood Control Basin was constructed in 1940 and lies within the Tujunga Wash system. The dam is an earth-filled structure with a maximum height above streambed of 97 feet. The dam has a storage capacity of 33,348 acre-feet at spillway crest (elevation 1060 feet) based on the November 2004 topographic survey. The Dam embankment extends in a general east and west direction at right angles to Tujunga Wash. All of the major inflow and impoundment events in project history have resulted from winter storms. Inflow rates drop rapidly between storms, and inflow during the dry summer season is usually less than 10 cfs.

According to a query of the USACE National Levee Database, there are no levees located within the project study area. There are no levees associated with either Tujunga or Pacoima Wash. The Los Angeles River appears to be bordered by levees in certain locations, but the nearest levees are located south of the project study area where it is likely outside of the levee failure inundation area.

## Seiches, Tsunamis, and Mudflows

Seiches are large waves generated in enclosed bodies of water, such as lakes, induced by ground shaking. Tsunamis are large waves generated at sea by significant disturbance of the ocean flow, causing the water column above the point of disturbance to displace rapidly. Mudflows result from the down-slope movement of soil and/or rock under the influence of gravity, and are also often caused by earthquakes. The Hansen Flood Control Basin is the only reservoir located completely within the project study area. However, it is fairly small and only fills up during a wet winter season, and therefore, wave action is minimal and seiches would most likely not be large enough to present a flood risk. The project study area is located approximately 9 miles from Santa Monica Bay; and therefore, it is outside of tsunami potential inundation area, and, due to the relatively flat terrain, is not prone to mudflows.

[3] This reservoir is located within two miles of the project area.

# 4.13.3 Environmental Consequences, Impacts, and Mitigation Measures

## 4.13.3.1 No-Build Alternative

### Construction Impacts

The No-Build Alternative would result in no project-related improvements and as a consequence it would not result in any construction impacts to water resources and water quality.

### Operational Impacts

The No-Build Alternative would result in no project-related improvements and as a consequence it would not result in any operational impacts to water resources and water quality.

### Cumulative Impacts

The No-Build Alternative would not result in any adverse environmental impacts or effects under CEQA or NEPA; therefore, it would not contribute to any cumulative environmental impacts.

### Mitigation Measures

#### Compliance Requirements and Design Features

No compliance requirements and design features are required.

#### Construction Mitigation Measures

No construction mitigation measures are required.

#### Operational Mitigation Measures

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### NEPA Finding

No adverse effect under NEPA would occur.

#### CEQA Determination

No impact under CEQA would occur.

## 4.13.3.2 TSM Alternative

### Construction Impacts

Any construction activities required under the TSM Alternative would be minimal (e.g., construction of bus stop amenities, signage, and minor roadway improvements); therefore, no or very minor construction impacts/effects would occur.

## Operational Impacts

The TSM Alternative operational improvements could result in increases in bus vehicle miles traveled, which could increase pollutants such as fallout from air pollution (e.g., nitrous oxides, hydrocarbons/VOCs, lead, particulates), heavy metals from brake pads, oils, greases, and other vehicle lubricants in surface water runoff from roadway surfaces. However, given that the bus vehicle miles traveled are not expected to substantially increase and given the possibility that operational improvements may increase bus patronage with a corresponding decrease in passenger car vehicle miles traveled, the pollutant impacts/effects on water quality are expected to be less than significant under CEQA and non-adverse under NEPA.

This alternative would require increased bus maintenance including washing of buses; however, the increase in water usage would be relatively minor and would not substantially deplete groundwater supplies. Additionally, no or very minimal increases in impervious surfaces could occur under this alternative due to construction of bus stop amenities/improvements; therefore, the TSM Alternative would not substantially interfere with groundwater recharge.

The TSM Alternative would result in very minor physical improvements and thus would not alter drainage patterns in the study area and would have no or negligible impacts on the amount of surface water runoff.

No structures would be constructed under this alternative that would be located within a designated 100-year floodplain and consequently it would not impede or redirect floodwater flows or cause flooding during a 50-year storm event. The project alignment is located in a potential inundation area that could be affected or flooded due to dam failures. However, this alternative would include only minor improvements to existing bus facilities and would not include significant new structures that could put property or persons at risk as a result of a dam or water storage facility failure.

The project corridor is not located in an area that would be subject to inundation hazards due to tsunami or mudflow. The potential for a catastrophic seiche event at the Hanson Flood Control Basin reservoir is low.

## Cumulative Impacts

The TSM Alternative would not result in adverse water resources, hydrological, or water quality impacts. Therefore, it would not result in any meaningful contributions to cumulative impacts in these areas, and no further discussion is required.

## Mitigation Measures

### Compliance Requirements and Design Features

No compliance requirements and design features are required.

### Construction Mitigation Measures

No construction mitigation measures are required.

### Operational Mitigation Measures

No operational mitigation measures are required.

## Impacts Remaining After Mitigation

### NEPA Finding

No adverse effects would occur.

### CEQA Determination

No or less than significant impacts would occur.

# 4.13.3.3 BRT Alternatives (Build Alternatives 1 and 2)

## Alternative 1 – Curb-Running BRT

### Construction Impacts

#### *Water Quality*

Construction of Alternative 1 would include reconstruction of sidewalks, paving, and striping, which would result in an increase in surface water pollutants such as sediment, oil and grease, and miscellaneous wastes. Water quality would be temporarily affected if disturbed sediments were discharged via existing stormwater collection systems. Increased turbidity and other pollutants resulting from construction-related discharges can ultimately introduce compounds toxic to aquatic organisms, increase water temperature, and stimulate the growth of algae.

The delivery, handling, and storage of construction materials and wastes, along with use of construction equipment, could also introduce the risk of stormwater contamination. Staging areas or building sites can be sources of pollution because of the storage and use of paints, solvents, cleaning agents, and concrete during construction. Larger pollutants, such as trash, debris, and organic matter, are additional pollutants that could be associated with construction activities. Without implementation and maintenance of BMPs, construction impacts on water quality are potentially significant under CEQA and adverse under NEPA and could lead to exceedance of water quality objectives or criteria.

#### *Groundwater Supplies and Recharge*

Existing utilities that would interfere with construction of the corridor improvements would be removed and relocated for continuing service. A geotechnical survey found that groundwater depths in the vicinity of the project alignment varied from 15 to more than 100 feet below the ground surface during the dry season, with depth to groundwater generally increasing from west to east. Excavation for utility improvements may result in contact with groundwater depending on the season and location within the corridor. Should dewatering be necessary, a General Dewatering Permit would be obtained from the Los Angeles RWQCB. Residual contaminated groundwater could be encountered during dewater activities. Groundwater extracted during dewatering activities would either be treated prior to discharge or disposed of at a wastewater treatment facility.

Local groundwater is one of several sources of water supplies to the City of Los Angeles. If groundwater is used during construction for dust control, concrete pouring, etc., the amount would be minimal and temporary, and therefore would not result in substantial depletion of groundwater supplies.

Adherence to dewatering requirements of the Los Angeles RWQCB, and minimal water use during construction would ensure that impacts on groundwater would be less than significant under CEQA and the effects would not be adverse under NEPA.

### *Stormwater and Drainage*

Construction activities, such as grading and excavation, could result in increased erosion. In addition, minor modifications to City street storm drains would be required. However, these modifications would not include culvert widening or conversion of open channels to closed conduits and drainage patterns would remain approximately the same as currently exists. Additionally, construction of the proposed project would not alter the course of any streams or rivers.

### *Flooding and Flood Hazards*

A few small areas within the project study area were identified as being within the FEMA 100-year flood zone (Zone A). However, these areas are fully contained within county flood channels and drainage facilities. Therefore, the project study area is not highly prone to flooding during a 100-year storm event. Additionally, no construction would occur within the areas designated as 100-year floodplains, and construction activities would not place structures that would impede or redirect flood flows as mapped on any flood hazard delineation map.

There are no levees located within the project study area, and therefore no associated flood impacts with levee failure would occur. The proposed Curb-Running BRT Alternative, however, would be located in an inundation zone area, as shown on Figure 3-5, which would be caused by a dam failure. Portions of the Sepulveda and Hansen Flood Control Basins (and the associated dams) are located in the project study area, and therefore there is risk of dam failure. However, project construction activities would not increase the present risk of dam failure, which is considered low, and would not place construction workers, equipment, or temporary structures in an area where there is a significant risk and high probability of flooding.

### *Seiche, Tsunami, and Mudflow Hazards*

As noted above, the project study area is outside of potential tsunami inundation areas and, due to the relatively flat terrain, is not prone to mudflows. The potential for a catastrophic seiche event at the Hanson Flood Control Basin reservoir is low. Therefore, construction activities are not expected to substantially affect or be affected by seiche, tsunami, or mudflow hazards. Construction impacts/effects due to the Curb-Running BRT Alternative would be less than significant under CEQA and non-adverse under NEPA.

### *Surface Water Use and Flows*

Construction of Alternative 1 would not require the use of substantial volumes of surface water. Additionally, construction activities would not substantially change the overall impervious area, nor would construction substantially change stormwater flows that could affect either the volume or movement of water in surface water bodies. Impacts and effects would be less than significant under CEQA and non-adverse under NEPA.

## Operational Impacts

### *Water Quality*

Operational impacts on water quality due to Alternative 1 would be the same as existing conditions because the project would result in a negligible change in impervious area and there would be no major sources of new pollutants. Because the project area is currently a transportation corridor, the water runoff from roadway surfaces would contain the same types of pollutants as expected under existing conditions. However, enhanced bus frequencies could result in small increases in potential pollutants from bus operations. Typical water quality pollutants associated with transportation corridors include: fallout from air pollution (e.g., nitrous oxides, hydrocarbons/VOCs, lead, particulates), heavy metals from brake pads, oils, greases, and other vehicle lubricants.

As per the County's SUSMP requirements as part of the stormwater program, because the project would replace 5,000 square feet or more of impervious surface area on an already developed site, SUSMP and Site-Specific Stormwater Mitigation Plans must be incorporated into project plans. Compliance with these regulations would require the inclusion of post-construction stormwater measures and low-impact development (LID) measures designed to minimize runoff flows and water quality degradation.

Alternative 1 would be accommodated by the existing Metro Division 15 MSF and therefore would not require the creation of a new MSF. The existing MSF collects and treats stormwater in compliance with its existing Industrial General Permit and associated Industrial SWPPP and would continue to do so under this alternative. Metro will submit an application for coverage under the new Industrial General Permit, which becameeffective on July 1, 2015, and update the existing SWPPP to reflect changes in permit requirements.

With compliance with the county's stormwater program, City of San Fernando and City of Los Angeles stormwater requirements, and the Industrial General Permit, impacts and effects on water quality during project operation would be less than significant under CEQA and non-adverse under NEPA. No mitigation is required.

### *Groundwater Supplies and Recharge*

For all of the alternatives, including Alternative 1, the existing area that would be occupied by the proposed project facilities is mostly impervious and does not contribute substantially to groundwater recharge. This alternative would result in a negligible change to impervious surface area, and therefore, would not substantially interfere with groundwater recharge. Operational impacts or effects would be less than significant under CEQA and would not be adverse under NEPA.

### *Stormwater and Drainage*

Alternative 1 would not substantially alter the existing drainage pattern and no stream or river would be altered. Currently, stormwater drains to a major storm drain line that runs through the Van Nuys Boulevard corridor and San Fernando Road Corridor and crosses the Pacoima Wash Channel and Pacoima Wash Control Channel. Under the Curb-Running BRT Alternative, stormwater would continue to drain into the existing storm drain line and according to SUSMP requirements, the drainage design would limit the design water surface elevations and velocities to no greater than the existing conditions or to what can be handled by the existing conditions within the project area. Therefore, drainage would remain the same as existing conditions and no substantial erosion, siltation, or flooding would occur on- or offsite as a result of Alternative 1. Impacts would be less than significant under CEQA and effects under NEPA would not be adverse.

### *Flooding and Flood Hazards*

As shown in Figure 4.13-3, a few small areas within the project study area were identified as being within the FEMA 100-year flood zone (Zone A). However, these areas are fully contained within the county flood channels and drainage facilities. Therefore, the project study area is not highly prone to flooding during a 100-year storm event. In addition, operation of the BRT Alternatives would not place structures that would impede or redirect flood flows as mapped on any flood hazard delineation map.

The project study area is located within 100-year flood risk hazard areas. However, operation of Alternative 1 would not place structures that would impede or redirect flood flows and the proposed project would not increase the present risk of dam failure. There would be no substantial increase in impervious area and overall drainage patterns would remain the same; therefore, flood capacities would not be affected. Furthermore, because the project is in a highly urbanized area, it is not expected that Alternative 1 would indirectly result in substantial increases in population or employment densities within the project study area. Therefore, flood impacts or effects would be less than significant under CEQA and non-adverse under NEPA.

There are no levees located within the project study area, and therefore no associated flood impacts with levee failure would occur. The project study area, however, is located in a dam-failure inundation zone area. The maintenance of the dams and associated reservoirs within the project vicinity is shared between the County of Los Angeles Department of Public Works and USACE. Portions of the Sepulveda and Hansen Flood Control Basins (and the associated dams) are located in the project study area. Therefore, Alternative 1 facilities could be adversely affected in the event of failure of these dams. However, the project itself would not increase the present risk of dam failure and new structures for human occupancy would be limited to new and relocated bus stops. Therefore, Alternative 1 would not result in significant new structures that could put property or persons at risk as a result of a dam or water storage facility failure.

Also, as noted above, Alternative 1 would not substantially increase the amount of impervious area and overall drainage patterns would remain the same; therefore flood capacities would not be affected. Therefore, the impacts or effects would be less than significant under CEQA and non-adverse under NEPA.

#### *Seiche, Tsunami, and Mudflow Hazards*

The project study area is outside of tsunami potential inundation areas and, due to the relatively flat terrain, is not prone to mudflows. The potential for a catastrophic seiche event at the Hanson Flood Control Basin reservoir is low. Therefore, impacts/effects would be less than significant under CEQA and non-adverse under NEPA.

#### *Surface Water Use and Flows*

Alternative 1 would not create or utilize substantial volumes of surface water during project operations and no surface water body would be altered. As discussed previously, the Curb-Running BRT Alternative would not substantially change the overall impervious area; therefore, stormwater volumes are not anticipated to change. In addition, with the exception of possible minor increases in water to maintain new buses, a substantial increase in consumptive use of water from nearby reservoirs is not expected. Therefore, Alternative 1 would not appreciably reduce or increase the amount of surface water in surrounding water bodies nor would it result in a substantial adverse change in the current or direction of water flows. Therefore, impacts or effects would be less than significant under CEQA and would not be adverse under NEPA.

### Cumulative Impacts

The study area for this cumulative impacts discussion is the San Fernando Valley in Los Angeles County and generally encompasses the area from Ventura Boulevard in the south, in the City of Los Angeles, to the City of San Fernando and the Sylmar/San Fernando Metrolink station in the north.

The analysis of cumulative water resources impacts is based on the list of related projects included in Chapter 2.

All of the build alternatives would result in the same contributions to cumulative impacts, which are described below.

### *Water Quality*

Development of the project and other development within the study area would potentially degrade stormwater quality by contributing pollutants during construction and operation. Stormwater quality varies according to surrounding land uses, impervious surface area, and topography, as well as with the intensity and frequency of rainfall or irrigation. Runoff can contain grease, oil, and metals accumulated in streets and driveways, as well as sediment and other particulates, animal waste, pesticides, herbicides, fertilizer, and trash.

Cumulative development could affect water quality if the land use change, the intensity of land use changes, and/or drainage is altered such that the introduction of pollutants to surface water or groundwater is facilitated. Land use changes would potentially alter the type and concentration of pollutants in stormwater runoff, and increased intensity of land use would potentially increase pollutant concentrations. The most common sources of stormwater pollutants in urban areas are from construction sites, streets, parking lots, large landscaped areas, and household and industrial materials dumped into storm drains.

When the effects of the project on water quality are considered in combination with the potential effects of other projects in the area, there would be the potential for cumulative impacts to surface, stormwater and groundwater quality. The incremental water quality impact contribution from implementation of the project would be minor for the reasons as discussed above. The combined effects on water quality from the project and other projects in the study area could result in a cumulatively significant impact. However, new projects within the study area are subject to the requirements of the associated Los Angeles MS4 Permit, the Construction General Permit, and City municipal codes as they relate to water quality; these regulatory requirements have been designed to be protective of water quality. Additionally, development projects may be subject to an environmental review process, which would identify potential site- and/or project-specific water quality impacts, and any feasible measures to mitigate potential significant impacts. Adherence to regulatory and permit requirements would minimize the proposed and related project's adverse water quality impacts. Therefore, there would be a less than significant cumulative impact on water quality as a result of project implementation.

### *Groundwater Recharge and Supplies*

The study area is located in the San Fernando Valley groundwater subbasin, which generally flows eastward, parallel to the course of the Los Angeles River. Because the area is heavily developed, cumulative projects would be in-fill development projects (see Table 2-3 in Chapter 2 for a list of cumulative development projects). Cumulative development would not be expected to substantially increase the amount of impervious surfaces, so groundwater recharge potential from percolating rainfall would not be adversely affected, and indirect lowering of the local groundwater table is not likely to occur. As a result, groundwater recharge would not be adversely affected. The project's contribution to cumulative groundwater recharge impacts would not be cumulatively considerable, and there would be a less than significant cumulative impact.

### *Stormwater and Drainage*

Cumulative development in the study area could increase the volume and rate of stormwater runoff. Such increases could cause localized flooding if the storm drainage capacity is exceeded or if flows exceed channel capacities and are conveyed to overbank areas where flood storage may not be available. For the most part, the cumulative projects in the study area would occur in developed areas with impervious surfaces, and these projects would not be expected to substantially increase the amount of impervious surfaces. All cumulative projects within the study area would be required to include design features to reduce flows to pre-project conditions. If improvements to storm drainage capacity are needed, the project applicants would be required to coordinate with local city agencies to ensure the appropriate conditions of approval for storm drainage improvements are identified. Therefore, the proposed project would not likely contribute to the cumulative exceedance of the study area's storm drainage capacity, and there would be a less than significant cumulative impact.

#### *Flooding and Flood Hazards*

Cumulative development in the study area could increase the exposure of people and structures to flood risks if County flood channels or dams in the project area failed. However, the potential for failure of these channels or dams is considered low. Therefore, the proposed project would not contribute to a cumulative exposure of people and structures to risks of flooding, and there would be a less than significant cumulative impact.

### Compliance Requirements and Design Features

#### *Water Quality – Construction*

Because construction activities would disturb more than 1 acre, preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) would be required, in accordance with the statewide National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction Activity (Order No. 2009-0009-DWQ, NPDES No. CAR000002) (Construction General Permit). The SWPPP would list BMPs that would be implemented to protect stormwater runoff and include monitoring of the BMP's effectiveness. At a minimum, BMPs would include practices to minimize contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives, concrete) with stormwater. The SWPPP would specify properly designed, centralized storage areas to keep these materials covered or out of the rain. If land disturbance activities must be conducted during the rainy season, the primary BMPs selected would focus on erosion control (i.e., keeping sediment on the site). Construction activities would temporarily cease during rain events.

The SWPPP would specify BMPs to ensure that water quality standards or waste discharge requirements are not violated. BMPs selected would be designed to comply with the requirements of the Los Angeles Regional Water Quality Control Board[4] (RWQCB) and may be subject to review and approval by the Cities of Los Angeles and San Fernando. BMPs during construction may include, but not be limited to, the following:

- Silt fences
- Fiber rolls
- Street sweeping and vacuuming
- Stockpile management
- Vehicle and equipment maintenance
- Erosion control mats and spray-on applications
- Desilting basins
- Gravel bag berms

[4] The Los Angeles Regional Water Quality Control Board covers a regional geographic area that encompasses most of Los Angeles County and all of Ventura County.

- Sandbag barriers
- Spill prevention and control
- Concrete waste management
- Water conservation practices

Such measures are routinely developed for construction sites and are proven to be effective in reducing pollutant discharges from construction activities. Implementation of the SWPPP during construction would ensure that water quality objectives, standards, and wastewater discharge thresholds would not be violated. The SWPPP would be prepared by the project applicant (i.e., Metro) or the construction contractor and approved by the Cities of Los Angeles and San Fernando prior to commencement of construction activities (i.e., approval of grading plans).

Other impacts on water quality that can occur during construction projects include discharges of dredged or fill material into waters of the United States. These impacts could affect beneficial uses of wetlands, including estuarine and wildlife habitat. None of the alternatives, including the Curb-Running BRT Alternative, would require in-water work or work that would affect wetlands.

With compliance with the Construction General Permit, grading permits, and other relevant regulations, impacts/effects from construction on water quality would be less than significant under CEQA and would not be adverse under NEPA.

*Stormwater and Drainage – Construction*

Temporary drainage facilities could be required to redirect runoff from work areas during utility relocations. These facilities would be sized according to City standards to avoid any exceedance of the capacity of existing or planned stormwater drainage systems. Storm drain relocation may require the need for groundwater dewatering at locations with a high water table. Residual contaminated groundwater may be encountered during dewatering activities. As described above, if dewatering is necessary, the project contractor would be required to comply with Los Angeles RWQCB's General Dewatering Permit. Groundwater extracted during dewatering activity would either be treated prior to discharge or disposed of at a wastewater treatment facility. In compliance with the Construction General Permit and SWPPP, BMPs would be implemented during construction to prevent or minimize the potential for erosion or sedimentation on- or off-site and discharges of polluted runoff into storm drains. Because the proposed project would be in compliance with the conditions of the Construction General Permit and other relevant regulations, impacts/effects related to erosion and siltation and impacts on stormwater runoff would be less than significant under CEQA and non-adverse under NEPA.

Because the temporary drainage facilities would redirect runoff from work areas and be sized according to City standards to avoid any exceedance of the capacity of existing or planned stormwater drainage systems, overall drainage patterns would remain the same. Therefore, construction activities are not expected to have a substantial effect on flood capacities due to temporary changes in drainage patterns or facilities. The impacts/effects during construction related to flooding and flood hazards would be less than significant under CEQA and would not be adverse under NEPA.

### Mitigation Measures

#### *Construction Mitigation Measures*

No construction mitigation measures are required.

#### *Operational Mitigation Measures*

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Alternative 1 would not result in adverse effects to hydrology and water resources during construction and operation.

#### *CEQA Determination*

Alternative 1 would result in less-than-significant impacts to hydrology and water resources during construction and operation.

## Alternative 2 – Median-Running BRT

### Construction Impacts

Construction impacts under this alternative would be the same as those described above for Alternative 1.

### Operational Impacts

Operational impacts under this alternative would be the same as those described above for Alternative 1.

### Cumulative Impacts

All of the build alternatives would result in the same contributions to cumulative impacts. See discussion of cumulative impacts described for Alternative 1.

### Compliance Requirements and Design Features

The same compliance requirements and BMPs for water quality and drainage, described under Alternative 1, also apply to Alternative 2.

### Mitigation Measures

#### *Construction Mitigation Measures*

No construction mitigation measures are required.

#### *Operational Mitigation Measures*

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Alternative 2 would not result in adverse effects to hydrology and water resources during construction and operation.

#### *CEQA Determination*

Alternative 2 would result in less-than-significant impacts to hydrology and water resources during construction and operation.

# 4.13.3.4 Rail Alternatives (Build Alternatives 3 and 4)

## Alternative 3 – Low-Floor LRT/Tram

### Construction Impacts

#### *Water Quality*

Construction activities for Alternative 3 would include pavement removal; utilities relocation; excavation; construction of at-grade trackwork and stations, including station platforms and reconstruction of sidewalks; construction of pedestrian access ways; installation of specialty system work, such as overhead contact electrification systems and communications and signaling systems; construction of TPSS facilities; reconstruction of sidewalks paving and striping; and subgrade preparation and placement of rail ballast. Construction of Alternative 3 could result in an increase in surface water pollutants such as sediment, oil and grease, and miscellaneous wastes from construction activities. Because Alternative 3 also includes the construction of a new MSF and the relative area of soil disturbance would be greater to install the tracks and construct the stations, the potential for water quality degradation is greater than for the BRT alternatives. However, the General Construction Permit would still apply and a SWPPP would be developed. The SWPPP would specify BMPs to ensure that water quality standards or waste discharge requirements are not violated even for a larger area of disturbance.

As discussed above for Alternative 1, SWPPPs and the associated BMPs are routinely developed for construction sites and are proven to be effective in reducing pollutant discharges from construction activities. Implementation of the SWPPP during construction would ensure water quality objectives, standards, and wastewater discharge thresholds would not be violated. The SWPPP would be prepared by the project applicant (i.e., Metro) or its construction contractor and approved by the City of Los Angeles and City of San Fernando prior to commencement of construction activities. As selection of the appropriate BMPs is a standard process of the engineering review and grading plan approval, impacts/effects from construction on water quality would be less than significant under CEQA and non-adverse under NEPA.

None of the alternatives, including Alternative 3, would require in-water work or work that would affect wetlands.

#### *Groundwater Supplies and Recharge*

Alternative 3 may require excavation to greater depths than what is required for the BRT alternatives in order to relocate utilities or construct Low-Floor LRT/Tram facilities including the MSF. Excavation may result in contact with groundwater depending on the season and location within the corridor. Should dewatering be necessary, a General Dewatering Permit would be obtained from the Los Angeles RWQCB. Residual contaminated groundwater could be encountered during dewater activities. Groundwater extracted during dewatering activities would either be treated prior to discharge or disposed of at a wastewater treatment facility.

Local groundwater is one of several sources of water supplies to the City of Los Angeles. If groundwater is used during construction for dust control, concrete pouring, etc., the amount would be greater than required for the BRT alternatives but still relatively minimal and temporary, and therefore, would not result in substantial depletion of groundwater supplies.

Adherence to dewatering requirements of the Los Angeles RWQCB, and minimal water use during construction would ensure that impacts on groundwater would be less than significant under CEQA and the effects would not be adverse under NEPA.

### *Stormwater and Drainage*

As discussed above for Alternative 1, construction activities, such as grading and excavation, could result in increased erosion that could adversely affect the water quality of stormwater runoff from the construction sites. As noted above, Alternative 3 may require excavation to greater depths than is what is required for the BRT alternatives in order to relocate utilities or construct Low-Floor LRT/Tram facilities including the MSF. However, the proposed project would be in compliance with the Construction General Permit, and a SWPPP that contains temporary construction site BMPs would be prepared and implemented. These BMPs would be implemented during construction to prevent, or minimize the potential for erosion sedimentation onsite or offsite, impacts to the water quality of stormwater runoff, and the potential for flooding on- or off-site. Because the proposed project would be required to comply with the conditions of the Construction General Permit, impacts/effects would be less than significant under CEQA and would not be adverse under NEPA.

Temporary drainage facilities would be required to redirect runoff from work areas during utility relocations. The temporary drainage facilities would be sized according to City standards to avoid any exceedance to the capacity of existing or planned stormwater drainage systems. Storm drain relocation may require the need for groundwater dewatering at locations with a high water table. Residual contaminated groundwater may be encountered during dewatering activities. As described above for Alternative 1, if dewatering is necessary, the project contractor would be required to comply with Los Angeles RWQCB's General Dewatering Permit.

### *Flooding and Flood Hazards*

The 100-year flood zone areas within the project study area are fully contained within County flood channels and drainage facilities. No construction is proposed in these 100-year flood zones; therefore, construction of Alternative 3 would not place structures that would impede or redirect flood flows as mapped on any flood hazard delineation map.

There are no levees located within the project study area, and therefore no flood impacts associated with levee failure would occur that could affect construction activities, workers, or equipment. Alternative 3, however, would be located in a dam failure inundation zone area, as shown on Figure 3-5. Portions of the Sepulveda and Hansen Flood Control Basins (and the associated dams) are located in the project study area. Therefore, Alternative 3 could be adversely affected if these dams fail. However, project construction activities would not increase the present risk of dam failure, which is considered low, and would not place construction workers, equipment, or temporary structures in an area where there is a significant risk and high probability of flooding.

As noted above for Alternative 1, temporary drainage facilities could be required to redirect runoff from work areas. The temporary drainage facilities would be sized according to City standards to avoid any exceedance to the capacity of existing or planned stormwater drainage systems. As a consequence, overall drainage patterns would remain the same and construction activities are not expected to have a substantial effect on flood capacities due to temporary changes in drainage patterns or facilities. Therefore, the construction impacts/effects during construction related to flooding and flood hazards would be less than significant under CEQA and non-adverse under NEPA.

#### *Seiche, Tsunami, and Mud Flows*

The project study area is outside of tsunami potential inundation areas and, due to the relatively flat terrain, is not prone to mudflows. The potential for a catastrophic seiche event at the Hanson Flood Control Basin reservoir is low. Therefore, construction activities are not expected to substantially affect or be affected by seiche, tsunami, or mudflow hazards. Construction impacts/effects due to Alternative 3 would be less than significant under CEQA and non-adverse under NEPA.

#### *Surface Water Use and Flows*

Construction of Alternative 3 would require use of more water than the BRT alternatives because of construction of an MSF; however, the amounts are not expected to be substantial and they would be temporary. As a consequence, construction activities are not expected to substantially reduce the amount of surface water in water bodies. Additionally, construction activities would not substantially change the overall impervious area, nor would construction substantially change stormwater flows that could affect either the volume or movement of water in surface water bodies. Impacts and effects would be less than significant under CEQA and non-adverse under NEPA.

### Operational Impacts

#### *Water Quality*

Operational impacts on water quality for Alternative 3 would be the same as existing conditions because the project would result in very minor increases in the amount of impervious area.

Unlike Alternatives 1 and 2, Alternative 3 (and Alternative 4) would require the construction of a new MSF. Although the MSF would not substantially increase the amount of impervious area, maintenance facilities are subject to the conditions of the Industrial General Permit because any type of vehicle maintenance, such as fueling, cleaning, repairing, etc., has the potential to degrade water quality. The most common pollutant source from maintenance areas is spills/leaks of fuel and other liquids. Additionally, pollutants in train wash water are likely to include surfactants, suspended solids, oil and grease, asbestos (from brake pads), heavy metals, and lead.

The Industrial General Permit requires the implementation of management measures that will achieve the performance standard of best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT). The Industrial General Permit also requires the development of an SWPPP and a monitoring plan. Through the Industrial SWPPP, sources of pollutants are to be identified and the means to manage the sources to reduce stormwater pollution are described.

As per the County's SUSMP requirements as part of the stormwater program, because the project would create or replace 5,000 square feet or more of impervious surface area on an already developed site, SUSMP and Site-Specific Stormwater Mitigation Plans must be incorporated into project plans. Compliance with these regulations would require the inclusion of post-construction stormwater measures and LID measures designed to minimize runoff flows and water quality degradation.

With compliance with the county's stormwater program, City of San Fernando and City of Los Angeles stormwater requirements, and the Industrial General Permit, impacts/effects on water quality during project operation would be less than significant under CEQA and non-adverse under NEPA.

### *Groundwater Supplies and Recharge*

Operational impacts on groundwater for Alternative 3 would be the same as those stated above for the BRT alternatives. Alternative 3 would not result in substantially more impervious surface area than the BRT alternatives because the existing area that would be developed is currently mostly impervious. Therefore, groundwater recharge would not be substantially affected and impacts/effects would be less than significant under CEQA and non-adverse under NEPA.

### *Stormwater and Drainage*

Operational impacts on drainage for Alternative 3 would be the same as those stated above for Alternatives 1 and 2. Drainage would not be substantially altered from the existing pattern and no stream or river would be altered. Therefore, impacts/effects would be less than significant under CEQA and non-adverse under NEPA.

Adherence to the project's SUSMP, as described above, would ensure that the appropriate treatment BMPs are applied to the project so that there would not be additional sources of polluted runoff. Therefore, project operation impacts/effects on runoff would be less than significant under CEQA and non-adverse under NEPA.

### *Flooding and Flood Hazards*

The 100-year flood zone areas within the project study area are fully contained within County flood channels and drainage facilities. In addition, operation of the Low-Floor LRT/Tram Alternative (Alternative 3) would not place structures that would impede or redirect flood flows as mapped on any flood hazard delineation map. Potential locations for 11 TPSSs were determined through an extensive search of aerial imagery in addition to multiple site visits to the project area. These structures would be protected from floodwaters. The stations for the Low-Floor LRT/Tram Alternative would be at grade. All existing as well as new stations and crosswalks would be located to keep pedestrians as much as possible away from stepping down or up at catch basins and deep gutter flows. The finish floor of the MSF and other occupied structures would be protected from floodwaters. Drainage systems would be prepared according to Metro's design criteria. Therefore, flood impacts/effects would be less than significant under CEQA and non-adverse under NEPA.

As stated above for Alternative 1, there are no levees located within the project study area; and therefore, no associated flood impacts with levee failure would occur. However, the project alignment is located in a dam failure inundation zone area. Portions of the Sepulveda and Hansen Flood Control Basins (and the associated dams) are located in the project study area. Therefore, Alternative 3 facilities could be adversely affected in the event of dam failure. Although Alternative 3 would be located within an inundation zone area, the project itself would not increase the present risk of dam failure. Additionally, new structures for human occupancy would be limited to new stations and the MSF. The MSF would be constructed on a site currently occupied by existing industrial uses. Although Alternative 3 would result in some new structures that could put property or persons at risk as a result of a dam or water storage facility failure, the risk of dam failure is considered to be low.

There would be no substantial increase in impervious area and overall drainage patterns would remain the same; therefore, flood capacities would not be affected. Furthermore, because the project is in a highly urbanized area, it's not anticipated that the project would indirectly result in substantial increases in population or employment densities within the project study area. Therefore, impacts/effects would be less than significant under CEQA and non-adverse under NEPA.

#### *Seiche, Tsunami, and Mudflow Hazards*

The project study area is outside of tsunami potential inundation areas and, due to the relatively flat terrain, is not prone to mudflows. The potential for a catastrophic seiche event at the Hanson Flood Control Basin reservoir is low. Therefore, impacts/effects due to Alternative 3 would be less than significant under CEQA and non-adverse under NEPA.

#### *Surface Water Use and Flows*

Operation of the MSF would result in the use of water by MSF employees and for washing and maintaining the Low-Floor LRT/Tram Alternative vehicles at the MSF. Sources of water supplied to the City of Los Angeles include the Los Angeles aqueducts, local groundwater, and supplemental water purchased from the Metropolitan Water District of Southern California (MWD). Water is stored in large in-city open reservoirs. The net increase in water consumption due to the Low-Floor LRT/Tram Alternative would depend on the location of the MSF site that is selected and the amount of water that is consumed by existing uses on the site that would be demolished to construct the new MSF. As described previously, two of the candidate MSF sites are currently occupied by light industrial uses (mostly automotive repair and service), and one site is currently occupied by commercial fast food and retail shopping uses. Nonetheless, it's not expected that the proposed project, by itself, would increase water consumption to the extent required to result in an appreciable reduction in the amount of water in local City of Los Angeles reservoirs. Additionally, as noted above, Alternative 3 would not substantially change the overall impervious area; therefore, stormwater volumes are not anticipated to change. Therefore, Alternative 3 would not appreciably reduce or increase the amount of surface water in surrounding water bodies, nor would it result in a substantial adverse change in the current or direction of water flows. Therefore, impacts or effects would be less than significant under CEQA and non-adverse under NEPA.

### Cumulative Impacts

All of the build alternatives would result in the same contributions to cumulative impacts. See discussion of cumulative impacts described for Alternative 1.

### Compliance Requirements and Design Features

The same compliance requirements and BMPs for water quality and drainage, described under Alternative 1, also apply to Alternative 3.

### Mitigation Measures

#### *Construction Mitigation Measures*

No construction mitigation measures are required.

#### *Operational Mitigation Measures*

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Alternative 3 would not result in adverse effects to hydrology and water resources during construction and operation.

#### *CEQA Determination*

Alternative 3 would result in less-than-significant impacts to hydrology and water resources during construction and operation.

## Alternative 4 – LRT

### Construction Impacts

Construction of the LRT Alternative would result in the same impacts as those described above for Alternative 3 with the exceptions pertaining to groundwater supplies and recharge, as described below.

Alternative 4 includes underground stations, which would require excavation, and a tunnel under the Pacoima Wash. High groundwater elevations at this location range from approximately 120 feet below ground surface at the northern portal of the tunnel to approximately 60 feet below ground surface near Sherman Way at the southern portal of the tunnel.

The reinforced concrete box (RCB) found under Van Nuys Boulevard would be realigned so there would be no conflict during trenching associated for the proposed underground tunnel. The RCB would continue to be routed to the same storm drain network and would not be increased in size/capacity. Therefore, it's realignment would not result in a substantial change in terms of existing water hydrology. The drainage patterns could be temporarily altered during construction if the drainage is routed to a different location (i.e., nearby storm drain) during the realignment. However, the drainage would still be going to the same overall storm drain network, and BMPs would be implemented to ensure that no impacts of drainage (i.e. erosion, etc.) would occur during the temporary change in drainage inlet. The proposed work would be done during the dry season to keep drainage volumes at a minimum.

Dewatering would most likely be required for the underground stations and could potentially be required for utility relocation or replacement depending on local groundwater levels. As discussed previously, residual contaminated groundwater could be encountered during dewater activities. The project contractor would be required to comply with Los Angeles RWQCB General Dewatering General Permit. Groundwater extracted during dewatering activity would either be treated prior to discharge or disposed of at a wastewater treatment facility.

Adherence to dewatering requirements of the Los Angeles RWQCB, and minimal water use during construction would ensure that impacts on groundwater would be less than significant under CEQA and the effects would not be adverse under NEPA.

### Operational Impacts

Operational impacts of Alternative 4 would be the same as Alternative 3, described above, with one exception. There is a potential for flooding at the underground stations proposed under the LRT Alternative. The stations for Alternative 4 would be at grade except for three station structures, which would be constructed approximately 25 feet below grade and would be approximately 1,450 feet long from portal to portal. The subway tunnel portion of Alternative 4 would be located north of Vanowen Boulevard and South of Parthenia Street. The portals of the stations would be designed to ensure their protection from floodwaters. With proper design, the impacts/effects would be less than significant under CEQA and non-adverse under NEPA.

### Cumulative Impacts

All of the build alternatives would result in the same contributions to cumulative impacts. See discussion of cumulative impacts described for Alternative 1.

### Compliance Requirements and Design Features

The same compliance requirements and BMPs for water quality and drainage, described under Alternative 1, also apply to Alternative 4.

### Mitigation Measures

#### *Construction Mitigation Measures*

No construction mitigation measures would be required.

#### *Operational Mitigation Measures*

No operational mitigation measures would be required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Alternative 4 would not result in adverse effects to hydrology and water resources during construction and operation.

#### *CEQA Determination*

Alternative 4 would result in less-than-significant impacts to hydrology and water resources during construction and operation.

# 4.14 Safety and Security

## 4.14.1 Regulatory Framework and Methodology

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's safety and security impacts are listed below. For additional information regarding these regulations, please see the Safety and Security Impact Report (KOA Corporation 2015) in Appendix W of this Draft EIS/EIR.[1]

### 4.14.1.1 Regulatory Framework

#### Federal

Federal safety and security regulations that would be applicable to the proposed project are listed below.

- Public Transportation Safety Act of 2010;
- Moving Ahead for Progress in the 21st Century;
- FTA's State Safety Oversight Rule;
- U.S. Department of Homeland Security Act of 2002;
- Uniform Fire Code; and
- Standards for Accessible Design.

#### State

State safety and security regulations and agencies that would be applicable to the proposed project are listed below.

- California Public Utilities Commission; and
- California Building Code.

#### Local

Local safety and security regulations and agencies that would be applicable to the proposed project are listed below.

##### Metro Transit Safety and Security Measures

Station design, which is governed by Metro Design Criteria and includes proved Crime Prevention through Environmental Design, aims to create a safe environment for pedestrians, including Americans with Disabilities Act (ADA) treatments for the disabled. Metro's transit safety and security measures are as follows:

- Cameras have been installed at Metro facilities. Metro security personnel will monitor the cameras in real-time. The video feeds can also be shared with local police;
- Metro General Safety and Education Programs;
- Metro System Safety Program Plan;

[1] ICF International. 2015. *Safety and Security Impact Report, East San Fernando Valley Transit Corridor Project.*

- Metro Emergency Response Plan;
- Metro System Security Plan;
- Metro Rail Design Fire/Life Safety Design Criteria; and
- City of Los Angeles General Plan Safety Element.

#### Metro Complete Streets Policy

While this project does not meet all of the goals of the Metro Complete Streets Policy, the following goal is in alignment with one of the main purposes of this project:

- Maximize the benefits of transit service and improve access to public transit by making it convenient, safe, and attractive for users.

#### The City of Los Angeles Bureau of Fire Prevention and Public Safety

- City of Los Angeles Emergency Preparedness Department;
- City of San Fernando Safety Element; and
- City of San Fernando Emergency Operations Plan.

## 4.14.1.2 Methodology

NEPA requires that the federal government use all practicable means to ensure that all Americans have safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 U.S.C. 4331(b)(2)). Although NEPA does not include specific guidance or direction with respect to evaluating alternatives and relative effects of alternatives on public safety and security, FTA/FHWA, in its implementation of NEPA (23 U.S.C. 109(h)), directs that final decisions regarding projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, including whether a project or a design option would result in unacceptable safety or operational problems.

The analysis of the proposed project's impacts on pedestrian, bicyclist, and motorist safety along the proposed project alternative alignments and within 0.25 mile of the proposed station areas and maintenance facility sites is based on a qualitative assessment of whether existing police and fire protection services would be adequate with respect to proposed project facilities and comply with federal, state, and local safety regulations pertaining to system operations and passenger/pedestrian safety. The assessment of security addresses crime prevention and the potential for crime against persons, property theft, and vandalism. The analysis also reviews the proposed project design features in the context of Metro guidelines and procedures and considers the prior experience of other rail systems in the region to assess impacts.

## 4.14.1.3 Significance Thresholds

### NEPA

NEPA does not include specific significance thresholds. According to the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the determination of significance under NEPA is based on context and intensity.[2] The CEQA thresholds (described below) encompass factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its impacts. Therefore, the CEQA thresholds listed below also apply to NEPA for the proposed project and its alternatives.

[2] Council on Environmental Quality. n.d. *Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index*. Available: < https://ceq.doe.gov/ceq_regulations/regulations.html >. Accessed: July 8, 2016.

### CEQA

CEQA does not describe specific significance thresholds. According to the 2016 CEQA Guidelines (15064.7. Thresholds of Significance), each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant.[3]

The State CEQA Guidelines define a significant effect on the environmental as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (State CEQA Guidelines, Section 15382).[4]

The State CEQA Guidelines do not describe specific significance thresholds. However, Appendix G of the State CEQA Guidelines lists a variety of potentially significant effects. As outlined in Appendix G, a project would normally have a significant impact with respect to safety and security if it would:

- Be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, resulting in a safety hazard for people residing or working in the project area;
- Be within the vicinity of a private airstrip, resulting in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; and
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including areas where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

The *L.A. CEQA Thresholds Guide* does not include specific safety and security significance thresholds.

## 4.14.2 Affected Environment/Existing Conditions

### 4.14.2.1 Pedestrian, Bicyclist, and Vehicle Safety

The proposed project is composed of two primary corridors in the eastern San Fernando Valley (i.e., the Van Nuys Boulevard corridor and the San Fernando Road/Truman Street corridor). The pedestrian circulation system, which consists of sidewalks, crosswalks, street lighting, and street furniture, is generally well developed and complete, serving both adjacent residential and commercial land uses in the two corridors as shown in Figure 4.14-1.

Crosswalks at signalized intersections have pedestrian indicators and push-button activation for pedestrian phases in the Cities of Los Angeles and San Fernando. Most intersections in the project study area allow pedestrian crossings along all four sides.

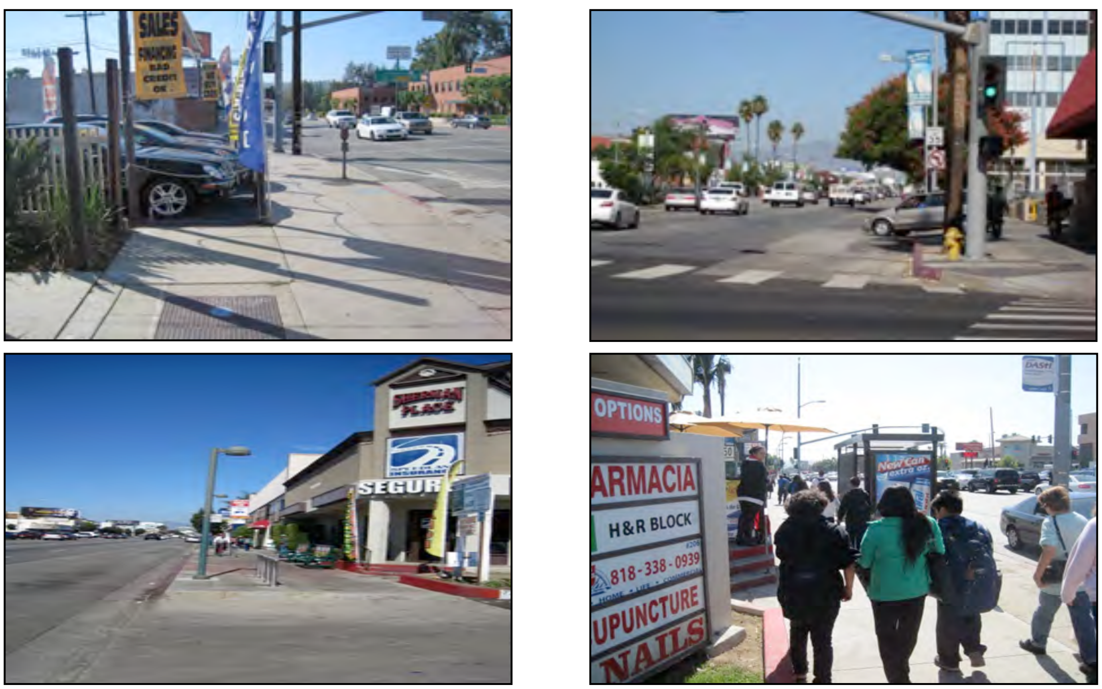
[3] 2016 California Environmental Quality Act (CEQA) Statute and Guidelines.
[4] 2014 State CEQA Guidelines, Association of Environmental Professionals.

### Figure 4.14-1 Existing Pedestrian Infrastructure

Source: Metro, 2015.

Sidewalk widths along Van Nuys Boulevard range from a minimum of 5 feet to a maximum of 20 feet, with most sidewalks ranging from 10 to 13 feet in width.[5] Along San Fernando Road and Truman Street, the sidewalks range from a minimum of 7 feet to a maximum of 13 feet, with most sidewalks falling in the 8 to 12 foot range. There are sections of sidewalk where pedestrian accessibility is compromised by crossing driveways and obstructions protrude into the path of pedestrians. Some of these sections are shown in the photos comprising Figure 4.14-2.

### Figure 4.14-2 Examples of Existing Obstructions to Pedestrian Accessibility




Source: Metro, 2015.

[5] Van Nuys Boulevard is classified as a Class II Major Highway by the City of Los Angeles. The City's standard for sidewalk widths along Class II Major Highways is 12 feet.

Streets are generally well lit throughout the study area. Streetlights are placed at regular intervals along Van Nuys Boulevard between San Fernando Road and Woodman Avenue, except at the I-5 freeway underpass. A higher concentration of streetlights occurs near populated intersections, such as Van Nuys Boulevard and Laurel Canyon Road, and near bus stations.

There are striped Class II bike lanes on Van Nuys Boulevard north of Parthenia Street to Beachy Avenue. There is an existing Class I bike path adjacent to San Fernando Road.

According to California Highway Patrol data collected and geocoded by the Safe Transportation Research and Education Center at the University of California, Berkeley, 10 vehicle incidents occurred during the 2011 calendar year on or adjacent to the proposed alignment. As shown in Table 4.14-1, of the 10 vehicle incidents in the vicinity, the most prevalent vehicle collision type involved a vehicle and another vehicle or other object, resulting in 19 injuries. One vehicle incident involving a pedestrian was reported in 2011, resulting in one injury. There was also one vehicle incident involving a bicyclist in 2011, resulting in one injury. It should be noted that figures provided in Table 4.14-1 most likely underrepresent the number of vehicle incidents that occurred in the area in 2011 because many incidents result in property damage but not injury or death.[6]

### Table 4.14-1: Vehicle Collisions within or Adjacent to Proposed Alignment, 2010 and 2011

| Collision Type | Total Incidents | Persons Injured | Persons Killed |
|---|---|---|---|
| **2011** | | | |
| With Pedestrian | 1 | 1 | 0 |
| With Bicycle | 1 | 1 | 0 |
| With Other Motor Vehicle or Other Object | 8 | 19 | 0 |
| **TOTAL** | 10 | 21 | 0 |
| **2010** | | | |
| With Pedestrian | 2 | 3 | 0 |
| With Bicycle | 1 | 1 | 0 |
| With Other Motor Vehicle or Other Object | 4 | 6 | 0 |
| **TOTAL** | 7 | 10 | 0 |
| Source: Safe Transportation Research and Education Center 2014. | | | |

[6] The 2011 data are the most recent data available. It is anticipated that 2012 data will not be available until summer 2014.

### 4.14.2.2 Fire Protection

The Los Angeles Fire Department (LAFD) provides fire and emergency response services throughout the project study area. LAFD would provide first response in case of an accident and coordinate closely with Metro to provide emergency services during construction and operation of the proposed project. Figure 4.14-3 shows the fire stations located within the project study area, which are the following:[7]

- Station #7: 14123 Nordhoff Street, Arleta;
- Station #39: 14415 Sylvan Street, Van Nuys;
- Station #81, 14355 Arminta Street, Panorama City;
- Station #88: 5101 N. Sepulveda Boulevard, Sherman Oaks; and
- Station #98, 13035 Van Nuys Boulevard, Pacoima.

In addition to fire protection and emergency medical services, Station #88 also includes an Urban Search and Rescue Task Force and is a designated Emergency Preparedness Training Center.

#### City of San Fernando Fire Services

The study area is partly located within the City of San Fernando. Fire protection and emergency medical services within the City of San Fernando are provided by the LAFD.

### 4.14.2.3 Security

The affected environment with respect to security is the bus and rail system, which includes stations, vehicles, and ancillary facilities, and the areas in the immediate vicinity of those facilities. Passengers, transit employees, vendors, contractors, and members of the general public who come in contact with the system, as well as transit property and equipment, would be susceptible to the same crimes they might experience in the surrounding neighborhoods. Passenger security features include closed-circuit television cameras (CCTV), emergency call boxes, fully lighted station stops, bicycle parking, and transit parking areas. These features, which are within the trains and buses or at the rail stations, are designed to offer security and a personal sense of well being for passengers.

The majority of the study area is served by the Los Angeles Police Department (LAPD) for police protection and the LAFD for fire protection and emergency medical services. Fire protection and emergency services are governed by the Fire Protection Prevention Plan of the City of Los Angeles.

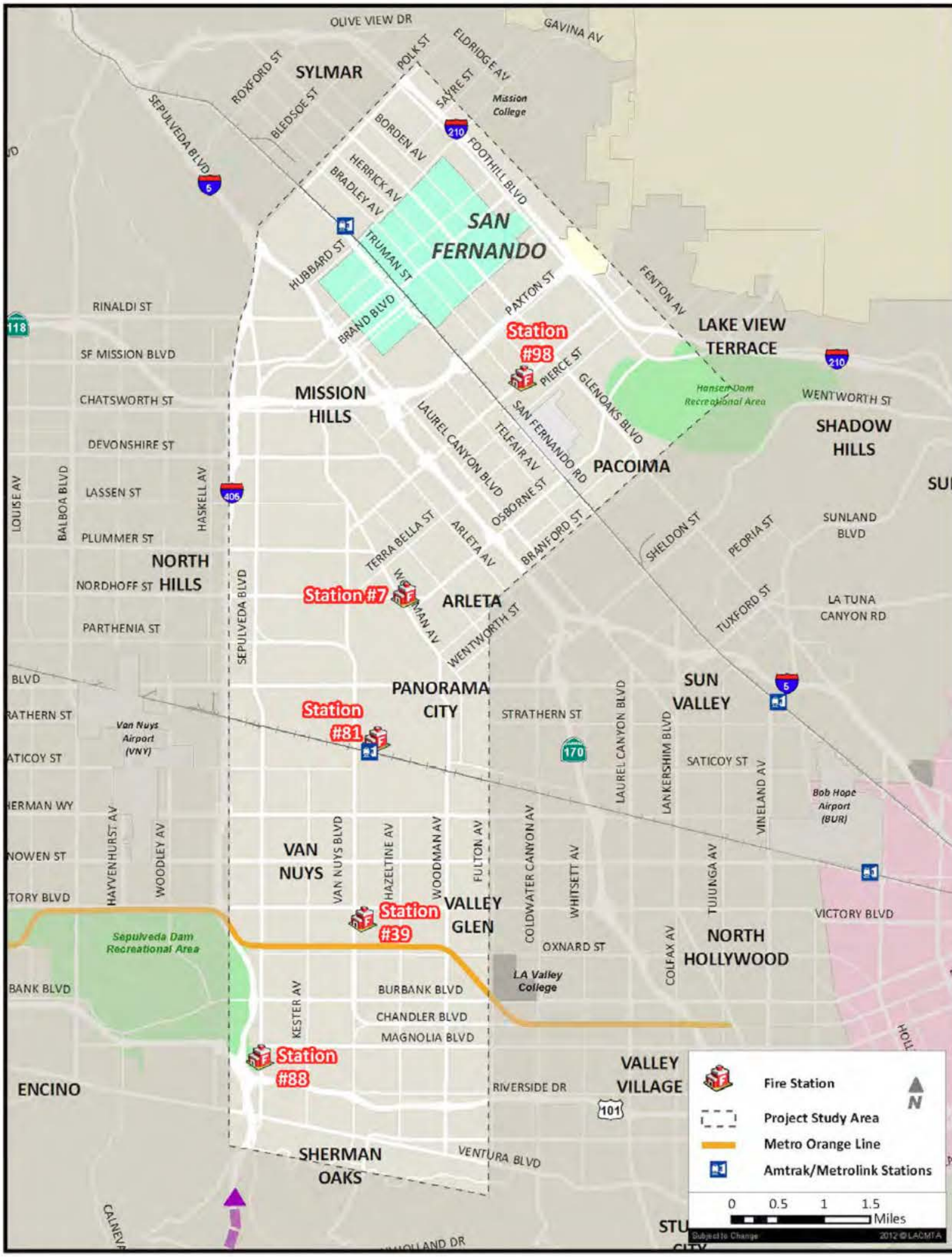
### 4.14.2.4 Police Protection

The following LAPD stations are located within the project study area:[8]

- Foothill Community Police Station, 12760 Osborne Street, Pacoima; and
- Van Nuys Community Police Station, 6240 Sylmar Avenue, Van Nuys.

[7] City of Los Angeles Fire Department. 2013a. *Find a Station*. Available: <http://lafd.org/>. Accessed: February 2013.
[8] City of Los Angeles Police Department. 2013. *Our Communities*. Available: <http://www.lapdonline.org/our_communities>. Accessed: March 2013.

## Figure 4.14-3: LAFD Stations Located in the Project Study Area




Source: ICF International, 2014.



Metro

The City of San Fernando Police Department is located at 910 First Street in the City of San Fernando, less than 1 mile from the Sylmar Metrolink station. The San Fernando Police Department includes 35 sworn officers and 25 civilian personnel.[9]

Figure 4.14-4 shows the police stations located within the project area.

## Existing Crime For Metro Train/Bus Facilities and Rights-of-Way

According to the Los Angeles County Sheriff's Department Transit Services Bureau, a total of 7,465 incidents were reported in 2013, the most recent year for which data have been compiled and released to the public.[10] As shown in Table 4.14-2, a total of 2,031 of the indicated Part I crimes were reported for light-rail/bus facilities in 2013, which represents a 16 percent increase from 2012.[11] Part I crimes include violent crimes (homicide, rape, robbery, and aggravated assault), property crimes (burglary, motor vehicle theft, and larceny-theft over $400), and arson. There were 731 adult arrests and 99 juvenile arrests made by the Los Angeles County Sheriff's Department (LASD) Transit Services Bureau deputies on or near light-rail/bus facilities in 2013.[12]

### Table 4.14-2: Los Angeles County Sheriff's Department, Transit Services Bureau, Incidents Reported for Metro Train/Bus Facilities and Rights-of-Way

| Crime | 2011 | 2012 | 2013 |
|---|---|---|---|
| Larceny Theft | 576 | 787 | 1,006 |
| Bicycle Theft[13] | 125 | 184 | 206 |
| Robbery | 261 | 380 | 408 |
| Grand Theft Auto | 123 | 89 | 107 |
| Aggravated Assault | 237 | 283 | 281 |
| Burglary | 13 | 20 | 15 |
| Arson | 5 | 1 | 5 |
| Forcible Rape | 3 | 4 | 2 |
| Homicide | 2 | 1 | 1 |
| **TOTAL** (not including vandalism) | 1,345 | 1,749 | 2,031 |
| Vandalism | 357 | 306 | 404 |
| Source: Los Angeles County Sheriff's Department, Transit Services Bureau 2011, 2012, 2013; ICF International, 2016. | | | |

[9] City of San Fernando Police Department. n.d. *Police*. Available: <http://www.ci.san-fernando.ca.us/city_government/departments/police/index.shtml>. Accessed: March 9, 2013.

[10] Los Angeles County Sheriff's Department. 2013. *2013 Light-Rail/Bus Crime Incident and Arrest Summary*. Transit Services Bureau. Available: < http://shq.lasdnews.net/CrimeStats/yir9600/yir2013/tsb/11.htm >. Accessed: April 27, 2016.

[11] Ibid.

[12] Los Angeles County Sheriff's Department. 2013. *2013 Light-Rail/Bus Crime Incident and Arrest Summary*. Transit Services Bureau. Available: < http://shq.lasdnews.net/CrimeStats/yir9600/yir2013/tsb/11.htm >. Accessed: April 27, 2016.

[13] Michael Morris, Crime Analyst, Los Angeles County Sheriff's Department-Transit Policing Division. Email message, August 4, 2015 and April 27, 2016.

## Figure 4.14-4: Police Stations Located in the Project Study Area


Source: ICF International, 2014.



Metro

# 4.14.3 Environmental Consequences, Impacts and Mitigation Measures

No impacts related to airport hazards and wildland fires would occur under any of the alternatives as described below.

## 4.14.3.1 Airport Hazards

The project study area is not located in the immediate vicinity of an airport. Whiteman Airport, located at 12653 Osborne St, is located approximately 3.6 miles south from the Sylmar/San Fernando Metro Station. Van Nuys Airport, located at 16461 Sherman Way, is located approximately 2 miles east of the study area. Impacts related to increased airport hazards would not occur under the No-Build Alternative, TSM Alternative, and the two build alternatives. No impact would occur. No further discussion of these impacts is required.

## 4.14.3.2 Wildland Fires

The study area is not located in a City of Los Angeles–designated wildland fire area.[14] The No-Build Alternative, TSM Alternative and two build alternatives are not anticipated to result in exposure to persons to wildland fire hazards. Therefore, no impacts related to wildland fires would occur under the No-Build Alternative, TSM Alternative and the two build alternatives. No further discussion of these impacts is required.

## 4.14.3.3 No-Build Alternative

### Construction Impacts

The No-Build Alternative represents projected conditions in 2040 without implementation of the project. No new transportation infrastructure would be constructed under this alternative. Therefore, no adverse construction effects or impacts related to public safety and security would occur.

### Operational Impacts

Under the No-Build Alternative, no new transportation infrastructure would be built within the project study area, aside from projects that are currently under construction or funded for construction and operation by 2040. Because the No-Build Alternative includes no new construction, aside from the existing transportation infrastructure and future planned projects described above, it would not result in any safety and security impacts.

### Cumulative Impacts

The No-Build Alternative represents projected conditions in 2040 without implementation of the project. No new transportation infrastructure would be constructed under this alternative and; therefore, no effects or impacts would occur and the No-Build Alternative would not contribute to any adverse cumulative safety and security effects.

[14] City of Los Angeles Safety Element. Exhibit D. http://cityplanning.lacity.org/cwd/gnlpln/saftyelt.pdf. Accessed: March 27, 2014.

## Mitigation Measures

### Construction Mitigation Measures

No construction mitigation measures are required.

### Operational Mitigation Measures

No operational mitigation measures are required.

## Impacts Remaining After Mitigation

### NEPA Finding

No effects would occur.

### CEQA Determination

No impacts would occur under the No-Build Alternative.

# 4.14.3.4 TSM Alternative

## Construction Impacts

The TSM Alternative could include minor physical improvements; as a consequence, construction activities would be limited in scope and duration. When construction activities would occur, all construction sites and equipment would be secured to prevent tampering and vandalism, and all applicable Metro guidelines pertaining to construction sites would be followed. As required by the City of Los Angeles Bureau of Engineering Master Specifications, the contractor would be required to keep all equipment, field offices, storage facilities, and other facilities free of graffiti. Any graffiti would be painted over, masked, or cleaned off within 24 hours after notification by the inspector. Therefore, construction impacts/effects would be minor, and no significant or substantial adverse impacts/effects would occur.

## Operational Impacts

### Pedestrian, Vehicle and Bicycle Safety

The TSM Alternative could include improvements to the existing bus network, including enhanced operating hours and increased bus frequencies for Metro Rapid Line 761 and Local Line 233. Buses would continue to operate on existing streets. There would be no or minimal changes to the existing environment. Potential minor modifications to the roadway network would enhance the transportation network, would be compliant with ADA guidelines and would most likely not result in new pedestrian, bicycle, and/or vehicle safety impacts or conflicts.

### Accidents and Collisions

Proposed increased bus service could result in a corresponding increase in the number of collisions. However, potential bus improvements under this alternative would be subject to Metro's System Safety Program Plan and its Injury and Illness Prevention Program. Based on this and given the incremental changes in bus frequencies, implementation of the TSM Alternative is not expected to result in substantial increased risk of accidents or collisions, and no substantial adverse or significant impacts are anticipated.

#### Security

The TSM Alternative is not expected to result in a substantial increase in crime due to the increased bus frequencies. The proposed improvements under this alternative would result in minor changes to the operational characteristics of the transportation system. The project area is a highly urbanized area in the San Fernando Valley within the Cities of Los Angeles and San Fernando. Crime is a fact of urban life and will continue with or without implementation of this alternative. Personnel from the Transit Services Bureau of LASD would continue to respond in the event of a security-related emergency, with assistance provided by LAPD as necessary. Additionally, all riders would be subject to the LADOT Rider's Code of Conduct (Los Angeles Department of Transportation n.d.) and to Metro guidelines and requirements pertaining to riders. Therefore, any adverse effects or impacts related to security that might occur under the TSM Alternative are expected to be minor.

### Cumulative Impacts

The study area for cumulative impacts is the same as the project study area, which is depicted in Figure 4.14-3. The cumulative projects in the study area, which provide the basis for the cumulative impacts analysis, are shown in Chapter 2 and Table 2-3, and consist primarily of various types of development projects. These cumulative projects would not result in significant airport safety hazards or expose persons to wildland fire hazards. However, these projects could increase the demand for emergency and private security services, although it's not known whether increased demand would require the construction of new facilities that would result in significant impacts on the environment. The extent to which these projects would interfere with an adopted emergency response or evacuation plan would depend largely on the amount of additional traffic and resulting increase in congestion that would occur as a result of the related projects.

However, because the TSM Alternative would consist of low-cost transit service improvements and very minor physical improvements, which could have a beneficial operational effect on mobility, and no or minimal other safety and security impacts, it would not contribute to any significant adverse safety and security cumulative impacts. Therefore, the TSM Alternative would not result in a cumulatively considerable contribution to a significant cumulative impact.

### Mitigation Measures

#### Construction Mitigation Measures

No construction mitigation measures would be required.

#### Operational Mitigation Measures

No operational mitigation measures would be required.

### Impacts Remaining After Mitigation

#### NEPA Finding

Effects would not be adverse.

#### CEQA Determination

Impacts would be less than significant.

### 4.14.3.5 BRT Alternatives

#### Alternative 1 – Curb-Running BRT

##### Construction Impacts

Construction activities within public rights-of-way are not typically considered to be adverse due to their short-term nature, particularly with implementation of construction management and abatement measures. All work would conform to industry standards and specifications. During construction, lane closures, traffic detours, and designated truck routes may be required, which could adversely affect emergency vehicle response times, a potentially significant impact and adverse effect. Maintaining an adequate level of signage, construction barriers, and supervision of trained safety personnel as part of the construction team would ensure that pedestrian, bicyclist, and motorist safety is maintained during construction. Implementation of mitigation measures MM-SS-1 through MM-SS-3 would further reduce and minimize potential temporary impacts during construction.

##### Operational Impacts

*Pedestrian, Vehicle, and Bicycle Safety*

The buses operating under the Curb-Running BRT Alternative would be similar to existing Metro high-capacity, articulated 60-foot buses. Based on Metro's Operations Plan for the East San Fernando Valley Transit Corridor Project, the Curb-Running BRT Alternative is anticipated to result in speed improvements of 18 percent for peak hours and directions and 15 percent for off-peak hours and directions. Other than the improvements in performance and the fact that the BRT would operate in a dedicated curb lane, which would improve safety, this alternative would operate in a similar fashion to existing bus lines along the corridor and consequently, it's not expected to result in significant new safety hazards or concerns.

All current pedestrian movements across roadways would be maintained under this alternative, including all existing mid-block crossing opportunities. All current motor vehicle turns into and out of cross streets and driveways would also be maintained under this alternative. No prohibitions on left turns or right turns would be necessary.

All current Metro Rapid bus stops would be upgraded and would include design enhancements that would be ADA compliant. Canopies at upgraded bus stations would be designed to meet accessibility requirements. Other modifications to the curb lanes to accommodate the BRT improvements would also comply with ADA guidelines. This alternative, however, would result in modifications to existing bicycle lanes in the corridor. On Van Nuys Boulevard between the Metro Orange Line and San Fernando Road, with one exception (at Roscoe Boulevard), the curbside lane would be 12 feet wide or greater. Bicyclists and right-turning vehicles would be permitted within the curb lane. On Van Nuys Boulevard at Roscoe Boulevard, the curbside lane would be 11 feet wide. The existing Class II bike lanes on Van Nuys Boulevard north of Parthenia Street would be removed under this alternative. Proposed changes to the roadway network to accommodate the BRT improvements would be designed and implemented in accordance with Metro design guidelines in order to ensure pedestrian, motorist, and bicyclist safety. However, the removal of Class II bike lanes or replacement with shared lanes would increase the potential for conflicts between bicyclists and motor vehicles, reducing safety, which would be a potentially adverse effect and significant impact.

#### *Accidents and Collisions*

Where BRT buses would be placed in dedicated lanes and would be separated from mixed-flow traffic, the potential for conflict between normal street traffic and bus operations would be reduced and, therefore, the potential for accidents would decrease. Where buses would operate in mixed-flow traffic, increased bus service could potentially result in a corresponding increase in the number of collisions. However, potential bus improvements under this alternative would be subject to Metro's System Safety Program Plan. Given that fact and because existing bus service in the corridor operates in mixed-flow traffic, it is not expected that there would be a significant increase in accidents or collisions between buses and other motor vehicles under the Curb-Running BRT Alternative.

#### *Security*

The conversion of existing mixed-flow lanes to dedicated BRT lanes would result in additional roadway congestion due to the decreased roadway capacity for mixed-flow traffic. However, emergency vehicles would be able to use the BRT lanes if needed, when responding to an emergency, to be able to maintain emergency response times and existing access or evacuation plans in the event of an emergency. Therefore, impacts are not expected to be adverse under NEPA and would be less than significant under CEQA.

Security concerns would be addressed both through design considerations and by coordinating with law enforcement personnel as described in mitigation measures below. Personnel from the Transit Services Bureau of LASD would continue to respond in the event of a security-related emergency, with assistance provided by LAPD as necessary. Additionally, all riders would be subject to the LADOT Rider's Code of Conduct (Los Angeles Department of Transportation n.d.) and to Metro guidelines and requirements pertaining to riders. Therefore, the Curb-Running BRT Alternative is not expected to result in a substantial increase in crime and would not result in adverse effects on security.

### Cumulative Impacts

The cumulative projects listed in Table 2-3 consist of infill development projects in an existing urban area. While development of housing or commercial buildings could increase the demand for emergency and private security services, in the context of the study area, development would be limited to these individual sites that are either already developed or consist of infill development parcels. When compared with the context of the already heavily developed urban neighborhoods along and adjacent to the proposed project corridor, the cumulative projects would not result in a substantial increase in development that would clearly strain existing emergency services in the project study area.

Implementation of Alternative 1 consists of transit improvements in an existing transit corridor and would not increase demand for emergency or private security services. Alternative 1 would result in impacts, after mitigation, on bicycle safety due to the removal of existing bike lanes. However, none of the cumulative projects listed in Table 2-3 would result in the removal of bicycle lanes. Therefore, the impacts to safety due to the removal of bicycle lanes under Alternative 1, would be significant at the project-level, but since none of the other reasonably foreseeable projects would remove bicycle lanes, the impacts would not be considered a cumulatively considerable contribution to a significant cumulative impact.

### Construction Mitigation Measures

**MM-SS-1 (All Build Alternatives):** Alternate walkways for pedestrians shall be provided around construction staging sites in accordance with ADA requirements.

**MM-SS-2 (All Build Alternatives):** All pedestrian and bicyclist detour locations around staging sites shall be signed and marked in accordance with the Manual on Uniform Traffic Control Devices "work zone" guidance, and other applicable local and state requirements.

**MM-SS-3 (All Build Alternatives):** Work plans and traffic control measures shall be coordinated with emergency responders to limit effects to emergency response times.

### *Operational Mitigation Measures*

**MM-SS-4 (All Build Alternatives):** All stations shall be illuminated to avoid shadows and all pedestrian pathways leading to/from sidewalks and parking facilities shall be well illuminated. In addition, lighting would provide excellent visibility for train operators to be able to react to possible conflicts, especially to pedestrians crossing the track.

**MM-SS-5 (All Build Alternatives):** Proposed station designs shall not include design elements that obstruct visibility or observation nor provide discrete locations favorable to crime; pedestrian access to at-grade stations shall be at ground-level with clear sight lines.

**MM-SS-6 (All Build Alternatives):**

1. Sidewalk widths shall be designed with the widest dimensions feasible in conformance with the Los Angeles/Metro's adopted "Land Use/Transportation Policy," and with widths exceeding 10 feet;
2. Minimum widths shall not be less than those allowed by the State of California Title 24 access requirements, or the ADA design recommendations. Section 1113A of Title 24 states that walks and sidewalks shall be a minimum of 48 inches (1,219 mm) in width, except that walks serving dwelling units in covered multi-family dwelling buildings may be reduced to 36 inches (914 mm) in clear width except at doors;
3. Accommodating pedestrian movements and flows shall take priority over other transportation improvements, including automobile access; and
4. Physical improvements shall ensure that all stations are fully accessible as defined in the ADA.

**MM-SS-7 (All Build Alternatives):** Adequate pedestrian queuing and refuge areas and wide crosswalks shall be provided in areas immediately around proposed stations to facilitate pedestrian mobility.

**MM-SS-8 (All Build Alternatives):** Metro shall coordinate and consult with the LAFD, LAPD, and LASD to develop safety and security plans for the proposed alignment, parking facilities, and station areas.

**MM-SS-9 (All Build Alternatives):** Fire separations shall be provided and maintained in public occupancy areas. Station public occupancy shall be separated from station ancillary occupancy by a minimum 2-hour fire-rated wall. The only exception is that a maximum of two station agents, supervisors, or information booths may be located within station public occupancy areas when constructed of approved noncombustible materials and limited in floor area to 100 square feet.

### Impacts Remaining After Mitigation

#### *NEPA Finding and CEQA Determination*

Under NEPA and CEQA, the potential for increased conflicts between bicyclists and motor vehicles and increased delay for emergency responders during project operation are potentially adverse effects and unavoidable significant impacts that would remain after implementation of proposed mitigation measures.

## Alternative 2 – Median-Running BRT

### Construction Impacts

Construction effects would be the same as those anticipated to occur under Alternative 1 – Curb-Running BRT. Effects or impacts would be potentially adverse and significant prior to implementation of mitigation measures and non-adverse under NEPA and less than significant under CEQA with implementation of mitigation measures MM-SS-1 through MM-SS-3.

### Operational Impacts

#### *Pedestrian, Vehicle, and Bicycle Safety*

This alternative would include restrictions on motor vehicle and pedestrian movements as a result of reconfiguration of the roadway and reduced number of travel lanes to accommodate the BRT facilities, or for safety reasons to eliminate or minimize potential conflicts.

Left turns from Van Nuys Boulevard onto cross streets would be maintained at most of the currently signalized intersections. The dual left-turn lanes on northbound and southbound Van Nuys Boulevard at Sherman Way and at Roscoe Boulevard would be reduced to single left-turn lanes. Several left-turns in the Van Nuys Civic Center, between Calvert Street and Hartland Street, would be prohibited to accommodate median bus stop platforms. All movements across the median guideway would be prohibited. With regard to pedestrian access, all existing signal-controlled crosswalks would be maintained. However, all other pedestrian crossings on Van Nuys Boulevard at unsignalized intersections would be prohibited to avoid potential conflicts between pedestrians and the BRT vehicles.

From Sherman Way northward, the public right-of-way width of Van Nuys Boulevard is 100 feet. To accommodate two bus lanes and a left-turn lane or bus stop in the median of Van Nuys Boulevard, the sidewalk widths would be narrowed to 10 feet. This is required due to street widening that would occur in some locations under this option. At locations where the sidewalk would be narrowed, the power poles would need to be relocated. In most cases, to satisfy drainage requirements, the entire width of the sidewalk would be reconstructed. At some locations where the sidewalk width is currently less than 10 feet, there would be no sidewalk narrowing. At a curbside bus stop, sidewalks currently less than 10 feet wide would be widened to 10 feet. Although the new sidewalk width would meet the minimum 10-foot-wide accessibility requirements, at some locations with higher pedestrian activity (at the proposed Chase, Roscoe, Blythe, Sherman Way, and Vanowen Stations), the reduction in sidewalk width (from 13 feet to 10 feet) would result in further crowding of the sidewalk, particularly during passenger boarding and exiting of buses, and for this reason, members of the public, particularly those with limited mobility, may perceive this as a potentially adverse effect and significant impact to pedestrians.

A barrier the length of the alignment could be installed to prevent illegal pedestrian crossings of the BRT alignment. Fencing for pedestrian channelization could also be installed under this alternative. Bus patrons would be restrained between curbside local bus stops and median BRT bus stops by railings on the backside of median bus stop platforms.

Metro Rapid bus stops that currently serve the 794 and 734 lines on the northern part of the alignment along Truman Street and San Fernando Road would be upgraded and have design enhancements that would be ADA compliant, including compliance with the dimensions and requirements pertaining to Bus Boarding and Alighting Areas, Bus Shelters, and Bus Stops as described in sections 8.10.2, 8.10.3, and 8.10.4 of the 2010 ADA Standards.

Along the Van Nuys Boulevard segment, bus stop platforms would be constructed in the median. The proposed stations would be consistent with Metro's Systemwide Station design.

The Median-Running BRT Alternative would also result in modifications to existing bicycle lanes in the corridor. On Van Nuys Boulevard between the Metro Orange Line and San Fernando Road, the curbside lanes would typically be 11 feet wide. Thus, motorists in the curbside lane would need to shift to the left to pass a bicyclist. The existing bike lanes extending north on Van Nuys Boulevard from Nordhoff Street would be removed and would not be replaced under this alternative. The removal of Class II bike lanes to accommodate the project would increase the potential for conflicts between bicyclists and motor vehicles traveling along Van Nuys Boulevard in this segment of the corridor, reducing safety, which would be a potentially adverse effect and significant impact.

#### *Accidents and Collisions*

The Median-Running BRT Alternative would consist of 6.7 miles of dedicated guideway, which would be separated from mixed flow traffic. When buses use a dedicated guideway or lane, it reduces the potential for conflicts between buses and mixed-flow traffic. Additionally, Metro would coordinate with LADOT to ensure busway intersections with all necessary street infrastructure would be designed and constructed to enable motorists, bicyclists, and pedestrians to interact safely with the buses. To guard motorists from accidentally driving onto the guideway, directional signs would be installed on busway entrances. Additionally, Metro guidelines pertaining to the prevention of accidents and collisions and mitigation measures specified below would further increase safety and reduce the potential for conflicts and accidents and collisions.

Approximately 2.5 miles of the alignment under this alternative would be located within mixed-flow lanes along San Fernando Road between Van Nuys Boulevard and the Sylmar/San Fernando Metrolink station. Where buses would operate in mixed-flow traffic, increased bus service could result in a corresponding increase in the number of collisions. However, potential bus improvements would be subject to Metro's System Safety Program. Given that fact and because existing bus service in the corridor operates in mixed-flow traffic, it is not expected that there would be a significant increase in accidents or collisions between buses and other motor vehicles.

#### *Security*

The conversion of existing mixed-flow lanes to dedicated BRT lanes under this alternative would result in additional roadway congestion due to the decreased roadway capacity for mixed-flow traffic, which could adversely affect emergency vehicle response and access or evacuation plans in the event of an emergency. The proposed motor-vehicle turn restrictions described above could also result, in some instances, in emergency vehicles taking a slightly more circuitous route, and therefore require more time to respond to emergencies. For these reasons, this alternative would result in an adverse effect under NEPA and significant impact under CEQA.

Although implementation of this alternative and development of new BRT facilities in the corridor could pose security concerns, including the potential for assault, robbery, or terrorist attacks, these concerns would be addressed both through design considerations and by coordinating with law enforcement personnel as described in mitigation measures in Chapter 5. Personnel from the Transit

Services Bureau of LASD would continue to respond in the event of a security-related emergency, with assistance provided by LAPD as necessary. Additionally, all riders would be subject to the LADOT Rider's Code of Conduct (Los Angeles Department of Transportation n.d.) and to Metro guidelines and requirements pertaining to riders. The Median-Running BRT Alternative is not expected to result in a substantial increase in crime and any effects on security are expected to be non-adverse under NEPA and less-than-significant under CEQA.

### Cumulative Impacts

The cumulative projects listed in Table 2-3 consist of infill development projects in an existing urban area. While development of housing or commercial buildings could increase the demand for emergency and private security services, in the context of the study area, development would be limited to these individual sites that are either already developed or consist of infill development parcels. When compared with the context of the already heavily developed urban neighborhoods along and adjacent to the proposed project corridor, the cumulative projects would not result in a substantial increase in development that would clearly strain existing emergency services in the project study area.

Alternative 2 would result in impacts, after mitigation, on pedestrian sidewalk safety, bicycle safety due to the removal of existing bike lanes, and potential impacts on emergency vehicle response time due to turn restrictions and the increased congestion resulting from the removal of mixed-flow travel lanes. However, none of the cumulative projects listed in Table 2-3 would result in the removal of bicycle lanes, sidewalk narrowing, or the conversion of mixed-flow traffic lanes to bus-only lanes. Therefore, the impacts to safety due to the removal of bicycle lanes, sidewalk narrowing, and conversion of mixed-flow lanes to bus-only lanes under Alternative 2, would be significant at the project-level, but since none of the other reasonably foreseeable projects would remove bicycle lanes, narrow the sidewalks, or convert mixed-flow traffic lanes to bus-only lanes, the impacts would not be considered a cumulatively considerable contribution to a significant cumulative impact.

### Mitigation Measures

#### *Construction Mitigation Measures*

Safety measures MM-SS-1 through MM-SS-3 would be implemented.

#### *Operational Mitigation Measures*

Safety measures MM-SS-4 through MM-SS-9 would be implemented.

### Impacts Remaining After Mitigation

#### *NEPA Finding and CEQA Determination*

Under NEPA and CEQA, the reduced sidewalk widths in some locations, the potential for increased conflicts between bicyclists and motor vehicles, and increased delay for emergency responders during project operation are potentially adverse effects under NEPA and unavoidable significant impacts under CEQA that would remain after implementation of proposed mitigation measures.

### 4.14.3.6 Rail Alternatives

#### Alternative 3 – Low-Floor LRT/Tram

##### Construction Impacts

Construction of Alternative 3 – Low-Floor LRT/Tram may have temporary adverse effects on public safety and security within the study area. During construction, motorists, pedestrians, and bicyclists would experience additional safety hazards. This would result from the number and proximity of vehicles and people adjacent to Low-Floor LRT/Tram vehicle construction. Construction would also result in lane closures, traffic detours, and designated truck routes, which could adversely affect emergency vehicle response time, an adverse effect under NEPA and potentially significant impact under CEQA. The potential for significant safety and security impacts would be minimized by compliance with Occupational Safety and Health Administration (OSHA), California Occupational Safety and Health Administration (Cal/OSHA), and Metro safety and security programs, which are designed to reduce potential adverse effects during construction. Specifically, the alternative would comply with Metro safety standards for construction workers, and would be developed in conformance with Metro's Rail Transit Design Criteria and Standards, Fire/Life Safety Criteria, Volume IX. The criteria specifically address fire protection requirements for the design and construction of LRT systems. The criteria identify and discuss fire safety as it corresponds to the following specific design criteria: station and guideway facilities, passenger vehicles, vehicle yard and maintenance facilities, system fire/life safety procedures, communications, rail operations control, and inspection, maintenance and training.

Incidents of crime adjacent to the project alignment would most likely not increase during construction. Incidents of property crime could occur at construction sites (e.g., theft of construction machinery and materials), but they would be minimized through implementation of standard site security practices by contractors. With implementation of mitigation measures MM-SS-16 through MM-SS-18, effects or impacts would be non-adverse under NEPA and less than significant under CEQA.

##### Operational Impacts

*Pedestrian, Vehicle, and Bicycle Safety*

The Low-Floor LRT/Tram Alternative would operate articulated vehicles on steel rails. The Low-Floor vehicles that would be electrically powered by overhead wires. For the purposes of this study, the Low-Floor LRT/Tram would consist of two cars, which would be connected to form a 180-foot-long train. Although Low-Floor LRT/Tram vehicles could operate at speeds up to 60 miles per hour (mph) in a dedicated guideway along Van Nuys Boulevard, they would not exceed the posted adjacent roadway speed limit, which is typically 35 mph. Low-Floor LRT/Tram vehicles would carry approximately 50 to 90 seated passengers and more than 200 total passengers, including standing passengers (depending on the type of Low-Floor LRT/Tram vehicle selected).

Under this alternative, most of the left turns would be prohibited from San Fernando Road through the City of San Fernando where a median dedicated guideway for the Low-Floor LRT/Tram vehicle is proposed between the Sylmar/San Fernando Metrolink station and Wolfskill Street. Furthermore, to maintain the pedestrian-oriented retail character of San Fernando Road between San Fernando Mission Boulevard and Chatsworth Drive, through traffic would be forced off of San Fernando Road on the block between Maclay Avenue and Brand Boulevard by means of turn restrictions. It should be noted that if Alternative 3 is selected as the preferred alternative, this operating scenario within the City of San Fernando would have to be confirmed or modified in coordination with the City of San Fernando. All existing turning movements would be maintained on San Fernando Road between Wolfskill Street and Van Nuys Boulevard where the Low-Floor LRT/Tram would share travel lanes with motor vehicles. Left turns from Van Nuys Boulevard onto cross streets would be maintained at most of the currently signalized intersections where the Low-Floor LRT/Tram would be running in the median. However, all vehicle movements across the median at currently unsignalized intersections would be prohibited. This would include left turns from Van Nuys Boulevard as well as left turns and through traffic from minor side streets and private driveways. Motorists who desire to make a left turn onto an unsignalized cross street or into a driveway would have to make a U-turn at a signalized left-turn location or choose a route that would allow them to use a signalized cross street.

The proposed project build alternative would account for pedestrian safety concerns in the design of the stations. Pedestrian safety concerns would include pedestrian safety at station locations, near the alignment and at designated crossings. The proposed stations could introduce a safety hazard for pedestrians if the stations do not adequately account for pedestrian traffic and movement. This hazard could be attributed to the inherent purpose of a station, where large numbers of people congregate and cross the trackway to access or depart from the stations, which creates a potential of collisions between pedestrians and Low-Floor LRT/Tram vehicles. With that in mind, The introduction of Low-Floor LRT/Tram vehicles in mixed-flow traffic lanes along San Fernando Road (from Wolfskill Street to Van Nuys Boulevard) would create a safety concern for pedestrians at intersection crossings where pedestrians would cross over the tracks. Similarly, a potential safety hazard could occur if pedestrians attempt to cross streets and tracks illegally. Pedestrian traffic control and channelization techniques would be used to control pedestrian movements at intersections and encourage the use of designated pedestrian crossings. On all other segments where the Low-Floor LRT/Tram operates in semi-exclusive guideway, pedestrian crossings would be permitted only at signal-controlled intersections. Pedestrians would be required to walk to a signalized location to cross San Fernando Road or Van Nuys Boulevard. Passengers would reach the median station platforms from crosswalks at signalized intersections. Additionally, there would be a pedestrian bridge at the Sylmar/San Fernando Metrolink station from the Low-Floor LRT/Tram platform to the Metrolink platform. Construction of the pedestrian bridge would comply with Metrolink/SCRRA Design Criteria. Fencing on overcrossings is required to prevent the dropping of large objects on passing trains. Lighting controls would be installed in accordance with Metrolink's recommended illumination levels for overhead pedestrian bridges and shall be designed to use energy efficiently.

Metro would also prepare grade crossing applications in coordination with local public agencies such as LADOT, the City of Los Angeles Bureau of Engineering, and the City Fire Department. In addition, grade crossing applications would need to be approved by the California Public Utilities Commission (CPUC).

The Low-Floor LRT/Tram stations would be ADA compliant and access to the station platforms would be from crosswalks, and passenger loading to and from the Low-Floor LRT/Trams would occur from both sides of the station platform. Canopies at the stations would incorporate station stop lighting to enhance safety. Adherence to Metro safety guidelines and mitigation measures specified below would minimize potential safety hazards.

Along Van Nuys Boulevard, where the existing sidewalks on each side of Van Nuys Boulevard are approximately 13 feet wide, sidewalks would be narrowed to 10 feet to accommodate the installation of the Low-Floor LRT/Tram guideway and a left-turn lane or tram station in the median of Van Nuys Boulevard, while providing two travel lanes in each direction. This sidewalk narrowing would occur from the Metro Orange Line to El Dorado Avenue in Pacoima, and would require the relocation of utility poles. Although the new sidewalk width would meet the minimum 10-foot-wide accessibility requirements, at some locations with higher pedestrian activity (at the proposed Chase, Roscoe, Blythe, Sherman Way, and Vanowen Stations), the reduction in sidewalk width (from 13 feet to 10 feet) would result in further crowding of the sidewalk, particularly during passenger boarding and exiting of buses, and for this reason, members of the public, particularly those with limited mobility, may perceive this as a potentially adverse effect and significant impact to pedestrians.

This alternative would require a number of additional elements to support vehicle operations, including an overhead contact system (OCS), traction power substations (TPSSs), signaling, and an MSF. The MSF would include collision/body repair areas, paint booths, and wheel truing (the profiling of wheels to ensure the proper wheel to rail interface) machines. The MSF would be located at or near the following intersections:

- MSF Option A – Van Nuys Boulevard/Metro Orange Line;
- MSF Option B – Van Nuys Boulevard/Keswick Street; and
- MSF Option C – Van Nuys Boulevard/Arminta Street.

The OCS poles would be approximately 30 feet tall and typically located every 90 to 170 feet between two Low-Floor LRT/Tram tracks. Where the available public right-of-way width is extremely limited, the OCS poles would be placed on the sidewalk. At such locations, curbside bus stops serving local bus lines would be relocated so as to avoid having obstructions within the bus stop area. The MSF, TPSSs, and OCS would adhere to Metro safety guidelines and consequently are not expected to result in substantial adverse or significant effects or impacts. Proposed mitigation measures below would further minimize potential effects.

This alternative would result in modifications to existing bicycle lanes in the corridor. On Van Nuys Boulevard between the Metro Orange Line and San Fernando Road, the curbside lanes would typically be 11 feet wide. The existing bike lanes extending north on Van Nuys Boulevard from Nordhoff Street would be removed and would not be replaced. The removal of Class II bike lanes to accommodate the project would increase the potential for conflicts between bicyclists and motor vehicles traveling along Van Nuys Boulevard in this segment of the corridor, reducing safety, which would be a potentially adverse effect and significant impact.

#### *Accidents and Collisions*

Placement of the proposed Low-Floor LRT/Tram in a dedicated guideway would reduce the potential for conflicts between Low-Floor LRT/Tram vehicles and mixed-flow traffic. However, the Low-Floor LRT/Tram would operate in mixed-flow lanes along San Fernando Road between Van Nuys Boulevard and just north of Wolfskill Street. When operating in mixed-flow traffic, potential conflicts between the two modes could occur, particularly when motor vehicles make turns across the tracks. However, this alternative would be subject to Metro’s System Safety Program. Given that fact and because existing bus service, which would be replaced by the Low-Floor LRT/Tram, operates in mixed-flow traffic, it is not expected that there would be a significant increase in accidents or collisions between vehicles. Design and operating characteristics and the grade crossing applications process as specified in mitigation measures described below would ensure impacts on safety due to the at-grade crossings would be reduced to less-than-significant levels under CEQA and non-adverse levels under NEPA.

### *Security*

This alternative, would convert existing mixed-flow lanes to a dedicated guideway for vehicle trams. The removal of mixed-flow lanes would result in additional roadway congestion due to the decreased roadway capacity, which could adversely affect emergency vehicle response and access or evacuation plans in the event of an emergency. The proposed motor-vehicle turn restrictions could also result, in some instances, in emergency vehicles taking a slightly more circuitous route, and therefore require more time to respond to emergencies. For these reasons, this alternative would result in an adverse effect under NEPA and significant impact under CEQA.

There is potential for security issues to occur under implementation of this alternative. This includes the potential for assault, robbery, or terrorist attack. These concerns would be addressed both through design considerations and by coordinating with law enforcement personnel. Law enforcement personnel would be provided on the transit system during hours of operation. A complete Threat and Vulnerability Assessment in compliance with FTA regulations would be conducted. Low-Floor LRT/Tram facilities (such as vehicles, stations, parking lots) would be designed to provide a safe, secure, and comfortable transit system. Transit patrons would be provided with station amenities, such as covered platforms and adequate lighting. In addition, Metro would include security-related design features, such as emergency telephones, public address systems, and closed-circuit monitoring systems. Furthermore, this alternative would incorporate all necessary crime prevention measures, including Metro's crime prevention policies, to deter criminal acts and protect passengers, employees, and the community. Metro would coordinate with police and fire services to develop construction and operation plans and provide appropriate public safety and security for the Metro system, employees, and the surrounding community. Specifically, coordination would occur with the LAPD Foothill Community Police Station and the Van Nuys Community Police Station, both of which are located in the project study area. The alternative would also include coordination with the City of San Fernando Police Department, located at 910 First Street in the City of San Fernando, less than 1 mile from the Sylmar/San Fernando Metrolink station. Under this alternative, coordination would also occur with the Los Angeles County Sheriff's Department Transit Services Bureau and the TSA. As a consequence, implementation of this alternative is not expected to result in a substantial increase in the number of crimes occurring in the project study area. Additionally, the mitigation measures identified below would further reduce potential impacts and ensure public security and safety.

Fire safety would be addressed through design features. Metro's Fire/Life Safety Design Criteria outline specific requirements for fire protection at stations, along the alignment, and within Low-Floor LRT/Tram vehicles. Requirements include providing fire alarm control systems at each enclosed station facility and a public address system at each station. All Low-Floor LRT/Tram vehicles would be equipped with fire extinguishers, and fans to ventilate the vehicle in case of fire. The Low-Floor LRT/Tram vehicles would also experience reduced hazards from fire by specifying materials with minimum burning rates, smoke generation, and toxicity characteristics.

Additional design criteria address emergency responder access, passenger egress standards, standards for sprinkler systems, and standpipe connections for fire response. Adherence to these standards and federal, state, and local regulations, in conjunction with the low risk of fires at stations, would minimize potential fire safety impacts and hazards.

Under NEPA, this alternative could result in adverse effects due to the potential for conflicts between bicyclists and motor vehicles and the potential additional delay for emergency vehicles due to increased roadway congestion and turn-movement restrictions. It is expected that this alternative would result in a minimal increased risk of accidents and collisions. Mitigation measures (see below) are proposed to further reduce or minimize potential safety and security impacts.

Under CEQA, the potential for conflicts between bicyclists and motor vehicles and increased delay for emergency responders are potentially significant impacts. Other safety and security impacts would be less than significant or no impacts (wildland fire hazards and airport hazards) would occur. Also, see the proposed mitigation measures below, which are intended to further reduce potential impacts, where feasible.

### Cumulative Impacts

The analysis of cumulative impacts for Alternative 2 is also applicable to Alternative 3, with the exception that instead of a bus-only lane, Alternative 3 would include a median Low-Floor LRT/Tram. Development of Alternative 3 would not result in a cumulatively considerable contribution to a significant cumulative impact.

### Mitigation Measures

#### *Construction Mitigation Measures*

Safety measures MM-SS-1 through MM-SS-3 would be implemented.

#### *Operational Mitigation Measures*

Safety measures MM-SS-4 through MM-SS-9, described above (see Alternative 1), in addition to the mitigation measures below, would be implemented.

**MM-SS-10 (Alternatives 3 and 4):** For portions of the alignment where pedestrians and/or motor vehicles must cross the tracks, Metro shall prepare grade crossing applications in coordination with the CPUC and local public agencies, such as LADOT, City of Los Angeles Bureau of Engineering, and the City and County of Los Angeles Fire Departments. Crossings will require approval from the CPUC and will meet applicable CPUC standards for grade crossings.

**MM-SS-11 (Alternatives 3 and 4):** All proposed LRT stations and related parking facilities shall be equipped with monitoring equipment, which would primarily consist of video surveillance equipment to monitor strategic areas of the LRT stations and walkways, and/or be monitored by Metro security personnel on a regular basis.

**MM-SS-12 (Alternatives 3 and 4):** Metro shall implement a security plan for LRT operations. The plan shall include both in-car and station surveillance by Metro security or other local jurisdiction security personnel.

**MM-SS-13 (Alternatives 3 and 4):** Light rail vehicles shall be provided with front and rear safety fenders to increase light rail vehicle safety and minimize or prevent the potential for pedestrians to contact the vehicle coupler and/or fall under the LRT.

### Impacts Remaining After Mitigation

#### *NEPA Finding and CEQA Determination*

Under NEPA and CEQA, the reduced sidewalk widths in some locations, the potential for increased conflicts between bicyclists and motor vehicles, and increased delay for emergency responders during project operation are potentially adverse effects and unavoidable significant impacts that would remain after implementation of proposed mitigation measures.

## Alternative 4 -LRT

### Construction Impacts

Construction of Alternative 4 may have temporary adverse effects on public safety and security in the study area. During construction motorists, pedestrians, and bicyclists would experience additional safety hazards. This would result from the number and proximity of vehicles and people adjacent to LRT construction. Construction activities, which would include an approximate 2.5-mile-long trench (cut-and-cover construction) and/or tunnel, could also result in lane closures, traffic detours, and designated truck routes, which could adversely affect emergency vehicle response time.

The potential for significant safety and security impacts would be minimized by compliance with OSHA, Cal/OSHA, and Metro safety and security programs, which are designed to reduce potential adverse effects during construction.

### Operational Impacts

#### *Pedestrian, Vehicle, and Bicycle Safety*

LRT vehicles would be similar to those currently used throughout the existing Metro LRT system. All vehicle movements across the median at currently unsignalized intersections would be prohibited under this alternative. This would include left turns from Van Nuys Boulevard as well as left turns and through traffic from side streets and private driveways. Motorists who desire to make a left turn onto an unsignalized cross street or into a driveway would have to make a U-turn at a signalized left-turn location or choose a route that would allow them to use a signalized cross street. On segments where the LRT would be in a subway, all existing left turns would be maintained.

Issues of pedestrian safety under Alternative 4 would include pedestrian safety at the alignment, station locations, and designated crossings. Of the 14 proposed stations, three are proposed to be located underground. Pedestrian safety issues would mostly apply to proposed at-grade stations and less to the proposed underground LRT facilities as the latter can be designed to avoid these concerns. Additionally, the underground stations would avoid the potential conflicts between pedestrians/bicyclists and motor vehicles that would occur with the at-grade stations.

The proposed 11 at-grade stations could introduce a new safety hazard for pedestrians if the stations do not adequately account for pedestrian traffic and movement. The occurrence of this hazard may be attributed to the inherent purpose of a station, where large numbers of people congregate and cross the trackway to access or depart from the transit stations, thus creating a potential hazard of collision between pedestrians and LRT vehicles. A pedestrian bridge at the Sylmar/San Fernando Metrolink station from the LRT platform to the parking lot is also proposed under this alternative. Construction of the pedestrian bridge would comply with Metrolink/SCRRA Design Criteria. Fencing on overcrossings is required to prevent the dropping of large objects on passing trains. Lighting controls would be installed in accordance with Metrolink's recommended illumination levels for overhead pedestrian bridges and shall be designed to use energy efficiently. Although pedestrian safety impacts are potentially adverse and significant, implementation of mitigation measures would reduce effects/impacts to non-adverse under NEPA and less than significant under CEQA.

Although the new sidewalk width would meet the minimum 10-foot-wide accessibility requirements, at some locations with higher pedestrian activity (at the proposed Vanowen Station), the reduction in sidewalk width (from 13 feet to 10 feet) would result in further crowding of the sidewalk, particularly during passenger boarding and exiting of buses, and for this reason, members of the public, particularly those with limited mobility, may perceive this as a potentially adverse effect and significant impact to pedestrians. The LRT Alternative would require a number of additional elements to support vehicle operations, including an OCS, TPSS, communications and signaling buildings, and an MSF. Two of the proposed MSFs would have underground connections. The MSFs would be located at or near the same intersections as those for Alternative 3. An OCS would be required under Alternative 4, with the same characteristics as those described for Alternative 3. Proposed mitigation measures would minimize potential effects.

The removal of Class II bike lanes to accommodate the project would increase the potential for conflicts between bicyclists and motor vehicles traveling along Van Nuys Boulevard in this segment of the corridor, reducing safety, which would be a potentially adverse effect and significant impact.

#### *Accidents and Collisions*

Placement of the LRT in a dedicated guideway would reduce the potential for conflicts between LRT vehicles and mixed-flow traffic. Between Van Nuys Boulevard and the Sylmar/San Fernando Metrolink station, the LRT would operate within the existing freight/commuter rail right-of-way, but on separate dedicated tracks. As previously stated, Metro would prepare grade crossing applications in coordination with local public agencies. Design and operating characteristics and the grade crossing applications process as specified in mitigation measures described below would ensure impacts on safety due to the at-grade crossings would be reduced to less-than-significant levels under CEQA and non-adverse levels under NEPA.

#### *Security*

The removal of mixed-flow lanes would result in additional roadway congestion due to the decreased roadway capacity, which could adversely affect emergency vehicle response times and access or evacuation plans in the event of an emergency. The proposed motor vehicle turn restrictions could also result, in some instances, in emergency vehicles taking a slightly more circuitous route, and therefore, require more time to respond to emergencies. For these reasons, this alternative would result in an adverse effect under NEPA and significant impact under CEQA.

### Cumulative Impacts

The analysis of cumulative impacts for Alternative 2 is also applicable to Alternative 4, with the exception that instead of a bus-only lane, Alternative 4 would include a median LRT. Development of Alternative 4 would not result in a cumulatively considerable contribution to a significant cumulative impact.

### Mitigation Measures

#### *Construction Mitigation Measures*

Safety measures MM-SS-1 through MM-SS-3 would be implemented.

#### *Operational Mitigation Measures*

Safety measures MM-SS-4 through MM-SS-7, as well as the additional measures below, would be implemented.

> **MM-SS-14 (Alternative 4):** To reduce potential risk of collisions between LRTs and automobiles on the street portion of Alternative 4, Metro shall coordinate with the CPUC, City and County of Los Angeles traffic control departments, City of Los Angeles Bureau of Engineering, and the City and County of Los Angeles Fire Departments, and also comply with the Federal Highway Administration's Manual on Uniform Traffic Control Devices for signing and pavement marking treatments.

**MM-SS-15 (Alternative 4):** The Metro Fire/Life Safety Committee has developed standard safety-related design criteria to ensure safe and adequate LRT operations in and around LRT underground stations. These criteria, which shall be adhered to, include:

1. Fire alarm protection within the station area;
2. A minimum of two fire emergency routes from each proposed station;
3. Emergency ventilation and lighting;
4. Communication systems between adjoining fire agencies; and
5. A methane detection system for each proposed station.

**MM-SS-16 (Alternative 4):** Building construction for underground stations would not be less than Type I Construction as defined in the Uniform Building Code (UBC). Type I Construction is a category of building construction that sets forth design requirements that provides for safety features such as ventilation, additional egress routes, lighting, etc.

**MM-SS-17 (Alternative 4):** Proposed stations having more than two levels below-grade or more than 80 feet to the lowest occupied level from grade shall require protected level separation or other protection features to provide safe egress to the exits.

**MM-SS-18 (Alternative 4):** The diverse needs of different types of traveling public including senior citizens, disabled citizens, low-income citizens, shall be addressed through a formal educational and outreach campaign. The campaign shall target these diverse community members to educate them on proper system use and benefits of LRT ridership.

### Impacts Remaining After Mitigation

#### *NEPA Finding and CEQA Determination*

Under NEPA and CEQA, the reduced sidewalk width in some locations, the potential for increased conflicts between bicyclists and motor vehicles, and increased delay for emergency responders during project operation are potentially adverse effects and unavoidable significant impacts that would remain after implementation of proposed mitigation measures.

# 4.15 Parklands and Community Facilities

## 4.15.1 Regulatory Framework and Methodology

### 4.15.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's parkland and community facilities impacts are listed below. For additional information regarding these regulations, please see the Parklands and Community Facilities Impact Report in Appendix T of this Draft EIS/EIR.

#### Federal

- NEPA

#### State

- CEQA

#### Local

- County of Los Angeles (Pacoima Wash Vision Plan)
- City of Los Angeles (City of Los Angeles Land Use/Transportation Policy, General Plan, Hazard Mitigation Plan, Zoning Code)
- City of San Fernando (General Plan, San Fernando Corridors Specific Plan, Pacoima Wash Greenway Master Plan, Natural Hazard Mitigation Plan, Zoning Code)

### 4.15.1.2 Methodology

This analysis has been prepared in accordance with NEPA and CEQA. The following five steps were used to assess potential project impacts on parklands and community facilities in the project study area:

- Existing parklands and community facilities were identified and compiled into a list.
- Maps were created to illustrate existing land uses, parklands, and community facilities.
- Existing parklands and community facilities were described.
- Community issues and concerns regarding parklands and community facilities were identified through public meetings.
- An assessment of the project's impacts on communities and neighborhoods was conducted.

The following impacts on parklands and community facilities are discussed in this section:

#### Direct Impacts

- Physical acquisition, displacement, or relocation.
- Noise, air quality, traffic, and visual impacts.

#### Indirect Impacts

- Induced population growth leading to an increase in demand for parklands and community facilities, and the need to construct additional facilities.
- Changes in access to parklands and community facilities.

### 4.15.1.3 CEQA Significance Thresholds

CEQA requires state and local government agencies to identify the significant environmental effects of proposed actions; however, CEQA does not describe specific significance thresholds. According to the Governor's Office of Planning and Research, significance thresholds for a given environmental effect are at the discretion of the lead agency and are the levels at which the lead agency finds the effects of the project to be significant.

#### State CEQA Guidelines

The State CEQA Guidelines define "significant effect on the environment" as: "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (State CEQA Guidelines, 14 CCR Section 15382).[1]

The State CEQA Guidelines do not describe specific significance thresholds. However, Appendix G of the State CEQA Guidelines lists a variety of potentially significant effects, which are often used as thresholds or guidance in developing thresholds for determining impact significance. Accordingly, for the purposes of this EIS/EIR, a project would normally have a significant effect on parklands and community facilities, under CEQA, if the project would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- Affect existing recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.
- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:
    - Fire protection;
    - Police protection;
    - Schools;
    - Parks; or
    - Other public facilities.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

#### L.A. CEQA Thresholds Guide

The *L.A. CEQA Thresholds Guide* for Public Services states that a determination of significance shall be made on a case-by-case basis, considering the following factors:[2]

[1] California Natural Resources Agency. 2010b. *State CEQA Guidelines, 14 CCR Section 15382.*
[2] City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide, K. Public Services.* Available: <http://www.ci.la.ca.us/ead/programs/Thresholds/K-Public%20Services.pdf>. Accessed: February 13, 2013.

### Recreation and Parks

- The net population increase resulting from the proposed project.
- The demand for recreation and park services anticipated at the time of project buildout compared to the expected level of service available. Consider, as applicable, scheduled improvements to recreation and park services (renovation, expansion, or addition) and the project's proportional contribution to demand.
- Whether the project includes features that would reduce the demand for recreation and park services (e.g., on-site recreation facilities, land dedication or direct financial support to the Department of Recreation and Parks).

### Public Schools

- The population increase resulting from the proposed project, based on the net increase of residential units or square footage of non-residential floor area.
- The demand for school services anticipated at the time of project buildout compared to the expected level of service available. Consider, as applicable, scheduled improvements to the LAUSD services (facilities, equipment, and personnel) and the project's proportional contribution to the demand.
- Whether (and the degree to which) accommodation of the increased demand would require construction of new facilities, a major reorganization of students or classrooms, major revisions to the school calendar (such as year-round sessions), or other actions which would create a temporary or permanent impacts on the school(s).
- Whether the project includes features that would reduce the demand for school services (e.g., on-site school facilities or direct support to LAUSD).

### Libraries

- The net population increase resulting from the proposed project.
- The demand for library services anticipated at the time of project buildout compared to the expected level of service available. Consider, as applicable, scheduled improvements to recreation and park services (renovation, expansion, or addition) and the project's proportional contribution to demand.
- Whether the project includes features that would reduce the demand for library services (e.g., on-site library facilities or direct support to the LAPL).

### Police Protection

- The population increase resulting from the proposed project, based on the net increase of residential units or square footage of non-residential floor area.
- The demand for police services anticipated at the time of project buildout compared to the expected level of service available. Consider, as applicable, scheduled improvements to LAPD services (facilities, equipment, and officers) and the project's proportional contribution to the demand.
- Whether the project includes security and/or design features that would reduce the demand for police services.

### Fire Protection and Emergency Medical Services

- A project would normally have a significant impact on fire protection if it requires the addition of a new fire station or the expansion, consolidation, or relocation of an existing facility to maintain service.

#### Hazards

- The degree to which the project may require a new, or interfere with an existing, emergency response or evacuation plan, and the severity of the consequences.

## 4.15.2 Affected Environment/Existing Conditions

### 4.15.2.1 Regional and Study Area Setting

The project study area is located in the San Fernando Valley area of Los Angeles (see Figure 3-1 in the Parklands and Community Facilities Impact Report in Appendix T). The San Fernando Valley is a flat area consisting of approximately 260 square miles, and is bounded by the Santa Susana Mountains to the northwest, the Simi Hills to the west, the Santa Monica Mountains and Chalk Hills to the south, the Verdugo Mountains to the east, and the San Gabriel Mountains to the northeast.

The project corridor is approximately 9.2 miles in length, and runs nearly the entire length of the valley floor[3]. The project corridor is in an urbanized area that includes a variety of land uses, including residential, commercial, industrial, recreation (parks), schools, community centers, office and government, and other urban land use (see Figure 3-2 in the Parklands and Community Facilities Impact Report in Appendix T).

The project study area encompasses the area in which direct and/or indirect effects associated with the project could result. For the analysis of parklands and community facilities impact, the project study area is defined as extending one-half mile surrounding the project corridor to incorporate the surrounding neighborhoods that potentially could be affected by the proposed project. The parklands and community facilities in the project study area are listed and described below. For maps depicting the locations of these parks and facilities, please see Figures 3-3 through 3-8 in the Parklands and Community Facilities Impacts Report contained in Appendix T of this EIS/EIR.

### 4.15.2.2 Parklands and Community Facilities

The parklands and community facilities within a 0.25-mile of the project alignment are described below and shown in Figure 4.15-1. In the project study area, there are several parcels of land in the Cities of Los Angeles and San Fernando that are designated as parklands and open space. The parklands listed in this section include neighborhood parks, community parks, regional parks, golf courses, public swimming facilities, and open space used for recreational and educational purposes, or for the preservation of natural resources.

#### Recreation Centers

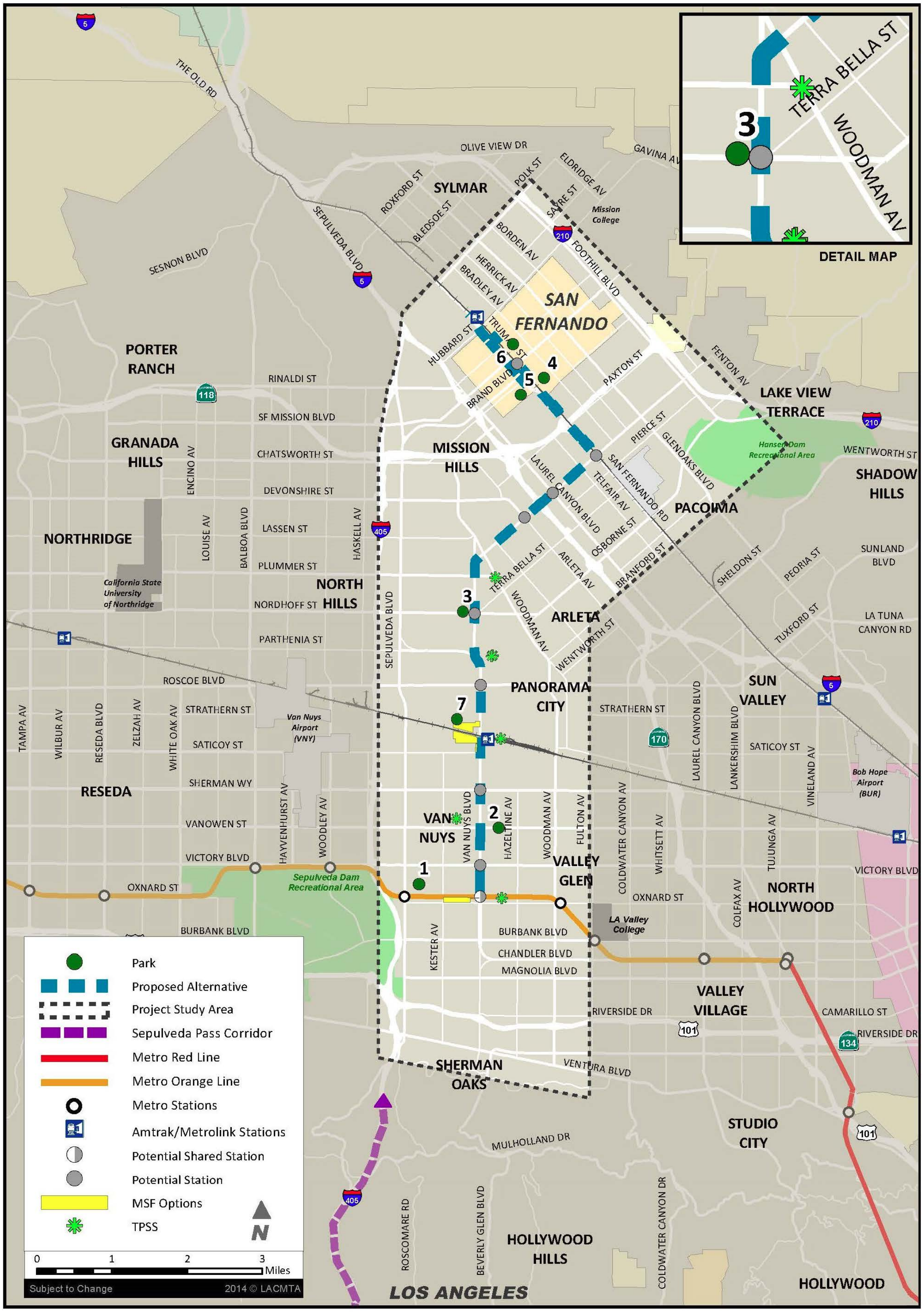
The following recreation centers are located in the project study area:

- Delano Recreation Center (#1 in Figure 4.15-1), 15100 Erwin Street, Van Nuys. This recreation center features outdoor athletic fields, an indoor gymnasium, an auditorium and indoor table games.
- Van Nuys Recreation Center (#2 in Figure 4.15-1), 14301 Vanowen Avenue, Van Nuys. This recreation center features several indoor and outdoor multi-activity sports facilities, and is located approximately 0.20 mile from the project corridor.

---

[3] The topographically flat area bounded by the Santa Susana and San Gabriel Mountains to the north, and the Santa Monica mountains to the south

## Figure 4.15-1: Map of Parks, Recreation Areas, or Community Facilities




Source: ICF International, 2015.



Metro

## City of Los Angeles Department of Recreation and Parks

The City of Los Angeles Department of Recreation and Parks aims to enrich the lives of the residents of Los Angeles by providing safe, welcoming parks and recreation facilities, and affordable, diverse recreation and human services activities for people of all ages. The department manages more than 15,700 acres of parkland.

The following parks in the project study area are managed by the City of Los Angeles Department of Recreation and Parks:

- Tobias Avenue Park (#3 in Figure 4.15-1), 9122 Tobias Avenue, Panorama City. The park is located adjacent to the project corridor, and features basketball courts, a children's play area, and picnic tables.
- Blythe Street Park (#7 in Figure 4.15-1), 14740 Blythe Street, Van Nuys. Blythe Street Park, located adjacent to the project corridor, is a pocket park between apartment buildings and provides a children's play area, picnic tables, and a small grass area.

## City of San Fernando Recreation and Community Services Department

The City of San Fernando Recreation and Community Services Department develops and implements programs and activities that provide for the well-being and personal development of the City of San Fernando's residents. The Facility Operations/Playgrounds Division is responsible for the operation of the City of San Fernando's parks and community centers, currently totaling 34.13 acres. The aquatics program is responsible for seasonal operation of the City of San Fernando's pool and maintaining the swim team, junior lifeguard, and recreational swim programs.

The following parks in the project study area are managed by the City of San Fernando Recreation and Community Services Department:

- Recreation Park (and San Fernando Regional Pool Facility) (#4 in Figure 4.15-1), 208 Park Avenue, San Fernando. The park is comprised of 11 acres of multi-activity sports facilities, and is located adjacent to the project corridor.
- Cesar E. Chavez Memorial (#5 in Figure 4.15-1), 30 Wolfskill Street, San Fernando. This memorial honoring the late farm worker leader consists of four separate art pieces placed in a park setting. The memorial is located adjacent to the project corridor.
- Layne Park (#6 in Figure 4.15-1), 120 North Huntington Street, San Fernando. The park houses a basketball court, picnic area, and a children's play area, and is located approximately 0.10 mile from the project corridor.

## Other Open Spaces

The following proposed open space is also located in the project study area:

- Pacoima Wash Greenway Project, no address (future proposed project): Approximately $2.5 million in funds were awarded to the Mountains Recreation Conservation Authority (MRCA) and the City of San Fernando for the development of 5.79 acres in the Pacoima Wash Greenway. The future Pacoima Wash Greenway trail would connect with the San Fernando Road Metrolink Bike Path, a 12-mile path that has been partially completed with other sections of the path planned for future construction (a 1.75-mile section of the Metrolink Bike Path has already been completed and connects to the Sylmar/San Fernando Metrolink Station). The City of Los Angeles is currently extending a bike path with an underpass adjacent to the alignment on San Fernando

Road in the City of Los Angeles and in proximity to the City of San Fernando. The project is in the early stages with no construction drawings available. The Pacoima Wash Greenway Master Plan Project, an early document prepared in 2004, has been a basis to conceptualize the project, includes the construction of underpasses, although specific locations would be confirmed through the design process.

## 4.15.2.3 Schools

### Los Angeles Unified School District

Public educational services in the project study area are provided by the Los Angeles Unified School District (LAUSD). The LAUSD is comprised of eight local districts with 219 year-round schools and 439 schools on the traditional school calendar (with a summer break). For some school facilities, the City of Los Angeles Department of Recreation and Parks has a joint use agreement with LAUSD, which allows use of recreational facilities after educational hours. In addition, the LAUSD issues Civic Center permits that allow public use of school facilities for supervised not-for-profit recreational activities, meetings, and public discussions during non-school hours.

The following schools are located in the project study area:

#### Elementary Schools

- Van Nuys Elementary School, Serving 550 students, 6464 Sylmar Avenue, Van Nuys, approximately 0.20 mile from the project corridor;
- Burton Street Elementary School, Serving 690 students, 8111 Calhoun Avenue, Panorama City, approximately 0.30 mile from the project corridor;
- Panorama City Elementary School, Serving 761 students, 8600 Kester Avenue, Panorama City, approximately 0.35 mile from the project corridor;
- Primary Academy for Success, Serving 300 students, 9075 Willis Avenue, Panorama City, approximately 0.30 mile from the project corridor;
- Liggett Street Elementary School, Serving 786 students, 9373 Moonbeam Avenue, Panorama City, approximately 0.15 mile from the project corridor;
- Beachy Avenue Elementary School, Serving 645 students, 9757 Beachy Avenue, Arleta, approximately 0.20 mile from the project corridor;
- Sharp Avenue Elementary School, Serving 900 students, 13800 Pierce Street, Arleta, approximately 0.20 mile from the project corridor;
- Telfair Avenue Elementary School, Serving 1,100 students, 10975 Telfair Avenue, Pacoima, approximately 0.35 mile from the project corridor;
- Osceola Elementary School, Serving 450 students, 14940 Osceola Street, Sylmar, approximately 0.30 mile from the project corridor;
- Dyer Street Elementary School, Serving 830 students, 14500 Dyer Street, Sylmar approximately 0.50 mile from the project corridor.

#### Middle Schools

- Pacoima Middle School, Serving 1,600 students, 9919 Laurel Canyon Boulevard, Pacoima, approximately 0.15 mile from the project corridor; and
- San Fernando Valley Middle School, Serving 1,553 students, 130 North Brand Boulevard, San Fernando; adjacent to the project corridor.

#### High Schools

- Van Nuys High School, Serving 2,946 students, 6535 Cedros Avenue, Van Nuys, approximately 0.25 mile from the project corridor;
- Will Rogers Continuation High School, Serving 160 students, 14711 Gilmore Street, Van Nuys, approximately 0.30 mile from the project corridor;
- Panorama High School, Serving 2,210 students, 8015 Van Nuys Boulevard, Panorama City, approximately 0.10 mile from the project corridor; and
- Arleta High School, Serving 2,000 students, 14200 Van Nuys Boulevard, Pacoima, adjacent to the project corridor.

#### Other Schools

- Pacoima Skills Center (Adult), 13545 Van Nuys Boulevard, Pacoima, adjacent to the project corridor.

### Private Educational Facilities

In addition to public school facilities in the project study area, there are several other private educational facilities. The following schools are in the project study area:

#### Elementary Schools

- Aarat Charter School, Serving 312 students, 6555 Sylmar Avenue and 13400 Erwin Street, Van Nuys, approximately 0.2 mile from the project corridor;
- Saint Ferdinand's School (Preschool-8th), Serving 266 students, 1012 Coronel Street, San Fernando, approximately 0.25 mile from the project corridor; and
- Santa Rosa School (Preschool-8th), Serving 248 students, 668 S. Workman Street, San Fernando, approximately 0.30 mile from the project corridor.

#### Middle Schools

- Nueva Esperanza Charter Academy, Serving 210 students, 1218 North 4th Street, San Fernando, approximately 0.17 mile from the project corridor.

#### High Schools

- Champs Charter High School (of the Arts), Serving 910 students, 6952 Van Nuys Boulevard, Van Nuys, adjacent to the project corridor;
- Soledad Enrichment School (Charter), Number of students unavailable, 13452 Van Nuys Boulevard, Pacoima, adjacent to the project corridor; and
- Lakeview Charter Academy, Serving 215 students, 1445 Celis Street, San Fernando adjacent to the project corridor.

#### Other Schools

- Los Angeles ORT College, 14519 Sylvan Street, Van Nuys, approximately 0.05 mile from the project corridor; and
- American Nursing School, 14545 Victory Boulevard, Van Nuys, approximately 0.10 mile from the project corridor.

### 4.15.2.4 Libraries

#### City of Los Angeles Public Library System

The majority of the project study area is serviced by branches of the LAPL system, which comprises six service areas (i.e., Central Southern Area, Northeast Area, East Valley Area, West Valley Area, Hollywood Area, Western Area). The project study area is in the limits of the East Valley Area.

The following City of Los Angeles libraries are in the project study area:

- Van Nuys Branch Library, 6250 Sylmar Avenue, Van Nuys, approximately 0.10 mile from the project corridor;
- Panorama City Branch Library, 14345 Roscoe Boulevard, Panorama City, approximately 0.10 mile from the project corridor; and
- Pacoima Branch Library, 13605 Van Nuys Boulevard, Pacoima, adjacent to the project corridor.

#### County of Los Angeles Public Library System

The City of San Fernando is serviced by the County of Los Angeles Public Library System. This county system provides service to the unincorporated areas and 51 of the 88 cities of the County of Los Angeles. There is one county branch located in the project study area:

- San Fernando Branch Library, 217 North Maclay Avenue, San Fernando.

### 4.15.2.5 Police Protection

The portion of the project study area in the City of Los Angeles is served by the Valley Bureau of the LAPD. The LAPD's response time goal is 7 minutes for high priority calls, and 40 minutes for nonemergency calls. In 2013, the LAPD had a citywide average response time of 5.9 minutes.[4]

There is one station in the project study area:

- Van Nuys Community Police Station, 6240 Sylmar Avenue, Van Nuys, approximately 0.10 mile from the project corridor.

The City of San Fernando is served by the City of San Fernando Police Department. The City of San Fernando Police Department has an average response time of two minutes.[5] There is one station in the project study area:

- San Fernando Police Station, 910 First Street, San Fernando, adjacent to the project corridor.

### 4.15.2.6 Fire Protection

The LAFD provides fire protection and emergency medical services for the majority of the project study area. The National Fire Protection Association's response time goal is six minutes for 90 percent of medical responses. In 2014, the LAFD had a citywide average response time of six minutes and 34 seconds during that year.[6]

---

[4] County of Los Angeles. 2014. *Ford Theatres Project Environmental Impact Report, J.2 Public Services – Police Protection*. Available: < http://file.lacounty.gov/dpr/cms1_215045.pdf>. Accessed: December 18, 2014.

[5] City of San Fernando. 2008. *San Fernando Downtown Parking Lots Environmental Impact Report, Section 5.9, Police Protection Services.* Available: < http://www.ci.san-fernando.ca.us/city_government/departments/comdev/news/Draft%20EIR/Sec05.09.PoliceProtection.pdf>. Accessed: December 18, 2014.

[6] Los Angeles Fire Department. 2014. *FireStatLA, City-wide Response Metrics.* Available: <http://www.lafd.org/sites/default/files/pdf_files/12-10-2014_CityWide.pdf>. Accessed: December 18, 2014.

The following LAFD stations are located in the project study area:

- Station #39, 14415 Sylvan Street, Van Nuys (S-1, CF-8), approximately 0.07 mile from the project corridor;
- Station #81, 14355 Arminta Street, Panorama City (S-2, CF-40), approximately 0.20 mile from the project corridor; and
- Station #98, 13035 Van Nuys Boulevard, Pacoima (S-5, CF-71), approximately 0.30 mile from the project corridor.

### 4.15.2.7 Hospitals and Medical Facilities

The following hospitals and medical facilities are located in the project study area:

- San Fernando Valley Community Mental Health Center, 14660 Oxnard Street, Van Nuys, approximately 0.15 mile from the project corridor;
- Valley Community Counseling, 6201 Van Nuys Boulevard, Van Nuys, adjacent to the project corridor.
- Expert Care Health Group, 14532 Friar Street, Van Nuys, approximately 0.07 mile from the project corridor;
- Victoria Medical Clinic, 14614 Victory Boulevard, Van Nuys, approximately 0.10 mile from the project corridor;
- Family Medical Center, 14547 Victory Boulevard, Van Nuys, approximately 0.15 mile from the project corridor;
- Cedars Health Clinic, 14649 Victory Boulevard, Van Nuys, approximately 0.20 mile from the project corridor;
- Northeast Valley Health Corporation, 6551 Van Nuys Boulevard, Van Nuys, approximately 0.05 mile from the project corridor;
- University Medical Care, 14600 Sherman Way #100, Van Nuys, approximately 0.15 mile from the project corridor;
- Kidney Center of Van Nuys, 14624 West Sherman Way, Van Nuys, approximately 0.20 mile from the project corridor;
- Mission Community Hospital, 14860 Roscoe Boulevard, Panorama City, approximately 0.30 mile from the project corridor;
- Clinica Latino Americano, 8727 Van Nuys Boulevard, Panorama City, approximately 0.05 mile from the project corridor;
- UCLA Early Head Start, 14423 Van Nuys Boulevard, Arleta, adjacent to the project corridor.
- San Fernando Acupuncture Clinic, 820 San Fernando Road, San Fernando, adjacent to the project corridor.
- Valley Family Center, 302 South Brand Boulevard, San Fernando, approximately 0.15 mile from the project corridor;
- San Fernando Dental Center, 125 South Brand Boulevard, San Fernando, adjacent to the project corridor.
- San Fernando Medical Center, 501 North Maclay Avenue, San Fernando, approximately 0.35 mile from the project corridor;

- Aurora Medical Center, 405 North Maclay Avenue, San Fernando, approximately 0.20 mile from the project corridor;
- Maya Chiropractic Center, 321 N Maclay Avenue, San Fernando Valley, approximately 0.15 mile from the project corridor;
- Western Dental Center, 1101 Truman Street, San Fernando, adjacent to the project corridor;
- Valley Care San Fernando Clinic, 1212 Pico Street, San Fernando, approximately 0.25 mile from the project corridor;
- Santa Maria Dental Center, 1230 San Fernando Road, San Fernando, adjacent to the project corridor; and
- Northeast Valley Health Corporation, 1600 San Fernando Road, San Fernando, adjacent to the project corridor.

#### 4.15.2.8 Religious Facilities

The following religious facilities are in the project study area:

- Kingdom Hall of Jehovah's Witnesses, 14659 Erwin Street, Van Nuys, approximately 0.20 mile from the project corridor;
- Iglesia De Dios Fuente, 14520 Friar Street, Van Nuys, approximately 0.05 mile from the project corridor;
- First Presbyterian Church of Van Nuys, 14701 Friar Street, Van Nuys, approximately 0.05 mile from the project corridor;
- Central Lutheran Church of Van Nuys, 6425 Tyrone Ave, Van Nuys, approximately 0.20 mile from the project corridor;
- Christian Science Church, 14654 Hamlin Street, Van Nuys, approximately 0.20 mile from the project corridor;
- Faith Compassion Ministry, 6518 Cedros Avenue, Van Nuys, approximately 0.20 mile from the project corridor;
- God Answers Prayer Ministry, 14541 Hamlin Street, Van Nuys, approximately 0.10 mile from the project corridor;
- Church of the Valley, 6565 Vesper Avenue, Van Nuys, approximately 0.15 mile from the project corridor;
- Saint Elizabeth's Church, 6635 Tobias Avenue, Van Nuys, approximately 0.20 mile from the project corridor;
- Kingdom of Jesus Christ, 14424 Vanowen Street, Van Nuys, approximately 0.07 mile from the project corridor;
- First Lutheran Church, 6952 Van Nuys Boulevard, Van Nuys, adjacent to the project corridor;
- Church on the Way, 6952 Van Nuys Boulevard, Van Nuys, approximately 0.20 mile from the project corridor;
- Mark's Episcopal Church, 14646 Sherman Way, Van Nuys, approximately 0.25 mile from the project corridor;
- Seventh-Day Adventist Church, 14615 Sherman Way, Van Nuys, approximately 0.25 mile from the project corridor;

- Van Nuys Church of Christ, 14655 Sherman Way, Van Nuys, approximately 0.20 mile from the project corridor;
- Sunrise Japanese Foursquare Church, 14705 Wyandotte Street, Van Nuys, approximately 0.25 mile from the project corridor;
- Panorama Presbyterian Church, 14201 Roscoe Boulevard, Panorama City, approximately 0.25 mile from the project corridor;
- Imam Bukhari Masjid, 8741 Van Nuys Boulevard, Panorama City, adjacent to the project corridor;
- San Fernando Valley Interfaith, 14555 Osborne Street, Panorama City, adjacent to the project corridor;
- Panorama SDA Church, 14517 Osborne Street, Panorama City, approximately 0.05 mile from the project corridor;
- Panorama City Four Square Church, 14320 Nordhoff Street, Panorama City, approximately 0.15 mile from the project corridor;
- Iglesia Ni Cristo (Church of Christ), 14308 Nordhoff St, Panorama City, approximately 0.20 mile from the project corridor;
- Valley Church, 14301 Nordhoff Street, Panorama City, approximately 0.25 mile from the project corridor;
- Ministerios Rhema Inc., 14246 Nordhoff Street, Panorama City, approximately 0.30 mile from the project corridor;
- Universal Church, 9110 Van Nuys Boulevard, Panorama City, adjacent to the project corridor;
- Iglesia Del Nazareno, 9260 Van Nuys Boulevard, Panorama City, adjacent to the project corridor;
- Iglesia De Restauracion, 9936 Beachy Avenue, Arleta, adjacent to the project corridor;
- Bible Baptist Church, 14101 Van Nuys Boulevard, Arleta, adjacent to the project corridor;
- San Fernando Valley Southern Baptist, 10135 Arleta Avenue, Arleta, adjacent to the project corridor;
- Greater Missionary Baptist Church, 13451 Vaughn Street, San Fernando, approximately 0.25 mile from the project corridor;
- St. Alphonsa Syro-Malabar Catholic Church, 607 4th Street, San Fernando, approximately 0.25 mile from the project corridor;
- First Church of Christ, 606 Chatsworth Drive, San Fernando, approximately 0.35 mile from the project corridor;
- Living Hope Community Church, 214 N Maclay Avenue, San Fernando, approximately 0.15 mile from the project corridor;
- Saint Ferdinand Church, 1109 Coronel Street, San Fernando, approximately 0.25 mile from the project corridor;
- Park Chapel African Methodist Episcopal Church, 1102 4th Street, San Fernando, approximately 0.17 mile from the project corridor;
- Calvary United Pentecostal Church, 1119 3rd Street, San Fernando, approximately 0.12 mile from the project corridor;

- Lighthouse Christian Center, 1231 1st Street, San Fernando, approximately 0.05 mile from the project corridor;
- Church of the Nazarene, 1420 4th Street, San Fernando, approximately 0.17 mile from the project corridor;
- Liberty Missionary Baptist Church, 511 North Workman Street, San Fernando, approximately 0.35 mile from the project corridor;
- Santa Rosa Catholic Church, 668 Workman Street, San Fernando, approximately 0.30 mile from the project corridor; and
- First Baptist Church of San Fernando, 215 Macneil Street, San Fernando, approximately 0.20 mile from the project corridor.

### 4.15.2.9 Preschools and Daycare Facilities

The following preschools and daycare facilities are in the project study area:

- Head Start, 14612 Calvert Street, Van Nuys, approximately 0.10 mile from the project corridor;
- Cheburashka Day Care, 14249 Kittridge Street, Van Nuys, approximately 0.25 mile from the project corridor;
- Kids First Learning Center, 13232 Kagel Canyon Street, Pacoima, approximately 0.35 mile from the project corridor; and
- KinderCare, 2100 Frank Modugno Drive, San Fernando, adjacent to the project corridor.

### 4.15.2.10 Senior Services

The following senior services are located in the project study area:

- Van Nuys Multipurpose Senior Citizen Center, 6514 Sylmar Avenue, Van Nuys, approximately 0.25 mile from the project corridor;
- San Fernando Senior Center, 208 Park Avenue, San Fernando, approximately 0.15 mile from the project corridor; and
- Las Palmas Park Senior Center, 505 South Huntington Street, San Fernando, approximately 0.20 mile from the project corridor.

### 4.15.2.11 Community Issues and Concerns

A series of community outreach meetings were held in order to gauge community concerns and potential issues that could arise within the project study area. Mobility, access, and traffic issues and concerns related to parklands and community facilities impacts were expressed (please see the Parklands and Community Facilities Impacts Report in Appendix T for further details on these issues).

Outreach to the community, through public scoping meetings and other methods, will continue throughout the environmental review process. This community input is critical in assessing potential issues within the project study area; therefore, any additional information that is made available from future community outreach efforts will be taken into consideration in project development.

# 4.15.3 Environmental Consequences, Impacts, and Mitigation Measures

## 4.15.3.1 No-Build Alternative

### Construction Impacts

The No-Build Alternative would not involve new transportation or infrastructure improvements aside from projects currently under construction or funded for future construction. Therefore, the No-Build Alternative would have no construction impacts on parklands and community facilities.

### Operational Impacts

#### Direct Impacts

The No-Build Alternative would not include any new transportation infrastructure, construction, or major service changes beyond what is identified in Metro's 2009 Long Range Transportation Plan (LRTP) and Southern California Association of Governments (SCAG) 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). This alternative would not result in the physical acquisition, displacement, or relocation of parklands and community facilities, or result in the disturbance of these facilities from noise, air quality, traffic, or visual impacts.

#### Indirect Impacts

The No-Build Alternative would not indirectly induce growth or result in access changes that would affect the demand and use of parklands and community facilities, or that would affect the service ratios, response times, or performance objectives of public services.

Under this alternative, existing Metro Rapid and Local bus service would continue to operate along the project corridor, and existing or planned pedestrian and bicycle projects would continue to be implemented on Van Nuys Boulevard and connecting east/west facilities. Therefore, the No-Build Alternative would not result in changes to existing or planned pedestrian and bicycle access, access to public transportation, or vehicular access to parklands or community facilities in the project study area, and would not result in changes to emergency vehicle access.

This alternative, however, would not achieve the improvements in circulation within the existing community that would result from the proposed build alternatives. Community access would likely continue to deteriorate with increasing regional traffic congestion expected between now and 2040, resulting in a long-term reduction in access to parklands and community facilities and reduced emergency vehicle access.

### Cumulative Impacts

Per CEQA Section 15130 (b), the cumulative impacts analysis can consider either a "list of past, present, and probable future projects producing related or cumulative impacts" or "a summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect." The cumulative impacts analysis below and for the other alternatives evaluated in this section are based on the approach that considers the cumulative projects, which are listed in Table 2-3 in Chapter 2.

The study area for the cumulative impacts analysis for all of the alternatives in this section consists of the service areas of the parklands and community facilities that serve the project site or would be affected by the proposed project. In general, the cumulative impacts study area encompasses the neighborhoods and communities adjacent to the project corridor.

Under the No-Build Alternative, there would be no impacts on parklands and community facilities; therefore, this alternative would not contribute to any cumulative impacts on parklands and community facilities.

### Mitigation Measures

#### Construction Mitigation Measures

No construction mitigation measures are required.

#### Operational Mitigation Measures

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### NEPA Finding

No adverse effects under NEPA would occur.

#### CEQA Determination

No impacts under CEQA would occur.

## 4.15.3.2 TSM Alternative

### Construction Impacts

The TSM Alternative may include minor bus stop and roadway improvements as well as operational enhancements to the bus system. Given the very limited extent of potential physical improvements, construction activities would likely have no or very minimal impacts on any nearby parklands and community facilities.

### Operational Impacts

#### Direct Impacts

The TSM Alternative would provide more frequent Metro Rapid and Local bus service in the project corridor to improve access for transit dependent populations and enhance mobility. The TSM Alternative would require only minor improvements to transportation infrastructure. Construction or expansion of an MSF would not be required under the TSM Alternative. The Metro Rapid Line 761 and Local Line 233 bus routes would retain existing stop locations, and the existing stops along San Fernando Road would remain unchanged. Therefore, no right-of-way acquisitions would be required and this alternative would not result in the physical acquisition, displacement, or relocation of parklands and community facilities, or result in the substantial disturbance of these facilities from noise, air quality, traffic, or visual impacts.

The alternative would not interfere with an emergency response or evacuation plan or require a new plan.

#### Indirect Impacts

The TSM Alternative would not induce substantial population growth or affect existing land uses such that service ratios or response times would be adversely affected. More frequent bus service may require additional drivers, thereby providing additional employment opportunities; however, the number of new jobs would be relatively small and a substantial employment base and residential population currently exist in the San Fernando Valley. Therefore, the employment opportunities would not induce substantial population growth in the project study area and increase the demand for and use of public services and community facilities.

Enhanced service frequencies would increase local and regional connectivity to parklands and community facilities in the project study area, which could result in increased use of these facilities. However, the project corridor is in an urbanized area with substantial recreational facilities in surrounding areas. Because there are facilities in surrounding areas, this alternative is unlikely to draw substantial numbers of visitors from those areas to the project study area. Therefore, the TSM Alternative would not result in the substantial deterioration of facilities in the project study area, or require the construction of new or expansion of existing parks and community facilities.

### Cumulative Impacts

The TSM Alternative would have no or negligible adverse effects on parklands and community facilities. As a consequence, the TSM Alternative would not contribute in any appreciable way to cumulative impacts on parklands and community facilities that might occur due to other projects in the study area. Therefore, the TSM Alternative would not result in a cumulatively considerable contribution to a significant cumulative impact.

### Mitigation Measures

#### Construction Mitigation Measures

No construction mitigation measures are required.

#### Operational Mitigation Measures

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### NEPA Finding

Effects under NEPA would not be adverse or would be beneficial.

#### CEQA Determination

Impacts under CEQA would be less than significant or beneficial.

# 4.15.3.3 BRT Alternatives (Alternatives 1 and 2)

## Alternative 1 – Curb-Running BRT

### Construction Impacts

#### *Direct Impacts*

*Physical Acquisition, Displacement, or Relocation of Parklands and Community Facilities*

Alternative 1, the Curb-Running BRT Alternative, would not require the physical acquisition, displacement, or relocation of parklands or community facilities during construction.

*Noise, Air Quality, Traffic, and Visual Impacts on Parklands and Community Facilities*

Construction activities associated with Alternative 1 are expected to last approximately 18 months and would result in noise, dust, odors, and traffic delays resulting from haul trucks and construction equipment in public streets and staging areas. These temporary impacts could adversely affect the recreational values of adjacent parklands or could cause disturbance to community facilities that are sensitive to these impacts, such as schools, libraries, hospitals, daycare facilities, and senior facilities. As described in Sections 4.6 and 4.8 of this EIS/EIR, respectively, localized air quality impacts and noise impacts on nearby sensitive uses during construction of Alternative 1 would be significant under CEQA and adverse under NEPA. Odor impacts during construction would be minor.

Construction of the build alternatives may also result in visual impacts on viewers from parklands and community facilities within and surrounding the project corridor, which could adversely affect the aesthetic value of these resources. Views of construction areas could be possible from parklands and community facilities on some of the adjacent parcels, either directly through fencing, through entrance gates, or over fencing from second story and higher windows. Construction activities at staging areas and construction sites may introduce considerable heavy equipment such as cranes and associated vehicles, including bulldozers, backhoes, graders, scrapers, and trucks, into the view corridor of public streets, sidewalks, and properties. In addition, mature vegetation, including trees, could temporarily or permanently be removed from some areas. These visual impacts on nearby visually sensitive uses (see Section 4.5 for additional details on potential visual impacts) would be significant under CEQA and adverse under NEPA; however, they would be reduced to less-than-significant or not adverse levels with implementation of proposed mitigation measures (measures listed in Section 4.5).

#### *Indirect Impacts*

*Induced Population Growth and Increased Demand for Parklands and Community Facilities*

Construction of Alternative 1 would not be expected to result in substantial changes to the existing population in the project study area. A substantial employment base and residential population currently exist in the San Fernando Valley within commuting distance of the project corridor, and the employment opportunities, which would be temporary, would not be expected to result in a substantial migration of additional residents to the project study area and induce substantial population growth in communities and neighborhoods in the project study area.

Proposed new bus stops and BRT patrons could be targets for vandalism and crime, which could result in a potential increase in the demand for police or fire protection services. However, the project corridor is currently a transportation corridor served by bus lines with a number of existing bus stops.

In the event of an emergency or safety/security incident on Metro property, personnel from the Transit Services Bureau of LASD would be responsible for responding with assistance provided by LAPD, as needed. Additionally, all Metro facilities (e.g., bus stops and stations) would be designed in accordance with Metro Design Criteria including Fire/Life Safety Design Criteria. Consequently, the proposed Curb-Running BRT Alternative would not substantially increase the demand for police or fire protection services and it would not require the construction of new police or fire protection facilities.

*Changes in Access to Parklands and Community Facilities*

Construction of stations and the alignment would require temporary sidewalk, lane, and road closures, and temporary removal of parking on Van Nuys Boulevard, San Fernando Road, Truman Street, and their cross streets. These closures would reduce pedestrian, bicycle, and vehicle access to parklands and community facilities along the project corridor during construction. However, alternative routes would be provided and the impacts would be temporary. Therefore, the impacts of Alternative 1 on access would be less than significant under CEQA and would not be adverse under NEPA.

Lane and/or road closures would be scheduled to minimize disruptions, and a Traffic Management Plan would be approved, in coordination with both the Cities of Los Angeles and San Fernando, prior to construction. With the implementation of a Traffic Management Plan, including traffic control measures such as providing detours, displaying detour signage, and/or using traffic control flaggers to direct traffic around the construction site, access to parklands and community facilities would be maintained during construction and these temporary impacts would be less than significant under CEQA and would not be adverse under NEPA.

### Operational Impacts

### *Direct Impacts*

*Physical Acquisition, Displacement, or Relocation of Parklands and Community Facilities*

The Curb-Running BRT Alternative would not result in the physical acquisition, displacement, or relocation of parklands and community facilities to implement the proposed transportation improvements.

*Noise, Air Quality, Traffic, and Visual Impacts on Parklands and Community Facilities*

This alternative would include new and upgraded bus stations, and the installation of dedicated curbside BRT lanes. The BRT vehicles would be similar to existing Metro buses. While there would be some modifications to the project corridor (e.g., changes in bicycle lanes and loss of curbside parking), the project corridor is an existing transportation route with ongoing bus transit service. The proposed BRT operations would be consistent with existing transportation uses, and would not result in substantial noise, air quality, traffic, or visual impacts that would adversely affect the recreational or aesthetic values of adjacent parklands, or that would cause disturbance to community facilities that are sensitive to these impacts, such as schools, libraries, hospitals, daycare facilities, and senior facilities.

### *Indirect Impacts*

*Induced Growth and Increased Demand for Parklands and Community Facilities*

This alternative would not include the development of new housing or businesses that would directly induce population growth. The Curb-Running BRT Alternative would generate additional permanent employment opportunities for bus drivers; however, the number of jobs would be relatively few and a substantial employment base and residential population currently exist in the San Fernando Valley. Therefore, the employment opportunities provided by this alternative are not be expected to result in a substantial migration of additional residents to the project study area.

The Curb-Running BRT Alternative could indirectly affect growth and development in the project study area by promoting planned development and redevelopment near station areas. The type of development expected around station areas would most likely be Transit-Oriented Development (TOD), which is mixed-use residential and commercial development designed to maximize access to public transport. The Curb-Running BRT Alternative may also attract businesses from other areas of the region to the immediate areas surrounding the proposed stations. However, because this alternative would be located in an urban area containing a limited number of vacant or underutilized parcels, this alternative would not be expected to substantially change existing growth and development patterns. The Curb-Running BRT Alternative is also intended to accommodate future population growth that has already been projected in the region, and any development that could result around station areas is anticipated to be consistent with these current growth projections. Therefore, it’s not expected that any induced growth due to this alternative would substantially increase the demand for parklands and community facilities and require the construction of new facilities to meet that demand. Impacts would be less than significant under CEQA and would not be adverse under NEPA.

*Changes in Access to Parklands and Community Facilities*

The Curb-Running BRT Alternative would increase local and regional connectivity to parklands and community facilities in the project study area, which has the potential to result in increased use of these facilities. However, the project corridor is in an urbanized area with substantial recreational facilities in surrounding areas. Because there are facilities in surrounding areas, this alternative is unlikely to draw substantial numbers of visitors from those areas to the project study area. Therefore, potential effects from increased accessibility are not expected to be substantial enough to result in the substantial deterioration of facilities in the project study area, or to require the construction or expansion of facilities.

Under this alternative, all current motor vehicle turns into and out of cross streets and driveways would be maintained, and no changes would be made to existing turning movements. However, all curbside parking would be prohibited on Van Nuys Boulevard and San Fernando Road, which could require vehicles to park further away from parklands and community facilities. On-street parking would still be available on side streets near the project corridor, and many parklands and community facilities may have dedicated parking lots that would provide sufficient off-street parking. Under this alternative, parking demand may spill over into adjacent residential neighborhoods, resulting in decreased parking availability for nearby residences. However, more people may be using transit as a result of the project, which would reduce the need for parking. Furthermore, curbside parking on Van Nuys Boulevard may be permitted during nighttime non-peak hours.

Under this alternative, current pedestrian movements across roadways would be maintained, including all existing mid-block crossing opportunities. In addition, all current Metro Rapid Bus stops would be upgraded and would include design enhancements that would be ADA compliant. Other modifications to the curb lanes to accommodate the BRT improvements would also comply with ADA guidelines. Therefore, pedestrian access to parklands and community facilities would be maintained under this alternative.

The existing Class II bike lanes on Van Nuys Boulevard north of Parthenia Street would be removed. However, typical bicycle accommodations would be provided at BRT stations and on buses, including bicycle racks to provide options for passengers to leave their bicycles at the stations or to bring them onto buses. Therefore, although bicycles would need to share a lane with other vehicles along the project corridor, the ability for bicyclists to access areas in the project corridor would be retained under this alternative.

Under the Curb-Running BRT Alternative, existing mixed-flow lanes would be converted to dedicated BRT lanes, which would result in additional roadway congestion due to the decreased roadway capacity for mixed-flow traffic (see Chapter 3 for a detailed discussion of traffic impacts).

This increased roadway congestion could reduce access for emergency vehicles. However, given emergency vehicles would be able to use the BRT lane for access to avoid congested mixed-flow lanes and the fact that alternate routes exist within the project corridor, the impacts would be less than significant under CEQA and would not be adverse under NEPA.

### Cumulative Impacts

Other present and reasonably foreseeable future projects in the area, including the cumulative projects in Table 2-3, could result in temporary impacts from construction activities, and impacts from past projects may also have resulted in temporary impacts. However, because these impacts are temporary, cumulative impacts would be less than significant. Alternative 1 would result in no impacts related to the physical acquisition, displacement, or relocation of parkland and community facilities. During construction, the build alternatives could result in substantial adverse effects and significant impacts under NEPA and CEQA related to noise, air quality, traffic, and visual impacts from construction activities and equipment; and reduced access and delayed emergency response resulting from temporary sidewalk, lane, and road closures, and temporary removal of parking. Construction effects and impacts would be reduced or minimized through construction management and abatement measures, as detailed below (Construction Mitigation Measures) and in Sections 4.5-Visual Quality and Aesthetics, 4.6-Air Quality, 4.8-Noise and Vibration, and Chapter 3-Transportation, Transit, Circulation, and Parking. In addition, effects and impacts under Alternative 1 would be short-term and temporary, and with the implementation of mitigation measures, the project's contribution to noise, traffic, and visual cumulative impacts would be reduced to levels that would not be cumulatively considerable under NEPA and CEQA. Because construction air quality impacts would remain significant and unavoidable after implementation of mitigation measures, the project's contribution to cumulative air quality impacts on users of parklands along the project corridor would remain cumulatively considerable after mitigation.

Past projects have resulted in localized air quality, traffic, or noise impacts, and other present or reasonably foreseeable future projects in the area, including those listed in Table 2-3, could further degrade air quality, traffic, and noise conditions in the area, which could adversely affect parklands and communities facilities. Therefore, cumulative impacts from past, present, and reasonably foreseeable future projects are significant. During operation, Alternative 1 would result in no or negligible air quality, traffic, or noise impacts on parklands and community facilities. Consequently, this alternative's contribution to cumulative impacts would not be cumulatively considerable.

Past projects have resulted in substantial growth impacts in the area, and other present or reasonably foreseeable future projects in the area could further result in growth impacts that could adversely affect parklands and communities facilities. Therefore, cumulative impacts from past, present, and reasonably foreseeable future projects are considered to be potentially significant. The build alternatives would not result in adverse effects under NEPA, and impacts that are less than significant under CEQA, related to induced population growth around station areas. The project corridor is in an urbanized area containing a limited number of vacant or underutilized parcels. Therefore, the build alternatives would not be expected to change existing growth and development patterns substantially. In addition, the build alternatives are intended to accommodate future population growth that has already been projected in the region, and any development that could result around station areas is anticipated to be consistent with these current growth projections. Consequently, the build alternatives' contribution to cumulative growth impacts would not be cumulatively considerable.

Related projects in the project study area include housing and mixed-use development, which could result in population growth and consequently the increased use of parklands and facilities. However, developers of housing and mixed-use projects in the study area would be required to pay fees for park improvements, in accordance with the Quimby Act, to ensure that there are adequate parklands to serve the additional residents resulting from development projects. In addition, the jurisdictions in the project study area have plans to increase recreational opportunities and facilities, including through the implementation of the City of Los Angeles "50 New Parks Initiative", discussed above in Section 2.3.1 (Parklands and Open Space), and the City of San Fernando Pacoima Wash Greenway Project, discussed above in Section 2.1.3 (Local Regulations). With the availability of additional recreational opportunities, there would be sufficient recreational opportunities to accommodate any increase in residents and visitors to the facilities. Therefore, cumulative impacts from past, present, and reasonably foreseeable future projects would be less than significant. The build alternatives would not result in adverse effects under NEPA, and impacts that are less than significant under CEQA, related to increased regional access to parklands and community facilities, which has the potential to result in the increased use of these facilities. However, given the project corridor is in an urbanized area with substantial existing recreational facilities, in addition to planned facilities, in surrounding areas, and because this and the other build alternatives are unlikely to draw substantial numbers of visitors from those areas to the project study area, the project's contribution to cumulative impacts due to increased use of parklands would not be cumulatively considerable.

Under Alternative 1, the conversion of mixed-flow lanes to dedicated lanes or guideways for transit vehicles would increase congestion and reduce access for emergency vehicle response. However, given emergency vehicles would be able to use the BRT lane for access to avoid congested mixed-flow lanes and the fact that alternate routes exist within the project corridor, the impacts would be less than significant under CEQA and would not be adverse under NEPA. As a result, any adverse impacts from Alternative 1 would not be considered cumulatively considerable.

### Mitigation Measures

The reader is referred to the following sections in this EIS/EIR for mitigation measures to reduce or avoid potential construction and operational impacts on parklands and community facilities Chapter 2-Transportation, Transit, Circulation, and Parking; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security. These measures include measures to maintain access to parklands and community facilities, detours, design and location of project elements to avoid obstructing views to and from parklands, requirements for use of equipment and methods to reduce air quality emissions, attenuation of noise and vibration impacts to the extent feasible by use of alternate equipment or methods, or use of noise and vibration reducing track, and coordination with public safety and transit providers to ensure access to parklands and community facilities. During project operation and construction, these measures would minimize direct impacts that could adversely affect the quality of the human environment with respect to parklands and community facilities.

## Impacts Remaining After Mitigation

### *NEPA Finding*

Effects would not be adverse.

### *CEQA Finding*

All potential impacts would be less than significant with the exception of potential construction air quality impacts on parklands and community facilities, which would remain significant after implementation of proposed mitigation measures to reduce the amount of pollutant emissions.

## Alternative 2 – Median-Running BRT

### Construction Impacts

Construction impacts would be similar to those described above for Alternative 1, though would occur over approximately 24 months.

### Operational Impacts

Operational impacts would be similar to those described above for Alternative 1. However, under this alternative, and unlike Alternative 1, the median BRT lanes would be barrier separated from adjacent mixed-flow traffic lanes. The barriers would further reduce access by limiting turning movements across the corridor, and would prevent emergency vehicles from readily using the BRT lane to avoid congestion in adjacent lanes. As described in detail in Chapter 3, this alternative would also result in increased congestion and significant impacts at study intersections along the corridor due to the reduction in mixed-flow lanes. As a consequence and because of the reduced access, impacts on emergency vehicle access would be significant.

Additionally, the additional turning movement restrictions under Alternative 2 would reduce access to local community facilities. Left turns from Van Nuys Boulevard onto cross streets would be maintained at most of the currently signalized intersections; however, dual left-turn lanes would be reduced to a single left-turn lane, and several left-turn lanes in the Van Nuys Civic Center, between Calvert Street and Hartland Street, would be prohibited to accommodate median bus stop platforms, which would affect vehicle access to two hospitals and medical facilities: Valley Community Counseling, 6201 Van Nuys Boulevard, Van Nuys (S-1, CF-3); and Northeast Valley Health Corporation, 6551 Van Nuys Boulevard, Van Nuys (S-1, CF-25). Unless otherwise prohibited because of oncoming traffic, U-turns would be allowed from signalized left-turn lanes on Van Nuys Boulevard; therefore, vehicles that need to turn left to access parklands and community facilities would continue to have access through U-turns from signalized left-turn lanes. Therefore, the access impacts would be less than significant under CEQA and would not be adverse under NEPA.

## Cumulative Impacts

The cumulative impacts that could occur due to implementation of Alternative 2 would be similar to those described above for Alternative 1.

## Mitigation Measures

The reader is referred to the following sections in this EIS/EIR for mitigation measures to reduce or avoid potential construction and operational impacts on parklands and community facilities: Chapter 2-Transportation, Transit, Circulation, and Parking; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security. These measures include measures to maintain access to parklands and community facilities, detours, design and location of project elements to avoid obstructing views to and from parklands, requirements for use of equipment and methods to reduce air quality emissions, attenuation of noise and vibration impacts to the extent feasible by use of alternate equipment or methods, or use of noise and vibration reducing track, and coordination with public safety and transit providers to ensure access to parklands and community facilities. During project operation and construction, these measures would minimize direct impacts that could adversely affect the quality of the human environment with respect to parklands and community facilities.

## Impacts Remaining After Mitigation

### *NEPA Finding*

The operational effects of Alternative 2 on emergency vehicle access would be adverse after mitigation. All other effects would not be considered adverse.

### *CEQA Finding*

The construction air quality impacts on parklands and community facilities would remain potentially significant after implementation of proposed mitigation measures. The operational impacts of Alternative 2 on emergency vehicle access would be significant after implementation of proposed mitigation measures due to increased congestion at corridor intersections and the median barrier proposed under this alternative. All other impacts would be less than significant.

# 4.15.3.4 Rail Alternatives (Alternatives 3 and 4)

## Alternative 3 – Low-Floor LRT/Tram

### Construction Impacts

More extensive construction would be required to construct Alternative 3 facilities, which would include the OCS, TPSSs, and an MSF, than would be required for the BRT alternatives. Construction of this alternative would last approximately 4 years. Although construction impacts may be more extensive, they would be generally similar to those described above for the BRT alternatives.

### Operational Impacts

The operational impacts of Alternative 3 would be generally similar to those described above for Alternative 2, the Median-Running BRT Alternative, with the exceptions noted below.

#### *Direct Impacts*

*Noise, Air Quality, Traffic, and Visual Impacts on Parklands and Community Facilities*

Alternative 3 would result in higher noise levels and greater impacts on nearby land uses than would occur under the BRT alternatives described above. Local parklands and community facilities could be adversely affected by these higher noise levels. However, as described in the Noise and Vibration section (see Section 4.8) of this EIS/EIR, although parklands or community facilities could experience higher noise levels, the predicted increases are not expected to result in significant noise impacts.

Under this alternative, no substantial changes in aesthetic character would result from this alternative along the majority of the project corridor. This alternative, however, would require a number of elements to support vehicle operations, including median fences, an OCS, TPSSs, signaling, a pedestrian bridge at the Sylmar/San Fernando Metrolink Station, and an MSF, which could adversely affect the aesthetic value of parklands and community facilities. These additional elements would result in substantial changes to the aesthetic character of some areas along the project corridor, especially in residential and recreational areas, and along the San Fernando Mall on San Fernando Road between Kittridge Street and San Fernando Mission Boulevard. In the San Fernando Mall area, San Fernando Road narrows from a four-lane roadway (two lanes in each direction) to a two-lane roadway (one lane in each direction), and buildings are located relatively close to the roadway, making this area more pedestrian-oriented than other areas along the project corridor. One community facility, the San Fernando Dental Center, at 125 South Brand Boulevard, San Fernando (S-6, CF-81), is located in the San Fernando Mall area of the project corridor.

The following parks are also in proximity to the proposed improvements and could be affected by visual changes from this alternative:

- Blythe Street Park, 14740 Blythe Street, Van Nuys: This park is in proximity to the proposed MSF site at Arminta Street.
- Tobias Avenue Park, 9122 Tobias Avenue, Panorama City: This park is adjacent to the project corridor on Van Nuys Boulevard to the north of Nordhoff Street.
- Pacoima Wash Greenway: This greenway is a future proposed project that crosses under the project corridor south of Van Nuys Boulevard and Arleta Avenue, and at San Fernando Road to the south of La Rue Street in San Fernando.

The median fences, OCS, and pedestrian bridge at the Sylmar/San Fernando Metrolink Station, in particular, would introduce additional vertical elements that could substantially change the existing visual character and quality in these areas of the project corridor, especially for residents, pedestrians, and bicyclists, who would be expected to have high viewer sensitivity to their surroundings. Therefore, changes in aesthetic character from the Low-Floor LRT/Tram Alternative would be expected to be substantial in areas where sensitive viewers are located. Potential impacts on aesthetic character from the Low-Floor LRT/Tram Alternative are also addressed in more detail in Section 4.5 of this EIS/EIR and in the Visual Quality and Aesthetics Impacts Report (see Appendix K). The visual impacts on sensitive viewers at local parklands or community facilities could be significant under CEQA and adverse under NEPA.

### *Indirect Impacts*

#### *Changes in Access to Parklands and Community Facilities*

To implement Alternative 3, the Low-Floor LRT/Tram Alternative, restrictions on motor vehicle movements would be required to allow for the reconfiguration of the roadway and reduced number of travel lanes necessary to accommodate the Low-Floor LRT/Tram facilities or eliminate vehicle conflicts. Left turns from Van Nuys Boulevard onto cross streets would be maintained at most of the currently signalized intersections; however, all movements across the median at currently unsignalized intersections would be blocked by a median fence, including left turns from Van Nuys Boulevard, as well as left turns and through traffic from side streets and private driveways.

Motorists who desire to make a left turn onto an unsignalized cross street or into a driveway would have to make a U-turn at a signalized left-turn location or choose a route that would allow them to use a signalized cross street. In addition, most of the left turns would be prohibited from San Fernando Road through the City of San Fernando where a median dedicated guideway for the Low-Floor LRT/Tram vehicle is proposed between the Sylmar/San Fernando Metrolink Station and Wolfskill Street. In addition, to maintain the pedestrian-oriented retail character of San Fernando Road between San Fernando Mission Boulevard and Chatsworth Drive, through traffic would be forced off San Fernando Road on the block between Maclay Avenue and Brand Boulevard by turn restrictions. All existing turning movements would be maintained on San Fernando Road between Wolfskill Street and Van Nuys Boulevard where the Low-Floor LRT/Tram would share travel lanes with motor vehicles. These restrictions on vehicle movements could affect vehicle access to the following community facilities located in this area:

#### Hospitals and Medical Facilities:

- San Fernando Acupuncture Clinic, 820 San Fernando Road, San Fernando;
- Santa Maria Dental Center, 1230 San Fernando Road, San Fernando; and
- Northeast Valley Health Corporation, 1600 San Fernando Road, San Fernando.

#### Schools:

- Lakeview Charter Academy, Serving 215 students, 1445 Celis Street, San Fernando (effects on vehicle circulation pattern from San Fernando Road).

While restrictions on vehicle movements and loss of parking may present an inconvenience for vehicles traveling along the project corridor, vehicles would continue to have access to either side of the roadway at signalized intersections, and mobility and access by public transit would be enhanced under the Low-Floor LRT/Tram Alternative; therefore, access would be maintained under this alternative, and no substantial impacts would be expected.

As a consequence of the reduced access and because of the increased congestion that would occur along the corridor due to the reduction in the mixed-flow lanes, impacts on emergency vehicle access would be potentially significant.

### Cumulative Impacts

The cumulative impacts that could occur due to implementation of Alternative 3 would be similar to those described above for Alternatives 1and 2. However, Alternative 3 would result in potentially significant operational visual impacts because it would introduce new vertical structures, such as the OCS that could obstruct views to and from parklands along the alignment. Past projects have resulted in a highly urbanized landscape along the project corridor from the construction of buildings, transportation infrastructure, and other structures that have adversely affected scenic vistas, scenic resources, and visual character and quality. In addition, other present or reasonably foreseeable future projects in the area could further degrade the visual character and quality of the area, although that is unlikely since the related projects consist of infill development projects that would not result in drastic changes to the existing visual character of the corridor or introduce new elements that would obstruct views. However, because impacts from Alternative 3 would remain significant after implementation of mitigation measures, the alternative's contribution to cumulative visual impacts on parklands and community facilities during operation would be cumulatively considerable, unlike the BRT alternatives.

### Mitigation Measures

The reader is referred to the following sections in this EIS/EIR for mitigation measures to reduce or avoid potential construction and operational impacts on parklands and community facilities: Chapter 2-Transportation, Transit, Circulation, and Parking; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security. These measures include measures to maintain access to parklands and community facilities, detours, design and location of project elements to avoid obstructing views to and from parklands, requirements for use of equipment and methods to reduce air quality emissions, attenuation of noise and vibration impacts to the extent feasible by use of alternate equipment or methods, or use of noise and vibration reducing track, and coordination with public safety and transit providers to ensure access to parklands and community facilities. During project operation and construction, these measures would minimize direct impacts that could adversely affect the quality of the human environment with respect to parklands and community facilities.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The potential construction air quality impacts on parklands and community facilities would remain adverse after implementation of proposed mitigation measures. The operational effects of Alternative 3 on emergency vehicle access and visual impacts on sensitive viewers at parklands or community facilities would be adverse after mitigation. All other effects would not be considered adverse.

#### *CEQA Finding*

The potential construction air quality impacts on parklands and community facilities would remain significant after implementation of proposed mitigation measures. The operational impacts of Alternative 3 on emergency vehicle access and visual impacts on sensitive viewers would be significant after implementation of proposed mitigation measures. All other impacts would be less than significant.

## Alternative 4 – LRT

### Construction Impacts

Alternative 4 would require the most extensive construction of the four build alternatives because of the subway portion of the alignment. Construction of Alternative 4 would last approximately 5 years. Similar to Alternative 3, the LRT Alternative would include construction of OCS, TPSSs, and MSF structures. Those structures or facilities would not be required for the BRT alternatives. As a consequence, Alternative 4 would result in the greatest construction impacts, compared to the other alternatives, but the types and level of significance of the impacts would be generally similar to those described above for Alternative 3.

### Operational Impacts

The operational impacts of Alternative 4 would be generally similar to those described above for Alternative 3, with the exceptions noted below.

#### *Direct Impacts*

*Noise, Air Quality, Traffic, and Visual Impacts on Parklands and Community Facilities*

The operational noise and traffic impacts would be less than Alternative 3 because the subway portion (south of Sherman Way to Parthenia Street) of the Alternative 4 alignment would avoid the at-grade impacts of Alternative 3.

Under Alternative 4, no substantial changes in aesthetic character would result from this alternative along the majority of the project corridor. This alternative, however, would require a number of elements to support vehicle operations, including median fences, an OCS, TPSSs, signaling, a pedestrian bridge at the Sylmar/San Fernando Metrolink Station, and an MSF, which could adversely affect the aesthetic value of parklands and community facilities. These additional elements would result in substantial changes to the aesthetic character of some areas along the project corridor, especially in residential and recreational areas, as well as along the Mission City Trail, a bike path in the Metro-owned railroad right-of-way in the City of San Fernando that would run parallel and adjacent to the light rail alignment. One preschool, KinderCare, at 2100 Frank Modugno Drive, San Fernando (S-6, CF-100), is adjacent to this portion of the alignment.

The following parks are also in proximity to the proposed improvements and could be affected by visual changes from this alternative:

- Blythe Street Park, 14740 Blythe Street, Van Nuys: This park is in proximity to the proposed MSF site at Arminta Street.
- Tobias Avenue Park, 9122 Tobias Avenue, Panorama City: This park is adjacent to the project corridor on Van Nuys Boulevard to the north of Nordhoff Street.
- Pacoima Wash Greenway: This greenway is a future proposed project that crosses under the project corridor south of Van Nuys Boulevard and Arleta Avenue, and at the Metro-owned railroad right-of-way to the south of La Rue Street in San Fernando.
- Recreation Park (and San Fernando Regional Pool Facility), 208 Park Avenue, San Fernando: The park and pool facility are adjacent to the project corridor at the Metro-owned railroad right-of-way and Park Avenue.

The median fences, OCS, and pedestrian bridge at the Sylmar/San Fernando Metrolink Station, in particular, would introduce additional vertical elements that could substantially change the existing visual character and quality in these areas of the project corridor, especially for residents, pedestrians, and bicyclists, who would be expected to have high viewer sensitivity to their surroundings. Therefore, changes in aesthetic character from the LRT Alternative would be expected to be substantial in areas where sensitive viewers are located. Potential impacts on aesthetic character from the Low-Floor LRT/Tram Alternative are also addressed in more detail in Section 4.5 of this EIS/EIR and in the Visual Quality and Aesthetics Impacts Report (see Appendix K). The visual impacts on sensitive viewers at local parklands or community facilities could be significant under CEQA and adverse under NEPA.

### *Indirect Impacts*

#### *Changes in Access to Parklands and Community Facilities*

Similar to Alternative 3, to implement the LRT Alternative, restrictions on motor vehicle movements would be required to allow for the reconfiguration of the roadway and reduced number of travel lanes necessary to accommodate the light rail facilities or eliminate vehicle conflicts. Left turns from Van Nuys Boulevard onto cross streets would be maintained at most of the currently signalized intersections; however, all movements across the median at currently unsignalized intersections would be blocked by a median fence, including left turns from Van Nuys Boulevard, as well as left turns and through traffic from side streets and private driveways. Motorists who desire to make a left turn onto an unsignalized cross street or into a driveway would have to make a U-turn at a signalized left-turn location or choose a route that would allow them to use a signalized cross street.

In addition to restrictions on vehicle movements, all curbside parking would be prohibited on Van Nuys Boulevard (except between Vose Street and Parthenia Street where the LRT Alternative would be underground), which could require vehicles to park further away from parklands and community facilities. Under this alternative, vehicle movements and parking would be maintained along San

Fernando Road and Truman Street where the LRT alignment would run along the Metro-owned railroad right-of-way. On-street parking would still be available on side streets near the project corridor, and many parklands and community facilities may have dedicated parking lots that would provide sufficient off-street parking. Under this alternative, parking demand may spill over into adjacent residential neighborhoods, resulting in decreased parking availability for nearby residences. However, more people may be using transit as a result of the project, which could reduce the need for parking.

While restrictions on vehicle movements and loss of parking on Van Nuys Boulevard would present an inconvenience for vehicles traveling along the project corridor, vehicles would continue to have access to either side of the roadway at signalized intersections, and mobility and access by public transit would be enhanced under the LRT Alternative; therefore, access would be maintained under this alternative, and no substantial impacts would be expected.

As described in Chapter 3, this alternative would result in increased congestion and significant impacts at study intersection along the corridor due the reduction in the number of mixed-flow lanes. As a consequence and because of the reduced access, impacts on emergency vehicle access would be potentially significant.

### Cumulative Impacts

The cumulative impacts that could occur due to implementation of Alternative 4 would be similar to those described above for Alternative 3.

### Mitigation Measures

The reader is referred to the following sections in this EIS/EIR for mitigation measures to reduce or avoid potential construction and operational impacts on parklands and community facilities: Chapter 2-Transportation, Transit, Circulation, and Parking; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security. These measures include measures to maintain access to parklands and community facilities, detours, design and location of project elements to avoid obstructing views to and from parklands, requirements for use of equipment and methods to reduce air quality emissions, attenuation of noise and vibration impacts to the extent feasible by use of alternate equipment or methods, or use of noise and vibration reducing track, and coordination with public safety and transit providers to ensure access to parklands and community facilities. During project operation and construction, these measures would minimize direct impacts that could adversely affect the quality of the human environment with respect to parklands and community facilities.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The potential construction air quality effects on parklands and community facilities, operational effects on emergency vehicle access, and operational visual impacts on sensitive viewers at parklands or community facilities would be adverse after mitigation. All other effects would not be considered adverse.

#### *CEQA Finding*

The potential construction air quality impacts on parklands and community facilities, operational impacts on emergency vehicle access, and operational visual impacts on sensitive viewers would be significant after implementation of proposed mitigation measures. All other impacts would be less than significant.

# 4.16 Historic, Archaeological, and Paleontological Resources

## 4.16.1 Regulatory Framework and Methodology

### 4.16.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's cultural resources impacts are listed below. For additional information regarding these regulations, please see the Cultural Resources Impact Report in Appendix S of this Draft EIS/EIR.

#### Federal

The following federal regulations would be applicable to the proposed project:

- National Environmental Policy Act
- Section 106 of the National Historic Preservation Act (NHPA)
- National Register of Historic Places
- Code of Federal Regulations Part 800
- Archeological and Historic Preservation Act of 1974
- Archeological Resources Protection Act of 1979
- American Indian Religious Freedom Act of 1978
- Native American Graves Protection and Repatriation Act of 1990
- Executive Order 11593 (1971), Protection and Enhancement of the Cultural Environment
- Executive Order 13007 (1996), Protection and Preservation of Native American Sacred Sites
- Executive Order 13175 (2000), Consultation and Coordination with Indian Tribal Governments
- Executive Order 13287 (2003), Preserve America
- Antiquities Act

#### State

The following state regulations would be applicable to the proposed project:

- California Environmental Quality Act
- Public Resources Code
- State Health and Safety Code, Section 7050.5/California Public Resources Code, Section 5097.9

#### Local

The study area lies in the Cities of Los Angeles and San Fernando. NEPA and CEQA guide lead agencies to incorporate local designations in the review and evaluation of project effects. At the local level, the City of Los Angeles designates individual historical resources as Historic-Cultural

Monuments (LAHCM) and historic districts as Historic Preservation Overlay Zones (HPOZ). Also at the local level, the City of San Fernando designates Historic Resources, which are included in its San Fernando Register of Historic Resources. Local designations, including HCMs and HPOZs designated by the City of Los Angeles and Historic Resources designated by the City of San Fernando, have "presumptive significance" under CEQA, and mitigation measures are recommended to address any significant impacts on these resources.

The study area lies in the Cities of Los Angeles and San Fernando. Although the City of San Fernando has no guidelines concerning fossils, the City of Los Angeles has adopted a CEQA thresholds guide (CoLA 2006):

> If a project could disturb "surface or subsurface fossils, either through site preparation, construction or operational activities, or through an increase in human activities at or near the fossil site" then "an expanded Initial Study, Negative Declaration, Mitigated Negative Declaration, or EIR may be required" (CoLA 2006, page D. 1-2 section 1C).
>
> Potential mitigation measures for this project include (1) nonexcavation, or (2) retention of "a qualified paleontologist to monitor, and if necessary, salvage scientifically significant fossil remains", "divert grading efforts in the area of an exposed fossil to allow excavation and if necessary salvage of exposed fossils", and to "ensure that scientific specimens become the property of a public, nonprofit educational institution, such as the Los Angeles County Museum of Natural History" (now the Natural History Museum of Los Angeles County; CoLA 2006, page D. 1-5 section 2B).
>
> Additionally, the City of Los Angeles Public works Construction, Section 6-3.2 "Requires that grading, excavation, or other ground disturbing activities for a public project be halted in the area of a paleontological or archaeological find, until such time as a resource expert can review the find, determine its significance, and if required, determine appropriate mitigation measures" (CoLA 2006, page D. 1-8).

### 4.16.1.2 Methodology

#### Archaeological Resources

For the purposes of this project, a general study area for the NEPA and CEQA analyses and a smaller Area of Potential Effects (APE) for the Section 106 analysis were identified. The study area was the same broad area generally utilized for all environmental impacts analysis on this project, whereas a narrower APE was defined to solely identify known and potential cultural resources in the project area that have the potential to be physically or indirectly affected by the undertaking. For this project, a preliminary study area was identified for research and records search purposes and encompassed a one-half mile radius on either side of the proposed alignment areas.

Information on existing archaeological resources within the study area was gathered through the use of a cultural resources literature and records search. On October 6, 2011, ICF conducted a records search at the SCCIC located at California State University Fullerton. SCCIC is a branch of the California Historical Resources Information Center, which maintains the State of California's official records of previously recorded cultural resource studies and recorded archaeological sites. SCCIC maintains the records for Los Angeles and Orange Counties. The SCCIC records search included the project study area and a 0.5-mile buffer surrounding the project study area. In addition, the ICF cultural resources library and the following sources were consulted:

- National Register of Historic Places (NRHP);
- Historic Property Data Files;

- The California Register of Historical Resources (CRHR);
- California Historical Landmarks Database; and
- Los Angeles Historic-Cultural Landmarks Database.

Potential impacts to archaeological resources resulting from the project alternatives were evaluated by determining whether ground disturbing activities would affect areas that contain or could contain any archaeological sites listed in or eligible for listing in the NRHP or the CRHR, or that are archaeological resources designated as a City of Los Angeles Historic-Cultural Monument, or that are otherwise considered a unique or important archaeological resource under CEQA.

### Historic Resources

The following steps were used to identify known and potentially eligible historical resources within the project area that could be affected by the proposed project alternatives:

- Determine Scope of Identification Efforts and APE;
- Review Existing Information/Identification of Previously Recorded Properties;
- Seek Information from the Public/Interested Parties; and
- Identify and Evaluate Potential Historic Properties

Descriptions of these steps and the APE maps for historic resources are included in the Cultural Resources Impacts Report in Appendix S.

## 4.16.1.3 Significance Thresholds

### NEPA and Section 106

NEPA does not include specific significance thresholds. According to the Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of NEPA, the determination of significance under NEPA is based on context and intensity.[1] Context relates to the various levels of society where effects could result, such as society as a whole, the affected region, the affected interests, and the locality. The intensity of an effect relates to several factors, including the degree to which public health and safety would be affected; the proximity of a project to sensitive resources; and the degree to which effects on the quality of the human environment are likely to be highly controversial or involve unique or unknown risks.

However, Section 106 of the NHPA requires federal agencies that license or fund projects to consider the undertaking's effects on historic properties (and archaeological resources). Provided below are descriptions of the criteria that are used to determine whether an undertaking or project would result in an adverse effect on archaeological and historic resources under Section 106.

#### Archaeological Resources

An adverse effect is found on archaeological resources when an undertaking may alter, directly or indirectly, any of the characteristics of an archaeological resource that qualify the resource for inclusion in the NRHP because it:

[1] Code of Federal Regulations. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index*.

- Is associated with events that have made a significant contribution to the broad patterns of history;
- Is associated with the lives of persons significant in the past;
- Embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or
- Has yielded, or may be likely to yield, information important in prehistory or history.

### Historic Resources

An adverse effect is found on historic properties when an undertaking may alter, directly or indirectly, any of the characteristics of historic properties that qualify the resource for inclusion in the NRHP because it:

- Is associated with events that have made a significant contribution to the broad patterns of history;
- Is associated with the lives of persons significant in the past;
- Embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or
- Has yielded, or may be likely to yield, information important in prehistory or history.

According to 36 CFR 800.5(a)(1), an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property‘s location, setting, design, materials, workmanship, feeling, or association.

Examples of adverse effects on historic properties include, but are not limited to:

(i). Physical destruction of or damage to all or part of the property;

(ii). Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary’s Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;

(iii). Removal of property from its historic location;

(iv). Change of the character of the property’s use or of physical features within the property’s setting that contribute to its historic significance;

(v). Introduction of visual, atmospheric or audible elements that diminish the integrity of the property’s significant historic features;

(vi). Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

(vii). Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property’s historic significance.[2]

[2] 36 CFR 800.5(a)(2)(i through vii).

## CEQA

### Archaeological Resources

For the purposes of the analysis in the EIR, in accordance with Appendix G of the State CEQA Guidelines, the project would have a significant archaeological resources impact under CEQA if it would:

- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.
- Disturb any human remains, including those interred outside of formal cemeteries.

Section 15064.5(b) of Appendix G of the State CEQA Guidelines goes on to define "substantial adverse change," in relevant part, as follows:

1. Substantial adverse change in the significance of an historical resource, including significant archaeological resources, means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired.
2. The significance of an historical resource, including significant archaeological resources, is materially impaired when a project:
   A. Demolishes or materially alters in an adverse manner those physical characteristics of the resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR; or

   B. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register or historic resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historic resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically significant; or

   C. Demolishes or materially alters in an adverse manner those physical characteristics of the resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for the purposes of CEQA.

### Historic Resources

In enacting the CRHR in 1998, the Legislature amended CEQA to clarify which properties are significant, as well as which project impacts are considered to be significantly adverse:

> A project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment.[3]
>
> A substantial adverse change means demolition, destruction, relocation, or alteration of the resource such that the significance of a historical resource is materially impaired.[4]

[3] Public Resource Code Section 21084.1.
[4] Public Resource Code Section 5020.1(q).

The State CEQA Guidelines include a slightly different definition of "substantial adverse change:"[5]

> Substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource is materially impaired.[6]

The Guidelines go on to state that "the significance of a historic resource is materially impaired when a project demolishes or materially alters in an adverse manner those physical characteristics that convey its significance and that justify its inclusion in or eligibility for inclusion in the CRHR local register, or its identification in a historic resources survey."[7]

### Paleontological Resources

The State CEQA Guidelines do not describe specific significance thresholds. However, Appendix G of the State CEQA Guidelines lists a variety of potentially significant effects, which are often used as thresholds or guidance in developing thresholds for determining impact significance. Accordingly, for the purposes of this EIS/EIR, a project would normally have a significant impact on paleontological resources, under CEQA, if it would:

- Directly or indirectly destroy a unique paleontological resource or site.

Only qualified, trained paleontologists with specific expertise in the type of fossils being evaluated can determine the scientific significance of paleontological resources. Fossils are considered to be significant if one or more of the following criteria apply:

1. The fossils provide information on the evolutionary relationships and developmental trends among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life;
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

As so defined, significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or diagnostically important. Significant fossils can include remains of large to very small aquatic and terrestrial vertebrates or remains of plants and animals previously not represented in certain portions of the stratigraphy. Assemblages of fossils that might aid stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, and paleoclimatology are also critically important (Scott and Springer 2003; Scott et al. 2004).

[5] 14 CCR Section 15064.5(b)(2)(A)
[6] 14 CCR Section 15064.5(b)(2)(A).
[7] 14 CCR Section 15064.5(b)(2).

### *L.A. CEQA Thresholds Guide*

#### *Archaeological Resources*

According to the *L.A. CEQA Thresholds Guide*, a project would have a significant impact upon archaeological resources if it could disturb, damage, or degrade an archaeological resource or its setting that is found to be important under the criteria of CEQA because it:

- Is associated with an event or person of recognized importance in California or American prehistory or of recognized scientific importance in prehistory;
- Can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable archaeological research questions;
- Has a special or particular quality, such as the oldest, best, largest, or last surviving example of its kind;
- Is at least 100-years-old and possesses substantial stratigraphic integrity; or
- Involves important research questions that historical research has shown can be answered only with archaeological methods.

#### *Historic Resources*

The following factors are set forth in the *L.A. CEQA Thresholds Guide*, which states that a project would normally have a significant impact on historical resources if it would result in a substantial adverse change in the significance of an historical resource. A substantial adverse change in significance occurs if the project involves:

- Demolition of a significant resource;
- Relocation that does not maintain the integrity and (historical/architectural) significance of a significant resource;
- Conversion, rehabilitation, or alteration of a significant resource which does not conform to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings; or
- Construction that reduces the integrity or significance of important resources on the site or in the vicinity.

Therefore, the test for determining whether or not the project will have a significant impact on identified historical resources is whether it will materially impair the physical integrity of the historical resource such that it would no longer be listed in the NRHP or CRHR, or other landmark programs such as the list of Los Angeles Historic-Cultural Monuments.

#### *Paleontological Resources*

According to the *L.A. CEQA Thresholds Guide*, the determination of significance of impacts on paleontological resources shall be made on a case-by-case basis, considering the following factors:

- Whether, or the degree to which, the project might result in the permanent loss of, or loss of access to, a paleontological resources; and
- Whether the paleontological resource is of regional or statewide significance.

# 4.16.2 Affected Environment/Existing Conditions

## 4.16.2.1 Archaeological Resources

### Prehistoric Human Occupation

People have lived in California for more than 13,000 years and in the greater Los Angeles area for more than 9000 years Before Present (BP). The Topanga Complex is used to date sites within the San Fernando Valley. Treganza and Bierman identified two phases of the Topanga Complex, Phase I and Phase II, with their research at sites CA-LAN-1 and CA-LAN-2 in Topanga Canyon.[8] In 1966, K. Johnson identified a third phase based on his work at CA-LAN-2 and compiled dates for all three phases.[9] Michael Moratto summarizes the three phases in his 2004 study, California Archaeology.[10] Moratto's summary was used as the basis for the following discussion.

Phase I: Phase I began prior to 5000 BP. An abundance of millingstones and manos found at Phase I sites indicate that processing hard seeds was a major subsistence activity. Archaeological deposits also contain large stone tools such as scrapers, choppers, hammerstones, and projectile points. During Phase I, the deceased were interred under millingstones and secondary burials were common.

Phase II: Radiocarbon dates acquired from Phase II sites place them temporally between 5000 BP and 3000 BP. Phase II is distinguished from Phase I by the inclusion of small projectile points, incised and cogged stones, and fewer core tools than Phase I. Secondary burials continued into Phase II and extended burials oriented south were introduced.

Phase III: Phase III dates between 3000 BP and 2000 BP and is marked by the introduction of large, circular rock ovens and flexed burials. Additional tools found at Phase III sites include mortars, pestles, pressure flaked projectile points, core tools and millingstones.

### Native American Ethnography

The project study area lies within Gabrielino and Fernandeño ethnographic territories. The terms Gabrielino and Fernandeño refer to Native American groups historically associated with the San Gabriel and San Fernando Missions. Gabrielino and Fernandeño territory is not well defined, but generally believed to incorporate the watersheds of the Los Angeles, San Gabriel, and Santa Ana Rivers. It includes the entire Los Angeles Basin, the coast between Aliso Creek and Topanga Creek and the islands of San Clemente, San Nicholas, and Santa Catalina. The ancestors of the Gabrielinos and Fernandeños likely arrived in the Los Angeles Basin around 2500 B.P. as part of what Kroeber (1925)[11] referred to as the "Shoshonean Wedge." By 1500 B.P., permanent villages were built in the lowlands along rivers and streams. Over 50 villages may have been occupied simultaneously with populations between 50 and 200 people per village (Bean and Smith 1978).[12]

---

[8] Treganza, A.E. and A. Bierman. 1958. The Topanga Culture: Final Report on Excavations, 1948. Berkeley: *University of California Anthropological Records* 20(2):45-86.
[9] Johnson, K.L. 1966. LAN-2: A Late Manifestation of the Topanga Complex in Southern California Prehistory. Berkeley: *University of California Anthropological Records* 23:1-36.
[10] Moratto, Michael J. 2004. *California Archaeology*. Academic Press, Inc.
[11] Kroeber, A.L. 1925. Handbook of the Indians of California, Washington D.C.: *Smithsonian Institution, Bureau of American Ethnology Bulletin 78.*
[12] Bean L. J. and C.R. Smith. 1978. Gabrielino. In R.F. Heizer, vol. ed., *Handbook of North American Indians, Vol. 8., California*: 550-563. Washington D.C. Smithsonian Institute.

Gabrielino and Fernandeño houses were primarily domed, semi-subterranean, thatched structures of locally accessible materials including tule, fern, and carrizo. Principal game included deer, rabbit, fish, sea mammals, jackrabbit, woodrat, mice, ground squirrels, antelope, quail, and other birds. Acorns were the most important single food source and villages seem to have been located near water resources necessary for the leaching of acorns. Grass seeds were the next most abundant food source. Seeds were parched, ground, and cooked as a mush in various combinations. Additional food sources included various greens, cactus pods, yucca buds, bulbs, roots, and tubers. Tools for food acquisition, storage, and preparation included an inventory made from widely available materials. Hunting tools included shoulder-height bows with fire-hardened wood or stone-tipped arrows curved throwing sticks, rabbit nets, slings, and traps. Seeds were ground with handstones on shallow unshaped basin metates. The same granites were made into shaped or unshaped mortars and pestles for pounding acorns or small game. Coiled and twined baskets and steatite bowls were used in food gathering, preparation, storage, and serving. Other utensils for food preparation included wooden food paddles, brushes, tongs, tweezers, and wooden digging sticks.

## Historic Background

European settlement of California began with the founding of Mission San Diego de Alcala in 1769. Several expeditions into California followed and led to the establishment of the San Gabriel Mission in 1771 and the San Fernando Mission in 1797. Mexico, including Southern California, won independence from Spain in 1821. In 1848, following the Mexican-American war, the American Southwest, including the project study area, was ceded to the United States.

The project study area is located in the San Fernando Valley of Southern California. Van Nuys Boulevard and the associated City of Van Nuys, is named after Isaac Van Nuys, a senior partner of San Fernando Farm Homestead Association (SFFHA). In 1869, the SFFHA purchased former California Governor Pio Pico's interest in the Valley and sold it to the Los Angeles Suburban Home Association (LASHA). Senior members of the LASHA included Harry Chandler and Harrison Gray Otis of the Los Angeles Times, Moses Sherman, a streetcar line owner, and Hobart Johnstone Whitley, a real-estate promoter. The group subdivided the Valley into three cities: Van Nuys, Marian (now Reseda), and Owensmouth (now Canoga Park). Van Nuys was designed around the Pacific Electric Redline and marketed by the SFFHA as the "town that started right." The City joined the City of Los Angeles in 1915. The project study area experienced a population boom after World War II, where it became a popular suburb for returning GIs. In 1945, General Motors built an Assembly Plant in Van Nuys, which led to continued growth. Today, Van Nuys is home to over 60,000 people.

## Previously Identified Historical Resources

On October 6, 2011, ICF conducted a records search at the SCCIC located at California State University Fullerton. SCCIC is a branch of the California Historical Resources Information Center, which maintains the State of California's official records of previously recorded cultural resource studies and recorded archaeological sites. SCCIC maintains the records for Los Angeles and Orange Counties. The SCCIC records search included the project study area and a 0.5-mile buffer surrounding the project study area.

A review of SCCIC's records indicates that 56 previous cultural resource studies have been conducted within a 0.5-mile radius of the project alternatives. Approximately 25% of the project alternatives have been previously surveyed. Previous cultural resource studies have identified two archaeological sites within the project APE. Previous cultural resource studies have identified15 additional cultural resource within a ½ mile radius of the APE, of which 12 are built resources and three are prehistoric archaeological sites.

The two archaeological sites located in the APE are Site #19-001124, three historical archaeological features associated with the Southern Pacific Railroad, and Site #19-002681, a multi-component prehistoric and historical archaeological site. The subsurface extents of these archaeological sites have not been determined. Neither resource has been evaluated for the CRHR or the NRHP. These sites are located within the project ROW, and not within the proposed MSF sites.

Site #19-001124 encompasses three historical archaeological features associated with the circa 1874 Southern Pacific Railroad San Fernando Station, engine house, and turntable. All of these buildings had been removed and the site was a vacant lot when the site was recorded in 1982. Three features were recorded at that time (Howell 1982).

Feature A consisted of two parallel linear foundations, apparently associated with the engine house. Feature B, also associated with the engine house location, was a single course brick foundation remnant. Feature C consisted of a 73.5-foot diameter circular brick foundation on which the roundhouse tracks had been laid.

Site #19-002681 encompasses two brick features, a concentration of historical glass, and a diffuse scatter of historical and prehistoric artifacts (Knight 2001). The first brick feature is a small brick and mortar foundation made up of about 250 whole and fragmented bricks. The second brick feature consisted of a mixture of bricks and non-local granitic cobbles, and some ashy soils.

The historical glass concentration encompassed about 100 fragments of whiskey and medicine bottles. Features of the glass and the bottle finishes (tops) suggested they were 50 to 75 years old. Prehistoric items recovered included a metate fragment, a mano, a pestle, a hammerstone, a scrapper, and two flakes. Additional items that possibly were prehistoric included two possible groundstone or anvil fragments, a possible chopper, and three possible manuports.

## 4.16.2.2 Historic Resources

### Historical Context

The early history of the San Fernando Valley was characterized by Native American settlement, Spanish, and Mexican colonization during the late eighteenth century and first part of the nineteenth century, and agricultural development under U.S. governance in the late nineteenth century. The town of San Fernando was founded in 1874 and is the oldest City in the San Fernando Valley. The land that became the City of San Fernando was located within the holdings of the Mission San Fernando, founded in 1797. The mission itself was abandoned following secularization of the missions in the 1830s, and the land became ranchos. Charles Maclay founded San Fernando; he sold town lots as well as agricultural land.[13] After the arrival of the Southern Pacific Railroad in 1876, the agricultural economy, which was the cornerstone of the town, flourished. Land was devoted to citrus and olives, among other crops.[14]

The City of San Fernando, which incorporated in 1911, remained a separate City and refused annexation by Los Angeles. The City possessed its own deep water wells, which allowed it to maintain its independence and retaining a reliable source of water. The communities of Pacoima and Van Nuys were among those annexed to the City of Los Angeles after the completion of the Owens Valley Aqueduct. Pacoima was established in 1887 along the Southern Pacific Railroad. Its founder, Jouett

[13] Leonard Pitt and Dale Pitt, Los Angeles A to Z: An Encyclopedia of the City and County (Berkeley: University of California Press, 1997), 447.
[14] County of Los Angeles Public Library, “San Fernando Community History,” <http://www.colapublib.org/history/sanfernando/>. Accessed May 14, 2013.

Allen, purchased 1,000 acres of land from San Fernando founder Charles Maclay, and the land was soon devoted to agricultural purposes, including the growth of citrus, olives, and apricots. After annexation by Los Angeles and access to water from the Owens Valley Aqueduct, agriculture flourished. The area became known for its farms, poultry ranches, and thoroughbred horses.[15] This remained the case until after World War II.

Van Nuys developed on land originally owned by Isaac Newtown Van Nuys, a prominent wheat rancher. The Van Nuys family sold approximately 475,000 acres of land to the Los Angeles Suburban Homes Company in 1909. From the 1910s onward, the separate agricultural communities of the San Fernando Valley grew and merged into residential communities that were increasingly served and designed for automobile use. These communities remained largely agricultural and disparate until after World War II.[16] In the five years following the end of the war, the population of the San Fernando Valley more than doubled from 176,000 to 402,538.[17] The landscape of the San Fernando Valley changed rapidly. Residential neighborhoods replaced agricultural land, and home construction could not keep up with demand.

When World War II ended, the thousands of returning veterans, defense workers and their families created a huge demand not only for housing but for material goods and services. As a result, industrial production facilities in Los Angeles were expanded in order to meet those needs, primarily in the San Fernando Valley and near LAX; however, available land for industrial development was becoming more and more scarce. To solve this issue, the Industrial Association of the San Fernando Valley was formed, with the aim of rezoning farmland for industrial use. In the 1950s, they succeeded in rezoning over 7,000 acres along the Southern Pacific Railroad tracks through the San Fernando Valley.

The unprecedented growth of the San Fernando Valley – the population again doubled in the 1950s – caused congestion of its now outdated streets. In the late 1950s and 1960s, the construction of freeways through the San Fernando Valley helped alleviate traffic congestion. During this period, a shift towards development of multiple-family housing resulted.

Prior to the construction of the freeway system, a number of the major thoroughfares in the San Fernando Valley were laid out and utilized as highways. They were also designated as such. Ventura Boulevard was U.S. 101, Sepulveda Boulevard was State Route 7, and San Fernando Road was both U.S. 6 and State Route 99.[18] Ventura Boulevard was initially part of the El Camino Real, the route laid out by the Spanish to connect the missions in the mission system. It was widened by 70 feet in the 1920s to accommodate increased automobile traffic and was often utilized by commuters traveling between Los Angeles and the San Fernando Valley.[19] In the post-war period, it became an even more heavily traveled corridor lined with commercial development.

Van Nuys Boulevard was laid out by developers in the early twentieth century as a major north-south thoroughfare at the eastern end of the San Fernando Valley. Early on, Van Nuys Boulevard contained an electric railroad line, and it was increasingly used as an automobile route, resulting in the widening of the boulevard in the late 1950s. From its inception, commercial and entertainment uses gravitated to well-traveled Van Nuys Boulevard, including theatres, restaurants, shops, and recreational facilities. By the mid-century, large shopping plazas appeared, and automobile-related

[15] Pacoima Chamber of Commerce, "Pacoima's History," <http://www.pacoimachamber.com/pacoimas-history/> Accessed May 14, 2013.
[16] Roderick, 113.
[17] Roderick, 113 and 123.
[18] Roderick, 108.
[19] Roderick, 77 and 113.

commerce like car washes, drive-through diners, and dealerships were prevalent on Van Nuys Boulevard. The corridor also became the administrative and public services center for the San Fernando Valley, beginning with the establishment of important civic institutions during the 1920s and 1930s within the community of Van Nuys. This area became known as the Van Nuys Government Center. As the San Fernando Valley's population expanded and its communities grew during the postwar period, additional civic institutions, public utility buildings, health services, and government-financed public housing were constructed along Van Nuys Boulevard. In this way, Van Nuys Boulevard served as the San Fernando Valley's Main Street, and it became an outdoor "show room" for commercial and institutional architecture that was expressive of the development of the broader San Fernando Valley.

## Previously Identified Historical Resources

Within the study area, there are 15 individual properties that were previously recorded as historic properties/historical resources that are currently extant. Three of the 15 properties are located within the APE. They are indicated with an * in Table 4.16-1 and described in additional detail in the text that follows the tables below. Of the 15 previously recorded resources, two individual properties are listed in the NRHP and the CRHR and local landmark programs; two individual properties are listed in the CRHR only; six properties are listed on the CRHR and local landmark programs, and three are designated at the local level as Los Angeles Historic Cultural Monuments (LA HCMs). Two properties were identified as appearing to be eligible as part of a previous study, including the San Fernando Road and the San Fernando Road Bridge over Pacoima Wash.

Bridge #53C-0302, the San Fernando Bridge over Pacoima Wash, was evaluated in 2012 and found to be not eligible for the NRHP or CRHR as an individual resource, but is a contributing feature of San Fernando Road, which was previously found eligible for listing in the NRHP and CRHR as part of a CEQA review process. A small segment of both San Fernando Road and Bridge #53C-0302 is located within the project's APE.

Within the study area, there are two previously recorded historic districts. The previously recorded historic districts include the Van Nuys Historic Preservation Overlay Zone (HPOZ), which is locally designated by the City of Los Angeles, and the Panorama City Historic District, which is recorded as eligible for listing in the NRHP and is listed in the CRHR. Neither district is located within the APE and is not discussed further in this report.

The City of Los Angeles' Office of Historic Resources (OHR) is currently managing a citywide survey, called SurveyLA, to identify and document historical resources in the City. Surveys are being completed in phases and are divided by City of Los Angeles Community Plan Area (CPA). Portions of the study area within Los Angeles city limits are within the Mission Hills-Panorama City CPA and the Van Nuys-North Sherman Oaks CPA. The survey findings for the Mission Hills-Panorama City CPA were finalized in March 2014; the survey findings for the Van Nuys-North Sherman Oaks CPA were finalized in August 2015. The results of SurveyLA have been included in this report.

The Cultural Resources Impacts Report in Appendix S includes information regarding the 15 individual properties that were previously recorded as historical resources that are located within the study area. See Figure 2-1 in the Cultural Resources Impacts Report for a full list of the California Historical Resource Status Codes and their meanings.

Table 4.16-2 includes information regarding the 15 properties within the APE that were identified through SurveyLA efforts.

### Table 4.16-1: Previously Recorded Individual Historic Properties

| Ref. No. | Address | City | Zip | Designation/ Listing Type | Notes |
|---|---|---|---|---|---|
| 1. | 14601 Aetna Street* | Van Nuys | 91411 | CRHR | Department of Water and Power Building |
| 2. | 216 Hagar Street | San Fernando | 91340 | CRHR, identified City of San Fernando Historic Preservation Element | / |
| 3. | 447 Hagar Street | San Fernando | 91340 | CRHR, identified City of San Fernando Historic Preservation Element | / |
| 4. | 14603 Hamlin Street | Los Angeles | 91411 | HCM No. 203 | Baird House (Volunteer League Community Center) |
| 5. | 130 N. Brand Boulevard* | San Fernando | 91340 | CRHR, identified City of San Fernando Historic Preservation Element | San Fernando Junior High School |
| 6. | 575 N. Maclay Avenue | San Fernando | 91340 | CRHR, identified City of San Fernando Historic Preservation Element | Morningside Elementary |
| 7. | 208 Park Avenue | San Fernando | 91340 | CRHR, identified City of San Fernando Historic Preservation Element | Old Rock Scout House |
| 8. | 804 Park Avenue | San Fernando | 91340 | CRHR, identified City of San Fernando Historic Preservation Element | Elks Lodge |
| 9. | 1100 Pico Street | San Fernando | 91340 | NRHP, CRHR, identified City of San Fernando Historic Preservation Element | Lopez Adobe |
| 10. | 14410 Sylvan Street | Los Angeles | 91411 | HCM No. 202, CRHR | Valley Municipal Building (Van Nuys City Hall) |
| 11. | 14415 Sylvan Street | Los Angeles | 91401 | CRHR | Fire Station #39 |
| 12. | 14553 Sylvan Street | Los Angeles | 91411 | NRHP, CRHP, HCM No. 911 | Van Nuys Branch Library |
| 13. | 14832 Sylvan Street | Los Angeles | 91411 | HCM No. 201 | Van Nuys Woman's Club |
| 14. | Havana and Bleeker Streets | Los Angeles | 91342 | HCM No. 50 | Mission Wells and the Settling Basin (Area Of) |
| 15. | San Fernando Road* | San Fernando | 91340 | Appears to be eligible for NRHP. | Portion of Segment B, including Bridge #53C-0302 |

Source: GPA Consulting, 2015.

## Table 4.16-2: SurveyLA Findings within the APE

| Ref. No. | Address | CPA |
|---|---|---|
| 1. | 14601-14603 Aetna Street | Van Nuys - North Sherman Oaks |
| 2. | 6103 Cedros Avenue | Van Nuys - North Sherman Oaks |
| 3. | 14463 Haynes Street | Van Nuys - North Sherman Oaks |
| 4. | 6000 Kester Avenue | Van Nuys - North Sherman Oaks |
| 5. | 14829-33 Oxnard Street | Van Nuys – North Sherman Oaks |
| 6. | 6353 Van Nuys Blvd | Van Nuys - North Sherman Oaks |
| 7. | 6362 Van Nuys Blvd | Van Nuys - North Sherman Oaks |
| 8. | 6551 Van Nuys Blvd | Van Nuys - North Sherman Oaks |
| 9. | 6569 Van Nuys Blvd | Van Nuys - North Sherman Oaks |
| 10. | 6920 Van Nuys Blvd | Van Nuys - North Sherman Oaks |
| 11. | 8324 Van Nuys Boulevard | Mission Hills - Panorama City - North Hills |
| 12. | 8333 Van Nuys Boulevard | Mission Hills - Panorama City - North Hills |
| 13. | 8201 Van Nuys Boulevard | Mission Hills - Panorama City - North Hills |
| 14. | 8121 Van Nuys Boulevard | Mission Hills - Panorama City - North Hills |
| 15. | 14035 Van Nuys Boulevard | Mission Hills - Panorama City - North Hills |
| 16. | 9110 Van Nuys Boulevard | Mission Hills - Panorama City - North Hills |
| 17. | 14035 Van Nuys Boulevard | Mission Hills - Panorama City - North Hills |

Source: GPA Consulting, 2015.

### 14601–3 Aetna Street

As shown is Figure 4.16-1, 14601 Aetna Street, with an alternative address at 14603 Aetna Street, is a Progress Works Administration (PWA) Moderne Department of Water and Power (DWP) building that was used for meter repairs. It is listed in the California Historic Resources Information System (CHRIS) with a 2S2 status code (Individual property determined eligible for the NRHP, by consensus through a Section 106 consultation, listed on CRHR) dated March 20, 2002. The SCCIC was contacted on July 24, 2015 for additional documentation and information regarding this previous evaluation. Michelle Galaz, Assistant Coordinator at the SCCIC, responded on July 27, 2015 to say that there was no documentation for this address in their office, or for its alternative address, 14603 Aetna Street. SCCIC made a request to the State Office of Historic Preservation (OHP) for additional documentation and information. The property evaluation was updated for the purposes of this report, but on August 13, 2015, the information from the prior evaluation was received from SCCIC.

### Figure 4.16-1: 14601–3 Aetna Street, view looking northeast

### 130 North (N.) Brand Boulevard

As shown is Figure 4.16-2, 130 N. Brand Boulevard is a junior high school campus. In 1995, the Auditorium (built in 1916), Science Building (built in 1916), and Boys' Gymnasium (built in 1937) were found to be individually significant for their architecture as part of a survey of properties damaged in the 1994 Northridge Earthquake. The prior evaluation and an update form are included in Appendix S.

### Figure 4.16-2: 130 N. Brand Boulevard, Auditorium, view looking southwest

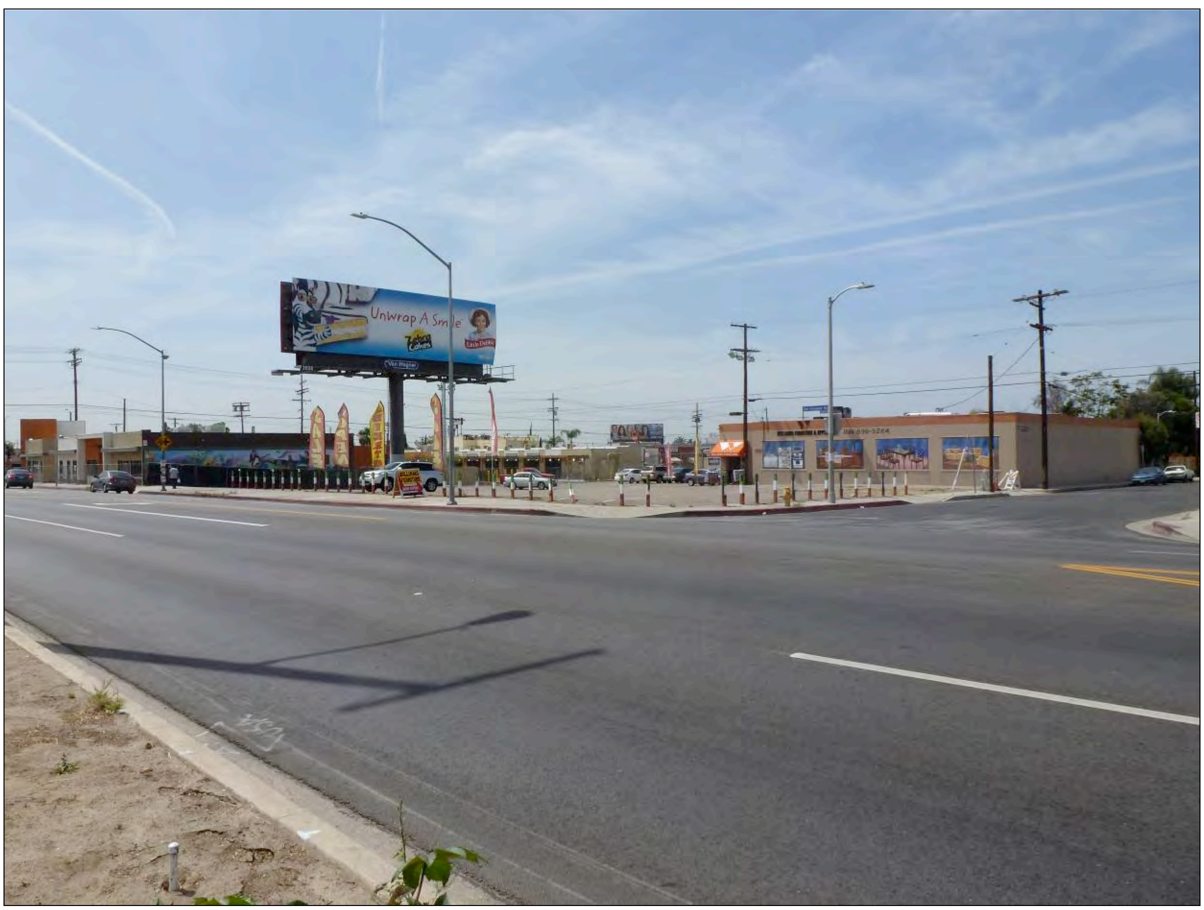
### San Fernando Road

As shown is Figure 4.16-3, San Fernando Road is a multi-lane road that runs through the Cities of Los Angeles, San Fernando, Burbank, and Glendale. Segments of the road were found eligible for the NRHP in 2013 as part of a CEQA review process.

San Fernando Road was a major thoroughfare in Southern California as early as the 1870s until 1963. The road was in existence as early as 1863, but it was not cleared and packed until 1871 by Remi Nadeau, to ease transport of silver ore by wagon. In the 1920s, it was included as part of U.S. Highway 99, which spanned between the Mexican and Canadian borders; it was decommissioned in 1963 following the completion of I-5. Portions of San Fernando Road were first paved in 1910, with the rest paved and widened between 1925 and 1929. The road has undoubtedly been paved and repaved.

One segment, "Segment B," is located within the APE, which includes Bridge #53C-0302, the San Fernando Bridge over Pacoima Wash. This segment spans between the southern end of Truman Street to North Lincoln Street/Victory Place; the portion within the APE is located between the southern end of Truman Street to Pierce Street, a distance of approximately 1.5 miles. The prior evaluation and an update form are included in Appendix A to the Cultural Resources Impacts Report (see Appendix S to this EIS/EIR).

### Figure 4.16-3: San Fernando Road at Pinney Street, looking south



## Properties Identified for Further Study

There are 180 properties located in the APE that are more than 45 years old that were identified during the historic resources field study as requiring further study as an individual resource or as a district area (see Section 2.2.1.1 of the Cultural Resources Impacts Report in Appendix S for a detailed explanation of identification efforts and the methodology utilized for determining properties that warrant further study). Twenty-one of the 180 properties had a moderate to high level of integrity and an apparent potential for significance, based on the City of Los Angeles' Citywide Historic Context Statement and SurveyLA methodology for evaluating potential historical resources (as administered by the City of Los Angeles OHR).[20] Each of these 21 properties were inventoried on a DPR 523 A Form and evaluated on a DPR 523 B Form; previous evaluations were updated.

Concentrations of related properties identified during the field study were evaluated as potential districts.[21] Each property within the district was inventoried on a DPR 523 A Form. These forms are attached to a DPR 523 D Form (District Record) that includes an evaluation of each potential district. A list of the properties identified within the APE, the results of their evaluations, and the alternatives that may affect them are listed in Tables 3-3 through 3-7 of the Cultural Resources Impacts Report (see Appendix S of this EIS/EIR). Please refer to the DPR form sets in the Cultural Resources Impacts Report in Appendix S for additional details.

## Evaluation Results

Of the 21 properties that were evaluated individually for historic significance, the following 10 properties were determined to be historically significant at the national, state, or local level of significance. The results of the evaluations are summarized below. See Figure 2-1 in the Cultural Resources Impacts Report in Appendix S for a full list of the California Historical Resource Status Codes and their meanings. Please refer to the DPR form sets in Appendix A of the Cultural Resources Impacts Report for additional details.

### Historic Properties

The following 10 individual properties have either been previously evaluated or evaluated for this report and given a status code of 3S or 2S2. A 3S status code indicates that a property appears eligible for the National Register of Historic Places (NRHP) as an individual property through a survey evaluation. A 2S2 status code indicates that it is an individual property determined eligible for the NRHP by a consensus through the Section 106 process, and it is listed in the California Register of Historical Resources (CRHR). Therefore, all of the following are historic properties for the purposes of NEPA and Section 106 of the NHPA. The 10 properties are also historical resources for the purposes of CEQA because properties that are listed on or formally determined eligible for the NRHP are automatically included in the CRHR.

[20] The streamlined methodology for this report was established in consultation with the SHPO on February 11, 2015. Only properties that were more than 45 years old, retained a moderate to high level of integrity, and had apparent potential significance were evaluated and recorded on DPR 523 A and B forms. The determination of "potential significance" would be made by qualified architectural historians utilizing the historic contexts included in the City of Los Angeles' Citywide Historic Context Statement and SurveyLA methodology for evaluating potential historical resources.

[21] For concentrated areas of potential right-of-way acquisition (such as the proposed MSFs), SHPO approved the proposed approach of evaluating these areas as districts within the SurveyLA historic context themes, rather than evaluating each of the properties on an individual basis, during consultation on February 11, 2015.

### *14601-3 Aetna Street –3S*

14601-3 Aetna Street was identified for further study as an example of PWA Moderne architecture and early infrastructure in the San Fernando Valley. The property was individually re-evaluated for listing on the NRHP and CRHR as part of this study. The evaluation determined that the property appears to be significant at the national and state level as a rare example of a pre-war DWP facility in the San Fernando Valley, and as an excellent example of the PWA Moderne style; the property retains sufficient integrity to convey its association with that trend and architectural style. As a result of this evaluation, the property was assigned a 3S status code, “Appears eligible for NRHP as an individual property through survey evaluation.”

### *130 N. Brand Boulevard – 2S2*

130 N. Brand Boulevard was identified for further study due to its Classical Revival architecture on the junior high campus. It was previously evaluated in 1995 as part of a Section 106 survey of earthquake-damaged properties. It was given a status code of 2S2, “individual property determined eligible for NRHP by consensus through Section 106 process,” and listed in the CRHR as an excellent example of Classical Revival architecture. Therefore, it was subsequently listed in the CRHR. The project team reviewed the previous evaluation and after field inspection determined that the existing 2S2 status code is still valid.

### *1140 San Fernando Road – 3S*

1140 San Fernando Road was identified for further study as a unique example of a J.C. Penney department store in a commercial strip, as opposed to a shopping mall. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property appears to eligible for the NRHP and CRHR at the local level of significance for its association with the commercial development of the City of San Fernando and for its architectural style; it retains sufficient integrity to convey those associations. As a result of this evaluation, the property was assigned a 3S status code, “Appears eligible for NRHP as an individual property through survey evaluation.”

### *1601 San Fernando Road – 3S*

1601 San Fernando Road was identified for further study as an example of a Googie style car wash on San Fernando Road. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property is significant under Criterion C as exemplifying a Googie car wash and that it retains sufficient integrity for listing. As a result of this evaluation, the property was assigned a 3S status code, "Appears eligible for NRHP as an individual property through survey evaluation."

### *6353 Van Nuys Boulevard - 3S*

6353 Van Nuys Boulevard was identified for further study as an example of Streamline Moderne architecture that represents an early period of commercial development in the San Fernando Valley. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property appears to meet the NRHP and CRHR Criteria at the local level of significance as a rare example of pre-World War II commercial development in the San Fernando Valley, as well as exemplifying the Streamline Moderne style; the property retains sufficient integrity to convey this significance. As a result of this evaluation, the property was assigned a 3S status code, "Appears eligible for NRHP as an individual property through survey evaluation."


### *6551 Van Nuys Boulevard – 3S*

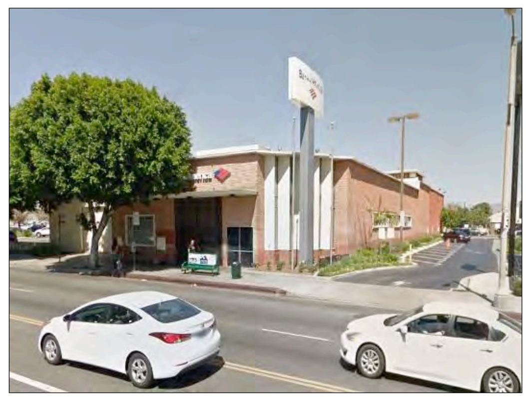
6551 Van Nuys Boulevard was identified for further study as an example of New Formalist architecture and the work of Millard Sheets. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property appears to be eligible for the NRHP and CRHR as a good example of New Formalism in the San Fernando Valley. As a result of this evaluation, the property was assigned a 3S status code, "Appears eligible for NRHP as an individual property through survey evaluation."

### *8201 Van Nuys Boulevard – 3S*

8201 Van Nuys Boulevard was identified for further study as a rare example of Expressionist architecture. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property appears to meet the NRHP and CRHR Criteria for its architecture and as the work of W.A. Sarmiento, who was pivotal to the shift in bank design during the twentieth century, and that it retains sufficient integrity to convey that significance. As a result of this evaluation, the property was assigned a 3S status code, “Appears eligible for NRHP as an individual property through survey evaluation.”

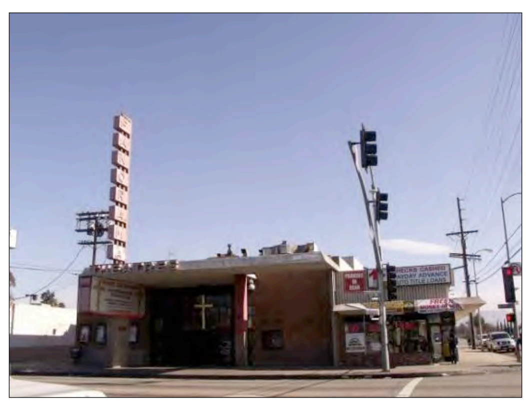
### *8324 Van Nuys Boulevard – 3S*

8324 Van Nuys Boulevard was identified for further study as part of a planned commercial strip for the successful post-war suburb of Panorama City. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property appears to be eligible for the NRHP and CRHR at the local level for its association with the planned development of Panorama City, and it retains sufficient integrity to convey that significance. As a result of this evaluation, the property was assigned a 3S status code, “Appears eligible for NRHP as an individual property through survey evaluation.”

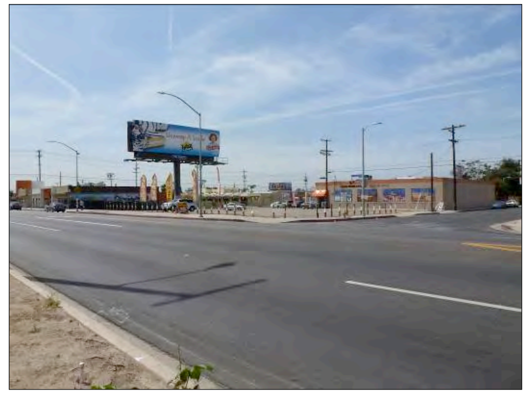


### *9110 Van Nuys Boulevard – 3S*

9110 Van Nuys Boulevard was identified for further study as part of a planned commercial strip for the successful post-war suburb of Panorama City, and as the work of master architect William Pereira. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property was not an important example of Pereira’s work, but that it appears to meet the NRHP and CRHR Criteria at the local level for its association with Panorama City, and it retains sufficient integrity to convey that significance. As a result of this evaluation, the property was assigned a 3S status code, “Appears eligible for NRHP as an individual property through survey evaluation.”



### *San Fernando Road – 3S*



A portion of San Fernando Road was identified for further study due to its historic alignment, dating from as early as 1871. It was previously evaluated in 2013 as part of a CEQA review process. Segments of the road were given a status code of 3S, "Appears eligible for NRHP as an individual property through survey evaluation." One of the segments is included within the APE. The project team reviewed the previous evaluation and after field inspection determined that the existing 3S status code appears to still be valid.

## Non-Historic Properties

The following properties were evaluated either individually or as a potential district area for this report and given a status code of 6Z or 7N1. A 6Z status code indicates that a property was "Found ineligible for the NRHP, CRHR, or Local Designation through survey evaluation." A 7N1 status code indicates that a property "Needs to be reevaluated, [but] may become eligible for the NRHP with restoration or when meets other specific conditions." Of the 180 total properties that were evaluated for this study, 170 properties were determined not to be historically significant. Of the 170 properties, 11 were evaluated individually and 159 were evaluated as part of 4 potential district areas. Three properties were evaluated both individually and as part of a district (6103 Cedros Avenue, 6000 Kester Avenue, and 14829-33 Oxnard Street). The 11 individual properties and 4 historic districts are further described below.

None of the following properties are historic properties for the purposes of NEPA or Section 106 of the NHPA, nor are they historical resources for the purposes of CEQA.

### *6103 Cedros Avenue -6Z*

6103 Cedros Avenue was identified for further study as an early example of an industrial planning mill in Los Angeles. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property lacks historical and architectural significance, and is therefore not eligible for listing on either register. As a result of this evaluation, the property was assigned a 6Z status code, "Found ineligible for NRHP, CRHR, or Local designation through survey evaluation."

### *6000 Kester Avenue - 6Z*

6000 Kester Avenue was identified for further study as an example of a building supply warehouse in Los Angeles dating from the post-war building boom period. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property lacks historical and architectural significance and is therefore not eligible for listing on either register. As a result of this evaluation, the property was assigned a 6Z status code, "Found ineligible for NRHP, CRHR, or Local designation through survey evaluation."

### *14829-33 Oxnard Street – 6Z*

14829-33 Oxnard Street was identified for further study as an example of a building supply warehouse in Los Angeles dating from the post-war building boom period. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property lacks historical and architectural significance, and is therefore not eligible for listing on either register. As a result of this evaluation, the property was assigned a 6Z status code, "Found ineligible for NRHP, CRHR, or Local designation through survey evaluation."

### *6362 Van Nuys Boulevard - 6Z*

6362 Van Nuys Boulevard was identified for further study as an example of early period of commercial development in the San Fernando Valley and for its distinctive signage. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property has significance, but lacks sufficient integrity for listing. As a result of this evaluation, the property was assigned a 6Z status code, "Found ineligible for NRHP, CRHR, or Local designation through survey evaluation."

### *6569 Van Nuys Boulevard – 6Z*

6569 Van Nuys Boulevard was identified for further study as an example of Mid-Century Modern architecture and the work of Culver Heaton and Millard Sheets. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property lacks historical and architectural significance, and is therefore not eligible for listing on either register. As a result of this evaluation, the property was assigned a 6Z status code, "Found ineligible for NRHP, CRHR, or Local designation through survey evaluation."

### *6920 Van Nuys Boulevard – 6Z*

6920 Van Nuys Boulevard was identified for further study as an example of a Mid-Century Modern architecture and for its association with post-war infrastructure in the San Fernando Valley. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property lacks historical and architectural significance, and is therefore not eligible for listing on either register. As a result of this evaluation, the property was assigned a 6Z status code, "Found ineligible for NRHP, CRHR, or Local designation through survey evaluation."

### *8121 Van Nuys Boulevard – 6Z*

8121 Van Nuys Boulevard was identified for further study as an example of Corporate International architecture. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property lacks historical and architectural significance, and is therefore not eligible for listing on either register. In addition, the building is less than 50 years old and is not of exceptional importance, so it would not meet the requirements of NRHP Criteria Consideration G. As a result of this evaluation, the property was assigned a 6Z status code, "Found ineligible for NRHP, CRHR, or Local designation through survey evaluation."

### *8155 Van Nuys Boulevard – 6Z*

8155 Van Nuys Boulevard was identified for further study as an example of Corporate International architecture. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property lacks historical and architectural significance, and is therefore not eligible for listing on either register. As a result of this evaluation, the property was assigned a 6Z status code, "Found ineligible for NRHP, CRHR, or Local designation through survey evaluation."

### *8333 Van Nuys Boulevard – 6Z*

8333 Van Nuys Boulevard was identified for further study as an example of an early department store in the San Fernando Valley, and specifically Panorama City. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property likely has significance for its association with Post-war Suburbanization and Commercial Development, but that it lacks sufficient integrity to convey that association, and is therefore ineligible for listing on either register. As a result of this evaluation, the property was assigned a 6Z status code, "Found ineligible for NRHP, CRHR, or Local designation through survey evaluation."

### *14035 Van Nuys Boulevard – 6Z*

14035 Van Nuys Boulevard was identified for further study as an example of the walk-up food stand property type. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property lacks historical and architectural significance, and is therefore not eligible for listing on either register. As a result of this evaluation, the property was assigned a 6Z status code, "Found ineligible for NRHP, CRHR, or Local designation through survey evaluation."

### *14463 Haynes Boulevard – 6Z*

14463 Haynes Boulevard was identified for further study as an example of a Mid-Century Modern commercial building and for its association with post-war infrastructure in the San Fernando Valley. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property lacks historical and architectural significance, and is therefore not eligible for listing on either register. As a result of this evaluation, the property was assigned a 6Z status code, "Found ineligible for NRHP, CRHR, or Local designation through survey evaluation."

### *San Fernando Road Commercial District – 7N1*

The San Fernando Road Commercial District area was identified for further study as a concentration of low-rise commercial buildings in San Fernando, the majority of which were developed prior to World War II. This area is the commercial center of San Fernando. The area was evaluated as a district for listing on the NRHP and CRHR. The evaluation determined that the area likely has significance for its association with the Development of the City of San Fernando, but that it lacks sufficient integrity to convey its period of significance, and is therefore ineligible for listing on either register at this time. Should enough of the alterations be removed, the area could become eligible for listing on a historic register. As a result of this evaluation, the 42 properties within this potential district were assigned a 7N1 status code, "Needs to be reevaluated – may become eligible for NRHP with restoration or when meets other specific conditions" (see Appendix S for District Record Map and full listing of property addresses).

### *Bessemer and Oxnard Industrial District – 6Z*

The Bessemer and Oxnard Industrial District area was identified for further study as a concentrated area of industrial buildings from the mid-century located within the potential right-of-way acquisition areas for the proposed MSF. This area is roughly bounded by Calvert Street to the north, Vesper Avenue to the east, Oxnard Street to the south, and Kester Avenue to the west in the City of Los Angeles. Per the information provided in Chapter 2.2.1 of the Cultural Resources Impacts Report (see Appendix S), the SHPO approved the approach of evaluating these areas as districts within the SurveyLA historic context themes, rather than evaluating each of the properties on an individual basis due to their lack of likely individual significance. Therefore, the area was evaluated as a potential district for listing on the NRHP and CRHR. The evaluation determined that the area lacks historical and architectural significance, and is therefore not a district that would be eligible for listing on either register. As a result of this evaluation, the 56 properties in this area were assigned a 6Z status code, "Found ineligible for NRHP, CRHR, or Local designation through survey evaluation" (see Appendix S for District Record Map and full listing of property addresses).

#### *Arminta Industrial District – 6Z*

The Arminta Industrial District area was identified for further study as a concentrated area of light industrial buildings from the mid-century within the potential right-of-way of a proposed MSF. It consists of the first legal parcel on the north and south sides of Arminta Street between its intersections with Van Nuys Boulevard and Willis Avenue in the City of Los Angeles near the Southern Pacific Railroad tracks (see Appendix S for District Map). Per the information provided in Chapter 2.2.1 of this Report (Methodology), the SHPO approved the approach of evaluating these areas as districts within the SurveyLA historic context themes, rather than evaluating each of the properties on an individual basis due to their lack of likely individual significance. The area was evaluated as a district for listing on the NRHP and CRHR. The evaluation determined that the area lacks historical and architectural significance, and is therefore not a district that would be eligible for listing on either register. As a result of this evaluation, the 41 properties in this area were assigned a 6Z status code, "Found ineligible for NRHP, CRHR, or Local designation through survey evaluation" (see Appendix S for District Record Map and full listing of property addresses).

#### *Raymer Industrial District – 6Z*

The Raymer Industrial District area was identified for further study as a concentrated area of light industrial buildings from the mid-century located with the potential right-of-way of a proposed MSF. The area is roughly bounded by Raymer Street to the north and east, Keswick Street to the south, and ends at the western boundaries of 14757 Keswick Street, 14747 Keswick Street, and 14766 Raymer Street to the west in the City of Los Angeles (see Appendix S for District Map). Per the information provided in Section 2.2 of this report (Methodology), the SHPO approved the approach of evaluating these areas as districts within the SurveyLA historic context themes, rather than evaluating each of the properties on an individual basis due to their lack of likely individual significance. The evaluation determined that the area lacks historical and architectural significance, and is therefore not a district that would be eligible for listing on either register. As a result of this evaluation, the 26 properties in this area were assigned a 6Z status code, "Found ineligible for NRHP, CRHR, or Local designation through survey evaluation" (see Appendix S for District Record Map and full listing of property addresses).

## 4.16.2.3 Paleontological Resources

### Regional Geology

The San Fernando Valley and adjacent mountains are part of the Transverse Ranges physiographic province that is composed of parallel, east-west trending mountain ranges and sediment-filled valleys (USGS 1996). The San Fernando Valley is a structurally complex, sedimentologically diverse, and tectonically evolving late Tertiary-Quaternary basin that contains the headwaters of the Los Angeles River and its tributaries. Prior to the advent of flood control, the valley floor was composed of active alluvial fans and floodplains. Seasonal streams emanating from Pacoima and Big Tujunga Canyons drain the complex western San Gabriel Mountains and deposit coarse, highly permeable alluvium that contains generally high-quality ground water. The San Fernando Valley is a structural trough that has been filled from the sides, with the major source of sediment being large drainages in the San Gabriel Mountains. Deposition on the major alluvial fan of Tujunga Wash and Pacoima Wash, which issues from the San Gabriel Mountains, and on smaller fans, has been influenced by ongoing compressional tectonics in the valley. Late Pleistocene deposits have been cut by active faults and warped over growing folds.

### Stratigraphy

The project study area is covered by fluvial and fan deposits that originated in the mountains to the east. These deposits were carried by water down Pacoima, Little Tujunga, Tujunga, and La Tuna Canyons into the study area. The surface of the project study area is mapped entirely as Quaternary alluvium and gravel, as shown in Figures 4.16-4 and 4.16-5. Subsurface, at varying depths, the Quaternary older alluvium, Saugus Formation, Pico Formation, Topanga Formation, and Monterey Formation are present (Dibblee 1991a).

### Mesozoic Quartz Diorite

At the base of the section is Mesozoic (65.5–251.0 million years [my]), potentially early Cretaceous (145.5–99.6 my), quartz diorite, which is locally named the Wilson Diorite. These grey, medium-grained quartz diorite rocks are composed of plagioclase feldspar, biotite, hornblende, and quartz.

### Middle Miocene Topanga Formation

The middle Miocene (16–11.6 my) Topanga Formation consists of three units near the project study area: the upper Topanga Formation, a middle unit of volcanic rocks, and the lower Topanga Formation. Upper Topanga Formation rocks, which are light grey to tan semi-friable sandstone, consist of a pebble to cobble conglomerate deposited in a marine environment. The middle unit consists of basaltic to mafic andesitic flows and breccias, probably equivalent to the Conejo Volcanics of the central and western Santa Monica Mountains. Lower Topanga Formation rocks consist of nonmarine grey to reddish grey sandstone and conglomerate.

### Late Miocene Monterey Formation

Dibblee mapped these sediments as late (11.6–5.3 my) Miocene Monterey Formation (Tm, Tmss) and as “unnamed late Miocene shale.” However, Yerkes and Campbell mapped these sediments as “Modelo Formation.” Most local workers agree that the “Modelo Formation” is a local name for the Monterey Formation, which spans across California. The Monterey Formation includes three units that may be encountered at depth: undifferentiated Monterey Formation, Monterey Formation sandstone, and an upper unit of the Monterey Formation. Undifferentiated Monterey Formation consists of white-weathering, tan to dark brown, thinly bedded, hard platy to soft, fissile, semi-siliceous to porcelaneous shale. The Monterey Formation sandstone is a light grey to tan bedded sandstone to pebble deposit from deep marine fans (turbidites) (Dibblee 1991a, b). The upper unit of the Monterey Formation consists of white-weathering, thinly bedded, diatomaceous shale with platy, dark brown, siliceous shale (Dibblee 1991b).

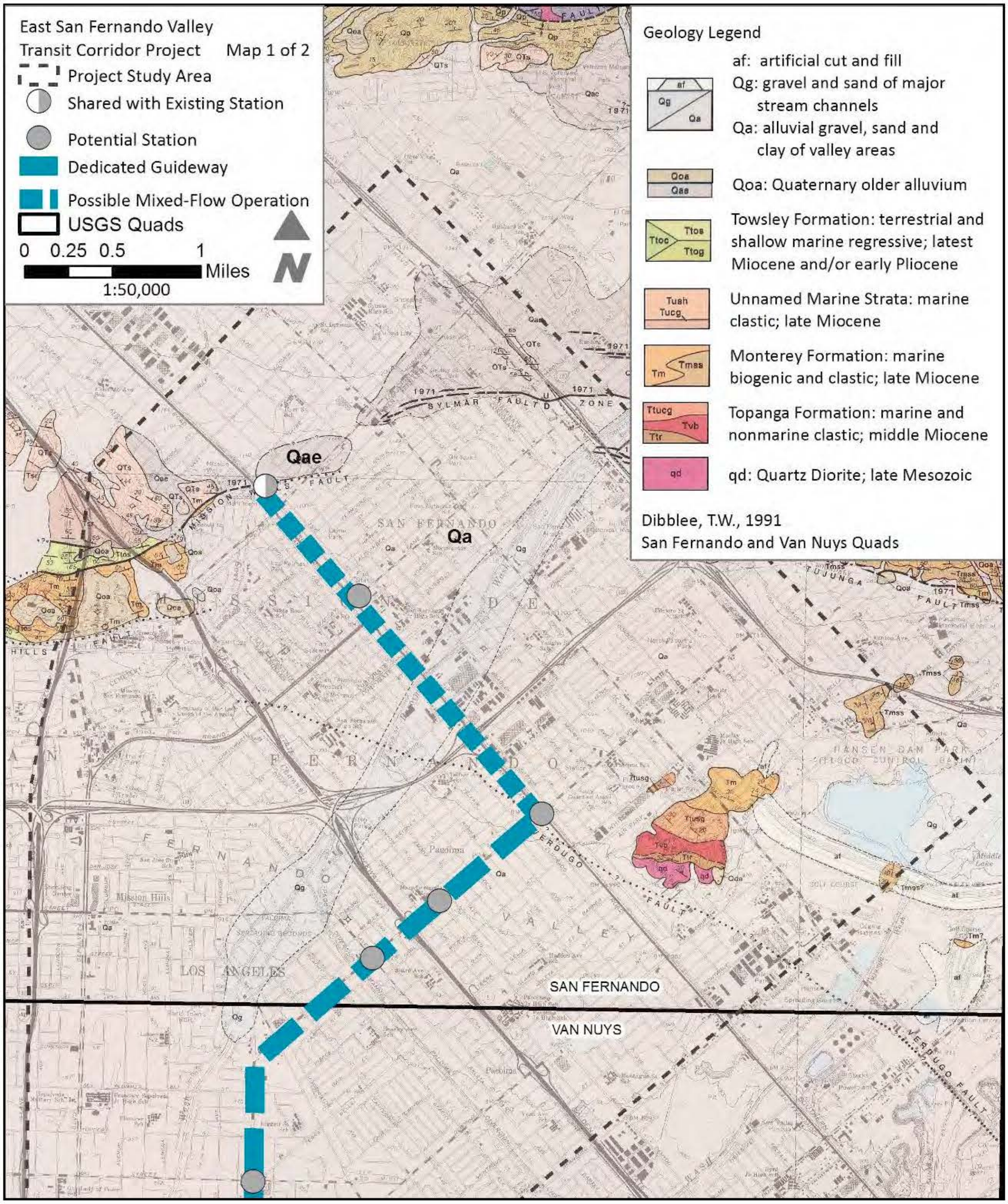
### Pliocene Pico Formation

Dibblee (1991a) mapped these sediments as an “unnamed late Miocene marine strata” and late Miocene to Pliocene “Towsley Formation.” Yerkes and Campbell (2005) mapped these sediments as Pliocene (5.3–2.5 my) Pico Formation, which is the unit name used in this report. Yerkes and Campbell (2005) described the Pico Formation as marine clayey siltstone interbedded with sandstone.

### Pliocene to Pleistocene Saugus Formation

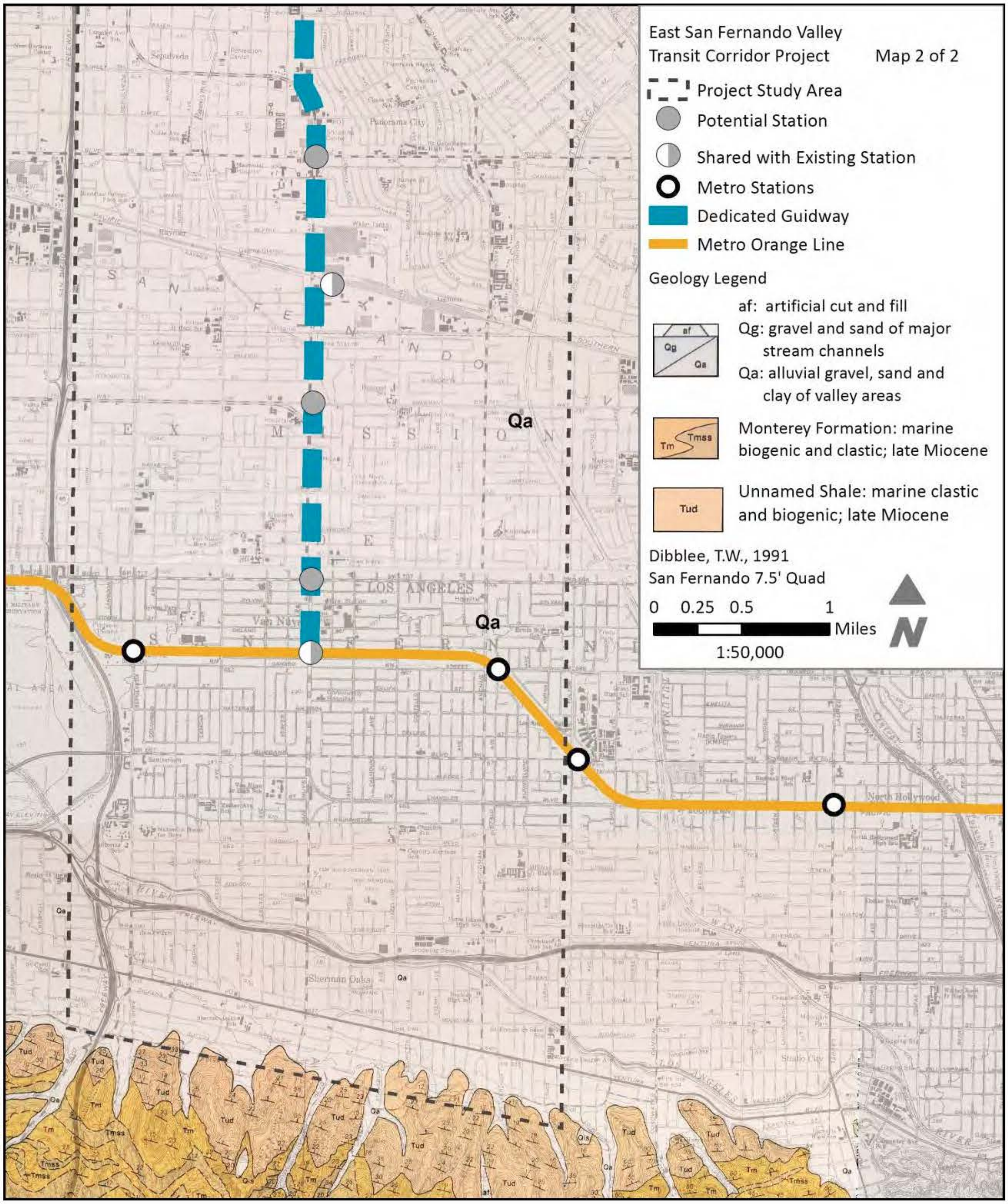
The Saugus Formation consists of interbedded light gray pebble-cobble conglomerate, sandstone, and green to red claystone. This formation was laid down in a stream environment during the Pliocene and Pleistocene epochs (5.3 my–11 thousand years [ky]) (Dibblee 1991a).

## Figure 4.16-4: Geology of Project Study Area Map 1




Source: Dibblee, 1991a.

## Figure 4.16-5: Geology of Project Study Area Map 2




Source: Dibblee, 1991a, 1991b.

### Quaternary Older Alluvium

The Quaternary older alluvial deposits consist of late Pleistocene (1.8 my–11 ky) consolidated, dissected alluvial gravels and sands (Dibblee 1991a). These deposits are derived from the mountains bordering the valley. Sediments from these deposits fine with increasing distance from the source range.

### Quaternary Alluvium and Gravel

Quaternary alluvial deposits are derived from the mountains bordering the valley. They consist of clays to pebble-gravel deposits that fine with increasing distance from the source range (Dibblee 1991a, b). These alluvial fan to fluvial deposits of the Holocene Epoch are less than 11,000 ky. Quaternary gravel deposits are also derived from the mountains bordering the valley, but these sand and pebble-boulder deposits are located in modern stream and river courses (Dibblee 1991a). Yerkes and Campbell (2005) described these same sediments as Holocene alluvial fan deposits adjacent to stream channels and Holocene to late Pleistocene young alluvial deposits farther from the modern streams. The younger Holocene deposits adjacent to the streams are coarser than distant deposits, consisting of unconsolidated sand and pebble-boulder conglomerates, while Holocene to late Pleistocene deposits consist of unconsolidated silt to gravel that may or may not show soil development (Yerkes and Campbell 2005).

### Known Fossils in Project Vicinity

Paleontological resources are remnants of ancient life. Vertebrate fossils (e.g., mammals, birds, reptiles, amphibians, fish) are rare and, if identifiable, usually significant under CEQA. Fossils of invertebrates (e.g., snails, corals, sand dollars, etc.) and plants are relatively common and may not meet significance criteria unless they are unusual for their time period or environment.

A search for known fossils was performed by the Natural History Museum of Los Angeles County (LACM) (McLeod 2012). No vertebrate fossils are known within the project boundaries. Nearby, vertebrate fossils are known from the Quaternary older alluvium. Known depths of these fossils range from 14 to 100 feet below the surface (Table 4.16-3). Fossils are also known from the Saugus, Pico, Topanga, and Monterey formations.

## Table 4.16-3: Known Fossils in Quaternary Older Alluvium

| Common Name | Taxon | Depth | Locality |
|---|---|---|---|
| Bison, extinct | *Bison* | 75 feet | LACM 3397 |
| Mammoth, extinct | *Mammuthus* | unknown | LACM 7152 |
| Bison, extinct | *Bison* | | |
| Horse, extinct | *Equus* | unknown | LACM 1733 |
| Mastodon, extinct | *Mammut* | unknown | LACM 5745 |
| Horse, extinct | *Equus* | | |
| Peccary, extinct | *Platygonus* | 75–100 feet | LACM 3822 |
| Camel, extinct | *Camelops* | | |
| Bison, extinct | *Bison* | | |
| Bison, extinct | *Bison* | 20 feet | LACM 6208 |
| Horse, extinct | *Equus* | 14 feet | LACM 3263 |
| Source: McLeod, 2012. | | | |

### Paleontological Survey Results

Cogstone performed a field survey of the build alternatives on February 14, 2013. The field reconnaissance consisted of a windshield survey followed by a pedestrian survey of sediment exposures as encountered. Photographs were taken to document the condition of the project study area. Scale bars are centimeter scales.

Ground visibility in the project study area was very poor. Approximately 95% of the survey area was developed and obscured by hardscaping and landscaping. Where exposed, sediments primarily consisted of artificial fill used to build up roads and railways and previous building developments. However, a few exposures of native sediments were encountered. Where observed, native sediments consisted of light brown to tan, fine-grained, unconsolidated sand. This is consistent with the Holocene alluvium that is mapped at the surface of the project study area (Dibblee 1991a, 1991b). The best sediment exposure was located near the intersection of Van Nuys Boulevard and Gault Street, at an active construction site. Access to the site was restricted, making a close examination of the sediments impossible. However, a trench near the sidewalk revealed that the first few inches of surficial artificial fill was underlain by fine grained alluvial sediments to depths of at least six feet. No paleontological resources, whole or fragmentary, were observed within the project study area.

### Paleontological Sensitivity

Using the Potential Fossil Yield ( PFYC) system, geologic units are assigned a ranking from 1 (very low potential for fossils) to 5 (very high potential for fossils). Classifications are determined based on the relative abundance and scientific importance of vertebrate fossil localities or scientifically significant invertebrate or plant fossil localities. In Class 1 geologic units, fossils are non-existent or extremely rare due to transformation by extreme heat or deformation. Class 2 units are unlikely to contain fossils due mostly to young age of sediments. Class 3 rock units are divided into two subclasses. Class 3a includes rocks known to produce fossils but in unpredictable locations and abundance, while class 3b includes sedimentary rocks where fossils are not known and thus have an undemonstrated sensitivity. Class 4 units have a high abundance of known significant fossil localities. Class 5 units have highly significant fossil localities and occur in predictable locations.

Although significant localities may occasionally occur in a geologic unit, a few widely scattered important fossils or localities do not necessarily indicate a higher PFYC value; instead, the relative abundance of localities is intended to be the major determinant for the value assignment. Geological setting and fossil localities were considered in determining paleontological sensitivity according to PFYC criteria.

The Mesozoic quartz diorite is an igneous unit and does not contain fossils. It is ranked as Class 1 having very low sensitivity (Table 4.16-4). The Quaternary alluvium and gravel is ranked Class 2 or low. Due to the young age of these sediments, they are not sensitive for fossil resources.

The remaining project formations are all known to produce fossils within Los Angeles County but those fossils are distributed unevenly and sediments conducive to the preservation of fossils are generally fine-grained. The Quaternary older alluvium, Topanga Formation, Monterey Formation, Pico Formation, and the Saugus Formation are ranked as 3a or moderate on the PFYC scale.

**Table 4.16-4: Paleontological Sensitivity Rankings**

| PFYC Ranking | | 5 very high | 4 high | 3a moderate; patchy | 3b moderate; undemonstrated | 2 low | 1 very low |
|---|---|---|---|---|---|---|---|
| **Rock Units** | **Map symbol (Figure 4.16-4)** | | | | | | |
| Mesozoic quartz diorite | qd | | | | | | X |
| Topanga Formation | Ttucg/Tvb/ Ttr | | | X | | | |
| Monterey Formation | Tm/Tmss/ Tud | | | X | | | |
| Pico Formation | Tush/Tucg/ Ttoc/Ttos/ Ttog | | | X | | | |
| Saugus Formation | QTs/Ts/Tar | | | X | | | |
| Quaternary older alluvium | Qoa | | | X | | | |
| Quaternary alluvium and gravel | Qa/Qg | | | | | X | |

Source: Cogstone, 2015.

The Quaternary older alluvium is a minimum of 100 feet thick under the project area (refer to Table 4.16-3).

# 4.16.3 Environmental Consequences, Impacts and Mitigation Measures

## 4.16.3.1 Archaeological Resources

### No-Build Alternative

#### Construction Impacts

The No-Build Alternative would result in no excavation activities. There would be no construction impacts to archaeological resources associated with the No-Build Alternative.

#### Operational Impacts

The No-Build Alternative would not result in new project facilities and consequently it would not result in any operational impacts on archaeological resources or human remains.

#### Cumulative Impacts

Under the No-Build Alternative, there would be no adverse effects or impacts to archaeological resources; therefore, this alternative would not contribute to cumulative impacts on archaeological resources that could occur as a result of any other planned projects within the region.

#### Mitigation Measures

##### *Construction Mitigation Measures*

No construction mitigation measures are required.

##### *Operational Mitigation Measures*

No operational mitigation measures are required.

#### Impacts Remaining After Mitigation

##### *NEPA Finding*

No adverse effects under NEPA would occur.

##### *CEQA Determination*

No impacts under CEQA would occur.

### TSM Alternative

#### Construction Impacts

The TSM Alternative would result in no or very minimal excavation activities. As a consequence, no construction impacts to archaeological resources are anticipated under the TSM Alternative.

#### Operational Impacts

The operational improvements proposed under the TSM Alternative would have no impact on archaeological resources or human remains.

#### Cumulative Impacts

Under the TSM Alternative, there would be no adverse effects or impacts to archaeological resources; therefore, this alternative would not contribute to cumulative impacts on archaeological resources that could occur due to other planned projects within the region.

#### Mitigation Measures

##### *Construction Mitigation Measures*

No construction mitigation measures are required.

##### *Operational Mitigation Measures*

No operational mitigation measures are required.

#### Impacts Remaining After Mitigation

##### *NEPA Finding*

No adverse effects under NEPA would occur.

##### *CEQA Determination*

No impacts under CEQA would occur.

### Alternative 1

#### Construction Impacts

The Curb-Running BRT Alternative would involve excavation during station upgrades and sidewalk widening and removal. Under this alternative, it is anticipated that the existing Division 15 (East Valley) MSF would accommodate the 10 new buses without needing to be expanded. Archaeological sites 19-001124 and 19-002681 are both located in the footprint of this alternative, however, in areas that do not appear to involve construction. If construction were to take place in these site areas, there is a potential for significant impacts/adverse effects to archaeological resources if they are damaged or destroyed by construction activities. Implementation of Mitigation Measure MM AR-1 would reduce potential impacts on these archaeological resources to less-than-significant levels.

Previous ground disturbance at station and sidewalk locations has probably destroyed subsurface archaeological resources. This suggests that there is a low potential for ground-disturbing activities associated with this alternative to expose and affect previously unknown significant cultural resources, including archeological resources. However, there is still a possibility that archaeological materials may be exposed during construction. Grading and trenching, as well as other ground-disturbing actions, have the potential to damage or destroy previously unidentified and potentially significant archeological resources. Disturbance of any deposits that have the potential to provide significant cultural data would be considered a significant impact or adverse effect. Implementation of Mitigation Measure MM AR-2 would reduce or avoid potential impacts on archeological resources.

No human remains have been previously discovered in the APE, and no burials or cemeteries are known to occur within the APE. However, construction would involve earth-disturbing activities, and it is still possible that human remains may be discovered, possibly in association with archaeological sites.

#### Operational Impacts

Operation of the Curb-Running BRT Alternative would result in no impacts or effects on archaeological resources.

#### Cumulative Impacts

The cumulative impacts analysis for archaeological resources is based on the cumulative projects list method of cumulative analysis, as described by CEQA Guidelines, Section 15130, subd. (b)(1)(A), and for the build alternatives, refers to the projects listed in Table 2-3. These projects are located within and in close proximity to the proposed project corridor alignment. Most of the projects in Table 2-3 consist of development projects, whose construction could include excavation that would disturb buried archaeological resources and human remains. Under the Curb-Running BRT Alternative, adverse effects or significant impacts to archaeological resources or human remains are not anticipated. However, if impacts do occur, mitigation measures would reduce potential impacts to no adverse under NEPA or less than significant under CEQA. Nonetheless, if the proposed project disturbs buried archaeological resources or human remains, and if any of the other cumulative projects also disturb buried archaeological resources or human remains, even though the proposed project's impacts may be less-than-significant after mitigation, the proposed project would still result in a cumulatively considerable contribution to a significant cumulative impact on archaeological resources.

### *Compliance Requirements and Design Features*

If human remains are encountered during construction of any of the build alternatives, the Native American Graves Protection and Repatriation Act (NAGPRA) requires the person who makes the discovery to immediately notify the responsible federal agency official by phone, presumably the FTA. State Health and Safety Code Section 7050.5 states that further disturbances and activities will cease in any area or nearby area suspected to overlie remains, and the County Coroner be contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the NAHC, who will then notify the Most Likely Descendent (MLD). Further provisions of PRC 5097.98 are to be followed as applicable. Also, see mitigation measure MM-AR-3 below.

## Mitigation Measures

### *Construction Mitigation Measures*

If construction occurs in the immediate vicinity of Archaeological sites 19-001124 and 19-002681, the following measure is proposed to mitigate potential impacts.

**MM-AR-1:** Within site areas and a 100-foot buffer zone around ground-disturbing activities, monitoring by a qualified archaeologist and culturally affiliated Native American shall be conducted within the project APE during all initial ground-disturbing activities. If, during cultural resources monitoring, the archaeologist determines that the sediments being excavated have been previously disturbed and are unlikely to contain significant cultural materials, the archaeologist shall request that monitoring be reduced or eliminated. If buried cultural resources such as flaked or ground stone, historic debris, or human remains are inadvertently discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find. Metro will notify the FTA, ACHP, and SHPO of those actions that it proposes to avoid, minimize, or mitigate adverse effects. Treatment measures for items that are not associated with human remains typically include development of avoidance strategies, capping with fill material, or mitigation of impacts through data recovery programs such as excavation or detailed documentation. Consulting parties will have 48 hours to provide their views on the proposed actions. The FTA will ensure that timely filed recommendations of consulting parties are taken into account prior to granting approval of the measures that Metro will implement to resolve adverse effects. Metro shall carry out the approved measures prior to resuming construction activities in the location of the discovery.

Metro will ensure that the expressed wishes of Native American individuals, tribes, and organizations are taken into consideration when decisions are made regarding the disposition of Native American archaeological materials and records relating to Indian tribes.

If previously unidentified and potentially significant archeological resources are encountered during construction activities, the following measure is proposed to mitigate potential impacts:

> **MM-AR-2:** If buried cultural resources, such as flaked or ground stone or historic debris, are inadvertently discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified archaeologist can evaluate the find and make recommendations. If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, Metro will notify FTA and SHPO within 48 hours of the discovery to determine the appropriate course of action. Additional investigations may be required to mitigate adverse impacts from project implementation. These additional studies may include avoidance, testing, and evaluation or data recovery excavation.

In the event that human remains are found during ground-disturbing activities, the compliance measures identified above shall be followed. In addition, if the remains are thought to be Native American, the following measure is proposed to mitigate the impact:

> **MM-AR-3:** If human remains are discovered during construction activities, all work in the immediate vicinity of the find shall halt, and Metro shall notify the county coroner/medical examiner within 48 hours of the discovery to determine the appropriate course of action. If human remains are discovered that are thought to be Native American, Metro and the FTA shall consult with the affected Native American individuals, tribes, and organizations regarding the treatment of cultural remains and artifacts. These shall be treated in accordance with the requirements of the California Health and Safety Code. If the county coroner/medical examiner determines that the human remains are or may be of Native American origin, then the discovery shall be treated in accordance with the provisions of PRC 5097.98 (a) – (d), which provides for the notification of human remains and associated grave goods.

#### *Operational Mitigation Measures*

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The proposed mitigation measures identified above would avoid or reduce effects on archaeological resources to no adverse effect under NEPA.

#### *CEQA Determination*

The proposed mitigation measures would avoid or reduce impacts to archaeological resources to a less-than-significant impact under CEQA.

## Alternative 2

### Construction Impacts

The Median-Running BRT Alternative would involve shallow excavation during bus stop platform construction in the median, station upgrades and sidewalk widening. Archaeological sites 19-001124 and 19-002681 are both located in the footprint of this alternative, however, in areas that do not appear to involve construction. If construction were to take place in these areas, there is a potential for significant impacts/adverse effects to archaeological resources if those resources are damaged or destroyed. Implementation of Mitigation Measure MM AR-1 would avoid or reduce potential impacts on these archaeological resources.

Alternative 2 has a low potential to encounter and adversely affect archaeological resources and human remains. However, construction would involve earth-disturbing activities, and it is still possible that archaeological resources or human remains may be discovered and damaged or destroyed during construction, which would be considered a significant impact. Mitigation Measure MM AR-2 would avoid or reduce potential impacts on archeological resources. Adherence to regulatory compliance requirements in conjunction with implementation of Mitigation Measure MM AR-3 would avoid or reduce potential impacts on human remains.

### Operational Impacts

Operation of Alternative 2 would not result in any effects or impacts on archaeological resources.

### Cumulative Impacts

Impacts would be the same as those described for Alternative 1.

#### *Compliance Requirements and Design Features*

See compliance requirements described above for Alternative 1.

### Mitigation Measures

#### *Construction Mitigation Measures*

See proposed mitigation measures above for Alternative 1.

#### *Operational Mitigation Measures*

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The proposed mitigation measures would avoid or reduce effects on archaeological resources to a non-adverse effect under NEPA.

#### *CEQA Determination*

The proposed mitigation measures would avoid or reduce impacts to archaeological resources to a less-than-significant impact under CEQA.

## Alternative 3

### Construction Impacts

The Low-Floor LRT/Tram Alternative would involve shallow excavation during bus stop platform construction in the median, station upgrades, and sidewalk widening. Archaeological site 19-002681 is located in the footprint of this alternative, however, in areas that do not appear to involve construction. If construction were to take place in these site areas, there is a potential for significant impacts/adverse effects to archaeological resources if those resources are damaged or destroyed. Implementation of Mitigation Measure MM AR-1 would avoid or reduce potential impacts on these archaeological resources.

Alternative 3 has a low potential to encounter and adversely affect archaeological resources and human remains. However, construction would involve earth-disturbing activities, and it is still possible that archaeological resources or human remains may be discovered and damaged or destroyed, which would be considered a significant impact/adverse effect. Implementation of Mitigation Measure MM AR-2 would avoid or reduce potential impacts on archeological resources, and Mitigation Measure MM AR-3 would avoid or reduce potential impacts on human remains.

No archaeological resources are recorded within the three proposed MSF sites - Arminta Street, Keswick Street, and Aetna Street. Previous construction in these MSF sites has probably destroyed most subsurface archaeological resources. For this reason, construction of the MSF facility for this alternative has a low potential for ground-disturbing activities to expose and affect previously unknown significant archeological resources. However, there is still a possibility that archaeological materials may be exposed during construction. Grading and trenching, as well as other ground-disturbing actions, have the potential to damage or destroy previously unidentified and potentially significant cultural resources within the project area, including archeological resources. Disturbance of any deposits that have the potential to provide significant cultural data would be considered a significant impact/adverse effect. Implementation of Mitigation Measure MM AR-2 would avoid or reduce potential impacts on cultural resources, including archeological resources, associated with the proposed project.

No human remains have been previously discovered in the MSF site portions of the APE, and no burials or cemeteries are known to occur within the MSF locations. However, construction would involve earth-disturbing activities, and it is still possible that human remains may be discovered, possibly in association with archaeological sites. Compliance with regulatory requirements in conjunction with implementation of Mitigation Measure MM AR-3 would avoid or reduce potential impacts on human remains that are found during ground-disturbing activities.

### Operational Impacts

Operation of Alternative 3 would result in no impacts or effects on archaeological resources.

### Cumulative Impacts

Related and other proposed projects in the study area (i.e., the San Fernando Valley) could require earthmoving activities during construction that could disturb or result in the destruction of archaeological resources, a potentially significant impact. However, under the Low-Floor LRT Alternative, the potential for encountering significant archaeological resources is considered to be low. Additionally, if previously unknown resources are discovered, proposed measures would avoid or mitigate potential impacts to archaeological resources or human remains to a less-than-significant level. As a consequence, and because the related projects may also include mitigation measures to minimize or reduce potential impacts to archaeological resources, Alternative 3 is not expected to result in or contribute to significant cumulative impacts on archaeological resources within the study area.

#### *Compliance Requirements and Design Features*

See compliance requirements described above for Alternative 1.

### Mitigation Measures

#### *Construction Mitigation Measures*

See the mitigation measures described above for Alternative 1.

#### *Operational Mitigation Measures*

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The proposed mitigation measures would avoid or reduce effects on archaeological resources to no adverse effect under NEPA.

#### *CEQA Determination*

The proposed mitigation measures would avoid or reduce impacts to archaeological resources to a less-than-significant level under CEQA.

## Alternative 4

### Construction Impacts

The LRT Alternative would involve shallow excavations for bus stop platform construction in the median, station upgrades and sidewalk widening. There would be 14 stations, three of which would be underground near Sherman Way, the Van Nuys Metrolink station, and Roscoe Boulevard. Entry to the three underground stations would be provided from an entry plaza and portal. Additionally the Low Floor LRT Alternative includes an underground segment beneath Van Nuys Boulevard from just north of Parthenia Street to Hart Street.

Archaeological sites 19-001124 and 19-002681 are both located in the footprint of this alternative, however in areas that do not appear to involve construction. If construction were to take place in these site areas, there is a potential for significant impacts to archaeological resources if those resources are damaged or destroyed. Implementation of Mitigation Measure MM AR-1 would avoid or reduce potential impacts on these archaeological resources to less-than-significant levels.

This alternative requires extensive excavations, but previous ground disturbance at tunnel, plaza, station, and sidewalk locations has probably destroyed subsurface archaeological resources. Due to the extent of excavations, this alternative has a moderate potential for ground-disturbing activities to expose and affect previously unknown significant archeological resources. If resources are encountered, grading and trenching, as well as other ground-disturbing actions, have the potential to damage or destroy previously unidentified and potentially significant archaeological resources within the project area. Disturbance of any deposits that have the potential to provide significant cultural data would be considered a significant impact. Implementation of Mitigation Measure MM AR-2 would avoid or reduce potential impacts.

No human remains have been previously discovered in the APE, and no burials or cemeteries are known to occur within the APE. However, construction would involve earth-disturbing activities, and it is still possible that human remains may be discovered, possibly in association with archaeological sites. Compliance with regulatory requirements and implementation of Mitigation Measure MM AR-3 would avoid or minimize potential impacts on any human remains that are found during ground-disturbing activities.

No archaeological resources are recorded within the three proposed MSF sites, Arminta Street, Keswick Street, and Aetna Street. Previous construction in these MSF sites has probably destroyed most subsurface archaeological resources. For this reason, construction of the MSF facility for this alternative has a low potential for ground-disturbing activities to expose and affect previously unknown significant archeological resources. However, there is still a possibility that archaeological materials may be exposed during construction. If resources are encountered, grading and trenching, as well as other ground-disturbing actions, have the potential to damage or destroy previously these resources. Disturbance of any deposits that have the potential to provide significant cultural data would be considered a significant impact. Implementation of Mitigation Measure MM AR-2 would avoid or reduce potential impacts on archeological resources.

No human remains have been previously discovered in the MSF site portions of the APE, and no burials or cemeteries are known to occur within the MSF locations. However, construction would involve earth-disturbing activities, and it is still possible that human remains may be discovered, possibly in association with archaeological sites. Compliance with regulatory requirements and Mitigation Measure MM AR-3 would avoid or reduce impacts on any human remains that are found during ground-disturbing activities.

### Operational Impacts

The LRT Alternative would result in no operational impacts or effects on archaeological resources.

### Cumulative Impacts

Related and other proposed projects in the study area, i.e., the San Fernando Valley, could require earthmoving activities during construction that could disturb or result in the destruction of archaeological resources, a potentially significant impact. Although the LRT Alternative is not expected to result in impacts to previously identified archaeological resources in the study area, this alternative has a higher potential for encountering significant archaeological resources than the other build alternatives because of the depth and extent of excavation proposed. However, if previously unknown resources are discovered, proposed measures would avoid or reduce potential impacts to archaeological resources or human remains to no adverse or less-than-significant level. As a consequence, and because the related projects may also include mitigation measures to minimize or reduce potential impacts to archaeological resources, the LRT Alternative (Alternative 4) is not expected to result in or contribute to significant cumulative impacts on archaeological resources within the study area.

#### *Compliance Requirements and Design Features*

If human remains are encountered during construction of any of the build alternatives, the NAGPRA requires the person who makes the discovery to immediately notify the responsible federal agency official by phone, presumably the FTA. State Health and Safety Code Section 7050.5 states that further disturbances and activities will cease in any area or nearby area suspected to overlie remains, and the County Coroner be contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the NAHC, who will then notify the Most Likely Descendent (MLD). Metro and the FTA will contact the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable. Also, see mitigation measure MM-AR-3 below.

### Mitigation Measures

#### *Construction Mitigation Measures*

Please see the mitigation measures described above for Alternative 1.

### *Operational Mitigation Measures*

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The proposed mitigation measures would avoid or reduce impacts to archaeological resources to a no adverse effect under NEPA.

#### *CEQA Determination*

The proposed mitigation measures would avoid or reduce impacts to archaeological resources to a less-than-significant level under CEQA.

## 4.16.3.2 Historic Resources

Earth moving and demolition activities could result in the destruction or alteration of cultural resources. Additionally, each of the build alternatives has the potential to cause mild damage to historic properties as a result of temporary vibration caused during construction. Any physical effects caused by vibration would meet Criterion (i) for adverse effect, “Physical destruction of or damage to all or part of the property.” However, even if physical damage would occur due to construction vibration, it is unlikely that the damage caused would diminish the integrity of design, materials, or workmanship in a manner that the properties would no longer qualify for the NRHP.

The Noise and Vibration Impacts Report, (see Appendix M of this EIS/EIR), outlines the predicted FTA damage risk vibration limits for different building types, as well as the predicted vibration levels generated by construction equipment that may be used to construct proposed stations near the historic properties (see Tables 4.16-5 and 4.16-6). None of the buildings within the APE appear to be Building Category IV, such as an adobe building, so the lowest possible threshold of vibration damage would be 0.2 in/sec PPV. All of the buildings are generally at least 25 feet from any proposed construction activities, including the demolition and/or construction of bus stops, kiosks, low-floor LRT and LRT platforms, etc. Please see the full Noise and Vibration Impacts Report for further details on potential vibratory impacts on nearby buildings. The discussion of construction impacts for each of the alternatives follows.

### Table 4.16-5: FTA Construction Vibration Damage Criteria

| Building Category | PPV (in/sec) |
|---|---|
| I. Reinforced-concrete, steel or timber (no plaster) | 0.5 |
| II. Engineered concrete and masonry (no plaster) | 0.3 |
| III. Non-engineered timber and masonry buildings | 0.2 |
| IV. Buildings extremely susceptible to vibration damage | 0.12 |
| Source: FTA Guidance Manual, 2006 | |

### Table 4.16-6: Construction Vibration Predictions for General Construction Equipment

| Equipment | PPV at 25 ft (in/sec) | PPV at 50 ft (in/sec) |
|---|---|---|
| Vibratory Roller | 0.21 | 0.07 |
| Hoe Ram | 0.09 | 0.03 |
| Large Bulldozer | 0.09 | 0.03 |
| Caisson Drilling | 0.09 | 0.03 |
| Loaded Trucks | 0.08 | 0.03 |
| Jackhammer | 0.04 | 0.01 |
| Small Bulldozer | 0.003 | 0.001 |

Source: ATS Consulting, 2014

## No-Build Alternative

### Construction Impacts

Under the No-Build Alternative, no new infrastructure would be built within the study area as part of the project. There would be no construction or vibration effects on historic properties associated under the No-Build Alternative.

### Operational Impacts

The No-Build Alternative, which establishes a baseline for comparison with the other alternatives, involves no construction or changes to the existing transportation systems. No new transportation infrastructure would be built, apart from projects that are currently under construction or funded for construction and operation by 2040.

As no new project facilities are proposed under the No-Build Alternative, no operational impacts on historic properties would occur.

### Cumulative Impacts

Under the No-Build Alternative, there would be no adverse effects or impacts to historic properties; therefore, this alternative would not contribute to cumulative impacts on any historic properties identified as part of this study or as a result of any other planned projects within the region.

### Mitigation Measures

#### *Construction Mitigation Measures*

No mitigation measures are required.

#### *Operational Mitigation Measures*

Operational mitigation measures are not required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

No adverse effect under NEPA would occur.

#### *CEQA Determination*

No impact under CEQA would occur.

## TSM Alternative

### Construction Impacts

The TSM Alternative would include relatively low-cost transit service improvements, such as increased bus frequencies, and possible physical improvements including bus stop amenities/improvements and minor modifications to the roadway network (such as traffic signalization improvements). These improvements would require only light construction equipment, and any construction would be of very short duration. Therefore, no adverse construction or vibration effects on historic properties are anticipated as a result of the TSM Alternative.

### Operational Impacts

The TSM Alternative would involve low-cost transit service improvements such as increased bus frequencies. These operational improvements would have no impact on any historic properties.

### Cumulative Impacts

Under the TSM Alternative, there would be no adverse effects or impacts to historic properties; therefore, this alternative would not contribute to cumulative impacts on the properties identified as part of this study or as a result of any other planned projects within the region.

### Mitigation Measures

#### *Construction Mitigation Measures*

Construction mitigation measures are not required since there are no anticipated construction effects on historic properties as a result of the construction of the proposed transit facilities.

#### *Operational Mitigation Measures*

Operational mitigation measures are not required since there would be no anticipated operational effects on historic properties.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

No adverse effect under NEPA would occur.

#### *CEQA Determination*

Impacts would be less than significant.

## Alternative 1

### Construction Impacts

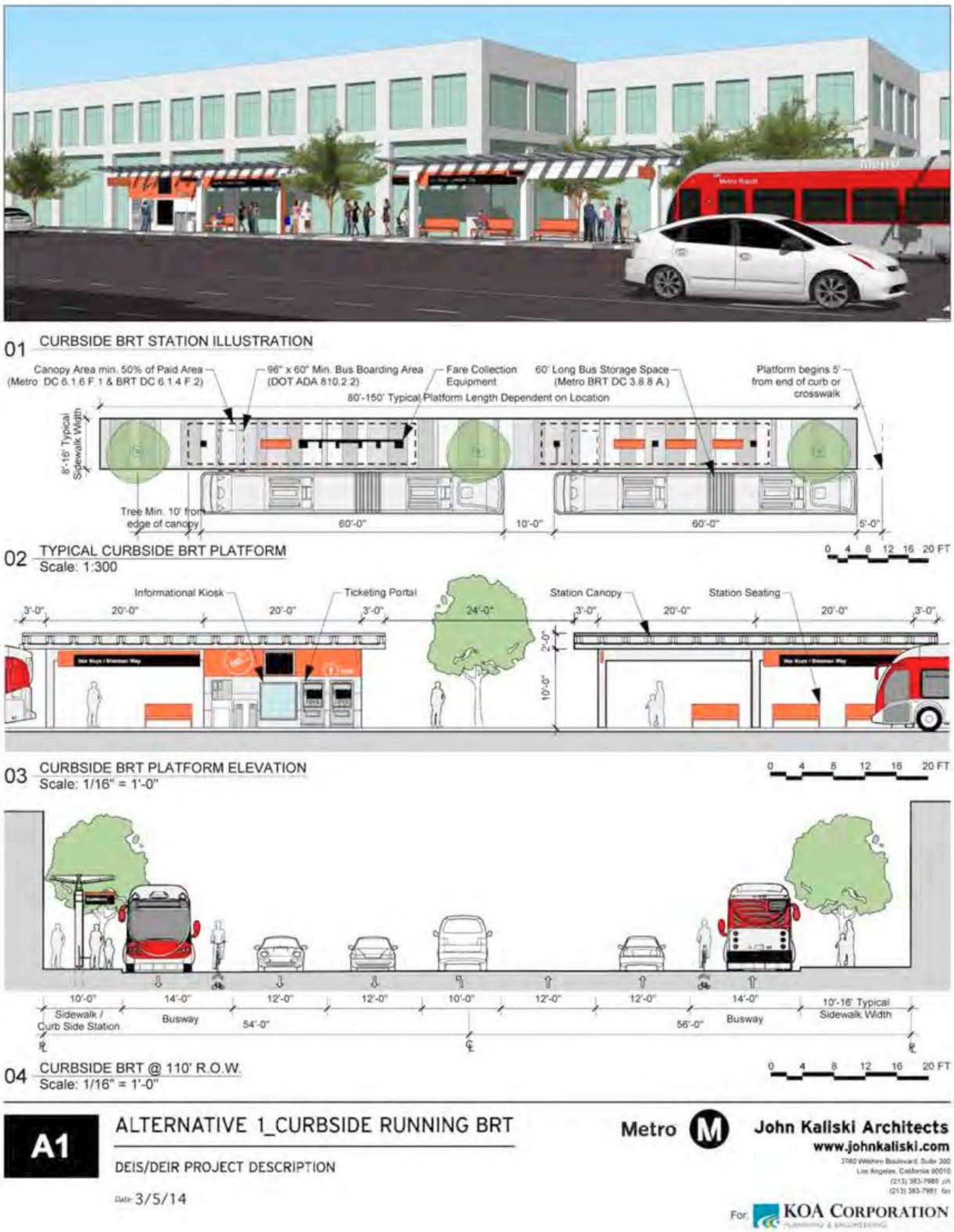
Under Alternative 1, 6.7 miles of existing curb lanes along Van Nuys Boulevard between San Fernando Road and the Metro Orange Line would be converted to dedicated curb-running bus lanes. In addition, this alternative would incorporate 2.5 miles of mixed-flow lanes, where buses would operate in the curb lane along San Fernando Road and Truman Street between Van Nuys Boulevard and Hubbard Avenue.

The Curb-Running BRT Alternative would include construction or upgrading of 18 bus stops at the following locations:

1. Sylmar/San Fernando Metrolink Station
2. Hubbard Station (Hubbard Avenue and Truman Street)
3. Maclay Station (Maclay Avenue and Truman Street)
4. Paxton Station (Paxton Street and San Fernando Road)
5. Van Nuys/San Fernando Station (Van Nuys Boulevard and San Fernando Road)
6. Laurel Canyon Station (Laurel Canyon and Van Nuys Boulevards)
7. Arleta Station (Arleta Avenue and Van Nuys Boulevard)
8. Woodman Station (Woodman Avenue and Van Nuys Boulevard)
9. Plummer Station (Plummer Street and Van Nuys Boulevard)
10. Nordhoff Station (Nordhoff Street and Van Nuys Boulevard)
11. Chase Station (Chase Street and Van Nuys Boulevard)
12. Roscoe Station (Roscoe and Van Nuys Boulevards)
13. Blythe Station (Blythe Street and Van Nuys Boulevard)
14. Van Nuys Metrolink Station (Van Nuys Boulevard and Keswick Street)
15. Sherman Way Station (Sherman Way and Van Nuys Boulevard)
16. Vanowen Station (Vanowen Street and Van Nuys Boulevard)
17. Victory Station (Victory and Van Nuys Boulevards)

Metro Orange Line Station (Van Nuys Boulevard and Metro Orange Line) The bus stop platforms for Alternative 1 would be located on the existing sidewalk. On the platform, there would be a covered Informational Kiosk and Ticketing Portal and a seating area. The kiosk and ticketing portal would be under one canopy and the seating area under a second canopy. The metal canopies would be approximately 10 to 12 feet high, 8 to 10 feet wide and approximately 46 feet long. The two canopies would be approximately 24 feet apart. Sidewalk widening would be required on Truman Street at Hubbard Avenue (Meyer Street) and in both directions at Maclay Avenue where the existing sidewalk is less than 10 feet wide, in order to accommodate the canopy. Figure 4.16-6 and Figure 4.16-7 illustrate a typical station with a canopy that would be constructed under Build Alternative 1.

## Figure 4.16-6: Illustrative Design Details for Curb-Running BRT Alternative




Source: KOA Corporation.

## Figure 4.16-7: Architectural Rendering for Curb-Running BRT Alternative


Source: KOA Corporation, 2015.

Under Alternative 1, there are 5 historic properties that have a potential to be affected by the construction of proposed bus stations. None of the buildings within the APE appear to be Building Category IV, such as an adobe building, so the lowest possible threshold of vibration damage would be 0.2 in/sec PPV. The highest predicted level of vibration for an aboveground station is the use of a vibratory roller at 0.21 in/sec PPV from a distance of 25 feet (see Tables 4.16-5 and 4.16-6 for additional information regarding the FTA construction damage criteria and predictions of vibration caused by typical construction equipment).

1. 1601 San Fernando Road – Approximately 180 feet from proposed Hubbard Station
2. 6353 Van Nuys Boulevard – Approximately 100 feet from proposed Victory Station
3. 8201 Van Nuys Boulevard – Over 200 feet from proposed Roscoe Station
4. 8324 Van Nuys Boulevard – Approximately 40 feet from proposed Roscoe Station
5. 9110 Van Nuys Boulevard – Approximately 50 feet from proposed Nordhoff Station

As the above 5 properties are located more than 25 feet away from the proposed construction areas, equipment used for the construction of a bus station would not exceed the predicted FTA damage risk vibration limits. Therefore, this alternative would not result in adverse effects on any historic properties during construction.

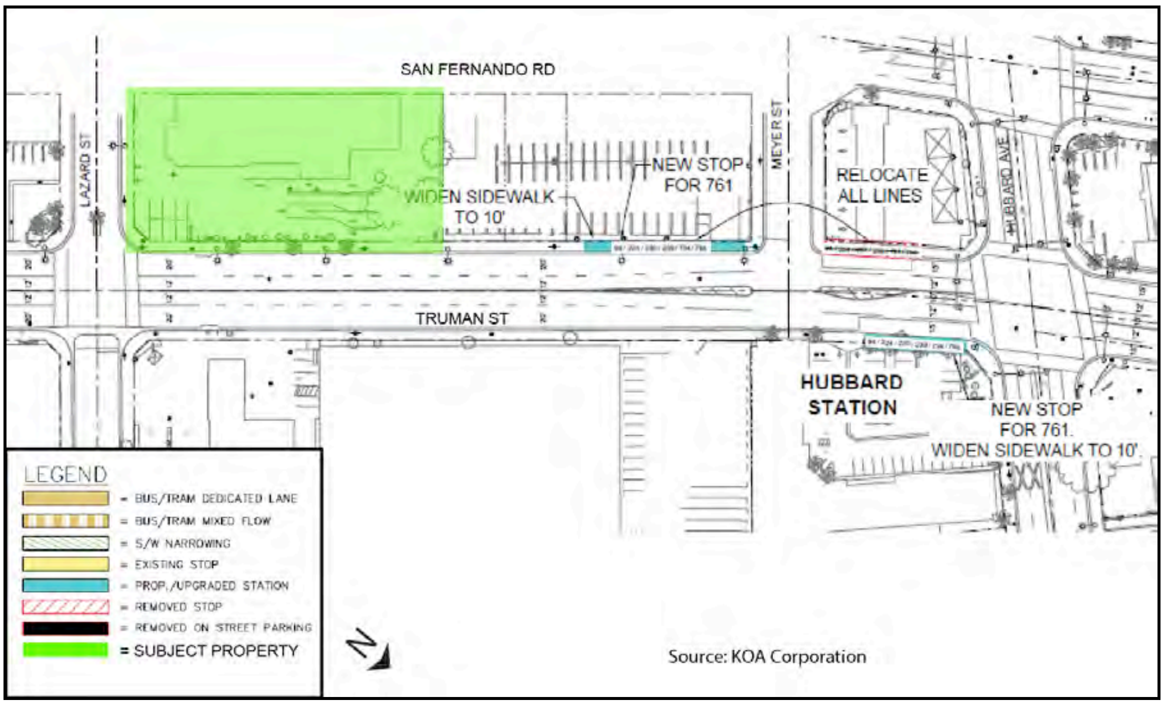
### Operational Impacts

As the operation of a curb-running bus lane will not involve a change in use, demolition, alteration, removal, or neglect of a historic property, nor are any of the historic properties within the study area under federal ownership, the only potential operational impacts or effects that could occur under Alternative 1 would be limited to potential visual effects that could be caused by the introduction of a new feature within a historic property's setting (see Section 4.16.1.3 for a list of criteria for adverse effect). Thus, the applicable criterion for determining an adverse effect would be Criterion v: introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features. This Criterion generally addresses potential changes to a historic property's integrity of setting. Under Criterion v, this alternative would not result in atmospheric or audible elements that could diminish significant historic features of any of the properties; therefore, the discussion of impacts below focuses on the introduction of visual elements.

There are 10 historic properties in the APE. Five of the historic properties have the potential to be affected due to the introduction of visual elements under Alternative 1; however, based on the evaluations below, Alternative 1 would not cause an adverse effect on any historic properties because none of the new features would diminish the setting of any historic property in a manner that the property would no longer be eligible for the NRHP.

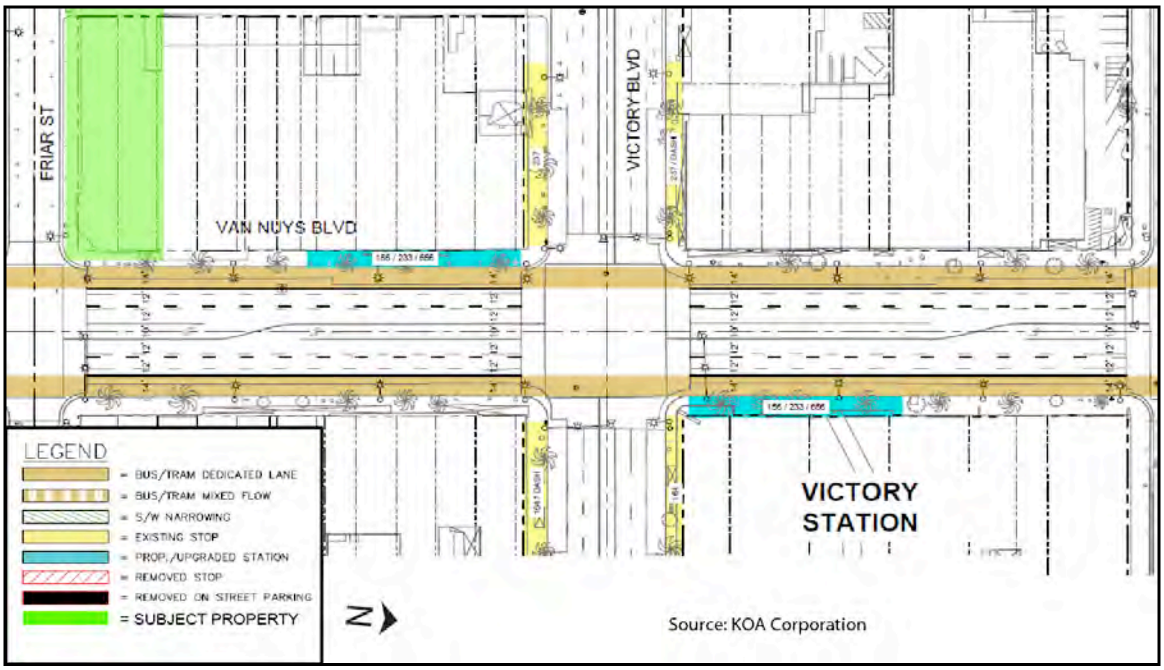
### 1. 1601 San Fernando Road

Under Alternative 1, the southbound Hubbard Station would be constructed along Truman Street at the southwest corner of Truman and Meyer Streets. While the historic property (indicated with green shading in the figure below) is near the proposed bus stop canopy and ticketing kiosk (indicated with light blue shading in the figure below), the station would be located to the rear of the property that faces Truman Street. The primary views of the historic car wash from San Fernando Road and Lazar Street would not be adversely affected by a new visual element or the sidewalk widening required to accommodate the new bus stop canopies. The property is already located in an urban area with existing bus service and other vehicular traffic. Streetscape elements, such as billboards, bus stops, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new bus station would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. Therefore, this alternative would not result in adverse effects on this historic property.



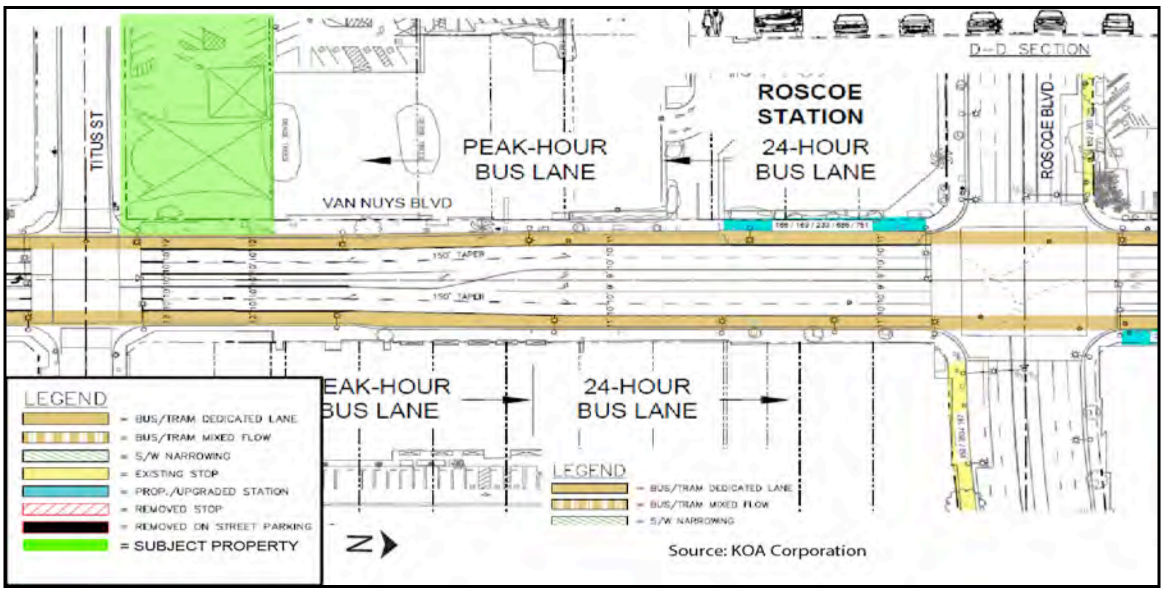
### 2. 6353 Van Nuys Boulevard

Under Alternative 1, the proposed southbound Victory Station would be constructed along Van Nuys Boulevard at the southwest corner of Van Nuys and Victory Boulevards. While the historic property (indicated with green shading) is near the proposed station (indicated with light blue shading), the station would not be constructed directly in front of the building. The primary views of the historic property from Van Nuys Boulevard and Friar Street would not be adversely affected by a new visual element. The property is already located in a dense urban area with existing bus service and other vehicular traffic. Streetscape elements, such as billboards, bus stops, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new bus station at the opposite end of the block would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. Therefore, this alternative would not result in adverse effects on this historic property.



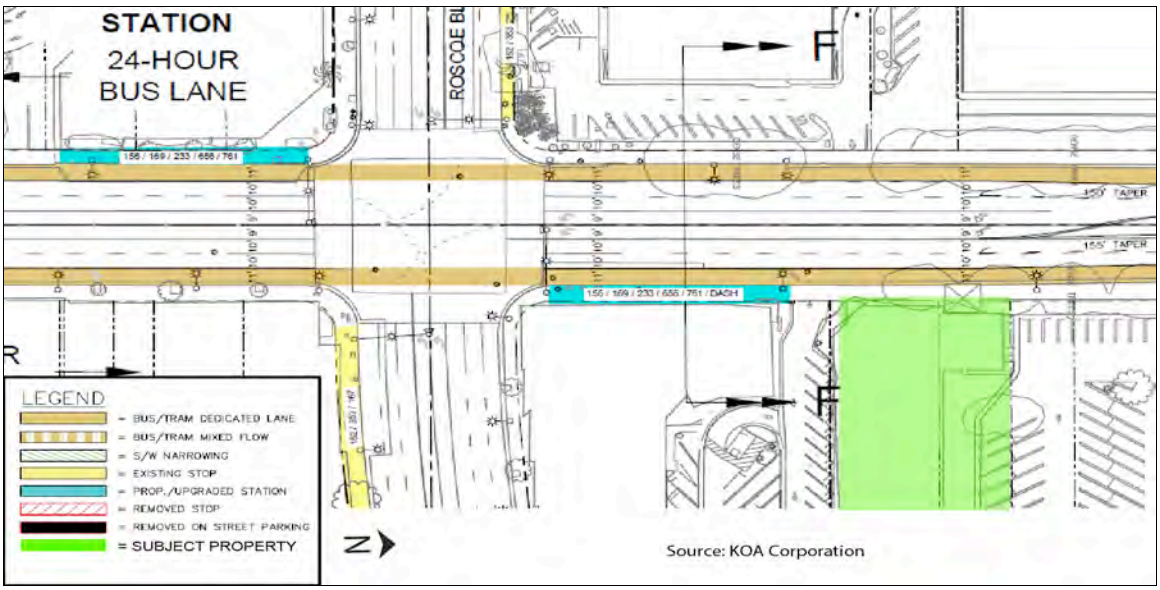
### 3. 8201 Van Nuys Boulevard

Under Alternative 1, the proposed southbound Roscoe Station would be constructed along Van Nuys Boulevard at the southwest corner of Roscoe and Victory Boulevards. While the historic property (indicated with green shading) is near the proposed station (indicated with light blue shading), the new station would not be constructed directly in front of the historic property. The primary views of the historic building from Van Nuys Boulevard and Titus Street would not be adversely affected by a new visual element down the street. The property is already located in a dense urban area with existing bus service and other vehicular traffic. Streetscape elements, such as billboards, bus stops, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new bus station would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. Therefore, this alternative would not result in adverse effects on this historic property.



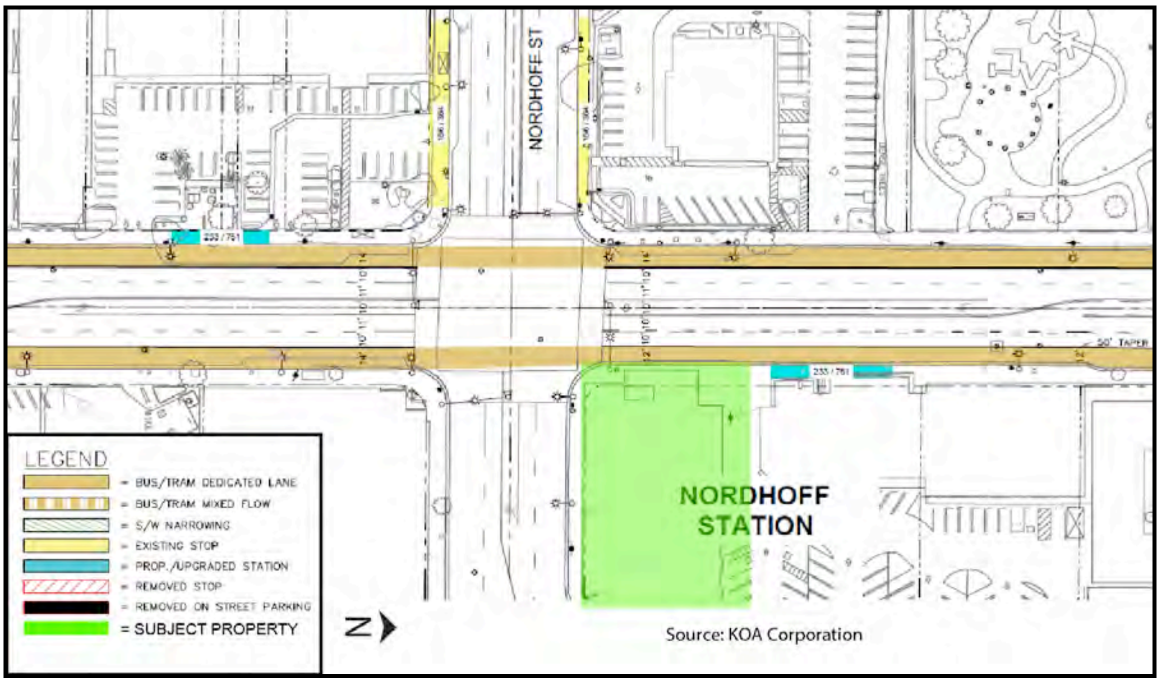
### 4. 8324 Van Nuys Boulevard

Under Alternative 1, the proposed northbound Roscoe Station would be constructed along Van Nuys Boulevard north of its intersection with Roscoe Street. While the historic property (indicated with green shading) is near the proposed station (indicated with light blue shading), the station would not be constructed directly in front of the building. The primary view of the building from Van Nuys Boulevard would not be adversely affected by a new visual element. The property is already located in a dense urban area with existing bus service and other vehicular traffic. Streetscape elements, such as billboards, bus stops, lighting and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new bus station would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. Therefore, this alternative would not result in adverse effects on this historic property.



### 5. 9110 Van Nuys Boulevard

Under Alternative 1, the proposed northbound Nordhoff Station would be constructed along Van Nuys Boulevard north of its intersection with Nordhoff Street. While the historic property (indicated with green shading) is near the proposed station (indicated with light blue shading), the station would not be constructed directly in front of the building. The primary views of the building from Van Nuys Boulevard and Nordhoff Street would not be adversely affected by a new visual element. The property is already located in a dense urban area with existing bus service and other vehicular traffic. Streetscape elements, such as billboards, bus stops, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new bus station would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. Therefore, this alternative would not result in adverse effects on this historic property.



### Cumulative Impacts

Under the Curb-Running BRT Alternative, there would be no adverse effects or impacts to historic properties; therefore, this alternative would not contribute to cumulative impacts on the properties identified as part of this study or as a result of any other planned projects within the region.

### Mitigation Measures

#### *Construction Mitigation Measures*

Construction mitigation measures are not required since there are no anticipated construction effects on historic properties as a result of the construction of the proposed transit facilities.

#### *Operational Mitigation Measures*

Operational mitigation measures are not required since there would be no anticipated operational effects on historic properties.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

No adverse effect under NEPA would occur.

#### *CEQA Determination*

Impacts would be less than significant.

## Alternative 2

### Construction Impacts

Alternative 2 would provide approximately 6.7 miles of dedicated median-running bus lanes along Van Nuys Boulevard between San Fernando Road and the Metro Orange Line; the median-running bus lanes would be similar in operation to the Metro Orange Line. The remaining 2.5 miles of the route would operate in traffic between the Sylmar/San Fernando Metrolink and the intersection of San Fernando Road and Van Nuys Boulevard.

Five existing bus stops along Truman Street and San Fernando Road would be upgraded and include ADA-compliant design upgrades:

1. Sylmar/San Fernando Metrolink Station
2. Hubbard Station
3. Maclay Station
4. Paxton Station
5. Van Nuys/San Fernando Station

In addition to upgrading 5 existing stations, the Median-Running BRT Alternative would include construction of 12 new bus stops platforms in the median at the following locations:

1. Laurel Canyon Station (Laurel Canyon and Van Nuys Boulevards)
2. Arleta Station (Arleta Avenue and Van Nuys Boulevard)
3. Woodman Station (Woodman Avenue and Van Nuys Boulevard)
4. Plummer Station (Plummer Street and Van Nuys Boulevard)
5. Nordhoff Station (Nordhoff Street and Van Nuys Boulevard)
6. Roscoe/Chase Station (Van Nuys Boulevard between Roscoe Boulevard and Chase Street)
7. Blythe Station (Blythe Street and Van Nuys Boulevard)
8. Van Nuys Metrolink Station (Van Nuys Boulevard and Keswick Street)
9. Sherman Way Station (Sherman Way and Van Nuys Boulevard)
10. Vanowen Station (Vanowen Street and Van Nuys Boulevard)
11. Victory Station (Victory and Van Nuys Boulevards)
12. Metro Orange Line Station (Van Nuys Boulevard and Metro Orange Line)

The new bus stop platforms for Alternative 2 would be located near the center of Van Nuys Boulevard. On the platform, there would be a ticketing portal, seating, and an informational kiosk. The seating would be located under a station canopy. The metal canopy would be approximately 10 to 12 feet high, 8 to 10 feet wide, and approximately 105 feet long. The entire platform would be approximately 190 to 330 feet long, depending on the location. The kiosk and ticketing portal would be approximately 12 to 14 feet high. Sidewalk widening would be required on Truman Street at Hubbard Avenue (Meyer Street) and both directions at Maclay Avenue where the existing sidewalk is less than 10 feet wide, in order to accommodate the canopy. Figure 4.16-8 and Figure 4.16-9 illustrate a typical station with a canopy that would be constructed under Alternative 2.

The upgraded bus stops at Hubbard Avenue and Maclay Avenue would require widening of the sidewalks to 10 feet to accommodate the bus stop canopies. Due to the narrow sidewalk width, the southbound bus stop at Hubbard Avenue would be shifted south of Meyer Street.

## Figure 4.16-8: Illustrative Design Details for Median-Running BRT Alternative


Source: KOA Corporation.

## Figure 4.16-9: Architectural Rendering for Median-Running BRT Alternative

Source: KOA Corporation, 2014.

Under Alternative 2, there are 4 historic properties that have a potential to be affected by the construction of proposed bus stations. None of the buildings within the APE appear to be Building Category IV, such as an adobe building, so the lowest possible threshold of vibration damage would be 0.2 in/sec PPV. The highest predicted level of vibration for an aboveground station is the use of a vibratory roller at 0.21 in/sec PPV from a distance of 25 feet (see Tables 4.16-5 and 4.16-6 for additional information regarding the FTA construction damage criteria and predictions of vibration caused by typical construction equipment).

1. 1601 San Fernando Road – Approximately 180 feet from proposed Hubbard Station
2. 6353 Van Nuys Boulevard – Approximately 40 feet from proposed Victory Station
3. 8324 Van Nuys Boulevard – Approximately 80 feet from proposed Roscoe/Chase Station
4. 9110 Van Nuys Boulevard – Approximately 20 feet from proposed Nordhoff Station

As 3 of the above properties are located more than 25 feet away from the proposed construction areas, equipment used for the construction of a bus station would not exceed the predicted FTA damage risk vibration limits. While use of a vibratory roller during construction could generate vibration of up to 0.21 in/sec PPV at a range of 25 feet, and 9110 Van Nuys Boulevard is less than 25 feet away from the proposed stop, the building is of reinforced concrete construction and can therefore withstand predicted vibration levels of 0.5 in/sec PPV. Therefore, this alternative would not result in adverse effects on any historic properties during construction.

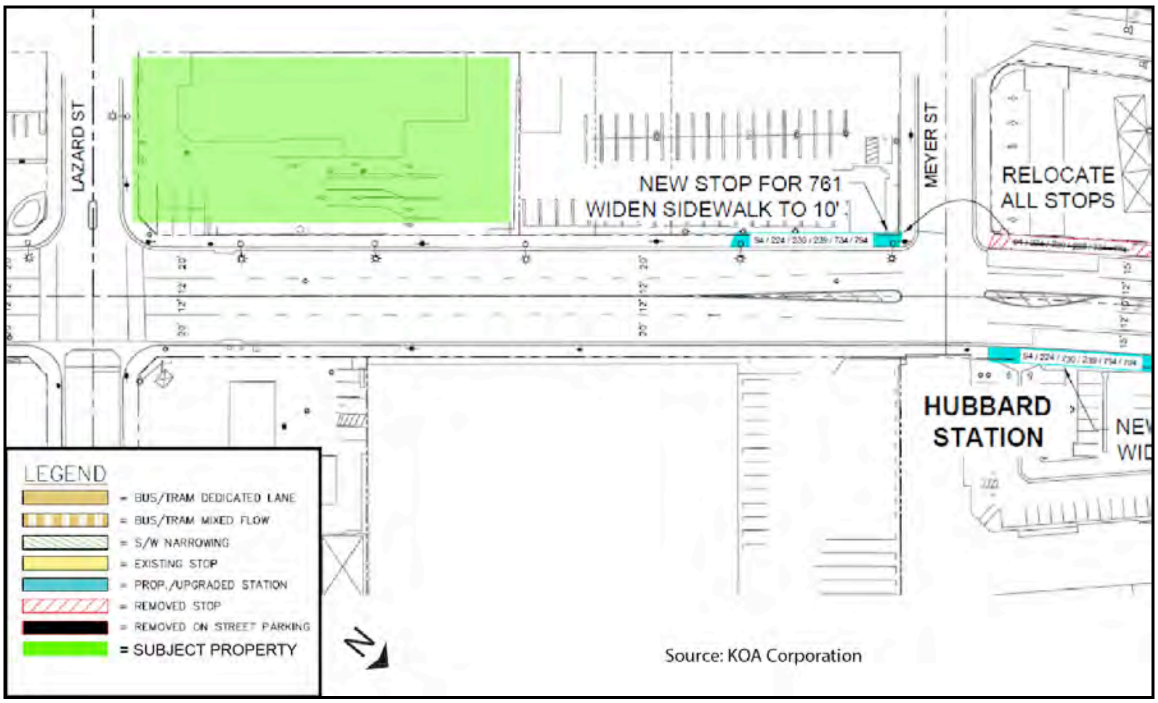
### Operational Impacts

As the operation of a median-running bus lane will not involve a change in use, demolition, alteration, removal, or neglect of a historic property, nor are any of the historic properties within the study area under federal ownership, the only potential operational impacts or effects that could occur under Alternative 2 would be limited to potential visual effects that could be caused by the introduction of new visual features within a historic property's setting (see Section 4.16.1.3 for a list of criteria for adverse effect). Therefore, the only applicable criterion for adverse effect is Criterion v: introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features. This Criterion generally addresses potential changes to a historic property's integrity of setting. Under Criterion v, this alternative would not result in atmospheric or audible elements that could diminish significant historic features of any the properties; therefore, the discussion of impacts below focuses on the introduction of visual elements.

There are 10 historic properties in the APE. Four of the historic properties have a potential to be affected by the introduction of the introduction of new visual elements under Alternative 2; however, based on the evaluations below, Alternative 2 would not cause an adverse effect on any historic properties because none of the new features would diminish the setting of any historic property in a manner that the property would no longer be eligible for the NRHP.

### 1. 1601 San Fernando Road

Under Alternative 2, the southbound Hubbard Station along Truman Street at the southwest corner of Truman and Meyer Streets would be upgraded. While the historic property (indicated with green shading) is near the proposed station (indicated with light blue shading), the station would be located to the rear of the property that faces Truman Street. The primary views of the building from San Fernando Road and Lazar Street would not be adversely affected by a new visual element or the sidewalk widening. The property is already located in an urban area with existing bus service and other vehicular traffic. Streetscape elements, such as billboards, bus stops, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new bus station would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. Therefore, this alternative would not result in adverse effects on this historic property.

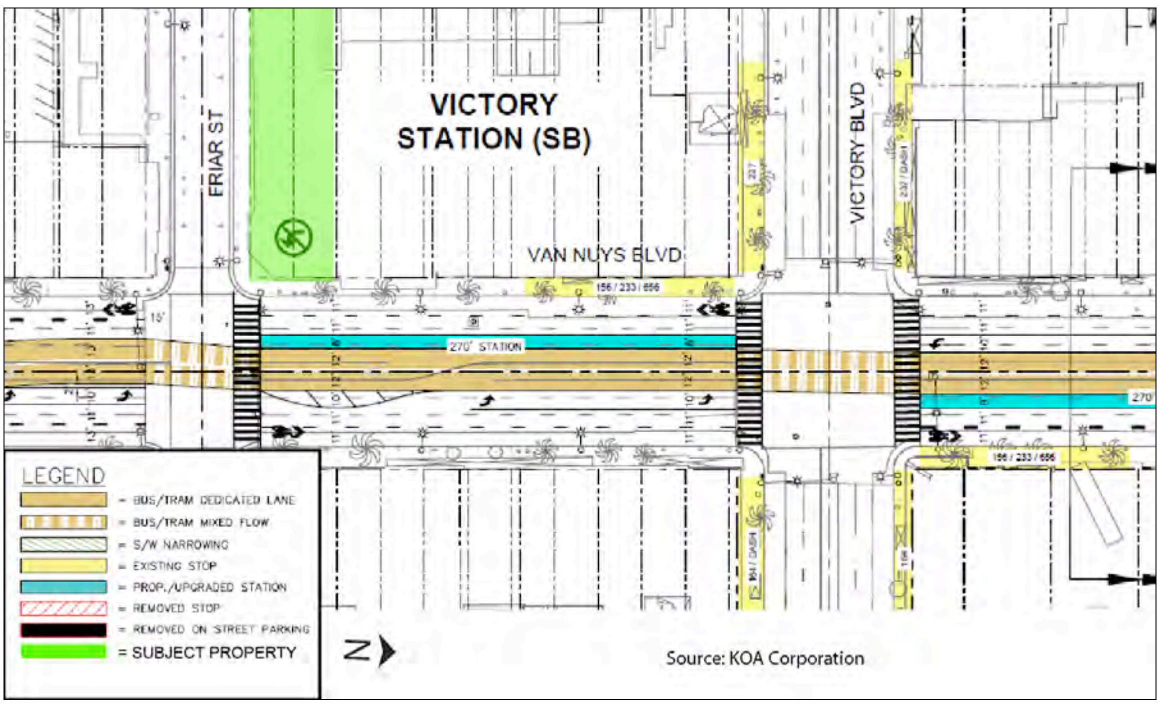





Metro

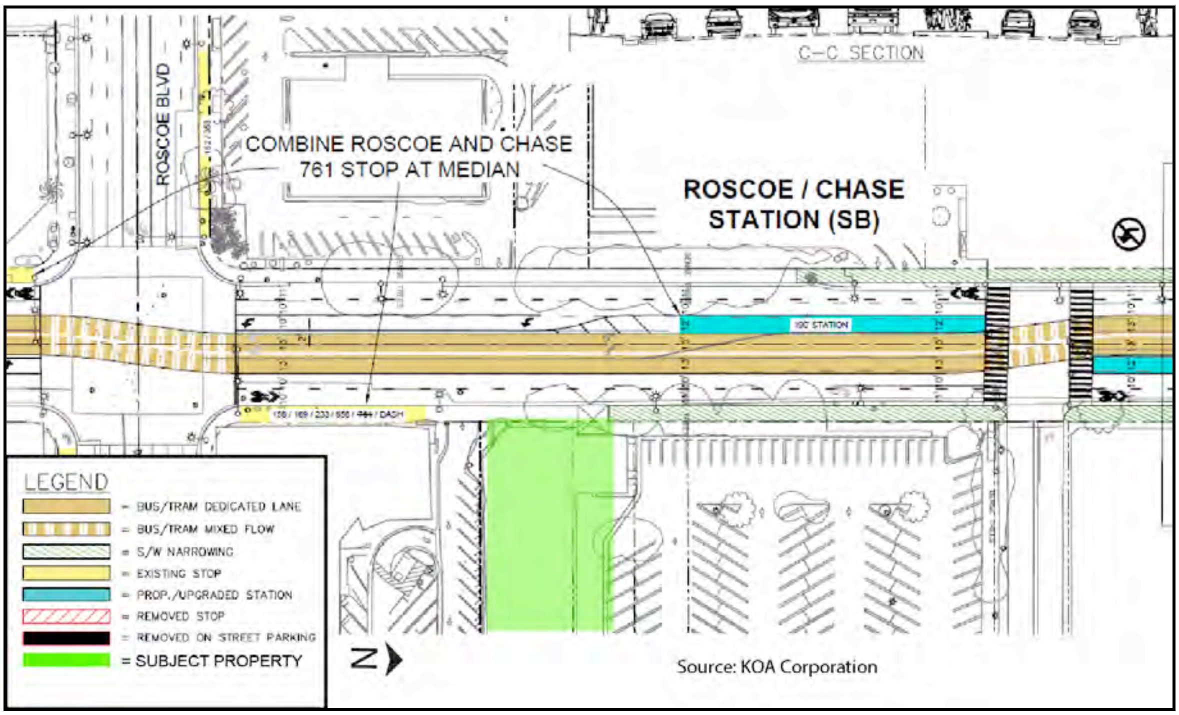
### 2. 6353 Van Nuys Boulevard

Under Build Alternative 2, the proposed southbound Victory Station would be constructed near the center of Van Nuys Boulevard between the intersection of Victory Boulevard and Friar Street. While the historic property (indicated with green shading) is near the proposed station (indicated with light blue shading), the station would not be constructed directly in front of the building; there would be two lanes of traffic separating the property from the proposed bus station. The primary views of the building from the west side of Van Nuys Boulevard and Friar Street would not be adversely affected by a new visual element. While the view might be obscured from the east side of Van Nuys Boulevard, the property is already located in a dense urban area with existing bus service and other vehicular traffic. Streetscape elements, such as billboards, bus stops, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new bus station would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. Therefore, this alternative would not result in adverse effects on this historic property.



### 3. 8324 Van Nuys Boulevard

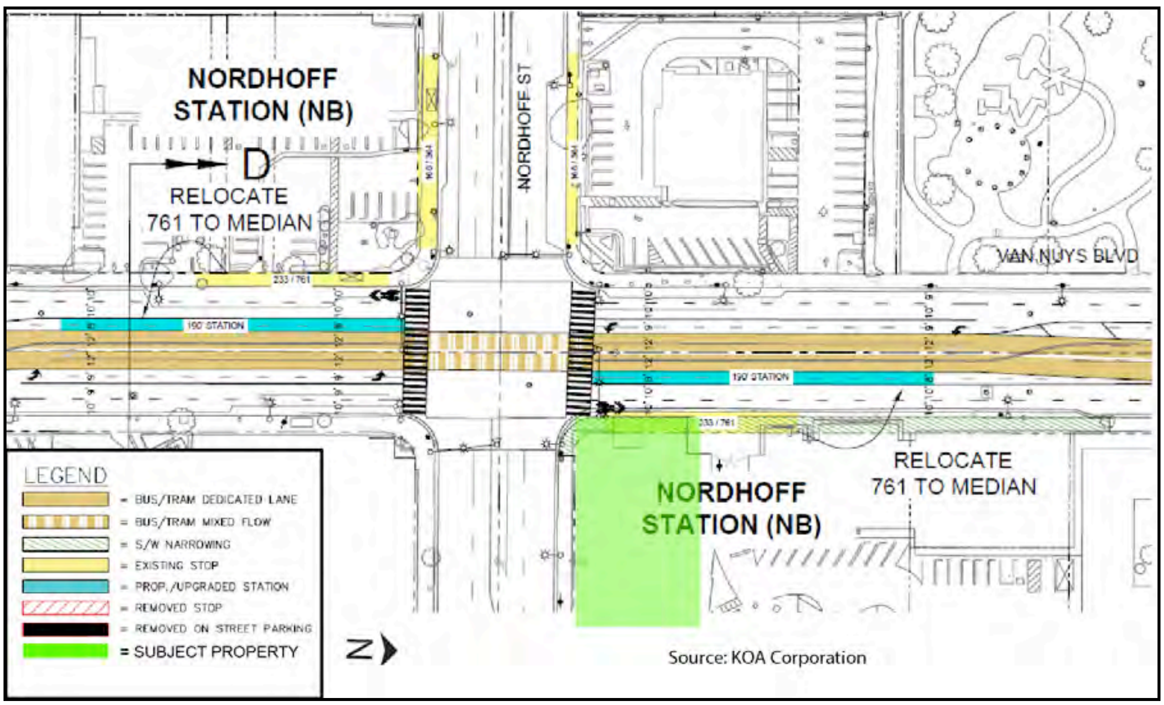
Under Alternative 2, the proposed southbound Roscoe/Chase Station would be constructed near the center of Van Nuys Boulevard north of its intersection with Roscoe Street. While the historic property (indicated with green shading) is near the proposed station (indicated with light blue shading), the station would not be constructed directly in front of the building. The primary view of the building from Van Nuys Boulevard would not be adversely affected by a new visual element. The property is already located in a dense urban area with existing bus service and other vehicular traffic. Streetscape elements, such as billboards, bus stops, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new bus station would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. Therefore, this alternative would not result in adverse effects on this historic property.




Source: KOA Corporation

### 4. 9110 Van Nuys Boulevard

Under Alternative 2, the proposed northbound Nordhoff Station would be constructed near the center of Van Nuys Boulevard north of its intersection with Nordhoff Street. While the historic property (indicated with green shading) is near the proposed station (indicated with light blue shading), the station would not be constructed directly in front of the building; there would be two lanes of traffic separating the property from the proposed bus station. The primary views of the building from the east side of Van Nuys Boulevard and Nordhoff Street would not be adversely affected by a new visual element. While the view might be obscured from the west side of Van Nuys Boulevard, the property is already located in a dense urban area with existing bus service and other vehicular traffic. Streetscape elements, such as billboards, bus stops, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new bus station would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. Therefore, this alternative would not result in adverse effects on this historic property.



### Cumulative Impacts

Under the Median-Running BRT Alternative, there would be no adverse effects or impacts to historic properties; therefore, this alternative would not contribute to cumulative impacts on the properties identified as part of this study or as a result of any other planned projects within the region.

### Mitigation Measures

#### *Construction Mitigation Measures*

Construction mitigation measures are not required since there are no anticipated construction effects on historic properties as a result of the construction of the proposed transit facilities.

#### *Operational Mitigation Measures*

Operational mitigation measures are not required since there would be no anticipated operational effects on historic properties.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

No adverse effect under NEPA would occur.

#### *CEQA Determination*

Impacts under CEQA would be less than significant.

## Alternative 3

### Construction Impacts

Alternative 3 would operate along a 9.2-mile route from the Sylmar/San Fernando Metrolink Station to the north, to the Van Nuys Metro Orange Line Station to the south as described below.

- From the Sylmar/San Fernando Metrolink station, the Low-Floor LRT/Tram would operate within a median dedicated guideway on San Fernando Road.
- At Wolfskill Street, the Low-Floor LRT/Tram would operate within mixed-flow travel lanes on San Fernando Road to Van Nuys Boulevard.
- At Van Nuys Boulevard, the Low-Floor LRT/Tram would turn southwest and travel south within the median of Van Nuys Boulevard in a new dedicated guideway.
- The Low-Floor LRT/Tram would continue to operate in the median along Van Nuys Boulevard until reaching its terminus at the Van Nuys Metro Orange Line Station.

Alternative 3 would operate using low-floor articulated tram vehicles that would be electrically powered using overhead wires. This alternative includes supporting facilities, such as an overhead contact system (OCS), traction power substations, (TPSS), signaling, and a maintenance and storage facility (MSF).

Stations for the Low-Floor LRT/Tram Alternative would be constructed at various intervals along the entire route. There are portions of the route where stations would be closer together, and other portions where they would be located further apart. Twenty-eight ADA-compliant stations are proposed with the Low-Floor LRT/Tram Alternative:

1. Sylmar/San Fernando Metrolink Station
2. Maclay Station (Maclay Avenue and San Fernando Road)
3. Paxton Station (Paxton Street and San Fernando Road)
4. Van Nuys/San Fernando Station (Van Nuys Boulevard and San Fernando Road)
5. Telfair Station (Telfair Avenue and Van Nuys Boulevard)
6. Haddon Station (Haddon Avenue and Van Nuys Boulevard)
7. Laurel Canyon Station (Laurel Canyon and Van Nuys Boulevards)
8. Arleta Station (Arleta Avenue and Van Nuys Boulevard)
9. Beachy Station (Beachy Avenue and Van Nuys Boulevard)
10. Woodman Station (Woodman Avenue and Van Nuys Boulevard)
11. Plummer Station (Plummer Street and Van Nuys Boulevard)
12. Tupper Station (Tupper Street and Van Nuys Boulevard)
13. Nordhoff Station (Nordhoff Street and Van Nuys Boulevard)
14. Parthenia North Station (Parthenia Street and Van Nuys Boulevard)
15. Parthenia South Station (Parthenia Street and Van Nuys Boulevard)
16. Chase Station (Chase Street and Van Nuys Boulevard)
17. Roscoe Station (Roscoe and Van Nuys Boulevards)
18. Lanark Station (Lanark Street and Van Nuys Boulevard)
19. Blythe Station (Blythe Street and Van Nuys Boulevard)
20. Saticoy/Metrolink Station (Van Nuys Boulevard and Keswick Street)
21. Valerio Station (Valerio Street and Van Nuys Boulevard)
22. Sherman Way Station (Sherman Way and Van Nuys Boulevard)
23. Hart/Vose Station (Hart Street and Van Nuys Boulevard)
24. Vanowen Station (Vanowen Street and Van Nuys Boulevard)
25. Kittredge Station (Kittredge Street and Van Nuys Boulevard)
26. Victory Station (Victory and Van Nuys Boulevards)
27. Erwin/Sylvan Station (Sylvan Street and Van Nuys Boulevard)
28. Metro Orange Line Station (Van Nuys Boulevard and Metro Orange Line)

The new Low-Floor LRT/Tram platforms for Alternative 3 would be located near the center of the street. The platforms would be raised up to 14 inches from the street with an ADA-Accessible ramp. On the platform, there would be a ticketing portal, seating, and an informational kiosk. The seating would be located under a station canopy. The metal canopy would be approximately 10 to 12 feet high, 8 to 10 feet wide and approximately 150 feet long. The total platform would be approximately 270 to 450 feet long, depending on the location. The kiosk and ticketing portal would be approximately 12 to 14 feet high. OCS poles would be approximately 30 feet tall and placed every 90 to 170 feet between the two Low-Floor LRT/Tram tracks. The TPSSs, which are electrical substations, would be placed every 1 to 1.5 miles, for a total of 9 miles along the entire route; TPSSs would be approximately 60 by 80 feet and 12 to 14 feet high.

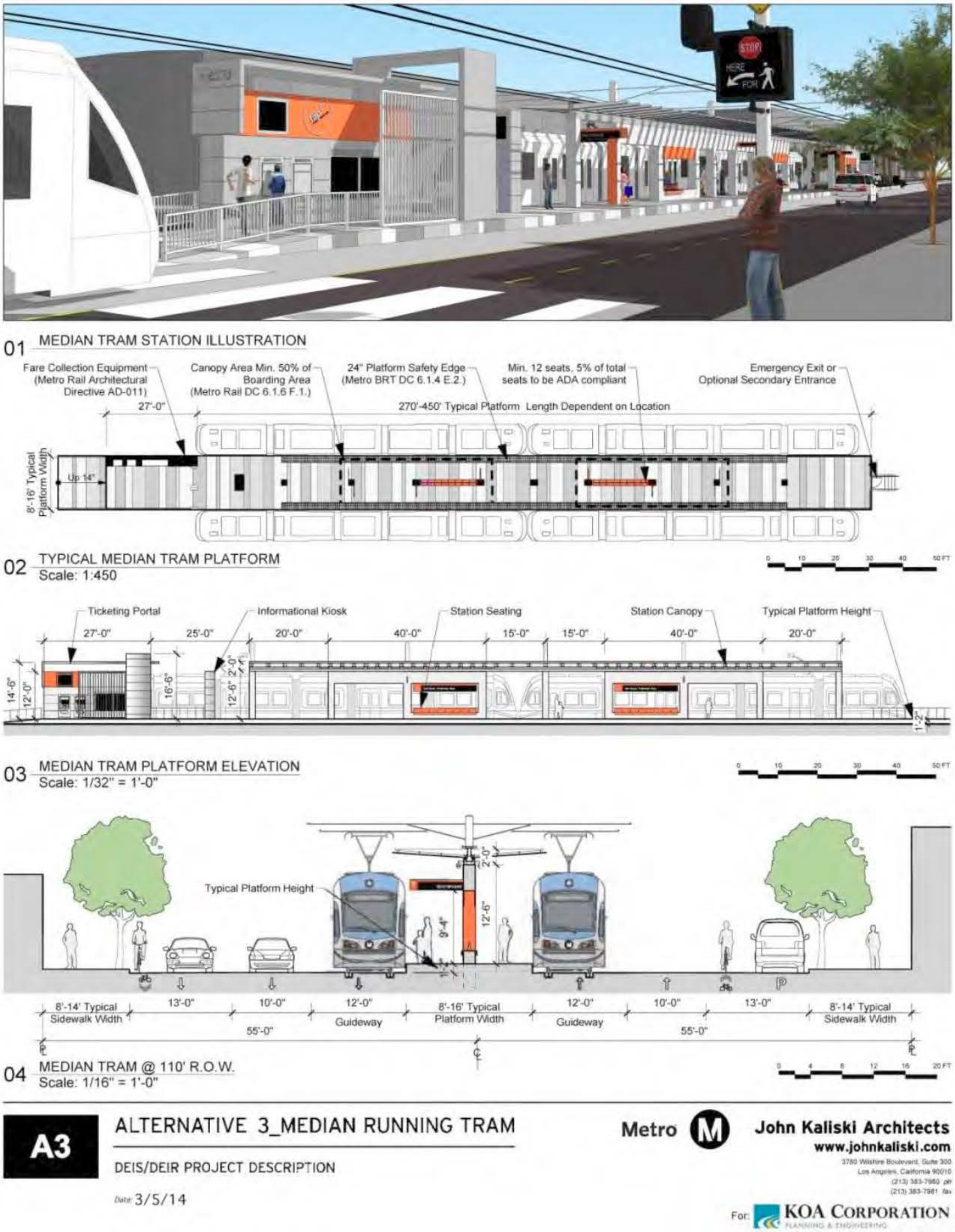
Three possible MSF sites are proposed:

- MSF Option A – Van Nuys Boulevard/Metro Orange Line
- MSF Option B – Van Nuys Boulevard/Keswick Street
- MSF Option C – Van Nuys Boulevard/Arminta Street

The MSF site would be an operational and administrative facility. The site would be comprised of maintenance and repair shops, storage areas for vehicles, materials, and tools, staff offices, break rooms, and dispatcher work areas. The MSF would serve as a point of origin and terminus for daily service.

Figure 4.16-10 and Figure 4.16-11 illustrate a typical station with a canopy that would be constructed under Alternative 3.

## Figure 4.16-10: Illustrative Design Details for Low-Floor LRT/Tram Alternative




Source: KOA Corporation, 2014.

## Figure 4.16-11: Architectural Rendering for Low-Floor LRT/Tram Alternative

Source: KOA Corporation, 2014.

Under Alternative 3, there are 5 historic properties that have a potential to be affected by the construction of proposed tram stations. None of the buildings within the APE appear to be Building Category IV, such as an adobe building, so the lowest possible threshold of vibration damage would be 0.2 in/sec PPV. The highest predicted level of vibration for an aboveground station is the use of a vibratory roller at 0.21 in/sec PPV from a distance of 25 feet (see Tables 4.16-5 and 4.16-6 for additional information regarding the FTA construction damage criteria and predictions of vibration caused by typical construction equipment).

1. 1140 San Fernando Road – Approximately 80 feet from proposed Maclay Station
2. 6353 Van Nuys Boulevard – Approximately 30 feet from proposed Victory Station
3. 6551 Van Nuys Boulevard – Approximately 40 feet from proposed Kittridge Station
4. 8324 Van Nuys Boulevard – Approximately 40 feet from proposed Roscoe Station
5. 9110 Van Nuys Boulevard – Approximately 20 feet from proposed Nordhoff Station

As 4 of the above properties are located more than 25 feet away from the proposed construction areas, equipment used for the construction of an LRT station or MSF site would not exceed the predicted FTA damage risk vibration limits. While use of a vibratory roller during construction could generate vibration of up to 0.21 in/sec PPV at a range of 25 feet, and 9110 Van Nuys Boulevard is less than 25 feet away from the proposed stop, the building is made of reinforced concrete construction, and can therefore withstand predicted vibration levels of 0.5 in/sec PPV.

Under Alternative 3, there is 1 historic property that has the potential to be affected by the construction of proposed MSF Option A – Van Nuys Boulevard/Metro Orange Line. None of the buildings within the APE appear to be Building Category IV, such as an adobe building, so the lowest possible threshold of vibration damage would be 0.2 in/sec PPV. The highest predicted level of vibration for an aboveground MSF site is the use of a vibratory roller at 0.21 in/sec PPV from a distance of 25 feet (see Tables 4.16-5 and 4.16-6 for additional information regarding the FTA construction damage criteria and predictions of vibration caused by typical construction equipment).

1. 14601–3 Aetna Street – Approximately 120 feet from proposed LRT tracks at MSF site

As the historic property is located more than 100 feet away from the nearest new element (tracks) proposed as part of the MSF, the equipment used for the construction of the MSF would not exceed the predicted FTA damage risk vibration limits.

Therefore, this alternative would not result in adverse effects on any historic properties during construction.

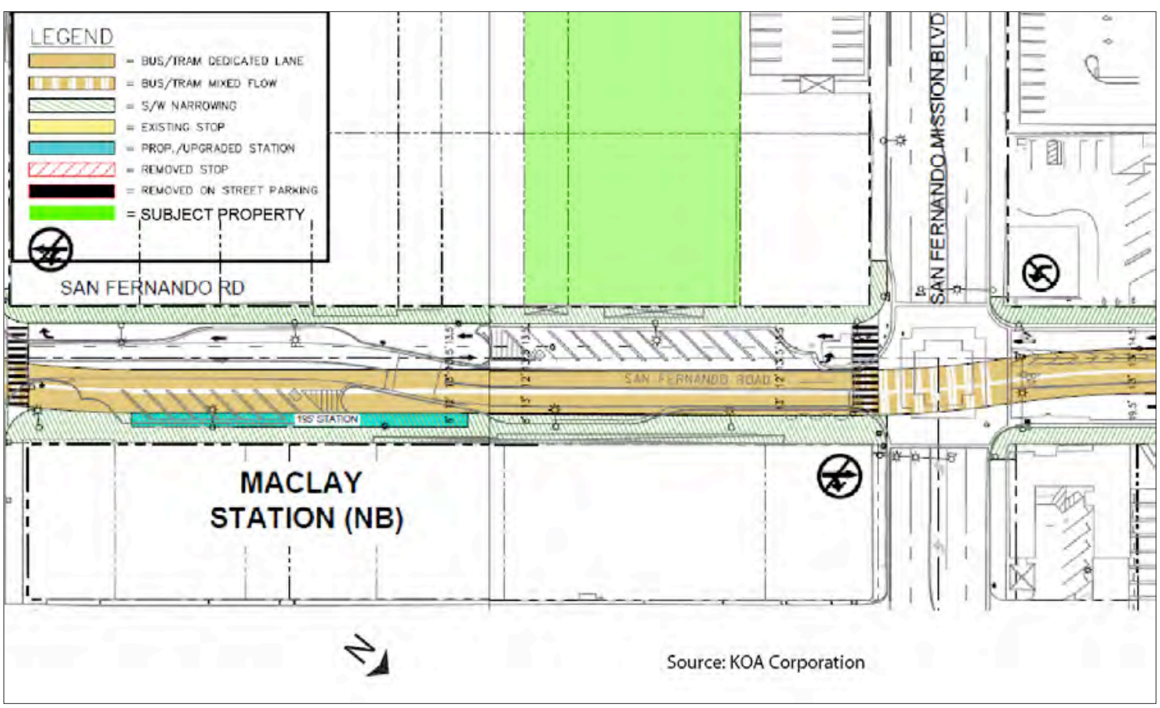
### Operational Impacts

As the operation of a low-floor LRT/Tram will not involve a change in use, demolition, alteration, removal, or neglect of a property, nor are any of the historic properties within the study area under federal ownership, the only potential operational impacts or effects that could occur under Alternative 3 would be potential visual effects that could be caused by the introduction of a new visual feature within the setting of a historic property (see Section 4.16.1.3 for a list of criteria for adverse effect). Therefore, the applicable Criterion for adverse effect would be Criterion v: introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features. Criterion v generally addresses potential changes to a historic property's integrity of setting. Under Criterion v, this alternative would not result in atmospheric or audible elements that could diminish significant historic features of any the properties; therefore, the impacts discussion that follows focuses on introduction of visual elements.

There are 10 historic properties in the APE. Eight of the historic properties have a potential to be affected by the introduction of the introduction of new visual elements under Alternative 3; however, based on the evaluations below, Alternative 3 would not cause an adverse effect on any historic properties because none of the new features would diminish the setting of any historic property in a manner that the property would no longer be eligible for the NRHP.

### 1. 1140 San Fernando Road

Under Alternative 3, the northbound Maclay Station would be constructed along the east side of San Fernando Road, north of its intersection with Maclay Avenue. While the historic property (indicated with green shading in figure on the next page) is near the proposed station (indicated with light blue shading in figure on the next page), the station would not be constructed directly in front of the building. While there would be an OCS and Low-Floor LRT/Trams passing in front of the building, the primary view of the façade from San Fernando Road would not be adversely affected by this new visual element. The primary character-defining features of the building are located near the top of the building, including the distinctive original signage and Late Moderne detailing, which would likely still be visible over the 10- to 12-foot canopy. In addition, the integrity of setting has already been somewhat diminished. Many of the properties along the commercial strip have been heavily altered or are infill construction, and the sidewalks along San Fernando Road were widened at an unknown date. Historic photos and aerial photography indicate that the existing curb bulb-outs, street planters, and the diagonal street parking configuration were added around 1969. Therefore, the setting has already been altered from its original, narrower sidewalk and parallel street parking configuration. The sidewalk narrowing (indicated in green hatching in figure on the next page) proposed as part of Alternative 3 and the construction of the Maclay Low-Floor LRT/Tram station would actually remove non-original features from the building's setting. Therefore, the introduction of the new Low-Floor LRT/Tram station and OCS would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP; rather, it would remove non-original features from the existing setting, and the station would not obscure the existing primary view of the building in a manner that it would no longer qualify for the NRHP. All other aspects of integrity would remain unchanged. Therefore, this alternative would not result in adverse effects on this historic property.

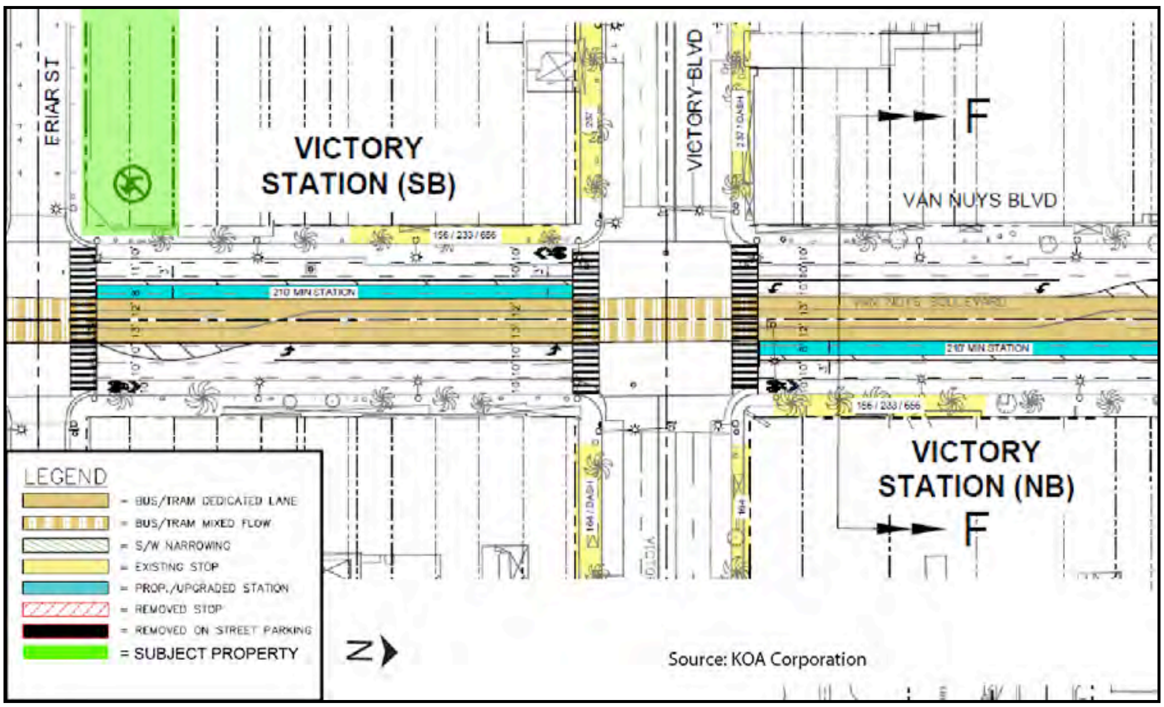





Metro

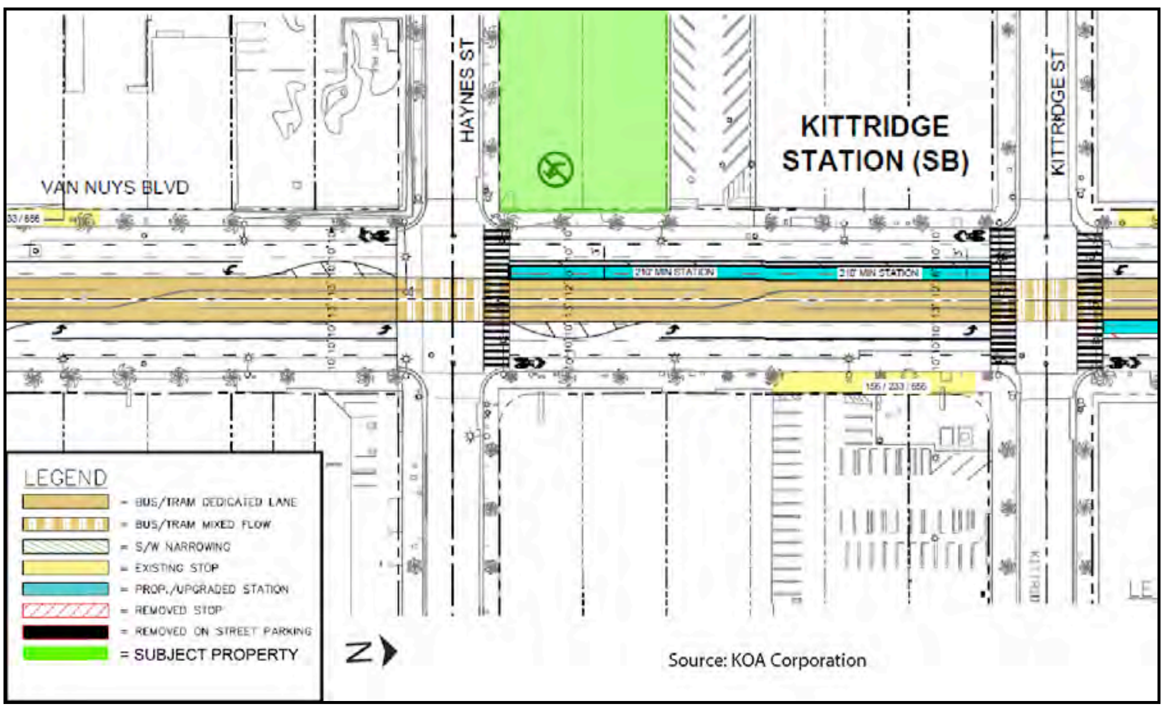
### 2. 6353 Van Nuys Boulevard

Under Alternative 3, the proposed southbound Victory Station would be constructed near the center of Van Nuys Boulevard between the intersection of Victory Boulevard and Friar Street. While the historic property (indicated with green shading) is near the proposed station (indicated with light blue shading), the station would not be constructed directly in front of the building; there would be two lanes of traffic separating the property from the proposed rail station. The primary views of the building from the west side of Van Nuys Boulevard and Friar Street would not be adversely affected by a new visual element. While the view might be obscured from the east side of Van Nuys Boulevard, the property is already located in a dense urban area with existing transit service and other vehicular traffic. Streetscape elements, such as overhead power lines, billboards, bus stops, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new Low-Floor LRT/Tram station and OCS would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. Therefore, this alternative would not result in adverse effects on this historic property.



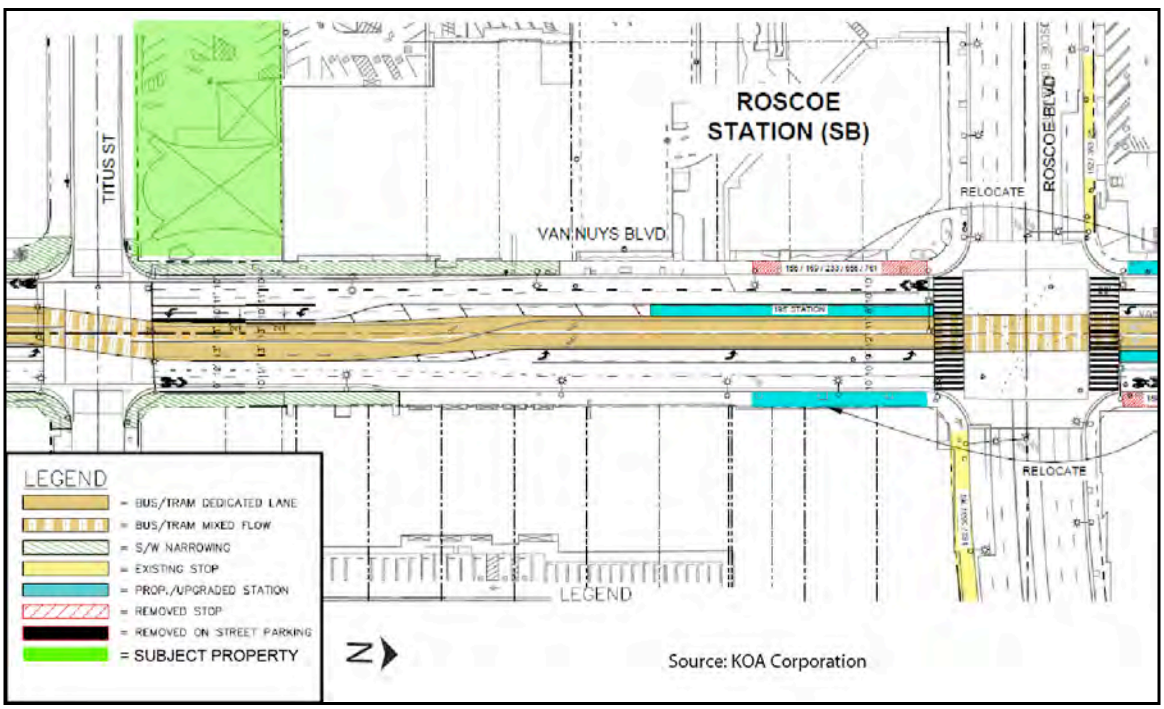
### 3. 6551 Van Nuys Boulevard

Under Alternative 3, the proposed southbound Kittridge Station would be constructed near the center of Van Nuys Boulevard between the intersections of Haynes Street and Kittridge Street. While the historic property (indicated with green shading) is near the proposed station (indicated with light blue shading), the station would not be constructed directly in front of the building; there would be two lanes of traffic separating the property from the proposed Low-Floor LRT/Tram station. The primary views of the building from the west side of Van Nuys Boulevard and Haynes Street would not be adversely affected by a new visual element. While the view might be partially obscured from the east side of Van Nuys Boulevard, the primary character-defining features of the building are located near the top of the building, including the dramatic roof overhang and the mural, which would likely still be visible over the 10- to 12-foot canopy. The building would be easily visible from the Low-Floor LRT/Tram alignment. The building is already located in a dense urban area with existing transit service and other vehicular traffic. Streetscape elements, such as overhead power lines, billboards, bus stops, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new tram station and OCS would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. Therefore, this alternative would not result in adverse effects on this historic property.



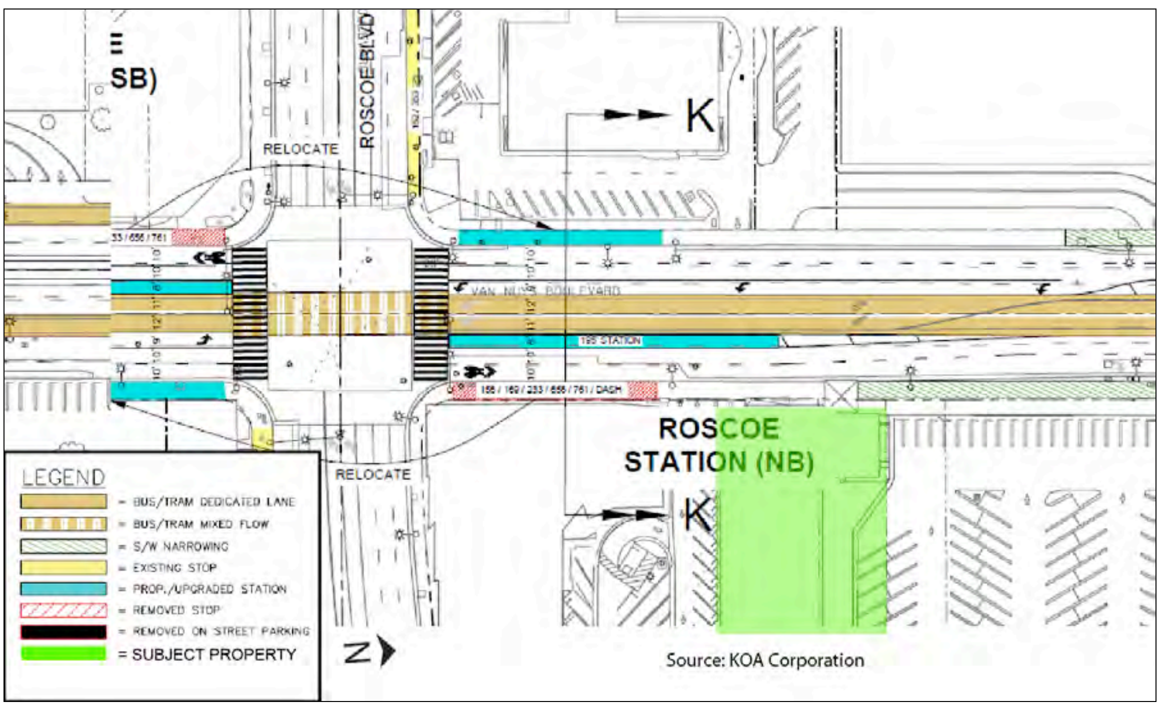
### 4. 8201 Van Nuys Boulevard

Under Alternative 3, the proposed northbound Roscoe Station would be constructed along Van Nuys Boulevard north of its intersection with Roscoe Street. While the historic property (indicated with green shading) is near the proposed station (indicated with light blue shading), the station would not be constructed directly in front of the building. The building is located at the opposite end of the block, and there would be two lanes of traffic separating the property from the proposed Low-Floor LRT/Tram station. The primary views of the building from the Titus Street and the west side of Van Nuys Boulevard would not be adversely affected by a new visual element. The property is already located in a dense urban area with existing transit service and other vehicular traffic. Streetscape elements, such as overhead power lines, billboards, bus stops, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new Low-Floor LRT/Tram station and OCS would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. The immediately adjacent sidewalk is not a character-defining element of the building's significance, and therefore, the proposed narrowing of the sidewalk in front of the historic property would not cause a direct or indirect effect on the historic building. Therefore, this alternative would not result in adverse effects on this historic property.



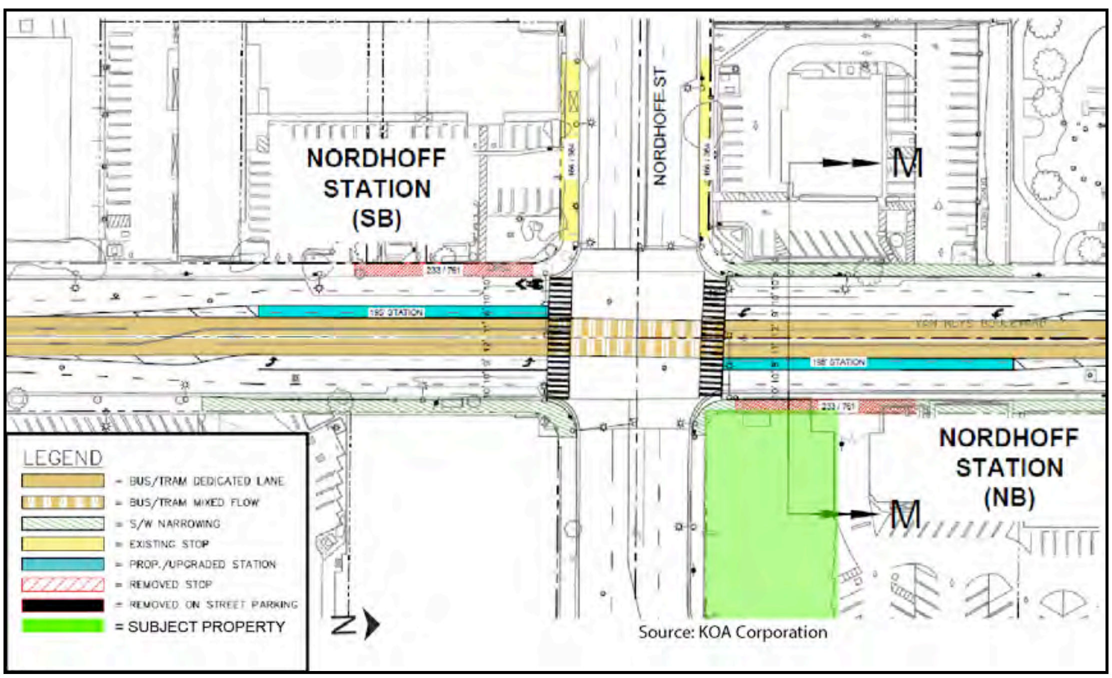
### 5. 8324 Van Nuys Boulevard

Under Alternative 3, the proposed northbound Roscoe Station would be constructed along Van Nuys Boulevard north of its intersection with Roscoe Street. While the historic property (indicated with green highlighting) is near the proposed station (indicated with light blue shading), the station would not be constructed directly in front of the building. There would be two lanes of traffic separating the property from the proposed Low-Floor LRT/Tram station. The primary views of the building from the east side of Van Nuys Boulevard would not be adversely affected by a new visual element. While the view might be obscured from the west side of Van Nuys Boulevard, the property is already located in a dense urban area with existing bus service and other vehicular traffic. Streetscape elements, such as overhead power lines, billboards, bus stops, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new Low-Floor LRT/Tram station and OCS would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. Also, the adjacent sidewalk is not a character-defining feature of the historic property, and the removal of the existing bus stop and narrowing of the sidewalk would not cause a direct or indirect effect to the historic property. Therefore, this alternative would not result in adverse effects on this historic property.



### 6. 9110 Van Nuys Boulevard

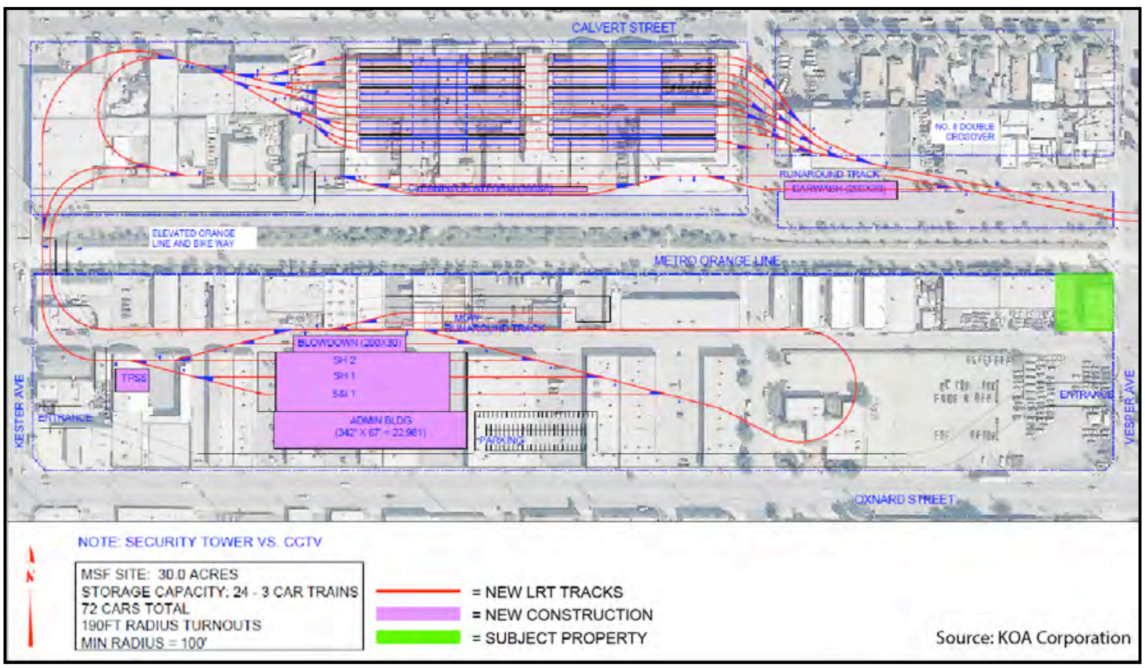
Under Alternative 3, the proposed northbound Nordhoff Station would be constructed near the center of Van Nuys Boulevard north of its intersection with Nordhoff Street. While the historic property (indicated with green shading) is near the proposed station (indicated with light blue shading), the station would not be constructed directly in front of the building; there would be two lanes of traffic separating the property from the proposed Low-Floor LRT/Tram station. The sidewalks would be narrowed, and an existing bus stop—consisting of a bench and signage—would be removed. The primary views of the building from the east side of Van Nuys Boulevard and Nordhoff Street would not be adversely affected by a new visual element. While the view might be obscured from the west side of Van Nuys Boulevard, the distinctive signage and marquee would likely still be visible over the 10- to 12-foot canopy. The property's integrity of setting has already been diminished through the introduction of infill construction, but the property is still able to convey its significance through its other aspects of integrity. In addition, the property is already located in a dense urban area with existing bus service and other vehicular traffic. Streetscape elements, such as overhead power lines, billboards, bus stops, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new Low-Floor LRT/Tram station and OCS, and the narrowing of the sidewalk would not further diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. The removal of the existing bus stop and the narrowing of the sidewalks would not cause a direct or indirect effect on the historic property. Therefore, this alternative would not result in adverse effects on this historic property.



### 7. 14601-3 Aetna Street

Under Alternative 3, a proposed MSF site would be generally bounded by Calvert Street to the north, Oxnard Street to the south, Vesper Avenue to the east, and Kester Avenue to the west. While the historic property (indicated with green shading) is within these boundaries, it will not be acquired as a part of this project. LRT tracks (indicated with red lines) would be constructed to the north and west of the historic property. Structures related to the MSF site (indicated with pink shading), including an administration building, carwash, and cleaning platform, will also be constructed within these boundaries. The primary views of the historic property are from Aetna Street and Vesper Avenue. The nearest new element, a set of proposed tracks, are over 100 feet to the rear of the historic property. The proposed tracks would be at grade, and would therefore not obscure either of the primary views of the building. The nearest new structure is the proposed car wash. Its proposed location is more than 350 feet to the rear of the historic property. As such, it would not obscure the primary views of the property from the front and sides. Furthermore, the historic property would be visually separated from these proposed elements by the existing Metro Orange Line alignment.

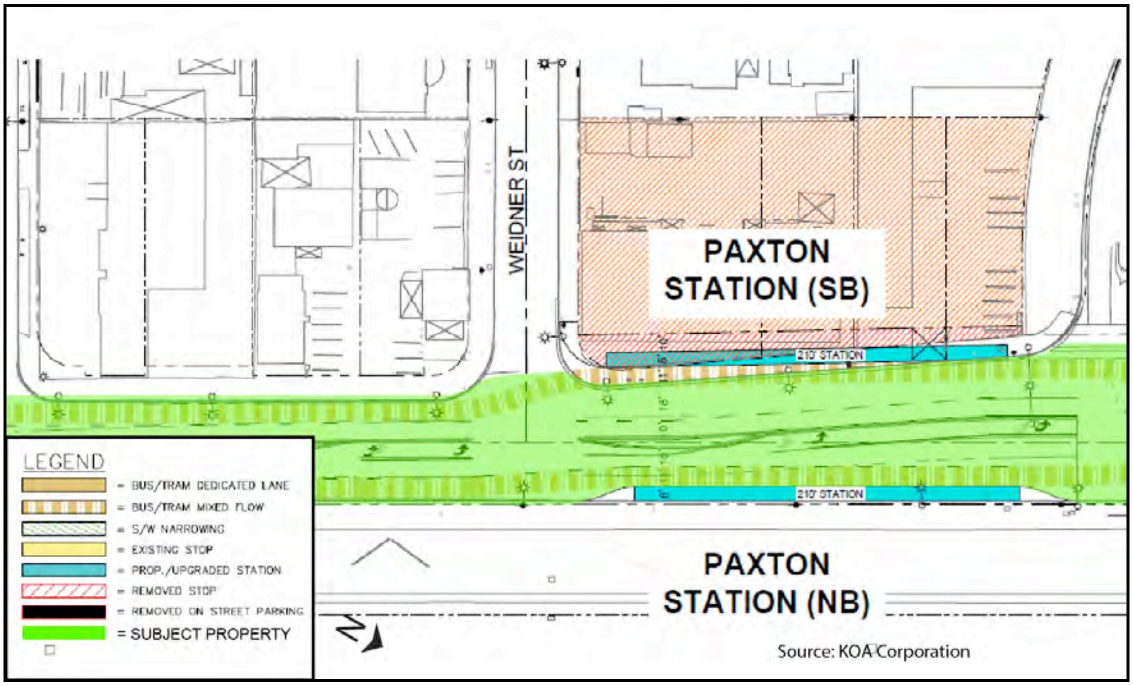
The property's integrity of setting has already been somewhat diminished by the introduction of infill construction, including the Metro Orange Line, but the property is still able to convey its significance through its other aspects of integrity. In addition, the property is already located in a dense urban area with existing bus service and other vehicular traffic. Streetscape elements, such as overhead power lines, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new MSF site would not further diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. Therefore, this alternative would not result in adverse effects on this historic property.



Source: KOA Corporation

### 8. San Fernando Road

Under Alternative 3, the proposed Paxton Station would be constructed on San Fernando Road between its intersection with Weidner Street and the 118 Freeway ramps, south of Paxton Street. While the proposed station (indicated with light blue shading) would be constructed on the historic property (indicated with green shading), the station would not diminish the property's integrity in such a way that it would no longer be eligible for the NRHP. In the previous evaluation, the property's significance was determined to be directly tied to its historic alignment rather than other physical attributes, such as materials or design. Because there are no proposed changes or adjustments to the existing alignment as part of the project, this alternative would not result in adverse effects on this historic property as the historic alignment, and the property's significance, would remain unchanged.



### Cumulative Impacts

Under the Low-Floor LRT/Tram Alternative, there would be no adverse effects or impacts to historic properties; therefore, this alternative would not contribute to cumulative impacts on the properties identified as part of this study or as a result of any other planned projects within the region.

### Mitigation Measures

#### *Construction Mitigation Measures*

Construction mitigation measures are not required since there are no anticipated construction effects on historic properties as a result of the construction of the proposed transit facilities.

#### *Operational Mitigation Measures*

Operational mitigation measures are not required since there would be no anticipated operational effects on historic properties.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

No adverse effect under NEPA would occur.

#### *CEQA Determination*

Impacts under CEQA would be less than significant.

## Alternative 4

### Construction Impacts

Alternative 4 (LRT Alternative) would operate along a 9.2-mile route from the Sylmar/San Fernando Metrolink Station to the north, to the Van Nuys Metro Orange Line Station to the south. Portions of the LRT line would be similar to existing Metro LRT lines, such as the Metro Expo Line and the Metro Gold Line.

Alternative 4 would be electrically powered using overhead wires and would travel along the median of Van Nuys Boulevard for most of the route, with an underground segment of approximately 2.5 miles. This alternative includes supporting facilities, such as an overhead contact system (OCS), traction power substations, (TPSS), signaling, and a maintenance and storage facility (MSF).

Stations for the LRT Alternative would be constructed, both above and below ground, at approximately 1-mile intervals. There would be three underground stations: Roscoe Station, Keswick/Metrolink Station, and Sherman Way Station. Entry to the underground stations would be provided by an entry plaza and portal. The portals would include stairs, escalators and elevators. Fourteen stations are proposed with the LRT Alternative:

1. Sylmar/San Fernando Metrolink Station
2. Maclay Station (Maclay Avenue and Antelope Valley Metrolink Railroad Corridor)
3. Paxton Station (Paxton Street and Antelope Valley Metrolink Railroad Corridor)
4. Pacoima Station (Van Nuys Boulevard and San Fernando Road)

5. Laurel Canyon Station (Laurel Canyon and Van Nuys Boulevards)
6. Arleta Station (Arleta Avenue and Van Nuys Boulevard)
7. Woodman Station (Woodman Avenue and Van Nuys Boulevard)
8. Nordhoff Station (Nordhoff Street and Van Nuys Boulevard)
9. Roscoe Station (Roscoe and Van Nuys Boulevards) - Underground
10. Keswick/Metrolink Station (Van Nuys Boulevard and Keswick Street) - Underground
11. Sherman Way Station (Van Nuys Boulevard and Sherman Way) - Underground
12. Vanowen Station (Vanowen Street and Van Nuys Boulevard)
13. Victory Station (Victory and Van Nuys Boulevards)
14. Metro Orange Line Station (Van Nuys Boulevard and Metro Orange Line)

The new station platforms for Alternative 4 would be located near the center of the street. The platforms would be raised up to 3 feet 3 inches from the street with an ADA-accessible ramp. On the platform, there would be a ticketing portal, seating, and an informational kiosk. The seating would be located under a station canopy. The metal canopy would be approximately 10 to 12 feet high, 8 to 10 feet wide and approximately 150 feet long. The total platform would be approximately 270 to 670 feet long, depending on the location. The kiosk and ticketing portal would be approximately 12 to 14 feet high. OCS poles would be approximately 30 feet tall and placed every 90 to 170 feet between the two tracks. The TPSSs, electrical substations, would be placed every 1 to 1.5 miles, with approximately seven along the entire route; TPSSs would be approximately 60 by 80 feet and 12 to 14 feet high.

Three possible MSF sites are proposed:

- MSF Option A – Van Nuys Boulevard/Metro Orange Line
- MSF Option B – Van Nuys Boulevard/Keswick Street
- MSF Option C – Van Nuys Boulevard/Arminta Street

The MSF site would be an operational and administrative facility. The site would be comprised of maintenance and repair shops, storage areas for vehicles, materials, and tools, staff offices, break rooms, and dispatcher work areas. The MSF would serve as a point of origin and terminus for daily service.

Figure 4.16-12 and Figure 4.16-13 illustrate a typical station with a canopy that would be constructed under Build Alternative 4.

## Figure 4.16-12: Illustrative Design Details for LRT Alternative

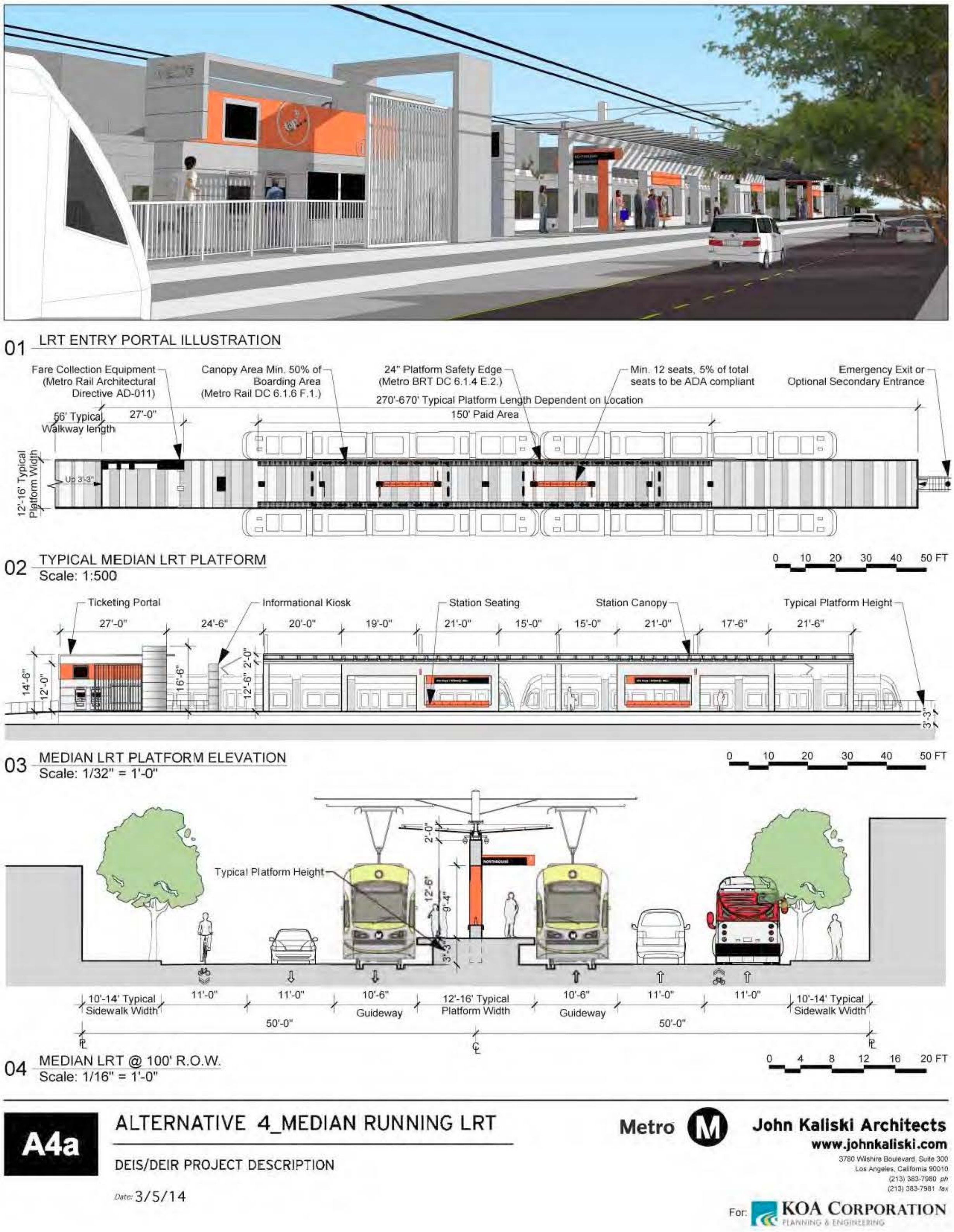


Figure 4.16-13: Architectural Rendering for LRT Alternative


Under Alternative 4, there are 3 historic properties that have a potential to be affected by the construction of proposed aboveground LRT stations. None of the buildings within the APE appear to be Building Category IV, such as an adobe building, so the lowest possible threshold of vibration damage would be 0.2 in/sec PPV. The highest predicted level of vibration for an aboveground station is the use of a vibratory roller at 0.21 in/sec PPV from a distance of 25 feet (see Tables 4.16-5 and 4.16-6 for additional information regarding the FTA construction damage criteria and predictions of vibration caused by typical construction equipment).

1. 130 N. Brand Boulevard– Approximately 600 feet from proposed Maclay Station
2. 6353 Van Nuys Boulevard – Approximately 75 feet from proposed Victory Station
3. 9110 Van Nuys Boulevard – Approximately 40 feet from proposed Nordhoff Station

As the above 3 properties are located more than 25 feet away from the proposed construction areas, equipment used for the construction of an aboveground station would not exceed the predicted FTA damage risk vibration limits.

Under Alternative 4, pile drivers could be used in the construction of underground stations. Pile drivers may be capable of producing the higher predicted vibration levels shown in Table 4.16-7. Two historic properties have the potential to be affected by the construction of proposed underground stations.

1. 8201 Van Nuys Boulevard – Approximately 600 feet from proposed Roscoe Station
2. 8324 Van Nuys Boulevard – Approximately 100 feet from proposed Roscoe Station

### Table 4.16-7: Construction Vibration Predictions for Pile Drivers

| Equipment | PPV at 25 ft (in/sec) | PPV at 50 ft (in/sec) |
|---|---|---|
| Pile Driver (Impact) | 1.52 | 0.54 |
| Pile Driver (Sonic) | 0.73 | 0.26 |
| Source: ATS Consulting, 2014. | | |

Because these two properties are at least 100 feet away from the proposed underground station, the use of a pile driver is unlikely to exceed the predicted FTA damage risk vibration limits at that distance.

Under Alternative 4, there is one historic property that has the potential to be affected by the construction of MSF Option A – Van Nuys Boulevard/Metro Orange Line. None of the buildings within the APE appear to be Building Category IV, such as an adobe building, so the lowest possible threshold of vibration damage would be 0.2 in/sec PPV. The highest predicted level of vibration for an aboveground MSF site is the use of a vibratory roller at 0.21 in/sec PPV from a distance of 25 feet (see Tables 4.16-5 and 4.16-6 for additional information regarding the FTA construction damage criteria and predictions of vibration caused by typical construction equipment).

2. 14601-3 Aetna Street – Approximately 120 feet from proposed LRT tracks at MSF site

As the historic property is located more than 100 feet away from the nearest new element proposed as part of the MSF (entry tracks), the equipment used for the construction of the MSF would not exceed the predicted FTA damage risk vibration limits.

Therefore, this alternative would not result in adverse effects on any historic properties during construction.

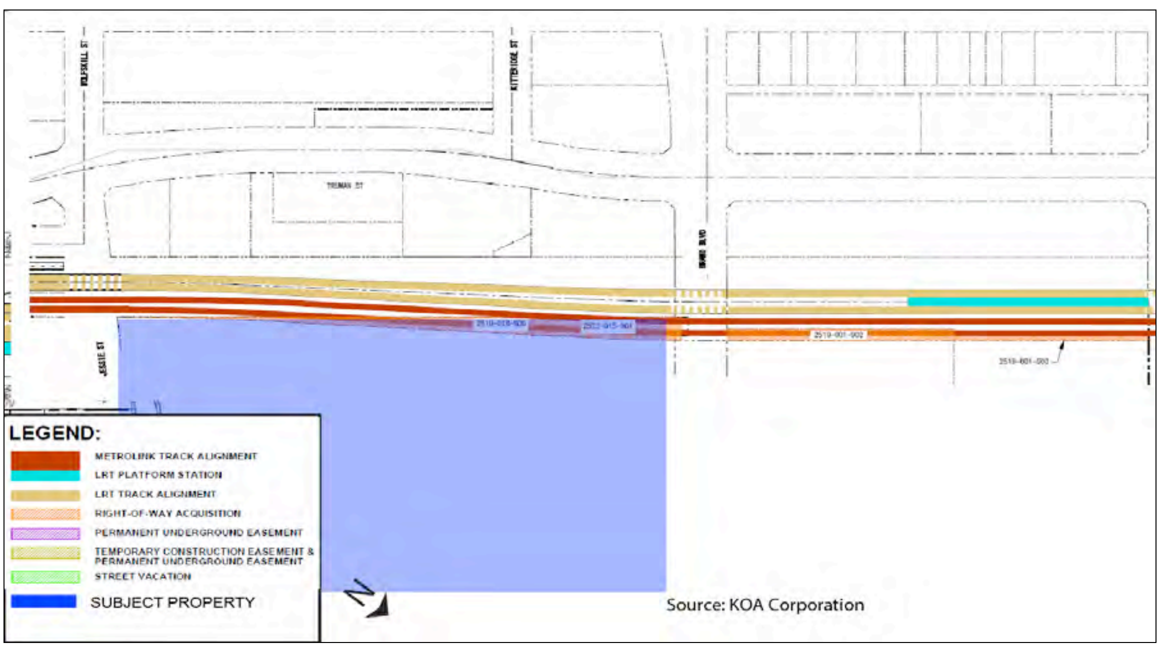
#### Operational Impacts

As the operation of a LRT will not involve a change in use, demolition, alteration, removal, or neglect of a property, nor are any of the historic properties within the study area under federal ownership, the only potential operational impacts or effects that could occur under Alternative 4 would be potential visual effects (see Section 4.16.1.3 for a list of criteria for adverse effect). Therefore, the applicable Criterion for adverse effect would be Criterion v: introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features. Criterion v generally addresses potential changes to a historic property's integrity of setting. Under Criterion v, this alternative would not result in atmospheric or audible elements that could diminish significant historic features of any properties; therefore, the impacts analysis focuses on the introduction of visual elements.

There are 10 historic properties in the APE. Four of the historic properties have a potential to be affected by the introduction of the introduction of new visual elements under Alternative 4; however, based on the evaluations below, Alternative 4 would not cause an adverse effect on any historic properties because none of the new features would diminish the setting of any historic property in a manner that the property would no longer be eligible for the NRHP.

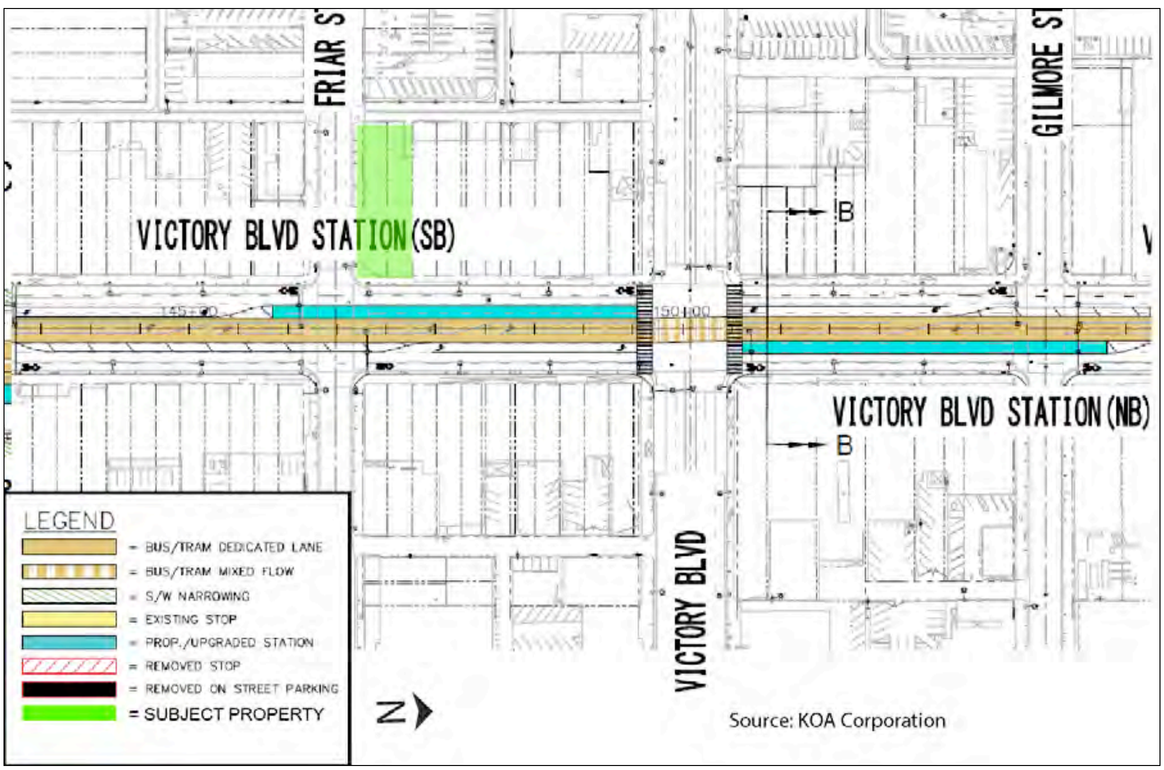
### 1. 130 N. Brand Avenue

Under Alternative 4, the proposed Maclay Station would be constructed on the Antelope Valley Metrolink Railroad Corridor, south of its crossing with Maclay Street. While the school campus (indicated with purple shading) is near the proposed station (indicated with light turquoise shading), the station would not be constructed near the historic properties on the campus. The Auditorium, Science Building, and Boys' Gymnasium are set back onto the campus, and would be visually separated from the proposed station by other, non-historic school buildings, and the primary views of the historic properties would not be adversely affected by a new visual element. The properties' integrity of setting has already been diminished through the introduction of new school buildings, but the properties are still able to convey their significance through other aspects of integrity. Furthermore, the three properties are significant for their architecture. Properties significant for this reason are able to convey their significance even if their integrity of setting has been diminished (e.g., architectural specimens that have been moved from their original locations can still be eligible for the NRHP regardless of setting). The property is already located along the railroad track, which is an early alignment that predates the historic school buildings. Therefore, the introduction of the new LRT station and increased use of the existing railroad tracks would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP. All other aspects of integrity would remain unchanged. There would be no other anticipated effects. Therefore, this alternative would not result in adverse effects on this historic property.



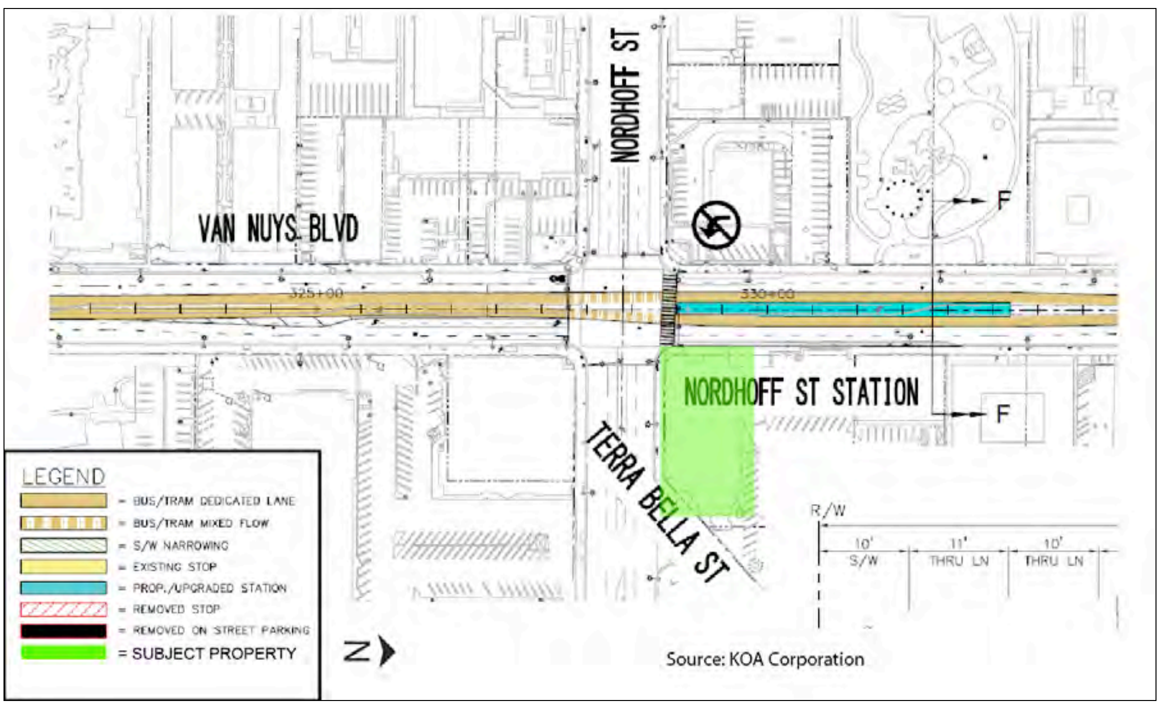
### 2. 6353 Van Nuys Boulevard

Under Alternative 4, the proposed southbound Victory Station would be constructed near the center of Van Nuys Boulevard approximately between the intersection of Victory Boulevard and Friar Street. While the historic property (indicated with green shading) is near the proposed station (indicated with light blue shading), the station would not be constructed directly in front of the building; there would be two lanes of traffic separating the property from the proposed rail station. The primary views of the building from the west side of Van Nuys Boulevard and Friar Street would not be adversely affected by a new visual element. While the view might be obscured from the east side of Van Nuys Boulevard, the property is already located in a dense urban area with existing transit service and other vehicular traffic. Streetscape elements, such as overhead power lines, billboards, bus stops, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Furthermore, the property's setting is not an essential aspect of integrity for the property to convey its significance. Therefore, the introduction of the new LRT station and OCS would not diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. No other potential effects are anticipated. Therefore, this alternative would not result in adverse effects on this historic property.



### 3. 9110 Van Nuys Boulevard

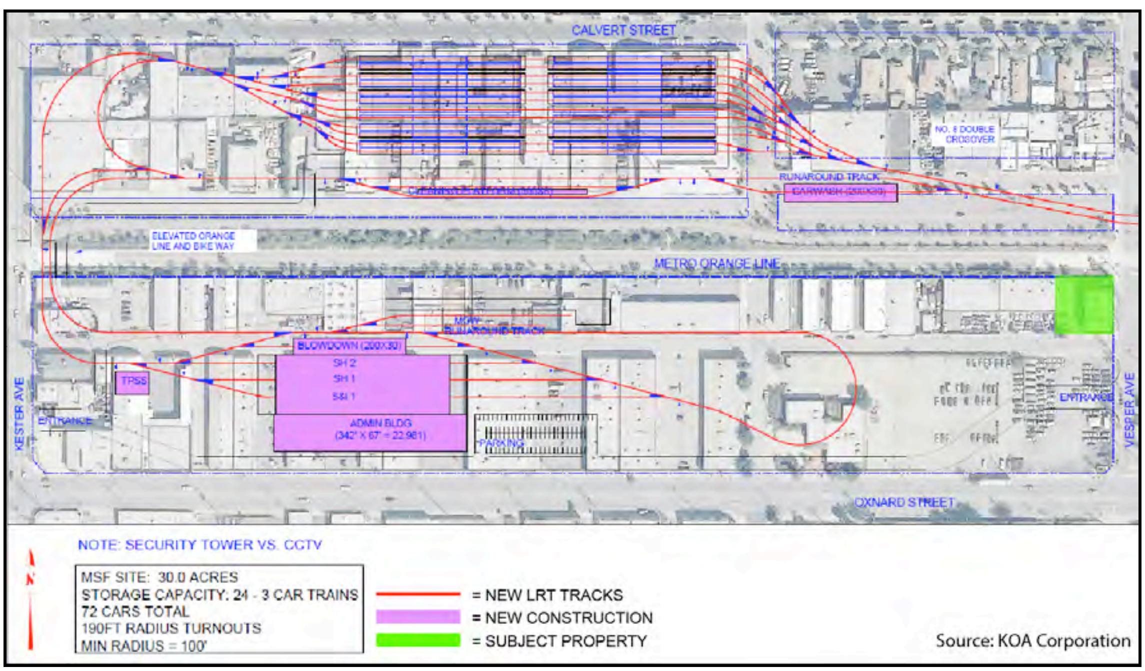
Under Alternative 4, the proposed northbound Nordhoff Station would be constructed near the center of Van Nuys Boulevard north of its intersection with Nordhoff Street. While the historic property (indicated with green shading) is near the proposed station (indicated with light blue shading), the station would not be constructed directly in front of the building; there would be two lanes of traffic separating the property from the proposed LRT station. The primary views of the building from the east side of Van Nuys Boulevard and Nordhoff Street would not be adversely affected by a new visual element. While the view might be obscured from the west side of Van Nuys Boulevard, the distinctive signage and marquee would likely still be visible over the 10- to 12-foot high canopy. The property's integrity of setting has already been diminished through the introduction of infill, but it is still able to convey its significance through its other aspects of integrity. The property's setting is not an essential aspect of integrity for it to convey its significance. In addition, the property is already located in a dense urban area with existing bus service and other vehicular traffic. Streetscape elements, such as overhead power lines, billboards, bus stops, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new LRT station and OCS would not further diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. Therefore, this alternative would not result in adverse effects on this historic property.



### 4. 14601-3 Aetna Street

Under Alternative 4, a proposed MSF site would be generally bounded by Calvert Street to the north, Oxnard Street to the south, Vesper Avenue to the east, and Kester Avenue to the west. While the historic property (indicated with green shading) is within these boundaries, it will not be acquired. LRT tracks (indicated with red lines) would be constructed to the north and west of the historic property. Structures related to the MSF site (indicated with pink shading), including an administration building, carwash, and cleaning platform, will also be constructed within these boundaries. The primary views of the historic property are from Aetna Street and Vesper. The nearest new element, the LRT tracks, are presumed to be at grade and would therefore not obscure the building from view. Furthermore, the nearest tracks are more than 100 feet away from the historic property. The nearest new structure, the car wash, is approximately 360 feet away from the historic property, and the existing Metro Orange Line would visually separate the historic property from the proposed car wash.

The property's integrity of setting has already been diminished through the introduction of infill construction, including the Metro Orange Line, but the property is still able to convey its significance through its other aspects of integrity. In addition, the property is already located in a dense urban area with existing bus service and other vehicular traffic. Streetscape elements, such as overhead power lines, lighting, and other transportation infrastructure, already exist in the area immediately surrounding the property. Therefore, the introduction of the new MSF site would not further diminish the property's integrity of setting in such a way that it would no longer be eligible for the NRHP, and all other aspects of integrity would remain unchanged. Therefore, this alternative would not result in adverse effects on this historic property.



#### Cumulative Impacts

Under the LRT/Tram Alternative, there would be no adverse effects or impacts to historic properties; therefore, this alternative would not contribute to cumulative impacts on the properties identified as part of this study or as a result of any other planned projects within the region.

#### Mitigation Measures

##### *Construction Mitigation Measures*

Construction mitigation measures are not required since there are no anticipated construction effects on historic properties as a result of the construction of the proposed transit facilities.

##### *Operational Mitigation Measures*

Operational mitigation measures are not required since there are no anticipated operational effects on historic properties as a result of operation of the proposed transit facilities.

#### Impacts Remaining After Mitigation

##### *NEPA Finding*

No adverse effect under NEPA would occur.

##### *CEQA Determination*

Impacts under CEQA would be less than significant.

## 4.16.3.3 Paleontological Resources

### No-Build Alternative

#### Construction Impacts

The No-Build Alternative would result in no excavation activities. There would be no construction impacts to paleontological resources associated with the No-Build Alternative.

#### Operational Impacts

The No-Build Alternative would not result in new facilities due to the proposed project and consequently it would not result in any operational impacts on paleontological resources.

#### Cumulative Impacts

The No-Build Alternative would not result in any adverse effects or impacts to paleontological resources; therefore, it would not contribute to any cumulative paleontological resources impacts.

#### Mitigation Measures

##### *Construction Mitigation Measures*

No construction mitigation measures are required.

#### *Operational Mitigation Measures*

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

No adverse effect would occur under NEPA.

#### *CEQA Determination*

No impact would occur under CEQA.

## TSM Alternative

### Construction Impacts

Only shallow grading activities for bus stops amenities and signalization improvements may be required under the TSM Alternative. Typically these sorts of excavations are less than five feet deep and in California, Holocene[22] valley deposits are typically more than eight feet deep. Assuming construction impacts are less than eight feet deep, there would be no construction impacts to paleontological resources associated with the TSM Alternative.

### Operational Impacts

The operational improvements proposed under the TSM Alternative would have no impact on paleontological resources.

### Cumulative Impacts

No impacts to paleontological resources would occur under the TSM Alternative; therefore, this alternative would not contribute to any cumulative paleontological resources impacts.

### Mitigation Measures

#### *Construction Mitigation Measures*

No construction mitigation measures are required.

#### *Operational Mitigation Measures*

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

No adverse effect would occur under NEPA.

#### *CEQA Determination*

No impact would occur under CEQA.

[22] The Holocene Epoch ranges from approximately 10,000 years ago until present day. It is the most recent and superficial of sedimentary remains.

## Alternative 1

### Construction Impacts

The Curb-Running BRT Alternative would involve excavation within the Quaternary alluvium during station upgrades and sidewalk widening and removal. All earthmoving activities are anticipated to be restricted to the shallow, surficial sediments, which are too young in age to contain fossils. This alternative would have no impact on paleontological resources.

### Operational Impacts

Operation of the Curb-Running BRT Alternative would result in no impacts or effects on paleontological resources.

### Cumulative Impacts

Under the Curb-Running BRT Alternative, there would be no adverse effects or impacts to paleontological resources; therefore, this alternative would not contribute to cumulative impacts on paleontological resources as part of this project or as a result of any other planned projects within the region.

### Mitigation Measures

#### *Compliance Requirements and Design Features*

There are no specific design features or regulatory compliance requirements that are applicable to paleontological resources.

#### *Construction Mitigation Measures*

Although no impacts to paleontological resources are anticipated under Alternative 1 due to the anticipated shallow depth of excavation, the following construction mitigation measure is proposed should excavation depths be greater than anticipated and construction impacts to paleontological resources occur.

> **MM-PR-1:** Metro shall retain the services of a qualified paleontologist (minimum of graduate degree, 10 years of experience as a principal investigator, and specialty in vertebrate paleontology) to oversee execution of this mitigation measure. Metro's qualified principal paleontologist shall then develop a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) acceptable to the collections manager of the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County. Metro will implement the PRMMP during construction. The PRMMP will clearly demarcate the areas to be monitored and specify criteria. At the completion of paleontological monitoring for the proposed project, a paleontological resources monitoring report will be prepared and submitted to the Natural History Museum of Los Angeles County to document the results of the monitoring activities and summarize the results of any paleontological resources encountered.
>
> The PRMMP shall include specifications for processing, stabilizing, identifying, and cataloging any fossils recovered as part of the proposed project. Metro's qualified principal paleontologist shall prepare a report detailing the paleontological resources recovered, their significance, and arrangements made for their curation at the conclusion of the monitoring effort.

##### *Operational Mitigation Measures*

No operational mitigation measures are required.

#### Impacts Remaining After Mitigation

##### *NEPA Finding*

The proposed mitigation would reduce the potential remaining effects to paleontological resources to no adverse effect under NEPA.

##### *CEQA Determination*

The proposed mitigation measures would reduce the potential remaining impacts to paleontological resources to a less-than-significant level under CEQA.

### Alternative 2

#### Construction Impacts

The Median-Running BRT Alternative would involve shallow excavation within the Quaternary alluvium during bus stop platform construction in the median, station upgrades, and sidewalk widening. These shallow earthmoving activities would not affect paleontological resources, since the sediments that would be disturbed by construction are too young in age to contain fossils.

#### Operational Impacts

Operation of Alternative 2 would not result in any impacts or effects on paleontological resources.

#### Cumulative Impacts

Under the Median-Running BRT Alternative, there would be no adverse effects or impacts on paleontological resources; therefore, this alternative would not contribute to cumulative impacts on paleontological resources as part of this project or as a result of any other planned projects in the region.

#### Mitigation Measures

##### *Construction Mitigation Measures*

See MM-PR-1 under Alternative 1 above.

##### *Operational Mitigation Measures*

No operational mitigation measures are required.

#### Impacts Remaining After Mitigation

##### *NEPA Finding*

If paleontological resources are encountered, mitigation measures MM-PR-1 would reduce effects to no adverse effects under NEPA.

##### *CEQA Determination*

If paleontological resources are encountered, MM-PR-1 would reduce the potential impacts to paleontological resources to a less-than-significant level under CEQA.

# Alternative 3

## Construction Impacts

The Low-Floor LRT/Tram Alternative would involve shallow excavation within the Quaternary alluvium during bus stop platform construction in the median, station upgrades, and sidewalk widening. These shallow earthmoving activities would not adversely affect paleontological resources, since the disturbed sediments are too young in age to contain fossils.

No paleontological resources are recorded within the three proposed MSF sites - Arminta Street, Keswick Street, and Aetna Street. Although there has been prior construction in these MSF sites, fossils in valley areas are located subsurficially. If excavation extends into native sediments, e.g., for sewer and water lines as well as for underground storage tanks, significant impacts/adverse effects to any paleontological resources that are encountered could occur.

## Operational Impacts

Operation of Alternative 3 would result in no impacts or effects on paleontological resources.

## Cumulative Impacts

Other related projects could require excavation to depths containing fossil bearing soils and could result in the destruction of fossil resources, a potentially significant impact. However, potential impacts to any paleontological resources that may be encountered during construction of Alternative 3 would be mitigated to a less-than-significant-level. Additionally, the related projects may also include mitigation measures that would minimize or reduce potential impacts to a less-than-significant level. Therefore, Alternative 3, after mitigation, would not contribute to any cumulative impacts to paleontological resources.

## Mitigation Measures

### *Construction Mitigation Measures*

See mitigation measure MM-PR-1 above.

The following construction mitigation measure is proposed to mitigate potentially significant impacts to paleontological resources that could occur during construction.

**MM-PR-2:** Prior to the start of construction a qualified Principal Paleontologist shall prepare a Paleontological Mitigation Plan (PMP) that includes the following requirements:

- All project personnel involved in ground-disturbing activities shall receive paleontological resources awareness training before beginning work.
- Excavations, excluding drilling, deeper than 8 feet below the current surface in the Quaternary alluvium shall be periodically spot checked to determine when older sediments conducive to fossil preservation are encountered. Once the paleontologically sensitive older alluvium is reached, a qualified paleontologist shall perform full-time monitoring of construction. Should sediments in a particular area be determined by the paleontologist to be unsuitable for fossil preservation, monitoring shall be suspended in those areas. A paleontologist shall be available to be on call to respond to any unanticipated discoveries and may adjust monitoring based on the construction plans and field visits.
- Sediment samples from the Quaternary older alluvium shall be collected and screened for microfossils.

- Recovered specimens shall be stabilized and prepared to the point of identification. Specimens shall be identified to the lowest taxonomic level possible and transferred to an accredited repository for curation along with all associated field and lab data.
- Upon completion of project excavation, a Paleontological Mitigation Report (PMR) documenting compliance shall be prepared and submitted to the Lead Agency under CEQA.

#### *Operational Mitigation Measures*

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The proposed mitigation would reduce potential effects on paleontological resources to no adverse effect under NEPA.

#### *CEQA Determination*

The proposed mitigation measures would reduce potential impacts to paleontological resources to a less-than-significant level under CEQA.

## Alternative 4

### Construction Impacts

The LRT Alternative would involve shallow excavations for rail station platform construction in the median, station upgrades, and sidewalk widening. There would be 14 stations, three of which would be underground near Sherman Way, the Van Nuys Metrolink station, and Roscoe Boulevard. Entry to the three underground stations would be provided from an entry plaza and portal. Additionally the LRT Alternative includes an underground segment beneath Van Nuys Boulevard from just north of Parthenia Street to Hart Street.

Shallow earthmoving activities would not affect paleontological resources, since the affected sediments are too young in age to contain fossils. However deeper excavations have the potential to significantly affect the paleontologically sensitive Quaternary older alluvium that underlies the surficial Quaternary alluvium at variable depths across the project area. Pleistocene fossils are known from the Quaternary older alluvium at depths between14 and 100 feet below the surface in the San Fernando Valley.

Two methods are being proposed for tunnel construction; Cut and Cover method and Tunnel Boring Machine (TBM) method, both of which have the potential to significantly affect paleontological resources. Impacts can be mitigated through monitoring efforts if the cut and cover method is adopted but can not be mitigated if the TBM is used as it damages or destroys paleontological resources in its path.

No paleontological resources are recorded within the three proposed MSF sites, Arminta Street, Keswick Street, and Aetna Street. Although there has been prior construction in these MSF sites, fossils in valley areas are located subsurficially. If excavation extends into native sediments, e.g., for sewer and water lines as well as for underground storage tanks, significant impacts/adverse effects to any paleontological resources that are encountered could occur.

### Operational Impacts

The LRT Alternative would result in no operational impacts or effects on paleontological resources.

### Cumulative Impacts

As stated above for Alternative 3, other related projects could require excavation to depths containing fossil bearing soils and could result in the destruction of fossil resources, resulting in a potentially significant impact. Only the subsurficial excavations of the LRT Alternative have a high potential to affect fossils as this is the only build alternative with excavations planned in geologically sensitive units. Although the project and cumulative impacts could be significant, implementation of the mitigation measures described below would reduce the project and cumulative impacts to a less-than-significant level.

### Mitigation Measures

#### *Construction Mitigation Measures*

See mitigation measures MM-PR-1 and MM-PR-2 above.

#### *Operational Mitigation Measures*

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

The proposed mitigation would reduce the potential remaining effects to paleontological resources for Alternatives 1 to 3 to no adverse effect under NEPA. However, if a TBM is used to excavate the subway portion of the Alternative 4 alignment, and if there are any significant paleontological resources located in the path of the TBM, then those resources could be damaged or destroyed by the TBM and the impacts would be substantial adverse.

#### *CEQA Determination*

The proposed mitigation measures would reduce the potential remaining impacts to paleontological resources to a less-than-significant level under CEQA. However, if a TBM is used to excavate the subway portion of the Alternative 4 alignment, and if there are any significant paleontological resources located in the path of the TBM, then those resources could be damaged or destroyed by the TBM and the impacts would be unavoidable and significant.

# 4.17 Environmental Justice

## 4.17.1 Regulatory Framework and Methodology

### 4.17.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's environmental justice impacts are listed below. For additional information regarding these regulations, please see the Environmental Justice Impacts Report in Appendix AA of this Draft EIS/EIR.

#### Federal

- National Environmental Policy Act (NEPA)
- Executive Order 12898
- Council on Environmental Quality Environmental Justice Guidance
- United States Department of Transportation Order 5610.2(a)
- FTA Circular 4703.1(Environmental Justice Policy Guidance for FTA Recipients)
- Civil Rights Act

#### Local

- Metro Complete Streets Policy
- City of Los Angeles (City of Los Angeles Land Use/Transportation Policy, General Plan, Special Districts, and Targeted Neighborhood Initiatives)
- City of San Fernando (General Plan, San Fernando Corridors Specific Plan, Transit-Oriented Development (TOD) Overlay Zone (Proposed))

### 4.17.1.2 Methodology

The following three steps were used to assess the project's impacts on minority and low-income populations in the project study area:

- Demographic information was collected for Census tracts and block groups within the project study area, as well as for the City and County of Los Angeles.
- Textual and visual representations of the data were provided through written descriptions, tables, and maps.
- An assessment of the project's impacts on minority and low-income populations was conducted.

An assessment of the project's impacts on minority and low-income populations was conducted by following the guidance and methodologies provided in the CEQ Environmental Justice Guidance, United States Department of Transportation (USDOT) Order 5610.2(a), and FTA Circular 4703.1. These guidance documents define the range of potentially significant effects on minority and low-income populations that could result from a project.

### 4.17.1.3 CEQA Significance Thresholds

Significance thresholds are used to determine whether a project may have a significant environmental effect under CEQA. CEQA requires state and local government agencies to identify the significant environmental effects of proposed actions; however, CEQA does not describe specific significance thresholds. According to the Governor's Office of Planning and Research, significance thresholds for a given environmental effect are at the discretion of the lead agency and are the levels at which the lead agency finds the effects of the project to be significant.

#### State CEQA Guidelines

The State CEQA Guidelines define "significant effect on the environment" as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (CEQA Guidelines, 14 CCR Section 15382). The State CEQA Guidelines do not describe specific significance thresholds. Appendix G of the CEQA Guidelines lists a variety of potentially significant effects; however, none of these effects are related to environmental justice, as CEQA does not specifically address environmental justice impacts.

## 4.17.2 Affected Environment/Existing Conditions

### 4.17.2.1 Study Area and Regional Setting

#### Study Area

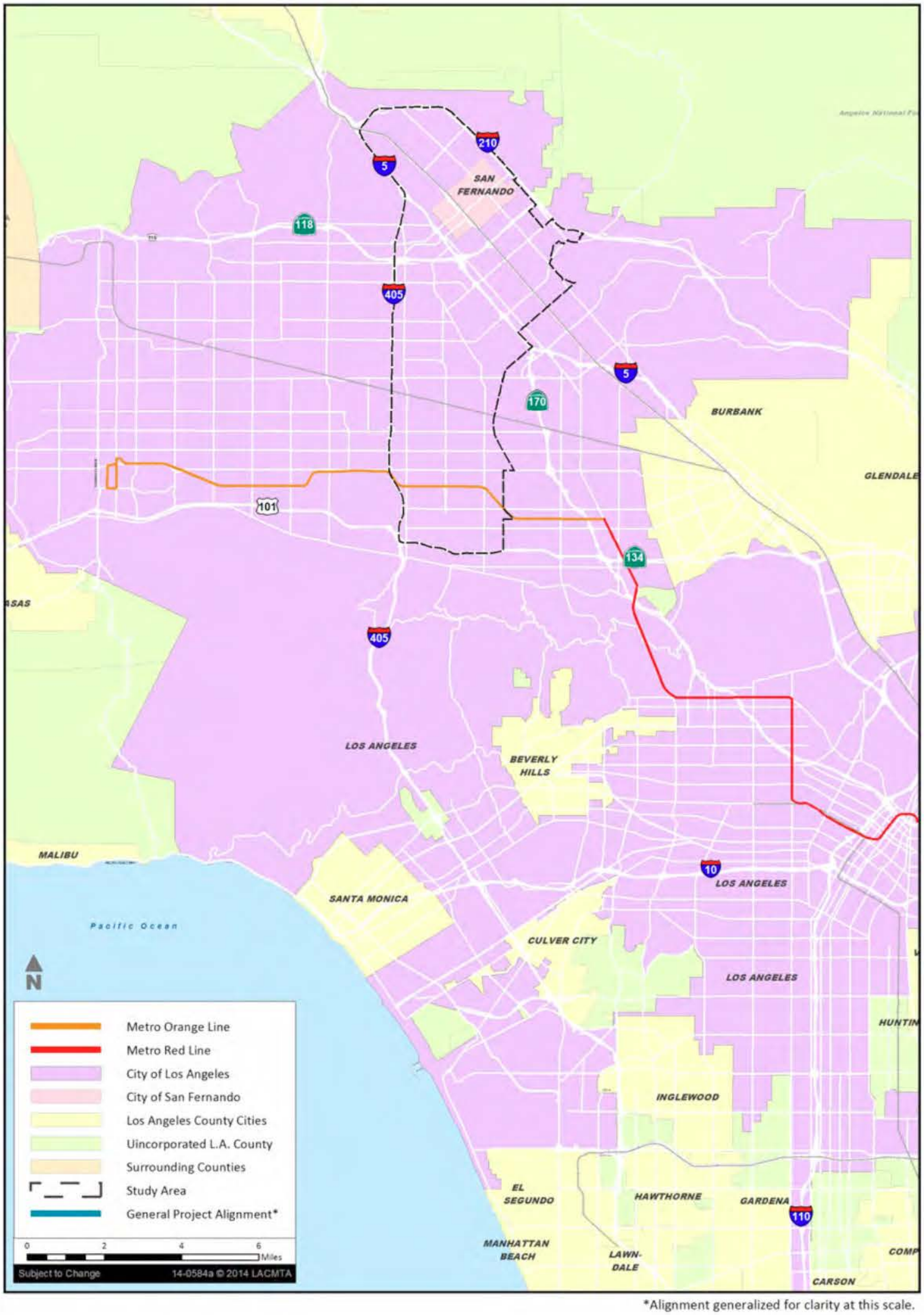
The environmental justice study area is located in the San Fernando Valley area of Los Angeles and shown in Figure 4.17-1. The San Fernando Valley is a flat area consisting of approximately 260 square miles, and is bounded by the Santa Susana Mountains to the northwest, the Simi Hills to the west, the Santa Monica Mountains and Chalk Hills to the south, the Verdugo Mountains to the east, and the San Gabriel Mountains to the northeast. The project corridor is approximately 9.2 miles in length, and runs nearly the entire length of the valley floor.

The project study area encompasses the area in which direct and/or indirect effects associated with the project could result. For this report, the project study area is generally bound by the San Diego Freeway (I-405) to the west, open space to the south (Deervale-Stone Canyon Park, Fossil Ridge Park, and Coldwater Canyon Open Space), Fulton Avenue and the Los Angeles River to the east, and the Foothill Freeway (I-210) to the north (see Figure 4.17-2).

The project study area was identified using information provided in the Purpose and Need Framework, site visits conducted October 2011 and February 2013, Google maps, and aerial photographs of the project corridor.[1,2] Research was performed to identify physical characteristics, such as freeways, which serve to naturally delineate areas, neighborhood designations and specific planning areas, 2010 Census tract and block group boundaries, and available demographic information. Potential impacts, such as those related to construction and project operations, were also taken into consideration when determining the extent of the project study area.

[1] KOA Corporation. 2011. Van Nuys Boulevard Corridor Mobility Study, Purpose and Need Framework. Monterey Park, CA.
[2] Google, Inc. 2013. Google Maps. Available: <http://maps.google.com/>. Accessed: February 13, 2013.

## Figure 4.17-1: Project Vicinity

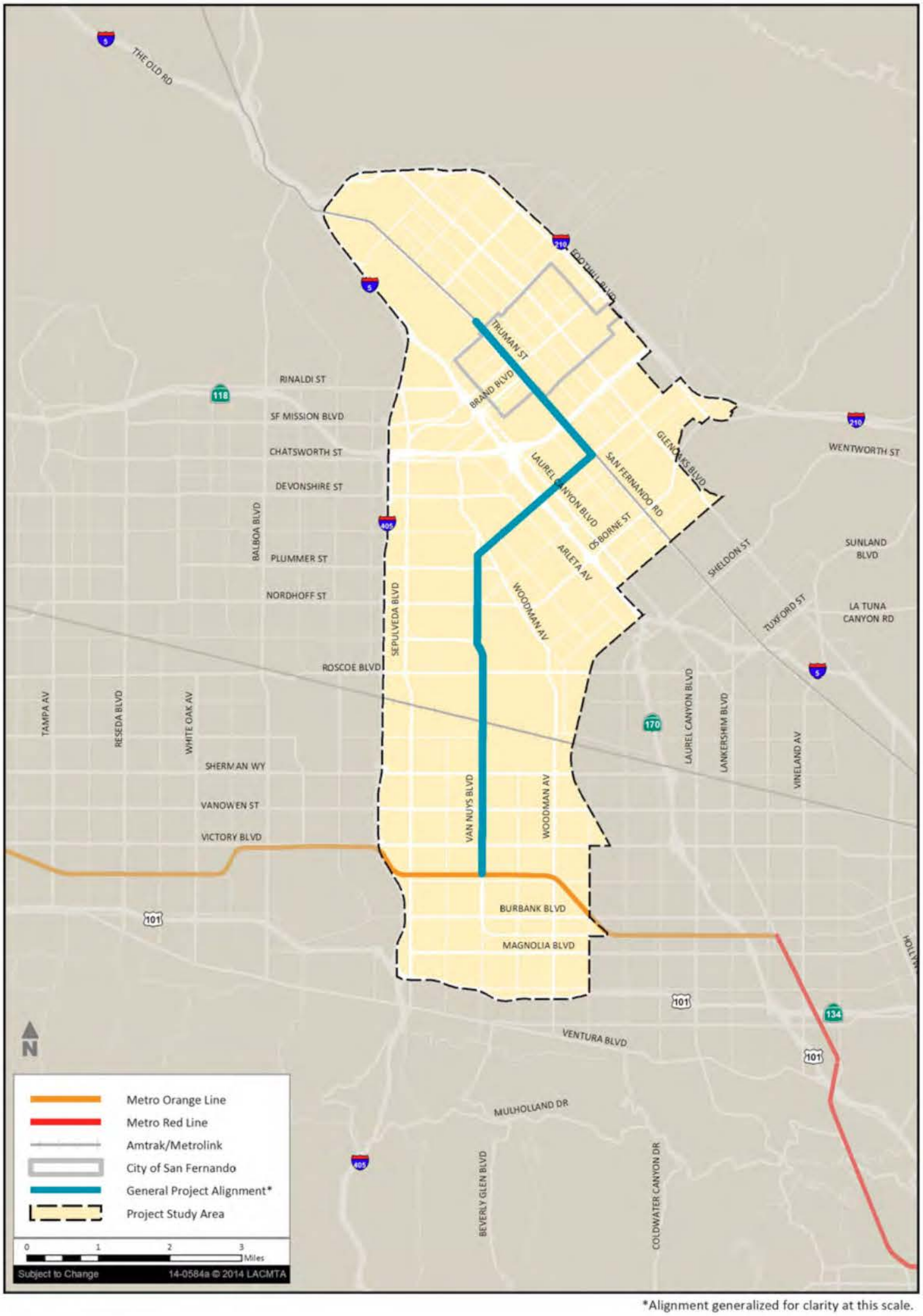



Source: ESRI, 2013.



Metro

## Figure 4.17-2: Environmental Justice Study Area




Source: ESRI, 2013; U.S. Census Bureau, 2010.



Metro

The project study area includes 108 Census tracts (2010 boundaries) as shown in Figure 4.17-2, and 256 block groups. The Census tracts in the project study area are shown in Figure 4.17-3, and the Census block groups are shown in Figure 4.17-4, respectively.

### Regional Areas

An environmental justice study area is often compared with the surrounding region in order to gain perspective and identify similarities, differences, and relationships between the project study area and the region. Generally, a region is defined as the jurisdiction that is larger than, and includes, the project study area, although some circumstances may dictate deviations from this standard. For the purpose of this report, two regional areas have been used: the County of Los Angeles (County) and the City of Los Angeles (City). These regional areas are shown in Figure 4.17-5.

### Community Outreach and Meetings with Environmental Justice Communities

Throughout the Alternatives Analysis and Draft EIS/EIR phases, a variety of informational documents was made available to communities surrounding the project corridor, most of which include environmental justice communities. These documents included project fact sheets, frequently asked questions, meeting notices, electronic newsletters/e-bulletins, and other collateral materials. In addition, a complete set of collateral pieces was developed and distributed at the various community meetings, stakeholder briefings, and public events or electronically when requested. These collateral materials were updated throughout the project development process and produced in English and Spanish. These materials are included in Appendix DD, Agency Coordination and Public Involvement, of this Draft EIS/EIR.

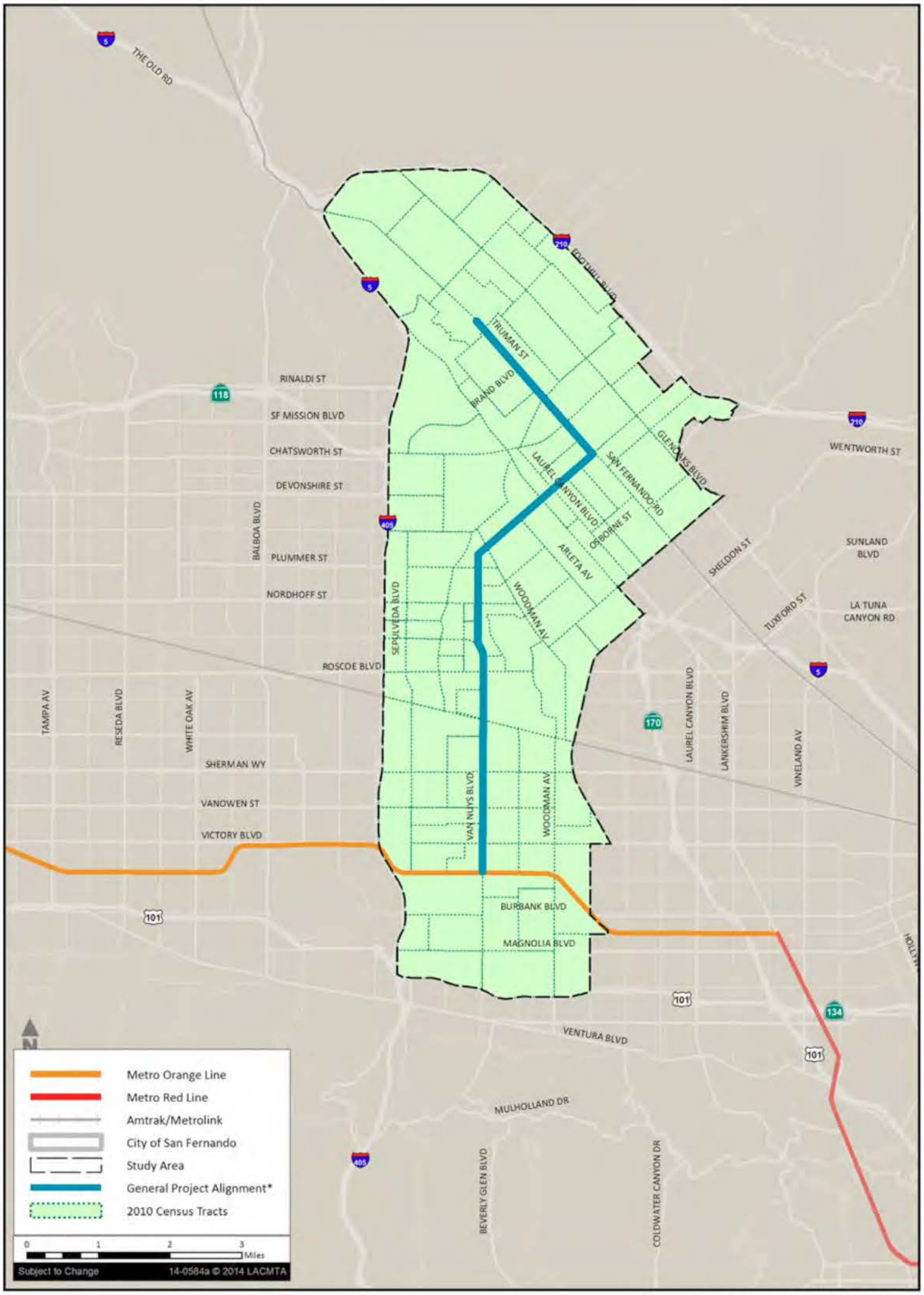
## 4.17.2.2 Minority Populations

In the United States 2000 and 2010 Census data used for this report, racial groups listed as White, Black/African American, American Indian/Alaska Native, Asian, Native Hawaiian/Other Pacific Islander, Some Other Race, and Two or More Races are categorized as “Not Hispanic” (NH). Those listed as Hispanic or Latino are not reported as a race, but as an ethnic group, and are calculated as a proportion of all races.

In 2000, all racial categories in the project study area were a similar percentage or a lower percentage than the City and County, with the exception of the Hispanic or Latino ethnic category (see Table 3-2 in the Environmental Justice Impacts Report in Appendix AA). At that time, the project study area was comprised predominantly of Hispanic or Latino persons at 66.8 percent, which was 20.3 percent higher than the City and two percent higher than the County.

In 2010, all racial categories in the project study area were either the same percentage or a proportionately lower percentage than the City and County, with the exception of the Hispanic or Latino ethnic category (see Table 3-3 in the Environmental Justice Impacts Report in Appendix AA). The project study area was comprised predominantly of Hispanic or Latino persons at 71.7 percent, which was 23.2 percent higher than the City and 24.0 percent higher than the County.

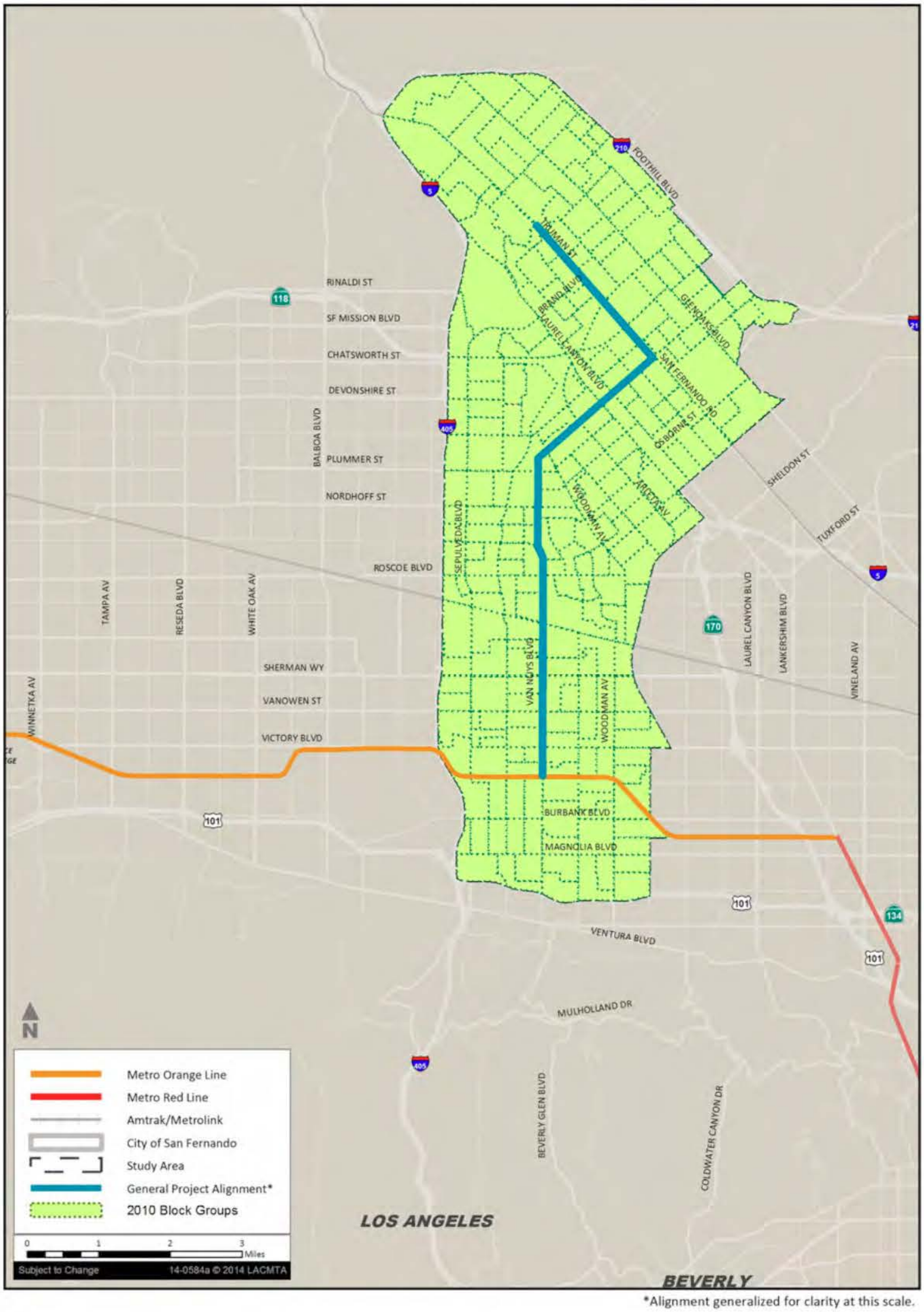
## Figure 4.17-3: Census Tracts in the Environmental Justice Study Area




*Alignment generalized for clarity at this scale.

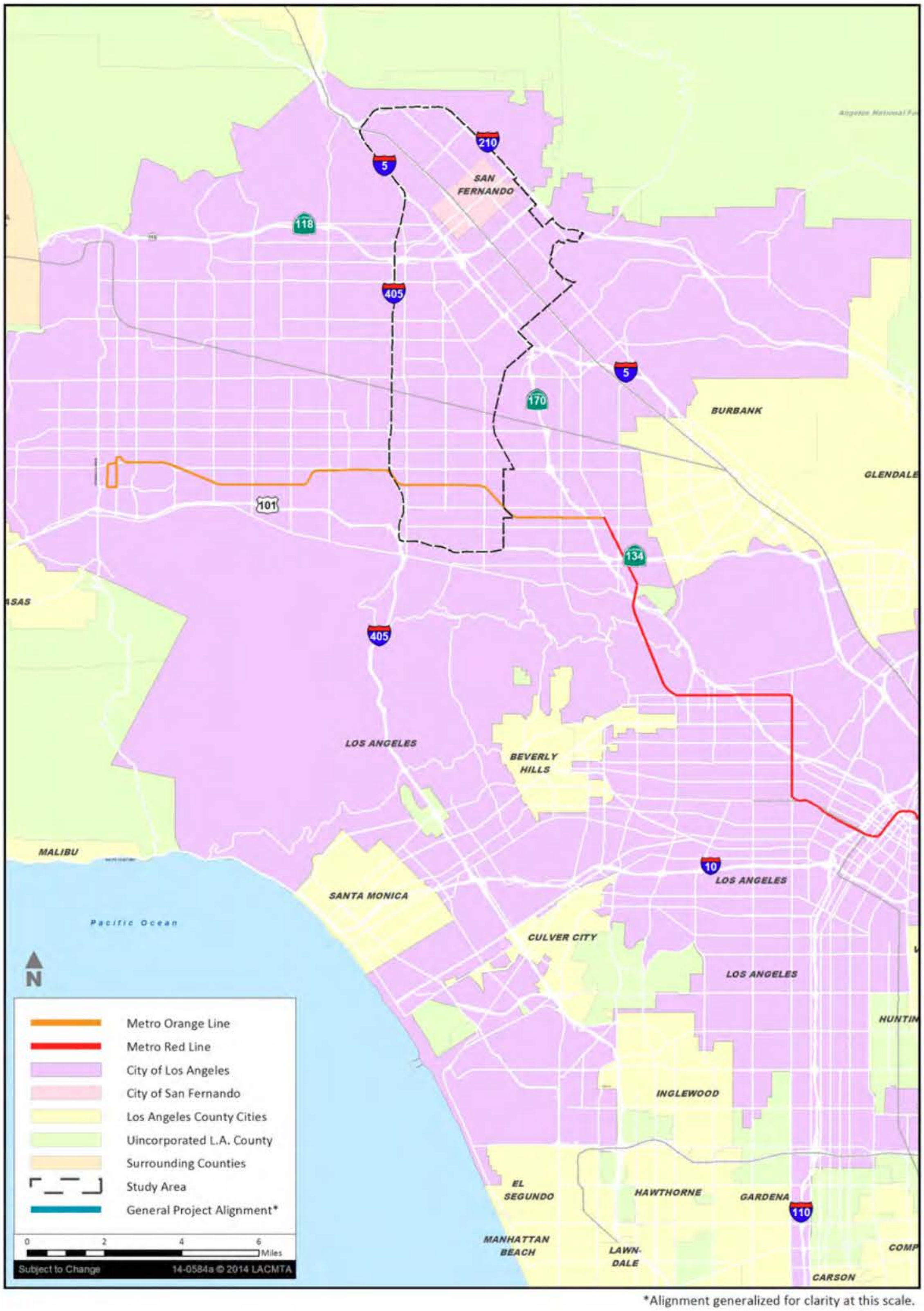
Source: ESRI, 2013; U.S. Census Bureau, 2010.

## Figure 4.17-4: Census Block Groups in the Environmental Justice Study Area




Source: ESRI, 2013; U.S. Census Bureau, 2010.

## Figure 4.17-5: Environmental Justice Regional Areas




Source: ESRI, 2013; U.S. Census Bureau, 2010.

Overall, between 2000 and 2010, there was a decrease in the proportion of Whites, Black/African Americans, American Indian/Alaska Natives, and individuals of Two or More Races in the project study area. During the same period, the proportion of Asians and Hispanic and Latino populations increased in the project study area, and the percentage of Native Hawaiian/Other Pacific Islanders remained the same. Similar trends can be seen in the City and County during that period.

All other minority categories in the project study area were at a similar or lower percentage than the same populations in the regional areas. However, according to FTA Circular 4703.1, a very small minority or low-income population (statistically "insignificant") in the project study area does not eliminate the possibility of a disproportionately high and adverse effect on these populations. Therefore, this report addresses potential effects on all minority populations regardless of the size of the population in the project study area.

### 4.17.2.3 Low-Income Populations

#### Households Below Poverty Level

Households below the poverty level in 2000 are shown in Table 3-4 in the Environmental Justice Impacts Report in Appendix AA. Approximately 17.7 percent of households in the project study area were below the poverty level, which was 0.9 percent lower than the City and 2.6 percent higher than the County.

Households below the poverty level in 2010 are shown in Table 3-5 in the Environmental Justice Impacts Report in Appendix AA. Approximately 17.5 percent of households in the project study area were below the poverty level, which was 0.2 percent higher than the City and 3.5 percent higher than the County.

Between 2000 and 2010, the project study area, the City, and County experienced a decrease in the proportion of households below the poverty level, but the project study area experienced the smallest decrease (by 0.2 percent) compared to the City (a 1.3 percent decrease) and the County (a 1.0 percent decrease).

#### Low-Income Housing

While there are no mobile home parks adjacent to the 9.2-mile project corridor, there are five low-income housing developments:

- 12157 San Fernando Road (near Hubbard Avenue; adjacent to a TPSS Site for the Low-Floor LRT/Tram Alternative);
- 9628 Van Nuys Boulevard (near Vesper Avenue);
- 9640 Van Nuys Boulevard (near Vesper Avenue);
- 9618 Van Nuys Boulevard (near Vesper Avenue); and
- 9247 Van Nuys Boulevard (near Tupper Street).

# 4.17.3 Environmental Consequences, Impacts, and Mitigation Measures

## 4.17.3.1 No-Build Alternative

### Construction Impacts

The No-Build Alternative would not involve new transportation or infrastructure improvements aside from projects currently under construction or funded for future construction. Therefore, the No-Build Alternative would not result in disproportionately high and adverse effects on minority and low-income populations with respect to construction.

### Operational Impacts

#### Mobility and Access Impacts

The No-Build Alternative would not result in changes to existing mobility and access in the project study area. The No-Build Alternative would not result in changes to on-street parking, existing or planned pedestrian and bicycle access, access to public transportation, or vehicular access to businesses and community resources within the communities and neighborhoods in the project study area. Therefore, the No-Build Alternative would not result in any effects on minority or low-income populations with respect to mobility and access.

This alternative would not result in any actions to implement Metro's Complete Streets Policy. In addition, while this alternative would not result in effects on minority or low-income populations, it would not achieve the potential transportation benefits, such as improved circulation, transit equity, reliability, and access that would be expected to result from the proposed build alternatives. As detailed in the Transportation Impacts Report in Appendix G, the No-Build alternative establishes a baseline for comparison to evaluate potential traffic effects of the other alternatives. Daily vehicle traffic within the study area is projected to increase under future baseline conditions (and the No-Build Alternative), as compared to existing conditions. Community mobility would be expected to deteriorate with the increased regional traffic congestion anticipated between now and 2040, which could result in a long-term reduction in access to public transportation, businesses, and community resources, as well as reduced emergency vehicle access.

#### Social and Economic Impacts

The No-Build Alternative would not result in changes to social and economic conditions in the project study area. This alternative would not induce population growth, result in changes to businesses or employment rates, displace housing or people, or result in changes to community cohesion, interaction, quality of life, or social values. In addition, the No-Build Alternative would not result in the denial of, reduction in, or substantial delay in the receipt of benefits of USDOT programs, policies, or activities for minority or low-income populations. Therefore, the No-Build Alternative would not result in effects on minority or low-income populations with respect to social and economic conditions. More information on economic impacts is provided in the Economic and Fiscal Impacts Report in Appendix V.

While this alternative would not result in effects on minority or low-income populations, it would not achieve the potential circulation, transit equity, and access improvements that would be expected to result from the proposed build alternatives. Community mobility would be expected to deteriorate with the increased regional traffic congestion anticipated between now and 2040, which could limit local economic growth.

### Physical Impacts

The No-Build Alternative would not result in changes to the physical environment, including changes in land use patterns or visual character, and would not result in safety impacts or introduce physical intrusions to communities and neighborhoods in the project study area. No geological, hazardous materials, water quality, public health, or community facility impacts are anticipated. The No-Build Alternative would not require street closures or result in reductions in community cohesion, reductions in access, or increased exclusion. Under this alternative, transportation facilities would operate entirely within existing transportation corridors, and no physical barriers would be introduced that would divide the existing communities surrounding the project corridor. This alternative would not decrease the performance or safety of public transit, bicycle, or pedestrian facilities. The No-Build Alternative would not require displacement of any housing, people, or businesses or require the acquisition of properties. Therefore, the No-Build Alternative would not result in effects on minority or low-income populations with respect to physical conditions.

While this alternative would not result in effects on minority or low-income populations, it would not achieve the potential circulation, transit equity, and access improvements that are expected to result from the proposed build alternatives. Community mobility would be expected to deteriorate with the increased regional traffic congestion anticipated between now and 2040, which could result in increased vehicle hours traveled, fuel (energy) consumption, air quality emissions, and generation of greenhouse gas emissions.

## Cumulative Impacts

Per CEQA Section 15130 (b), the cumulative impacts analysis can consider either a “list of past, present, and probable future projects producing related or cumulative impacts” or “a summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect.” The cumulative impacts analysis below is based on the approach that considers the cumulative projects listed in Table 2-3 of this EIS/EIR.

The study area for the cumulative impacts analysis consists of the communities and neighborhoods that would be affected by the proposed project. In general, the cumulative impacts study area encompasses the neighborhoods and communities adjacent to the project corridor.

The No-Build Alternative would not result in effects on minority or low-income populations; therefore, this alternative would not contribute to cumulative impacts on environmental justice communities.

## Mitigation Measures

### Construction Mitigation Measures

No construction mitigation measures are required.

### Operational Mitigation Measures

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### NEPA Finding

No adverse effects under NEPA would occur.

#### CEQA Determination

There are no thresholds of significance in CEQA for environmental justice impacts. Therefore, no CEQA determination can be made for environmental justice impacts resulting from this alternative.

## 4.17.3.2 TSM Alternative

### Construction Impacts

The TSM Alternative may include minor bus stop and roadway improvements as well as operational enhancements to the existing bus system. Given the very limited extent of potential physical improvements, construction activities would likely have no or very minimal impacts on the social, economic, and physical conditions of the communities and neighborhoods in the project study area.

These minor temporary effects are anticipated to affect all communities within the project study area comparably, regardless of the block groups' socioeconomic or demographic characteristics. Therefore, the TSM Alternative would not result in disproportionately high and adverse effects on minority and low-income populations with respect to construction.

### Operational Impacts

#### Mobility and Access Impacts

The TSM Alternative would be expected to result in beneficial changes to existing mobility and access in the project study area. This alternative includes enhanced bus frequencies for the existing Metro Rapid Bus 761 and the Local 233 lines, which would provide additional mobility and access benefits for minority and low-income populations in the project study area. Additional bus service would be available to all communities throughout the project study area as well as communities adjacent to the project study area, regardless of socioeconomic or demographic characteristics.

The TSM Alternative would retain on-street parking, retain pedestrian and bicycle access, enhance access to public transportation through increased bus frequencies, and result in improved access to businesses and community resources within the communities and neighborhoods in the project study area. The TSM Alternative would be expected to improve transit service, result in an increase of approximately 14,500 daily transit boardings in an area with a large transit-dependent population, and could reduce regional traffic congestion, which could facilitate faster response times for emergency services.

This alternative would not result in any actions to implement Metro's Complete Streets Policy. In addition, as detailed in the Transportation Impacts Report in Appendix G, the TSM Alternative would not substantially affect traffic at any of the study intersections. Therefore, the TSM Alternative would not result in any effects on minority or low-income, or other minority populations with respect to mobility and access.

### Social and Economic Impacts

The TSM Alternative would not be expected to result in substantial social and economic changes in the project study area. More frequent bus service may require additional drivers, providing employment opportunities; however, there is already a substantial employment base and residential population in the San Fernando Valley. Therefore, the potential employment opportunities would not be expected to induce substantial population growth in the project study area. Additional information on economic impacts is provided in the Economic and Fiscal Impacts Report in Appendix V.

The proposed improvements under this alternative would not displace housing or people, and would not be expected to result in substantial changes to community cohesion, interaction, quality of life, or social values. The TSM Alternative would not result in the denial of, reduction in, or substantial delay in the receipt of benefits of USDOT programs, policies, or activities for minority or low-income populations.

Under the TSM Alternative, enhanced bus frequencies would provide an increased availability of transit service, which could stimulate the local economy by facilitating access to local businesses. The additional bus service could result in a beneficial impact on low-income individuals that do not own a vehicle and that rely on public transportation. All businesses within the project study area would be affected comparably, regardless of socioeconomic or demographic characteristics. Therefore, the TSM Alternative would not result in disproportionate effects on, or fewer benefits for minority or low-income populations with respect to social and economic conditions.

While this alternative would not result in effects on minority or low-income populations, it would not substantially improve regional mobility, and community access would likely continue to deteriorate with increasing regional traffic congestion expected between now and 2040. Therefore, any social or economic benefits resulting from the TSM Alternative could eventually be cancelled out by increased traffic congestion, which could result in reduced operating speeds and service reliability, and a long-term reduction in access to local businesses.

### Physical Impacts

The TSM Alternative would include traffic signalization improvements, new bus stop amenities and improvements, and bus schedule restructuring. This alternative would not be expected to result in substantial changes to the physical environment, including changes in land use patterns or visual character, and would not result in safety impacts, or introduce substantial physical intrusions to communities and neighborhoods in the project study area. Minor modifications to the roadway network would be expected to enhance the existing transportation network, would be compliant with Americans with Disabilities Act (ADA) guidelines, and would not be expected to result in pedestrian, bicycle, and/or vehicle safety impacts.

Numerous transit lines currently exist in the project study area. The new transit lines and bus stops would not be expected to substantially change noise and vibration conditions. The installation of new bus stops and signage would require minimal excavation and would not require right-of-way acquisitions or increase the amount of impervious surface; therefore, no adverse geological, hazardous materials, water quality, public health, or community facility impacts are anticipated.

New bus stops would be installed within the existing right-of-way, and street closures would not be required. The TSM Alternative would operate entirely within existing transportation corridors, and would not introduce physical barriers that would divide the existing communities surrounding the project corridor. The TSM Alternative would not result in impacts on community access or exclusion.

The proposed improvements under this alternative would not displace housing or people, and would not be expected to result in substantial changes to community cohesion, interaction, quality of life, or social values.

This alternative would not achieve circulation improvements within the existing community that would be expected as a result of the proposed build alternatives. The existing and projected transportation deficiencies would be experienced comparably among local and regional travelers, regardless of socioeconomic or demographic characteristics. Therefore, the TSM Alternative would not result in effects on minority or low-income populations with respect to physical conditions.

## Cumulative Impacts

The TSM Alternative would not result in effects on minority or low-income populations; therefore, this alternative would not contribute to cumulative impacts on environmental justice communities.

## Mitigation Measures

### Construction Mitigation Measures

No construction mitigation measures are required.

### Operational Mitigation Measures

No operational mitigation measures are required.

## Impacts Remaining After Mitigation

### NEPA Finding

No adverse effects under NEPA would occur.

### CEQA Determination

There are no thresholds of significance in CEQA for environmental justice impacts. Therefore, no CEQA determination can be made for environmental justice impacts resulting from this alternative.

# 4.17.3.3 BRT Alternatives (Build Alternatives 1 and 2)

## Alternative 1 – Curb-Running BRT

### Construction Impacts

#### *Mobility and Access Impacts*

Construction of curb-running BRT stations and the transit alignment would require temporary sidewalk, lane, and road closures, and temporary removal of parking along Van Nuys Boulevard, San Fernando Road, Truman Street, and their cross streets. These closures could reduce pedestrian, bicycle, and vehicle access to areas along the project corridor during construction. These temporary effects are anticipated to affect all communities within the project study area and communities adjacent to the project study area comparably. To minimize potential impacts on pedestrians and cyclists, adequate pedestrian and bicycle accommodations would be made available during construction, including signage, construction barriers to reduce any conflicts with construction equipment and vehicles, and supervision of trained safety personnel. On-street bicycle detour routes would be used to address temporary effects on bicycle circulation. In addition, signage would be posted, stating that "Bikes May Use Full Lane," and/or alternative route signage would be provided. Uneven surfaces would also be clearly marked.

Road and sidewalk closures, and the addition of construction vehicles and equipment on major City of Los Angeles and City of San Fernando streets, could reduce public access to annual festivals and events in the various communities along the alignment. In addition, construction could disrupt traffic patterns and make public access to businesses and community resources more difficult. Lane closures, traffic detours, and designated truck routes associated with construction could also result in decreased access for emergency vehicles, which could result in a delay in response times. Lane and/or road closures would be scheduled to minimize disruptions, and a Traffic Management Plan (TMP) would be approved in coordination with both the Cities of Los Angeles and San Fernando prior to construction. For these reasons and because the lane and/or road closures and the potential for temporary effects associated with emergency vehicle response times would affect all neighborhoods along the alignment, regardless of origin, no disproportionate adverse effects on minority or low-income populations are anticipated.

### *Social and Economic Impacts*

Construction of Alternative 1 would not be expected to result in substantial changes to the existing population in the project study area. A substantial employment base and residential population currently exist in the San Fernando Valley and are within commuting distance of the project corridor; therefore, employment opportunities would not be expected to result in substantial migration of additional residents to the project study area. In addition, because of the temporary nature of construction jobs, employment opportunities resulting from construction would not be expected to induce substantial population growth in communities and neighborhoods in the project study area.

Construction activities would likely result in a decrease in accessibility to many businesses and could reduce on-street and off-street parking, which may negatively affect business activity levels because the number of customers may temporarily decline. All attempts would be made to provide adequate detours and to minimize road closures; however, some consumers may avoid the area altogether, which could have an indirect effect on businesses within the project area. Construction activities would take place throughout the project corridor, and the temporary decrease in accessibility would affect all businesses comparably.

#### *Displacement of Businesses, Housing, and People*

Alternative 1 would be constructed within the curb lanes of an existing roadway, and would not result in the displacement of any housing, people, or businesses. Additionally, no displacements would be required for storage or staging areas for construction equipment and materials. This alternative would not require the construction or expansion of an MSF; therefore, no right-of-way acquisitions associated with an MSF would be required, and Alternative 1 would not result in any effects on minority or low-income populations with respect to displacement.

### *Physical Impacts*

Construction of Alternative 1 would not likely result in changes to existing land use patterns or result in physical division of communities because construction would be short-term, and would not affect land use designations or introduce barriers that would divide communities. However, construction activities could result in several other physical impacts and intrusions, including noise, dust, odors, and traffic delays resulting from haul trucks and construction equipment in public streets and staging areas. Local neighborhoods, businesses, and community facilities may be inconvenienced temporarily, and community activities could be disrupted by construction.

Construction of Alternative 1 may also result in several visual impacts within and surrounding the project corridor. Construction areas could be visible from residential land uses on some of the adjacent parcels, either directly through fencing, through entrance gates, or over fencing from second story and higher windows. Construction activities at staging areas and proposed stations may include the use of heavy equipment such as cranes and associated vehicles, including bulldozers, backhoes, graders, scrapers, and trucks, which could be visible from public streets, sidewalks, and adjacent properties.

Viewers in the construction area may be affected by the presence of this equipment, as well as stockpiled construction-related materials. In addition, mature vegetation, including trees, could be temporarily removed from some areas. Construction impacts associated with noise, air quality, visual quality/aesthetics, and traffic would be reduced or minimized through construction management and abatement measures, as detailed in the respective sections of this EIS/EIR and in the technical reports.

Construction of Alternative 1 could also have temporary effects on public safety and security within the project study area. During construction, motorists, pedestrians, and bicyclists would be exposed to additional safety hazards because of proximity to construction activities. The potential for safety and security effects would be minimized by compliance with Occupational Safety and Health Administration (OSHA), California Occupational Safety and Health Administration (Cal/OSHA), and Metro safety and security programs, which are designed to reduce potential construction effects. In addition, an adequate level of signage, construction barriers, and supervision of trained safety personnel would be provided to ensure that pedestrian and motorist safety is maintained during construction.

Incidents of crime adjacent to the project alignment would not likely increase during construction of the build alternatives. Construction machinery and materials could be stolen at construction sites; however, these incidents would be minimized through implementation of standard site security practices.

According to the Initial Site Assessment in Appendix P, right-of-way acquisitions and excavations would be required for construction of the project, and a Phase II Site Assessment would be recommended to evaluate individual locations.[3] There are properties within the project area that are listed on hazardous waste databases, and/or are reported to have soil or groundwater contamination. The effects from potential hazardous materials would be reduced through construction management and abatement measures, as detailed in the Initial Site Assessment. In addition, the Phase II Site Assessment would include recommendations on how to treat or handle any hazardous materials that have the potential to be encountered during construction of the project.

Since the project would comply with regulatory requirements and measures would be implemented to mitigate construction impacts and because the potential effects are anticipated to affect all communities within the project study area comparably, regardless of the block groups' socioeconomic or demographic characteristics, Alternative 1 would not result in disproportionately high and adverse effects on minority or low-income populations with respect to construction.

[3] Diaz Yourman & Associates. November 2014. Environmental Site Assessment: Eastern San Fernando Valley Transit Corridor.

## Operational Impacts

### *Mobility and Access Impacts*

#### *Changes in Access to Public Transportation, Businesses, and Community Resources*

Under Alternative 1, the rapid bus line would enhance connections to public transportation within the project study area and across the region in compliance with Metro's Complete Streets Policy. This alternative would permanently improve community mobility by providing a new means of transportation access that does not rely on driving, and the additional transit service would enhance access to public transportation, businesses, and community resources in the project study area. All existing motor vehicle turns into and out of cross streets and driveways would be maintained, and no changes would be made to existing turning movements. The curb-running BRT would be available to all communities throughout the project study area as well as communities adjacent to the project study area, regardless of socioeconomic or demographic characteristics.

Under this alternative, the Metro Rapid 761 bus would no longer operate on Van Nuys Boulevard from north of San Fernando Road to Foothill Boulevard, which is a 1.5-mile segment of roadway within the project study area. This entire segment of roadway is adjacent to block groups containing minority and low-income populations. Though the Rapid 761 bus would not operate along this segment of roadway, Metro Local Line 233 would continue to operate along the same segment of Van Nuys Boulevard after implementation of the alternative.

Local Line 233 operates Monday through Sunday, as well as holidays, at similar intervals and locations as Rapid 761. During early morning and late evening hours, Local Line 233 carries passengers along the 1.5-mile segment of Van Nuys Boulevard exclusively. Though Rapid 761 would no longer operate along the segment of roadway, public transportation would be available along the same roadway segment at similar intervals, however, it should be noted that the Local Line 233 has more frequent stops and a longer trip duration than the Rapid Line 761. Passengers using Local Line 233 would be able to use the same method of payment as with Rapid 761, fares between the two lines are comparable, and riders who qualify for Metro transportation subsidy programs would be able to utilize the subsidy regardless of which line they are using. Therefore, Alternative 1 would not result in disproportionate effects on, or fewer benefits for minority or low-income with respect to availability of public transportation.

Under Alternative 1, curbside parking along the entire 9.2 miles (in the northbound and southbound directions) of the project corridor would be prohibited, which could affect vehicle access to businesses and community resources. Of the block groups adjacent to this segment of roadway, 100 percent contain minority populations, and 100 percent contain low-income populations. On-street parking would still be available on all connecting streets where parking is currently permitted, and many businesses and community resources may have dedicated parking lots that would provide sufficient off-street parking. In addition, more people may use transit as a result of the project, which could reduce the need for parking.

According to the Transportation Impacts Report in Appendix G, the Van Nuys Boulevard corridor in the study area has a weekday parking demand of 481 on-street spaces and a Saturday peak parking demand of 589 on-street spaces. A parking analysis of adjacent locations was conducted; it was determined that the available adjacent on-street parking and/or off-street parking areas can meet the weekday and weekend on-street parking demand for the area. In addition, public transit would be enhanced under Alternative 1. The project could result in increased transit use, which could reduce the need for on-street parking. Therefore, Alternative 1 would not result in disproportionate effects on, or fewer benefits for, minority or low-income populations with respect to public transportation and reductions in parking (and any associated reduction in access).

### *Changes in Pedestrian and Bicycle Access*

Alternative 1 would retain pedestrian and bicycle access along the project corridor in compliance with Metro's Complete Streets Policy. Existing pedestrian movements would be maintained, including all existing mid-block crossings. Portions of the sidewalks along the corridor would be widened, while sidewalks in other areas of the corridor would be narrowed under this alternative; however, all sidewalks would be at least 10 feet wide. In addition, all existing Metro Rapid Bus stops would be upgraded with ADA-compliant design enhancements, contingent upon the legal ability to upgrade because of the City of Los Angeles' exclusive contract with a bus stop advertising company. Other modifications required to accommodate the BRT improvements would also comply with ADA guidelines. For these reasons and because pedestrians within the project study area would be similarly affected regardless of demographic or socioeconomic conditions, Alternative 1 would not result in disproportionate effects on, or fewer benefits for minority or low-income populations with respect to pedestrian access.

The City's Bicycle Plan designates Van Nuys Boulevard as part of the "Backbone Bicycle Network," which plans an interconnected system facilitating mobility on key arterials.[4] Under Alternative 1, the existing Class II bike lanes along Van Nuys Boulevard north of Parthenia Street would be removed. However, curbside lanes on Van Nuys Boulevard would be 12 feet wide or greater, except between Parthenia Street and Roscoe Boulevard where curbside lanes would be 11 feet wide. Curbside lanes on Van Nuys Boulevard would be restricted to buses and bicyclists, with other vehicles allowed in the lane only for right-turns; therefore, bicyclists would not need to share the lane with the general public. However, the removal of the Class II bike lanes under Alternative 1 would conflict with the City's Bicycle Plan because designated bicycle lanes on Van Nuys Boulevard would not be feasible with the implementation of this alternative, affecting future bicycle access within the project study area. The City's General Plan designates Van Nuys Boulevard as a transit priority street, and the transit improvements proposed under this alternative would only be feasible with the removal of the bicycle lanes. In addition, as stated in Metro's Complete Streets Policy, a number of streets might not provide accommodations for all modes of transportation due to physical right-of-way constraints, which is the case for this alternative. Nonetheless, the change from a Class II bike lane to a shared bicycle lane could result in safety impacts as discussed later in this section.

The City's Bicycle Plan includes planned bicycle lanes along Woodman Avenue (one-mile east of and parallel to Van Nuys Boulevard) between Ventura Boulevard and the Osborne Street and Nordhoff Street corridors. Bicycle lanes are also planned along the Osborne Street corridor and would connect to San Fernando Road. As detailed in the Transportation Impacts Report in Appendix G, mitigation for impacts on bicycle facilities would include the implementation of bicycle lanes on these parallel roadways; visual enhancement of the crosswalks at each proposed station location; completion of a community linkages study; and implementation of the study recommendations through coordination between Metro and the Cities of Los Angeles and San Fernando. To use the planned bicycle lanes on Woodman Avenue, bicyclists would need to travel one mile east of Van Nuys Boulevard, which may be an inconvenience for some bicyclists depending on their final destination. However, bicycle accommodations, including bicycle racks, would be provided at BRT stations and on buses so that passengers may leave their bicycles at the stations or bring them onto buses.

[4] City. March 2011. 2010 Bicycle Plan.

The average distance of a bicycle trip in Los Angeles is four miles; affected bicyclists would be expected to travel from neighborhoods within and outside of the study area, which include block groups of varying socioeconomic and demographic characteristics.[5] The changes to the Class II bike lanes along Van Nuys Boulevard would be expected to affect all bicyclists within an approximate four-mile radius comparably, regardless of socioeconomic or demographic characteristics. For that reason and because Alternative 1 would improve transit service and would include measures to mitigate potential bicycle impacts, Alternative 1 would not result in disproportionately high and adverse effects on minority or low-income populations with respect to bicycle access.

#### *Changes to Circulation and Emergency Access*

As detailed in the Transportation Impacts Report in Appendix G, Alternative 1 would be expected to improve transit service, result in an increase of approximately 12,500 daily transit boardings in an area with a large transit-dependent population, and could reduce regional traffic congestion, which could facilitate faster response times for emergency services. However, conversion of existing mixed-flow lanes to dedicated BRT lanes would decrease roadway capacity for mixed-flow traffic. As a consequence, this alternative would result in adverse effects on 16 of the 73 study intersections within the corridor. Localized traffic congestion impacts could reduce access for emergency vehicle response or interfere with emergency evacuation plans. However, significant increased delays to emergency vehicles are not anticipated since emergency vehicles could use the BRT lanes to avoid congestion and traffic queues. Additionally, because the project study area is within a roadway corridor, emergency vehicles and travelers in the project study area would be similarly affected by increased traffic, regardless of trip origin. Traffic impacts are anticipated to affect all emergency calls or travelers within the project study area comparably, regardless of socioeconomic or demographic characteristics. Therefore, Alternative 1 would not result in disproportionately high and adverse effects on minority or low-income populations with respect to emergency access and circulation.

### *Social and Economic Impacts*

#### *Population, Business, and Employment Growth*

Alternative 1 is not expected to result in substantial changes to the existing population in the project study area. This alternative would not include the development of new housing or businesses that would directly induce population growth. Alternative 1 would include additional bus service and could therefore generate additional employment opportunities for bus drivers; however, there is currently a substantial employment base and residential population in the San Fernando Valley, and the employment opportunities would not be expected to result in substantial migration of additional residents to the project study area. Therefore, this alternative would not be expected to induce substantial population growth in existing communities and neighborhoods.

Alternative 1 could indirectly affect growth and development in the project study area by promoting planned development and redevelopment near station areas. The type of development expected around station areas would most likely be Transit-Oriented Development (TOD), which is mixed-use residential and commercial development designed to maximize access to public transportation. Alternative 1 may also attract businesses from other areas of the region to the immediate areas surrounding the proposed stations. This alternative would be located in an urban area containing a limited number of vacant or underutilized parcels; therefore, this alternative is not expected to result

[5] Ibid.

in substantial changes to existing growth and development patterns. In addition, Alternative 1 would accommodate projected population growth in the region, and any development that could result around station areas is anticipated to be consistent with current growth projections.

Under Alternative 1, enhanced transit service could stimulate the local economy by facilitating access to local businesses. In addition, business viability could improve from the increase in pedestrian traffic near the proposed stations, which could provide new potential customers. The proposed stations would be situated relatively evenly throughout the project corridor, which could have the potential to provide improved economic conditions to all businesses located near station areas comparably. Therefore, Alternative 1 would not result in disproportionate effects on, or result in fewer benefits for, minority or low-income populations with respect to improved economic conditions. More information on economic impacts is provided in the Economic and Fiscal Impacts Report in Appendix V.

*Changes in Community Cohesion and Interaction*

Alternative 1 would increase connectivity within the eastern San Fernando Valley area, and would result in more unified communities within the project study area by providing additional transit services connecting these areas. Therefore, this alternative would be expected to enhance community cohesion and interaction. In addition, Alternative 1 would not result in the denial of, reduction in, or substantial delay in the receipt of benefits of USDOT programs, policies, or activities for minority or low-income populations.

Because the proposed stations would be spaced relatively evenly, transit connectivity would be improved throughout the entire project corridor. Therefore, Alternative 1 would not result in disproportionate effects on, or fewer benefits for minority or low-income populations with respect to community cohesion.

*Changes in Quality of Life or Social Values*

As discussed previously, under Alternative 1, existing mixed-flow lanes would be converted to dedicated BRT lanes, which could result in additional roadway congestion from decreased roadway capacity for mixed-flow traffic. However, Alternative 1 would be expected to result in a long-term overall improved quality of life for the communities and neighborhoods in the project study area resulting from the availability of enhanced transit access to businesses and between communities. Alternative 1 would permanently improve community mobility by providing a new means of transportation that does not rely solely on driving.

The BRT line would be expected to enhance connections to other neighborhoods within the project study area and across the region, and increased pedestrian traffic near the proposed stations would provide new potential customers and improve business viability. As a consequence, it's expected that this alternative would result in social and economic benefits for the communities and neighborhoods in the project study area. The proposed stations would be spaced evenly throughout the project corridor, and would improve access and business viability comparably. Therefore, Alternative 1 would not result in disproportionate effects on, or fewer benefits for, minority or low-income populations with respect to improved quality of life.

### *Physical Impacts*

*Changes in Land Use Patterns*

Alternative 1 is not expected to result in substantial changes in land use patterns. While there would be some modifications to the project corridor (e.g., changes in bicycle lanes), the project corridor is an existing transportation route with existing bus transit service; therefore, the proposed BRT operations would be consistent with existing bus operations and land use patterns.

Alternative 1 could indirectly affect development in the project study area by encouraging housing, employment, and commercial development within walking distance of the proposed transit stations along the project corridor. However, because this alternative is located in an urban area containing a limited number of vacant or underutilized parcels, this alternative would not be expected to substantially change existing growth and development patterns. The proposed stations would be spaced evenly throughout the project corridor, and would affect land use comparably. Therefore, Alternative 1 would not result in disproportionate effects on minority or low-income populations with respect to land use.

*Changes in Visual Character*

This alternative would include new and upgraded bus stations, and the installation of dedicated BRT lanes. The BRT vehicles would be similar to existing Metro buses. The project corridor is an existing transportation route with existing bus transit service; the proposed BRT operations would be consistent with existing bus operations, and no substantial changes in visual character would result from this alternative. Station upgrades and sidewalk widening could also result in a more cohesive landscape along the corridor with canopies, additional street trees, and benches that would provide a more unified appearance in station areas. These proposed elements would be situated relatively evenly throughout the entire project corridor. Although Metro Rapid bus stops would be upgraded under this alternative, none of the local bus stops would be upgraded. The Metro Rapid bus stops would be visually accessible to all persons traveling along the project corridor regardless of socioeconomic or demographic characteristics. Therefore, Alternative 1 would not result in disproportionate effects on, or fewer benefits for, minority or low-income populations with respect to visual character.

*Safety Impacts and Other Physical Intrusions*

Alternative 1 is not expected to result in substantial physical intrusions (e.g., noise, dust, or odors) to the project corridor. While there would be some modifications to the project corridor (e.g., changes in bicycle lanes), the project corridor is an existing transportation route with existing bus transit service; the proposed BRT operations would be consistent with existing bus operations and physical conditions. Geological, hazardous materials, water quality, public health, or community facility impacts are not anticipated. Alternative 1 would not include permanent street closures or result in reductions in community cohesion, reductions in access, or increased exclusion of transit-dependent individuals from community facilities.

The development of new BRT facilities in the project corridor could result in security concerns because passengers may congregate at station areas, which could attract criminals and result in a higher potential for assault, robbery, or terrorist attacks. These concerns would be addressed both through design considerations (e.g., security cameras in station areas) and by coordinating with law enforcement personnel, including the Los Angeles County Sheriff's Department Transit Services Bureau. In addition, potential bus improvements under this alternative would follow the requirements of Metro's System Safety Program Plan, which are intended to ensure worker and passenger safety, reduce crime, and allow for an adequate emergency response. Therefore, Alternative 1 is not expected to result in a substantial increase in security risks in the project study area.

Alternative 1 would run in mixed-flow curb lanes along San Fernando Road and Truman Streets, which could increase the potential for conflicts between mixed-flow street traffic and other Metro bus operations. However, because existing bus service in the corridor currently operates in mixed-flow traffic, a substantial increase in accidents or collisions between buses and other motor vehicles is not expected to occur under this alternative.

Alternative 1 would be designed in compliance with Metro design guidelines to ensure pedestrian, motorist, and bicyclist safety; however, the removal of existing Class II bike lanes would increase the potential for conflicts between bicyclists and motor vehicles. The average distance of a bicycle trip in Los Angeles is four miles, and affected bicyclists would be expected to travel from neighborhoods within and outside of the study area, which include block groups of varying socioeconomic and demographic characteristics. Although this alternative could result in bicycle safety impacts along the project corridor; mitigation measures are proposed to reduce or avoid those impacts. Additionally, given the transit service benefits that would occur under this alternative and because the changes to the Class II bike lanes along Van Nuys Boulevard would be expected to affect all bicyclists within an approximate four-mile radius comparably, regardless of socioeconomic or demographic characteristics, disproportionately high and adverse effects on environmental justice populations are not anticipated.

Alternative 1 would be expected to increase the capacity of the regional transportation system as a whole and is anticipated to decrease emissions from passenger vehicles. According to the Air Quality Report in Appendix L, this alternative would not result in significant or adverse air quality impacts, including at intersections that would experience greater traffic congestion. Therefore, Alternative 1 would not result in disproportionate effects on minority or low-income populations with respect to physical impacts.

*Physical Division of Communities*

Alternative 1 would operate entirely within existing transportation corridors, and would not introduce physical barriers that would divide existing communities in the project study area. Therefore, Alternative 1 would not result in effects on minority or low-income populations with respect to physical divisions.

### Cumulative Impacts

Although Alternative 1 would not result in disproportionately high and adverse effects on minority or low-income populations, past projects have resulted in disproportionately high and adverse effects on minority or low-income populations, and other planned or proposed projects in the corridor could result in adverse effects on environmental justice populations. However, Alternative 1 would improve transit service and connectivity benefitting environmental justice populations in the corridor; therefore, it is unlikely Alternative 1 would result in a cumulatively considerable contribution to any significant cumulative effects on environmental justice populations.

### Mitigation Measures

#### *Construction Mitigation Measures*

The reader is referred to the following sections in this EIS/EIR for measures to reduce or avoid potential construction impacts on local communities, including environmental justice populations: Chapter 3-Transportation, Transit, Circulation, and Parking; Section 4.2-Real Estate and Acquisitions; Section 4.4-Communities and Neighborhoods; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security.

#### *Operational Mitigation Measures*

No operational mitigation measures are required for impacts specific to environmental justice populations.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Alternative 1 would not result in disproportionately high and adverse effects on minority or low-income populations.

#### *CEQA Determination*

There are no thresholds of significance in CEQA for environmental justice impacts. Therefore, no CEQA determination can be made for environmental justice impacts resulting from this alternative.

## Alternative 2 – Median-Running BRT

### Construction Impacts

Construction impacts would be the same as those described in the previous section for Alternative 1. Temporary construction impacts are anticipated to affect all communities within the project study area comparably, regardless of the block groups' socioeconomic or demographic characteristics. Therefore, Alternative 2 would not result in disproportionately high and adverse effects on minority or low-income populations with respect to construction.

### Operational Impacts

Operational impacts would be the same as those described in the previous section for Alternative 1, with the following exceptions.

#### *Changes to Circulation and Emergency Access*

Although Alternative 2 could have regional benefits on congestion and would improve transit service in an area with a large transit-dependent population, localized impacts could occur due to the conversion of the median lanes to a dedicated BRT guideway and resulting reduction in roadway capacity for mixed-flow traffic. The reductions in roadway capacity to accommodate the Alternative 2 alignment would result in localized adverse effects at 32 of 73 study intersections within the corridor. If the increased congestion at these affected intersections results in substantial delays for emergency vehicles, the impacts could be significant. Because the corridor contains a large minority population, the adverse impacts on emergency access would be predominantly borne by an environmental justice population, and as a consequence there could be a disproportionately high and adverse effect on that population. However, as previously noted, Alternative 2 would provide improved transit service and connectivity within an area that has a relatively large transit-dependent population. The improved transit service would increase access to local medical facilities for the transit dependent and environmental justice populations in the corridor. As a consequence, the net effects on the environmental justice populations would not be disproportionately high and adverse.

### *Changes in Access to Public Transportation, Businesses, and Community Resources*

Implementation of Alternative 2 would require restrictions on motor vehicle movements, which would be required to accommodate the median-running BRT facilities and eliminate conflicts between BRT vehicles and other traffic on the roadway. Left turns from Van Nuys Boulevard onto cross streets would be maintained at most of the currently signalized intersections; however, some dual left-turn lanes would be reduced to a single left-turn lane, and several left-turns in the Van Nuys Civic Center area, between Calvert Street and Hartland Street, would be prohibited to accommodate median bus stop platforms. Restricted left-hand turns would be required within approximately one mile (in both the northbound and southbound directions) of Van Nuys Boulevard between Calvert Street and Hartland Street. Of the block groups adjacent to this segment of roadway, 100 percent contain minority populations, and 100 percent contain low-income populations. Unless otherwise prohibited, U-turns would be allowed from signalized left-turn lanes on Van Nuys Boulevard; therefore, vehicles that need to turn left to access businesses and community resources would continue to have access through U-turn movements using the remaining signalized left-turn lanes. Travelers along the project corridor would be similarly affected by prohibited left turn lanes, regardless of trip origin. Therefore, Alternative 2 would not result in disproportionate effects on, or result in fewer benefits for, minority or low-income populations with respect to prohibited left turns (and associated changes in access).

### *Changes in Pedestrian and Bicycle Access*

Alternative 2 would retain pedestrian access along the project corridor in compliance with Metro’s Complete Streets Policy, even though there would be minor changes to pedestrian circulation to allow for the proposed improvements. Current pedestrian movements across roadways at existing signal-controlled crosswalks would be maintained; however, other pedestrian crossings along Van Nuys Boulevard at unsignalized intersections would be prohibited to avoid potential conflicts between pedestrians and median-running BRT vehicles. In addition, under this alternative, a fence would be installed along the length of the alignment to prevent illegal pedestrian crossings over the BRT guideway. However, fence openings would be included to maintain pedestrian access at intersection locations.

These modifications to pedestrian movements and sidewalk widths would not substantially interfere with pedestrian access along the project corridor because adequate pedestrian facilities, sidewalks, and crosswalks would be provided to ensure access and safety. In addition, all current Metro Rapid Bus stops would be upgraded and would include design enhancements that would be ADA compliant, contingent upon the legal ability to upgrade because of the City of Los Angeles’ exclusive contract with a bust stop advertising company. All other modifications to the curb lanes to accommodate the BRT improvements would also comply with ADA guidelines.

As a consequence, Alternative 2 would not result in disproportionate effects on, or fewer benefits for, minority or low-income populations with respect to pedestrian access.

Impacts on bicycle access would be the same as those for Alternative 1.

#### *Physical Division of Communities*

Under Alternative 2, a barrier would be installed to prevent illegal pedestrian crossings of the BRT guideway along the entire roadway segment; however, fencing for pedestrian pathways would also be installed to ensure that pedestrian access is maintained. The installation of barriers and fencing could be considered a physical intrusion in communities and neighborhoods in the project study area. However, Alternative 2 would operate entirely within existing transportation corridors and would not introduce physical barriers that would substantially affect access between the existing communities and neighborhoods in the project study area. Therefore, Alternative 2 would not result in disproportionately high and adverse effects on minority or low-income populations with respect to physical divisions.

### Cumulative Impacts

The cumulative impacts due to Alternative 2 would be the same as those described above for Alternative 1.

### Mitigation Measures

#### *Construction Mitigation Measures*

The reader is referred to the following sections in this EIS/EIR for measures to reduce or avoid potential construction impacts on local communities, including environmental justice populations: Chapter 3-Transportation, Transit, Circulation, and Parking; Section 4.2-Real Estate and Acquisitions; Section 4.4-Communities and Neighborhoods; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security.

#### *Operational Mitigation Measures*

No operational mitigation measures are required for impacts specific to environmental justice populations.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Alternative 2 would not result in disproportionately high and adverse effects on minority or low-income populations.

#### *CEQA Determination*

There are no thresholds of significance in CEQA for environmental justice impacts. Therefore, no CEQA determination can be made for environmental justice impacts resulting from this alternative.

# 4.17.3.4 Rail Alternatives (Build Alternatives 3 and 4)

## Alternative 3 – Low-Floor LRT/Tram

### Construction Impacts

Construction of Alternative 3 facilities would be more extensive, which would include the OCS, TPSSs, and an MSF, when compared to the BRT alternatives. Although construction impacts would be more extensive, they would be generally similar to those described in the previous section for the BRT alternatives, with the following exceptions.

### *Displacement of Businesses, Housing, and People*

To assess the types of potential displacements resulting from Alternative 3, conceptual engineering plans for the proposed alignment, station options, and rights-of-way were reviewed. When an acquisition is required, it typically results in either a partial or full acquisition of a parcel. A partial acquisition would result if a portion of the parcel is required to accommodate the project. A full acquisition would result if either: (1) the majority of the property is required for the horizontal alignment due to insufficient right-of-way or the need to construct storage or maintenance facilities, or (2) a severe loss of access reduces the useful operation of the property.

The majority of the low-floor LRT/tram alignment would be constructed in the median of an existing roadway and would not require the displacement of businesses or residences along the majority of the project corridor. As detailed in the Real Estate and Acquisition Report in Appendix I, some areas of the project alignment, however, would require commercial property acquisitions to accommodate the low-floor LRT/tram facilities, including:

- At Van Nuys Boulevard and Bessemer Street,
- At the Van Nuys/San Fernando Station at Van Nuys Boulevard and El Dorado Avenue,
- At San Fernando Road and Pinney Street, and
- At the Paxton Station at San Fernando Road and Weidner Street (see Figure 4-1 in the Environmental Justice Impacts Report in Appendix AA).

Partial property acquisitions would also be required for TPSSs; these acquisitions would be located near potential stations or at the MSF site, primarily using vacant lots, parking lots, or commercial properties.

Property acquisitions may also be required for storage areas for construction equipment and materials. These storage or staging areas would be established near the project alignment and would be located within the right-of-way, parking lots, vacant land, or on the parcels for the proposed MSF site. During construction, the contractor would choose staging locations among the parcels along the alignment to be acquired as needed for construction of Alternative 3. However, some construction easements for this alternative may require additional permanent right-of-way acquisitions and may result in the permanent displacement of businesses.

Although some acquisitions would be required to construct the track and support facilities and to accommodate construction staging areas, most of the acquisitions that would be required to construct Alternative 3 would occur as a result of the construction of the MSF. The location of the proposed low-floor LRT/tram MSF has not been finalized; however, three potential locations have been selected for consideration along Van Nuys Boulevard at Aetna Street (MSF Option A), Keswick Street (MSF Option B), and Arminta Street (MSF Option C).

The Alternative 3 alignment with MSF Option A would require the full or partial acquisition of 90 parcels. The majority of the acquisitions would be from light manufacturing and commercial properties that are occupied by automobile repair, supply businesses, and other general commercial retail uses. Three residentially zoned parcels would be fully acquired under Alternative 3 with MSF Option A. While these parcels are zoned for residential use, they are currently developed with a single parking lot serving an adjacent warehouse. According to the Real Estate and Acquisition Report in Appendix I, one parcel (Assessor's Parcel Number (APN) 2241-025-014) zoned for industrial use is developed with approximately four housing units, which would be acquired and displaced under MSF

Option A. The displaced businesses (and residential units) are located in low-income and/or minority neighborhoods and could be supported by owners, workers, or customers from low-income or minority block groups that could be affected by the economic changes or job losses associated with these displacements. Under Alternative 3, MSF Option A, the minority population in the affected area is approximately 70 percent and the low-income population is approximately 15 percent. Therefore, the displacement impacts of Alternative 3 with MSF Option A would be borne predominantly by an environmental justice population; as a consequence, Alternative 3 with MSF Option A could result in disproportionately high and adverse effects on environmental justice populations.

The Alternative 3 alignment with MSF Option B would require the full or partial acquisition of 65 parcels. The majority of the acquisitions would be from light manufacturing and commercial properties, which contain businesses oriented toward automobile repair and supplies or raw materials supply and manufacturing. No residential acquisitions would be required for MSF Option B. These businesses are located in low-income and/or minority neighborhoods and could be supported by owners, workers, or customers from low-income or minority block groups that could be affected by the economic changes or job losses associated with these displacements. Under Alternative 3, MSF Option B, the minority population in the affected area is approximately 89 percent and the low-income population is approximately 27 percent. Therefore, the displacement impacts of Alternative 3 with MSF Option B would be predominantly borne by an environmental justice population; and as a consequence, Alternative 3 with MSF Option A could result in disproportionately high and adverse effects on environmental justice populations.

The Alternative 3 alignment with MSF Option C would require the full or partial acquisition of 68 parcels. As with Option B, a majority of acquisitions would be from light manufacturing and commercial properties oriented toward automobile repair and raw materials supply and manufacturing. No acquisitions from residential properties would be required for Alternative 3 with MSF Option C. Under Alternative 3 with MSF Option C, the minority population in the affected area is approximately 97 percent and the low-income population is approximately 22 percent. Therefore, the displacement impacts of Alternative 3 with MSF Option C would be predominantly borne by an environmental justice population; and as a consequence, Alternative 3 with MSF Option C could result in disproportionately high and adverse effects on environmental justice populations.

It should be noted that within the larger surrounding urban area, it is anticipated that there would be enough available properties to accommodate most, if not all, of the displaced businesses. As a consequence, construction of Alternative 3 would not be expected to result in substantial changes to the local economic conditions in the project study area. According to the Real Estate and Acquisitions Report in Appendix I, for businesses that must be relocated, it is anticipated that most of the jobs would be retained and there would be no net loss in the overall number of jobs in the study area. Therefore, no substantial adverse effects from job loss are anticipated. Nonetheless, the viability of some local businesses may be affected by the relocations as customers would need to access new businesses or old businesses at their new locations. As a consequence, the removal of some businesses from their local customer base may lead to the disruption and termination of the businesses, resulting in localized job losses.

Business displacements required for construction of Alternative 3 could also result in substantial changes to local neighborhood character, and potentially the social fabric of the local community. Neighborhood residents or visitors may be accustomed to accessing businesses in their existing locations, and the displacement of those businesses could be psychologically or socially disruptive, which could affect professional and social interactions. However, if relocation sites are available within proximity to the existing business sites, disruptions to professional and social interactions may be temporary because residents would likely become accustomed to accessing the displaced businesses at their new locations.

To minimize potential impacts, coordination would be conducted with the appropriate jurisdictions regarding business relocations so that job losses are minimized to the extent feasible. In addition, joint-use agreements (allowing concurrent transportation and business uses) would be considered for land acquisitions required for stations and construction staging to avoid the displacement of businesses and potential job losses in these areas to the extent feasible. Metro would also conduct early and ongoing public outreach to discuss potential public concerns with affected property owners and community members.

Although the displacement impacts described above would be predominantly borne by environmental justice populations, all communities within the project study area would be affected and the impacts suffered by the environmental justice populations would not be appreciably more severe or greater in magnitude than the adverse effects that would be suffered by the non-environmental justice populations. Additionally, relocation assistance and compensation in accordance with federal and state regulations would be provided for all displaced businesses. With implementation of compliance and mitigation measures and given that Alternative 3 would provide improved transit service and connectivity in an area with large transit-dependent and environmental justice populations, the impacts on the environmental justice populations would not be disproportionately high and adverse.

### Operational Impacts

The operational impacts of Alternative 3 would be the same as those described in the previous section for Alternative 2, the Median-Running BRT Alternative, with the exceptions noted below.

#### *Changes in Access to Public Transportation, Businesses, and Community Resources*

By providing transit stations and facilities along San Fernando Road, this alternative would be consistent with the proposed City of San Fernando TOD Overlay Zone, which would create a transit-oriented district along San Fernando Road between the Sylmar/San Fernando Metrolink Station and the San Fernando Mall (on San Fernando Road between Kittridge Street and San Fernando Mission Boulevard).

According to Metro fare policies, additional fares would not be required for transfers between Metro Rapid and Local buses to the low-floor LRT/tram. Therefore, the low-floor LRT/tram service would not be cost-prohibitive and would comply with Metro fare policies. Public outreach would be conducted to ensure that community and neighborhood concerns, including fare policies, are addressed.

Most left turns from San Fernando Road would be prohibited through the City of San Fernando where a median dedicated guideway for the low-floor LRT/tram vehicle is proposed between the Sylmar/San Fernando Metrolink Station and Wolfskill Street. In addition, in an effort to maintain the pedestrian-oriented retail character of San Fernando Road between San Fernando Mission Boulevard and Chatsworth Drive, through traffic would be directed off San Fernando Road on the block between Maclay Avenue and Brand Boulevard by means of turn restrictions. These changes on San Fernando Road would be expected to facilitate pedestrian access to local businesses, which could provide new customers and improved economic conditions. All existing turning movements would be maintained on San Fernando Road between Wolfskill Street and Van Nuys Boulevard where the low-floor LRT/tram would share travel lanes with motor vehicles. For these reasons and because these effects are anticipated to affect all communities within the project study area comparably, regardless of the block groups' socioeconomic or demographic characteristics, Alternative 3 would not result in disproportionately high and adverse effects on minority or low-income populations with respect to changes in vehicle access.

### *Changes in Pedestrian and Bicycle Access*

On Van Nuys Boulevard between the Metro Orange Line and El Dorado Avenue in the community of Pacoima, the existing 13-foot-wide sidewalks on each side of the roadway would be narrowed to 10 feet to accommodate the installation of the low-floor LRT/tram facilities, while providing two vehicle travel lanes in each direction. These modifications are not expected to substantially interfere with pedestrian access along the project corridor. In addition, all stations would be ADA compliant, and would be designed to meet accessibility requirements. For these reasons and because these effects are anticipated to affect all communities within the project study area comparably, regardless of the block groups' socioeconomic or demographic characteristics, Alternative 3 would not result in disproportionately high and adverse effects on minority or low-income populations with respect to changes in pedestrian access.

Impacts on bicycle access would be the same as those described above for Alternative 1.

### *Changes in Circulation and Emergency Access*

As detailed in the Transportation Impacts Report in Appendix G, Alternative 3 would be expected to improve transit service, result in an increase of approximately 19,685 daily transit boardings, and reduce regional traffic congestion, which could facilitate faster response times for emergency vehicle services. However, because of the reductions in roadway capacity to accommodate the Alternative 3 alignment, this alternative would result in localized adverse effects at 16 (under Existing plus Alternative 3 scenario) or 32 (under future Alternative 3 scenario) of 73 study intersections within the corridor. If the increased congestion at these affected intersections results in substantial delays for emergency vehicles, the impacts could be significant. Because the corridor contains a large minority population, the adverse impacts on emergency access would be predominantly borne by an environmental justice population, and as a consequence there could be a disproportionately high and adverse effect on that population. However, Alternative 3 would provide improved transit service and connectivity within an area that has a relatively large transit-dependent population. The improved transit service would increase access to local medical facilities for the transit dependent and environmental justice populations in the corridor. As a consequence, the net effects on the environmental justice populations would not be disproportionately high and adverse.

### *Changes in Visual Character*

The project corridor is an existing transportation route in an urbanized area with existing bus transit service, and the proposed low-floor LRT/tram operations would be consistent with existing transportation uses. The new proposed stations in the median and along the sides of the roadway would present new vertical features in the landscape that could affect existing visual character and quality by limiting views directly adjacent to, or within, the stations. New stations and sidewalk widening could also result in a more cohesive landscape design along the corridor with canopies, additional street trees, and benches that would provide a more unified appearance in station areas. This alternative would require several elements to support vehicle operations, including median fences, an OCS, TPSSs, signaling, and an MSF.

The median fences and OCS, in particular, would introduce additional vertical elements that could substantially change the existing visual character and quality within the project corridor, especially for residents, pedestrians, and bicyclists, who would be expected to have high viewer sensitivity to their surroundings. Alternative 3 would have substantial adverse effects on scenic views, scenic resources, and visual character in several areas within the project corridor, and would not have adverse effects on visual quality in several areas within the project corridor. This alternative would also result in minor beneficial impacts on visual quality related to the new stations. Changes in visual character resulting from Alternative 3 would be expected to be substantial in areas where sensitive viewers are located, and would require consideration during community outreach efforts.

These proposed elements would be situated relatively evenly throughout the project corridor and would result in comparative changes to visual characters. In addition, individuals traveling from outside the project study area would also be affected by these visual impacts. Therefore, Alternative 3 would not result in disproportionate effects on minority or low-income populations with respect to visual character. Potential impacts on visual character resulting from Alternative 3 are addressed in more detail in the Visual Quality and Aesthetics Impacts Report in Appendix K.

#### *Safety Impacts and Other Physical Intrusions*

Low-floor LRT/tram vehicles would not exceed the posted adjacent roadway speed limit, which is typically 35 miles per hour (mph). In addition, Metro would prepare grade crossing applications in coordination with local public agencies to further increase safety and reduce the potential for conflicts, accidents, and collisions.

Alternative 3 could result in several pedestrian safety concerns. Median stations could result in a potential for collisions between pedestrians and low-floor LRT/tram vehicles. In addition, the introduction of low-floor LRT/tram vehicles into mixed-flow traffic lanes on San Fernando Road, just north of Wolfskill Street, could result in a potential for similar collisions at intersection pedestrian crossings. Illegal crossings by pedestrians could also result in potential safety hazards.

Pedestrian traffic control and channelization techniques would be used to control pedestrian movements at intersections and encourage the use of designated pedestrian crossings. Metro would prepare grade crossing applications in coordination with local public agencies to further increase safety and reduce the potential for conflicts, accidents, and collisions. Therefore, Alternative 3 would not result in disproportionate effects on minority or low-income populations with respect to pedestrian safety.

### Cumulative Impacts

Unlike Alternatives 1 and 2, Alternative 3 would result in disproportionately high and adverse effects on minority and low-income populations with respect to displacements required for right-of-way acquisitions and/or temporary construction easements. Alternative 3 would require between 65 and 87 acquisitions of commercial and industrial property within the project study area, depending on the MSF option selected. In addition, MSF Option A would result in the acquisition of one parcel that appears to include four housing units within a minority block group, potentially requiring relocation of four families.

Past projects have resulted in disproportionately high and adverse effects on minority or low-income populations, and other planned or proposed projects in the corridor could further result in adverse effects on environmental justice populations. However, as noted above relocation benefits and assistance would be provided to businesses displaced by the project and may also be provided to businesses displaced by related projects. Additionally, it is anticipated that a majority of displaced businesses and residents could be relocated within the project study area or in surrounding communities. It is not anticipated that relocated businesses or residences displaced by the project and related projects would require construction of a substantial amount of commercial and industrial development or new housing that would result in substantial adverse indirect impacts. Furthermore, Alternative 3 would improve transit service and connectivity benefitting environmental justice populations in the corridor; therefore, it is unlikely Alternative 1 would result in a cumulatively considerable contribution to any significant cumulative effects on environmental justice populations.

### Compliance Requirements and Design Features

Relocation assistance and compensation for all displaced businesses and residences will be provided, as required by the Uniform Act and the California Act. All real property to be acquired will be appraised to determine its fair market value. Just compensation, which shall not be less than the approved appraisal, will be made to each displaced property owner. Each business and residence displaced by the project will be given advance written notice and will be informed of their eligibility for relocation assistance and payments under the Uniform Act.

### Mitigation Measures

#### *Construction Mitigation Measures*

The reader is referred to the following sections in this EIS/EIR for measures to reduce or avoid potential construction impacts on local communities, including environmental justice populations: Chapter 3-Transportation, Transit, Circulation, and Parking; Section 4.2-Real Estate and Acquisitions; Section 4.4-Communities and Neighborhoods; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security.

#### *Operational Mitigation Measures*

See MM-CN-1 in the Communities and Neighborhoods section (Section 4.4) of this EIS/EIR.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Alternative 3 would result in disproportionately high and adverse effects on minority and low-income populations with respect to displacements. However, this alternative would also result in new transit opportunities that are anticipated to result in improved connectivity and transit equity. Compliance and mitigation measures would reduce or minimize the adverse effects, where feasible. After implementation of the proposed measures, adverse effects would not be substantial.

#### *CEQA Determination*

There are no thresholds of significance in CEQA for environmental justice impacts. Therefore, no CEQA determination can be made for environmental justice impacts resulting from this alternative.

## Alternative 4 – LRT

### Construction Impacts

Alternative 4 would require the most extensive construction of the four build alternatives because of the subway portion of the alignment. The LRT Alternative (Alternative 4) would also include construction of OCS, TPSSs, and MSF structures, which would not be required for the BRT alternatives. As a consequence, Alternative 4 would result in the greatest construction impacts compared to the other alternatives. As discussed below, the displacement impacts, under Alternative 4, would be slightly greater than the impact that would occur under Alternative 3.

#### *Displacement of Housing and People*

Alternative 4 would require full or partial right-of-way acquisitions ranging between 110 to 120 light industrial, manufacturing, and commercial properties for the construction of the MSF and connections to the MSF from the LRT alignment, depending on the MSF option selected. The displacement impacts would be predominantly borne by environmental justice populations; therefore, Alternative 4 would result in disproportionately high and adverse effects on environmental justice populations. However, as noted above for Alternative 3, relocation assistance and compensation would be provided for all displaced businesses and residences. Additionally, within the larger surrounding urban area, it is anticipated that there would be enough available properties to accommodate most, if not all, of the displaced businesses. It is not anticipated that construction of a substantial amount of new development would be required to accommodate the relocations. As a consequence of the implementation of compliance and mitigation measures and given Alternative 4 would provide improved transit service and connectivity in an area with large transit-dependent and environmental justice populations, the displacement impacts on the environmental justice populations would not be disproportionately high and adverse.

### Operational Impacts

Operational impacts associated with Alternative 4 would be the same as those described above for Alternative 3, with the exceptions noted below.

#### *Changes in Pedestrian and Bicycle Access*

At the Van Nuys Civic Center between the Metro Orange Line and the planned subway portal north of Hartland Street, the existing 13-foot-wide sidewalks on each side of the roadway would be narrowed to 10 feet to accommodate the installation of the light rail facilities, while providing two vehicle travel lanes in each direction. Sidewalks would also be narrowed along Van Nuys Boulevard north of the subway portal near Rayen Street in Panorama City, where the LRT vehicles would resume a surface alignment in the roadway median and proceed to El Dorado Avenue in the community of Pacoima.

These modifications to pedestrian movements and sidewalk widths would not be expected to substantially interfere with pedestrian access along the project corridor. In addition, all stations would be ADA compliant and would be designed to meet accessibility requirements. A pedestrian bridge would be provided at the Sylmar/San Fernando Metrolink Station from the LRT platform to the parking lot. Of the block groups adjacent to the project corridor, 100 percent contain minority populations, and 100 percent contain low-income populations.

The City's Bicycle Plan designates Van Nuys Boulevard as part of the "Backbone Bicycle Network," which plans an interconnected system facilitating mobility on key arterials.[6] Under Alternative 4, the existing Class II bike lanes on Van Nuys Boulevard north of Nordhoff Street would be removed. In addition, curbside lanes on Van Nuys Boulevard between the Metro Orange Line and San Fernando Road would typically be 11 feet wide, requiring motorist in the curbside lane to shift to the left to pass a bicyclist. These changes would conflict with the City's Bicycle Plan because designated bicycle lanes on Van Nuys Boulevard would not be feasible with the implementation of this alternative, affecting future bicycle access within the project study area. The City's General Plan designates Van Nuys Boulevard as a transit priority street, and the transit accommodations under this alternative would only be feasible with the removal of the bicycle lanes. In addition, as stated in Metro's Complete Streets Policy, a number of streets might not provide accommodations for all modes of transportation due to physical right-of-way constraints, which is the case for this alternative. The change from a Class II bike lane to a shared bicycle lane could result in safety impacts as discussed later in this section.

The bicycle path, also known as the Mission City Trail located in the City of San Fernando along the Metro-owned railroad right-of-way, would be maintained under this alternative because the right-of-way is sufficiently wide enough to allow the bicycle path to remain alongside a pair of LRT tracks and relocated tracks for Metrolink and Union Pacific trains. At the point where the LRT alignment crosses the bicycle path, near the intersection of Pinney Street and San Fernando Road, a signalized grade crossing would be provided. The bike path would be shifted from the east side of the railroad alignment to the west side of the tracks through the City of San Fernando to reduce the number of bike-rail crossings, reduce the amount of right-of-way acquisitions, and to provide a better alignment of the railroad and LRT tracks.

The City's Bicycle Plan includes planned bicycle lanes along Woodman Avenue (one-mile east of and parallel to Van Nuys Boulevard) between Ventura Boulevard and the Osborne Street and Nordhoff Street corridors. Bicycle lanes are also planned along the Osborne Street corridor and would connect to San Fernando Road. As detailed in the Transportation Impacts Report in Appendix G, mitigation for impacts on bicycle facilities will include the implementation of bicycle lanes on one or more of these parallel roadways. To use the planned bicycle lanes along Woodman Avenue, bicyclists would need to travel one mile east of Van Nuys Boulevard, which may be an inconvenience for some bicyclists depending on their final destination. However, bicycle accommodations would be provided at light rail stations to provide options for passengers to leave their bicycles at the stations or to bring them onto the light rail vehicles.

The average distance of a bicycle trip in Los Angeles is four miles, and affected bicyclists would be expected to travel from several neighborhoods within and outside of the study area, which include block groups of varying socioeconomic and demographic characteristics.[7] The changes to the Class II bike lanes along Van Nuys Boulevard would be expected to affect all bicyclists within an approximate four-mile radius comparably, regardless of socioeconomic or demographic characteristics. Therefore, for those reasons and because Alternative 4 would improve transit service and would include measures to mitigate potential bicycle impacts, Alternative 4 would not result in disproportionately high and adverse effects on minority or low-income populations with respect to pedestrian and bicycle access.

[6] City. March 2011. 2010 Bicycle Plan.
[7] City. March 2011. 2010 Bicycle Plan.

### *Changes in Circulation and Emergency Access*

As detailed in the Transportation Impacts Report in Appendix G, Alternative 4 would be expected to improve transit service, result in an increase of approximately 32,800 daily transit boardings, and reduce traffic congestion, which could facilitate faster response times for emergency service vehicles. However, existing mixed-flow lanes on Van Nuys Boulevard would be converted to a dedicated guideway for light rail vehicles and could result in additional roadway congestion from decreased roadway capacity for mixed-flow traffic and turning restrictions at unsignalized intersections. This alternative would result in adverse effects on 20 of 73 study intersections within the corridor, which could reduce access for emergency vehicle response or interfere with evacuation plans.

Because the corridor contains a large minority population, the adverse impacts on emergency access would be predominantly borne by an environmental justice population, and as a consequence there could be a disproportionately high and adverse effect on that population. However, Alternative 4 would provide improved transit service and connectivity within an area that has a relatively large transit-dependent population. The improved transit service would increase access to local medical facilities for the transit dependent and environmental justice populations in the corridor. As a consequence, the net effects on the environmental justice populations would not be disproportionately high and adverse.

### *Safety Impacts and Other Physical Intrusions*

The LRT would run in a dedicated guideway along Van Nuys Boulevard between the Metro Orange Line and San Fernando Road, and then within the existing Metro-owned railroad right-of-way on separate dedicated tracks from Van Nuys Boulevard to the Sylmar/San Fernando Metrolink Station. Therefore, this alternative would not be expected to result in a substantial increase in accidents or collisions between light rail vehicles and other motor vehicles, and no adverse effects would result on minority or low-income populations.

Light rail vehicles would not exceed the posted adjacent roadway speed limit, which is typically 35 mph. The LRT Alternative would have an average speed of 30 mph when underground. In addition, Metro would prepare grade crossing agreements in coordination with local public agencies to further increase safety and reduce the potential for conflicts, accidents, and collisions.

The LRT Alternative could result in several pedestrian safety concerns. Pedestrian safety issues would mostly apply to proposed at-grade stations, and would apply less to the proposed underground LRT facilities as the latter can be designed to avoid these concerns. At-grade stations could result in potential collisions between pedestrians and light rail vehicles. In addition, a potential safety hazard could result if pedestrians attempt to cross streets and tracks illegally.

Pedestrian traffic control and channelization techniques would be used to control pedestrian movements at intersections, and to encourage the use of designated pedestrian crossings. A pedestrian bridge at the Sylmar/San Fernando Metrolink Station between the LRT platform and the parking lot is proposed under this alternative. Therefore, no adverse effects would result on minority or low-income populations.

### Cumulative Impacts

The cumulative impacts that could occur due to implementation of Alternative 4 would be the same as those previously described for Alternative 3.

### Compliance Requirements and Design Features

Please see the measures described above for Alternative 3.

### Mitigation Measures

#### *Construction Mitigation Measures*

The reader is referred to the following sections in this EIS/EIR for measures to reduce or avoid potential construction impacts on local communities, including environmental justice populations: Chapter 3-Transportation, Transit, Circulation, and Parking; Section 4.2-Real Estate and Acquisitions; Section 4.4-Communities and Neighborhoods; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security.

#### *Operational Mitigation Measures*

See MM-CN-1 in the Communities and Neighborhoods section (Section 4.4) of this EIS/EIR.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Alternative 4 would result in disproportionately high and adverse effects on minority and low-income populations with respect to displacements. However, this alternative would also result in new transit opportunities that are anticipated to result in improved connectivity and transit equity. Mitigation measures would reduce or minimize the adverse effects, where feasible. After implementation of the proposed mitigation measures, disproportionately adverse effects would not be substantial.

#### *CEQA Determination*

There are no thresholds of significance in CEQA for environmental justice impacts. Therefore, no CEQA determination can be made for environmental justice impacts resulting from this alternative.

# 4.18 Growth-Inducing Impacts

## 4.18.1 Regulatory Framework and Methodology

### 4.18.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's growth-inducing impacts are listed below. For additional information regarding these regulations, please see the Growth-Inducing Impacts Report in Appendix Y of this Draft EIS/EIR.

#### Federal

Federal regulations that would be applicable to the proposed project include the following:

- National Environmental Policy Act; and
- Federal Transit Administration Guidelines.

#### State

The following state regulation would be applicable to the proposed project:

- California Environmental Quality Act.

#### Local

Local regulations that would be applicable to the proposed project include the following:

- Metropolitan Planning Organization;
- 2008 Regional Comprehensive Plan (2008 RCP);
- 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy;
- Compass Blue Print;
- City of Los Angeles Community Plans; and
- City of Los Angeles Framework Element.

### 4.18.1.2 Methodology

NEPA requires that the federal government use all practicable means to ensure that all Americans have safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 United States Code [U.S.C.] 4331(b)(2)). NEPA does not include specific guidance or direction with respect to evaluating alternatives and relative effects of inducing growth.

The growth inducing impact analysis is based on the established demographic characteristics within the project study area, which are identified by using the most current available data from SCAG, the California Department of Finance and the California Employment Development Department. This data is used to document changes in various trends (population, housing and employment). The potential for the project alternatives to result in growth inducing impacts is based on their ability to influence the: (1) rate, (2) location, (3) amount and (4) type of growth in the project study area and/or Los Angeles County.

### 4.18.1.3 Significance Thresholds

Significance thresholds are used to determine whether a project may have a significant environmental impact or effect. The significance thresholds, as defined by federal and state regulations and guidelines, are discussed below.

#### NEPA

NEPA does not include specific significance thresholds. According to the Council on Environmental Quality Regulations for Implementing NEPA, the determination of significance under NEPA is based on context and intensity.[1] The CEQA thresholds (described below) encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its impacts. Therefore, the CEQA thresholds listed below also apply to NEPA for the proposed project and its alternatives.

#### CEQA

CEQA requires analysis of a project's potential to induce growth. State CEQA Guidelines Section 15126.2(d) require that environmental documents "discuss the ways in which the project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."[2]

Per the State CEQA Guidelines, the proposed project would result in a significant growth-inducing impact if it would:[3]

- Induce substantial population growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

#### L.A. CEQA Thresholds Guide

According to the *L.A. CEQA Thresholds Guide*, the determination of significance shall be made on a case-by-case basis and shall consider the following factors in determining whether a project would normally have a significant growth-inducing impact:[4]

- The degree to which the project would cause growth (i.e., new housing or employment generators) or accelerate development in an undeveloped area that exceeds projected/planned levels for the year of projected occupancy/buildout and that would result in an adverse physical change in the environment;
- Whether the project would introduce unplanned infrastructure that was not previously evaluated in the adopted community plan or general plan; and
- The extent to which growth would occur without implementation of the project.

---

[1] Code of Federal Regulations. *CEQ-Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.*
[2] Association of Environmental Professionals. *2015 CEQA Statute and Guidelines.*
[3] Association of Environmental Professionals. *2015 CEQA Statute and Guidelines.*
[4] City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide*. Available: http://www.http://environmentla.com/programs/Thresholds/Jci.la.ca.us/ead/programs/Thresholds/J-Population%20and%20Housing.pdf. Accessed March 30, 2015.

# 4.18.2 Affected Environment/Existing Conditions

## 4.18.2.1 Regional Population, Housing, and Employment

As shown in Table 4.18-1, the population for the SCAG region in 2008 was more than 17 million persons. The number of households in the region in 2008 was 5,814,000. Approximately 7,738,000 persons were employed at that time in the SCAG region.

The population, number of households, and employment in the SCAG region are all expected to increase by 2035. Population is expected to increase by approximately 23 percent to 22,091,000 persons. The number of households is expected to increase by 26 percent to 7,325,000 in 2035. Similarly, the number of employed persons is expected to increase to 9,441,000, which amounts to a 22 percent increase from 2008.

**Table 4.18-1: Regional Population, Housing, and Employment Growth**

| County | 2008 Population | 2035 Population | 2008 Households | 2035 Households | 2008 Employment | 2035 Employment |
|---|---|---|---|---|---|---|
| Imperial | 170,000 | 288,000 | 49,000 | 91,000 | 62,000 | 121,000 |
| Los Angeles | 9,778,000 | 11,353,000 | 3,228,000 | 3,852,000 | 4,340,000 | 4,827,000 |
| Orange | 2,989,000 | 3,421,000 | 987,000 | 1,125,000 | 1,624,000 | 1,779,000 |
| Riverside | 2,128,000 | 3,324,000 | 679,000 | 1,092,000 | 664,000 | 1,243,000 |
| San Bernardino | 2,016,000 | 2,750,000 | 606,000 | 847,000 | 701,000 | 1,059,000 |
| Ventura | 813,000 | 954,000 | 266,000 | 318,000 | 348,000 | 411,000 |
| SCAG Region | 17,895,000 | 22,091,000 | 5,814,000 | 7,325,000 | 7,738,000 | 9,441,000 |

Source: Southern California Association of Governments 2012 Final Adopted Integrated Growth Forecast. Available: http://www.scag.ca.gov/forecast/adoptedgrowth.htm.

### Project Study Area Population, Housing, and Employment

This section provides population, housing, and employment growth estimates for the Cities of Los Angeles and San Fernando. The project study area is located primarily in the City of Los Angeles. A small portion of the project study area is located within the City of San Fernando. Therefore, for purposes of this report, the City of Los Angeles and City of San Fernando are used to define the project study area.

Table 4.18-2 shows population growth projections for both the City of Los Angeles and the City of San Fernando. The population of the City of Los Angeles is estimated to increase by 550,100 persons from 2008 to 2035. This is a 15 percent change. The population in the City of San Fernando is expected to increase by 1,900 during this time period, which would result in an estimated change of 8 percent.

### Table 4.18-2: Project Study Area – Cities of Los Angeles and San Fernando Population Growth 2008–2035

| Area | 2008 | 2035 | Population Change | Percent Change |
|---|---|---|---|---|
| City of Los Angeles | 3,770,500 | 4,320,600 | 550,100 | 15 |
| City of San Fernando | 23,600 | 25,500 | 1,900 | 8 |

Source: Southern California Association of Governments. 2012. *Final Adopted Integrated Growth Forecast.* Available: http://www.scag.ca.gov/forecast/adoptedgrowth.htm.

Table 4.18-3 shows household growth projections for the City of Los Angeles and the City of San Fernando. The number of households in the City of Los Angeles is estimated to increase by 316,700 households from 2008 to 2035, which is an estimated 25 percent increase. As shown in the table, the number of households in the City of San Fernando is also estimated to increase during this time period. Specifically, the number of households in the City of San Fernando is expected to increase by 12 percent during this same period. This would amount to an increase of 700 households by 2035.

### Table 4.18-3: Project Study Area – Cities of Los Angeles and San Fernando Household Growth 2008–2035

| Area | 2008 | 2035 | Household Change | Percent Change |
|---|---|---|---|---|
| City of Los Angeles | 1,309,900 | 1,626,600 | 316,700 | 25 |
| City of San Fernando | 5,900 | 6,600 | 700 | 12 |

Source: Southern California Association of Governments. 2012. *Final Adopted Integrated Growth Forecast.* Available: http://www.scag.ca.gov/forecast/adoptedgrowth.htm.

Table 4.18-4 shows employment growth projections for the City of Los Angeles and the City of San Fernando. The number of jobs in the City of Los Angeles is estimated to increase by 171,600 jobs by 2035, which is a 10 percent increase. During this same period, the number of jobs in the City of San Fernando is anticipated to increase by 6 percent, from 15,000 jobs in 2008 to 15,900 in 2035.

### Table 4.18-4: Project Study Area – Cities of Los Angeles and San Fernando Employment Growth 2008–2035

| Area | 2008 | 2035 | Employment Change | Percent Change |
|---|---|---|---|---|
| City of Los Angeles | 1,735,200 | 1,906,800 | 171,600 | 10 |
| City of San Fernando | 15,000 | 15,900 | 900 | 6 |

Source: Southern California Association of Governments. 2012. *Final Adopted Integrated Growth Forecast.* Available: http://www.scag.ca.gov/forecast/adoptedgrowth.htm.

Table 4.18-5 shows housing type for both the City of Los Angeles and City of San Fernando. As shown, approximately 19% of the total dwelling units located in the City of San Fernando are multi-dwelling units. Approximately 54% of the total dwelling units in the City of Los Angeles are multi-family units.

**Table 4.18-5: Project Study Area – Cities of Los Angeles and San Fernando Housing Type (2011)**

| Project Area | Single-Family Dwelling Units[a] | Multi-Family Dwelling Units[b] | Other Dwelling Units[c] | TOTAL |
|---|---|---|---|---|
| City of Los Angeles | 640,605 (45% of total) | 762,007 (54% of total) | 10,029 (1% of total) | 1,412,641 |
| City of San Fernando | 5,182 (80% of total) | 1,206 (19% of total) | 118 (1% of total) | 6,506 |

[a] Includes both single-family detached and attached dwelling units.
[b] Includes structures with two units or more dwelling units.
[c] Includes mobile homes, boats, RVs, vans, etc.
Source: U.S. Census Bureau. 2014. *American Community Survey, 2007–2011, 5-Year Estimates.* Table DP04.

# 4.18.3 Environmental Consequences, Impacts, and Mitigation Measures

This section describes the construction, operational, and cumulative growth-inducement impacts and effects of the No-Build Alternative, the TSM Alternative, and four build alternatives, which include two BRT alternatives (Alternatives 1 and 2) and two rail alternatives (Alternatives 3 and 4). Any measures required to mitigate or minimize significant or adverse impacts and effects are also identified.

## 4.18.3.1 No-Build Alternative

### Construction Impacts

Under the No-Build Alternative, no new transportation infrastructure would be built within the project study area, aside from projects that are currently under construction or funded for construction and operation by 2040. Because the No-Build Alternative would not propose new construction, it would not be growth inducing.

### Operational Impacts

#### Direct Impacts

Much of the project study area is characterized by urban streets and dense land uses. Under this alternative, past trends would likely continue and a substantial permanent change to the physical environment of the project study area would not occur. The No-Build Alternative would not result in new homes or businesses, and therefore, would not directly induce growth.

#### Indirect Impacts

No new transportation infrastructure would be built within the project study area, aside from projects that are currently under construction or funded for construction and operation by 2040. No indirect growth inducing impacts would occur under this alternative.

### Cumulative Impacts

The study area for cumulative growth inducement effects consists of the Cities of Los Angeles and San Fernando. Since the No-Build Alternative would not directly or indirectly induce growth, it would not contribute to any growth inducement effects.

### Mitigation Measures

#### Construction Mitigation Measures

No construction mitigation measures are required.

#### Operational Mitigation Measures

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### NEPA Finding

No effects would occur.

#### CEQA Determination

No impacts would occur under the No-Build Alternative.

## 4.18.3.2 TSM Alternative

### Construction Impacts

The TSM Alternative would consist primarily of low-cost transit service improvements. Physical improvements to the transportation network would be minor. Therefore, construction activities associated with this alternative would be minimal and no growth inducement impacts would occur as a result.

### Operational Impacts

#### Direct Impacts

This alternative could include transit service improvements and minor modifications to the existing transportation network. It would not include development of new housing or businesses. Although more frequent bus service may require additional bus drivers, the increase in employment is expected to be small. Given this alternative would not include new housing or businesses and any temporary or long-term increases in employment that could directly occur as a result of this alternative would be small, the TSM Alternative would not directly induce substantial growth.

#### Indirect Impacts

Given the relatively minor service and other improvements that could occur under this alternative and the fact the proposed project is located in a developed urban area, it is unlikely this alternative would indirectly induce any substantial growth.

### Cumulative Impacts

Since the TSM Alternative consists primarily of low-cost transit service improvements and would include only minor physical improvements to the transportation network, it would not induce growth and consequently would not contribute to any cumulative growth inducement effects.

### Mitigation Measures

#### Construction Mitigation Measures

No construction mitigation measures are required.

#### Operational Mitigation Measures

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### NEPA Finding

Effects would not be adverse.

#### CEQA Determination

Impacts would be less than significant.

## 4.18.3.3 BRT Alternatives (Build Alternatives 1 and 2)

### Alternative 1 – Curb-Running BRT

#### Construction Impacts

The growth inducement potential of construction activities under Alternative 1 – Curb-Running BRT and other build alternatives would vary depending on the extent, duration, cost, and number of construction jobs generated by each alternative. However, it is not expected that the increase in construction jobs under any of the build alternatives would result in substantial increases in project study area populations because of the fact that there is a large pool of skilled and unskilled construction workers in Los Angeles County within commuting distance of the project and because of the temporary nature of construction jobs. Consequently, it is unlikely few if any construction workers employed by the proposed project would relocate to the project study area. Therefore, proposed construction activities would not result in a substantial increase in the project study area population.

#### Operational Impacts

##### *Direct Impacts*

The Curb-Running BRT Alternative would not include the development of new housing or businesses that would directly induce growth. Additional permanent employment opportunities (bus driver positions) may occur under this alternative. However, this potential increase would be relatively minor and would not result in a significant increase in the project study area population. Therefore, this alternative would not directly induce substantial residential or employment population growth.

### *Indirect Impacts*

The Curb-Running BRT Alternative would enhance and improve the transportation system within the corridor including upgrades to existing Metro Rapid stations. This would increase overall system efficiency and improve general connectivity. The increased transportation system efficiency due to this alternative may contribute to the general economic growth of businesses located within the corridor, particularly near proposed stations, and may encourage businesses to relocate to the project study area. As described in the Existing Conditions section of the Growth-Inducing Impacts Report (see Appendix Y), the applicable City of Los Angeles community plans include several goals, objectives, and policies that encourage development near transit stations and promote housing and mixed-use projects in transit corridors. The plans also promote pedestrian-oriented mobility and utilization of bicycles for commuter, school, recreation use, economic activity, and access to transit facilities. Implementation of Alternative 1 – Curb Running BRT would be consistent in supporting these goals and objectives. Therefore, this alternative may indirectly result in growth along the corridor and within the project study area. However, given this alternative would be located in an urban area that contains a limited number of vacant or underutilized parcels and would not extend transit service into undeveloped areas, it would not indirectly induce growth that would substantially change existing land use and development patterns at the corridor level or induce substantial new growth or development beyond what is projected in regional or local plans.

## Cumulative Impacts

The BRT alternatives would not include the development of new housing or businesses that would directly induce growth. Therefore, neither BRT alternative would directly contribute to cumulative growth inducement effects in the study area. However, as acknowledged in the impacts discussions above, proposed project improvements to the transit system and increases in transportation network efficiency and connectivity could be a catalyst for new development in the project study area. The indirect growth inducement effects of the BRT alternatives could contribute to the growth inducement effects of other infrastructure projects and new residential and business development projects in the cumulative impacts study area. This induced growth could be substantial and result in significant adverse impacts to the environment. However, it should be noted that in general, this cumulative induced growth is accounted for in local (i.e., City of Los Angeles community plans and City of San Fernando General Plan) and regional (i.e., SCAG RCP and RTP/SCS) plans (see Tables 4.18-2 through 4.18-4, above). Pursuant to Section 15130 of the State CEQA Guidelines, “no further cumulative impacts analysis is required when a project is consistent with a general, specific, master or comparable programmatic plan where the lead agency determines that the regional or areawide cumulative impacts of the proposed project have already been adequately addressed, as defined in section 15152(f), in a certified EIR for that plan.”

## Mitigation Measures

### *Construction Mitigation Measures*

No construction mitigation measures are required.

### *Operational Mitigation Measures*

No operational mitigation measures are required.

#### Impacts Remaining After Mitigation

##### *NEPA Finding*

Effects would not be adverse.

##### *CEQA Determination*

Impacts would be less than significant.

### Alternative 2 – Median-Running BRT

The construction, operational, and cumulative growth-inducement impacts of Alternative 2 – Median-Running BRT would be the same as the impacts described above for Alternative 1 – Curb-Running BRT.

## 4.18.3.4 Rail Alternatives (Build Alternatives 3 and 4)

### Alternative 3 – Low-Floor LRT/Tram

#### Construction Impacts

Construction impacts would be the same as impacts described for the BRT Alternatives above.

#### Operational Impacts

##### *Direct Impacts*

Alternative 3 – Low-Floor LRT/Tram would not include the development of new housing or businesses that would directly induce growth. This alternative would result in new permanent employment opportunities (train operators and maintenance and storage facility [MSF] employees). However, this anticipated increase in long-term employment would be relatively minor and would not result in a significant increase in the project study area population. Therefore, this alternative would not directly induce substantial residential or employment population growth.

##### *Indirect Impacts*

This alternative would provide a new method of travel within the corridor and improve the efficiency of the existing transportation network, which may be a catalyst for economic growth that would benefit existing area businesses and encourage other businesses to relocate to the project study area. As described in the Existing Conditions section of the Growth-Inducing Impacts Report (see Appendix Y), the relevant City of Los Angeles community plans encourage development near transit stations and promote housing and mixed-use projects in transit corridors. Implementation of Alternative 3 would be consistent in supporting these goals and objectives. Therefore, this alternative may indirectly result in growth along the corridor and within the project study area. However, this alternative would not extend transit service to undeveloped areas and would be located in a developed urban area that contains a limited number of vacant or underutilized parcels. As a consequence, it would not indirectly induce growth that would substantially change existing land use and development patterns at the corridor level or induce substantial new growth or development beyond what is projected in regional or local plans.

### Cumulative Impacts

The rail alternatives would not include the development of new housing or businesses that would directly induce growth. Therefore, neither rail alternative would directly contribute to cumulative growth inducement effects in the study area. However, as acknowledged in the impacts discussions above, proposed project improvements to the transit system and increases in transportation network efficiency and connectivity could be a catalyst for new development in the project study area. The indirect growth inducement effects of the rail alternatives could contribute to the growth-inducement effects of other infrastructure projects and new residential and business development projects in the cumulative impacts study area. This induced growth could be substantial and result in significant adverse impacts to the environment. However, it should be noted that in general, this cumulative induced growth is accounted for in local (i.e., City of Los Angeles community plans and City of San Fernando General Plan) and regional (i.e., SCAG RCP and RTP/SCS) plans (see Tables 4.18-2 through 4.18-4, above). Pursuant to Section 15130 of the State CEQA Guidelines, "no further cumulative impacts analysis is required when a project is consistent with a general, specific, master or comparable programmatic plan where the lead agency determines that the regional or areawide cumulative impacts of the proposed project have already been adequately addressed, as defined in section 15152(f), in a certified EIR for that plan."

### Mitigation Measures

#### *Construction Mitigation Measures*

No construction mitigation measures are required.

#### *Operational Mitigation Measures*

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Effects would not be adverse.

#### *CEQA Determination*

Impacts would be less than significant.

## Alternative 4 – LRT

### Construction Impacts

Construction impacts would be the same as the impacts described for the BRT Alternatives. Although the LRT Alternative would be the most costly and take the longest to construct, and consequently it would generate the greatest number of construction jobs, it is not expected to result in a substantial increase in the project study area population.

### Operational Impacts

#### *Direct Impacts*

Impacts would be the same as those anticipated to occur under Alternative 3 – Low-Floor LRT/Tram. Therefore, this alternative would not directly induce substantial residential or employment population growth.

#### *Indirect Impacts*

The LRT Alternative would provide a new mode of transit that would be an important link in the regional transportation network, increasing overall system efficiency. Impacts would be the same as impacts anticipated to occur under Alternative 3. Implementation of the LRT Alternative could attract transit-supportive development, providing new employment opportunities and services. The pattern of land development could be affected by a greater concentration and intensity of land use activities along the project alignment, particularly near proposed station areas, which could become centers of neighborhood activity, including increased pedestrian and bicycle activity. Underutilized parcels or buildings in the project study area may increase in desirability. However, as noted for the other build alternatives, this alternative would not extend transit service to an undeveloped area and the alignment would be located in a developed urban area with a limited number of vacant or underutilized parcels. Therefore, this alternative would not indirectly induce growth that would result in a substantial change in land use development patterns or indirectly result in substantial increases in employment or residential populations beyond what is projected in regional or local plans.

### Cumulative Impacts

Cumulative impacts anticipated to occur under this alternative would be the same as the cumulative impacts expected to occur under Alternative 3 described above.

### Mitigation Measures

#### *Construction Mitigation Measures*

No construction mitigation measures are required.

#### *Operational Mitigation Measures*

No operational mitigation measures are required.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Effects would not be adverse.

#### *CEQA Determination*

Impacts would be less than significant.

# 4.19 Construction Impacts

This section describes the potential impacts or effects that could occur during construction of the project alternatives. Potential construction impacts are also described in the individual environmental impact sections included elsewhere in this chapter and in Chapter 3.

## 4.19.1 Regulatory Framework and Methodology

### 4.19.1.1 Regulatory Framework

The applicable federal, state, and local regulations that are relevant to an analysis of the proposed project's construction impacts are identified in the environmental impact sections in this chapter and in Chapter 3. For more detailed descriptions of the applicable regulations, the reader is referred to the respective resource section of this draft environmental impact statement/environmental impact report (DEIS/DEIR).

### 4.19.1.2 Methodology

The descriptions of methodologies used in the analyses of construction impacts are included in the environmental impact sections in this chapter and in Chapter 3.

### 4.19.1.3 Significance Thresholds

The CEQA significance thresholds are identified in the environmental impact sections in this chapter and in Chapter 3. NEPA does not include specific significance thresholds. According to the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the determination of significance under NEPA is based on context and intensity.[1] Context relates to the various levels of society where effects could result, such as society as a whole, the affected region, the affected interests, and the locality. The intensity of an effect relates to several factors, including the degree to which public health and safety would be affected; the proximity of a project to sensitive resources; and the degree to which effects on the quality of the human environment are likely to be highly controversial or involve unique or unknown risks.

## 4.19.2 Description of Construction Methods, Techniques, and Equipment

This section summarizes construction methods, techniques and equipment expected to be used for the East San Fernando Valley Transit Corridor Project. As described in previous sections, the build alternatives would include BRT, Low-Floor LRT/Tram, and LRT alternatives. In general, conventional construction techniques and equipment would be used under all build alternatives, as typically performed in the southern California region. However, based on components of each build alternative, some alternatives would require a greater amount of construction than other alternatives. The following discusses the major construction methods and techniques that are considered likely to be used to construct the build alternatives. Actual construction methods and equipment will be determined based upon a competitive bidding process and therefore the information shown below should be regarded as illustrative of typical construction methods.

[1] Code of Federal Regulations. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index*.

This description of construction is based on information currently known about construction of the proposed project. Details of the construction process may well differ from this description; for example, different construction staging areas may be used or different construction sequencing may be followed. Major project elements for the build alternatives would include stations, maintenance and storage facilities, track work, ventilation equipment, fire-life safety features, power, lighting architecture, aesthetics, turnarounds for stations, landscaping and for the LRT Alternative, a tunnel. Street work refers to work related to curbs, gutters, striping, traffic signals, and sidewalks. Signaling equipment, traction power and communication equipment would also be used under the alternatives.

### 4.19.2.1 Construction Process

Construction activities would likely begin simultaneously at several locations along the project corridor, to accommodate areas of work requiring lengthy construction times and to bring the different segments of the project to completion in order to meet the project completion schedule. Many contractors specializing in various methods of construction would be working on the project during the construction period. Construction of the project would follow all applicable local, state, and federal laws for building and safety. Working hours would vary to meet special circumstances and restrictions and efforts would be made to ensure working hours are appropriate for the community. Efforts will be made communicating to keep residents and businesses informed. Standard construction methods would be used for traffic, noise, vibration, and dust control, consistent with all applicable laws, and as described in the following sections.

The subsequent sections of this report discuss proposed construction under the build alternatives, as the No-Build would not include construction activities under the proposed project and the TSM Alternative would involve minimal construction as needed to upgrade existing bus stops and add more buses. Specifically, components of the BRT alternatives (Alternatives 1 and 2), the Low-Floor LRT/Tram (Alternative 3), and the LRT Alternative (Alternative 4) are described. The expected construction schedules are summarized at the end of each of these sections. Generally, construction would be divided into a series of activities, which would often overlap to minimize the duration of construction and the associated impacts.

The two BRT alternatives would require less extensive infrastructure improvements; therefore, construction activities would be shorter in duration compared to the Low-Floor LRT/Tram and LRT Alternatives. The two LRT alternatives would require more extensive infrastructure improvements, including OCS, TPSSs, and MSF, and larger station platforms than the BRT alternatives, thereby requiring a longer construction period. The LRT Alternative would require tunneling to construct underground portions of the alignment, as well as underground stations, and would require the most extensive construction of the four build alternatives.

The build alternatives being evaluated as part of this DEIS/DEIR have preliminary capital costs estimates that range between $294 million for bus rapid transit (BRT) to $2.7 billion for light rail transit (LRT) Year of Expenditure 2018 dollars. The East San Fernando Valley Transit Corridor Project only has approximately $170.1 million reserved as part of Metro’s 2009 Long Range Transportation Plan. Any costs in excess of this amount will need to be funded by other sources

Table 4.19-1 shows construction scenario similarities and differences between the build alternatives.

**Table 4.19-1: Summary of Construction Scenarios for Project Alternatives**

| | No-Build | TSM | Curb Running Alternative (Alternative 1) | Median-Running Alternative (Alternative 2) | Low-Floor LRT/Tram (Alternative 3) | LRT Alternative (Alternative 4) |
|---|---|---|---|---|---|---|
| Construction Duration* | None | None | 18 months | 24 months | 48 months | 60 months |
| Utility Relocations | None | None | No | No | Yes | Yes |
| Tunnel Excavation | None | None | No | No | No | Yes |
| Road and Street Work | None | None | Yes | Yes | Yes | Yes |
| Power and Communications Upgrades | None | None | No | No | Yes | Yes |

*This refers to overall construction duration. Construction would occur in phases and would be divided into a series of activities, which would often overlap to minimize the duration of overall construction. Constructing in segments would also minimize the length of time construction activities occur in front of a particular block of properties, so properties are not affected during the entire duration of construction, but mainly when activities are occurring on that particular block.
Source: ICF International, 2015.

## 4.19.2.2 Alternative 1 – Curb-Running Bus Rapid Transit (BRT) Alternative

Under the Curb-Running BRT Alternative, the BRT lanes would be constructed along 6.7 miles of existing curb lanes along Van Nuys Boulevard between San Fernando Road and the Metro Orange Line. This alternative would also include a 2.5-mile segment where buses would operate in mixed-flow curb lanes along San Fernando Road and Truman Street between Van Nuys Boulevard and the Sylmar/San Fernando Metrolink Station.

### Construction Scenario

Proposed construction activities would generally occur in phases, over a period of approximately 18 months. For the purposes of this report, the phases have been simplified and have been identified as follows:

- Preconstruction and Site Preparation
- Construction of Transit Structures and Infrastructure
- Construction of Support Systems and Finish Work.

All construction activities conducted during these phases would conform to industry specifications and standards and construction activities would be generally confined to public rights-of-way. Project construction would employ conventional construction techniques and equipment typically used in the Southern California region. Installation of bus shelters and street work, including curb, gutter, sidewalk, striping, signal, and lighting may be required. Landscaping may also be included.

## Preconstruction and Site Preparation

The construction process would begin with the preconstruction and site preparation phase. During this phase, plans and programs (described below) would be developed to manage the construction process and minimize disruption to the community and adverse effects on the environment. Included among these plans would be a community outreach program, which would be developed prior to any physical construction. The purpose of the outreach plan would be to inform the public about the construction process and notify residents, businesses, and emergency response service of the proposed construction schedule including dates and duration of anticipated road closures. Public awareness strategies would include various methods to reach out to and educate and inform the public, businesses, and the community about the construction process and activities. The outreach program may also include surveys of individual businesses to identify business usage, delivery and shipping patterns, and critical times of the day or year for business activities. This information would be used by Metro to develop construction requirements and worksite traffic control plans and to identify alternative access routes and requirements to maintain critical business activities.

Additional site investigations may also be required during this phase and prior to construction to confirm the presence or absence of sensitive resources (e.g., buried archaeological or paleontological resources) and hazardous materials.

Site preparation would include developing safety plans, preparation of the work site, accepting construction crews and equipment, and could include street/sidewalk closures, detours, redirection for parking, and clearing (existing street furniture, street trees, or vegetation), grubbing, grading, and the relocation of utilities (see relocation discussion below) during site preparation. Some curb lane closures would also be necessary and bus stops would need to be temporarily relocated outside of the work areas. ). During site preparation, some curb lane closures and work related to pot holes and utilities would be necessary and bus stops would need to be temporarily relocated outside of the work areas. In some instances, existing stops may need to be closed for some time and the nearest bus stops would serve patrons of the temporarily closed stop(s). This information would be disseminated prior to beginning construction activities. A minimum of one-week advance notice would be provided to individual owners (businesses and residences), owner's agents, and tenants of buildings adjacent to work sites before altering access to those locations and adjacent public sidewalks or before prohibiting stopping and/or parking of vehicles. Additionally, special temporary signs would be used to inform customers that merchants and other businesses are open, and to provide special access directions, if warranted.

## Traffic Management Plan

Several aspects of the preconstruction and site preparation phase would be addressed by the Traffic Management Plan (TMP), which would be prepared and implemented by the construction contractor to mitigate construction traffic impacts. The TMP will require review and approval by Metro and the Cities of Los Angeles and San Fernando. The TMP would address the mobility and safety needs of the motoring public, construction workers, businesses, bicyclists, and the community, as well as facilitate the flow of automobile and pedestrian traffic during construction. The TMP would consist of a temporary traffic control plan that addresses both transportation operations and public information components. Measures may include traffic control devices and possibly flagmen and/or traffic officers, frequent street sweeping, and the implementation of diversions/detours to facilitate traffic flow throughout the construction zones. The specific measures that will be implemented will vary during the course of construction in response to site specific requirements and as necessary to safely and efficiently manage traffic flow. Metro has utilized full street closures to expedite construction in past projects, and this option could be utilized to expedite construction on this project. However, to the extent practical, at this time it is anticipated that at least one traffic lane would be maintained in both directions, particularly during the morning and afternoon peak hours, and access to adjacent businesses via existing or temporary driveways would be maintained throughout the construction period. Additionally, a minimum 3-foot wide route for pedestrians would be provided along sidewalks; however, it's possible that some temporary sidewalk closures may be required, particularly during the early stages of construction. The construction contractor would also be responsible for developing detour plans and worksite traffic control plans and identifying haul routes in consultation with the City of Los Angeles (Department of Transportation) and City of San Fernando.

### Coordination with School Districts, Cities of Los Angeles and San Fernando, and Emergency Responders

Temporary road closures may be required and access may be temporarily disrupted during construction activities. Coordination with local school districts would be conducted to disclose potential road closures and suggest detour routes for carpooling and access to schools. Additionally, coordination with fire and police departments of both the City of Los Angeles and City of San Fernando would also occur at this time. The Cities of Los Angeles and San Fernando would be given 30-45 day notices of upcoming roadway and sidewalk modifications to coordinate with relevant city personnel and to help coordinate public information regarding said roadway/sidewalk modifications. The intent of such coordination would be to identify and ensure adequate access routes are maintained and emergency services response times are maximized.

### Haul Routes

The construction contractor would coordinate with the local jurisdictions to designate and identify haul routes for trucks and to establish hours of operation. The selected routes would be chosen in order to facilitate construction vehicles leaving the immediate area as expeditiously as practicable and thereby minimize noise, vibration, and other effects associated with construction hauling. Street sweeping would be implemented to keep haul routes clean and clear of debris.

### Construction Phasing and Staging Plan

The preconstruction and site preparation phase would include the development and implementation of the Construction Phasing and Staging Plan by the construction contractor. This Plan would be required to control the impacts of construction in any segment by limiting the areas that may be constructed at a particular time. The goal of the Construction Phasing and Staging Plan would be to maximize the work area under construction while minimizing the inconvenience to businesses and the motoring public. Staging areas identified by the contractor, will be included in the Plan or in a supplemental document, as required by Metro. Typically, staging areas would be located on parking lots, vacant private properties, or within public rights-of-way (including the curb lane), and may require temporary easements and city encroachment permits be obtained by the construction contractor.

### Utility Relocations

Construction of the Curb-Running BRT Alternative may require utility relocations, including power pole relocations, along the alignment. During preconstruction, existing utilities may be more closely inspected and evaluated including the depth, condition, and exact location. An operation called potholing is typically done to physically locate certain utilities so that they can be appropriately marked and protected. Any utilities in conflict with construction activities would need to be relocated, modified, or protected in place. Protecting in place is the method of choice, as this is less disruptive to streets and less costly. In some instances, utility relocation may also be required to ensure access is provided for utility service providers to inspect and maintain their utility infrastructure.

## Construction of Transit Structures and Infrastructure

This phase would involve construction of the dedicated BRT lanes and mixed-flow BRT lanes, sidewalk reconstruction, and relocation of bus stops (which would require approval of City of Los Angeles for stops within the city) including installation of new bus stop infrastructure such as shelters and seating.

The Curb-Running BRT Alternative would require pavement breaking, excavation and removal of the existing roadway pavement, the removal of curbs and gutters, grading of the roadbed to prepare it for paving, paving (an asphalt concrete overlay would be provided in place of the existing pavement for the dedicated BRT lanes and mixed-flow BRT lanes), installation of surface and subsurface drainage systems, reconstruction of sidewalks, and concrete finish work. With commencement of construction, public access to parking spaces, bus stops, curb lanes, and bicycle lanes within each work area would be prohibited. As described below, the duration of construction within each work zone is anticipated to be less than two weeks. At the start of construction within each work area, on-street parking areas would be removed for project-related construction activities. Temporary lane and street closures may be necessary under this alternative. The extent and duration of the closures would depend on a number of factors, including the construction contract limits and individual contractor's choices, and would be coordinated with the Cities of Los Angeles and San Fernando, as necessary. Restrictions on the extent and duration of the closures can be incorporated in the project construction specifications. In some cases, short-term full closures might be substituted for extended partial closures to reduce overall impacts.

Under this alternative, the construction contractor would develop detour routes, if required, to facilitate traffic movement through construction zones without significantly increasing cut-through traffic in adjacent residential areas. Additionally, where feasible, Metro would temporarily restripe roadways including restriping turn lanes, through lanes, and parking lanes at the affected intersections to maximize the vehicular capacity at those locations affected by construction closures. A majority of construction-related travel (i.e., deliveries, hauling, and worker trips) would be scheduled during the off-peak hours.

The construction of BRT guideways typically requires a range of equipment though prolonged use of heavy construction equipment is not anticipated. The types of equipment could range from hand-held pneumatic tools to jack-hammers, rock drills, and equipment to break the sidewalk and roadway surface, to compactors, graders, scrapers, pavers, front end loaders, dump trucks, mobile cranes, sweepers, concrete pumps, generators, and compressors used in roadway reconstruction. The photographs in Figures 4.19-1 through 4.19-3 depict construction activities and some of the equipment that would be required to construct the Curb-Running BRT Alternative.

This alternative also proposes the construction of 18 new bus stops, which would include new bus shelters and associated infrastructure such as seating and lighting. Proposed bus shelters and associated infrastructure would be similar to bus shelters Metro typically uses. Construction associated with the bus stops would include installation of benches and canopies and the construction of BRT platforms on the curbside. Construction of BRT platforms would include the construction of adjacent bus pads (which would require pavement breaking and excavation), establishment of subgrade and footings for canopies, installation of canopy supports and canopies, concrete paving, and installation of bus stop signage. In some cases, bicycle parking and landscaping at the stations would be provided. Storage space for buses may also be included at some of the stops.

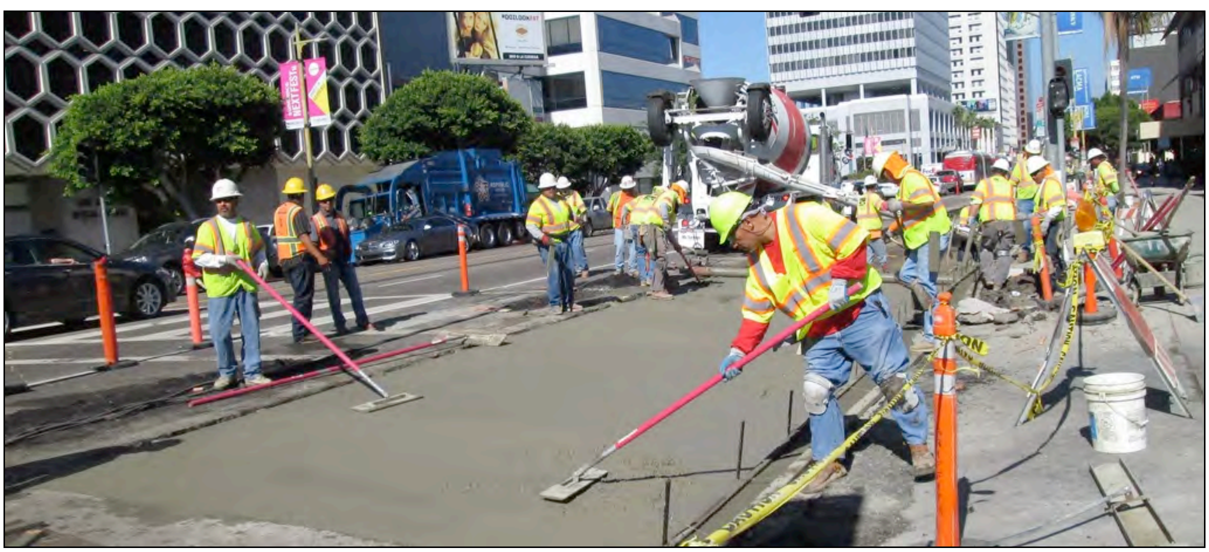
### Figure 4.19-1: Roadway Bed Grading and Paving


Source: Metro, 2015.

Figure 4.19-2: Concrete Pour for Bus Lane Surface

Source: Metro, 2015.

Figure 4.19-3: Concrete Finishing for Bus Lane Surface



Source: Metro, 2015.

Construction under this phase is likely to occur simultaneously at several locations along the alignment and construction of the various project elements would overlap.

### Construction of Support Systems and Finish Work

This phase would include installation of electrical, mechanical, communications, and traffic control systems and signals; street lighting (street lighting would be upgraded to provide consistent illumination along the alignment); landscaping; and signage. Additionally, the BRT lanes would be striped, any detours would be closed, cleanup of work areas would occur, and systems would be tested.

### Construction Schedule

Construction of the Curb-Running BRT Alternative is expected to occur over an approximately 18-month period. However, the duration of construction within each work zone along the project corridor would likely be less than two weeks.

The approximate time frames for each of the general construction phases described above are presented below. It should be noted that these are rough estimates that will vary depending on conditions in the field and will be determined by the contractor. Also, the phases are likely to overlap to some degree and the sequence of construction activities may also vary to some extent from what was described above.

- Preconstruction and Site Preparation — 3 to 4 months
- Construction of Transit Structures and Infrastructure — 12 to 18 months
- Construction of Support Systems and Finish Work. — 12 to 18 months

Project construction would typically take place between the hours of 7 a.m. and 9 p.m. within the City of Los Angeles, in accordance with the Los Angeles Municipal Code Section 41.40(a) and between 7 a.m. and 6 p.m. within the City of San Fernando, in accordance with San Fernando City Code Section 34-28(10). Construction activities would be minimized during weekday AM and PM peak traffic periods (typically 7 to 9 a.m. and 4 to 6 p.m.).

## 4.19.2.3 Alternative 2 – Median Running BRT Alternative

The Median-Running BRT Alternative would consist of approximately 6.7 miles of dedicated median-running bus lanes along Van Nuys Boulevard between San Fernando Road and the Metro Orange Line and 2.5 miles along San Fernando Road and Truman Street between Van Nuys Boulevard and Sylmar/San Fernando Metrolink Station where the buses would operate in mixed-flow median lanes.

### Construction Scenario

Similar to the Curb-Running BRT Alternative, construction of the Median-Running BRT Alternative would occur in phases. Construction activities would also be the same as those described above for the Curb-Running BRT Alternative. However, this alternative would not require the relocation of existing bus stops in the curb lanes as would occur under the Curb-Running BRT Alternative. Additionally, construction of the BRT lanes and associated bus stops and platforms in the median of Van Nuys Boulevard would result in more extensive construction over a longer period of time.

### Construction Schedule

The duration of construction activities is anticipated to be greater under this alternative than the Curb-Running BRT Alternative, and would last approximately 24 months. The approximate time frames for each of the general construction phases are presented below. As discussed above for the Curb-Running BRT Alternative, these are rough estimates and are likely to vary based on conditions in the field. The phases are likely to overlap to some degree and the sequence of construction activities may also vary.

- Preconstruction and Site Preparation 4 to 6 months
- Construction of Transit Structures and Infrastructure 18 to 24 months
- Construction of Support Systems and Finish Work. 18 to 24 months

Construction of the Median-Running BRT Alternative would typically take place between the hours of 7 a.m. and 9 p.m. within the City of Los Angeles, in accordance with the Los Angeles Municipal Code Section 41.40(a) and between 7 a.m. and 6 p.m. within the City of San Fernando, in accordance with San Fernando City Code Section 34-28(10). Construction activities would be minimized during weekday AM and PM peak traffic periods (typically 7 to 9 a.m. and 4 to 6 p.m.).

## 4.19.2.4 Alternative 3 – Low-Floor LRT/Tram Alternative

The Low-Floor LRT/Tram Alternative would operate along a 9.2-mile route from the Sylmar/San Fernando Metrolink station in the north to the Van Nuys Metro Orange Line station to the south, The Low-Floor LRT/Tram Alternative would operate in a median dedicated guideway for approximately 6.7 miles along Van Nuys Boulevard between San Fernando Road and the Van Nuys Metro Orange Line station. The Low-Floor LRT/Tram Alternative would operate in mixed-flow traffic lanes on San Fernando Road from the intersection of San Fernando Road/Van Nuys Boulevard to just north of Wolfskill Street. Between Wolfskill Street and the Sylmar/San Fernando Metrolink station, the Low-Floor LRT/Tram Alternative would operate in a dedicated median guideway.

### Construction Scenario

Construction of the Low-Floor LRT/Tram Alternative would proceed in three phases, similar to those identified for the BRT alternatives. Differences between activities in each of the phases under this alternative and what is described above are highlighted in the discussions below.

### Preconstruction and Site Preparation

The construction process under this alternative would begin with the site preparation and the pre-construction phase. The general activities under this phase would be similar to the activities described above for the BRT alternatives; however, unlike those alternatives, a number of properties would need to be acquired for the right-of-way required for project facilities. These facilities would include the MSF, which would occupy a site approximately 25 to 30 acres in size, and the TPSS, which would be spaced approximately 1.0 to 1.5 miles apart along the alignment. The MSF would be located at one of the three industrial sites near the intersections identified below:

- MSF Option A – Van Nuys Boulevard/Metro Orange Line
- MSF Option B – Van Nuys Boulevard/Keswick Street
- MSF Option C – Van Nuys Boulevard/Arminta Street

The MSF site ultimately selected could also serve as a staging area for construction equipment and materials. The acquisitions for Alternative 3, including MSF options, are summarized below in Table 4.19-2.

### Table 4.19-2: Summary of Acquisitions for Alternative 3 MSF Options

| Alternative and MSF Options | | Affected Parcels | | | |
|---|---|---|---|---|---|
| | | Full | Partial | PUE | Total |
| Alternative 3 | MSF Option A | 87 | 3 | 0 | 90 |
| | MSF Option B | 62 | 3 | 0 | 65 |
| | MSF Option C | 66 | 4 | 0 | 70 |

Note:
Full = Full Acquisition, Partial = Partial Acquisition, PUE = Permanent Underground Easement
Source: KOA Corporation.

### Construction Phasing and Staging Plan

The preconstruction and site preparation phase would include the development and implementation of the Construction Phasing and Staging Plan by the construction contractor. This Plan would be required to control the impacts of construction in any segment by limiting the areas that may be constructed at a particular time. The goal of the Construction Phasing and Staging Plan would be to maximize the work area under construction while minimizing the inconvenience to businesses and the motoring public. Staging areas identified by the contractor, will be included in the Plan or in a supplemental document, as required by Metro. Typically, staging areas would be located on parking lots, vacant private properties, or within public rights-of-way (including the curb lane), and may require temporary easements and city encroachment permits be obtained by the construction contractor.

### Utility Relocations

Utility relocations as was described above for the BRT alternatives (see Curb-Running BRT Alternative) will be required. However, for the rail alternatives (Low-Floor LRT/Tram Alternative and LRT Alternative), additional restrictions will apply to existing and new utilities in the vicinity of the track to protect both the utility and the guideway. The guideway being defined as that portion of the rail line that supports the track and its appurtenant structures. The restricted area is referred to as the Restricted Utility Area (RUA). Existing longitudinal oriented utilities would not be generally permitted with the RUA but will be addressed on a case-by-case basis. Existing utilities that cross the guideway may remain if the vertical distance from the top of the rail to the top of the utility (or encasement) is not less than 4 feet; the material type, condition, and load capacity meet LRT requirements; and the distance from the centerline of an OCS support pipe foundation to the face of the utility or encasement is not less than 4 feet. Existing utilities crossing the track within the RUA would be relocated (lowered) to provide a minimum vertical distance from the top of rail to the top of encasement of 5.5 feet extending to the outside of the RUA. Access to longitudinal or crossing utilities would be made from outside the guideway.

## Construction of the Transit Structures and Infrastructure

Because the Low-Floor LRT/Tram vehicles would operate on rail tracks and would be powered by overhead electrical wires, power duct bank, additional transit structures and associated infrastructure would be required to operate this alternative that would differ from those described above for the BRT alternatives. These additional structures and infrastructure would include the rail track guideway, overhead contact system, power duct bank, TPSS, Low-Floor LRT/Tram signaling systems, and MSF.

### Temporary Street and Lane Closures, Detour Routes

At the start of construction within each work area, on-street parking areas would be removed for project-related construction activities. Temporary street and lane closures may be necessary under this alternative. Figure 4.19-4 shows an example of a temporary lane closure along a major street, similar to what could be expected to occur along Van Nuys Boulevard. The extent and duration of the closures would depend on a number of factors, including the construction contract limits and individual contractor's choices, and would be coordinated with the Cities of Los Angeles and San Fernando, as necessary. Restrictions on the extent and duration of the closures can be incorporated in the project construction specifications. In some cases, short-term full closures might be substituted for extended partial closures to reduce overall impacts. Community outreach to keep the public and businesses advised as to closures would be provided. Signage and access to businesses would also be provided.

Under this alternative, the construction contractor would develop detour routes to facilitate traffic movement through construction zones without significantly increasing cut-through traffic in adjacent residential areas. Additionally, where feasible, Metro would temporarily restripe roadways including restriping turn lanes, through lanes, and parking lanes at the affected intersections to maximize the vehicular capacity at those locations affected by construction closures. A majority of construction-related travel (i.e., deliveries, hauling, and worker trips) would be scheduled during the off-peak hours.

On-street parking may be removed to maximize vehicular capacity at those locations affected by construction closures. Additionally, traffic control officers may be placed at major intersections during peak hours to minimize delays related to construction activities.

### Construction of the Tram Guideway

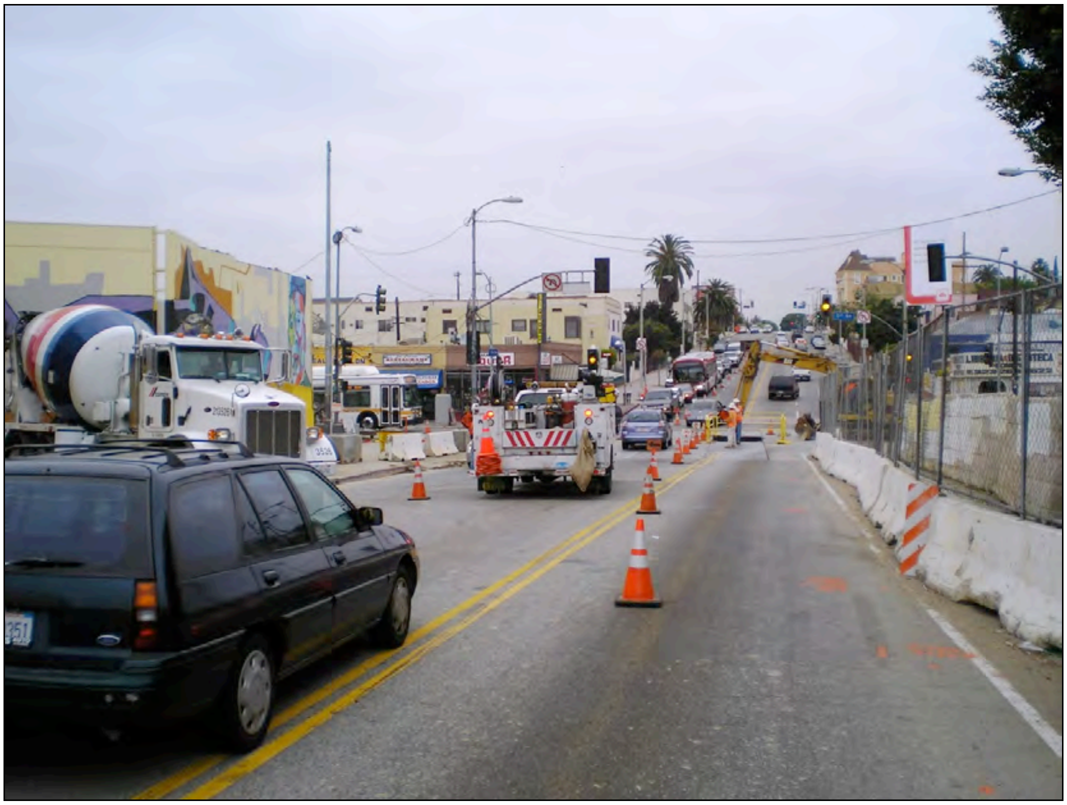
The construction of the Low-Floor LRT/Tram guideway would require the use of earth-moving equipment, pneumatic tools, generators, concrete pumps, and similar equipment. Demolition, clearing, and earthwork would be required under this alternative. This would include excavation and demolition associated with the roadway, pile driving for structures, removal of curbs and gutters, and removal of sidewalks. Additionally, a pedestrian bridge would be constructed at the Sylmar station from the proposed platform to the Metrolink platform.

### Construction of the Proposed Stations and Associated Infrastructure

#### *Stations*

Under this alternative, 28 stations would be constructed at approximately 1-mile intervals along the entire route. The Low-Floor LRT/Tram stations would be ADA compliant. The typical Low-Floor LRT/Tram station platform would be 8 feet wide for a side platform station to 16 feet wide for a center platform station, 180 feet long, and rise from the street and sidewalk level via ADA compliant accessible ramps to a 14-inch height. Access to the Low-Floor LRT/Tram station platforms would be from crosswalks. Canopies at the Low-Floor LRT/Tram stations would be approximately 13 feet high and would incorporate Low-Floor LRT/Tram station stop lighting to enhance safety.

### Figure 4.19-4: Example of Temporary Traffic Control at Intersections During Construction



Source: Metro, 2015.

The proposed stations would be constructed using standard construction techniques used by Metro. Common elements that would be installed during construction would include signage, maps, fixtures, furnishings, lighting, and communications equipment. Low-Floor LRT/Tram station platforms may include one or two entry ways; for stations with only one public access point, an emergency exit and stair would provide an exit. Low-Floor LRT/Tram stations would provide bench seating and contain ticket vending machines, video message signs, route maps, and stand-alone validators, as well as include the name and location of the Low-Floor LRT/Tram station.

Construction of the at-grade stations would involve cast-in place concrete or pre-cast panels to construct a platform. Station furnishings, including canopy, railings, lighting, seating, signage and fare vending equipment, would then be installed. The stations would be constructed of standard building materials such as concrete, steel, and other materials per Metro design criteria. Steel-wheeled or rubber-tired compactors, graders, and small bulldozers would be required for subgrade preparation below the platform. Construction of the stations would also require trucks for the removal of excavated soil; transit mix concrete trucks and concrete pumps; trucks to deliver forms, reinforcing steel, and other materials; and water trucks for dust control.

Stations would also include bike lockers at the stations or in close proximity to stations. In addition, signage and safety and security equipment, such as closed-circuit televisions, public announcement systems, passenger assistance telephones, and variable message signs (providing real-time information), would be installed.

### *Overhead Contact System*

The Overhead Contact System (OCS) would consist of a set of two copper wires-a contact wire and a messenger wire-supported by steel poles mounted on reinforced concrete foundations. The Low-Floor LRT/Tram vehicles would include a telescoping pantograph or “arm” on the roof of the vehicles that would slide along the underside of the contact wire and deliver electric power to the vehicles. The OCS poles would be approximately 30 feet tall and typically located every 90 to 170 feet between two Low-Floor LRT/Tram tracks. Where the available public right-of-way width is extremely limited, the OCS poles would be placed on the sidewalk.

Construction of the OCS would initially involve constructing the foundations for the OCS poles. This would be accompanied by construction of duct banks and conduit for the underground electrical feeder lines from the TPSSs, followed by the installation of the OCS poles. The final stage would involve the installation of the TPSS feeder cables and overhead catenary lines, which would occur after guideway construction. Construction of the foundations and ducts, and installation of the poles and feeder cables, would require augers, cranes, back hoes, and concrete and material trucks. The overhead wires would be installed from the guideway using special vehicles, such as high-rail.

### *Traction Power Substations*

TPSSs would be typically placed every 1.0 to 1.5 miles. The Low-Floor LRT/Tram vehicles would be powered by approximately nine TPSS units, which would be spaced relatively evenly along the alignment to provide direct current to the Low-Floor LRT/Tram vehicles. TPSSs would be located at points along the alignment where maximum power draw is expected (such as at stations and on inclines).

The size of each TPSS unit would be approximately 20 feet by 50 feet and about 12 to 14 feet high. The unit would require access to the local road network for equipment installation and maintenance. Construction and installation would require power to be fed to the OCS through underground feeders in duct banks and up a pole to a connection with the contact wire.

The TPSS units may be located within the public right-of-way, in parking lots, or in acquired parcels. For the purposes of analysis in this DEIS/DEIR, potential or typical TPSS locations were evaluated. However, other more suitable locations could be selected if they become available and are comparable to the potential locations analyzed herein.

Each TPSS site would be cleared and graded, and a concrete slab would be constructed with the appropriate underground utility connections. A grounding mat would be installed around the perimeter of the site. The TPSS is a prefabricated structure. It would be delivered, mounted on the slab, and connected to the utilities. Fencing or another type of barrier would be installed around the perimeter of the site, and architectural and landscaping treatments would be applied as feasible and in accordance with Metro design criteria. Graders, bobcats, forklifts, cranes, and concrete and materials/equipment trucks would be required to construct the TPSS facilities.

### *Maintenance and Storage Facilities*

This alternative would include construction of a new MSF. The construction of the MSF would include standard methods associated with construction of track work and buildings, such as leveling of land, and construction of new sheds/maintenance buildings, as well as track work for storage of the rail vehicles. The MSF site would be approximately 25 to 30 acres in size. Described below are the rail connections that would need to be constructed for the rail vehicles to access the MSF site.

- For MSF Option A, right-of-way would be required for vehicles to travel between Van Nuys Boulevard and the MSF site, in an alignment between the Metro Orange Line and Bessemer Street.
- For MSF Option B, a turnoff south of the Van Nuys Metrolink Station is proposed where the LRT vehicles would travel to an MSF site located within the industrial areas just south of Raymer Street.
- For MSF Option C, a turnoff north of the Van Nuys Metrolink Station would lead west to the MSF site located north and south of Arminta Street.

In addition, parcel acquisitions would be required for the placement of traction power substations (TPSS) approximately 1.0 to 1.5 miles apart along the alignment.

### *Communications and Signaling*

Coordination with traffic signal timing and Low-floor LRT/Trams equipped with transit signal priority equipment will allow for safe and improved operations and on-time performance. The Low-Floor LRT/Tram would receive a green light only when conflicting traffic has a red light. Low-floor LRT/Trams would be equipped with transit signal priority equipment to allow for improved operations and on-time performance.

## Construction of Support Systems and Finish Work

Construction activities associated with this phase would be the same as those described for the BRT alternatives above and would include installation of other system elements (mechanical, signals, gates, ticket vending, etc.) This could also include installation of communication systems, traffic signals, traffic control system installation, street lighting, landscaping, signing, and striping, closure of detours, cleanup activities, and testing and final commissioning of the system. With regards to traffic signals, the Low-Floor LRT/Trams would be controlled by the traffic signals that govern vehicular traffic on Van Nuys Boulevard. Every traffic signal on Van Nuys Boulevard would be modified to provide for Low-Floor LRT/Tram signals.

## Construction Schedule

Under this alternative, construction is estimated to occur over a period of approximately 4 years. The construction period would be longer than for the BRT alternatives because of the additional structures, infrastructure, and support facilities required under this alternative.

The approximate time frames under this alternative for each of the general construction phases are presented below. As discussed above for the Curb-Running BRT Alternative, these are rough estimates and are likely to vary based on conditions in the field. The phases are likely to overlap to some degree and the sequence of construction activities may also vary.

- Preconstruction and Site Preparation — 6 to 12 months
- Construction of Transit Structures and Infrastructure — 40 to 48 months
- Construction of Support Systems and Finish Work. — 40 to 48 months

Also, similar to the BRT alternatives, project construction would typically take place between the hours of 7 a.m. and 9 p.m. within the City of Los Angeles, in accordance with the Los Angeles Municipal Code Section 41.40(a) and 7 a.m. and 6 p.m. within the City of San Fernando, in accordance with San Fernando City Code Section 34-28(10). However, Metro may seek a variance from these Municipal Code Sections, to construct particular portions of the alignment outside of these hours.

As stated previously, the project corridor would most likely be divided into work zones for the purposes of construction. Therefore, each work zone may undergo a different level of construction at any given time.

### 4.19.2.5 Alternative 4 – LRT Alternative

Under Build Alternative 4, an LRT line would be constructed in a dedicated 9.2-mile guideway that would travel south from the Sylmar/San Fernando Metrolink station along San Fernando Road to Van Nuys Boulevard, and along Van Nuys Boulevard from San Fernando Road south to the Van Nuys Metro Orange Line Station. The LRT Alternative would include a segment in exclusive right-of-way within the Antelope Valley Metrolink railroad corridor, a segment within semi-exclusive right-of-way in the middle of Van Nuys Boulevard, and an underground 2.5-mile segment beneath Van Nuys Boulevard from just north of Parthenia Street to Hart Street. The acquisitions for Alternative 4, including MSF options, are summarized below in Table 4.19-3.

**Table 4.19-3: Summary of Acquisitions for Alternative 4**

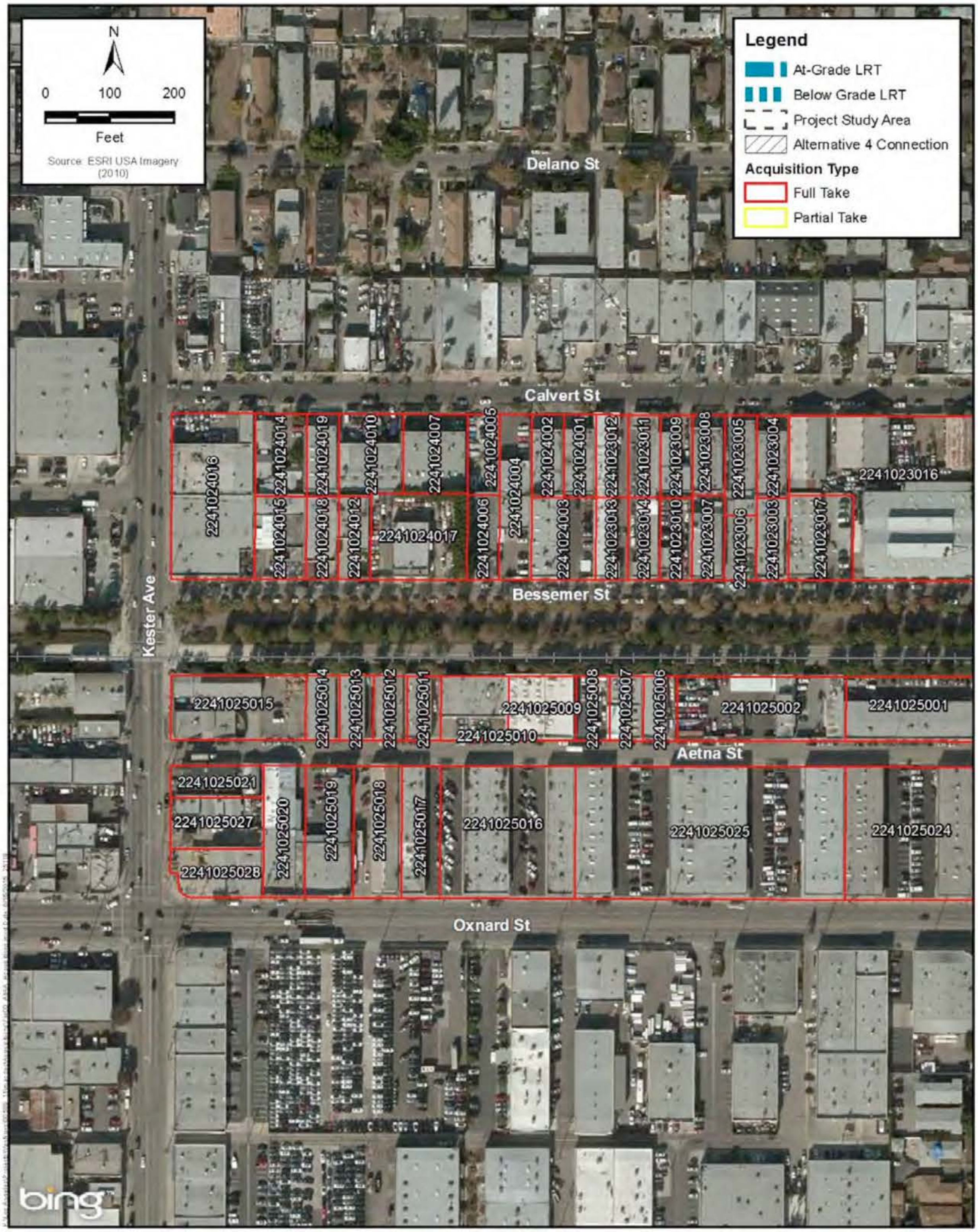
| Alternative and MSF Options | | Affected Parcels | | | |
|---|---|---|---|---|---|
| | | Full | Partial | PUE | Total |
| Alternative 4 | MSF Option A | 109 | 11 | 0 | 120 |
| | MSF Option B | 93 | 11 | 6 | 110 |
| | MSF Option C | 97 | 12 | 8 | 117 |

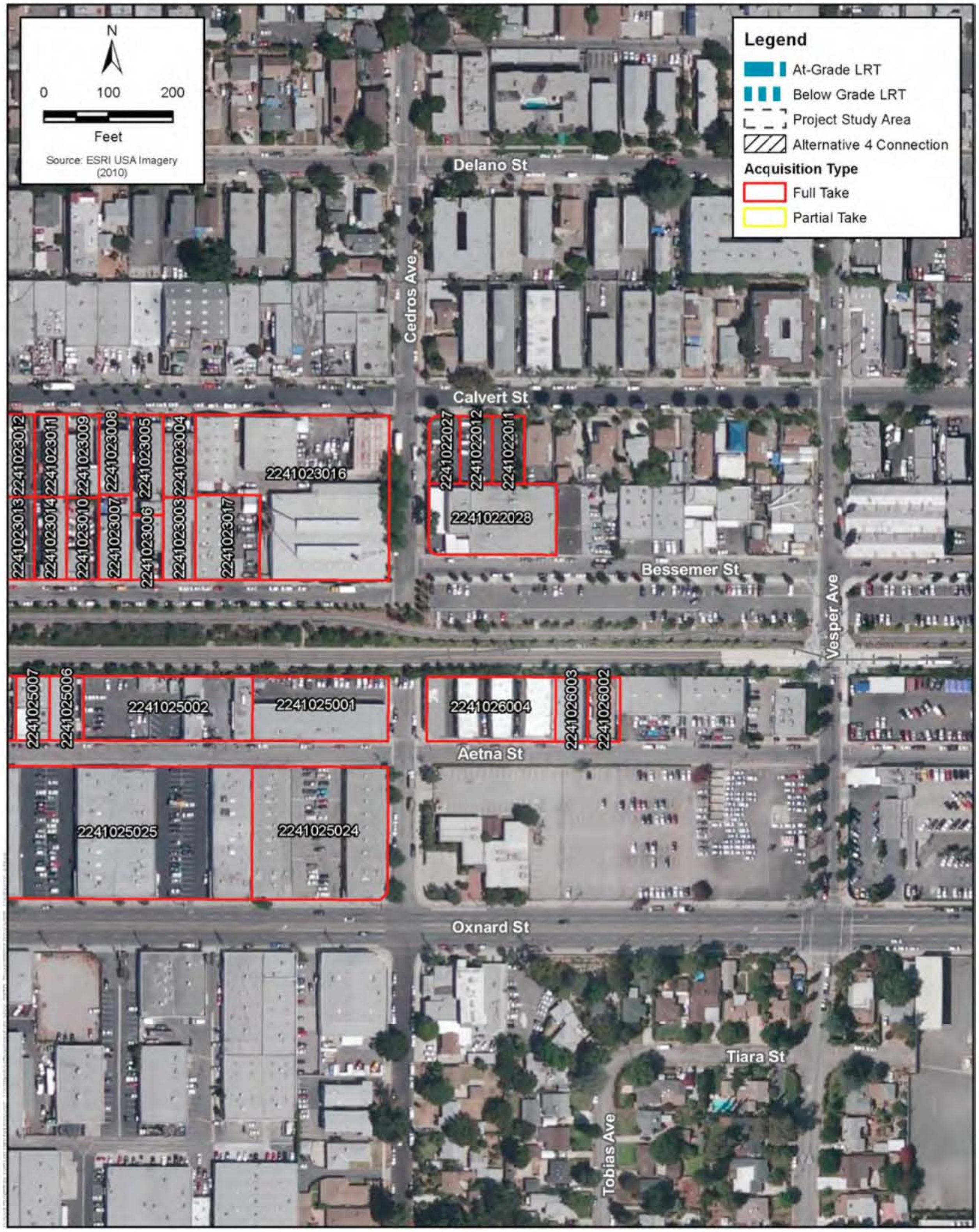
Note:
Full = Full Acquisition, Partial = Partial Acquisition, PUE = Permanent Underground Easement
Source: KOA Corporation.

Under Alternative 4, the existing Metrolink tracks would need to be moved to the northern portion of the rail ROW. Figures 4.19-5 through 4.19-7 show MSF Options Acquisitions.

## Figure 4.19-5: MSF Option A Acquisitions

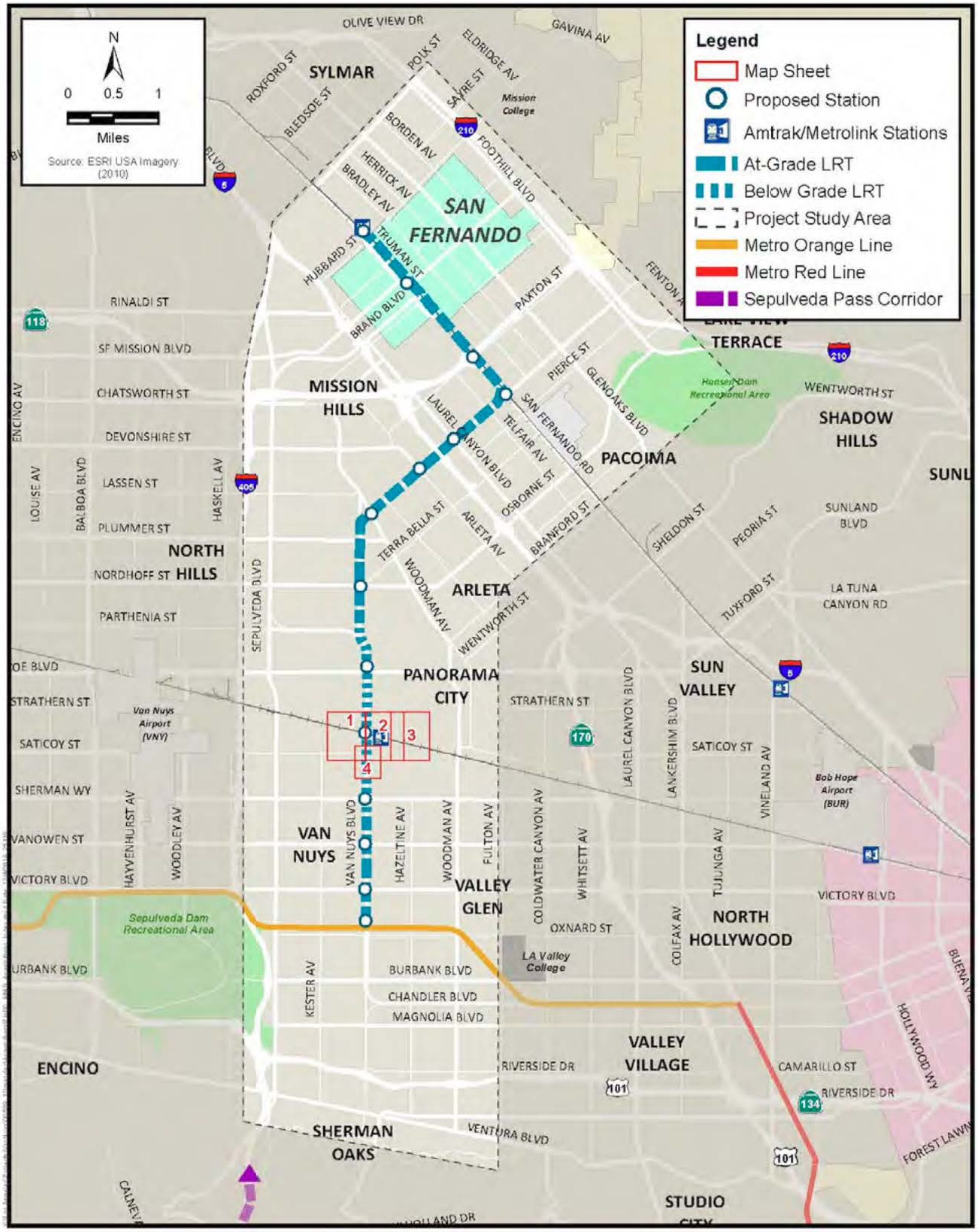

N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Arminta St
Van Nuys
Cabrito Rd
Raymer St
Keswick St
Saticoy St
2215001907
2215001912
bing

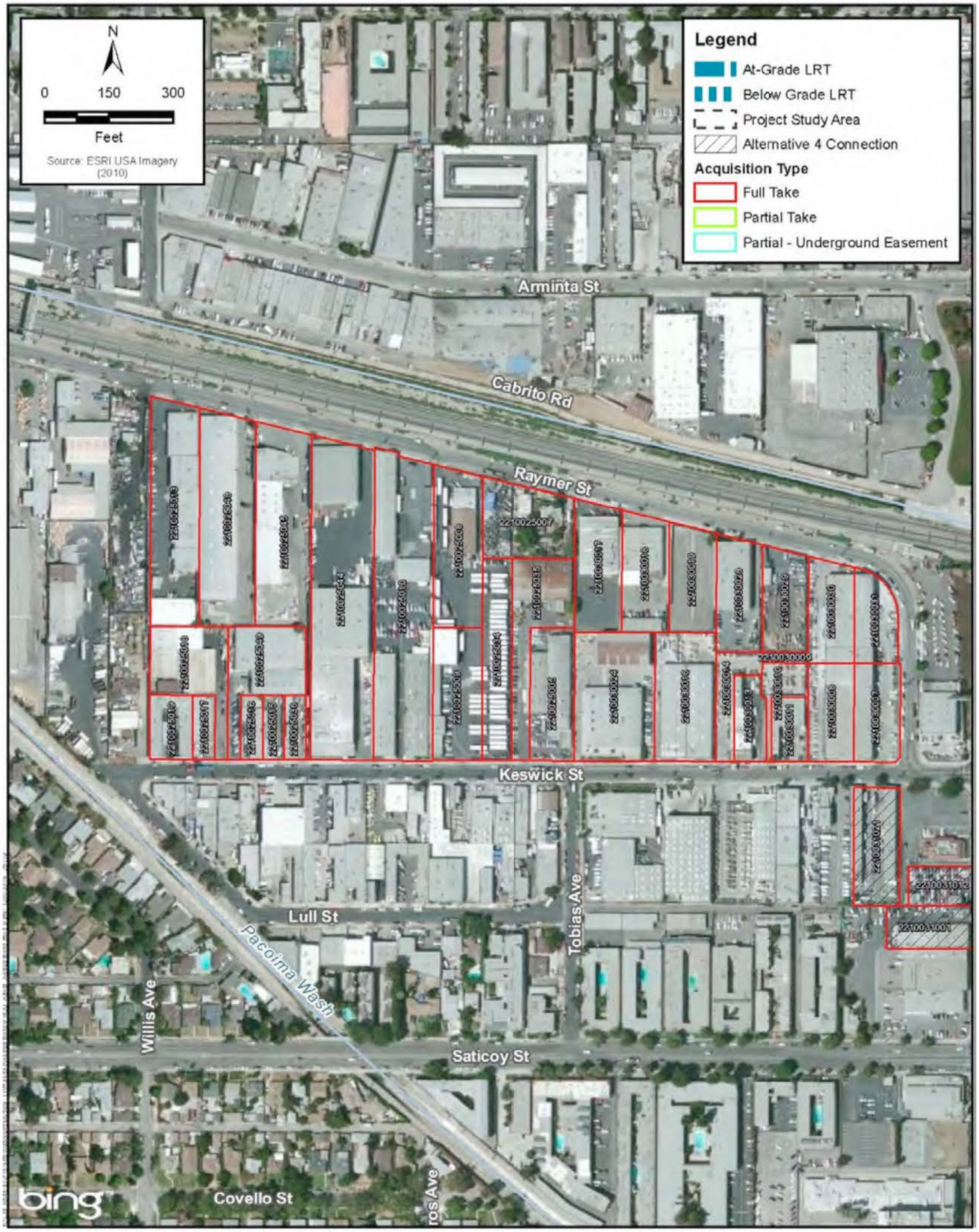

N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Delano St
Calvert St
Bessemer St
Aetna St
Oxnard St
Kester Ave
2241024016
2241024014
2241024019
2241024010
2241024007
2241024005
2241024004
2241024002
2241024001
2241023012
2241023011
2241023009
2241023008
2241023005
2241023004
2241023016
2241024015
2241024018
2241024012
2241024017
2241024006
2241024003
2241023013
2241023014
2241023010
2241023007
2241023006
2241023003
2241023017
2241025015
2241025014
2241025013
2241025012
2241025011
2241025009
2241025010
2241025008
2241025007
2241025006
2241025002
2241025001
2241025021
2241025027
2241025028
2241025020
2241025019
2241025018
2241025017
2241025016
2241025025
2241025024


N
0 100 200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Delano St
Cedros Ave
Calvert St
Bessemer St
Vesper Ave
Aetna St
Oxnard St
Tiara St
Tobias Ave
2241023012
2241023011
2241023009
2241023008
2241023005
2241023004
2241023016
2241023013
2241023014
2241023010
2241023007
2241023006
2241023003
2241023017
2241022027
2241022012
2241022011
2241022028
2241025007
2241025006
2241025002
2241025001
2241026004
2241026003
2241026002
2241025025
2241025024


N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Delano St
Calvert St
Bessemer St
2241027003
Van Nuys Blvd
026007
2240008905
Aetna St
Vesper Ave
Oxnard St
Tiara St
bing

## Figure 4.19-6: MSF Option B Acquisitions



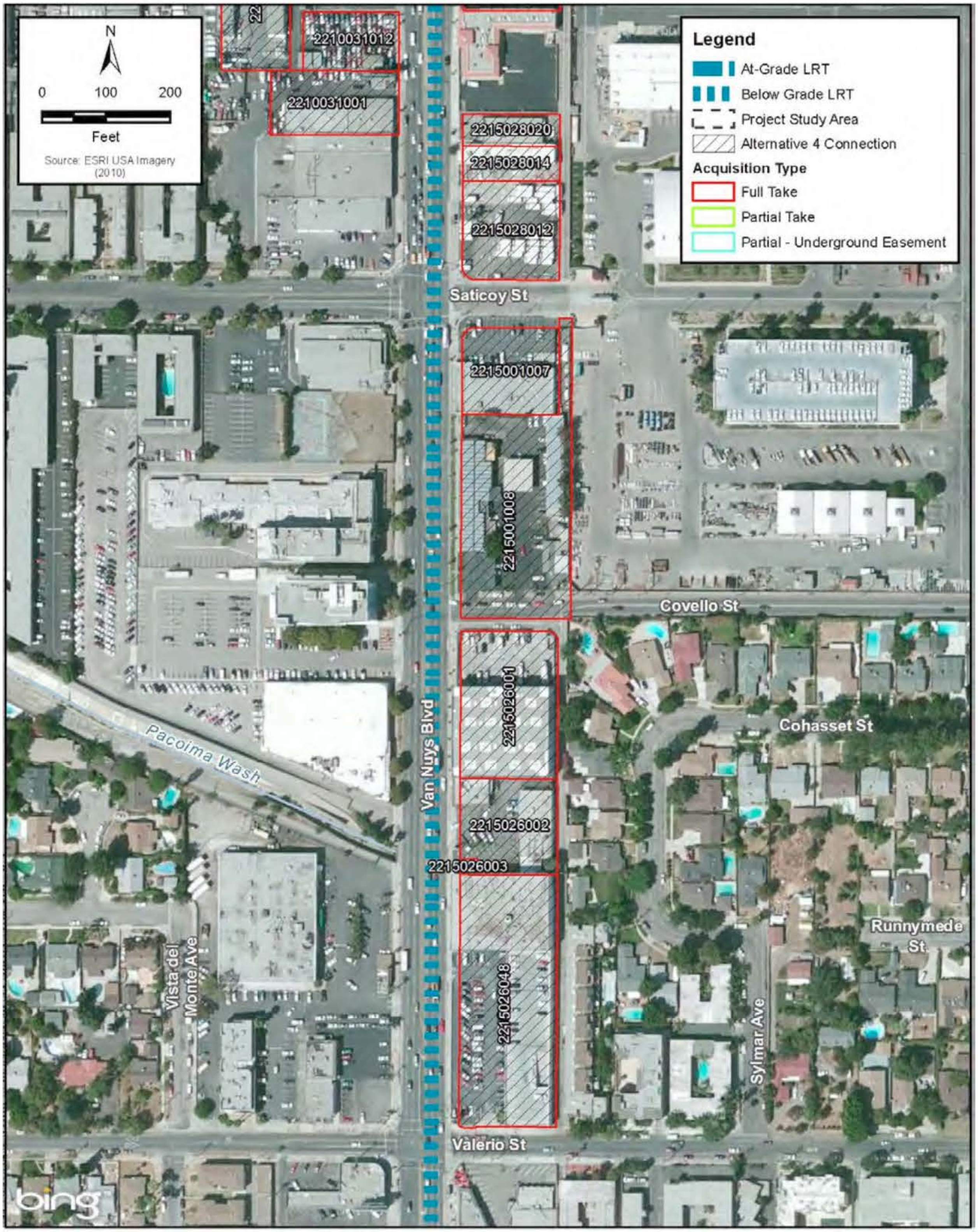

N
0 150 300
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Partial - Underground Easement
Arminta St
Cabrito Rd
Raymer St
Keswick St
Lull St
Tobias Ave
Pacoima Wash
Willis Ave
Saticoy St
Covello St
bing


N
0
150
300
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Partial - Underground Easement
Michaels St
Nollan Pl
Arminta St
Cabrito Rd
wick St
Van Nuys Blvd
Saticoy St
Tyrone Ave
2212001014
2212001015
2215001012
bing

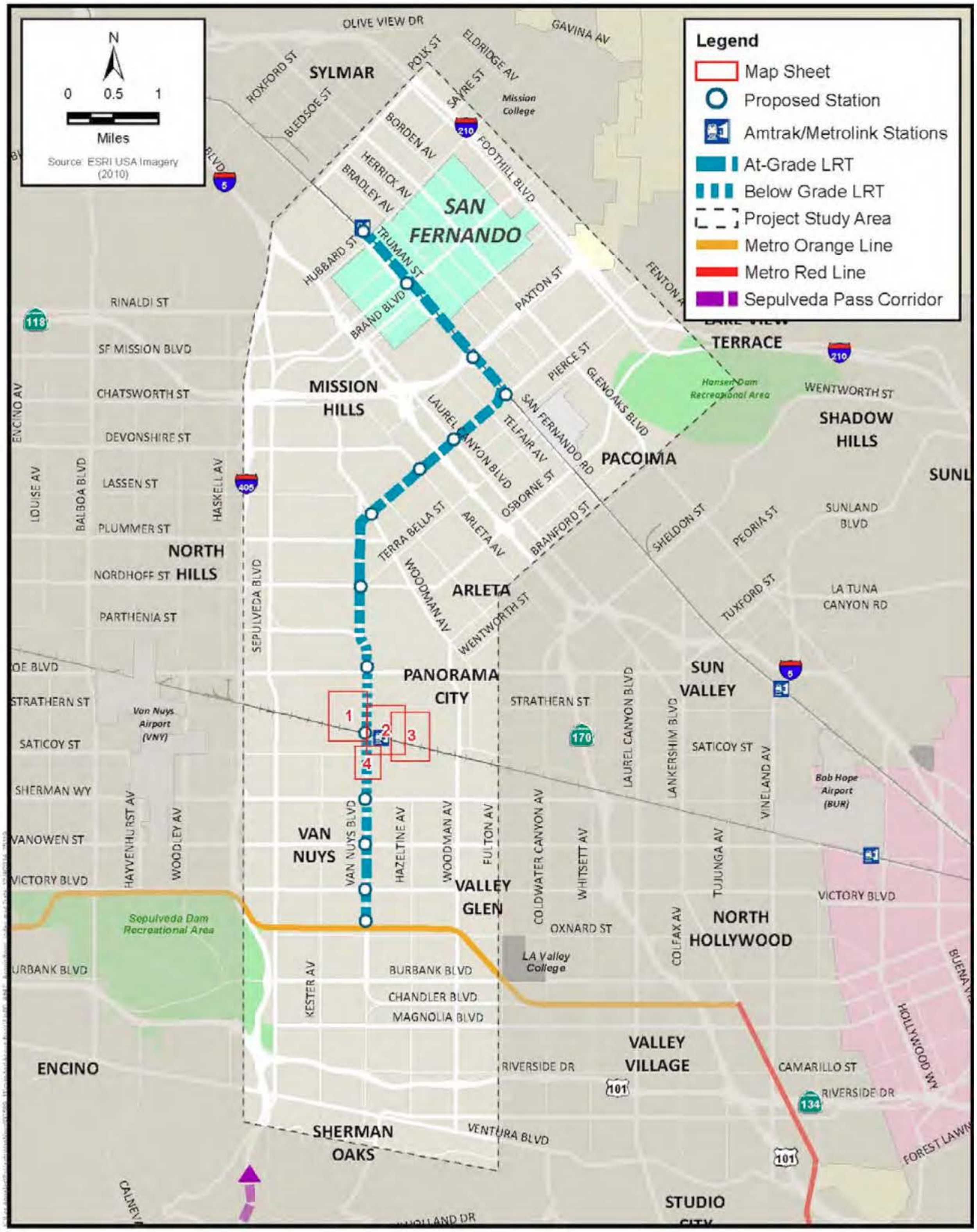


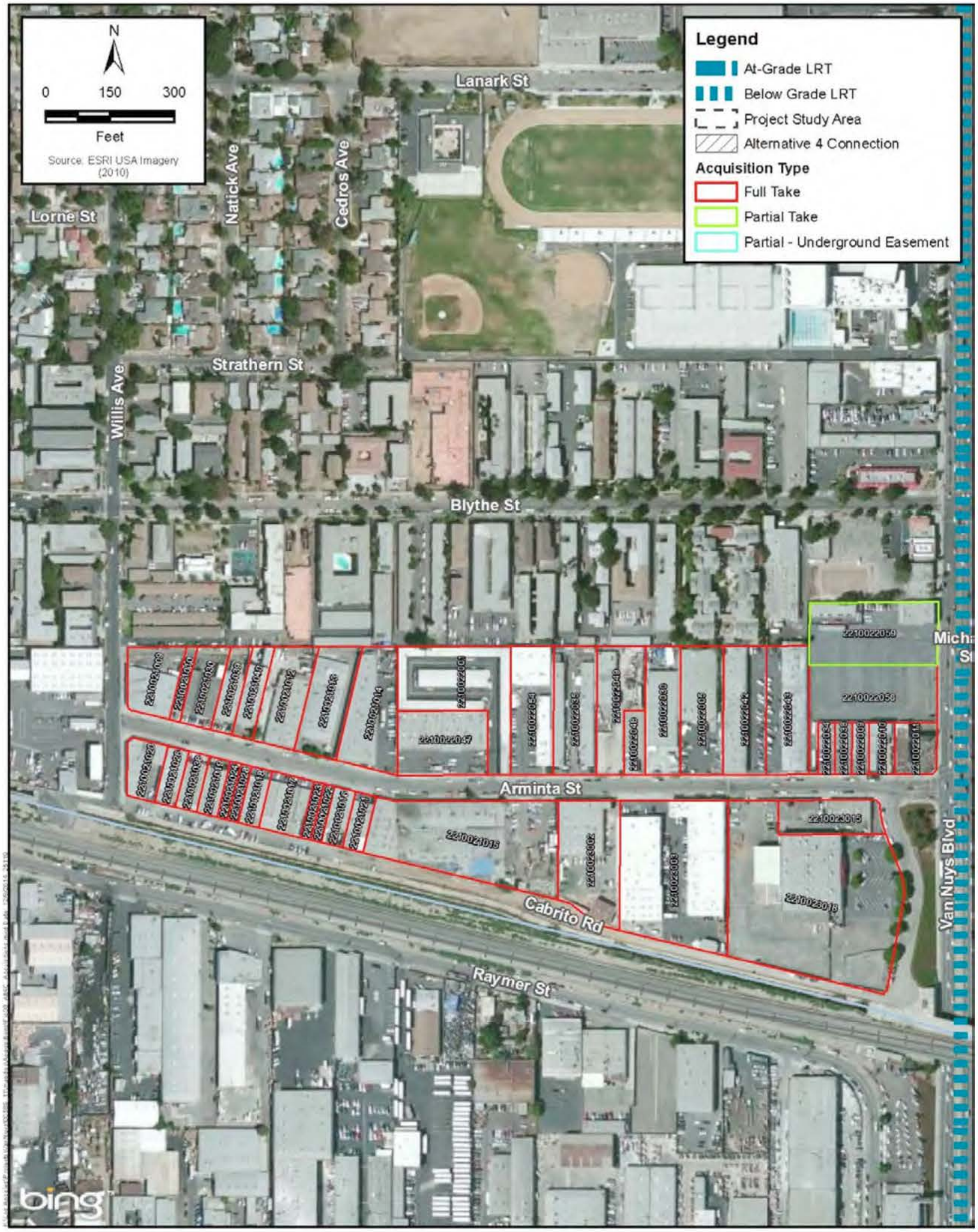
Metro

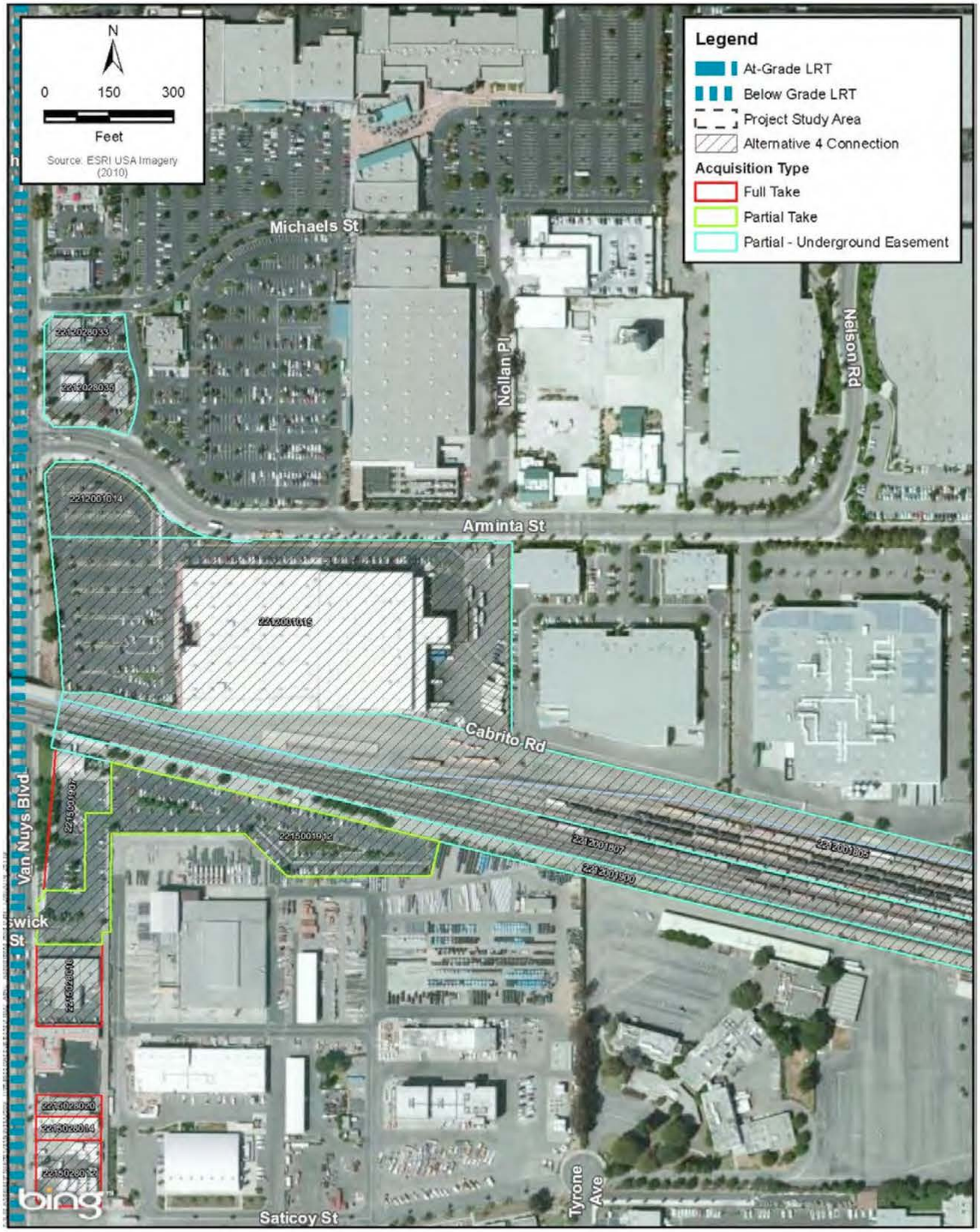

N
0 150 300
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Partial - Underground Easement
Nelson Rd
Stansbury Ave
Hazeltine Ave
Arminta St
Stagg St
Stroud St
Cabrito Rd
Saticoy St
bing


N
0 100 200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Partial - Underground Easement
2210031012
2210031001
2215028020
2215028014
2215028012
Saticoy St
2215001007
2215001008
Covello St
2215026001
Cohasset St
Pacoima Wash
Van Nuys Blvd
2215026002
2215026003
Runnymede St
Vista del Monte Ave
2215026048
Sylmar Ave
Valerio St
bing

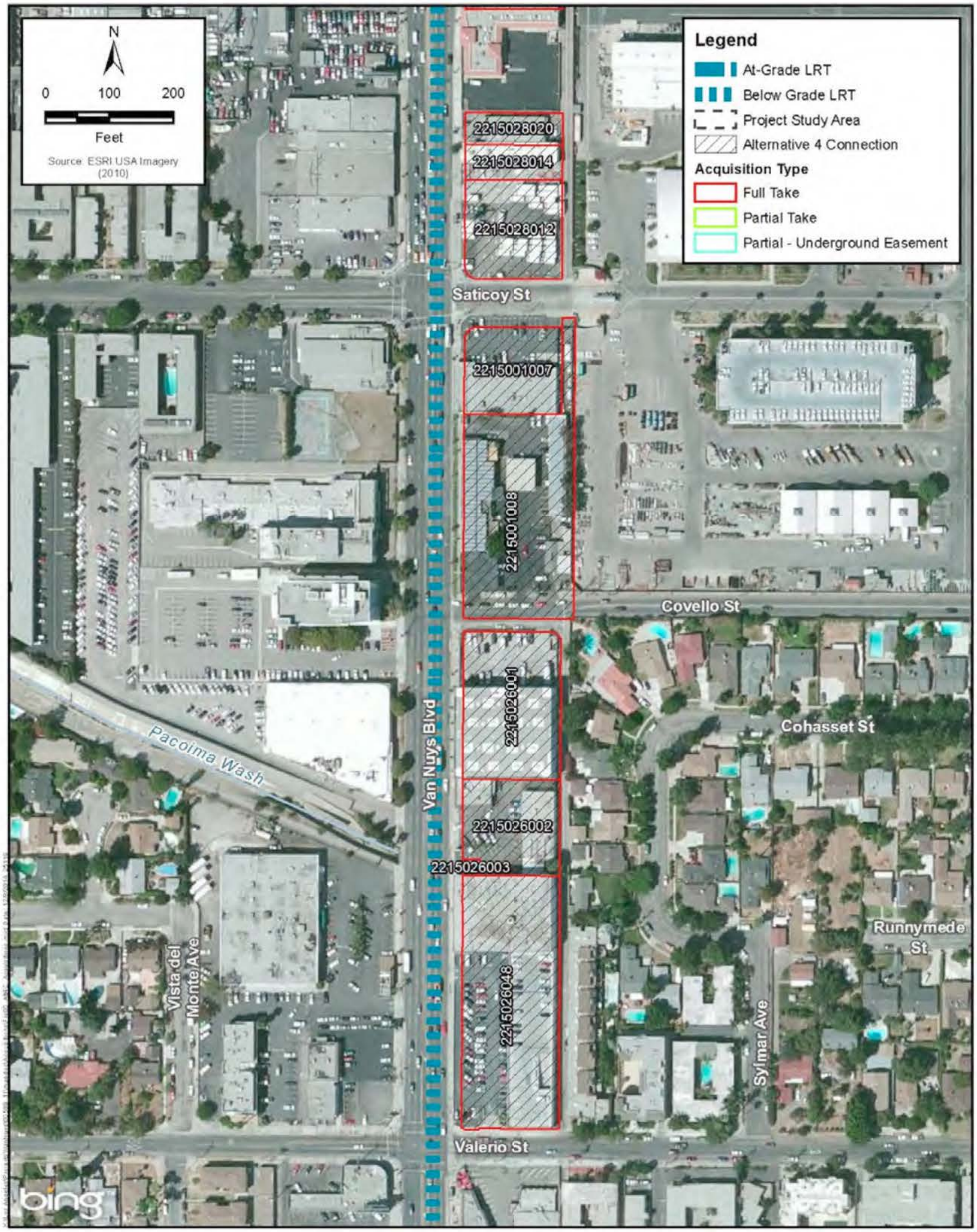
## Figure 4.19-7: MSF Option C Acquisitions




N
0 150 300
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Partial - Underground Easement
Lanark St
Natick Ave
Cedros Ave
Lorne St
Strathern St
Willis Ave
Blythe St
Arminta St
Cabrito Rd
Raymer St
Van Nuys Blvd
2210022059
2210022058
2210022047
2210021015
2210023015
2210023016
bing


N
0
150
300
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Partial - Underground Easement
Michaels St
Nollan Pl
Nelson Rd
Arminta St
Cabrito Rd
Van Nuys Blvd
St
Tyrone Ave
Saticoy St
bing


N
0
150
300
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Partial - Underground Easement
Nelson Rd
Stansbury Ave
Hazeltine Ave
Arminta St
Stagg St
Stroud St
Cabrito Rd
Saticoy St
bing


N
0
100
200
Feet
Source: ESRI USA Imagery (2010)
Legend
At-Grade LRT
Below Grade LRT
Project Study Area
Alternative 4 Connection
Acquisition Type
Full Take
Partial Take
Partial - Underground Easement
2215028020
2215028014
2215028012
Saticoy St
2215001007
2215001008
Covello St
2215026001
Cohasset St
Pacoima Wash
Van Nuys Blvd
2215026002
2215026003
Runnymede St
2215026048
Vista del Monte Ave
Sylmar Ave
Valerio St

## Construction Scenario

Proposed construction activities would generally occur in phases, identified below, over a period of approximately 5 years.

- Preconstruction and Site Preparation
- Construction of Transit Structures and Infrastructure
- Construction of Support Systems and Finish Work.

The text that follows focuses on the construction features or methods unique to this alternative.

## Preconstruction and Site Preparation

The activities under this phase would be the same as those described above for the Low-Floor LRT/Tram Alternative. However, a slightly larger number of properties would need to be acquired, primarily as a result of the right-of-way way required in the subway portal areas.

Additional investigations will also be required for this alternative to determine subsurface geotechnical conditions and to assess the conditions of existing buildings and other structures in proximity to the stations, tunnels, and other underground structures and to determine whether additional measures would be necessary to protect adjacent structures during excavation activities.

### Construction Phasing and Staging Plan

The preconstruction and site preparation phase would include the development and implementation of the Construction Phasing and Staging Plan by the construction contractor. This Plan would be required to control the impacts of construction in any segment by limiting the areas that may be constructed at a particular time. The goal of the Construction Phasing and Staging Plan would be to maximize the work area under construction while minimizing the inconvenience to businesses and the motoring public. Staging areas identified by the contractor, will be included in the Plan or in a supplemental document, as required by Metro. Typically, staging areas would be located on parking lots, vacant private properties, or within public rights-of-way (including the curb lane), and may require temporary easements and city encroachment permits be obtained by the construction contractor.

## Construction of Transit Structures and Infrastructure

### Construction of the Proposed Stations and Associated Infrastructure

Under this alternative 14 stations would be constructed at approximately one-mile intervals along the entire route. Three stations would be underground near Sherman Way, the Van Nuys Metrolink station, and Roscoe Boulevard. Construction activities for the at-grade stations would be the same as those described under Alternative 3, above.

Figure 4.19-8 is a photograph providing an example of construction of an LRT station in the street median.

Entry to the three underground stations would require the construction of an entry plaza and portal. Figures 4.19-9 through 4.19-11 show examples of construction activities required for the construction of the underground station portals. Figure 4.19-12 shows a typical below-grade LRT Station.

## Figure 4.19-8: Example of Street Median LRT Station Construction

Source: Metro, 2015.

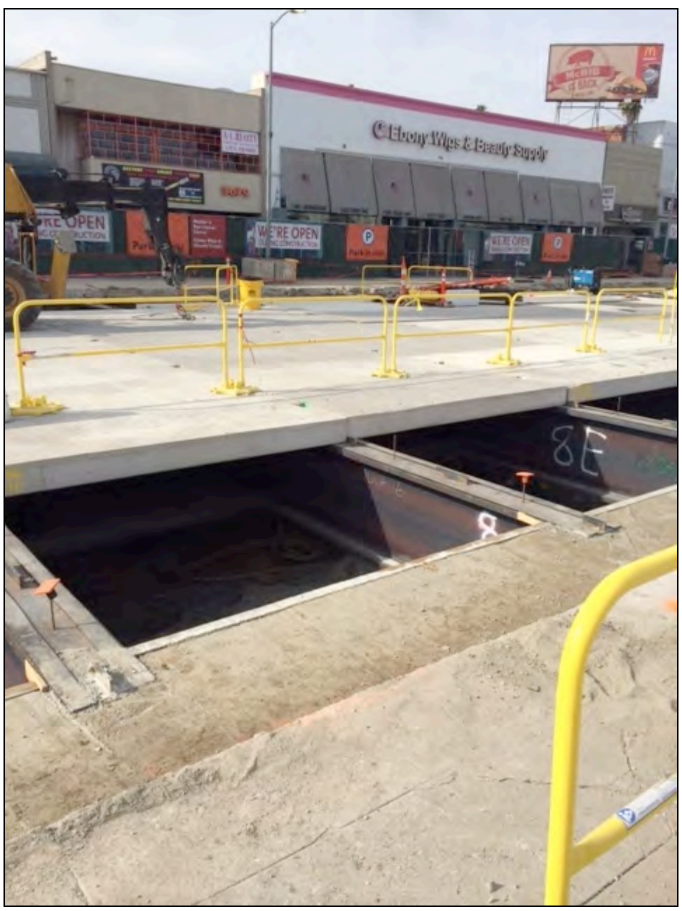
## Figure 4.19-9: Example of In-Street Excavation


Source: Metro, 2015.

### Figure 4.19-10: Example of Tunnel Portal Beam Installation

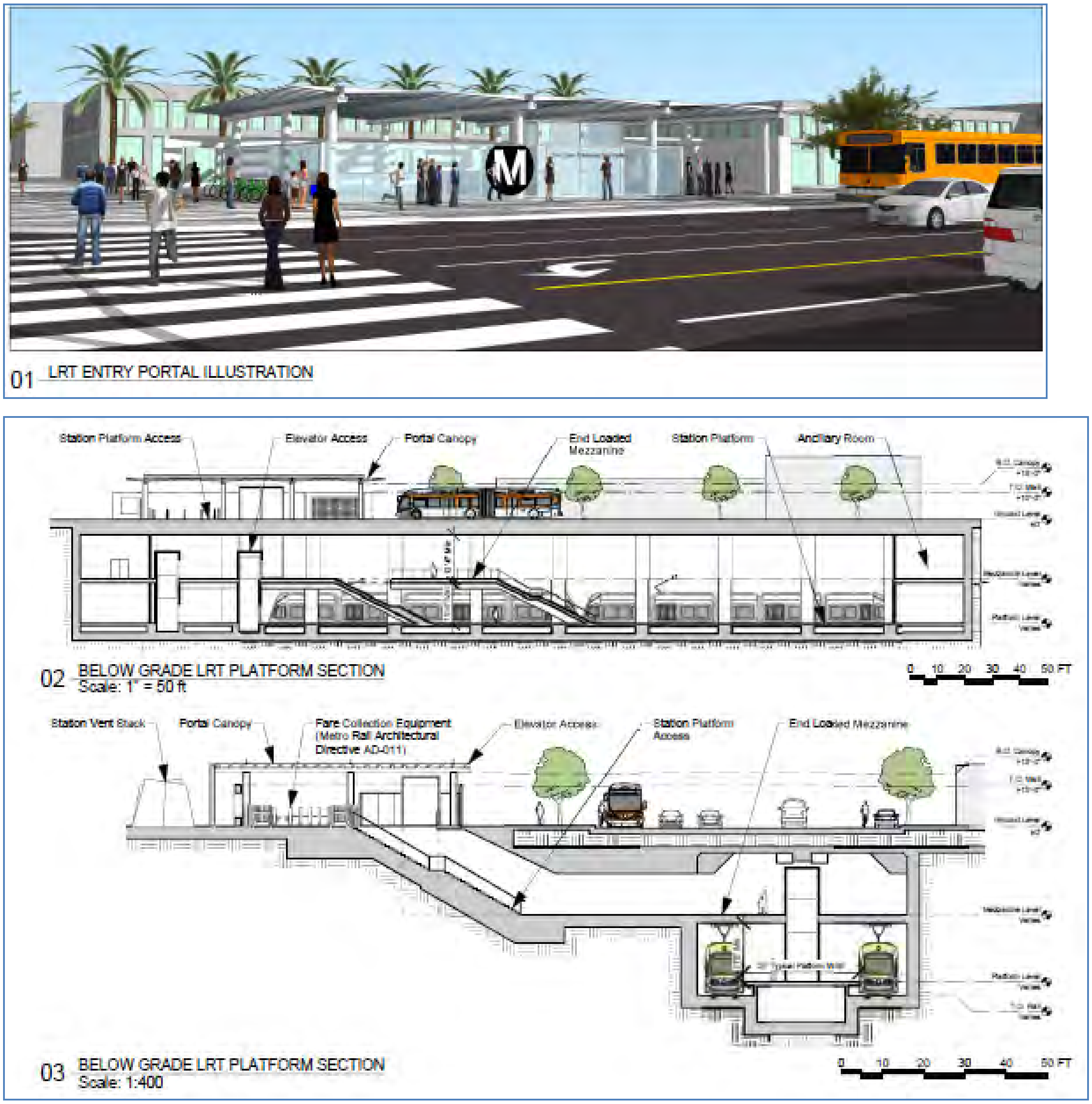
Source: Metro, 2015.

### Figure 4.19-11: Example of Tunnel Portal Decking




Source: Metro, 2015.

## Figure 4.19-12: Alternative 4 (Typical Below-Grade LRT Station)




Source: Metro, John Kaliski Architects, 2014.

The entry plaza would be approximately 150 feet long and 90 feet deep and contain centrally placed and approximately 100 feet long by 60 feet wide entry structures rising to a height of approximately 15 feet. Each plaza would also contain landscape planting, and bicycle racks and/or storage. The entry portals would be covered with canopies, and the entry areas would contain ticket vending machines, video message signs, and route maps. The entry portals would provide access to stairs, escalators, and elevators leading to an underground LRT station mezzanine level, which, in turn, would be connected via additional stairs, escalators, and elevators to the underground LRT station platforms that would be 28 feet wide.

## Subway Construction

The subway portion of the alignment would be constructed using cut-and-cover techniques or a tunnel boring machine, or a combination of both. The method will be determined by the construction contractor, who will take into consideration a number of factors in determining which method would be the most appropriate for the subway portion of the LRT alignment. Each method is described in greater detail below. The descriptions below are based on information presented in the *Construction Methods Report* (March 2012) prepared for the Final EIS/EIR for the Westside Extension Project.

### Cut-and-Cover

Cut-and-cover construction generally begins with the installation a system of temporary shoring to support the excavation in which the permanent structure would be constructed with temporary decking above the excavation. The temporary shoring, which would also be designed to support loads from adjacent building foundations, would be constructed in stages, first one side of the excavation and then the other. Soldier piles and timber lagging is a shoring method that has been used successfully on previous Metro projects. Soldier piles are steel beams that are concreted into pre-drilled holes, which carry the loads from the timer lagging placed against the excavated earth surface. Large steel struts would support the soldier piles. For typical on-street station construction, the top six to 12 feet of soil below the existing roadway would be removed and a decking would be installed across the roadway. The typical concrete decking would be flush with the existing street level so that traffic can continue to flow. Once the temporary shoring has been constructed and decking has been installed, excavation commences inside the area supported by the shoring and below the decking. Utilities are supported from the steel beams as the soil is excavated around them. At subway station areas, the station box structure would be built within the excavated space, backfilled up to the surface or street level, and surface restored. Typical off-street station construction involves a similar process; however, the decking is not required and the area would remain uncovered to provide access at these locations.

The excavated soils or soils would be moved to an off-street work site or closed parking/traffic lane and loaded into haul trucks. The estimated volume of to be excavated would total approximately 1,539,722 cubic yards. Assuming the use of 15-cubic-yard haul trucks, and 10-cubic-yard haul trucks at restricted locations, the total number of haul truck loads would range from approximately 102,648 to 153,972 or an estimated 112 to 169 trucks per day on average.

Contaminated soils would be separated as soon as they are identified during excavation, and would also be separated into temporary stockpiles. The soils would be handled, transported, and disposed of in accordance with all applicable regulations.

Excavated materials may be hauled at night, where possible, due to the congested freeways and surface streets around or near the excavation sites during daytime hours. The contractor would develop an excavation plan that defines haul routes, dust control, sweeping, and disposal sites.

### Tunnel Boring

Under this scenario, excavation of the tunnel would be conducted using a tunnel boring machine (TBM). A TBM is a large machine that bores a circular tunnel by excavating rock and soil and installing precast concrete segments to support the ground around the tunnel opening. There are two classes of TBMs, hard rock and soft ground. Soft-ground TBMs are further divided into pressurized – face machines and no-pressurized face machines. Pressurized-face machines provide much better control of ground settlement and the ingress of ground water and gas into the tunnel. The appropriate TBM will be determined based on the results of further geotechnical investigations of subsurface conditions. Under this alternative, two circular tunnels approximately 20 to 21 feet in diameter would be constructed.

One of the three subway stations would be excavated first so it's ready to receive the TBM(s). A slurry processing plant and other TBM support facilities would be constructed on a laydown and storage site at the station so that they are ready to support delivery of the TBMs. Excavation of a TBM retrieval shaft would follow excavation at the station site that would receive the TBM. Use of the TBM(s) may require that they be removed through the retrieval shaft, and returned by road to station excavation site, where they would be reassembled and used to excavate the remaining portion of the tunnel.

As the TBM bores the tunnel, excavated materials (spoils) would be moved to the rear of the TBM by a screw conveyor and deposited on a conveyor belt that would then drop the spoils into hoppers-type mine cars that are then taken back to the launching area by a locomotive operating on temporary rail tracks fastened to the bottom of the tunnel. At the shaft, the mine cars are lifted out by crane or hoist, and the material is loaded into trucks or temporarily stockpiled for off-site disposal. Alternatively, belt conveyor or pipe systems could be used to transport spoils through the tunnel and from the shaft to the surface. Depending on the type of TBM, the spoils may need to undergo partial treatment before being loaded onto trucks for disposal.

For a typical tunnel excavation, boring two tunnels at approximately 20 feet per 10-hour shift, the rate of spoil removal would be approximately 75 loose CY per hour, or approximately 5 trucks per hour, or 1 truck every 10 to 12 minutes. With temporary stockpiling of spoils on the site, the hauling could be partially deferred to nights and weekends.

Once a tunnel is clear of tunneling equipment, excavation and construction of tunnel cross-passages, tunnel invert, and walkways would commence.

Construction of the subway station structures would commence as soon as the tunnel work is completed, or when access to the tunnels through a particular station location is no longer required. Once the subway station structure is fully enclosed, the excavation above the station would be backfilled, station appendages would be constructed, and the street decking would be removed. Track work and support facilities (OCS) could then be installed.

## Construction of Support Systems and Finish Work

Construction activities associated with this phase would be the same as those described for the BRT alternatives above and would include installation of other surface-level system elements (mechanical, signals etc.) This could also include installation of communication systems, traffic signals, traffic control system installation, street lighting, landscaping, signing, and striping, closure of detours, cleanup activities, and testing of systems. With regards to traffic signals, the Low-Floor LRT/Trams would be controlled by the traffic signals that govern vehicular traffic on Van Nuys Boulevard. Every traffic signal on Van Nuys Boulevard would be modified to provide for Low-Floor LRT/Tram signals.

## Construction Schedule

Under this alternative, the duration of construction is estimated to be approximately 5 years. The construction period would be longer than for the Low-Floor LRT/Tram Alternative because of the subway segment of the alternative.

The approximate time frames under this alternative for each of the general construction phases are presented below. As discussed above for the other alternatives, these are rough estimates and are likely to vary based on conditions in the field. The phases are likely to overlap to some degree and the sequence of construction activities may also vary.

- Preconstruction and Site Preparation 0 to 6 months
- Construction of Transit Structures and Infrastructure 48-60 months
- Construction of Support Systems and Finish Work. 48-60 months

Also, similar to the other alternatives, project construction would typically take place between the hours of 7 a.m. and 9 p.m. within the City of Los Angeles, in accordance with the Los Angeles Municipal Code Section 41.40(a) and 7 a.m. and 6 p.m. within the City of San Fernando, in accordance with San Fernando City Code Section 34-28(10). Construction activities would be minimized during weekday AM and PM peak hours (typically 7 to 9 a.m. and 4 to 6 p.m.). Nighttime construction for tunnel excavation may be required and truck hauling of spoils may be required at night to avoid congested surface streets and highways.

## 4.19.3 Environmental Consequences, Impacts, and Mitigation Measures

### 4.19.3.1 No-Build Alternative

Under the No-Build Alternative, no new transportation infrastructure would be built within the project study area, aside from projects that are currently under construction or funded for construction and operation by 2040. Because the No-Build Alternative would not propose new construction, it would not result in any construction effects or impacts.

#### Construction Mitigation Measures

No construction mitigation measures are required.

#### Impacts Remaining after Mitigation

##### NEPA Finding

No effects would occur.

##### CEQA Determination

No impacts would occur under the No-Build Alternative.

### 4.19.3.2 Transportation Systems Management Alternative (TSM)

#### Land Use

Construction activities under the TSM Alternative would be minimal, limited to installation of new bus stops and signage and possibly minor roadway improvements. Typical construction methods would be used for the minor bus stop and roadway improvements. Bus stops and other minor roadway improvements would be constructed within the existing public street right-of-way; however, extended street or lane closures would be unnecessary, and mobility would not be substantially reduced during construction. Construction activities would not divide an established community. The minor construction activities that would occur under this alternative would not be inconsistent with local plans or incompatible with existing land uses.

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

No adverse effects would occur.

#### *CEQA Determination*

No adverse impacts would occur.

## Real Estate and Acquisitions

The TSM alternative would consist primarily of transportation system upgrades, such as increased bus efficiencies and service and minor physical improvements to existing roadways and bus stops. Construction of the physical improvements would not require any property acquisitions or result in displacement of existing uses. Therefore, no adverse impacts or effects associated with displacements or relocations would occur.

### Construction Mitigation Measures

No construction mitigation measures would be required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

No adverse effects would occur.

#### *CEQA Determination*

No impacts would occur.

## Economic and Fiscal Impacts

The TSM Alternative would require no parcel acquisitions and consequently construction would result in no adverse economic or fiscal impacts or effects.

The estimated cost to construct the relatively minor physical improvements (e.g., bus stop improvements and minor modifications to the roadway network including traffic signal improvements) proposed under the TSM Alternative is $8.6 million. The TSM Alternative would generate an estimated 111 jobs based on this estimated construction cost. Of these jobs, 66 would be generated directly by construction and 19 would be generated indirectly. An additional 26 jobs would be induced through increased household spending by direct and indirect employees.

Total labor income for the TSM Alternative would be about $6.8 million, with $4 million of this being the result of direct construction impacts. Labor income for jobs created via indirect impacts would be about $1.4 million. Labor income for induced jobs would also be about $1.4 million.

Total output for this alternative would be just over $16 million, $8.6 million of which would be generated directly by construction. Output generated by indirect impacts amounts to about $3.7 million. Induced impacts of construction could generate nearly $3.8 million of output.

The TSM Alternative would generate an estimated $8.5 million in value added, with about $4.1 million resulting from the direct impacts of construction. Indirect impacts would generate an estimated $2.1 million in value added. Induced value added would amount to about $2.4 million.

### Construction Mitigation Measures

None required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

No adverse effects would occur.

#### *CEQA Determination*

The TSM Alternative would not adversely affect the economic and fiscal health of communities in the project area beyond minor disruption associated with construction, which can be mitigated. The TSM Alternative would not result in any significant direct, indirect, or cumulative impacts. The TSM Alternative offers modest mobility improvements relative to the baseline but less than the build alternatives as it does not have a dedicated right-of-way (ROW). It also would not serve as a catalyst for economic revitalization to the extent of the build alternatives.

## Communities and Neighborhoods

The TSM Alternative may include minor bus stop and roadway improvements. Given the very limited extent of potential physical improvements, construction activities would likely have no or very minimal impacts on any nearby communities and neighborhoods.

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects under NEPA would not be adverse or would be beneficial.

#### *CEQA Determination*

Impacts under CEQA would be less than significant or beneficial.

## Visual Qualities and Aesthetics

The TSM Alternative may include minor bus stop and roadway improvements. Given the very limited extent of potential physical improvements, construction activities would likely have no or very minimal impacts on visual and aesthetic resources.

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

No effects or no adverse effects would occur under NEPA.

#### *CEQA Determination*

No or less-than-significant impacts would occur under CEQA.

## Air Quality

Bus service enhancements anticipated to occur under the TSM Alternative would not require construction of a new, or expansion of an existing, bus maintenance facility and no substantial physical improvements would be constructed. Consequently, no or very minor amounts of criteria pollutant emissions or toxic air contaminant emissions would be generated. No significant or substantial adverse construction-related impacts under CEQA or NEPA would occur as result of the TSM Alternative.

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

No effects or no adverse effects would occur under NEPA.

#### *CEQA Determination*

No or less-than-significant impacts would occur under CEQA.

## Climate Change

The TSM Alternative may include minor physical improvements to bus stops and roadways; consequently, there would be no or very minor construction-related GHG emissions.

### Construction Mitigation Measures

No construction mitigation measure would be required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

## Noise and Vibration

The TSM Alternative would include relatively low-cost transit service improvements such as increased bus frequencies, or very minor improvements to bus stops and the roadway network. Because proposed physical improvements would only require light construction equipment and any construction would be of very short duration, no adverse construction noise or vibration impacts are expected to occur under the TSM Alternative.

### Construction Mitigation Measures

No noise or vibration mitigation measures are required or recommended for the TSM Alternative.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

No adverse noise or vibration effects would occur.

#### *CEQA Determination*

No noise or vibration impacts would occur

## Geology and Soils

The TSM Alternative would consist of cost-efficient service improvements and could include minor physical improvements to the roadway network and to bus stops. Given the very limited amount of construction that could occur under this alternative, geological and flooding hazards in the project area are not likely to affect or be affected by construction activities. Therefore, no or very minor impacts/effects would occur during construction.

### Construction Mitigation Measures

No construction mitigation measures would be required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects under NEPA would not be adverse.

#### *CEQA Determination*

Impacts under CEQA would be less than significant.

## Hazardous Waste and Materials

The amount of construction that could occur under this alternative would be very minor and would be generally limited to minor roadway modifications and bus stop amenities/improvements. Consequently, it's unlikely that significant amounts of materials, soil or groundwater containing hazardous materials or wastes would be encountered during construction. Therefore, potential construction impacts would be less than significant under CEQA and would not be adverse under NEPA.

### Construction Mitigation Measures

No construction mitigation measures would be required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects under NEPA would not be adverse.

#### *CEQA Determination*

Impacts under CEQA would be less than significant.

## Energy

The TSM Alternative would consist of relatively low-cost transit service improvements, such as increased bus frequencies, and minor physical improvements. Construction activities that would occur under the TSM Alternative would be limited to minor roadway modifications and bus stop enhancements. As such, construction would require minimal amounts of energy and construction activities would comply with the Metro Green Construction Policy. No buildings subject to energy standards required by Title 24 of the California Code of Regulations would be constructed under the TSM Alternative. Construction impacts on energy would be less than significant under CEQA and non-adverse under NEPA.

### Construction Mitigation Measures

No mitigation measures would be necessary.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

## Ecosystems and Biological Resources

The TSM Alternative proposes transportation systems upgrades, which may include relatively low-cost transit service improvements and minor physical improvements that would be limited to the public roadway right-of-way. As a consequence, no or very minor construction impacts or adverse effects would occur.

### Construction Mitigation Measures

No construction mitigation measures would be required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

The TSM Alternative would not result in adverse effects under NEPA.

#### *CEQA Determination*

The TSM Alternative would result in less than significant impacts under CEQA.

## Hydrology and Water Quality

Any construction activities required under the TSM Alternative would be minimal (e.g., construction of bus stop amenities, signage, and minor roadway improvements); therefore, no or very minor construction impacts/effects would occur.

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

No adverse effects would occur.

#### *CEQA Determination*

Less than significant impacts would occur.

## Safety and Security

The TSM Alternative could include minor physical improvements; as a consequence, construction activities would be limited in scope and duration. When construction activities would occur, all construction sites and equipment would be secured to prevent tampering and vandalism, and all applicable Metro guidelines pertaining to construction sites would be followed. As required by the City of Los Angeles Bureau of Engineering Master Specifications, the contractor would be required to keep all equipment, field offices, storage facilities, and other facilities free of graffiti. Any graffiti would be painted over, masked, or cleaned off within 24 hours after notification by the inspector. Therefore, construction impacts/effects would be minor, and no significant or substantial adverse impacts/effects would occur.

### Construction Mitigation Measures

No construction mitigation measures would be required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse.

#### *CEQA Determination*

Impacts would be less than significant.

## Parklands and Community Facilities

The TSM Alternative may include minor bus stop and roadway improvements. Given the very limited extent of potential physical improvements, construction activities would likely have no or very minimal impacts on any nearby parklands and community facilities.

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects under NEPA would not be adverse or would be beneficial.

#### *CEQA Determination*

Impacts under CEQA would be less than significant or beneficial.

## Environmental Justice

The TSM Alternative may include minor bus stop and roadway improvements as well as operational enhancements to the existing bus system. Given the very limited extent of potential physical improvements, construction activities would likely have no or very minimal impacts on the social, economic, and physical conditions of the communities and neighborhoods in the project study area.

These minor temporary effects are anticipated to affect all communities within the project study area comparably, regardless of the block groups' socioeconomic or demographic characteristics. Therefore, the TSM Alternative would not result in disproportionately high and adverse effects on minority and low-income populations with respect to construction.

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

No adverse effects under NEPA would occur.

#### *CEQA Determination*

There are no thresholds of significance in CEQA for environmental justice impacts. Therefore, no CEQA determination can be made for environmental justice impacts resulting from this alternative.

## Growth-Inducing Impacts

The TSM Alternative would consist primarily of low-cost transit service improvements. Physical improvements to the transportation network would be minor. Therefore, construction activities associated with this alternative would be minimal and no growth inducement impacts would occur as result.

### Construction Mitigation Measures

No construction mitigation measures are required.

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

Effects would not be adverse.

##### *CEQA Determination*

Impacts would be less than significant.

### 4.19.3.3 Build Alternative 1 – Curb-Running Bus Rapid Transit Alternative

## Land Use

#### Division of an Established Community

Construction of Alternative 1 would require temporary road, lane, and sidewalk closures, which would reduce pedestrian and vehicle mobility and access within and between local communities throughout the study area. However, these closures would be temporary and are not expected to substantially divide or diminish access to existing communities or neighborhoods. Additionally, implementation of a Traffic Management Plan and a Construction Phasing and Staging Plan would further reduce the disruption caused by construction activities and access to businesses and residential areas would be maintained to the extent feasible. Therefore impacts/effects would be less than significant under CEQA and non-adverse under NEPA.

#### Conflicts with Local Land Use Plans

Construction activities would be conducted in compliance with local land use plans and codes. Project construction would typically take place between the hours of 7 a.m. and 9 p.m. within the City of Los Angeles, in accordance with the Los Angeles Municipal Code and between 7 a.m. and 6 p.m. within the City of San Fernando, in accordance with the San Fernando City Code. Municipal Code requirements. However, some construction may be required during nighttime hours. If it is necessary for construction to occur outside of these hours, Metro may seek a variance from Municipal Code requirements. In accordance with San Fernando City Code Section 34-28(10), noise sources associated with construction, repair, remodeling or grading of any real property would be allowed up to 70 decibels (dB) measured at the property line, provided such activities do not take place between the hours of 6:00 p.m. and 7:00 a.m. on weekdays and 6:00 p.m. and 8:00 a.m. on Saturdays, or at any time on Sundays or on federal holidays. Construction activities would be minimized during weekday AM and PM peak traffic periods (typically 7 to 9 a.m. and 4 to 6 p.m.). Therefore, substantial conflicts with local land use plans during the construction period are not expected to occur and impacts/effects would be less than significant under CEQA and non-adverse under NEPA.

#### Incompatibility with Adjacent and Surrounding Land Uses

Construction activities along the alignment would result in temporary nuisance impacts (e.g., noise, air quality impacts) on nearby land uses. Construction noise would result from the use of heavy equipment during construction activities, such as excavation, grading, ground clearing, and installing foundations and structures, as well as from trucks hauling materials to and from the construction areas. Air quality impacts would result from the generation of fugitive dust during ground disturbing activities, and from the operation of heavy-duty, diesel-fueled equipment, such as bulldozers, trucks, and scrapers. Additionally, construction staging areas would be established near the project alignment and used for equipment and material storage. The staging areas would be located within the right-of-way, parking lots, or on vacant land and would not require land from adjacent properties. No land acquisitions would be required for construction staging areas. Nonetheless, activities at the construction staging areas, similar to other construction activities along the alignment, would result in nuisance impacts on nearby sensitive land uses. Where temporary construction impacts on nearby land uses are determined to be significant (e.g., noise impacts), the land use incompatibility impacts would also be considered to be significant. Therefore, impacts/effects would be potentially significant under CEQA and potentially adverse under NEPA.

#### Construction Mitigation Measures

Please see other sections (e.g., 4.8 Noise and Vibration, 4.6 Air Quality) for measures to mitigate potentially significant adverse construction impacts on sensitive land uses near proposed construction. Specifically, Mitigation Measures MM-NOI-1a through MM-NOI-1d would require development of a Noise Control Plan, public notification of construction schedules, scheduling most construction activities during the daytime, as much as feasible, and use of methods and equipment that reduces noise, to the extent practicable. In addition, Mitigation Measure MM-VIB-1 also specifies use of equipment and methods to reduce vibration impacts. Mitigation Measures MM-AQ-1 through MM-AQ-6 would require that the construction contractor limit vehicle trips, idling of heavy equipment, and use of methods and equipment that reduces potential emissions and pollutants, to the extent feasible,

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

The effects would not be adverse under NEPA.

##### *CEQA Determination*

Construction impacts would be less than significant after mitigation.

### Real Estate and Acquisitions

Alternative 1 would not require the permanent acquisition of any property within the study area because it would involve primarily dedication of the existing curb lanes to bus service. No new facilities beyond bus stop improvements would be required. All improvements associated with Alternative 1 would take place within the existing transportation ROW. Therefore, no impacts associated with acquisitions of property would occur under Alternative 1.

#### Construction Mitigation Measures

No construction mitigation measures would be required.

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

No adverse effects would occur.

##### *CEQA Determination*

No impacts would occur.

## Economic and Fiscal Impacts

Alternative 1 – Curb-Running BRT would require no parcel acquisitions. Other than potential minor economic impacts on local businesses due to reduced visibility (due to sign blockage) and diminished access resulting from temporary sidewalk or lane closures, loss of on-street parking during construction, and permanent removal of on-street parking to accommodate the Alternative 1 alignment, no adverse fiscal and economic impacts would occur.

The construction costs for Alternative 1 are estimated at $260.0 million. Alternative 1 would generate an estimated 3,368 jobs. Of these jobs, an estimated 2,000 would be generated directly by construction and 577 would be generated indirectly.

Total labor income for Alternative 1 would be about $206.6 million, with $120.8 million of this being the result of direct construction impacts. Labor income for jobs created via indirect impacts would be about $43.4 million.

Total economic output for this alternative would be about $486.8 million, $259.8 million of which would be generated directly by construction. Output generated by indirect impacts would amount to approximately $112.7 million. Induced impacts of construction would generate nearly $114.3 million of output.

Alternative 1 would generate about $257.7 million in value added, with about $123.4 million coming from direct impacts of construction. Indirect impacts would generate approximately $62.2 million in value added. Induced value added would amount to about $72.1 million.

### Construction Mitigation Measures

None required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Potential effects would not be adverse.

#### *CEQA Determination*

The Curb-Running BRT alternative would not significantly affect the economic and fiscal health of communities in the project area beyond the temporary disruption associated with construction, which can be mitigated. The Curb-Running BRT alternative offers much greater mobility benefits than the TSM and No-Build Alternatives. The Curb-Running BRT alternative also may provide marginal increased development resulting from improved mobility along the corridor. This BRT alternative would not result in any significant direct, indirect, or cumulative impacts and would provide travel time and mobility improvements.

## Communities and Neighborhoods

### Mobility and Access Impacts

Under Alternative 1, the Curb-Running BRT Alternative, construction of stations and the alignment would require temporary sidewalk, lane, and possibly road closures, and temporary removal of parking on Van Nuys Boulevard, San Fernando Road, Truman Street, and their cross streets. These closures could reduce pedestrian, bicycle, and vehicle mobility between communities and neighborhoods along the project corridor during construction.

Road and sidewalk closures, along with the addition of construction vehicles and equipment on primary streets in the Cities of Los Angeles and San Fernando, could also reduce public access to annual festivals and events in the various communities along the alignment. In addition, construction could disrupt traffic patterns and make public access to businesses and community resources more difficult. Lane closures, traffic detours, and designated truck routes associated with construction could also result in decreased access for emergency vehicles and delayed response times for emergency services.

Lane and/or road closures would be scheduled to minimize disruptions, and a Traffic Management Plan (TMP) would be approved in coordination with both the Cities of Los Angeles and San Fernando prior to construction. Therefore, mobility and access impacts during construction would not be adverse under NEPA and would be less than significant under CEQA.

### Social and Economic Impacts

Construction of Alternative 1 would not be expected to result in substantial changes to the existing population in the project study area. Because of the temporary nature of construction jobs and given that a substantial employment base currently exists in the San Fernando Valley within commuting distance of the project corridor, employment opportunities that could occur due to construction of this alternative would not result in the migration of a substantial number of residents to the project study area and would not induce permanent substantial population growth in communities and neighborhoods in the project study area.

Construction activities would likely result in a decrease in accessibility to many businesses and result in the loss of on-street or off-street parking within construction zones. This could negatively affect business activity levels because the number of customers may temporarily decline. All attempts would be made to provide adequate detours and to minimize road closures; however, some consumers may avoid the area altogether, which could have an indirect effect on businesses within the project area.

The required construction easements (i.e., the areas needed temporarily during construction in addition to the actual project footprint) would vary along the alignment, depending on the type of construction and the adjacent land use. Storage areas for construction equipment and materials would be established near the project alignment and used for equipment and material storage. The storage areas would be located within the right-of-way, parking lots, or vacant lands. No parcels would be acquired for Alternative 1, and no businesses would be displaced for the construction of this alternative. Therefore, social and economic impacts during construction would be non-adverse under NEPA and less than significant under CEQA.

### Physical Impacts

Construction of Alternative 1 would not likely result in changes to land use patterns or physical division of communities because construction would be short-term and would not affect land use designations or introduce barriers that would divide communities. However, construction activities would result in a number of other physical impacts and intrusions, including noise, dust, odors, and traffic delays resulting from haul trucks and construction equipment located on public streets and staging areas. Local neighborhoods, businesses, and community facilities may be inconvenienced temporarily (approximately 18 months), and community activities could be disrupted by these activities.

Construction of Alternative 1 may also result in several visual impacts on viewers within and surrounding the project corridor. Construction areas could be visible from residential land uses on some of the adjacent parcels, either directly through fencing, through entrance gates, or over fencing from second story and higher windows. Construction activities may include the use of considerable heavy equipment such as cranes and associated vehicles, including bulldozers, backhoes, graders, scrapers, and trucks, which could be visible from public streets, sidewalks, and adjacent properties.

Viewers in the construction area may be affected by the presence of this equipment, as well as stockpiled construction-related materials. In addition, mature vegetation, including trees, could be temporarily removed from some areas. Construction impacts associated with noise, air quality, visual quality/aesthetics, and traffic could be reduced or minimized through construction management and abatement measures.

Construction of Alternative 1 could also have temporary effects on public safety and security within the project study area. During construction, motorists, pedestrians, and bicyclists would be exposed to additional safety hazards because of proximity to construction activities. The potential for safety and security impacts would be minimized by compliance with Occupational Safety and Health Administration (OSHA), California Occupational Safety and Health Administration (Cal/OSHA), and Metro safety and security programs, which are designed to reduce potential construction impacts. In addition, an adequate level of signage, construction barriers, and supervision of trained safety personnel would be implemented during the construction phase to ensure that pedestrian and motorist safety is maintained during construction.

Incidents of crime adjacent to the project alignment would not likely increase during construction of Alternative 1. Theft of construction machinery and materials could occur at construction sites, but these incidents would be minimized through implementation of standard site security practices.

Alternative 1 would result in significant impacts under CEQA, during construction. The reader is referred to the air quality section of this chapter for more information on the significance and extent of these potential physical impacts.

### Construction Mitigation Measures

The reader is referred to the following sections in this DEIS/DEIR for mitigation measures to reduce or avoid potential construction and operational impacts on communities and neighborhoods: Chapter 2-Transportation, Transit, Circulation, and Parking; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security. These measures include requirements to maintain access to businesses and residences within the adjacent neighborhoods and communities, detours, design and location of project elements to avoid obstructing views to and from the community, requirements for use of equipment and methods to reduce air quality emissions, attenuation of noise and vibration impacts to the extent feasible by use of alternate equipment or methods, or use of noise and vibration reducing track, and coordination with public safety and transit providers to ensure adequate access for emergency response to these communities and neighborhoods. During project operation and construction, these measures would minimize direct impacts that could adversely affect the quality of the human environment within the communities and neighborhoods of the study area

### Impacts Remaining after Mitigation

#### *NEPA Finding*

The potential operational effects on bicycle access and safety would be adverse after mitigation. All other effects would not be adverse.

#### *CEQA Determination*

The potential operational impacts on bicycle access and safety would be significant after implementation of proposed mitigation measures. All other impacts would be less than significant.

## Visual Qualities and Aesthetics

Construction of Alternative 1 could result in temporary visual impacts within and surrounding the project corridor. Construction areas would be visible to all viewer groups from areas within and adjacent to the project corridor, including residential and recreational areas. Construction activities in staging areas and at proposed stations may include the use of large equipment such as cranes and associated vehicles, including bulldozers, backhoes, graders, scrapers, and trucks, which could be visible from public streets, sidewalks, and adjacent properties.

Viewers in the construction area may be affected by the presence of this equipment, as well as stockpiled construction-related materials. In addition, mature vegetation, including trees, may need to be temporarily or permanently removed from some areas.

The construction impacts under Alternative 1 could be potentially adverse under NEPA and significant under CEQA.

### Construction Mitigation Measures

**MM-VIS-1:** Construction staging shall be located away from residential and recreational areas, and shall be screened to minimize visual intrusion into the surrounding landscape. Lighting within construction areas shall face downward and shall be designed to minimize spillover lighting into adjacent properties.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

The potential construction effects on visual and aesthetic resources would be minor and adverse after implementation of proposed mitigation measures.

#### *CEQA Determination*

The potential construction impacts on visual and aesthetic resources would be less than significant after implementation of proposed mitigation measures.

## Air Quality

Project construction under Alternative 1 would result in the short-term generation of criteria pollutant emissions. Emissions would include: (1) fugitive dust generated from curb/pavement demolition, site work, and other construction activities; (2) hydrocarbon (ROG) emissions related to the application of architectural coatings and asphalt pavement; (3) exhaust emissions from powered construction equipment; and (4) motor vehicle emissions associated with construction equipment, worker commute, and debris-hauling activities.

During construction, the proposed project would be subject to SCAQMD Rule 403 (Fugitive Dust). SCAQMD Rule 403 does not require a permit for construction activities, per se, but rather sets forth requirements for all construction sites (as well as other fugitive dust sources) in the Basin. In general, Rule 403 prohibits a project from causing or allowing emissions of fugitive dust from construction (or other fugitive dust source) to remain visible in the atmosphere beyond the property line of the emissions source.

The total amount of construction, the duration of construction, and the intensity of construction activity would have a substantial affect on the amount of daily construction pollutant emissions, pollutant concentrations, and the resulting impacts occurring at any one time. As such, the emission forecasts provided herein reflect a specific set of conservative assumptions based on the expected construction scenario wherein a relatively large amount of construction would occur in a relatively intensive manner. Because of these conservative assumptions, actual emissions could be less than those forecasted. For example, if construction is delayed or occurs over a longer time period, emissions would be reduced because of: (1) a more modern and cleaner burning construction equipment fleet mix, and/or (2) a less intensive build-out schedule (i.e., fewer daily emissions occurring over a longer time interval).

For the purpose of this impact analysis, Alternative 1 construction assumes an 18-month construction-period, for air quality emissions estimating purposes. However, it should be noted that work would generally proceed in a linear sequence so most locations would be affected for a shorter period than 18 months. Combustion exhaust and fugitive dust ($PM_{10}$ and $PM_{2.5}$) mass emissions were estimated using the SCAQMD-recommended CalEEMod, version 2013.2.2. Detailed construction equipment use assumptions (quantity and use hours), among other assumptions, are documented in the CalEEMod modeling output sheets provided in the appendix to the Air Quality Technical Report (see Appendix L). Fugitive $PM_{10}$ and $PM_{2.5}$ emissions estimates take into account compliance with SCAQMD Rule 403. The same assumptions of construction equipment and use of CalEEMod were also used for estimating construction emissions for all build alternatives, with only the length of the construction period and soil estimates differing per alternative. Construction-period emissions anticipated to occur under Alternative 1 are discussed below.

### Criteria Pollutant Emissions

The estimate of construction-period regional mass emissions is shown in Table 4.19-4. As shown in the table, regional emissions are not expected to exceed the SCAQMD regional emissions thresholds. Impacts would be less than significant under CEQA and non-adverse under NEPA.

With respect to local impacts, SCAQMD has developed a set of local mass emission thresholds to evaluate localized impacts. According to SCAQMD, only those emissions that occur on site are to be considered in the localized significance threshold (LST) analysis. Consistent with SCAQMD LST evaluation guidelines, emissions related to haul truck and employee commuting activity during construction are not considered in the evaluation of localized impacts. As shown in Table 4.19-5, localized $PM_{10}$ and $PM_{2.5}$ emissions during construction would exceed local thresholds. As such, short-term local mass emissions would be significant under CEQA and adverse under NEPA prior to implementation of mitigation measures.

#### Table 4.18-4: Alternative 1 – Estimated Worst-case Regional Construction Mass Emissions (pounds per day)

| Construction Year/Facility | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| **Year 2017** | | | | | | |
| Roadway Improvements, Sidewalks/Curbs, and Stations | 6 | 63 | 49 | <1 | 10 | 6 |
| **Year 2018** | | | | | | |
| Roadway Improvements, Sidewalks/Curbs, and Stations | 39 | 56 | 46 | <1 | 10 | 6 |
| Maximum Daily Emissions | 39 | 63 | 49 | <1 | 10 | 6 |
| Regional Construction Threshold | 75 | 100 | 550 | 150 | 150 | 55 |
| Exceed Thresholds? | No | No | No | No | No | No |
| Source: CalEEMod emissions modeling by ICF International 2015. | | | | | | |

### Table 4.19-5: Alternative 1 – Estimated Maximum Localized Construction Mass Emissions (pounds per day)

| Construction Phase | $NO_X$ | CO | $PM_{10}$[a] | $PM_{2.5}$[a] |
|---|---|---|---|---|
| Median Improvements, Sidewalks/Curbs, and Stations | 63 | 49 | 10 | 6 |
| Localized Significance Thresholds [b] | 80 | 498 | 4 | 3 |
| Exceed Thresholds? | No | No | Yes | Yes |

[a] $PM_{10}$ and $PM_{2.5}$ emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).

Source: CalEEMod emissions modeling by ICF International 2015.

#### Toxic Air Contaminant Emissions (TAC)

With respect to construction-period impacts, the greatest potential for TAC emissions would be related to DPM emissions associated with heavy equipment operations during project construction. Construction activities associated with the project would be sporadic, transitory, and short term in nature. The assessment of cancer risk is typically based on a 70-year exposure period; however, Alternative 1 construction is anticipated to have a duration of approximately 18 months. Because exposure to diesel exhaust would be well below the 70-year exposure period, project construction is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, project-related toxic emission impacts during construction would be less than significant under CEQA and non-adverse under NEPA.

#### Construction Mitigation Measures

The following measures are prescribed and shall be implemented to reduce short-term construction emissions that exceed SCAQMD significance thresholds:

**MM-AQ-1 (All Build Alternatives)**: Construction vehicle and equipment trips and use shall be minimized to the extent feasible and unnecessary idling of heavy equipment shall be avoided.

**MM-AQ-2 (All Build Alternatives):** Solar powered, instead of diesel powered, changeable message signs shall be used.

**MM-AQ-3 (All Build Alternatives):** Electricity from power poles, rather than from generators, shall be used where feasible.

**MM-AQ-4 (All Build Alternatives):** Engines shall be maintained and tuned per manufacturer's specifications to perform at EPA certification levels and to perform at verified standards applicable to retrofit technologies. Periodic, unscheduled inspections shall be conducted to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.

**MM-AQ-5 (All Build Alternatives):** Any tampering with engines shall be prohibited and continuing adherence to manufacturer's recommendations shall be required.

**MM-AQ-6 (All Build Alternatives):** New, clean (diesel or retrofitted diesel) equipment meeting the most stringent applicable federal or state standards shall be used and the best available emissions control technology shall be employed. Tier 4 engines shall be used for all construction equipment. If non-road construction equipment that meets Tier 4 engine standards is not available, the Construction Contractor shall be required to use the best available emissions control technologies on all equipment.

**MM-AQ-7 (All Build Alternatives):** EPA-registered particulate traps and other appropriate controls shall be used where suitable to reduce emissions of diesel particulate matter (PM) and other pollutants at the construction site.

### Impacts Remaining after Mitigation

With the implementation of the mitigation measures identified above, construction emissions under Alternative 1 would be reduced, but would exceed the LSTs for $PM_{10}$ and $PM_{2.5}$, as shown in Table 4.19-6. Based on the reduction of emissions, effects under NEPA would not be adverse. However, based on the emissions of $PM_{10}$ and $PM_{2.5}$ exceeding the LSTs, impacts would remain significant under CEQA after the implementation of proposed mitigation measures.

#### *NEPA Finding*

Construction effects would not be adverse under NEPA after the implementation of mitigation measures.

#### *CEQA Determination*

Construction impacts under Alternative 1 would be significant under CEQA after the implementation of mitigation measures, and thus would require Metro to adopt a Statement of Overriding Considerations for approval of this alternative.

**Table 4.19-6: Alternative 1 – Estimated Mitigated Maximum Localized Construction Mass Emissions (pounds per day)**

| Construction Activity | $NO_X$ | CO | $PM_{10}$[a] | $PM_{2.5}$[a] |
|---|---|---|---|---|
| Median Improvements, Sidewalks/Curbs, and Stations | 14 | 31 | 8 | 4 |
| Localized Significance Thresholds [b] | 80 | 498 | 4 | 3 |
| Exceed Thresholds? | No | No | Yes | Yes |

[a] $PM_{10}$ and $PM_{2.5}$ emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.
[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).
Source: CalEEMod emissions modeling by ICF International 2015.

## Climate Change

Construction activities under Alternative 1 would involve roadway and sidewalk modifications as well as the installation of canopies at stops. These activities would result in the emission of approximately 1,280 metric tons of $CO_2e$ over the course of the construction period. Consistent with SCAQMD-recommended methodology, construction-period emissions were amortized over a 30-year period, resulting in an annual equivalent of approximately 43 metric tons of $CO_2e$.

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

## Noise and Vibration

The construction of the Curb-Running BRT Alternative would require the use of heavy earthmoving equipment, pneumatic tools, generators, concrete pumps, and similar equipment. Project construction would typically take place between the hours of 7 a.m. and 9 p.m. within the City of Los Angeles, in accordance with the Los Angeles Municipal Code and between 7 a.m. and 6 p.m. within the City of San Fernando, in accordance with the San Fernando City Code.

Actual construction noise levels would depend on means and methods decided upon by the contractor, which are not available at this time. The predicted construction noise levels are based on a hypothetical scenario for the purposes of modeling. The predicted noise level from a typical 8-hour work-shift is 86 dBA (8-hour $L_{eq}$) at 50 feet, which is about 15 to 20 decibels higher than the ambient noise level. The NEPA and CEQA significance threshold is construction noise levels exceeding existing ambient noise levels by 10 dBA or more at a sensitive land use. Therefore, the Curb-Running BRT Alternative could result in a significant adverse construction noise impact/effect under CEQA and NEPA.

Many construction activities, such as pavement breaking, and the use of tracked vehicles, such as bulldozers, could result in noticeable levels of ground-borne vibration. These activities would be limited in duration and vibration levels are likely to be well below thresholds for minor cosmetic building damage. However, the predicted vibration levels for equipment that produces the highest levels of vibration, such as a vibratory roller, could exceed the construction vibration NEPA and CEQA significance threshold for non-engineered and timber masonry buildings at a distance of 25 feet. Mitigation measures are proposed for these high-vibration-generating activities.

### Construction Mitigation Measures

Construction noise impacts can be reduced with operational methods, scheduling, equipment choice, and acoustical treatments. The following best-practice noise mitigation measures shall be implemented to minimize annoyance from construction noise:

**MM-NOI-1a:** Specific measures to be employed to mitigate construction noise impacts shall be developed by the contractor and presented in the form of a Noise Control Plan. The Noise Control Plan shall be submitted for review and approval before the beginning of construction noise activities.

**MM-NOI-1b:** The contractor shall adequately notify the public of construction operations and schedules no less than 72 hours in advance of construction through a construction notice with confirmed details and a look-ahead briefing several weeks in advance.

**MM-NOI-1c:** If a noise variance from Section 41.40(a) of the Los Angeles Municipal Code is sought for nighttime construction work, a noise limit shall be specified. The contractor shall employ a combination of the noise-reducing approaches listed in MM-NOI-1d to meet the noise limit.

**MM-NOI-1d:** Where feasible, the contractor shall use the following noise-reducing approaches:

- The contractor shall use specialty equipment with enclosed engines and/or high-performance mufflers.
- The contractor shall locate equipment and staging areas as far from noise-sensitive receivers as possible.
- The contractor shall limit unnecessary idling of equipment.
- The contractor shall install temporary noise barriers to enclose stationary noise sources, such as compressors, generators, laydown and staging areas, and other noisy equipment.
- The contractor shall reroute construction-related truck traffic away from residential buildings to the extent practicable.
- The contractor shall sequence the use of equipment so that simultaneous use of the loudest pieces of equipment is avoided as much as practicable.
- The contractor shall avoid the use of impact equipment and, where practicable, use non-impact equipment. Non-impact equipment could include electric or hydraulic-powered equipment rather than diesel and gasoline-powered equipment where feasible.
- The contractor shall use portable noise control enclosures for welding in the construction staging area.

When feasible, contractor shall use strobe lights or other OSHA-accepted methods rather than back-up alarms during nighttime construction, utilizing **MM-VIB-1:**

Where equipment, such as a vibratory roller, that produces high levels of vibration is used near buildings, the Construction Noise Vibration Control Plan shall also include mitigation measures to minimize vibration impact during construction. Recommended construction vibration mitigation measures that shall be considered and implemented where feasible include:

- The contractor shall minimize the use of tracked vehicles.
- The contractor shall avoid vibratory compaction.
- The contractor shall monitor vibration levels near sensitive receivers during activities that generate high vibration levels to ensure thresholds are not exceeded.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

The noise and vibration from construction of the Curb-Running BRT Alternative would not result in adverse effects after implementation of proposed mitigation measures.

#### *CEQA Determination*

The noise and vibration from the construction of the Curb-Running BRT Alternative would result in a less-than-significant impact with mitigation incorporated.

## Geology and Soils

Potential impacts due to construction of Alternative 1 would be the same as those that would occur as result of a typical construction project and would include avoiding damage to existing utilities and taking measures to prevent undermining of existing structures and reducing potential geologic/soils hazards to construction workers. Compliance with best construction practices and adherence to regulatory requirements would reduce potential risks to existing structures, the public, and construction workers. Therefore, the construction impacts/effects under this alternative would be less than significant under CEQA and non-adverse under NEPA.

### Construction Mitigation Measures

No mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects under NEPA would not be adverse.

#### *CEQA Determination*

Impacts under CEQA would be less than significant.

## Hazardous Waste and Materials

Construction of proposed improvements may encounter hazardous materials during grading and excavation within the ROW. The construction work associated with this alternative would generally be limited to within the upper 5 feet of soil. The environmental site assessment (ESA) indicated that in or adjacent to the project ROW, there are potential instances of leaking underground storage tanks (LUSTs) and hazardous substances from industrial activities. In addition, it is likely that lead and arsenic may have been deposited within the soil along the project alignment and may occur at hazardous levels. Also, as noted above, any yellow thermoplastic paint markings on pavement to be removed may contain lead and other heavy metals such as chromium. The risk of encountering hazardous materials is a potentially significant impact under CEQA and an adverse effect under NEPA. However, these impacts/effects would be eliminated or reduced to less than significant or non-adverse as a result of compliance with the requirements and design features and implementation of the mitigation measures described below. In addition, dust created from construction activities may contain hazardous contaminants, a potentially significant impact under CEQA and adverse effect under NEPA.

Construction equipment contains fuel, hydraulic oil, lubricants, and other hazardous materials, which could be released accidentally during operation of the equipment, a potentially significant impact under CEQA and an adverse effect under NEPA. Compliance with federal, state, and local regulations, however, would reduce the impact to less than significant under CEQA and non-adverse under NEPA.

### Construction Mitigation Measures

**MM-HAZ-1 (All Build Alternatives)**: An environmental investigation shall be performed during design for above-grade or below-grade transit structures, stations, and the maintenance yard. The environmental investigation shall collect soil, groundwater, and/or soil gas samples to delineate potential areas of contamination that may be encountered during construction or operations. The environmental investigation shall include the following:

- Properties potentially to be acquired are listed on multiple databases and shall be evaluated further for contaminants that were manufactured, stored, or released from the facility. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.
- Phase II subsurface investigations for potential impacts from adjoining current or former underground storage tank (UST) sites and nearby LUST sites may be recommended pending the selection of the preferred alternative, potential ROW acquisitions, the depth of excavation, and the result of a review of archives on file with the City of Los Angeles Fire Department (LAFD) and Regional Water Quality Control Board (RWQCB).
- A Phase II subsurface investigation to evaluate potential presence of perchloroethylene (PCE) shall be performed along the portions of the project alignment that are adjacent to former and current dry cleaners. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.
- If construction encroaches into the two former plugged and abandoned dry-hole oil exploration wells mapped adjacent to the proposed project ROW, the project team shall consult with the Division of Oil, Gas, and Geothermal Resources (DOGGR) regarding the exact locations of the abandoned holes and the potential impact of the wells on proposed construction.
- The locations of proposed improvements involving excavations adjacent to (within 50 feet of) the electrical substation shall be screened prior to construction by testing soils within 5 feet of the existing ground surface for Polychlorinated biphenyls (PCBs). If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.
- Buildings that will be demolished shall have a comprehensive asbestos containing materials (ACM) inspection prior to demolition. In addition, ACM may be present in the existing bridge crossings at the Pacoima Diversion Channels. If improvements associated with the corridor alternative selected for final design will disturb the existing bridge crossings, then these structures shall be evaluated for suspect ACM. If ACM is found, it shall be removed, and transported to an approved disposal location according to state law.
- Areas along the project alignment where soil may be disturbed during construction shall be tested for aerially deposited lead (ADL) according to Caltrans ADL testing guidelines. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.
- Lead and other heavy metals, such as chromium, may be present within yellow thermoplastic paint markings on the pavement. These surfacing materials shall be tested for lead-based paint (LBP) prior to removal. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.
- Former railroad ROWs that crossed or were adjacent to the project ROW may contain hazardous materials from the use of weed control, including herbicides and arsenic, and may also contain Treated Wood Waste (TWW). Soil sampling for potentially hazardous weed control substances shall be conducted for health and safety concerns in the event that construction earthwork involves soil removal from the former railroad ROWs. If encountered during construction, railroad ties designated for reuse or disposal (including previously salvaged railroad ties in the project ROW) shall be managed or disposed of as TWW in accordance with Alternative Management Standards provided in CCR Title 22 Section 67386.

**MM-HAZ-2 (All Build Alternatives):** Groundwater removed during construction shall be tested for potential presence of contamination and disposed of in accordance with state requirements.

**MM-HAZ-3 (All Build Alternatives):** The contractor shall implement a Worker Health and Safety Plan.

**MM-HAZ-4 (All Build Alternatives):** The contractor shall implement a Contaminated Soil/Groundwater Management Plan during construction.

**MM-HAZ-5 (All Build Alternatives):** The contractor shall properly maintain equipment and properly store and manage related hazardous materials, so as to prevent motor oil, or other potentially hazardous substances used during construction, from spilling onto the soil. If contaminated soil is found, it shall be removed, transported to an approved disposal location, and remediated according to state law.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects under NEPA would not be adverse.

#### *CEQA Determination*

Impacts under CEQA would be less than significant.

## Energy

Under Alternative 1, modifications to roadways, sidewalks, and bus stops would be required. As shown in Appendix A of the Energy Technical Report (see Appendix R) approximately 18,000 MMBTU would be consumed during the construction of Alternative 1, most of which would be in the form of diesel fuel used by construction equipment and vehicles. Although an estimated 127,000 gallons of fuel would be consumed by construction vehicles and equipment, the fuel consumption would be temporary in nature and would represent a negligible increase in regional demand, and an insignificant amount relative to the more than 18 billion gallons of on-road fuels used in the state in 2013 (California Energy Commission 2014b). Given the extensive network of fueling stations throughout the project vicinity and the fact that construction would be short-term, it's anticipated that no new or expanded sources of energy or infrastructure would be required to meet the energy demands due to Alternative 1 construction activities. Additionally, construction activities would comply with the Metro Green Construction Policy and all construction equipment would be maintained in accordance with manufacturers' specifications so equipment performance would not be compromised. Therefore, Alternative 1 would not result in the wasteful or inefficient use of energy. Impacts related to regional energy supply, demand, and conservation during the construction period would be less than significant under CEQA and non-adverse under NEPA.

### Construction Mitigation Measures

No mitigation measures would be necessary.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

## Ecosystems and Biological Resources

### Special-status Plants

Because the project area is already disturbed due to urban development and infrastructure including sidewalks, buildings, roadways, parking areas, retail businesses, etc., the site currently possesses almost no value to special-status plant species. No special-status plant species, as documented in Table 3-1 of the *Ecosystems/Biological Resources Impacts Report,* are expected to occur within the biological resources study area. Therefore, construction of this alternative would have no impact and no effect on special-status plants.

### Special-status Animals

There is a potential for pallid bat (*Antrozous pallidus*), western yellow bat (*Lasiurus xanthinus*), and big free-tailed bat (*Nyctinomops macrotis*) to occur in the biological resources study area. No bats or signs of bats (i.e., urine staining and guano droppings) were visually observed at the time of the site visits; however, it should be noted that specific focused surveys for bats were not conducted. The existing bridges over the Pacoima Wash, Pacoima Diversion Canal, and East Canyon Creek; the existing overpasses at I-5, State Route 118, and the Union Pacific Railroad (on Van Nuys Boulevard); and adjacent vegetation (in particular, palm trees and trees with cavities, crevices, exfoliating bark, and bark fissures) may support roosting habitat for special-status bat species. Construction activities that could affect these structures and adjacent vegetation could disturb or destroy bat roost sites, a potentially significant impact under CEQA and adverse effect under NEPA.

Implementation of Mitigation Measure BIO-1 (described two pages below under the subheading Construction Mitigation Measures) would reduce the impact or effect on bats due to removal of trees occupied by roost sites or removal of other roosting habitat to a less-than-significant level under CEQA and non-adverse under NEPA.

### Migratory Bird Treaty Act/California Fish and Game Code

Although there is a lack of natural plant communities within the biological resources study area, the ornamental landscaping, including mature trees, provides marginal foraging and nesting habitat for a small number of small mammals, reptiles, and invertebrates. The ornamental landscaping could provide a source of prey for a variety of common and special-status birds (including passerines and both local and wintering raptors) and large mammal species.

The biological resources study area supports nesting birds throughout the urban landscape. As currently proposed, this alternative would include upgrades to all existing Metro Rapid bus stops (18 in total) including stops at the Sylmar/San Fernando Metrolink station and Metro Orange Line Van Nuys station. Upgrades would consist of bus stop canopies installed at each location that would be approximately 13 feet in height. Modifications to bus stop lengths are also proposed and the modified bus stops would range between 80 feet and 150 feet in length. If proposed improvements under this alternative require removal of vegetation where there are nesting birds present, a violation of the Migratory Bird Treaty Act and/or California Fish and Game Code, which protect nesting birds, could occur. To ensure compliance with the Migratory Bird Treaty Act and Fish and Game Code, Mitigation Measure BIO-2 is proposed. The biological impact/effect of lost nests for common urban bird species would be less than significant under CEQA and non-adverse under NEPA.

### Jurisdictional Waters

Three jurisdictional drainages, the Pacoima Wash, the Pacoima Diversion Canal, and East Canyon Creek all occur within the proposed alignment for this alternative. Under this alternative, only street level modifications would be made along the existing roads. No work, including reinforcement of structures, would be needed at the bridges. Therefore, implementation of this alternative would not directly affect a federal or state jurisdictional drainage under CEQA or NEPA. However, please see Mitigation Measure BIO-3 for best management practices that are proposed when working near jurisdictional drainages to avoid or minimize potential indirect effects.

### Wildlife Corridors

The Pacoima Wash, Pacoima Diversion Canal, and East Canyon Creek are concrete channel waterways, are not expected to function as significant wildlife movement corridors. As a consequence and because no construction activities are proposed in the channels that would block movement through the area; no impact/affect to wildlife movement would occur under CEQA or NEPA.

### Conflict with Local Policies

Two tree species that occur in the biological resources study area are protected under the City of Los Angeles Tree Ordinance 177404: coast live oak and western sycamore. The City of San Fernando Comprehensive Tree Management Program Ordinance (Ordinance No. 1539) does not specify “protected” trees as does the City of Los Angeles. However, Ordinance No. 1539 does require prior consultation with the public works director regarding removal or trimming of “City-owned trees,” which are any trees on public property.

Construction of new bus stop canopies could require the removal of trees protected by the City of Los Angeles and/or City of San Fernando tree ordinances. Removal of protected trees would conflict with the City ordinances, which would be a significant impact under CEQA and adverse effect under NEPA. If protected trees are to be removed, implementation of Mitigation Measure BIO-4 would be required to ensure compliance with City ordinances. The biological consequence of removing or trimming urban trees would be less than significant under CEQA and a non-adverse effect under NEPA with implementation of Mitigation Measure BIO-4.

### Construction Mitigation Measures

**MM-BIO-1: Avoid and Minimize Project-Related Impact on Special-Status Bat Species.** In the maternity season (April 15 through August 31) prior to the commencement of construction activities, a field survey shall be conducted by a qualified biologist to determine the potential presence of colonial bat roosts (including palm trees) on or within 100 feet of the project boundaries. Should a potential roost be identified that will be affected by proposed construction activities, a visual inspection and/or one night emergence survey shall be used to determine if it is being used as a maternity-roost.

To_avoid any impacts on roosting bats resulting from construction activities, the following measures shall be implemented:

### *Bridges and Overpasses*

- Should potential bat roosts be identified that will require removal, humane exclusionary devices shall be used. Instillation would occur outside of the maternity season and hibernation period (February 16-April 14 and August 16-October 30, or as determined by a qualified biologist) unless it has been confirmed as absent of bats. If the roost has been determined to have been used by bats, the creation of alternate roost habitat shall be required, with CDFW consultation. The roost shall not be removed until it has been confirmed by a qualified biologist that all bats have been successfully excluded.
- Should an active maternity roost be identified, a determination (in consultation with the California Department of Fish and Wildlife or a qualified bat expert) shall be made whether indirect effects of construction-related activities (i.e., noise and vibration) could substantially disturb roosting bats. This determination shall be based on baseline noise/vibrations levels, anticipated noise-levels associated with construction of the proposed project, and the sensitivity to noise-disturbances of the bat species present. If it is determined that noise could result in the temporary abandonment of a day-roost, construction-related activities shall be scheduled to avoid the maternity season (April 15 through August 31), or as determined by the biologist.

### *Trees*

All trees to be removed as part of the project shall be evaluated for their potential to support bat roosts. The following measures would apply to trees to be removed that are determined to provide potential bat roost habitat by a qualified biologist.

- If trees with colonial bat roost potential require removal during the maternity season (April 15 through August 31), a qualified bat biologist shall conduct a one-night emergence survey during acceptable weather conditions (no rain or high winds, night temperatures above 52˚F) or if conditions permit, physically examine the roost for presence or absence of bats (such as with lift equipment) before the start of construction/removal. If the roost is determined to be occupied during this time, the tree shall be avoided until after the maternity season when young are self-sufficiently volant.
- If trees with potential colonial bat roost potential require removal during the winter months when bats are in torpor, a state in which the bats have significantly lowered their physiological state, such as body temperature and metabolic rate, due to lowered food availability. (October 31 through February 15, but is dependent on specific weather conditions), a qualified bat biologist shall physically examine the roost if conditions permit for presence or absence of bats (such as with lift equipment) before the start of construction. If the roost is determined to be occupied during this time, the tree shall be avoided until after the winter season when bats are once again active.
- Trees with potential colonial bat habitat can be removed outside of the maternity season and winter season (February 16 through April 14 and August 16 through October 30, or as determined by a qualified biologist) using a two-step tree trimming process that occurs over 2 consecutive days. On Day 1, under the supervision of a qualified bat biologist, Step 1 shall include branches and limbs with no cavities removed by hand (e.g., using chainsaws). This will create a disturbance (noise and vibration) and physically alter the tree. Bats roosting in the tree will either abandon the roost immediately (rarely) or, after emergence, will avoid returning to the roost. On Day 2, Step 2 of the tree removal may occur, which would be removal of the remainder of the tree. Trees that are only to be trimmed and not removed would be processed in the same manner; if a branch with a potential roost must be removed, all surrounding branches would be trimmed on Day 1 under supervision of a qualified bat biologist and then the limb with the potential roost would be removed on Day 2.

- Trees with foliage (and without colonial bat roost potential), such as sycamores, that can support lasiurine bats, shall have the two-step tree trimming process occur over one day under the supervision of a qualified bat biologist. Step 1 would be to remove adjacent, smaller, or non-habitat trees to create noise and vibration disturbance that would cause abandonment. Step 2 would be to remove the remainder of tree on that same day. For palm trees that can support western yellow bat (the only special-status lasiurine species with the potential to occur in the project area), shall use the two-step tree process over two days. Western yellow bats may move deeper within the dead fronds during disturbance. The two-day process will allow the bats to vacate the tree before removal.

**MM BIO-2: Avoid Impacts on Nesting Birds (including raptors).** To avoid any impacts on migratory birds, resulting from construction activities that may occur during the nesting season, March 1 through August 31, the following measures shall be implemented:

- A qualified biologist shall conduct a preconstruction survey of the proposed construction alignment with a 150-foot buffer for passerines and 500-feet for raptors around the site. This preconstruction survey shall commence no more than 3 days prior to the onset of construction, such as clearing and grubbing and initial ground disturbance.
- If a nest is observed, an appropriate buffer shall be established, as determined by a qualified biologist, based on the sensitivity of the species. For nesting raptors, the minimum buffer shall be 150 feet. The contractor shall be notified of active nests and directed to avoid any activities within the buffer zone until the nests are no longer considered to be active by the biologist.

**MM BIO-3: Jurisdictional Waters.** Any work resulting in materials that could be discharged into jurisdictional features shall adhere to strict best management practices (BMPs) to prevent potential pollutants from entering any jurisdictional feature. Applicable BMPs to be applied shall be included in the Stormwater Pollution Prevention Plan and/or Water Quality Management Plan.

**MM BIO-4: A Project Tree Report Shall Be Approved by the City of Los Angeles and City of San Fernando.** Prior to construction, the contractor shall review the approved alternative alignment to determine whether any trees protected by the City of Los Angeles Tree Ordinance 177404 and City of San Fernando Comprehensive Tree Management Program Ordinance (Ordinance No. 1539) will be removed or trimmed. A tree report must be prepared, by a qualified arborist, for the project and approved by each City. Trees approved for removal (or replacement) shall be done in accordance to the specifications outlined in the City ordinances.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Biological resources impacts would not be adverse following implementation of proposed mitigation measures.

#### *CEQA Determination*

Biological resources impacts would be less than significant following implementation of proposed mitigation measures.

## Hydrology and Water Quality

### Water Quality

Construction of Alternative 1 could include reconstruction of sidewalks, paving, and striping, which could result in an increase in surface water pollutants such as sediment, oil and grease, and miscellaneous wastes. Water quality would be temporarily affected if disturbed sediments were discharged via existing stormwater collection systems. Increased turbidity and other pollutants resulting from construction-related discharges can ultimately introduce compounds toxic to aquatic organisms, increase water temperature, and stimulate the growth of algae.

The delivery, handling, and storage of construction materials and wastes, along with use of construction equipment, could also introduce the risk of stormwater contamination. Staging areas or building sites can be sources of pollution because of the storage and use of paints, solvents, cleaning agents, and concrete during construction. Larger pollutants, such as trash, debris, and organic matter, are additional pollutants that could be associated with construction activities. Without implementation and maintenance of BMPs, construction impacts on water quality are potentially significant under CEQA and adverse under NEPA and could lead to exceedance of water quality objectives or criteria.

Since construction activities would disturb more than 1 acre, the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) would be required, in accordance with the statewide National Pollutant Discharge Elimination System DES General Permit for Stormwater Discharges Associated with Construction Activity (Order No. 2009-0009-DWA, NPDES No. CAR000002) (Construction General Permit). The SWPPP would list BMPs that would be implemented to protect stormwater runoff and include monitoring of BMP effectiveness. At a minimum, BMPs would include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives, concrete) with stormwater. The SWPPP would specify properly designed, centralized storage areas that keep these materials covered or out of the rain. If land disturbance activities must be conducted during the rainy season, the primary BMPs selected would focus on erosion control (i.e., keeping sediment on the site) and construction activities would temporarily cease during rain events.

The SWPPP would specify BMPs to ensure that water quality standards or waste discharge requirements are not violated. BMPs selected would be designed to comply with the requirements of the RWQCB and may be subject to review and approval by the Cities of Los Angeles and San Fernando. BMPs during construction may include but not be limited to the following:

- Silt fence
- Fiber roll
- Street sweeping and vacuuming
- Stockpile management
- Vehicle and equipment maintenance
- Erosion control mats and spray-on applications
- Desilting basin
- Gravel bag berm
- Sandbag barrier
- Spill prevention and control

- Concrete waste management
- Water conservation practices

Such measures are routinely developed for construction sites and are proven to be effective in reducing pollutant discharges from construction activities. Implementation of the SWPPP during construction would ensure water quality objectives, standards, and wastewater discharge thresholds would not be violated. The SWPPP would be prepared by the project applicant (i.e., Metro) or the construction contractor and would be approved by the Cities of Los Angeles and San Fernando prior to commencement of construction activities (i.e., approval of grading plans).

Other impacts to water quality that can occur during construction projects include the discharge of dredged or fill material into waters of the United States. These impacts could affect beneficial uses of the wetlands, such as estuarine and wildlife habitat. None of the alternatives, including the Curb-Running BRT Alternative, would require in-water work or work that would affect wetlands.

With compliance with the Construction General Permit, grading permits, and other relevant regulations, impacts/effects from construction on water quality would be less than significant under CEQA and non-adverse under NEPA.

### Groundwater Supplies and Recharge

Existing utilities that would interfere with construction of the corridor improvements would be removed and relocated for continuing service. A geotechnical survey found that groundwater depths in the vicinity of the project alignment varied from 15 to more than 100 feet below the ground surface during the dry season, with depth to groundwater generally increasing from west to east. Excavation for utility improvements may result in contact with groundwater depending on the season and location within the corridor. Should dewatering be necessary, a General Dewatering Permit would be obtained from the Los Angeles RWQCB. Residual contaminated groundwater could be encountered during dewater activities. Groundwater extracted during dewatering activities would either be treated prior to discharge or disposed of at a wastewater treatment facility.

Local groundwater is one of several sources of water supplies to the City of Los Angeles. If groundwater is used during construction for dust control, concrete pouring, etc., the amount would be minimal and temporary, and therefore would not result in substantial depletion of groundwater supplies.

Adherence to dewatering requirements of the Los Angeles RWQCB, and minimal water use during construction would ensure that impacts on groundwater would be less than significant under CEQA and the effects would not be adverse under NEPA.

### Stormwater and Drainage

Construction activities, such as grading and excavation, could result in increased erosion. In addition, minor modifications to City street storm drains would be required. However, these modifications would not include culvert widening or conversion of open channels to closed conduits and drainage patterns would remain approximately the same as currently exists. Additionally, construction of the proposed project would not alter the course of any streams or rivers.

Temporary drainage facilities could be required to redirect runoff from work areas during utility relocations. The temporary drainage facilities would be sized according to City standards to avoid any exceedance to the capacity of existing or planned stormwater drainage systems. Storm drain relocation may require the need for groundwater dewatering at locations with a high water table. Residual contaminated groundwater may be encountered during dewatering activities. As described above, if dewatering is necessary, the project contractor would be required to comply with Los Angeles RWQCB's General Dewatering Permit. Groundwater extracted during dewatering activity would either be treated prior to discharge or disposed of at a wastewater treatment facility. In addition, compliance with the Construction General Permit, and SWPPP BMPs would be implemented during construction to prevent or minimize the potential for erosion sedimentation on- or off-site, and for discharge of polluted runoff into storm drains. Because the proposed project would be in compliance with the conditions of the Construction General Permit and other relevant regulations, impacts/effects related to erosion and siltation and impacts on stormwater runoff would be less than significant under CEQA and non-adverse under NEPA.

### Flooding and Flood Hazards

A few small areas within the project study area were identified as being within the FEMA 100-year flood zone (Zone A). However, these areas are fully contained within county flood channels and drainage facilities. Therefore, the project study area is not highly prone to flooding during a 100-year storm event. Additionally, no construction would occur within the areas designated as 100-year floodplains, and construction activities would not place structures that would impede or redirect flood flows as mapped on any flood hazard delineation map.

There are no levees located within the project study area, and therefore no associated flood impacts with levee failure would occur. The proposed Curb-Running BRT Alternative, however, would be located in an inundation zone area, as shown on Figure 4.19-13, which would be caused by a dam failure. Portions of the Sepulveda and Hansen Flood Control Basins (and the associated dams) are located in the project study area, and therefore there is risk of dam failure. However, project construction activities would not increase the present risk of dam failure, which is considered low, and would not place construction workers, equipment, or temporary structures in an area where there is a significant risk and high probability of flooding.

As noted above, temporary drainage facilities could be required to redirect runoff from work areas. The temporary drainage facilities would be sized according to City standards to avoid any exceedance to the capacity of existing or planned stormwater drainage systems. As a consequence, overall drainage patterns would remain the same, and therefore, construction activities are not expected to have a substantial effect on flood capacities due to temporary changes in drainage patterns or facilities. Therefore, the impacts/effects during construction related to flooding and flood hazards would be less than significant under CEQA and non-adverse under NEPA.

### Seiche, Tsunami, and Mudflow Hazards

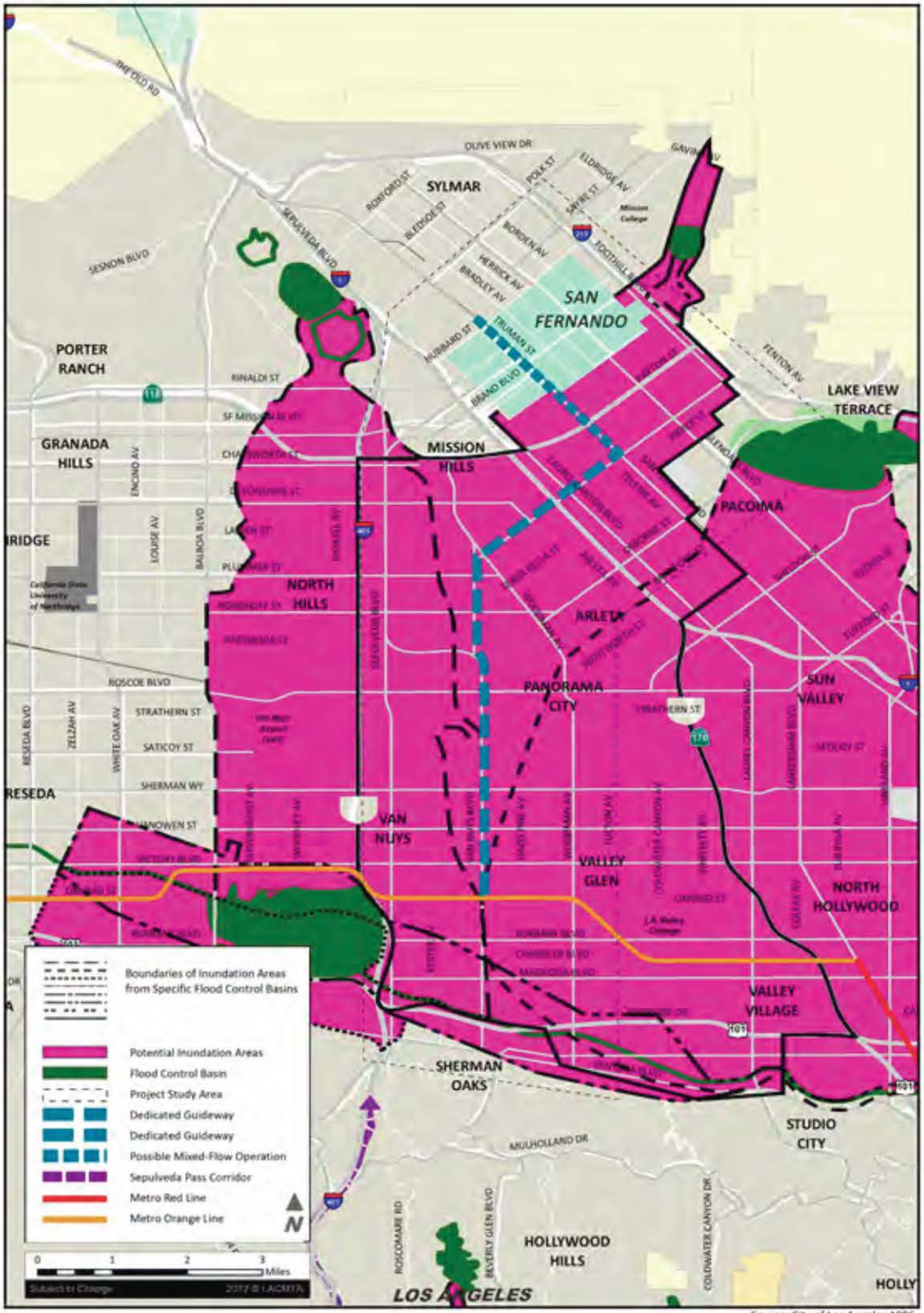
As noted above, the project study area is outside of potential tsunami inundation areas and, due to the relatively flat terrain, is not prone to mudflows. The potential for a catastrophic seiche event at the

Hanson Flood Control Basin reservoir is low. Therefore, construction activities are not expected to substantially affect or be affected by seiche, tsunami, or mudflow hazards. Construction impacts/effects due to the Curb-Running BRT Alternative would be less than significant under CEQA and non-adverse under NEPA.

### Surface Water Use and Flows

Construction of Alternative 1 would not require the use of substantial volumes of surface water. Additionally, construction activities would not substantially change the overall impervious area, nor would construction substantially change stormwater flows that could affect either the volume or movement of water in surface water bodies. Impacts and effects would be less than significant under CEQA and non-adverse under NEPA.

## Figure 4.19-13: Inundation Areas within the Project Vicinity




Source: Diaz•Yourman & Associates, 2015.



Metro

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Alternative 1 would not result in adverse effects to hydrology and water resources during construction.

#### *CEQA Determination*

Alternative 1 would result in less-than-significant impacts to hydrology and water resources during construction.

## Safety and Security

Construction activities within public rights-of-way are not typically considered to be adverse due to their short-term nature, particularly with implementation of construction management and abatement measures. All work would conform to industry standards and specifications. During construction, lane closures, traffic detours, and designated truck routes may be required, which could adversely affect emergency vehicle response times, a potentially significant impact and adverse effect. Maintaining an adequate level of signage, construction barriers, and supervision of trained safety personnel as part of the construction team would ensure that pedestrian and motorist safety is maintained during construction. Implementation of mitigation measures MM-SS-16 through MM-SS-18 would further reduce and minimize potential temporary impacts during construction.

### Construction Mitigation Measures

**MM-SS-1 (All Build Alternatives):** Alternate walkways for pedestrians shall be provided around construction staging sites in accordance with American with Disability Act (ADA) requirements.

**MM-SS-2 (All Build Alternatives):** All pedestrian and bicycle detour locations around staging sites shall be signed and marked in accordance with the Manual on Uniform Traffic Control Devices “work zone” guidance, and other applicable local and state requirements.

**MM-SS-3 (All Build Alternatives):** Work plans and traffic control measures shall be coordinated with emergency responders to prevent effects to emergency response times.

### Impacts Remaining after Mitigation

#### *NEPA Finding and CEQA Determination*

Under NEPA and CEQA, the potential for increased conflicts between bicyclists and motor vehicles and increased delay for emergency responders during project construction are potentially adverse effects and unavoidable significant impacts, however, implementation of mitigation measures MM-SS-1 through MM-SS-3 would further reduce and minimize potential temporary impacts during construction.

## Parklands and Community Facilities

### Direct Impacts

#### *Physical Acquisition, Displacement, or Relocation of Parklands and Community Facilities*

Alternative 1, the Curb-Running BRT Alternative, would not require the physical acquisition, displacement, or relocation of parklands or community facilities during construction.

#### *Noise, Air Quality, Traffic, and Visual Impacts on Parklands and Community Facilities*

Construction activities associated with Alternative 1 would result in noise, dust, odors, and traffic delays resulting from haul trucks and construction equipment in public streets and staging areas. These temporary impacts could adversely affect the recreational values of adjacent parklands or could cause disturbance to community facilities that are sensitive to these impacts, such as schools, libraries, hospitals, day care facilities, and senior facilities. As described in Sections 4.6 and 4.8 of this Draft EIS/EIR, respectively, localized air quality impacts and noise impacts on nearby sensitive uses during construction of Alternative 1 could be significant under CEQA and adverse under NEPA. Odor impacts during construction would be minor. Construction traffic impacts on access to parklands and community facilities could be significant.

Construction of the build alternatives may also result in visual impacts on viewers within and surrounding the project corridor. Views of construction areas could be possible from parklands and community facilities on some of the adjacent parcels, either directly through fencing, through entrance gates, or over fencing from second story and higher windows. Construction activities at staging areas and construction sites may introduce considerable heavy equipment such as cranes and associated vehicles, including bulldozers, backhoes, graders, scrapers, and trucks, into the view corridor of public streets, sidewalks, and properties. In addition, mature vegetation, including trees, could temporarily or permanently be removed from some areas. These visual impacts on nearby visually sensitive uses (see Section 4.5 for additional details on potential visual impacts) could be significant under CEQA and adverse under NEPA; however, they could be reduced to less-than-significant and non-adverse levels with implementation of proposed mitigation measures.

### Indirect Impacts

#### *Induced Population Growth and Increased Demand for Parklands and Community Facilities*

Construction of Alternative 1 would not be expected to result in substantial changes to the existing population in the project study area. A substantial employment base and residential population currently exist in the San Fernando Valley within commuting distance of the project corridor, and the employment opportunities, which would be temporary, would not be expected to result in a substantial migration of additional residents to the project study area and induce substantial population growth in communities and neighborhoods in the project study area.

Proposed new bus stops and BRT patrons could be targets for vandalism and crime, which could result in a potential increase in the demand for police or fire protection services. However, the project corridor is currently a transportation corridor served by bus lines with a number of existing bus stops. In the event of an emergency or safety/security incident on Metro property, personnel from the Transit Services Bureau of LASD would be responsible for responding with assistance provided by LAPD, as needed. Additionally, all Metro facilities (e.g., bus stops and stations) would be designed in accordance with Metro Design Criteria including Fire/Life Safety Design Criteria. Consequently, the proposed Curb-Running BRT Alternative would not substantially increase the demand for police or fire protection services and it would not require the construction of new police or fire protection facilities.

#### *Changes in Access to Parklands and Community Facilities*

Construction of stations and the alignment could require temporary sidewalk, lane, and road closures, and temporary removal of parking on Van Nuys Boulevard, San Fernando Road, Truman Street, and their cross streets. These closures could reduce pedestrian, bicycle, and vehicle access to parklands and community facilities along the project corridor during construction. However, alternative routes would be provided and the impacts would be temporary. Therefore, the impacts of Alternative 1 on access would be less than significant under CEQA and non-adverse under NEPA.

Lane closures, traffic detours, and designated truck routes associated with construction could also result in decreased access for emergency vehicles and delayed response times for emergency services, which would be a potentially significant impact under CEQA and adverse impact under NEPA. However, lane and/or road closures would be scheduled to minimize disruptions, and a Traffic Management Plan would be approved, in coordination with both the Cities of Los Angeles and San Fernando, prior to construction. With the implementation of a Traffic Management Plan, including traffic control measures, access to parklands and community facilities would be maintained during construction and these temporary impacts would be less than significant under CEQA and non-adverse under NEPA.

### Construction Mitigation Measures

The reader is referred to the following sections in this Draft EIS/EIR for mitigation measures to reduce or avoid potential construction impacts on parklands and community facilities: Chapter 2-Transportation, Transit, Circulation, and Parking; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

All effects would be non-adverse.

#### *CEQA Finding*

All potential impacts would be less than significant with the exception of potential construction air quality impacts on parklands and community facilities, which would remain significant after implementation of proposed mitigation measures.

## Environmental Justice

### Mobility and Access Impacts

Construction of curb-running BRT stations and the transit alignment would require temporary sidewalk, lane, and road closures, and temporary removal of parking along Van Nuys Boulevard, San Fernando Road, Truman Street, and their cross streets. These closures could reduce pedestrian, bicycle, and vehicle access to areas along the project corridor during construction. These temporary effects are anticipated to affect all communities within the project study area and communities adjacent to the project study area comparably. To minimize potential impacts on pedestrians and cyclists, adequate pedestrian and bicycle accommodations would be made available during construction, including signage, construction barriers to reduce any conflicts with construction equipment and vehicles, and supervision of trained safety personnel. On-street bicycle detour routes would be used to address temporary effects on bicycle circulation. In addition, signage would be posted, stating that “Bikes May Use Full Lane,” and/or alternative route signage would be provided. Uneven surfaces would also be clearly marked.

Road and sidewalk closures, and the addition of construction vehicles and equipment on major City of Los Angeles and City of San Fernando streets, could reduce public access to annual festivals and events in the various communities along the alignment. In addition, construction could disrupt traffic patterns and make public access to businesses and community resources more difficult. Lane closures, traffic detours, and designated truck routes associated with construction could also result in decreased access for emergency vehicles, which could result in a delay in response times. Lane and/or road closures would be scheduled to minimize disruptions, and a Traffic Management Plan (TMP) would be approved in coordination with both the Cities of Los Angeles and San Fernando prior to construction. For these reasons and because the lane and/or road closures, and the potential for temporary effects associated with emergency vehicle response times, would affect all neighborhoods along the alignment, regardless of origin. No disproportionate adverse effects on minority or low-income populations are anticipated.

### Social and Economic Impacts

Construction of Alternative 1 would not be expected to result in substantial changes to the existing population in the project study area. A substantial employment base and residential population currently exist in the San Fernando Valley within commuting distance of the project corridor; therefore, employment opportunities would not be expected to result in substantial migration of additional residents to the project study area. In addition, because of the temporary nature of construction jobs, employment opportunities resulting from construction would not be expected to induce substantial population growth in communities and neighborhoods in the project study area.

Construction activities would likely result in a decrease in accessibility to many businesses and could reduce on-street and off-street parking, which may negatively affect business activity levels because the number of customers may temporarily decline. All attempts would be made to provide adequate detours and to minimize road closures; however, some consumers may avoid the area altogether, which could have an indirect effect on businesses within the project area. Construction activities would take place throughout the project corridor, and the temporary decrease in accessibility would affect all businesses comparably.

### Displacement of Businesses, Housing, and People

Alternative 1 would be constructed within the curb lanes of an existing roadway, and would not result in the displacement of any housing, people, or businesses. Additionally, no displacements would be required for storage or staging areas for construction equipment and materials. This alternative would not require the construction or expansion of an MSF; therefore, no right-of-way acquisitions associated with an MSF would be required, and Alternative 1 would not result in any effects on minority or low-income populations with respect to displacement.

### Physical Impacts

Construction of Alternative 1 would not likely result in changes to existing land use patterns or result in physical division of communities because construction would be short-term, and would not affect land use designations or introduce barriers that would divide communities. However, construction activities could result in several other physical impacts and intrusions, including noise, dust, odors, and traffic delays resulting from haul trucks and construction equipment in public streets and staging areas. Local neighborhoods, businesses, and community facilities may be inconvenienced temporarily (approximately 18 months), and community activities could be disrupted by construction.

Construction of Alternative 1 may also result in several visual impacts within and surrounding the project corridor. Construction areas could be visible from residential land uses on some of the adjacent parcels, either directly through fencing, through entrance gates, or over fencing from second story and higher windows. Construction activities at staging areas and proposed stations may include the use of considerable heavy equipment such as cranes and associated vehicles, including bulldozers, backhoes, graders, scrapers, and trucks, which could be visible from public streets, sidewalks, and adjacent properties.

Viewers in the construction area may be affected by the presence of this equipment, as well as stockpiled construction-related materials. In addition, mature vegetation, including trees, could be temporarily removed from some areas. Construction impacts associated with noise, air quality, visual quality/aesthetics, and traffic would be reduced or minimized through construction management and abatement measures, as detailed in the respective sections of this Draft EIS/EIR.

Construction of Alternative 1 could also have temporary effects on public safety and security within the project study area. During construction, motorists, pedestrians, and bicyclists would be exposed to additional safety hazards because of proximity to construction activities. The potential for safety and security effects would be minimized by compliance with Occupational Safety and Health Administration (OSHA), California Occupational Safety and Health Administration (Cal/OSHA), and Metro safety and security programs, which are designed to reduce potential construction effects. In addition, an adequate level of signage, construction barriers, and supervision of trained safety personnel would be provided to ensure that pedestrian and motorist safety is maintained during construction.

Incidents of crime adjacent to the project alignment would not likely increase during construction of the build alternatives. Construction machinery and materials could be stolen at construction sites; however, these incidents would be minimized through implementation of standard site security practices.

Since the project would comply with regulatory requirements and measures would be implemented to mitigate construction impacts and because the potential effects are anticipated to affect all communities within the project study area comparably, regardless of the block groups' socioeconomic or demographic characteristics. Alternative 1 would not result in disproportionately high and adverse effects on minority or low-income populations with respect to construction.

### Construction Mitigation Measures

The reader is referred to the following sections in this Draft EIS/EIR for measures to reduce or avoid potential construction impacts on communities, including environmental justice populations: Chapter 3-Transportation, Transit, Circulation, and Parking; Section 4.2-Real Estate and Acquisitions; Section 4.4-Communities and Neighborhoods; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security.

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

Alternative 1 would not result in disproportionately high and adverse effects on minority or low-income populations.

##### *CEQA Finding*

There are no thresholds of significance in CEQA for environmental justice impacts. Therefore, no CEQA determination can be made for environmental justice impacts resulting from this alternative.

### Growth-Inducing Impacts

The growth inducement potential of construction activities under Alternative 1 – Curb-Running BRT and other build alternatives would vary depending on the extent, duration, cost, and number of construction jobs generated by each alternative. However, it is not expected that the increase in construction jobs under any of the build alternatives would result in substantial increases in project study area populations because of the fact that there is a large pool of skilled and unskilled construction workers in Los Angeles County within commuting distance of the project and because of the temporary nature of construction jobs. Consequently, it is unlikely few if any construction workers employed by the proposed project would relocate to the project study area. Therefore, proposed construction activities would not result in a substantial increase in the project study area population.

#### Construction Mitigation Measures

No construction mitigation measures are required.

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

Effects would not be adverse.

##### *CEQA Determination*

Impacts would be less than significant.

## 4.19.3.4 Build Alternative 2 – Median-Running BRT Alternative

### Land Use

Impacts would be the same as impacts described for Alternative 1.

#### Construction Mitigation Measures

Please see other sections (Section 4.8 Noise, and Section 4.6 Air Quality) for measures to mitigate potentially significant adverse construction impacts on sensitive land uses near proposed construction activities.

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

The effects would not be adverse under NEPA.

#### *CEQA Determination*

Construction impacts would be less than significant.

## Real Estate and Acquisitions

Alternative 2 would not require the permanent acquisition of any property along the project corridor because it would involve primarily dedication of the median lane to bus service. No new facilities beyond bus stop improvements would be required. All improvements associated with Alternative 2 would take place within the existing transportation ROW. Therefore, no impacts associated with acquisitions of property would occur under Alternative 2.

### Construction Mitigation Measures

No construction mitigation measures would be required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

No adverse effects would occur.

#### *CEQA Determination*

No impacts would occur.

## Economic and Fiscal Impacts

Alternative 2 – Median-Running BRT would not require the acquisition of any parcels. Therefore, adverse economic and fiscal impacts would be limited to potential minor impacts on local businesses due to reduced visibility (e.g., sign blockage) and diminished access resulting from sidewalk or lane closures, loss of on-street parking during construction, and permanent removal of on-street parking spaces to accommodate the Alternative 2 alignment.

The estimated construction cost for Alternative 2 is approximately $362 million. Alternative 2 would generate an estimated 4,693 jobs. Of these jobs, 2,788 would be generated directly by construction and 804 would be generated indirectly. An additional 1,101 jobs would be induced through increased household spending by direct and indirect employees.

Total labor income for Alternative 2 would be about $287.9 million, with $168.4 million of this being the result of direct construction impacts. Labor income for jobs created via indirect impacts would be about $60.5 million. Labor income for induced jobs would be about $59.1 million. Total Output for this alternative would be about $678.4 million, $362.0 million of which would be generated directly by construction. Output generated by indirect impacts would amount to about $157.1 million. Induced impacts of construction generate about $159.2 million of output.

The Median-Running BRT Alternative would generate an estimated $359.2 million in value added, with about $172.0 million coming from direct impacts of construction. Indirect impacts would generate about $86.7 million in value added.

### Construction Mitigation Measures

None required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Potential effects would not be adverse.

#### *CEQA Determination*

The Median-Running BRT alternative would not significantly affect the economic and fiscal health of communities in the project area beyond the temporary disruption associated with construction, which can be mitigated. The Median-Running BRT alternative offers much greater mobility benefits than the TSM and No-Build Alternatives. This BRT alternative also may provide marginal increased development resulting from improved mobility along the corridor. This BRT alternative would not result in any significant direct, indirect, or cumulative impacts and would provide travel time and mobility improvements.

## Communities and Neighborhoods

Construction impacts would be the same as those described above for Alternative 1, except construction would occur over approximately 24 months under Alternative 2.

### Construction Mitigation Measures

The reader is referred to the air quality section of this chapter for more information on the significance and extent of these potential physical impacts on communities and neighborhoods.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Construction effects would not be adverse under NEPA after implementation of proposed mitigation measures.

#### *CEQA Determination*

Construction impacts under Alternative 2 would be less than significant under CEQA after the implementation of proposed mitigation measures.

## Visual Qualities and Aesthetics

Construction impacts would be the same as those described above for Alternative 1.

### Construction Mitigation Measures

See mitigation measure MM-VIS-1 above under Alternative 1.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

The potential construction effects on visual and aesthetic resources would not be adverse after implementation of proposed mitigation measures.

#### *CEQA Determination*

The potential construction impacts on visual and aesthetic resources would be less than significant after implementation of proposed mitigation measures.

## Air Quality

Project construction under Alternative 2 would result in the short-term generation of criteria pollutant emissions, as was also described for Alternative 1. During construction the proposed project would be subject to SCAQMD Rule 403 (Fugitive Dust), which does not require a permit for construction activities, per se, but rather sets forth requirements for all construction sites (as well as other fugitive dust sources) in the Basin.

For the purpose of this impact analysis, Alternative 2 construction assumes a 24-month construction-period duration, for air quality emissions estimating purposes.

### Criteria Pollutant Emissions

The estimate of construction-period regional mass emissions is shown in Table 4.19-7. As shown in the table, regional emissions are not expected to exceed the SCAQMD regional emissions thresholds. Impacts would be less than significant under CEQA and non-adverse under NEPA.

With respect to local impacts, SCAQMD has developed a set of local mass emission thresholds to evaluate localized impacts. According to SCAQMD, only those emissions that occur on-site are to be considered in the LST analysis. Consistent with SCAQMD LST evaluation guidelines, emissions related to haul truck and employee commuting activity during construction are not considered in the evaluation of localized impacts. As shown in Table 4.19-8, localized $PM_{10}$ and $PM_{2.5}$ emissions during construction would exceed local thresholds. As such, short-term local mass emissions would be significant under CEQA and adverse under NEPA prior to implementation of mitigation measures.

**Table 4.19-7: Alternative 2 – Estimated Worst-case Regional Construction Mass Emissions (pounds per day)**

| Construction Year/Facility | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| **Year 2017** | | | | | | |
| Median Improvements, Sidewalks/Curbs, and Stations | 6 | 73 | 56 | <1 | 11 | 7 |
| **Year 2018** | | | | | | |
| Median Improvements, Sidewalks/Curbs, and Stations | 6 | 66 | 53 | <1 | 10 | 6 |
| **Year 2019** | | | | | | |
| Median Improvements, Sidewalks/Curbs, and Stations | 34 | 15 | 19 | <1 | 2 | 1 |
| Maximum Daily Emissions | 34 | 73 | 56 | <1 | 11 | 6 |
| Regional Construction Threshold | 75 | 100 | 550 | 150 | 150 | 55 |
| Exceed Thresholds? | No | No | No | No | No | No |
| Source: CalEEMod emissions modeling by ICF International 2015. | | | | | | |

### Table 4.19-8: Alternative 2 – Estimated Maximum Localized Construction Mass Emissions (pounds per day)

| Construction Activity | $NO_X$ | CO | $PM_{10}$[a] | $PM_{2.5}$[a] |
|---|---|---|---|---|
| Median Improvements, Sidewalks/Curbs, and Stations | 73 | 56 | 11 | 7 |
| Localized Significance Thresholds [b] | 80 | 498 | 4 | 3 |
| Exceed Thresholds? | No | No | Yes | Yes |

[a] $PM_{10}$ and $PM_{2.5}$ emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.
[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).
Source: CalEEMod emissions modeling by ICF International 2015.

#### Toxic Air Contaminant Emissions

With respect to construction-period impacts, the greatest potential for TAC emissions would be related to DPM emissions associated with operation of heavy construction equipment. Construction activities associated with the project would be sporadic, transitory, and short term in nature. The assessment of cancer risk is typically based on a 70-year exposure period; however, Alternative 2 construction is anticipated to have a duration of approximately two years. Because exposure to diesel exhaust would be well below the 70-year exposure period, project construction is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, project-related toxic emission impacts during construction would be less than significant under CEQA and non-adverse under NEPA.

#### Construction Mitigation Measures

Mitigation measures MM-AQ-1 through MM-AQ-7 described under Alternative 1 would be implemented to mitigate impacts under Alternative 2.

#### Impacts Remaining after Mitigation

With the implementation of proposed mitigation measures MM-AQ-1 through MM-AQ-7, construction emissions under Alternative 2 would be reduced, but would exceed the LSTs for $PM_{10}$ and $PM_{2.5}$, as shown in Table 4.19-.9. Based on the reduction of emissions, effects under NEPA would not be adverse. However, based on the emissions of PM10 and PM2.5 exceeding the LSTs, impacts would remain significant under CEQA after the implementation of proposed mitigation measures.

#### *NEPA Finding*

Construction effects would not be adverse under NEPA after implementation of proposed mitigation measures.

#### *CEQA Determination*

Construction of Alternative 2 would not result in the emission of criteria pollutants in excess of regional thresholds, but emissions would be higher than SCAQMD LSTs for $PM_{10}$ and $PM_{2.5}$. Therefore, construction impacts under Alternative 2 would be significant under CEQA after the implementation of proposed mitigation measures, and thus would require Metro to adopt a Statement of Overriding Considerations for approval of this alternative.

### Table 4.19-.9 Alternative 2 – Estimated Mitigated Maximum Localized Construction Mass Emissions (pounds per day)

| Construction Activity | $NO_X$ | CO | $PM_{10}$[a] | $PM_{2.5}$[a] |
|---|---|---|---|---|
| Median Improvements, Sidewalks/Curbs, and Stations | 24 | 38 | 9 | 5 |
| Localized Significance Thresholds [b] | 80 | 498 | 4 | 3 |
| Exceed Thresholds? | No | No | Yes | Yes |

[a] $PM_{10}$ and $PM_{2.5}$ emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.
[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).
Source: CalEEMod emissions modeling by ICF International 2015.

## Climate Change

Construction activities under Alternative 2 would involve roadway, bus stop, and sidewalk modifications to allow for a median-running BRT service. These activities would result in the emission of approximately 2,170 metric tons of $CO_2e$, as shown in Table 4.19-10. Consistent with SCAQMD-recommended methodology, construction-period emissions were amortized over a 30-year period, resulting in an annual equivalent of approximately 72 MT of $CO_2e$.

### Table 4.19-10 Alternative 2 – GHG Emissions in Year 2040

| Phase | $CO_2e$ (metric tons) |
|---|---|
| **Operation** | |
| Traffic Emissions | 77,664,273 |
| 2040 Baseline Traffic Emissions | 77,663,060 |
| *Net Operational Traffic Emissions* | 1,213 |
| Construction | |
| Roadway, Sidewalks, and Stations | 2,168 |
| *30-Year Amortization of Construction Emissions* | 72 |
| **TOTAL** | **1,285** |
| **Percent Change Compared to 2040 Baseline** | **0.002%** |
| Source: Emissions modeling by ICF (2015) (See Appendix A of the Climate Change Technical Report). | |

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

## Noise and Vibration

Impacts resulting from the construction of Alternative 2 would be the same as those under Alternative 1 (i.e., the predicted noise levels would not exceed the NEPA or CEQA significance thresholds before mitigation).

### Construction Mitigation Measures

Mitigation measures MM-NOI-1a-d and MM-VIB-1 (see discussion above for Alternative 1) are proposed.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

The noise and vibration from construction of the Median-Running BRT Alternative would be temporary; however, due to the increase in noise levels above ambient levels, the Median-Running BRT Alternative would result in an adverse effect, even with implementation of proposed mitigation measures.

#### *CEQA Determination*

The noise and vibration from the construction of the Median-Running BRT Alternative would be temporary; however, due to the increase in noise levels above ambient levels, the Median-Running BRT Alternative would still result in a significant and unavoidable impact, even with mitigation incorporated.

## Geology and Soils

The Median-Running BRT Alternative would result in the same impacts as the Curb-Running BRT Alternative.

### Construction Mitigation Measures

No construction mitigation measures would be required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects under NEPA would not be adverse

#### *CEQA Determination*

Impacts under CEQA would be less than significant.

## Hazardous Waste and Materials

The Median-Running BRT Alternative would result in the same construction impacts as the Curb-Running BRT Alternative.

#### Construction Mitigation Measures

See Mitigation Measures MM-HAZ-1 through MM-HAZ-5 listed above for Alternative 1.

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

Effects under NEPA would not be adverse.

##### *CEQA Determination*

Impacts under CEQA would be less than significant.

### Energy

Under Alternative 2, modifications to roadways, sidewalks, and bus stops would be required in order to construct the infrastructure necessary for median-running BRT service along Van Nuys Boulevard and in mixed-flow along San Fernando Road. As shown in the Energy Technical Report (see Appendix R), approximately 30,000 MMBTU would be consumed during the construction of Alternative 2, most of which would be in the form of diesel fuel used by construction equipment and vehicles. Although an estimated 215,000 gallons of fuel would be consumed by construction vehicles and equipment, the fuel consumption would be temporary in nature and would represent a negligible increase in regional demand, and an insignificant amount relative to the more than 18 billion gallons of on-road fuels used in the state in 2013 (California Energy Commission 2014b). Given the extensive network of fueling stations throughout the project vicinity and the fact that construction would be short-term, no new or expanded sources of energy or infrastructure are expected to be required to meet the energy demands due to Alternative 2 construction activities. Additionally, construction activities would comply with the Metro Green Construction Policy and all construction equipment would be maintained in accordance with manufacturers' specifications so equipment performance would not be compromised. Therefore, Alternative 2 would not result in the wasteful or inefficient use of energy. Impacts related to regional energy supply, demand, and conservation during the construction period would be less than significant under CEQA and would not be adverse under NEPA.

#### Construction Mitigation Measures

No mitigation measures would be necessary.

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

Effects would not be adverse under NEPA.

##### *CEQA Determination*

Impacts would be less than significant under CEQA.

### Ecosystems and Biological Resources

This alternative could result in impacts on CDFW or USFWS candidate, sensitive, or special-status species or substantially reduce the number, or restrict the range of endangered, rare, or threatened species, or reduction of existing habitats. Impacts from this alternative would be the same as those expected under Alternative 1 described above. Thus, similar to Alternative 1, this alternative would not result in impacts or effects on any special-status plant species. Construction of new bus stop canopies, some of which have trees potentially used by nesting birds and/or bat species. This alternative also proposes the expansion of the bridge at Van Nuys Boulevard and the Pacoima Wash. Bridge construction activities could affect nesting birds and/or bat species that use the bridge for nesting and roosting. Construction activities would also result in increases in noise, movement, and vibration at the bridges over the Pacoima Wash, Pacoima Diversion Canal, and East Canyon Creek and the existing overpasses at I-5, State Route 118, and the Union Pacific Railroad (on Van Nuys Boulevard). This alternative could result in potentially significant impacts under CEQA and adverse effects under NEPA to nesting birds or roosting bats due to construction activities that would remove vegetation or affect structures used by special-status bat species. However, Mitigation Measures BIO-1 and BIO-2 would reduce potential impacts to less than significant under CEQA and non-adverse under NEPA.

### Jurisdictional Waters

Only street level modifications would be made along the existing roads under Alternative 2. No work, including reinforcement of bridge structures, would be needed within existing drainage channels. Therefore, implementation of this alternative would not directly affect a federal or state jurisdictional drainage under CEQA or NEPA. However, please see Mitigation Measure BIO-3 for best management practices that are proposed when working near jurisdictional drainages to avoid or minimize potential indirect effects.

### Wildlife Corridors

No construction activities are proposed in the channels that would block movement through the area; therefore, no impact/affect to wildlife movement would occur under CEQA or NEPA.

### Conflict with Local Policies

This alternative would require the removal of trees. Removal of any protected trees would conflict with City ordinances, which would be a potentially significant impact under CEQA and an adverse effect under NEPA. If protected trees are removed, implementation of Mitigation Measure BIO-4 would be required to ensure compliance with City ordinances. The biological consequence of removing or trimming urban trees would be less than significant under CEQA and a non-adverse effect under NEPA with implementation of Mitigation Measure BIO-4.

### Construction Mitigation Measures

Mitigation Measures BIO-1 through BIO-4 are proposed (see discussion above for Alternative 1).

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Biological resources impacts would not be adverse following implementation of proposed mitigation measures.

#### *CEQA Determination*

Biological resources impacts would be less than significant following implementation of proposed mitigation measures.

## Hydrology and Water Quality

Construction impacts under this alternative would be the same as those described above for Alternative 1.

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Alternative 2 would not result in adverse effects to hydrology and water resources during construction.

#### *CEQA Determination*

Alternative 2 would result in less-than-significant impacts to hydrology and water resources during construction.

## Safety and Security

Construction effects would be the same as those anticipated to occur under Alternative 1 – Curb-Running BRT. Effects or impacts would be potentially adverse and significant prior to implementation of mitigation measures and non-adverse under NEPA and less than significant under CEQA with implementation of mitigation measures MM-SS-1 through MM-SS-3.

### Construction Mitigation Measures

Safety measures MM-SS-1 through MM-SS-3 would be implemented.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

## Parklands and Community Facilities

Construction impacts would be the same as those described above for Alternative 1.

### Mitigation Measures

The reader is referred to the following sections in this Draft EIS/EIR for mitigation measures to reduce or avoid potential construction impacts on parklands and community facilities: Chapter 2-Transportation, Transit, Circulation, and Parking; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

All effects would be non-adverse.

#### *CEQA Finding*

The construction air quality impacts on parklands and community facilities would remain potentially significant after implementation of proposed mitigation measures. All other impacts would be less than significant.

### Environmental Justice

Construction impacts would be the same as those described in the previous section for Alternative 1. Temporary construction impacts are anticipated to affect all communities within the project study area comparably, regardless of the block groups' socioeconomic or demographic characteristics. Therefore, Alternative 2 would not result in disproportionately high and adverse effects on minority or low-income populations with respect to construction.

### Construction Mitigation Measures

The reader is referred to the following sections in this Draft EIS/EIR for measures to reduce or avoid potential construction impacts on local communities, including environmental justice populations: Chapter 3-Transportation, Transit, Circulation, and Parking; Section 4.2-Real Estate and Acquisitions; Section 4.4-Communities and Neighborhoods; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Alternative 2 would not result in disproportionately high and adverse effects on minority or low-income populations.

#### *CEQA Determination*

There are no thresholds of significance in CEQA for environmental justice impacts. Therefore, no CEQA determination can be made for environmental justice impacts resulting from this alternative.

## Growth-Inducing Impacts

The construction growth-inducement impacts of Alternative 2 – Median-Running BRT would be the same as the impacts described above for Alternative 1 – Curb-Running BRT.

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse.

#### *CEQA Determination*

Impacts would be less than significant.

## 4.19.3.5 Build Alternative 3 – Low-Floor LRT/Tram Alternative

### Land Use

#### Division of an Established Community

Construction of the Low-Floor LRT/Tram stations would require temporary sidewalk, lane, and street closures, and traffic detours and designated truck routes. Lane and street closures for the Low-Floor LRT/Tram could be greater in number than both Alternatives 1 and 2, due to the construction of additional infrastructure (e.g., OCS, dedicated guideway).

Street, lane, and sidewalk closures could reduce pedestrian and vehicle mobility between communities throughout the study area during construction. However, these closures would be temporary and are not expected to substantially divide existing communities or neighborhoods. Additionally, implementation of a Traffic Management Plan and Construction Phasing and Staging Plan would further reduce the disruption caused by construction activities and access to businesses and residential areas would be maintained to the extent feasible. Therefore, impacts/ effects would be less than significant under CEQA and non-adverse under NEPA.

#### Conflicts with Local Land Use Plans

Impacts would be potentially greater in extent than the impacts described for Alternatives 1 and 2 due to the more extensive construction under this alternative compared to Alternatives 1 and 2. However, construction activities would be conducted in compliance with local land use plans and codes. Therefore, substantial conflicts with local land use plans during the construction period are not expected to occur and impacts/effects would be less than significant under CEQA and non-adverse under NEPA.

#### Incompatibility with Adjacent and Surrounding Land Uses

Impacts would be greater in extent than the impacts that would occur under Alternatives 1 and 2. Construction activities along the alignment could result in temporary nuisance impacts (e.g., noise, air quality impacts) on nearby land uses. Construction noise would result from the use of heavy equipment during construction activities, such as excavation, grading, ground clearing, and installing foundations and structures, as well as from trucks hauling materials to and from the construction areas. Air quality impacts would result from the generation of fugitive dust during ground disturbing activities, and from the operation of heavy-duty, diesel-fueled equipment, such as bulldozers, trucks, and scrapers. The construction impacts on nearby sensitive land uses could be potentially significant under CEQA and adverse under NEPA.

#### Construction Mitigation Measures

Please see other sections (e.g., Chapter 4.8 – Noise and Vibration) for measures to mitigate potentially significant adverse construction impacts on sensitive land uses near proposed construction activities.

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

Construction effects would not be adverse under NEPA.

#### *CEQA Determination*

Construction impacts would be less than significant.

## Real Estate and Acquisitions

### Guideway, Stations, and TPSS

Alternative 3 would require full or partial acquisition of approximately 28 parcels to construct the guideway, stations, and TPSS. The acquisitions would consist of 25 full acquisitions and three partial acquisitions. Eleven property acquisitions would be required along the alignment to accommodate the TPSS facilities, which would be spaced approximately 1 to 1.5 miles apart. In addition, full acquisitions of 15 parcels would be required to accommodate the Low-Floor LRT/Tram guideway at the southwest corner of San Fernando Road and Van Nuys Boulevard and provide the necessary curve to transition the alignment to San Fernando Road. These parcels contain commercial retail businesses, which would require relocation. Two parcels between Weidner Street and the SR-118 on-/off-ramp at San Fernando Road would be acquired to accommodate a station platform.

### MSF Sites

In addition to ROW acquisitions required to construct the track and TPSS facilities associated with the rail alternatives, a number of parcels would be acquired to accommodate the MSF. The MSF site would require approximately 25 to 30 acres to provide enough space for storage of the maximum number of train vehicles and accommodate the associated operational needs, such as staff offices, dispatcher workstations, employee break rooms, operator areas, collision/body repair areas, paint booths, and wheel truing machines. Because of the space needs for the MSF, acquisition of between 37 and 61 parcels, depending on the MSF site selected, would be required. A discussion of the ROW acquisition requirements for each of the three proposed alternative MSF sites is presented below.

#### *MSF Option A*

MSF Option A would fully acquire 58 parcels between Calvert Street to the north, Oxnard Street to the south, and Kester Avenue to the west. The majority of the property that would be acquired consists of light manufacturing and commercial property, most of which contains businesses oriented toward automobile repair and supplies and other general commercial retail uses. Three parcels would also be fully acquired and though they are zoned for residential use, they are developed with a single parking lot serving an adjacent warehouse business. However, one parcel (2241-024-014) zoned for industrial use appears to include approximately four housing units. Accordingly, residential displacement would occur under MSF Option A.

In addition to the parcels listed above, one additional full acquisition would be required to connect the Alternative 3 guideway to the MSF Option A site.

#### *MSF Option B*

MSF Option B would require 37 full acquisitions along Keswick Street and Raymer Street. A majority of the property that would be acquired consists of light manufacturing and commercial property, most of which contains businesses oriented toward automobile repair and supplies or raw materials supply and manufacturing.

#### *MSF Option C*

MSF Option C would require the acquisition of 42 parcels including 41 full acquisitions along Arminta Street and Cabrito Road. As with Option B, a majority of the property that would be acquired consists of light manufacturing and commercial property oriented toward automobile repair and raw materials supply and manufacturing.

Alternative 3 could require between 65 and 90 acquisitions of properties, most of which would be full acquisitions. Most of the acquisitions that would be required are commercial or industrial properties (MSF Option A would require the full acquisition of four residential units).

Due to the large number of business displacements, which include a number of industrial/ manufacturing businesses, there may not be enough available real estate in the immediate vicinity of the businesses' existing locations to accommodate all of the displaced businesses. A review of online commercial real estate listings revealed that there were eight industrial properties and 19 commercial properties for sale within 1.5 miles of the project corridor and an additional 105 industrial and 141 commercial spaces for lease as of December 2014.[2] Thus, there appears to be an adequate number of available properties within the immediate study area to accommodate the displaced businesses.

Where acquisition and relocation are unavoidable, Metro would follow the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended and implemented pursuant to the Uniform Relocation Assistance and Real Property Acquisition Regulations for Federal and Federally Assisted Programs adopted by the U.S. Department of Transportation (USDOT), dated February 3, 2005. Metro would apply acquisition and relocation policies to ensure compliance with the Uniform Relocation Act and amendments. All real property acquired by Metro would be appraised to determine its fair market value. Just compensation, which shall not be less than the approved appraisal made to each property owner, would be offered by Metro. Each homeowner, renter, business, or nonprofit organization displaced as a result of the project would be given advance written notice and would be informed of the eligibility requirements for relocation assistance and payments.

Because the study area and surrounding urban area are almost entirely built out and given the number of existing buildings for sale or lease in the immediate area, it is expected that most of the businesses that would be displaced because of Alternative 3 would relocate to existing commercial buildings. Thus, it is not anticipated that construction of a substantial amount of new commercial development that could result in substantial adverse impacts on the environment would occur. Therefore, substantial adverse indirect effects related to displacement and relocation are not anticipated under Alternative 3.

### Construction Mitigation Measures

No mitigation measures are required (see discussion above requiring measures required by law).

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Under NEPA, the effects of Alternative 3 would not be adverse.

[2] LoopNet.com property search by map area. Available: http://www.loopnet.com/. Accessed: December, 9 2014.

#### *CEQA Determination*

Alternative 3 would result in impacts that are less than significant under CEQA.

## Economic and Fiscal Impacts

This alternative could result in potential minor economic impacts on local businesses due to reduced visibility (e.g., sign blockage) and diminished access resulting from sidewalk or lane closures, loss of on-street parking during construction, and permanent removal of on-street parking spaces to accommodate the Alternative 3 alignment.

The parcel acquisitions and the economic and fiscal impacts resulting from those acquisitions that could occur under this alternative are discussed below.

### Parcel Acquisitions

#### *Guideway, Stations, and TPSS*

As discussed in the Real Estate and Acquisitions section above, Alternative 3 would require full or partial acquisition of numerous parcels to construct the guideway, stations, and TPSS, as well as an MSF site.

### Economic and Fiscal Impacts of Parcel Acquisitions

The Total Assessed Value for Alternative 3 Option A, Option B, and Option C range from a low of about $40.6 million (MSF Option C) to a high of $45.9 million (MSF Option B), requiring potentially 32.1 acres (MSF Option A) to 36.7 acres (MSF Option B) of land.

The number of parcels to be acquired ranges from 63 (MSF Option B) to 90 (MSF Option A) and the total acquisitions square footage ranges from 1.2 million square feet (MSF Option A) to 1.4 million square feet (MSF Option B). Table 4.19-11 summarizes the economic impacts and identifies the affected number of firms, employment, output, value-added, and labor compensation, as well as the potential losses in property and sales tax revenue due to the parcel acquisitions. For an expanded explanation of these impacts by category and MSF Option, please see Section 4.3 of this DEIS/DEIR.

**Table 4.19-11: Alternative 3 – Summary of Estimated Employment and Fiscal Impacts**

| ALT 3 | Firms | Jobs | Output | Value Added | Labor Income | Property Tax | Sales Tax |
|---|---|---|---|---|---|---|---|
| Option A | 79 | 413 | $73,905,065 | $38,009,745 | $22,731,044 | $409,143 | $41,798 |
| Option B | 54 | 580 | $87,838,069 | $50,789,184 | $29,280,634 | $459,873 | $184,639 |
| Option C | 79 | 576 | $162,736,261 | $66,597,176 | $37,810,922 | $405,679 | $62,851 |
| Sources: Stanley R. Hoffman Associates, Inc.; IMPLAN Group, LLC, IMPLAN System (data and software), Copyright 2013. | | | | | | | |

### Construction Mitigation Measures

Construction would have temporary impacts on commercial and industrial businesses, particularly those near or adjacent to construction sites. Sidewalks or adjacent roadway lanes may be temporarily closed, thereby reducing business access. Business impacts could also include reduced visibility of commercial signs and businesses. These construction impacts could in turn produce minor economic impacts to commercial establishments. There are a number of short-term measures that could be undertaken to temper these impacts (please see Mitigation Measure TRA-7 in Chapter 3 of this Draft EIS/EIR).

### Impacts Remaining after Mitigation

#### *NEPA Finding*

The potential effects would not be adverse under NEPA.

#### *CEQA Determination*

Alternative 3, MSF Options A, B, and C would result in less than significant impacts under CEQA. The rail alternatives (both Low-Floor LRT/Tram and LRT) would not significantly affect the economic and fiscal health of communities in the project area beyond the temporary disruption associated with construction, which can be mitigated. The rail alternatives offer much greater mobility benefits than the TSM and No-Build Alternatives and modestly improved mobility benefits compared to the BRT alternatives. While the rail alternatives would result in minor losses in the tax base and associated revenue, these impacts would not be significant. Moreover, the loss of tax revenue could potentially be offset by increased development near stations and along the LRT alignment, particularly if jurisdictions work to establish and apply TOD zoning and supportive policies. These efforts would create economic opportunity for the communities in the project area. Therefore, the rail alternatives would not result in any significant direct, indirect, or cumulative impacts and would provide travel time and mobility improvements, along with a potential to increase development activity near the proposed rail stations.

## Communities and Neighborhoods

More extensive construction would be required to construct Alternative 3 facilities, which would include the OCS, TPSSs, and an MSF, than would be required for the BRT alternatives. In addition, construction activities under Alternative 3 would last approximately 4 years.

During construction, the construction contractor would choose staging locations among the parcels along the alignment to be acquired as needed for construction of Alternative 3. However, construction may require additional permanent right-of-way acquisitions and the permanent displacement of businesses.

Because it is anticipated that most businesses displaced during construction of Alternative 3 would be relocated to nearby properties, construction of this alternative would not be expected to result in substantial changes to the local economic conditions in the project study area. Local business viability may be temporarily affected by the relocations; however, after the businesses become established in their new sites and customers become accustomed to accessing businesses at their new locations, business viability would be expected to return to existing conditions.

Business displacements required for construction of Alternative 3 could result in substantial changes to the local neighborhood character, and potentially to the social fabric of the local community. Neighborhood residents or visitors may be accustomed to accessing businesses in their existing locations, and the displacement of those businesses could potentially be psychologically or socially disruptive, which could affect professional and social interactions. If relocation sites are available within proximity to the existing businesses, the disruptions to professional and social interactions may be temporary as residents become accustomed to accessing the displaced businesses at their new locations. However, this impact could be substantial and adverse under NEPA. Under CEQA, this alternative would not divide an established community, and therefore, no impact would occur.

Public controversy among community members and business owners could result from business displacements; therefore, early and ongoing public outreach is required to discuss potential concerns and communicate with property owners and community members. With implementation of mitigation measures listed below under Construction Mitigation Measures, impacts on community cohesion and interaction could remain adverse under NEPA.

### Construction Mitigation Measures

The reader is referred to the following sections in this Draft EIS/EIR for measures to reduce or avoid potential construction impacts on communities and neighborhoods: Chapter 3-Transportation, Transit, Circulation, and Parking; Section 4.2-Real Estate and Acquisitions; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security. These measures include measures to maintain access to the local communities and neighborhoods in the study area, detours, design and location of project elements to avoid obstructing views to and from these communities, requirements for use of equipment and methods to reduce air quality emissions, attenuation of noise and vibration impacts to the extent feasible by use of alternate equipment or methods, or use of noise and vibration reducing track, and coordination with public safety and transit providers to ensure adequate access to communities and neighborhoods along the project corridor. During project operation and construction, these measures would minimize direct impacts that could adversely affect the quality of the human environment within the communities and neighborhoods in the study area.

In addition, the following measure is proposed:

> **MM-CN-1**: A formal educational and public outreach campaign shall be implemented to discuss potential community and neighborhood concerns, including relocations, visual/aesthetics changes, and fare policies, and to communicate information about the project with property owners and community members.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

The potential operational effects on bicycle access and safety, construction and operational effects on social and community interactions from business displacements, and operational visual impacts on sensitive viewers in communities and neighborhoods would be adverse after mitigation. All other effects would be non-adverse.

#### *CEQA Determination*

The potential operational impacts on bicycle access and safety, construction and operational impacts on social and community interactions from business displacements, and operational visual impacts on sensitive viewers would be significant after implementation of proposed mitigation measures. All other impacts would be less than significant.

## Visual Qualities and Aesthetics

More extensive construction would be required to construct Alternative 3 facilities, which would include the OCS, TPSSs, a pedestrian bridge at the Sylmar/San Fernando Metrolink station, an MSF, and larger station platforms than the BRT alternatives. Alternative 3 would also include the most number of new stations out of all of the alternatives, 28 proposed stations. Although construction impacts on visual quality and aesthetics may be more extensive, they would generally be similar to those described above for the BRT alternatives. Consequently, the construction impacts under Alternative 3 could be potentially adverse under NEPA and significant under CEQA.

### Construction Mitigation Measures

Please see mitigation measures MM-VIS-1 above under Alternative 1.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

The potential construction effects on visual and aesthetic resources would be non-adverse after implementation of proposed mitigation measures.

#### *CEQA Determination*

The potential construction impacts on visual and aesthetic resources would be less than significant after implementation of proposed mitigation measures.

## Air Quality

Construction of Alternative 3 would result in the short-term generation of criteria pollutant emissions, as described for Alternative 1 above. During construction, the proposed project would be subject to SCAQMD Rule 403 (Fugitive Dust), which does not require a permit for construction activities, per se, but rather sets forth requirements for all construction sites (as well as other fugitive dust sources) in the Basin.

For the purpose of this impact analysis, Alternative 3 construction assumes a 24-month construction-period duration for air quality emissions estimating purposes.

### Criteria Pollutant Emissions

The estimate of construction-period regional mass emissions is shown in Table 4.19-12. As shown in the table, regional emissions for ROG and NOx are expected to exceed the SCAQMD regional emissions thresholds. Impacts would be significant under CEQA and adverse under NEPA prior to implementation of mitigation measures.

With respect to local impacts, SCAQMD has developed a set of local mass emission thresholds to evaluate localized impacts. According to SCAQMD, only those emissions that occur on site are to be considered in the LST analysis. Consistent with SCAQMD LST evaluation guidelines, emissions related to haul truck and employee commuting activity during construction are not considered in the evaluation of localized impacts. As shown in Table 4.19-13, localized $PM_{10}$ and $PM_{2.5}$ emissions during construction would exceed local thresholds. As such, short-term local mass emissions would be significant under CEQA and adverse under NEPA prior to implementation of mitigation measures.

### Table 4.19-12: Alternative 3 – Estimated Worst-Case Regional Construction Mass Emissions (pounds per day)

| Construction Year/Facility | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| **Year 2017** | | | | | | |
| Maintenance Facility | 6 | 67 | 53 | <1 | 11 | 14 |
| Track Installation, Sidewalks/Curbs, and Stations | 8 | 91 | 70 | <1 | 13 | 8 |
| Pedestrian Bridge and TPSS Facilities | 3 | 20 | 16 | <1 | 1 | 1 |
| Concurrent Year 2017 Emissions | 17 | 178 | 139 | <1 | 25 | 22 |
| **Year 2018** | | | | | | |
| Maintenance Facility | 81 | 24 | 20 | <1 | 2 | 2 |
| Track Installation, Sidewalks/Curbs, and Stations | 7 | 82 | 66 | <1 | 12 | 7 |
| Pedestrian Bridge and TPSS Facilities | 3 | 18 | 16 | <1 | 1 | 1 |
| Concurrent Year 2018 Emissions | 91 | 124 | 102 | <1 | 15 | 10 |
| **Year 2019** | | | | | | |
| Maintenance Facility **(Complete)** | — | — | — | — | — | — |
| Track Installation, Sidewalks/Curbs, and Stations | 36 | 18 | 34 | <1 | 2 | 1 |
| Pedestrian Bridge and TPSS Facilities **(Complete)** | — | — | — | — | — | — |
| Concurrent Year 2019 Emissions | 36 | 18 | 34 | <1 | 2 | 1 |
| Maximum Daily Emissions | 91 | 178 | 139 | <1 | 25 | 22 |
| Regional Construction Threshold | 75 | 100 | 550 | 150 | 150 | 55 |
| Exceed Thresholds? | Yes | Yes | No | No | No | No |

Source: CalEEMod emissions modeling by ICF International 2015.

### Table 4.19-13: Alternative 3 – Estimated Maximum Localized Construction Mass Emissions (pounds per day)

| Construction Activity | $NO_X$ | CO | $PM_{10}$[a] | $PM_{2.5}$[a] |
|---|---|---|---|---|
| Maintenance Facility | 67 | 53 | 11 | 14 |
| Track Installation, Sidewalks/Curbs, and Stations | 91 | 70 | 13 | 8 |
| Pedestrian Bridge and TPSS Facilities | 20 | 16 | 1 | 1 |
| Localized Significance Thresholds [b] | 80 | 498 | 4 | 3 |
| Exceed Thresholds? | Yes | No | Yes | Yes |

[a] $PM_{10}$ and $PM_{2.5}$ emissions estimates assume compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.
[b] The project site is in SCAQMD SRA Number 7 (Eastern San Fernando Valley). LSTs shown herein are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and the approximate local project construction size (1 acre).
Source: CalEEMod emissions modeling by ICF International 2015.

### Toxic Air Contaminant Emissions

With respect to construction-period impacts, the greatest potential for TAC emissions would be related to DPM emissions associated with operation of heavy construction equipment. Construction activities associated with the project would be sporadic, transitory, and short term in nature. The assessment of cancer risk is typically based on a 70-year exposure period; however, Alternative 3 construction is anticipated to have a duration of approximately two years. Because exposure to diesel exhaust would be well below the 70-year exposure period, project construction is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, project-related toxic emission impacts during construction would be less than significant under CEQA and non-adverse under NEPA.

### Construction Mitigation Measures

Mitigation measures MM-AQ-1 through MM-AQ-7 described under Alternative 1 would also mitigate construction-period impacts under Alternative 3.

### Impacts Remaining after Mitigation

Without the implementation of proposed mitigation measures, construction-period emissions for ROG and $NO_x$ were forecasted to exceed the SCAQMD regional emissions thresholds under Alternative 3. As shown in Table 4.19-14, with the implementation of proposed mitigation measures MM-AQ-1 through MM-AQ-7, $NO_x$ emissions would be reduced to below regional thresholds. ROG emissions, however, would exceed regional emissions thresholds. Although emissions would be reduced, regional effects under NEPA would be adverse after mitigation due to the exceedance of the NOx regional threshold. Regional impacts would remain significant under CEQA after the implementation of proposed mitigation measures.

With the implementation of mitigation measures MM-AQ-1 through MM-AQ-7, construction emissions under Alternative 3 would be reduced, but would exceed the LSTs for ROG, $PM_{10}$ and $PM_{2.5}$, as shown in Table 4.19-14. Based on the reduction of emissions, effects under NEPA would not be adverse. However, based on the emissions of ROG, $PM_{10}$, and $PM_{2.5}$ exceeding the LSTs, localized impacts would remain significant under CEQA after the implementation of proposed mitigation measures.

#### *NEPA Finding*

Construction effects would be adverse under NEPA after the implementation of mitigation.

#### *CEQA Determination*

Construction impacts under Alternative 3 would be significant under CEQA after the implementation of mitigation measures, and thus would require Metro to adopt a Statement of Overriding Considerations for approval of this alternative.

## Climate Change

Construction activities under Alternative 3 would involve roadway and sidewalk modifications to allow for median-running Low-Floor LRT/Tram service. In addition, Alternative 3 would involve construction of a MSF, a pedestrian bridge to the Sylmar/San Fernando Metrolink station, and the installation of TPSS units. In total, these activities would result in the emission of approximately 4,025 metric tons of $CO_2e$. Consistent with SCAQMD-recommended methodology, construction-period emissions were amortized over a 30-year period, resulting in an annual equivalent of approximately 134 metric tons of $CO_2e$.

**Table 4.19-14: Alternative 3 – Estimated Mitigated Worst-Case Regional Construction Mass Emissions (pounds per day)**

| Construction Year/Facility | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| **Year 2017** | | | | | | |
| Maintenance Facility | 2 | 27 | 43 | <1 | 10 | 4 |
| Track Installation, Sidewalks/Curbs, and Stations | 3 | 41 | 51 | <1 | 11 | 5 |
| Pedestrian Bridge and TPSS Facilities | <1 | 4 | 15 | <1 | <1 | <1 |
| Concurrent Year 2017 Emissions | 6 | 72 | 109 | <1 | 21 | 9 |
| **Year 2018** | | | | | | |
| Maintenance Facility | 81 | 3 | 20 | <1 | <1 | <1 |
| Track Installation, Sidewalks/Curbs, and Stations | 3 | 39 | 51 | <1 | 10 | 5 |
| Pedestrian Bridge and TPSS Facilities | <1 | 4 | 15 | <1 | <1 | <1 |
| Concurrent Year 2018 Emissions | 85 | 46 | 86 | <1 | 11 | 5 |
| **Year 2019** | | | | | | |
| Maintenance Facility **(Complete)** | — | — | — | — | — | — |
| Track Installation, Sidewalks/Curbs, and Stations | 35 | 3 | 37 | <1 | 2 | 1 |
| Pedestrian Bridge and TPSS Facilities **(Complete)** | — | — | — | — | — | — |
| Concurrent Year 2019 Emissions | 35 | 3 | 37 | <1 | 2 | 1 |
| Maximum Daily Emissions | 85 | 72 | 109 | <1 | 21 | 9 |
| Regional Construction Threshold | 75 | 100 | 550 | 150 | 150 | 55 |
| Exceed Thresholds? | Yes | No | No | No | No | No |
| Source: CalEEMod emissions modeling by ICF International 2015. | | | | | | |

### Construction Mitigation Measures

No construction mitigation measures would be required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

## Noise and Vibration

Construction of the Low-Floor LRT/Tram Alternative would require the use of heavy earth-moving equipment, pneumatic tools, generators, concrete pumps, and similar equipment. Project construction would typically take place between the hours of 7 a.m. and 9 p.m. in the City of Los Angeles in accordance with the Los Angeles Municipal Code and between the hours of 7 a.m. and 6 p.m. in the City of San Fernando in accordance with the San Fernando City Code. If it is necessary for construction to occur outside of these hours, Metro may seek a variance from Municipal Code requirements. Generally, the Low-Floor LRT/Tram Alternative, as well as the LRT Alternative, would result in more extensive construction than the two BRT alternatives.

Actual construction noise levels would depend on means and methods decided upon by the contractor, which are not available at this time. The predicted construction noise levels are based on a hypothetical scenario for the purposes of modeling. The predicted noise level from a typical 8-hour work-shift is 87 dBA (8-hour $L_{eq}$) at 50 feet, which is about 15 to 20 decibels higher than the ambient noise level. The NEPA and CEQA significance threshold pertains to construction noise levels that exceed existing ambient noise levels by 10 dBA or more at a sensitive land use. Therefore, noise from construction of the Low-Floor LRT/Tram Alternative would result in a significant impact.

Many construction activities, such as pavement breaking and the use of tracked vehicles such as bulldozers could result in noticeable levels of ground-borne vibration. These activities would be limited in duration and vibration levels are likely to be well below thresholds for minor cosmetic building damage. However, the predicted vibration levels for equipment that produces the highest levels of vibration, such as a vibratory roller, is about equal to the construction vibration NEPA and CEQA significance threshold for non-engineered and timber masonry buildings at a distance of 25 feet. Mitigation measures are recommended for these high-vibration-generating activities.

### Construction Mitigation Measures

Mitigation Measure NOI-1a-d and VIB-1 are proposed (see discussion above for Alternative 1).

### Impacts Remaining after Mitigation

#### *NEPA Finding*

The noise and vibration from construction of the Low-Floor LRT/Tram Alternative would be temporary; however, due to the increase in noise levels above ambient levels, the Low-Floor LRT/Tram Alternative would result in adverse effects, even with implementation of proposed mitigation measures.

#### *CEQA Determination*

The noise and vibration from construction of the Low-Floor LRT/Tram Alternative would be temporary; however, due to the increase in noise levels above ambient levels, the Low-Floor LRT/Tram Alternative would still result in a significant and unavoidable impact, even with implementation of proposed mitigation measures.

## Geology and Soils

The Low-Floor LRT/Tram alternative would result in the same geological construction impacts as the BRT alternatives.

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse.

#### *CEQA Determination*

Impacts would be less than significant.

## Hazardous Waste and Materials

The Low-Floor LRT/Tram Alternative would result in impacts mostly the same as those of the BRT alternatives. Additional impacts that could occur include the potential for encountering groundwater contaminated by VOCs due to the deeper construction excavations for the retrofit or replacement of structures crossing the Pacoima Wash or the foundations for the new pedestrian crossing at the San Fernando Metrolink Station. The potential for encountering hazardous materials during construction under this alternative is a potentially significant impact under CEQA and an adverse effect under NEPA. These potential impacts/effects, however, can be reduced to a less-than-significant impact and non-adverse effect by complying with the requirements and design features and implementation of the mitigation measures described below.

The Low-Floor LRT/Tram Alternative would also include MSF and TPSS facilities, unlike the BRT alternatives described above. The ESA indicated historical land usage as auto repair facilities, waste transfer facilities, manufacturing, and other industrial purposes at the potential properties to be acquired for the proposed MSF and TPSS sites. During demolition of the existing structures, LBP and ACM may be encountered in waste building materials. The construction work for the proposed MSF and TPSS sites would generally include excavations in the upper 5 to 10 feet of soil and may encounter subsurface hazardous waste residue from spills or releases from the former facilities, a potentially significant impact under CEQA and an adverse effect under NEPA. Construction of the MSF and TPSS facilities would include removal of existing hazardous materials within the construction footprint. The removal, handling, and disposal of hazardous materials would be conducted in accordance with all applicable federal, state, and local regulations, and would comply with the design features and mitigation measures, which would reduce the potential impacts to less than significant under CEQA and non-adverse under NEPA.

### Construction Mitigation Measures

See mitigation measures MM-HAZ-1 through MM-HAZ-5 above for Alternative 1.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects under NEPA would not be adverse.

#### *CEQA Determination*

Impacts under CEQA would be less than significant.

## Energy

Construction of Alternative 3 would provide of a dedicated fixed guideway in the Van Nuys Boulevard median and a mixed-flow lane along San Fernando Road for Low-Floor LRT/Tram service. An MSF, new at-grade stations, a pedestrian bridge to the Sylmar Metrolink station, modifications to sidewalks and roadways, and the installation of TPSS units would also be constructed. Diesel fuel for construction vehicles and equipment would be the primary source of energy used throughout the course of the construction period. In total, the four-year construction period would result in the consumption of approximately 55,000 MMBTU (see Appendix A).

Although an estimated 400,000 gallons of fuel would be consumed, the fuel consumption would be temporary in nature and would represent a negligible increase in regional demand, and an insignificant amount relative to the more than 18 billion gallons of on-road fuels used in the state in 2013 (California Energy Commission 2014b). Given the extensive network of fueling stations throughout the project vicinity and the fact that construction would be short-term, no new or expanded sources of energy or infrastructure would be required to meet the energy demands due to Alternative 3 construction activities. Additionally, construction activities would comply with the Metro Green Construction Policy and all construction equipment would be maintained in accordance with manufacturers' specifications so equipment performance would not be compromised. Therefore, Alternative 3 would not result in the wasteful or inefficient use of energy. Impacts related to regional energy supply, demand, and conservation during the construction period would be less than significant under CEQA and non-adverse under NEPA.

### Construction Mitigation Measures

No mitigation measures would be necessary.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

## Ecosystems and Biological Resources

Impacts expected under this alternative would be the same as construction impacts anticipated to occur under Alternatives 1 and 2. Construction would result in increased noise, movement, and vibration at the bridges over the Pacoima Wash, Pacoima Diversion Canal, and East Canyon Creek and the existing overpasses at I-5, State Route 118, and the Union Pacific Railroad (on Van Nuys Boulevard). An MSF would also be constructed under this alternative (at one of three alternate sites under consideration). Construction of the MSF could affect nesting birds and/or tree roosting bats if trees are to be removed to make way for the new MSF structures.

Similar to Alternatives 1 and 2, this alternative could result in potentially significant impacts under CEQA and adverse effects under NEPA to nesting birds or roosting bats if construction activities remove vegetation where nesting birds are present or affect structures or vegetation used by special-status bat species. However, Mitigation Measures BIO-1 and BIO-2 would reduce potential impacts to less than significant under CEQA and non-adverse under NEPA.

### Jurisdictional Waters

Similar to Alternatives 1 and 2, only street level modifications would be made along the existing roads under Alternative 3. No work, including reinforcement of bridge structures, would occur within existing drainage channels. Therefore, implementation of this alternative would not directly affect a federal or state jurisdictional drainage under CEQA or NEPA. However, please see Mitigation Measure BIO-3 for best management practices that are proposed when working near jurisdictional drainages to avoid or minimize potential indirect effects.

#### Wildlife Corridors

This alternative, similar to Alternatives 1 and 2, would not substantially interfere with the movement of resident or migratory fish or wildlife species, or with established resident or migratory wildlife corridors, or impede use as a wildlife nursery site. Potential impacts would be less than significant under CEQA and non-adverse under NEPA.

#### Conflict with Local Policies

Similar to Alternatives 1 and 2, if protected trees are removed, implementation of Mitigation Measure BIO-4 would be required to ensure compliance with City ordinances. The biological consequence of removing or trimming urban trees would be less than significant under CEQA and a non-adverse effect under NEPA with implementation of Mitigation Measure BIO-4.

#### Construction Mitigation Measures

Mitigation Measures BIO-1 through BIO-4 are proposed (see discussion above under Alternative 1).

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

Biological resources impacts would not be adverse following implementation of proposed mitigation measures.

##### *CEQA Determination*

Biological resources impacts would be less than significant following implementation of proposed mitigation measures.

### Hydrology and Water Quality

#### Water Quality

Construction activities for Alternative 3 would include pavement removal; utilities relocation; excavation; construction of at-grade trackwork and stations, including station platforms and reconstruction of sidewalks; construction of pedestrian access ways; installation of specialty system work, such as overhead contact electrification systems and communications and signaling systems; construction of TPSS facilities; reconstruction of sidewalks paving and striping; and subgrade preparation and placement of rail ballast. Similar to Alternatives 1 and 2, construction of Alternative 3 could result in an increase in surface water pollutants such as sediment, oil and grease, and miscellaneous wastes from construction activities. Because Alternative 3 also includes the construction of a new MSF and the relative area of soil disturbance would be greater to install the tracks and construct the stations, the potential for water quality degradation is greater than for the BRT alternatives. However, the General Construction Permit would still apply and a SWPPP would be developed. The SWPPP would specify BMPs to ensure that water quality standards or waste discharge requirements are not violated even for a larger area of disturbance.

As discussed above for Alternative 1, SWPPPs and the associated BMPs are routinely developed for construction sites and are proven to be effective in reducing pollutant discharges from construction activities. Implementation of the SWPPP during construction would ensure water quality objectives, standards, and wastewater discharge thresholds would not be violated. The SWPPP would be prepared by the project applicant (i.e., Metro) or its construction contractor and approved by the City of Los Angeles and City of San Fernando prior to commencement of construction activities. As selection of the appropriate BMPs is a standard process of the engineering review and grading plan approval, impacts/effects from construction on water quality would be less than significant under CEQA and non-adverse under NEPA.

None of the alternatives, including Alternative 3, would require in-water work or work that would affect wetlands.

### Groundwater Supplies and Recharge

Alternative 3 may require excavation to greater depths than what is required for the BRT alternatives in order to relocate utilities or construct LRT facilities including the MSF. Excavation may result in contact with groundwater depending on the season and location within the corridor. Should dewatering be necessary, a General Dewatering Permit would be obtained from the Los Angeles RWQCB. Residual contaminated groundwater could be encountered during dewater activities. Groundwater extracted during dewatering activities would either be treated prior to discharge or disposed of at a wastewater treatment facility.

Local groundwater is one of several sources of water supplies to the City of Los Angeles. If groundwater is used during construction for dust control, concrete pouring, etc., the amount would be greater than required for the BRT alternatives but still relatively minimal and temporary, and therefore, would not result in substantial depletion of groundwater supplies.

Adherence to dewatering requirements of the Los Angeles RWQCB, and minimal water use during construction would ensure that impacts on groundwater would be less than significant under CEQA and the effects would not be adverse under NEPA.

### Stormwater and Drainage

As discussed above for Alternative 1, construction activities, such as grading and excavation, could result in increased erosion that could adversely affect the water quality of stormwater runoff from the construction sites. There would be relatively more grading and excavation for Alternative 3 than for the BRT alternatives. However, the proposed project would be in compliance with the Construction General Permit, and a SWPPP that contains temporary construction site BMPs would be prepared and implemented. These BMPs would be implemented during construction to prevent, or minimize the potential for erosion sedimentation onsite or offsite, impacts to the water quality of stormwater runoff, and the potential for flooding on- or off-site. Because the proposed project would be required to comply with the conditions of the Construction General Permit, impacts/effects would be less than significant under CEQA and non-adverse under NEPA.

Temporary drainage facilities could be required to redirect runoff from work areas during utility relocations. The temporary drainage facilities would be sized according to City standards to avoid any exceedance to the capacity of existing or planned stormwater drainage systems. Storm drain relocation may require the need for groundwater dewatering at locations with a high water table. Residual contaminated groundwater may be encountered during dewatering activities. As described above for Alternative 1, if dewatering is necessary, the project contractor would be required to comply with Los Angeles RWQCB's General Dewatering Permit.

### Flooding and Flood Hazards

Similar to the BRT Alternatives, the 100-year flood zone areas within the project study area are fully contained within County flood channels and drainage facilities. No construction is proposed in these 100-year flood zones; therefore, construction of Alternative 3 would not place structures that would impede or redirect flood flows as mapped on any flood hazard delineation map.

There are no levees located within the project study area, and therefore no flood impacts associated with levee failure would occur that could affect construction activities, workers, or equipment. Alternative 3, however, would be located in a dam failure inundation zone area. Portions of the Sepulveda and Hansen Flood Control Basins (and the associated dams) are located in the project study area. Therefore, Alternative 3 could be adversely affected if these dams fail. However, project construction activities would not increase the present risk of dam failure, which is considered low, and would not place construction workers, equipment, or temporary structures in an area where there is a significant risk and high probability of flooding.

As noted above for Alternative 1, temporary drainage facilities could be required to redirect runoff from work areas. The temporary drainage facilities would be sized according to City standards to avoid any exceedance to the capacity of existing or planned stormwater drainage systems. As a consequence, overall drainage patterns would remain the same and construction activities are not expected to have a substantial effect on flood capacities due to temporary changes in drainage patterns or facilities. Therefore, the construction impacts/effects during construction related to flooding and flood hazards would be less than significant under CEQA and non-adverse under NEPA.

### Seiche, Tsunami, and Mud Flows

The project study area is outside of tsunami potential inundation areas and, due to the relatively flat terrain, is not prone to mudflows. The potential for a catastrophic seiche event at the Hanson Flood Control Basin reservoir is low. Therefore, construction activities are not expected to substantially affect or be affected by seiche, tsunami, or mudflow hazards. Construction impacts/effects due to Alternative 3 would be less than significant under CEQA and non-adverse under NEPA.

### Surface Water Use and Flows

Construction of Alternative 3 could require use of more water than the BRT alternatives because of the more extensive facilities (e.g., the MSF); however, the amounts are not expected to be substantial and they would be temporary. As a consequence, construction activities are not expected to substantially reduce the amount of surface water in water bodies. Additionally, construction activities would not substantially change the overall impervious area, nor would construction substantially change stormwater flows that could affect either the volume or movement of water in surface water bodies. Impacts and effects would be less than significant under CEQA and non-adverse under NEPA.

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Alternative 3 would not result in adverse effects to hydrology and water resources during construction.

#### *CEQA Determination*

Alternative 3 would result in less-than-significant impacts to hydrology and water resources during construction.

## Safety and Security

Construction of Alternative 3 – Low-Floor LRT/Tram may have temporary adverse effects on public safety and security within the study area. During construction, motorists, pedestrians, and bicyclists would experience additional safety hazards. This would result from the number and proximity of vehicles and people adjacent to Low-Floor LRT/Tram vehicle construction. Construction could also result in lane closures, traffic detours, and designated truck routes, which could adversely affect emergency vehicle response time, an adverse effect under NEPA and potentially significant impact under CEQA. The potential for significant safety and security impacts would be minimized by compliance with Occupational Safety and Health Administration (OSHA), California Occupational Safety and Health Administration (Cal/OSHA), and Metro safety and security programs, which are designed to reduce potential adverse effects during construction.

Incidents of crime adjacent to the project alignment would most likely not increase during construction. Incidents of property crime could occur at construction sites (e.g., theft of construction machinery and materials), but they would be minimized through implementation of standard site security practices by contractors. With implementation of mitigation measures MM-SS-16 through MM-SS-18, effects or impacts would be non-adverse under NEPA and less than significant under CEQA.

### Construction Mitigation Measures

Safety measures MM-SS-1 through MM-SS-3 would be implemented.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

## Parklands and Community Facilities

More extensive construction would be required to construct Alternative 3 facilities, which would include the OCS, TPSSs, and an MSF, than would be required for the BRT alternatives. Construction impacts would be more extensive than those described above for the BRT alternatives.

### Mitigation Measures

The reader is referred to the following sections in this Draft EIS/EIR for mitigation measures to reduce or avoid potential construction impacts on parklands and community facilities: Chapter 2-Transportation, Transit, Circulation, and Parking; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

The potential construction air quality impacts on parklands and community facilities would remain adverse after implementation of proposed mitigation measures. All other effects would be non-adverse.

### *CEQA Finding*

The potential construction air quality impacts on parklands and community facilities would remain significant after implementation of proposed mitigation measures. All other impacts would be less than significant.

## Environmental Justice

The Alternative 3 alignment with MSF Option A would require the full or partial acquisition of 90 parcels. The majority of the acquisitions would be from light manufacturing and commercial properties that are occupied by automobile repair, supply businesses, and other general commercial retail uses. Three residentially zoned parcels would be fully acquired under Alternative 3 with MSF Option A. While these parcels are zoned for residential use, they are currently developed with a single parking lot serving an adjacent warehouse. According to the Real Estate and Acquisition Report in Appendix I, one parcel (Assessor's Parcel Number (APN) 2241-025-014) zoned for industrial use is developed with approximately four housing units, which would be acquired and displaced under MSF Option A. The displaced businesses (and residential units) are located in low-income and/or minority neighborhoods and could be supported by owners, workers, or customers from low-income or minority block groups that could be affected by the economic changes or job losses associated with these displacements. Under Alternative 3, MSF Option A, the minority population in the affected area is approximately 70 percent and the low-income population is approximately 15 percent. Therefore, the displacement impacts of Alternative 3 with MSF Option A would be borne predominantly by an environmental justice population; as a consequence, Alternative 3 with MSF Option A could result in disproportionately high and adverse effects on environmental justice populations.

The Alternative 3 alignment with MSF Option B would require the full or partial acquisition of 65 parcels. The majority of the acquisitions would be from light manufacturing and commercial properties, which contain businesses oriented toward automobile repair and supplies or raw materials supply and manufacturing. No residential acquisitions would be required for MSF Option B. Similar to MSF Option A, these businesses are located in low-income and/or minority neighborhoods and could be supported by owners, workers, or customers from low-income or minority block groups that could be affected by the economic changes or job losses associated with these displacements. Under Alternative 3, MSF Option B, the minority population in the affected area is approximately 89 percent and the low-income population is approximately 27 percent. Therefore, the displacement impacts of Alternative 3 with MSF Option B would be predominantly borne by an environmental justice population; and as a consequence, Alternative 3 with MSF Option A could result in disproportionately high and adverse effects on environmental justice populations.

The Alternative 3 alignment with MSF Option C would require the full or partial acquisition of 68 parcels. As with Option B, a majority of acquisitions would be from light manufacturing and commercial properties oriented toward automobile repair and raw materials supply and manufacturing. No acquisitions from residential properties would be required for Alternative 3 with MSF Option C. Under Alternative 3 with MSF Option C, the minority population in the affected area is approximately 97 percent and the low-income population is approximately 22 percent. Therefore, similar to Options A and B, the displacement impacts of Alternative 3 with MSF Option C would be predominantly borne by an environmental justice population; and as a consequence, Alternative 3 with MSF Option C could result in disproportionately high and adverse effects on environmental justice populations.

Although displacement impacts would be predominantly borne by environmental justice populations, it should be noted that in the larger surrounding urban area, it is anticipated that there would be enough available properties to accommodate most, if not all, of the displaced businesses. As a consequence, construction of Alternative 3 would not be expected to result in substantial changes to local economic conditions in the project study area. According to the Real Estate and Acquisitions Report in Appendix I, for businesses that must be relocated, it is anticipated that most of the jobs would be retained, and there would be no net loss in the overall number of jobs in the study area. Therefore, no substantial adverse effects from job loss are anticipated. Nonetheless, the viability of some local businesses may be affected by the relocations because customers would need to access new businesses or old businesses at their new locations. As a consequence, the removal of some businesses from their local customer base may lead to the disruption and termination of the businesses, resulting in localized job losses.

Business displacements required for construction of Alternative 3 could also result in substantial changes to local neighborhood character, and potentially the social fabric of the local community. Neighborhood residents or visitors may be accustomed to accessing businesses in their existing locations, and the displacement of those businesses could be psychologically or socially disruptive, which could affect professional and social interactions. However, if relocation sites are available within proximity to the existing business sites, disruptions to professional and social interactions may be temporary because residents would likely become accustomed to accessing the displaced businesses at their new locations.

To minimize potential impacts, coordination would be conducted with the appropriate jurisdictions regarding business relocations so that job losses are minimized to the extent feasible. In addition, joint-use agreements (allowing concurrent transportation and business uses) would be considered for land acquisitions required for stations and construction staging to avoid the displacement of businesses and potential job losses in these areas to the extent feasible. Metro would also conduct early and ongoing public outreach to discuss potential public concerns with affected property owners and community members.

Although the displacement impacts described above would be predominantly borne by environmental justice populations, all communities within the project study area would be affected and the impacts suffered by the environmental justice populations would not be appreciably more severe or greater in magnitude than the adverse effects that would be suffered by the non-environmental justice populations. Additionally, relocation assistance and compensation in accordance with federal and state regulations would be provided for all displaced businesses. With implementation of compliance and mitigation measures and given that Alternative 3 would provide improved transit service and connectivity in an area with large transit-dependent and environmental justice populations, the impacts on the environmental justice populations would not be disproportionately high and adverse.

### Construction Mitigation Measures

The reader is referred to the following sections in this Draft EIS/EIR for measures to reduce or avoid potential construction impacts on local communities, including environmental justice populations: Chapter 3-Transportation, Transit, Circulation, and Parking; Section 4.2-Real Estate and Acquisitions; Section 4.4-Communities and Neighborhoods; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security.

### Impacts Remaining After Mitigation

#### *NEPA Finding*

Alternative 3 would result in disproportionately high and adverse effects on minority and low-income populations with respect to displacements. However, this alternative would also result in new transit opportunities that are anticipated to result in improved connectivity and transit equity. Mitigation measures would reduce or minimize the adverse effects, where feasible. After implementation of the proposed mitigation measures, adverse effects would not be substantial.

##### *CEQA Determination*

There are no thresholds of significance in CEQA for environmental justice impacts. Therefore, no CEQA determination can be made for environmental justice impacts resulting from this alternative.

### Growth-Inducing Impacts

Construction impacts would be the same as impacts described for the BRT Alternatives above.

#### Construction Mitigation Measures

No construction mitigation measures are required.

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

Effects would not be adverse.

##### *CEQA Determination*

Impacts would be less than significant.

## 4.19.3.6 Build Alternative 4 – Light Rail Transit Alternative

### Land Use

#### Division of an Established Community

Impacts would be greater in extent than the impacts described for Alternative 3, due to the potentially greater construction impacts along the subway portion of the alignment. Street, lane, and sidewalk closures could reduce pedestrian and vehicle mobility between communities throughout the study area during construction. However, these closures would be temporary and are not expected to substantially divide existing communities or neighborhoods. Additionally, implementation of a Traffic Management Plan and Construction Phasing and Staging Plan would further reduce the disruption caused by construction activities and access to businesses and residential areas would be maintained to the extent feasible. Therefore, impacts/ effects would be less than significant under CEQA and non-adverse under NEPA.

#### Conflicts with Local Land Use Plans

Impacts would be potentially greater in extent than the impacts described above for Alternatives 1, 2, and 3, due to the more extensive construction under this alternative. Substantial conflicts with local land use plans during the construction period are not expected to occur and impacts/effects would be less than significant under CEQA and non-adverse under NEPA.

#### Incompatibility with Adjacent and Surrounding Land Uses

Impacts would be the same as impacts described above for Alternative 3. Construction activities along the alignment would result in temporary nuisance impacts (e.g., noise, air quality impacts) on nearby land uses. Construction noise would result from the use of heavy equipment during construction activities, such as excavation, grading, ground clearing, and installing foundations and structures, as well as from trucks hauling materials to and from the construction areas. Air quality impacts would result from the generation of fugitive dust during ground disturbing activities, and from the operation of heavy-duty, diesel-fueled equipment, such as bulldozers, trucks, and scrapers. Similar to Alternatives 1, 2, and 3, the construction impacts on nearby sensitive land uses would be potentially significant under CEQA and potentially adverse under NEPA.

#### Construction Mitigation Measures

Please see other sections (e.g., Section 4.8 – Noise and Vibration) for measures to mitigate potentially significant adverse construction impacts on sensitive land uses near proposed construction activities.

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

The effects would not be adverse under NEPA.

##### *CEQA Determination*

Construction impacts would be less than significant.

### Real Estate and Acquisitions

Alternative 4 would require the full or partial acquisition of approximately 55 parcels to construct the guideway and TPSS facilities. Of these 55 acquisitions, 44 would be full acquisitions and 11 would be partial acquisitions. TPSS facilities would be located along the project alignment and require 13 property acquisitions, of which 12 would be full acquisitions and one would require a partial acquisition of a grocery store parking lot. The remaining 42 property acquisitions would be required to accommodate the project guideway and station platforms. Twenty-one such acquisitions, including 10 acquisitions in the City of San Fernando, would be located near the Alternative 4 terminus and would be required due to the partial relocation of Metrolink tracks to accommodate the Alternative 4 guideway and station platform at the Sylmar/San Fernando Metrolink Station. Within the City of San Fernando, land uses abut the existing Metrolink ROW, which is relatively narrow between Jessie Street and the Sylmar/San Fernando Metrolink Station. Additional space would be required to fully accommodate both the Metrolink and tracks/guideway. As such, small partial acquisitions of seven properties and three full acquisitions would be required in this location. As would occur under Alternative 3, full acquisitions of 16 parcels containing commercial properties would be required to accommodate the LRT guideway at the southwest corner of San Fernando Road and Van Nuys Boulevard to provide the necessary curve to transition the alignment to San Fernando Road. Two station platforms, the Roscoe Station and the Sherman Way Station, would require the acquisition of several commercial properties.

#### MSF Sites

The property acquisitions that would be required to construct the MSF at one of three alternative sites are described above under Alternative 3 and summarized below.

##### *MSF Option A*

As described above under Alternative 3, MSF Option A would require the acquisition of 61 parcels between Calvert Street to the north, Oxnard Street to the south, and Kester Avenue to the west (see Table 4.2-3 for a list of the full and partial acquisitions). Two additional full acquisitions (see Table 4.2-9) would be required where Van Nuys crosses the Metro Orange Line Busway in order to provide the necessary curve to transition the Alternative 4 guideway onto the Metro Orange Line Busway ROW. Because the MSF Option A site would be located at the southern terminus of Alternative 4, as opposed to the areas surrounding the Van Nuys Metrolink Station under MSF Options B and C, a key difference in MSF Option A that should be noted is the Van Nuys Metrolink station platform would only require partial acquisition of parcel 2215-001-912 at Keswick Street as opposed to the full acquisition under MSF Options B and C.

#### *MSF Option B*

MSF Option B would require 37 full acquisitions, as described above under Alternative 3 and listed in Table 4.2-5.

In order to connect Alternative 4 to the MSF Option B site, the Alternative 4 guideway would curve east off of Van Nuys Boulevard through a row of commercial buildings requiring 11 full acquisitions. This is required to provide a perpendicular crossing of Van Nuys Boulevard to access the MSF Option B site. In addition, partial acquisition and permanent underground easements below 6 private properties would be required where tunnel portions of the alignment would not be within public road ROW. No displacements would be required as a result of these underground easements.

#### *MSF Option C*

MSF Option C, as described above under Alternative 3, would require the acquisition of 42 properties, 41 of which would be full acquisitions (see Table 4.2-6 for a list of the required properties).

The MSF Option C connection for Alternative 4 would be similar to that of the MSF Option B connection requiring the full acquisition of the same 11 commercial properties. The primary difference would be additional underground easements would be required below two additional properties as the tunnel portion of the alignment would be extended below these two private properties.

Alternative 4 could require between 110 and 120 acquisitions of properties, most of which would be full acquisitions. Most of the acquisitions that would be required are commercial or industrial properties (in comparison to MSF Option A, which requires full acquisition of four residential units).

As described above under Alternative 3, it is anticipated that there is an adequate supply of commercial and industrial properties along the corridor and in surrounding areas to accommodate displaced businesses; though larger industrial facilities may have difficulty finding comparable properties near their existing locations. As with Alternative 3, where acquisition and relocation are unavoidable, Metro would follow the provisions of the Uniform Act.

### Construction Mitigation Measures

No mitigation measures are required (see discussion above requiring measures required by law).

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Alternative 4 would not result in adverse effects under NEPA.

#### *CEQA Determination*

Alternative 4 would result in less-than-significant impacts under CEQA.

## Economic and Fiscal Impacts

Similar to the BRT alternatives, this alternative could also result in potential minor economic impacts on local businesses due to reduced visibility (e.g., sign blockage) and diminished access resulting from sidewalk or lane closures, loss of on-street parking during construction, and permanent removal of on-street parking spaces to accommodate the Alternative 4 alignment.

### Parcel Acquisitions

#### *Guideway, Stations, and TPSS*

As discussed in the Real Estate and Acquisitions section above, Alternative 4 would require full or partial acquisition of numerous parcels to construct the guideway, stations, and TPSS, as well as an MSF site.

### Economic and Fiscal Impacts of Parcel Acquisitions

The Total Assessed Value for Alternative 4 Option A, Option B, and Option C range from a low of about $65.8 million (MSF Option A) to a high of $94.0 million (MSF Option B), requiring potentially 60.5 acres (MSF Option A) to 72.2 acres (MSF Option B).

The number of parcels that would be affected ranges from 102 (MSF Option B) to 118 (MSF Option A) and total square footage of the properties to be acquired, which ranges from 1.8 million square feet (MSF Option A) to 2.2 million square feet (MSF Option B). Table 4.19-15 identifies the affected number of firms, employment, output, value-added, and labor compensation and identifies the potential property and sales tax losses due to parcel acquisitions. For an expanded explanation of these impacts by category and MSF Option, please see Section 4.3 of this DEIS/DEIR.

**Table 4.19-15 Alternative 4 - Summary of Estimated Employment and Fiscal Impacts**

| ALT 4 | Firms | Jobs | Output | Value-Added | Labor Income | Property Tax | Sales Tax |
|---|---|---|---|---|---|---|---|
| Option A | 106 | 974 | $215,034,217 | $91,240,338 | $57,126,873 | $658,000 | $66,632 |
| Option B | 126 | 1,285 | $248,514,020 | $115,093,588 | $70,330,356 | $940,000 | $236,438 |
| Option C | 147 | 1,280 | $325,433,391 | $131,861,261 | $79,294,826 | $873,000 | $113,774 |
| Sources: Stanley R. Hoffman Associates, Inc.; IMPLAN Group, LLC, IMPLAN System (data and software), Copyright 2013. | | | | | | | |

Similar to Alternative 3, construction of Alternative 4 would have temporary impacts on commercial and industrial businesses, particularly those near or adjacent to construction sites. Sidewalks or adjacent roadway lanes may be temporarily closed, thereby reducing business access. Business impacts could also include reduced visibility of commercial signs and businesses. These construction impacts could in turn produce minor economic impacts to commercial establishments. There are a number of short-term measures that could be undertaken to temper these impacts (please see Mitigation Measure TRA-7 in Chapter 3 of this Draft EIS/EIR).

### Construction Mitigation Measures

Construction would have temporary impacts on commercial and industrial businesses, particularly those near or adjacent to construction sites. Sidewalks or adjacent roadway lanes may be temporarily closed, thereby reducing business access. Business impacts could also include reduced visibility of commercial signs and businesses. These construction impacts could, in turn, have minor economic impacts on commercial establishments. A number of short-term measures could be undertaken to temper these impacts (please see Mitigation Measure TRA-7 in Chapter 3 of this Draft EIS/EIR).

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

The potential effects would not be adverse under NEPA.

##### *CEQA Determination*

Alternative 4, Options A, B, and C would result in less than significant economic and fiscal impacts under CEQA. The rail alternatives (both Low-Floor LRT/Tram and LRT) would not significantly affect the economic and fiscal health of communities in the project area beyond the temporary disruption associated with construction, which can be mitigated. The rail alternatives offer much greater mobility benefits than the TSM and No-Build Alternatives and modestly improved mobility benefits compared to the BRT alternatives. While the rail alternatives would result in minor losses in the tax base and associated revenue, these impacts would not be significant. Moreover, the loss of tax revenue could potentially be offset by increased development near stations and along the LRT alignment, particularly if jurisdictions work to establish and apply TOD zoning and supportive policies. This would create economic opportunity for the communities in the project area. Therefore, the rail alternatives would not result in any significant direct, indirect, or cumulative economic and fiscal impacts and would provide travel time and mobility improvements, along with a potential to increase development activity near the proposed LRT stations.

### Communities and Neighborhoods

Alternative 4, the LRT Alternative, would require the most extensive construction of the four build alternatives because of the subway portion of the alignment. Similar to Alternative 3, Alternative 4 would include construction of OCS, TPSSs, and MSF structures. Those structures or facilities would not be required for the BRT alternatives. As a consequence, Alternative 4 would result in the greatest construction impacts, compared to the other alternatives, but the types and level of significance of the impacts would be the same as those described above for Alternative 3.

#### Construction Mitigation Measures

The mitigation measures mentioned and discussed for Alternative 3 also apply to Alternative 4.

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

The potential operational effects on bicycle access and safety, construction and operational effects on social and community interactions from business displacements, and operational visual impacts on sensitive viewers in communities and neighborhoods would be adverse after mitigation. All other effects would not be adverse.

##### *CEQA Determination*

The potential operational impacts on bicycle access and safety, construction and operational impacts on social and community interactions from business displacements, and operational visual impacts on sensitive viewers would be significant after implementation of proposed mitigation measures. All other impacts would be less than significant. Visual Qualities and Aesthetics

Alternative 4 would require the most extensive construction of the four build alternatives because of the subway portion of the alignment. The LRT Alternative would include construction of the OCS, TPSSs, construction of a pedestrian bridge at the Sylmar/San Fernando Metrolink station, an MSF, and larger station platforms than the BRT alternatives. Therefore, Alternative 4 would result in the greatest construction impacts, compared to the other alternatives; however, the types and level of significance of the impacts would be to the same as those described above for Alternative 3. Consequently, the construction impacts under Alternative 4 could be potentially adverse under NEPA and significant under CEQA.

### Construction Mitigation Measures

Please see mitigation measure MM-VIS-1 above under Alternative 1.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

The potential construction effects on visual and aesthetic resources would not be adverse after implementation of proposed mitigation measures.

#### *CEQA Determination*

The potential construction impacts on visual and aesthetic resources would be less than significant after implementation of proposed mitigation measures.

## Air Quality

Construction of Alternative 4 would result in the short-term generation of criteria pollutant emissions, as described for Alternative 1. During construction, the proposed project would be subject to SCAQMD Rule 403 (Fugitive Dust), which does not require a permit for construction activities, per se, but rather sets forth requirements for all construction sites (as well as other fugitive dust sources) in the Basin.

For the purpose of this impact analysis, Alternative 4 construction assumes a 30-month construction-period duration, for air quality emissions estimating purposes.

### Criteria Pollutant Emissions

The estimate of construction-period regional mass emissions is shown in Table 4.6-23. As shown in the table, regional emissions for ROG and NOx are expected to exceed the SCAQMD regional emissions thresholds under the cut-and-cover and tunnel boring options. Impacts would be significant under CEQA and adverse under NEPA prior to implementation of mitigation measures.

With respect to local impacts, SCAQMD has developed a set of local mass emission thresholds to evaluate localized impacts. According to SCAQMD, only those emissions that occur on site are to be considered in the LST analysis. Consistent with SCAQMD LST evaluation guidelines, emissions related to haul truck and employee commuting activity during construction are not considered in the evaluation of localized impacts. As shown in Table 4.6-24, localized NOx, $PM_{10}$ and $PM_{2.5}$ emissions during construction would exceed local thresholds. As such, short-term local mass emissions would be significant under CEQA and adverse under NEPA without implementation of mitigation measures.

### Toxic Air Contaminant Emissions

With respect to construction-period impacts, the greatest potential for TAC emissions would be related to DPM emissions associated with heavy equipment operations during project construction. Construction activities associated with the project would be sporadic, transitory, and short term in nature. The assessment of cancer risk is typically based on a 70-year exposure period; however, Alternative 4 construction is anticipated to have duration of approximately 30 months. Because exposure to diesel exhaust would be well below the 70-year exposure period, project construction is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, project-related toxic emission impacts during construction would be less than significant under CEQA and non-adverse under NEPA.

### Construction Mitigation Measures

Mitigation measures MM-AQ-1 through MM-AQ-7 described for Alternative 1 would also be implemented to mitigate impacts under Alternative 4.

### Impacts Remaining after Mitigation

Without the implementation of mitigation measures, construction-period emissions for ROG and $NO_x$ were forecasted to exceed the SCAQMD regional emissions thresholds under Alternative 4. As shown in Table 4.6-27, with the implementation of proposed mitigation measures MM-AQ-1 through MM-AQ-7, ROG and $NO_x$ emissions would continue to exceed regional emissions thresholds. Although emissions would be reduced with mitigation, regional effects under NEPA would be adverse due to the exceedances of the ROG and $NO_x$ regional thresholds. Impacts would remain significant under CEQA after the implementation of mitigation measures.

With the implementation of proposed mitigation measures, construction emissions under Alternative 4 would be reduced, but would exceed the LSTs for ROG, $PM_{10}$ and $PM_{2.5}$, as shown in Table 4.6-28. Based on the reduction of emissions, localized effects under NEPA would not be adverse. However, based on the emissions of $PM_{10}$ and $PM_{2.5}$ exceeding the LSTs, localized impacts would remain significant under CEQA after the implementation of proposed mitigation measures.

#### *NEPA Finding*

Construction effects would be considered adverse after the implementation of mitigation measures.

#### *CEQA Determination*

Construction of Alternative 4 would result in the emission of ROGs and $NO_x$ in excess of regional thresholds, neither of which would be reduced below the thresholds following the implementation of mitigation measures. In addition, construction of Alternative 4 would exceed the LSTs for ROG, $PM_{10}$, and $PM_{2.5}$ after the implementation of mitigation measures. Construction impacts under Alternative 4 would be significant under CEQA after the implementation of mitigation measures, and thus would require Metro to adopt a Statement of Overriding Considerations for approval of this alternative.

## Climate Change

Alternative 4 would involve construction activities and changes to roadways and sidewalks to accommodate LRT service. This would include the construction of a tunnel and three subterranean stations. In addition, Alternative 4 would involve construction of a MSF, a pedestrian bridge to the Sylmar/San Fernando Metrolink station, the LRT and heavy rail bridges over the Pacoima Wash, and the installation of TPSS units. MSF Option B and the cut-and-cover method of tunnel construction were assumed because these would result in the greatest impacts with respect to GHG emissions. In total, these activities would result in the emission of approximately 19,900 metric tons of $CO_2e$. Consistent with SCAQMD-recommended methodology, construction-period emissions were amortized over a 30-year period, resulting in an annual equivalent of approximately 663 metric tons of $CO_2e$.

#### Construction Mitigation Measures

No construction mitigation measures would be required.

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

Effects would be beneficial under NEPA.

##### *CEQA Determination*

Impacts would be beneficial under CEQA.

### Noise and Vibration

Impacts resulting from the construction of Alternative 4 would be the same as those that would occur under Alternative 3, and the proposed mitigation measures for Alternative 3 above would also apply to construction of Alternative 4. One exception is that Alternative 4 includes tunneling, which is not included in Alternative 3. Noise impacts from tunnel boring machines are expected to be less-than-significant, because operations take place under ground.

Recently, a tunnel boring machine was used for the Metro Gold Line Eastside Extension. No noise complaints associated with ground-borne noise from the TBM or mine trains used for the Gold Line were received. Ground-borne noise and vibration impacts associated with tunneling are likely to be less than significant because tunneling will only take place within the Van Nuys Boulevard street ROW. However, an assessment of tunneling operations should be including in the Construction Vibration Control Plan required by mitigation measure MM-VIB-1 because ground-borne noise and vibration levels from tunneling are highly dependent on the means and methods selected by the contractor. If the Metro ground-borne noise limits or ground-borne vibration limits are exceeded during tunneling, the contractor will be required to take actions to reduce vibrations to acceptable levels. Such actions could include reducing the muck train speed, additional rail and tie isolation, and more frequent rail and wheel maintenance.

#### Construction Mitigation Measures

Mitigation Measure NOI-1 and VIB-1 are proposed (see discussion above for Alternative 1). Tunneling impacts would be addressed in the Construction Noise Control Plan (NOI-1) and in the Construction Vibration Control Plan (VIB-1).

#### Impacts Remaining after Mitigation

##### *NEPA Finding*

The noise and vibration from construction of the LRT Alternative would be temporary; however, due to the increase in noise levels above ambient levels, the LRT Alternative would result in adverse effects, even with implementation of proposed mitigation measures.

#### *CEQA Determination*

The noise and vibration from construction of the LRT Alternative would be temporary; however, due to the increase in noise levels above ambient levels, the LRT Alternative would still result in significant and unavoidable impacts, even with implementation of proposed mitigation measures.

## Geology and Soils

The LRT Alternative would result in the same construction impacts as the Low-Floor LRT/Tram Alternative. However, under this alternative, the tunneling and deep excavations during construction could cause vertical and lateral movement of the existing soils adjacent to the improvements. Therefore, tunneling required to construct the LRT Alternative could result in the potentially significant adverse impacts/effects due to ground settlement and differential settlement immediately above the alignment and on adjacent buildings and structures.

The LRT Alternative could also be affected by groundwater hazards during construction. Groundwater levels are shallow at the southern end of the LRT Alternative alignment near the Los Angeles River and become deeper at the northern end of the project area. The southern end of the proposed tunnel structure would potentially be located below historical high groundwater levels, and consequently groundwater may be encountered during construction of the tunnel, a potentially significant hazard.

The LRT Alternative would be designed and constructed in compliance with current building codes and regulatory requirements, as previously discussed, which would reduce the potential risks posed by the hazards above. Additionally, the potential for settlement during construction of the LRT tunnel, which could be a significant hazard, would be further reduced as a result of implementation of the design measures.

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

## Hazardous Waste and Materials

The LRT Alternative would result in the same construction impacts as the Low-Floor LRT/Tram Alternative for the at-grade portions of the project. The cut and cover/tunneling portion of this alternative could consist of excavations as deep as 80 feet with piles extending deeper. The ESA indicated that adjacent to the project ROW, there are instances of LUSTs from former auto stations, and some of these facilities may extend into the project ROW because Van Nuys Boulevard may have been widened over time. Additionally, the proposed tunnel would cross beneath a portion of the former General Motors Plant and other manufacturing and industrial sites, which may contain soils containing hydrocarbons, VOCs, and other hazardous waste constituents. The possibility of encountering hazardous materials is a potentially significant impact under CEQA and an adverse effect under NEPA. However, these impacts would be reduced to less than significant with compliance with the requirements and design features and implementation of mitigation measures.

In addition, on the southern end of the proposed tunnel, the structure would potentially be located below historically high groundwater levels, which may be contaminated with hazardous materials, a potentially significant impact under CEQA and adverse effect under NEPA. If groundwater is encountered during construction, any wastewater generated would require laboratory testing to determine appropriate disposal. Compliance with regulatory requirements and mitigation measures would reduce potential effects to less than significant and non-adverse.

### Construction Mitigation Measures

Please see mitigation measures MM-HAZ-1 through MM-HAZ-5 above. The following mitigation measure is also proposed.

**MM-HAZ-6:** In addition to the environmental studies identified above in MM-HAZ-1, the environmental investigation for the LRT Alternative shall include the following:

- If reconstruction of the Pacoima Wash bridge on San Fernando Road is proposed, the construction spoils (e.g., excavated soils, cuttings generated during installation of CIDH piles), including those in contact with the groundwater, shall be contained and tested for total chromium, 1,4-dioxane, trichloroethylene (TCE), and PCE to determine appropriate disposal.
- Phase II subsurface investigation shall be performed along the below-grade segment of the corridor to evaluate the need for environmental remediation measures during construction. The Phase II site investigation shall include the installation of groundwater monitoring wells for the tunneling portion of the alternative.
- An existing underground injection control well is located adjacent to the proposed tunnel along Van Nuys Boulevard for the LRT corridor alternative. The design team shall consult with California Department of Conservation to evaluate the potential impact of the well on the proposed improvements that could encounter groundwater and are located within ⅛ mile of the well.
- To evaluate for the presence of deeper soil contamination and VOCs in groundwater at cut and cover/tunnel excavation locations, soil borings shall be performed and groundwater monitoring wells shall be installed. Soil sampling shall include environmental screening for contamination by visual observations and field screening for VOCs with a photoionization detector (PID). Based on field screening, soil samples shall be analyzed for the suspected chemicals by a certified laboratory. Groundwater samples shall be analyzed for VOCs.

A Contaminated Soil/Groundwater Management Plan shall be prepared during final design that describes appropriate methods and measures to manage contamination encountered during construction.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects under NEPA would not be adverse.

#### *CEQA Determination*

Impacts under CEQA would be less than significant.

## Energy

Alternative 4 would involve the construction of a LRT system within a 9.2 mile corridor along Van Nuys Boulevard and San Fernando Road/Metrolink railroad right-of-way. The LRT alignment along Van Nuys Boulevard would include an underground segment. Alternative 4 would also involve construction of an MSF, new stations, a pedestrian bridge to the Sylmar Metrolink station, modifications to sidewalks and roadways, and the installation of TPSS units. For the purposes of estimating construction-related energy consumption, the plan for MSF Option A was assumed, as it would have the largest square footage and greatest demolition requirements. Also, the cut-and-cover construction method for the tunnel was assumed, as this would be the most energy-intensive construction method. If less energy-intensive options are carried forward, construction-related energy consumption for Alternative 4 would be less that what is identified below.

Diesel fuel for construction vehicles and equipment would be the primary source of energy used throughout the course of the construction period. In total, the five-year construction period would result in the consumption of approximately 274,000 MMBTU (see Table 4.11-9 and the Energy Technical Report in Appendix R). Although fuel would be consumed by construction vehicles and equipment, the estimated consumption would be limited to the construction period. An estimated 1.975 million gallons of fuel would be consumed, but the fuel consumption would be temporary in nature and would represent a negligible increase in regional demand, and an insignificant amount relative to the more than 18 billion gallons of on-road fuels used in the state in 2013 (California Energy Commission 2014b). Given the extensive network of fueling stations throughout the project vicinity and the fact that construction would be short-term, no new or expanded sources of energy or infrastructure would be required to meet the energy demands due to Alternative 4 construction activities. Additionally, construction activities would comply with the Metro Green Construction Policy and all construction equipment would be maintained in accordance with manufacturers' specifications so equipment performance would not be compromised. Therefore, Alternative 4 would not result in the wasteful or inefficient use of energy. Impacts related to regional energy supply, demand, and conservation during the construction period would be less than significant under CEQA and non-adverse under NEPA.

### Construction Mitigation Measures

No significant impacts would occur and mitigation measures would not be necessary.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

## Ecosystems and Biological Resources

### Special-status Species

Impacts from this alternative would be the same as those expected to occur under Alternatives 2 and 3. This alternative would require removal of existing median islands, road widening in other areas, construction of new bus stop canopies, some of which have trees potentially used by nesting birds and/or bat species.

Two bridge upgrades are proposed for this alternative: One bridge at Van Nuys Boulevard where it crosses over the Pacoima Diversion Canal, and one adjacent to San Fernando Road as it crosses over the Pacoima Wash. The existing bridges could be used by nesting birds and/or bat species. Construction would also result in increases in noise, movement, and vibration at the bridges over the Pacoima Wash, the Pacoima Diversion Canal, and East Canyon Creek and the existing overpasses at I-5, State Route 118, and the Union Pacific Railroad (on Van Nuys Boulevard).

A MSF would also be constructed under this alternative (at one of three alternate sites under consideration). Construction of the MSF could affect nesting birds and/or tree roosting bats if trees are to be removed to make way for the new MSF structures. In addition, three underground stations would be constructed at Sherman Way, Van Nuys Boulevard, and Roscoe Boulevard, respectively. No impacts on biological resources are anticipated for the underground segment of this alternative.

Similar to Alternatives 1 through 3, this alternative could result in potentially significant impacts under CEQA and adverse effects under NEPA to nesting birds or roosting bats if construction activities remove vegetation where nesting birds are present or affect structures or vegetation used by special-status bat species. However, Mitigation Measures BIO-1 and BIO-2 would reduce potential impacts to less than significant under CEQA and non-adverse under NEPA.

### Jurisdictional Waters

Two bridge upgrades are proposed under this alternative; crossing over the Pacoima Diversion Canal and Pacoima Wash, and are located at Van Nuys Boulevard and along San Fernando Road, within the Metro ROW. As a consequence, this alternative could affect WoUS, waters of the state (WoS), and CDFW jurisdictional streambeds. Project-related impacts on WoUS would require permitting under Section 404 of the Clean Water Act (CWA), most likely in the form of a Nationwide Permit 14 if project-related impacts on WoUS are less than 0.5 acre. Impacts on WoUS/WoS would also trigger the need for a Section 401 Certification, issued by the RWQCB. Acquisition of these permits would ensure compliance with CWA (Section 401and 404). A streambed Alteration Agreement, as regulated by Section 1602 of the California Fish and Game Code, would be required for project-related impacts on a CDFW jurisdictional streambed.

If permanent impacts on WoUS/WoS and CDFW unvegetated streambeds are unavoidable, compensatory mitigation may be required under section 401 and 404 of the CWA and Section 1602 of the California Fish and Game Code. This is expected to be required at a minimum 1:1 ratio. Final compensatory mitigation will be determined during the aquatic permitting process. In addition, temporary impacts would be required to be restored to pre-project conditions at the location of these impacts. Impacts on WoUS/WoS and CDFW streambeds would be less than significant under CEQA and non-adverse under NEPA after compliance with regulatory permit requirements.

### Wildlife Corridors

This alternative would not substantially interfere with the movement of resident or migratory fish or wildlife species, or with established resident or migratory wildlife corridors, or impede use as a wildlife nursery site. Potential impacts would be less than significant under CEQA and non-adverse under NEPA.

### Conflict with Local Policies

This alternative, similar to Alternatives 2 and 3, would require the removal of trees. Removal of any protected trees would conflict with City ordinances, which would be a potentially significant impact under CEQA and an adverse effect under NEPA. If protected trees are removed, implementation of Mitigation Measure BIO-4 would be required to ensure compliance with City ordinances. The biological consequence of removing or trimming urban trees would be less than significant under CEQA and a non-adverse effect under NEPA with implementation of Mitigation Measure BIO-4.

### Construction Mitigation Measures

Mitigation Measures BIO-1 through BIO-4 are proposed (see discussion above under Alternative 1).

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Biological resources impacts would not be adverse following implementation of proposed mitigation measures.

#### *CEQA Determination*

Biological resources impacts would be less than significant following implementation of proposed mitigation measures.

## Hydrology and Water Quality

Construction of the LRT Alternative would result in the same impacts as those described above for Alternative 3, with the exceptions pertaining to groundwater supplies and recharge, as described below.

Alternative 4, includes underground stations, which would require excavation, and a tunnel under the Pacoima Wash. High groundwater elevations at this location range from approximately 120 feet below ground surface at the northern portal of the tunnel to approximately 60 feet below ground surface near Sherman Way at the southern portal of the tunnel.

The reinforced concrete box (RCB) found under Van Nuys Boulevard would be realigned so there would be no conflict during trenching associated for the proposed underground tunnel. The RCB would continue to be routed to the same storm drain network and would not be increased in size/capacity. Therefore, its realignment would not result in a substantial change in terms of existing water hydrology. The drainage patterns could be temporarily altered during construction if the drainage is routed to a different location (i.e., nearby storm drain) during the realignment. However, the drainage would still be going to the same overall storm drain network, and BMPs would be implemented to ensure that no impacts of drainage (i.e. erosion, etc.) would occur during the temporary change in drainage inlet. The proposed work would be done during the dry season to keep drainage volumes at a minimum.

Dewatering would likely be required for the underground stations and could potentially be required for utility relocation or replacement depending on local groundwater levels. As discussed previously, residual contaminated groundwater could be encountered during dewater activities. The project contractor would be required to comply with Los Angeles RWQCB General Dewatering General Permit. Groundwater extracted during dewatering activity would either be treated prior to discharge or disposed of at a wastewater treatment facility.

Adherence to dewatering requirements of the Los Angeles RWQCB, and minimal water use during construction would ensure that impacts on groundwater would be less than significant under CEQA and the effects would not be adverse under NEPA.

### Construction Mitigation Measures

No construction mitigation measures would be required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Alternative 4 would not result in adverse effects to hydrology and water resources during construction.

#### *CEQA Determination*

Alternative 4 would result in less-than-significant impacts to hydrology and water resources during construction.

## Safety and Security

Construction of Alternative 4 may have temporary adverse effects on public safety and security in the study area. During construction motorists, pedestrians, and bicyclists would experience additional safety hazards. This would result from the number and proximity of vehicles and people adjacent to LRT construction. Construction activities, which would include an approximate 2.5-mile-long trench (cut-and-cover construction) and/or tunnel, could also result in lane closures, traffic detours, and designated truck routes, which could adversely affect emergency vehicle response time.

The potential for significant safety and security impacts would be minimized by compliance with OSHA, Cal/OSHA, and Metro safety and security programs, which are designed to reduce potential adverse effects during construction.

### Construction Mitigation Measures

Safety measures MM-SS-1 through MM-SS-3 would be implemented.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse under NEPA.

#### *CEQA Determination*

Impacts would be less than significant under CEQA.

## Parklands and Community Facilities

Alternative 4 would require the most extensive construction of the four build alternatives because of the subway portion of the alignment. Similar to Alternative 3, the LRT Alternative would include construction of OCS, TPSSs, and MSF structures. Those structures or facilities would not be required for the BRT alternatives. As a consequence, Alternative 4 would result in the greatest construction impacts, compared to the other alternatives, but the types and level of significance of the impacts would be the same as those described above for Alternative 3.

### Mitigation Measures

The reader is referred to the following sections in this Draft EIS/EIR for mitigation measures to reduce or avoid potential construction impacts on parklands and community facilities: Chapter 2-Transportation, Transit, Circulation, and Parking; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

The potential construction air quality effects on parklands and community facilities on sensitive receptors at parklands or community facilities would be adverse after proposed mitigation. All other effects would be non-adverse.

#### *CEQA Finding*

The potential construction air quality impacts on parklands and community facilities on sensitive receptors would be significant after implementation of proposed mitigation measures, and thus would require Metro to adopt a Statement of Overriding Considerations for approval of this alternative. All other impacts would be less than significant.

## Environmental Justice

Alternative 4 would require the most extensive construction of the four build alternatives because of the subway portion of the alignment. Similar to Alternative 3, the LRT Alternative (Alternative 4) would include construction of OCS, TPSS, and MSF structures, which would not be required for the BRT alternatives. As a consequence, Alternative 4 would have the greatest construction impacts compared to the other alternatives, but the types and level of significance of the impacts would be the same as those described in the previous section for Alternative 3. As discussed below, the displacement impacts, under Alternative 4, would be slightly greater than the impact that would occur under Alternative 3.

Alternative 4 would require full or partial right-of-way acquisitions ranging between 110 to 120 light industrial, manufacturing, and commercial properties for the construction of the MSF and connections to the MSF from the LRT alignment, depending on the MSF option selected. The displacement impacts would be predominantly borne by environmental justice populations; therefore, similar to Alternative 3, Alternative 4 would result in disproportionately high and adverse effects on environmental justice populations. However, as noted above for Alternative 3, relocation assistance and compensation would be provided for all displaced businesses and residences. Additionally, within the larger surrounding urban area, it is anticipated that there would be enough available properties to accommodate most, if not all, of the displaced businesses. It is not anticipated that construction of a substantial amount of new development would be required to accommodate the relocations. As a consequence of the implementation of compliance and mitigation measures and given Alternative 4 would provide improved transit service and connectivity in an area with large transit-dependent and environmental justice populations, the displacement impacts on the environmental justice populations would not be disproportionately high and adverse.

### Construction Mitigation Measures

The reader is referred to the following sections in this EIS/EIR for measures to reduce or avoid potential construction impacts on local communities, including environmental justice populations: Chapter 3-Transportation, Transit, Circulation, and Parking; Section 4.2-Real Estate and Acquisitions; Section 4.4-Communities and Neighborhoods; Section 4.5-Visual Quality and Aesthetics; Section 4.6-Air Quality; Section 4.8-Noise and Vibration; and Section 4.14-Safety and Security.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Alternative 4 would result in disproportionately high and adverse effects on minority and low-income populations with respect to displacements. However, this alternative would also result in new transit opportunities that are anticipated to result in improved connectivity and transit equity. Mitigation measures would reduce or minimize the adverse effects, where feasible. After implementation of the proposed mitigation measures, disproportionately adverse effects would not be substantial.

#### *CEQA Finding*

There are no thresholds of significance in CEQA for environmental justice impacts. Therefore, no CEQA determination can be made for environmental justice impacts resulting from this alternative.

## Growth-Inducing Impacts

Construction impacts would be the same as the impacts described for the BRT Alternatives. Although the LRT Alternative would be the most costly and take the longest to construct, and consequently it would generate the greatest number of construction jobs, similar to the other build alternatives, it is not expected to result in a substantial increase in the project study area population.

### Construction Mitigation Measures

No construction mitigation measures are required.

### Impacts Remaining after Mitigation

#### *NEPA Finding*

Effects would not be adverse.

#### *CEQA Determination*

Impacts would be less than significant.

# 4.20 Irreversible and Irretrievable Commitments of Resources

CEQA Guidelines Section 15126.2(c) requires a discussion of any significant irreversible environmental changes that would be caused by a proposed project should it be implemented. Generally, a project would result in significant irreversible environmental changes if any of the following would occur:

- The project would involve a large commitment of nonrenewable resources
- The proposed consumption of resources is not justified (e.g., the project involves wasteful energy use)
- The primary and secondary impacts would generally commit future generations to similar uses
- The project involves uses in which irreversible damage could result from any potential environmental accidents associated with the project, including risks during construction of utilities, the storm drain relocation, and irreversible damage from potential environmental impacts, construction accidents, and heightened pedestrian crossing.

Under the No Build Alternative, no new infrastructure would be built within the Study Area, aside from projects currently under construction or projects funded for construction, environmentally cleared, planned to be in operation by 2040, as identified in the Metro Long Range Transportation Plan (LRTP).

The TSM Alternative does not have a substantial construction component and would not have an irreversible and irretrievable commitment of nonrenewable resources associated with construction. Operating enhanced bus services under the TSM Alternative would rely upon the use of nonrenewable resources or a commitment of physical resources, such as metal, to the expanded bus fleet. Operation of the TSM Alternative would increase energy consumption due to the maintenance and operations of the expanded bus fleet. The use of fossil fuel would be necessary to provide electricity and fuel for buses, worker vehicles, and maintenance operations.

Construction of the Build Alternatives would entail the one-time irreversible and irretrievable commitment of nonrenewable resources, such as energy (fossil fuels used for construction equipment) and construction materials (such as lumber, sand, gravel, metals, and water). Additionally, labor and natural resources are used to produce construction materials. These materials are generally not retrievable. However, they are not in short supply and their use would not have an adverse effect upon continued availability of these resources. Any construction would also require a substantial onetime expenditure of both local and Federal funds, which are not retrievable. Land used to construct the proposed facilities is considered an irreversible commitment during the period the land is used. After construction is completed, land used for construction staging would be available for other uses. The project would commit land at stations and the maintenance facility to transit use. Station portals, maintenance facilities, and aboveground elements would be located on sites with existing commercial, retail, and industrial uses and would not require a substantial land commitment. This commitment of long-term land resources is consistent with the policies of the County of Los Angeles and the Cities of Los Angeles and San Fernando to promote transit-oriented uses.

The consumption of nonrenewable resources related to the Build Alternatives includes water, petroleum products, and electricity. Tunneling activities would require water for slurry for the tunnel boring machine and in-water cooling towers. While much of this water can be recycled and reused, these processes would also create wastewater that would require disposal. In addition, fossil fuels would be used for transporting workers and materials during construction, and electricity and fuel would be used for trains, stations, and worker vehicles for maintenance and operation during the life of the project. The consumption amount and rate of these resources would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of such resources, because they would increase transit use (which increases energy efficiency) and decrease automobile dependence (which uses fossil fuels).

Benefits from the East San Fernando Valley Transit Corridor would include improved mobility, transit accessibility, and energy and time savings. The resources commitment and consumption for the Build Alternatives are considered appropriate because regional and local area residents and visitors would benefit from improved transit services, which, in turn, would result in an overall decrease in the irreversible and irretrievable commitment of nonrenewable resources. For example, transportation sources account for over 40 percent of the energy consumed in California. The project is expected to remove passenger cars from the regional roadway network, easing the increase in VMTand the usage of fossil fuels. The Build Alternatives would reduce regional VMT by 33 to 44 thousand miles and reduce mobile source energy consumption up to nearly 427 billion BTUs. Therefore, the project can substantially decrease the irreversible and irretrievable commitment of resources.

The project consists of an either Bus Rapid, Low-Floor LRT/Tram, or LRT transit system that would include transit stations, a maintenance facility, and a rail operations center. These components of the project would primarily use household-type cleaning materials, such as detergents and cleansers. Oil, solvents, and other materials would be used for train maintenance in relatively small volumes and are not considered acutely hazardous materials according to the National Institute of Health. There is the potential for hazardous materials/waste spills to occur; however, the storage and disposal of hazardous materials/waste will be conducted in accordance with all Federal and State requirements in order to prevent or manage hazards. In the unlikely event that a spill does occur, remediation would be conducted accordingly. Therefore, there would be minimal risk of irreversible damage caused by an environmental accident associated with hazardous or acutely hazardous materials.

# 5.1 Regulatory Framework and Methodology

Section 4(f) is a section of the USDOT Act of 1966, and aims to minimize the effects of federally sponsored transportation projects on historic resources and publicly owned recreation facilities and wildlife/waterfowl refuges. Section 4(f) applies to the proposed project because the project requires federal approval by the FTA.

## 5.1.1 Regulatory Framework

### 5.1.1.1 Federal

Section 4(f) of the USDOT Act of 1966, codified at 49 United States Code (USC) Section 303, declares that "[i]t is the policy of the United States government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Section 4(f) specifies that "[t]he Secretary [of Transportation] may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance or land of a historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- There is no prudent and feasible alternative to using that land, and
- The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use."

Section 4(f) further requires consultation with the Department of Interior and, as appropriate, the involved offices of the Department of Agriculture and the Department of Housing and Urban Development, as well as relevant state and local officials, in developing transportation projects and programs that use lands that are protected under Section 4(f).

Section 6009(a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act of 2003: A Legacy for Users (SAFETEA-LU) amended the existing Section 4(f) legislation to simplify the processing and approval of projects that have only *de minimis* impacts on resources protected by Section 4(f). The simplified process was carried forward in the Moving Ahead for Progress in the 21st Century (MAP-21) Act, the most recent surface transportation funding legislation signed into law in July 2012. Under the simplified process introduced under SAFETEA-LU, a *de minimis* finding refers to a project with little or no influence on the activities, features, and/or attributes of the Section 4(f) resource. This revision states that once USDOT determines that a transportation use of a Section 4(f) property would result in a *de minimis* impact on that property, after consideration of any impact avoidance, minimization, or mitigation or enhancement measures, an analysis of avoidance alternatives is not required, and the Section 4(f) evaluation process is complete for that resource.

The proposed project (and alternatives) under the statute refers to any transportation project that may receive federal funding and/or discretionary approvals through USDOT (i.e., the Federal Transit Administration [FTA]); therefore, documentation of compliance with Section 4(f) is required.

This Section 4(f) evaluation has been prepared in accordance with the FHWA regulations for Section 4(f) compliance codified at 23 Code of Federal Regulations (CFR) Part 774. Additional guidance has been obtained from FHWA Technical Advisory T 6640.8A (1987) and the revised FHWA Section 4(f) Policy Paper (2012).

## Section 4(f) "Use"

As defined in 23 CFR Section 774.17, the use of a protected Section 4(f) resource occurs when any of the following conditions are met:

- Land is permanently incorporated into a transportation facility through partial or full acquisition (i.e., "direct use");
- There is a temporary occupancy of land that is adverse in terms of the preservationist purposes of Section 4(f) (i.e., "temporary occupancy"); or
- There is no permanent incorporation of land, but the proximity of a transportation facility results in impacts so severe that the protected activities, features, or attributes that qualify the resource for protection under Section 4(f) are substantially impaired (i.e., "constructive use").

### Direct Use

A direct use of a Section 4(f) resource takes place when property is permanently incorporated into a proposed transportation project (23 CFR Section 774.17). This may occur as a result of partial or full acquisition of a fee simple interest, permanent easements, or temporary easements that exceed the regulatory limits noted below (23 CFR Section 774.13[d]).

### Temporary Occupancy

Under FHWA regulations (23 CFR Section 774.13[d]), temporary occupancy of a property does not constitute use of a Section 4(f) resource when the following conditions are satisfied:

- The occupancy must be temporary (i.e., shorter than the period of construction) and not involve a change in ownership of the property;
- The scope of work must be minor, with only minimal changes to the protected resource;
- There must be no permanent adverse physical effects on the protected resource, and there must be no temporary or permanent interference with the activities or purposes of the resource;
- The property to be used must be fully restored to a condition that is at least as good as the condition that existed prior to the proposed project; and
- There must be documented agreement among the appropriate officials having jurisdiction over the resource regarding the foregoing requirements.

### Constructive Use

A constructive use of a Section 4(f) resource happens when a transportation project does not permanently incorporate land from the resource, but the proximity of the project results in impacts (e.g., noise, vibration, visual, access, and/or ecological impacts) that are so severe that the protected activities, features, or attributes that qualify the resource for protection under Section 4(f) are substantially impaired (23 CFR Section 774.15). Substantial impairment occurs only if the protected activities, features, or attributes of the resource are substantially diminished. This determination is made through the following practices:

- Identification of the current activities, features, or attributes of the resource that may be sensitive to proximity impacts;
- Analysis of the potential proximity impacts on the resource; and
- Consultation with the appropriate officials having jurisdiction over the resource (23 CFR Section 774.15[d]).

### De Minimis Finding

A *de minimis* finding is a finding that a project will have little or no influence on the activities, features, and/or attributes of a Section 4(f) resource. As stated above, Section 6009(a) of SAFETEA-LU amended the existing Section 4(f) legislation to simplify the processing and approval of projects that have only *de minimis* impacts on resources protected by Section 4(f). This was the first substantive revision of Section 4(f) legislation since passage of the Department of Transportation Act of 1966. Under this revision, once USDOT determines that a transportation use of a Section 4(f) property would result in a *de minimis* impact on that property, an analysis of avoidance alternatives is not required, and the Section 4(f) evaluation process is complete for that resource.

A finding of *de minimis* impact on a historic site may be made when the following occur:

- The process required by Section 106 of the National Historic Preservation Act of 1966 results in a determination of "no adverse effect" or "no historic properties affected," with concurrence from the State Historic Preservation Officer (SHPO), if participating in the Section 106 consultation;
- The SHPO is informed of the Federal Transit Administration's (FTA's) intent to make a *de minimis* impact finding based on the agency's written concurrence in the Section 106 determination; and
- FTA has considered the view of any consulting parties participating in the Section 106 consultation.

A transportation project's use of a park, recreational lands, or a wildlife and waterfowl refuge that qualifies for Section 4(f) protection may be determined to be *de minimis* if the following criteria are met:

- The transportation use of the Section 4(f) resource, together with any avoidance, minimization, or mitigation or enhancement measures incorporated into the project, does not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f);The official(s) with jurisdiction over the property is/are informed of FTA's intent to make the *de minimis* finding based on the agency's written concurrence stating that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f); and
- The public has been afforded an opportunity to review and comment on the impacts of the project on the protected activities, features, and attributes of the Section 4(f) resource.

#### 5.1.1.2 State

Section 4(f) is federal law. Public parks, recreation areas, wildlife and waterfowl refuges, and historic sites are subject to additional regulations at the state level. See Appendix T, Parklands and Community Facilities Report, and Appendix S, Historical Resources Impacts Report.

#### 5.1.1.3 Local

Section 4(f) is federal law. Public parks, recreation areas, wildlife and waterfowl refuges, and historic sites are subject to additional regulations at the local level. See Appendix T, Parklands and Community Facilities Report, and Appendix S, Historical Resources Impacts Report.

### 5.1.2 Methodology

This section identifies Section 4(f) resources in the project area and evaluates the potential effect of the proposed project on:

- Public parks, recreation areas, and refuges for wildlife and waterfowl, and
- Sites of historical significance

These categories of Section 4(f) properties are considered separately due to differing evaluation methodologies. Evaluation criteria are also based on the July 2012 FHWA Section 4(f) Policy Paper.

#### 5.1.2.1 Parks, Recreation Areas, and Wildlife and Waterfowl Areas

Parklands, recreational resources, and refuges were identified using land use maps, aerial imagery, as well as consulting with the websites of Los Angeles Department of Recreation and Parks and the Los Angeles Unified School District (LAUSD). A distance of 1,000 feet from the alignment was established as the study area for the purposes of determining the project's effect on parks, recreation areas, and wildlife and waterfowl refuges. For the purposes of Section 4(f), the 1,000-foot study area allows for identification of any potential Section 4(f) resources that may be permanently or temporarily incorporated into the project and those resources that may experience proximity impacts such as increased noise or access limitations. Any resources located beyond the 1,000-foot radius would be distant enough from the project that any potential for Section 4(f) use can be ruled out. This distance is also consistent with environmental documents from previous Metro transit projects.

Parks, recreation areas, and refuges are protected under Section 4(f) only if they are publicly owned. In addition to being public, these sites must be publicly accessible on a regular basis. For recreational resources identified on public school campuses, phone calls to the schools were made to verify the availability of such resources for use by the public outside of normal school hours. Privately owned parks, recreation areas, and refuges that are open to the public are not considered in this section, as they are not protected properties under the statute.

Impact analysis was determined on the basis on how the proposed project would use a Section 4(f) property, if at all.

#### 5.1.2.2 Historic Properties

As described in the August 2015 Historical Resources Impacts Report, both an Area of Potential Effects (APE) and a larger study area were identified for the purposes of the project. For this project, due to its size and linear nature, and due to the minimal potential for effects to historical resources adjacent to or near the project alignment, the FTA and Metro proposed a streamlined approach to evaluating potential historical resources within the approximate 10 miles of the project area and determined the APE to include the roadway only, with the exception of where new stops or stations would be located, in which the APE would be drawn to include one parcel on each corner of the affected intersection. Of the more than 400 parcels within the APE that were more than 45 years of age, 181 met the established criteria for historic evaluation, either as a property requiring individual evaluation or as a property located with a potential district area. An overview of the APE is shown in Figure 5-1.

## 5.2 Affected Environment/Existing Conditions

### 5.2.1 Parks, Recreation Areas, and Wildlife and Waterfowl Refuges

As shown in Table 5-1 and Figure 5-2, there are seven public recreational facilities within a 1,000-foot distance of the project's proposed alignments that are Section 4(f) resources, all of which are under the jurisdiction of either the City of Los Angeles or the City of San Fernando. The aerial photographs 5-1 through 5-3 show the location of those facilities located directly adjacent to the proposed project alignment. The park facilities are outlined in red and the approximate limits of the alignment for the various build alternatives are shown in the dashed gold lines in Photos 5-1 through 5-3. While there are additional recreational resources in the larger area surrounding the project alignment, they are outside of the 4(f) study area for the project. These additional recreational resources are listed below.

#### 5.2.1.1 Facilities not Considered for Section 4(f) Evaluation

There are additional resources in the vicinity surrounding the study area that have a recreational function but are not considered eligible for Section 4(f) protection. The following facilities were not included in the evaluation for the reasons specified below.

# Figure 5-1: Area of Potential Effect Overview Map


Source: GPA Consulting; ICF International, 2015.



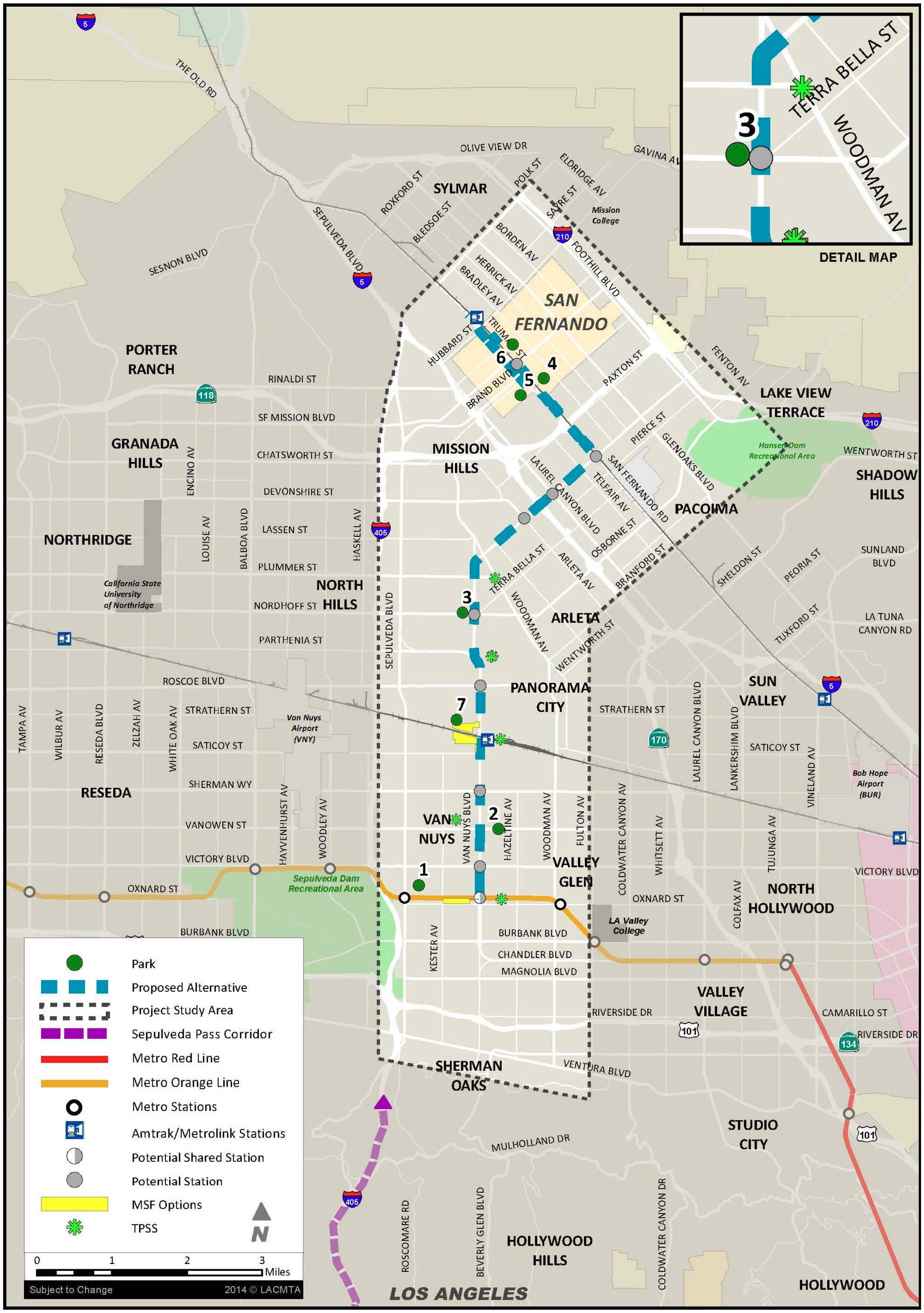
Metro

## Table 5-1: Parks, Recreation Areas, and Wildlife Refuges

| Map ID | Property Name | Address | Type | Description | Distance from Alignment |
|---|---|---|---|---|---|
| 1 | Delano Recreation Center | 15100 Erwin Street, Van Nuys | Public park | The center features outdoor athletic fields, an indoor gymnasium, an auditorium and indoor table games. | 990 feet |
| 2 | Van Nuys Recreation Center | 14301 Vanowen Avenue, Van Nuys | Public park | This recreation center features an auditorium/gymnasium, barbecue pits, baseball diamonds, basketball courts, a children's play area, a community room, handball courts, an indoor gym, picnic tables, a soccer field, and tennis courts. | 970 feet |
| 3 | Tobias Avenue Park | 9122 Tobias Avenue, Panorama City | Public park | Tobias Avenue Park features basketball courts, a children's play area, and picnic tables. | Adjacent |
| 4 | Recreation Park | 208 Park Avenue, San Fernando | Public park | The park is comprised of 11 acres of multi-activity sports facilities, including a baseball field, basketball courts, soccer field, and gymnasium. The park provides numerous recreational amenities, including a senior center, meeting rooms, a children's play area, and picnic area. The aquatics facility is a 3-acre venue housing a year-round, regionally oriented facility that includes a competition pool with three diving boards, an instruction pool with a recreational slide, and a splash area. The aquatics facility also includes a 15,000 square-foot, two-story support building providing offices, dressing rooms, classrooms, locker rooms, and a multipurpose room. | Adjacent |
| 5 | Cesar E. Chavez Memorial | 30 Wolfskill Street, San Fernando | Public park | This memorial, honoring the legacy and work of the late farm worker leader, is located at the corner of Wolfskill and Truman Street. The memorial consists of four separate art pieces placed in a park setting. A life-size statue of Cesar Chavez is poised in front of a series of ten figures representing the farm workers' plight and eventual empowerment. Other features include a fountain, seating areas, and a mural. | Adjacent |

| Map ID | Property Name | Address | Type | Description | Distance from Alignment |
|---|---|---|---|---|---|
| 6 | Layne Park | 120 North Huntington Street, San Fernando | Public park | Layne Park is 0.80 acre and houses a basketball court, picnic area, and a children's play area. | 860 feet |
| 7 | Blythe Street Park | 14740 Blythe Street, Van Nuys | Public park | Also known as Andres and Maria Cardenas Recreation Center, Blythe Street Park includes a children's play area, picnic tables, a small grass area, and a 4,500 sq. ft. skate park. | Approximately 180 feet north of MSF Option C |
| Source: Google, Inc. & Parklands and Community Facilities Impacts Report, 2015. | | | | | |

## Figure 5-2: Map of Parks, Recreation Areas, and Wildlife Refuges



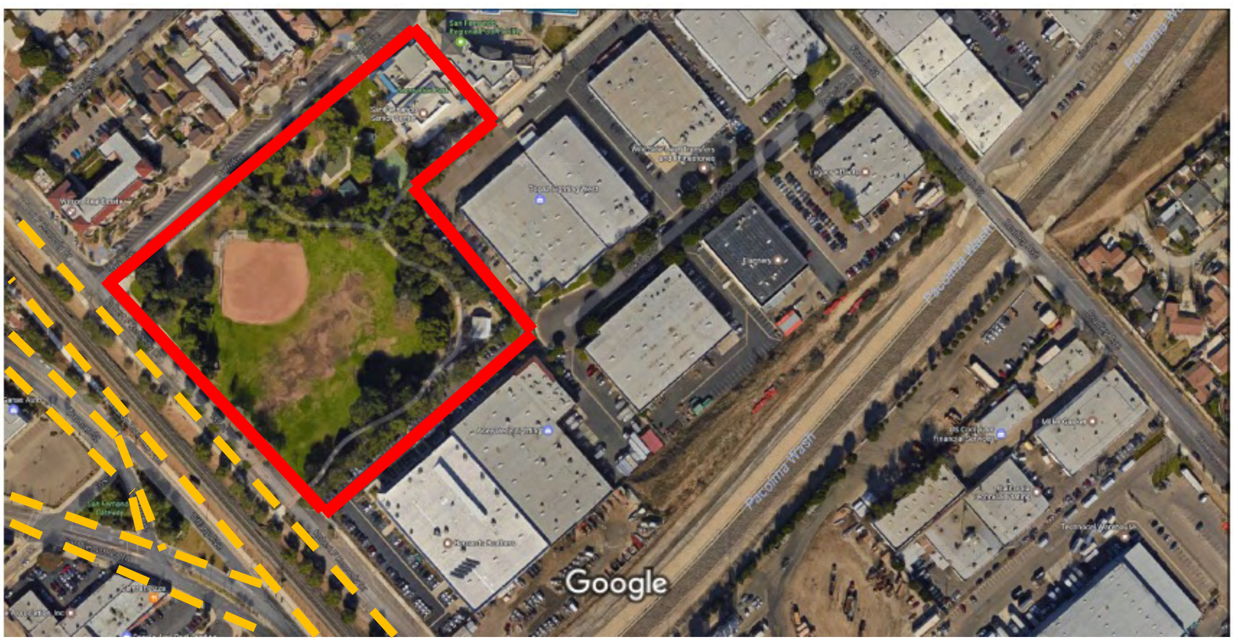

Source: ICF International, 2015.


Metro

## Photo 5-1: Tobias Avenue Park


Source: Google, 2017.

## Photo 5-2: Recreation Park




Source: Google, 2017.

### Photo 5-3: Cesar E. Chavez Memorial


Source: Google, 2017.

## Recreational Facilities Within the Study Area

Within the study area there are a number public schools whose campuses include outdoor recreational areas. According to the FHWA's 2012 Section 4(f) Policy Paper, recreational facilities, such as school play areas, are only considered protected under Section 4(f) if they are open to the general public and serve either organized or a substantial walk-on recreational purpose determined to be significant. Based on this criteria, the following seven public schools and their associated play areas, while they serve a physical education and recreational purpose, were determined not to be protected by Section 4(f) because they are not open to the public outside of school hours and therefore, are not recreational facilities for public use.

- Van Nuys Middle School (500 feet)
- Van Nuys Elementary School (650 feet)
- Panorama High School (adjacent)
- Arleta High School (adjacent)
- San Fernando Valley Middle School (adjacent)
- Liggett Street Elementary (800 feet)
- Pacoima Middle School (800 feet)

### Metro Orange Line Bike Path

One Class I bikeway, the Metro Orange Line Bike Path, crosses Van Nuys Boulevard at a signal-controlled, at-grade intersection. According to the FHWA Section 4(f) Policy Paper, shared use paths (including bike paths) that primarily serve a recreational purpose are protected under Section 4(f), while those whose primary purpose is transportation are not considered Section 4(f) resources. The bike path follows the Orange Line corridor, which indicates that it was developed and functions primarily as a non-motorized transportation facility. As stated in the City of Los Angeles 2010 Bicycle Plan, Class I bikeways are popular for both utilitarian and recreational riding and further states that the Metro Orange Line Bike Path provides valuable connections to mass transit and facilitates commutes for all types of riders (City of Los Angeles, 2011). Given that the Metro Orange Line Bike Path follows a route parallel to the Metro Orange Line Busway, and recreation is not identified as a primary purpose of the bike path, the Metro Orange Line Bike Path is not considered to be protected under Section 4(f). Furthermore, no incorporation of land from the bike path into the project would result from any of the project alternatives and the existing function and use of the bike path would be maintained throughout construction and operation of the project.

### San Fernando Road Bike Path

The San Fernando Road Bike Path is located adjacent to San Fernando Road and the railroad tracks and extends from Roxford Street in the community of Sylmar, south through the City of San Fernando, through the community of Sun Valley and up to the Burbank city limits. Similar to the Metro Orange Line Bike Path, the San Fernando Road Bike Path runs alongside Metrolink's Antelope Valley Line, including the Sylmar/San Fernando Metrolink Station and the Sun Valley Metrolink Station. Based on its proximity to existing transit facilities it the bike path functions primarily as a non-motorized transportation pathway. Similar to the Metro Orange Line Bike Path, the San Fernando Road Bike Path provides valuable connections to mass transit and facilitates commutes for all types of riders, and even runs similarly to the Interstate 5 corridor, connecting the community of Sylmar, City of San Fernando, the communities of Pacoima and Sun Valley, and the City of Burbank. Accordingly, the San Fernando Road Bike Path is considered primarily as a transportation facility and was not considered in the Section 4(f) analysis as a result. Furthermore, no incorporation of land from the bike path into the project would result from any of the project alternatives and the existing function and use of the bike path would be maintained throughout construction and operation of the project.

## 5.2.2 Historic Sites

As mentioned, a total of 181 properties were identified within the APE that met the project team's potential historic property evaluation criteria. Of these, the 10 individual properties listed below have either been previously evaluated or evaluated for this project and given a status code of 3S or 2S2. A 3S status code indicates that a property appears eligible for the National Register of Historic Places (NRHP) as an individual property through a survey evaluation. A 2S2 status code indicates that it is an individual property determined eligible for the NRHP by a consensus through the Section 106 process. As a result, these properties are protected under Section 4(f).

### 5.2.2.1 14601-3 Aetna Street – 3S

14601-3 Aetna Street was identified for further study as an example of PWA Moderne architecture and early infrastructure in the San Fernando Valley. It is listed in the California Historic Resources Information System (CHRIS) with a 2S2 status code from March 20, 2002. The South Central Coastal

Information Center (SCCIC) was contacted on July 24, 2015 for additional documentation and information regarding this previous evaluation. Michelle Galaz, Assistant Coordinator at the SCCIC responded on July 27, 2015 to say that there was no documentation for this address in their office, or for its alternative address, 14603 Aetna Street. SCCIC made a request to the State Office of Historic Preservation (OHP) for additional documentation and information. The property was individually re-evaluated for listing on the NRHP and California Register of Historic Resources (CRHR) as part of this study, but on August 13, 2015, the information from the prior evaluation was received from SCCIC. The evaluation determined that the property appears to be significant at the national and state level as a rare example of a pre-war DWP facility in the San Fernando Valley, and as an excellent example of the PWA Moderne style; the property retains sufficient integrity to convey its association with that trend and architectural style. As a result of this evaluation, the property was assigned a 3S status code, "Appears eligible for NRHP as an individual property through survey evaluation."

#### 5.2.2.2 130 N. Brand Boulevard – 2S2

130 N. Brand Boulevard was identified for further study due to its Classical Revival architecture on the junior high campus. It was previously evaluated in 1995 as part of a Section 106 survey of earthquake-damaged properties. It was given a status code of 2S2, "Individual property determined eligible for NRHP by a consensus through Section 106 process." Listed in CRHR as an excellent example of Classical Revival architecture. Therefore, it was subsequently listed on the CRHR. The project team reviewed the previous evaluation and after field inspection determined that the existing 2S2 status code is still valid.

#### 5.2.2.3 1140 San Fernando Road – 3S

1140 San Fernando Road was identified for further study as a unique example of a J.C. Penney department store in a commercial strip, as opposed to a shopping mall. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property appears to be eligible for the NRHP and CRHR at the local level of significance for its association with the commercial development of the City of San Fernando and for its architectural style; it retains sufficient integrity to convey those associations. As a result of this evaluation, the property was assigned a 3S status code, "Appears eligible for NRHP as an individual property through survey evaluation."

#### 5.2.2.4 1601 San Fernando Road – 3S

1601 San Fernando Road was identified for further study as an example of a Googie-style car wash on San Fernando Road. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property is significant under Criterion C as exemplifying a Googie car wash and that it retains sufficient integrity for listing. As a result of this evaluation, the property was assigned a 3S status code, "Appears eligible for NRHP as an individual property through survey evaluation."

#### 5.2.2.5 6353 Van Nuys Boulevard – 3S

6353 Van Nuys Boulevard was identified for further study as an example of Streamline Moderne architecture that represents an early period of commercial development in the San Fernando Valley. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property appears to meet the NRHP and CRHR Criteria at the local level of significance as a rare example of pre-World War II commercial development in the San Fernando

Valley, as well as exemplifying the Streamline Moderne style; the property retains sufficient integrity to convey this significance. As a result of this evaluation, the property was assigned a 3S status code, "Appears eligible for NRHP as an individual property through survey evaluation."

#### 5.2.2.6 6551 Van Nuys Boulevard – 3S

6551 Van Nuys Boulevard was identified for further study as an example of New Formalist architecture and the work of Millard Sheets. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property appears to be eligible for the NRHP and CRHR as a good example of New Formalism in the San Fernando Valley. As a result of this evaluation, the property was assigned a 3S status code, "Appears eligible for NRHP as an individual property through survey evaluation."

#### 5.2.2.7 8201 Van Nuys Boulevard – 3S

8201 Van Nuys Boulevard was identified for further study as a rare example of Expressionist architecture. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property appears to meet the NRHP and CRHR Criteria for its architecture and as the work of W.A. Sarmiento, who was pivotal to the shift in bank design during the twentieth century, and that it retains sufficient integrity to convey that significance. As a result of this evaluation, the property was assigned a 3S status code, "Appears eligible for NRHP as an individual property through survey evaluation."

#### 5.2.2.8 8324 Van Nuys Boulevard – 3S

8324 Van Nuys Boulevard was identified for further study as part of a planned commercial strip for the successful post-war suburb of Panorama City. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property appears to be eligible for the NRHP and CRHR at the local level for its association with the planned development of Panorama City, and it retains sufficient integrity to convey that significance. As a result of this evaluation, the property was assigned a 3S status code, "Appears eligible for NRHP as an individual property through survey evaluation."

#### 5.2.2.9 9110 Van Nuys Boulevard – 3S

9110 Van Nuys Boulevard was identified for further study as part of a planned commercial strip for the successful post-war suburb of Panorama City, and as the work of master architect William Pereira. The property was individually evaluated for listing on the NRHP and CRHR. The evaluation determined that the property was not an important example of Pereira's work, but that it appears to meet the NRHP and CRHR Criteria at the local level for its association with Panorama City, and it retains sufficient integrity to convey that significance. As a result of this evaluation, the property was assigned a 3S status code, "Appears eligible for NRHP as an individual property through survey evaluation."

#### 5.2.2.10 San Fernando Road – 3S

A portion of San Fernando Road was identified for further study due to its historic alignment, dating from as early as 1871. It was previously evaluated in 2013 as part of a CEQA review process. Segments of the road were given a status code of 3S, "Appears eligible for NRHP as an individual property through survey evaluation." One of the segments is included within the APE. The project team reviewed the previous evaluation and after field inspection determined that the existing 3S status code appears to still be valid.

# 5.3 Environmental Consequences

## 5.3.1 No-Build Alternative

### 5.3.1.1 Public Parks, Recreation Areas, and Refuges for Wildlife and Waterfowl

#### Direct Use

Since no new transportation infrastructure would be built as part of the proposed project, the No-Build Alternative would not require any permanent displacement or acquisition of public parks, recreation areas, or refuges for wildlife and waterfowl. Therefore, there would be no direct use of Section 4(f) resources.

#### Temporary Occupancy

Since no new transportation infrastructure would be built, the No-Build Alternative would not require the temporary occupancy of public parks, recreation areas, or refuges for wildlife and waterfowl that are protected property under Section 4(f).

#### Constructive Use

The No Build Alternative includes no new project facilities that would increase noise levels in the study area or result in any visual changes to the project corridor. The No-Build Alternative would not cause new impacts to the ecosystem and local and regional connectivity and access to parklands and community facilities in the project study area would remain unchanged. Thus, the No-Build Alternative would not result in impacts so severe that the protected activities, features, or attributes that qualify the resources for protection under 4(f), listed in Table 5-1, would be substantially diminished or impaired and no constructive use would occur.

### 5.3.1.2 Historic Sites

#### Direct Use

Since no new construction is proposed under the No-Build Alternative, no historic sites would be affected. Therefore, there would be no direct use of Section 4(f) resources.

#### Temporary Occupancy

Since no new construction is proposed under the No-Build Alternative, it would not require the temporary occupancy of any historic sites that are protected property under Section 4(f).

#### Constructive Use

The No-Build Alternative would not result in impacts so severe that the protected activities, features, or attributes that qualify the resources for protection under 4(f) previously mentioned, are substantially diminished or impaired. Thus, no constructive use or other indirect impacts would occur.

## 5.3.2 TSM Alternative

### 5.3.2.1 Public Parks, Recreation Areas, and Refuges for Wildlife and Waterfowl

#### Direct Use

Permanent acquisition of property would not be required to construct or implement and operate the TSM Alternative. Therefore, no public parks, recreation areas, and refuges for wildlife and waterfowl would be permanently incorporated into a transportation facility through partial or full acquisition and no direct use of Section 4(f) resources would occur under this alternative.

#### Temporary Occupancy

Construction of any facilities associated with the TSM alternative is not anticipated to require temporary occupancy of any Section 4(f) protected properties. All construction staging, equipment movement, and other activities associated with construction would take place outside the property limits of Section 4(f) protected properties. Therefore, there is no potential for use to result from any temporary occupancy of Section 4(f) property.

#### Constructive Use

The TSM Alternative would add 20 additional buses to the existing Metro Local 233 and Metro Rapid 761 bus routes. To determine constructive use, the potential for significant impacts to occur in resource areas such as noise, access, ecological intrusion, and aesthetics are considered as they relate to the activities, features, or attributes that qualify the resources for protection under Section 4(f). The TSM Alternative would include relatively low-cost transit service improvements such as increased bus frequencies or minor modifications to the roadway network. Changes in noise levels as a result of the TSM Alternative would not exceed the FTA severe or moderate noise impact thresholds or the CEQA significance threshold at any sensitive receivers, including parks and recreational facilities. Minor visual changes resulting from traffic signalization improvements and bus stop amenities/ improvements would not be expected to result in substantial changes to the existing visual character or quality in the project corridor. Implementation and operation of this alternative would not result in new impacts to the ecosystem because no operational activities would take place that would alter the existing ecological environment. Similarly, local and regional connectivity and access to parklands and community facilities in the project study area would remain relatively unchanged. Thus, operation of this alternative would not result in impacts so severe that the protected activities, features, or attributes of the Section 4(f) resources listed in Table 5-1 would be substantially diminished or impaired. As a result, the TSM Alternative would not result in the constructive use of public parks, recreation areas, or refuges for wildlife and waterfowl that are protected property under Section 4(f). Officials with jurisdiction over these resources at the Cities of Los Angeles and San Fernando were consulted to ensure that all 4(f) resources within 1,000 feet of the proposed project alignment were evaluated for the applicability of the requirements of Section 4(f). The correspondence is shown in Appendix U.

### 5.3.2.2 Historic Sites

#### Direct Use

Any construction required under the TSM Alternative would be minor and limited to the public right-of-way. Consequently, no adverse impacts to adjacent or nearby historic resources would occur and, as a result, direct use of those properties would not occur. Although, it is possible some minor physical improvements could occur under the TSM Alternative along the historic portions of San Fernando Road (e.g., bus stop improvements), these improvements would not affect or change the alignment of San Fernando Road and consequently would not result in an adverse effect on the historic roadway.

#### Temporary Occupancy

As mentioned, construction of any facilities associated with the TSM alternative is not anticipated to require temporary occupancy of any Section 4(f) protected properties. All construction staging, equipment movement, and other activities associated with construction would take place outside the property limits of Section 4(f) protected properties. Therefore, there is no potential for use to result from any temporary occupancy of Section 4(f) property.

#### Constructive Use

As mentioned, to determine constructive use, the potential for significant impacts to occur in resource areas such as noise, access, ecological intrusion, and aesthetics are considered as they relate to the activities, features, or attributes that qualify the resources for protection under Section 4(f). Any changes resulting from traffic signalization improvements and bus stop amenities/improvements during implementation and operation of this alternative would be minimal and are not expected to result in new impacts. The existing environmental setting in the project study area would remain relatively unchanged. Thus, the TSM Alternative would not result in impacts so severe that the protected activities, features, or attributes of the Section 4(f) resources would be substantially diminished or impaired. As a result, the TSM Alternative would not result in the constructive use of historic sites that are protected property under Section 4(f).

## 5.3.3 Build Alternatives 1, 2, 3, and 4

### 5.3.3.1 Public Parks, Recreation Areas, and Refuges for Wildlife and Waterfowl

#### Direct Use

The proposed project would not require the full or partial acquisition of any of the Section 4(f) properties listed in Table 5-1 including those adjacent to the project alignment, or require a permanent easement; therefore, the proposed project would not result in a direct use.

#### Temporary Occupancy

Construction of any facilities associated with the any of the Build Alternatives is not anticipated to require temporary occupancy, including temporary easements, of any Section 4(f) protected properties. All construction staging, equipment movement, and other activities associated with construction would take place outside the property limits of Section 4(f) protected properties along existing transportation right-of-way or within the non-Section 4(f) protected property that would be acquired to accommodate proposed stations or maintenance facilities. Therefore, there is no potential for use to result from any temporary occupancy of Section 4(f) property.

### Constructive Use

Project elements such as bus or rail vehicles, station structures, and associated ancillary facilities located in the vicinity of Section 4(f) resources would result in minor proximity impacts such as minimal increases in noise and visual changes. In the vicinity of station platforms or shelters, proximity impacts would be limited to visual changes due to the presence of station entrances and associated signage or other station related infrastructure. While changes to the existing noise environment would result from operation of any of the build alternatives as new vehicles (bus or rail) would be introduced and traffic operations would be altered, such changes would not affect the existing activities, features, or attributes of any of the Section 4(f) resources identified in Table 5-1 as none of these resources have been identified as noise sensitive or requiring tranquil or quiet surroundings as features are attributes that qualify the resources for protection under Section 4(f). In terms of access, all of the build alternatives would increase local and regional connectivity and access to parklands and community facilities in the project study area during project operations, and no adverse effects on access to individual Section 4(f) properties are anticipated. Thus, none of the build alternatives would result in impacts so severe that the protected activities, features, or attributes that qualify the resources listed in Table 5-1 for protection under Section 4(f) are substantially diminished or impaired. As a result, no constructive use of Section 4(f) resources would occur under this alternative.

## 5.3.3.2 Historic Sites

### Direct Use

The build alternatives have been designed to avoid acquisition of historic properties including those protected under Section 4(f). No land from a Section 4(f) protected historic site would be acquired or otherwise incorporated into the project. Therefore, there is no potential for a direct use of Section 4(f) protected historic sites to occur.

### Temporary Occupancy

As mentioned, construction of any facilities associated with the build alternatives is not anticipated to require temporary occupancy of any Section 4(f) protected properties, including historic sites. All construction staging, equipment movement, and other activities associated with construction would take place outside the property limits of Section 4(f) protected properties. Therefore, there is no potential for use to result from any temporary occupancy of Section 4(f) property.

### Constructive Use

As discussed above, there are 10 historic sites within the APE that are protected under Section 4(f). Based on the evaluations in the Historical Resources Impacts Report (see Appendix S), none of the build alternatives would result in atmospheric or audible elements that could diminish significant historic features, nor would it cause an adverse effect on any historic properties. Therefore, proximity impacts associated with the build alternatives have no potential to result in a constructive use.

# 5.4 Maintenance and Storage Facility Sites

The candidate MSF site would be approximately 25 to 30 acres in order to provide enough space for storage of the maximum number of train vehicles, and associated operational needs such as staff offices, dispatcher workstations, employee break rooms, operator areas, collision/body repair areas, paint booths, and wheel truing machines.

Due to the space needs for the MSF, the acquisition of between 37 and 62 parcels, depending on the MSF site selected, would be required. A majority of the property that would be acquired at these alternative MSF sites consists of light manufacturing and commercial property, most of which contain businesses oriented toward automobile repair and supplies, raw materials supply and manufacturing, and other general commercial retail uses.

## 5.4.1 MSF Site – Options A, B, and C

### 5.4.1.1 Public Parks, Recreation Areas, and Refuges for Wildlife and Waterfowl

#### Direct Use

None of the MSF Options would require the full or partial acquisition of any of the Section 4(f) properties listed in Table 5-1, or require a permanent easement; therefore, the proposed project would not result in a direct use.,

#### Temporary Occupancy

Construction of any of the MSF options would not require temporary occupancy, including temporary easements, of any Section 4(f) protected properties. Therefore, there is no potential for use to result from any temporary occupancy of Section 4(f) property.

#### Constructive Use

In general, proximity impacts associated with the operation of any of the MSF Options would be related to changes in noise levels associated with operation of MSF collision/body repair areas, paint booths, and wheel truing machines and changes to the visual character of a Section 4(f) resource. The only park in close proximity to any of the MSF Options is Blythe Street Park, which is, located approximately 180 feet north of the proposed MSF Option C. At this location, severe noise impacts are not anticipated and the parks activities, attributes, and features do not require a quiet environment to function. The proposed MSF option C would be cited in an area that already has substantial industrial uses in the immediate vicinity of the Blythe Street Park; therefore, introduction of the MSF is not anticipated to affect the visual character of the park to a degree that the activities, attributes, or features of the park would be adversely affected. Thus, operation of any of the MSF Options would not result in impacts so severe that the protected activities, features, or attributes that qualify the resources for protection under Section 4(f) listed in Table 5-1 are substantially diminished or impaired. No constructive use of Section 4(f) parkland, recreation areas, or wildlife or waterfowl refuges would occur under any of the MSF Options.

#### 5.4.1.2 Historic Sites

##### Direct Use

Each of the MSF Options have been designed to avoid acquisition of historic properties including those protected under Section 4(f). No land from a Section 4(f) protected historic site would be acquired or otherwise incorporated into the project. Therefore, there is no potential for a direct use of Section 4(f) protected historic sites to occur.

##### Temporary Occupancy

As mentioned, under all MSF Options, construction would not require temporary occupancy, including temporary easements, of any Section 4(f) protected properties. Therefore, there is no potential for use to result from any temporary occupancy of Section 4(f) property.

##### Constructive Use

Under MSF Option A, a one historic site, 14601-3 Aetna Street, is located in close proximity to the proposed MSF site. However, according to the Historical Resources Impacts Report (see Appendix S), none of the MSF Options, including Option A, would result in atmospheric or audible elements that could diminish significant historic features, nor would it cause an adverse effect on any historic properties. Accordingly, proximity impacts associated with the MSF Options would have no potential to result in a constructive use.

## 5.5 Agency Coordination and Consultation

Officials with jurisdiction over public parks, recreation areas, or refuges for wildlife and waterfowl at the Cities of Los Angeles and San Fernando were consulted to ensure that all 4(f) resources within 1,000 feet of the proposed project alignment were evaluated for the applicability of the requirements of Section 4(f). The correspondence is shown in Appendix U.

Chapter 6
# Evaluation of Alternatives

## 6.1 Introduction

This chapter summarizes the capital costs and planned sources of funding for the build alternatives proposed as part of the East San Fernando Valley Transit Corridor Project and analyzed in this Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR). Also presented are the methodology for evaluating the potential alternatives, along with descriptions of the alternatives, and a side-by-side comparison of environmental impacts. This chapter also identifies the environmentally superior alternative. Information contained in this chapter builds on the East San Fernando Valley Transit Corridor's Alternatives Analysis Report (AA Report), completed in December 2012 and included in Appendix F of this DEIS/DEIR, and the Los Angeles County Metropolitan Transportation Authority's (Metro's) 2009 Long-Range Transportation Plan (LRTP).

This analysis will help the Federal Transit Administration (FTA), Metro, City of Los Angeles (City) officials, stakeholders, and the general public understand and evaluate Metro's financial capacity with respect to constructing the East San Fernando Valley Transit Corridor as well as operating and maintaining the existing transit system. In addition, the analysis discusses the basis for recommendation of a Locally Preferred Alternative (LPA), which will be made following the DEIS/DEIR public circulation and comment period.

Costs and funding presented in this chapter are in 2014 base-year dollars and year-of-expenditure (YOE) dollars; the YOE is assumed to be 2018. YOE dollars reflect the financial impact of funds that would need to be expended in the actual YOE and the relative effects of inflation on costs and revenues. Annual and compounded inflation rates and the project implementation schedule are used to project from base-year dollars to YOE dollars. This inflation rate is the most current rate and used for other projects. For example, in YOE dollars, $1.00 in 2016 is equivalent to $1.03 in 2017, using an inflation rate of 3.0 percent. YOE cost estimates are derived by multiplying the constant dollar cost estimate for a particular year by the inflation factor calculated for that year. In addition, the costs and revenues presented are consistent with Metro's fiscal year, which begins July 1 and runs through June 30.

## 6.2 Capital Costs and Funding

This section presents the capital cost of the project as well as the federal, state, and local revenue sources proposed for funding. The detailed assumptions for the Capital Costs Report are provided in Appendix GG.

### 6.2.1 Capital Costs

Capital cost estimates for the alternatives are based on conceptual engineering drawings. The capital costs for the Transportation Systems Management (TSM) Alternative and the build alternatives (Alternatives 1 to 4) are presented in 2014 base-year dollars and YOE dollars in Table 6-1. Costs for the No-Build Alternative are not included because no new transit projects, beyond those that are already

### Table 6-1: Capital Cost Estimates in 2014 and YOE Dollars ($ in Millions)

| Alternative | 2014 Dollars | YOE Dollars |
|---|---|---|
| TSM Alternative | $35.2 | $39.4 |
| Alternative 1 | $294 | $329.3 |
| Alternative 2 | $402 | $450.2 |
| Alternative 3 | $1,300 | $1,456 |
| Alternative 4 | $2,674–$2,875 | $2,995–$3,220 |
| Source: KOA and ICF International, 2016. | | |

planned, approved, and funded, would be constructed in the project area. The capital costs of the alternatives range from approximately $35.2 million ($39.4 million in YOE dollars) for the TSM Alternative to $2.87 billion ($3.22 billion in YOE dollars) for the Light-Rail Transit (LRT) Alternative with Maintenance and Storage Facility (MSF) Option B. The YOE costs for the TSM Alternative and build alternatives reflect the implementation plan assumed in Metro's LRTP.

The capital costs for the alternatives presented in Table 6-2 were developed with use of FTA's Standard Cost Categories (SCC). FTA requires submission of capital costs in SCC format at key milestones in the project development process. These costs represent gross capital expenditures relative to the No-Build Alternative. Total capital costs are divided into five major categories.

- General Construction: Guideway elements, stations, maintenance yards, site work, systems, and contingencies;
- Vehicles: Vehicle manufacturing and assembly;
- Right-of-Way (ROW): All rights-of-way, land, maintenance yards, and existing improvements;
- Soft Costs: Professional engineering and related services. Generally, soft costs are capital expenditures that are required to complete an operational transit project; the funds are not spent directly on activities related to brick-and-mortar construction, vehicle and equipment procurement, or land acquisition. Instead, these expenses are for the professional services that are necessary to complete the project; and,
- Unallocated Contingency: Additional costs included in the estimate that may be used to cover unforeseen costs, inflation, and/or mitigation measures.

It should be noted that the capital costs presented in this chapter are not inclusive of Metro's Project Development costs. As the East San Fernando Valley Transit Corridor Project moves through FTA's major capital project development process, the costs and implementation schedule will be further refined.

Table 6-2: Capital Cost Estimates by Alternative

| Cost Category | TSM Alternative | Alternative 1 | Alternative 2 | Alternative 3 | | | Alternative 4 | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | MSF Option A | MSF Option B | MSF Option C | MSF Option A | MSF Option B | MSF Option C |
| Construction | $1,970,333 | $191,007,987 | $266,184,084 | $670,911,297 | $670,911,297 | $670,911,297 | $1,774,917,577 | $1,857,290,822 | $1,803,642,606 |
| ROW, Land, Maintenance Yards, and Existing Improvements | $19,703 | $ — | $ — | $100,713,051 | $122,671,407 | $103,068,389 | $124,296,027 | $213,929,855 | $198,466,878 |
| Vehicles | $26,628,588 | $34,236,756 | $40,576,896 | $209,760,000 | $209,760,000 | $209,760,000 | $135,556,476 | $135,556,476 | $135,556,476 |
| Professional Services | $709,320 | $68,762,875 | $95,826,270 | $241,528,067 | $241,528,067 | $241,528,067 | $638,970,328 | $668,624,696 | $649,311,338 |
| Unallocated Contingency (Construction) | $5,865,589 | $ — | $ — | $ — | $ — | $ — | $ — | $ — | $ — |

Notes: This table lists only the net capital expenditures for each alternative relative to the No-Build Alternative. Capital costs include construction of a maintenance yard for Alternatives 3 and 4.
Source: KOA, 2014.

## 6.2.2 Operating and Maintenance Costs

This section summarizes the operating and maintenance (O&M) cost estimates for all the alternatives. The information is derived from the O&M Costs Report included in Appendix FF. The build alternatives are projected to cost between $37.4 and $75.9 million annually to operate and maintain; the cost variations are related to the mode (bus rapid transit [BRT], low-floor LRT/tram, or LRT) and operational headway of the alternative. O&M costs for each alternative are summarized below in Table 6-3.

The Low-Floor LRT/Tram Alternative (Alternative 3) has the highest O&M costs. The most significant factor for the higher Alternative 3 O&M costs compared with the costs of the LRT Alternative (Alternative 4) is the more frequent service (shorter headways). The shorter headways and the maintenance required for tracks, stations, and vehicles make the O&M costs greater for both Alternatives 3 and 4 compared with the BRT Alternatives (Alternatives 1 and 2).

**Table 6-3: O&M Costs by Alternative**

| Alternative/Operating Scenario | O&M Cost (in millions of $ [2014]) |
|---|---|
| No Build | $22.7 |
| TSM | $32.4 |
| Alternative 1: Bus Rapid Transit – Curb Running | $37.4 |
| Alternative 2: Bus Rapid Transit – Median Running | $38.5 |
| Alternative 3: Tram – Median Running | $75.9 |
| Alternative 4: Light Rail – Fixed Guideway | $64.0 |
| Source: STV, 2014; Metro, 2012; NTD, 2014. | |

## 6.2.3 Capital Funding Sources

Metro's approved 2009 LRTP reserves $170.1 million for the project, which is the present worth in 2014 dollars, escalated to the YOE. The following federal, state, and local revenue sources are eligible sources of funding for the East San Fernando Valley Transit Corridor Project:

- Federal Sources
  - Congestion Management and Air Quality (CMAQ) Program
  - Regional Surface Transportation Program (RSTP)
  - Other future FTA funding
- State Sources
  - Regional Improvement Program (RIP)
  - Traffic Congestion Relief Program (TCRP)
  - Cap-and-Trade Program

- Local Sources
  - Measure R Sales Tax
  - Local Agency Funds
  - Proposition A Sales Tax
  - Proposition C Sales Tax
  - 2016 Transportation Sales Tax Ballot Measure (should the electorate approve it)

The $170.1 million reserved for this project is composed of federal Section 5339 funds, state traffic congestion relief dollars, local Proposition C and Measure R funds, and a local agency contribution. However, these funds would cover only part of the projected capital costs of the build alternatives. Additional revenue sources would need to be identified to fund the full cost of the build alternatives. The required additional revenues would range from approximately $159.3 million for Alternative 1 (Curb-Running BRT) to $3.05 billion for Alternative 4 (LRT) with MSF Option B. These costs would be subject to change when more detailed advanced conceptual and preliminary engineering studies are conducted during the later phases of project development. This may include development of a Minimal Operable Segment.

Measure R was amended by the Metro Board of Directors in June 2013 to reflect changes regarding the availability of Measure R funds for the East San Fernando Valley Transit Corridor and other projects. Funds would be available for the East San Fernando Valley Transit Corridor Project prior to 2018 if certain conditions are met. The change in Measure R funding availability is conditioned on meeting several threshold tests, including passage of the American Fast Forward Tax Credit Bond Program. If these conditions are met and the funds are available, then the Metro Board of Directors can amend the LRTP to reflect this change in availability. As such, the financial plan contained in the Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/FEIR) will reflect the Measure R amendment and clearly identify the timeframe in which Measure R funds will be available for this project.

In an effort to implement third-decade projects, as identified by Measure R, sooner and advance the issuance of the FEIS/FEIR, thereby reducing costs and providing new services to riders sooner, the Metro Board of Directors is pursuing additional funding mechanisms for projects that are planned for the later years of Measure R. Metro's effort includes the second part of its America Fast Forward legislation, a new class of qualified tax credit bonds for transportation.

A brief description of each funding source is provided in the sections below.

## 6.2.3.1 Federal Sources

### Congestion Management and Air Quality Program

The CMAQ program is a federal formula grant program for projects that contribute to attainment of national ambient air quality standards. The CMAQ program is also programmed for rail and bus operations and can be used for the first 3 years of operation of individual new rail and bus projects.

### Regional Surface Transportation Program

Established by California statute, the RSTP program funds projects through use of the Surface Transportation Program, in accordance with Section 133(f) of Title 23 of the United States Code. Of the $470 million apportioned annually, 76 percent is directed to California's eleven urbanized areas with a population greater than 200,000.

### 6.2.3.2 State Sources

#### Regional Improvement Program Funds

RIP funding is derived from the State Highway Account and programmed in the State Transportation Improvement Program (STIP). Funds in the State Highway Account are comprise state fuel excise taxes, truck weight fees, and other state transportation revenues as well as California's allocation of federal highway trust funds. Within the STIP, 75 percent of the funding is allocated and programmed by regional transportation planning agencies such as Metro under the RIP. The remaining 25 percent is programmed by the state under the Interregional Improvement Program.

Using a fund estimate prepared by the California Department of Transportation (Caltrans), the California Transportation Commission develops the annual RIP programming targets for each agency. Metro selects and programs the projects to be funded. Metro has programmed and reprogrammed its STIP projects to conform to the targets, which are subject to changes related to the level of funds available and the extent of borrowing of transit revenues by the state for use in balancing the state budget.

#### Traffic Congestion Relief Program Funds

The Traffic Congestion Relief Act of 2000 (Assembly Bill 2928 and Senate Bill 1662) created the TCRP and committed $4.909 billion to 141 specific projects that are designated in law. One of the TCRP projects earmarked for $100 million in funding is the North–South Corridor Project (East San Fernando Valley Transit Corridor), which would "interface with the East–West Burbank–Chandler Corridor Project and the Ventura Boulevard Rapid Bus Project."

#### Cap-and-Trade Program

The Cap-and-Trade Program provides for the quarterly auction of emissions allowances, which are purchased by greenhouse gas emitters. The program deposits the proceeds into the state's Greenhouse Gas Reduction Fund. These auction proceeds are then reinvested though 12 programs that further the objectives of the Global Warming Solutions Act of 2006 (Assembly Bill 32) by reducing greenhouse gas emissions while also delivering benefits to disadvantaged communities. One of the 12 programs, the Transit and Intercity Capital Rail Program, is a competitive, multi-year grant program to fund a broad range of capital improvements for bus, rail, and ferry systems that reduce greenhouse gas emissions by decreasing vehicle miles traveled.

### 6.2.3.3 Local Sources

#### Measure R Sales Tax

A significant portion of the project would be funded with Measure R funds, which are collected through a sales tax for the purpose of making transportation investments in the county. Measure R, a half-cent transportation sales tax approved in November 2008 by Los Angeles County voters, is intended to meet the transportation needs of the county. This is the third half-cent transportation sales tax implemented in Los Angeles County; the others were Proposition A and Proposition C. Collection of the Measure R tax began on July 1, 2009, for public transit purposes (rail expansion, local street improvements, traffic reduction, improved public transportation, and quality of life) for a period of 30 years.

Metro is responsible for administering the Measure R revenues. The revenues are allocated in accordance with legally binding allocation rules delineated in Los Angeles County Ordinance #08-01, the Metro Formula Allocation Procedure, and Metro Board of Directors actions. Ordinance #08-01 mandates that 65 percent of Measure R revenues be allocated to rail or bus transit. Twelve transit projects were identified in the Measure R ordinance, one of which is the East San Fernando Valley North–South Rapidway (later renamed the East San Fernando Valley Transit Corridor). Funds reserved in Measure R for this project were adequate for funding BRT, but if rail is chosen as the preferred alternative, additional funds will need to be identified.

### Local Agency Funds

The Measure R Expenditure Plan calls for local jurisdictions to provide 3 percent of total project costs for Measure R transit projects. Approximately 3 percent of total costs of the East San Fernando Valley Transit Corridor Project will be provided from local agency funds.

### Proposition A Sales Tax

Proposition A is a half-cent sales tax, which is designated for transportation projects throughout Los Angeles County. Proposition A was approved in 1980 by county voters and was instrumental in the advancement of several projects, including the Metro Blue Line to Long Beach and Metro Red Line to North Hollywood.

### Proposition C Sales Tax

Proposition C was also approved by county voters in 1990 as a half-cent sales tax for transportation improvements throughout the county. Revenues from the sales tax are distributed to five different categories, including 5 percent to rail and bus security; 10 percent to commuter rail facilities, transit centers, and park-and-ride lots; 25 percent to transit-related improvements to streets and highways; 20 percent as local return; and 40 percent as discretionary revenue for capital and operations improvement projects.

### 2016 Transportation Sales Tax Ballot Measure

The population of Los Angeles County is expected to grow by 2.4 million by 2057. Metro is updating its LRTP to enhance mobility and quality of life for Los Angeles County and position the region for future growth. The foundation for the updated LRTP is a transportation sales tax ballot measure, which provides a vision, through nine categories of funding, for the variety of transit-related infrastructure and programs that will be needed to build and operate a balanced multi-modal transportation system. Specifically, the potential ballot measure identifies major highway and transit projects that were evaluated and sequenced according to performance metrics approved by the Metro Board of Directors at its December 2015 meeting. The potential ballot measure also includes projects that were identified by staff members as necessary to improve and enhance system connectivity; promote bicycling and walking; support Americans with Disabilities Act (ADA)/paratransit services for the disabled; provide discounts for students and seniors; invest in bus and rail operations; implement ongoing system maintenance and repair, including repair of bridges and tunnels; and fund repairs and enhancements for local streets and roads. To fund these projects and programs, the Metro Board of Directors agreed, at its June 2016 meeting, to place a measure on the ballot in November 2016 that would augment Measure R with a new half-cent sales tax and extend the current Measure R tax rate to 2057.

In March 2016, the Metro Board of Directors released the draft Potential Ballot Measure Expenditure Plan for public review. The draft plan anticipates expenditures of more than $120 billion (YOE) over a period of 40 or more years. It relies on the following funding assumptions: a half-cent sales tax augmentation to begin in fiscal year 2018 and an extension of an existing half-cent sales tax rate beyond the current expiration of Measure R in 2039, with a combined one-cent sales tax sunset in 2057 and a partial extension for ongoing repairs, operations, and debt service. The draft plan currently identifies the East San Fernando Valley Transit Corridor Project for a total of $1.33 billion in funding, including $810 million from potential ballot measure revenues and $520 million from other LRTP revenues. The project, as defined in the draft plan, would be a high-capacity transit project, with mode to be determined, that would connect the Orange Line Van Nuys station to the Sylmar/San Fernando Metrolink station. consisting of at least 14 stations over 9.2 miles.

# 6.3 Comparison of Alternatives

This section summarizes information from other chapters of this DEIS/DEIR and highlights important trade-offs between the proposed alternatives. Section 6.3.1 summarizes the evaluation methodology used to compare the alternatives. Further information regarding the cost and ridership estimates used in this analysis is provided in Chapter 2, Project Description/Alternatives Considered. Detailed discussions of environmental considerations are provided in Chapter 4, Environmental Analysis, Consequences, and Mitigation.

## 6.3.1 Evaluation Methodology

Metro applied the objectives below in evaluating potential alternatives for the East San Fernando Valley Transit Corridor Project. These objectives reflect Metro's mission to meet public transportation and mobility needs for transit infrastructure while also being a responsible steward of the environment and considerate of affected agencies and community members when planning a fiscally sound project.

- Provide new service and/or infrastructure that improves passenger mobility and connectivity to regional activity centers;
- Increase transit service efficiency (speeds and passenger throughput) in the project study area; and
- Make transit service more environmentally beneficial by providing alternatives to auto-centric travel modes and other environmental benefits, such as reduced air pollutants, including reductions in greenhouse gas emissions in the project study area.

These goals draw upon those presented in the AA Report completed in 2012. For the purposes of this DEIS/DEIR, these goals have been updated and refined to reflect public involvement and further analysis of the proposed alternatives, the project area, and the background transportation system.

In addition to the extent to which each alternative achieves the objectives above, the alternatives were compared with respect to the features and environmental impacts remaining after mitigation.

## 6.3.2 Evaluation Results

This section examines the proposed TSM Alternative and the four build alternatives (Alternatives 1 to 4), according to the criteria discussed in Section 6.3.1. These criteria were used to compare the alternatives to each other and the No-Build Alternative, which represents 2040 conditions without the proposed East San Fernando Valley Transit Corridor Project. Detailed descriptions of the potential alternatives are provided in Chapter 2, Project Description/Alternatives Considered. The results of the evaluation are presented in Table 6-4. Further discussion of the results is provided in the sections below.

## Table 6-4: Alternatives Evaluation Results

| Criteria | No Build | TSM | Alt 1: Curb-Running BRT | Alt 2: Median-Running BRT | Alt 3: Median-Running Low-Floor LRT/Tram | Alt 4: Median-Running LRT |
|---|---|---|---|---|---|---|
| **Project Objectives** | | | | | | |
| Provide new service and/or infrastructure that improves passenger mobility and connectivity to regional activity centers | No | Yes | Yes | Yes | Yes | Yes |
| Increase transit service efficiency (speeds and passenger throughput) in the project study area | No | No | Yes | Yes | Yes | Yes |
| Make transit service more environmentally beneficial through reductions in greenhouse gas emissions in the project study area. | No | No | No | No | No | Yes |
| **Alternative Features** | | | | | | |
| New daily system-wide linked trips in 2040 | N/A | 466 | 2,970 | 2,969 | 8,452 | 8,604 |
| Average weekday daily boardings | 33,247 | 38,128 | 46,644 | 46,934 | 55,145 | 69,221 |
| Travel time (minutes)* | 35.7 | 35.7 | 32.2 | 29.2 | 34.3 | 25.4 |
| Capital costs (millions of $ [2018]) | $ 0 | $39.4 | $329.3 | $450.2 | $1,456 | $2,995–$3,220 |
| Alternative length (miles) | N/A | N/A | 9.2 | 9.2 | 9.2 | 9.2 |
| New stations | 0 | 0 | 18 | 17 | 28 | 14 |
| **Adverse/Significant Environmental Impacts Remaining after Mitigation?** | | | | | | |
| Transportation: Intersection congestion impacts during operation | No | No | Yes | Yes | Yes | Yes |
| Transportation: Removal of bicycle lanes | No | No | Yes | Yes | Yes | Yes |
| Community and Neighborhood Impacts: Removal of bicycle lanes | No | No | Yes | Yes | Yes | Yes |

| Criteria | No Build | TSM | Alt 1: Curb-Running BRT | Alt 2: Median-Running BRT | Alt 3: Median-Running Low-Floor LRT/Tram | Alt 4: Median-Running LRT |
|---|---|---|---|---|---|---|
| Community and Neighborhood Impacts: Changes to community and neighborhood character due to business displacement and operational visual impacts | No | No | No | No | Yes | Yes |
| Visual and Aesthetics: Changes that affect scenic views of the surrounding mountains and foothills | No | No | No | No | Yes | Yes |
| Air Quality: Localized PM10 and PM2.5 emissions during construction, exceeding local thresholds | No | No | Yes | Yes | Yes | Yes |
| Safety and Security: Removal of bicycle lanes | No | No | Yes | Yes | Yes | Yes |
| Safety and Security: Sidewalk narrowing in some locations where sidewalks are already crowded | No | No | No | Yes | Yes | Yes |
| Safety and Security: Changes to emergency vehicle response times due to turn restrictions and increased congestion | No | No | No | Yes | Yes | Yes |
| Noise & Vibration: Construction Noise is Adverse/Significant and Unavoidable | No | No | Yes | Yes | Yes | Yes |
| Climate Change: Increase in GHG Emissions Due to Increased Traffic Congestion | No | No | No | No | Yes | No |

* AM peak northbound travel time from Metro Orange Line to Sylmar Metrolink station.
Source: KOA and ICF International, 2016.

#### 6.3.2.1 Achievement of Project Objectives

As indicated in Table 6-4, the TSM Alternative and four build alternatives (Alternatives 1 to 4) would provide new service and/or infrastructure that would improve passenger mobility and connectivity to regional activity centers. However, the BRT alternatives (Alternatives 1 and 2) and rail alternatives (Alternatives 3 and 4) would provide better service to transit riders, given their shorter travel times, compared with the TSM Alternative.

The TSM Alternative would increase the number and frequency of buses compared with the No-Build Alternative but would not provide improvements in travel time along the corridor (i.e., faster service). However, the build alternatives would improve transit service efficiency (i.e., speeds and passenger throughput) in the project study area compared with the TSM Alternative because of the dedicated guideways or lanes and increased capacity (e.g., LRT cars can carry more passengers than buses). The TSM Alternative would provide more frequent bus service compared with existing conditions but would not separate buses from mixed-flow traffic conditions.

As presented in Table 6-4, Alternatives 3 and 4 would result in the highest number of new daily system-wide linked trips in 2040 (more than 8,000 linked trips). A linked trip is a trip from origin to destination on the transit system. Even if a person must make several transfers during a journey, the trip is counted as one linked trip on the system. The BRT alternatives would provide fewer than 3,000 new daily linked trips. Boardings are unlinked trips that occur every time a person boards a transit vehicle. Average weekday daily boardings would increase from the no-build condition of 33,247 with the TSM and BRT Alternatives (38,128 under the TSM Alternative, 46,644 under Alternative 1, and 46,934 under Alternative 2). Boardings would increase even more with the rail alternatives, to 55,145 under Alternative 3 and 69,221 under Alternative 4.

Alternative 4 (LRT) would have the shortest travel time compared with the other alternatives, with a travel time of 25.4 minutes from the Sylmar/San Fernando Metrolink station to the Metro Orange Line Van Nuys station, but the highest capital costs compared with the other alternatives. Alternative 2 has the next-shortest travel time, at 29.2 minutes, and a much lower capital cost than the rail alternatives; the relative capital cost is not much more than that of Alternative 1. Alternative 3 has the longest travel time of the build alternatives, at 34.3 minutes, though this is largely due to it having the most stations (28 stations versus between 14 to 18 stations for the other build alternatives) and consolidating both local and rapid service.

Although the TSM Alternative has the lowest capital costs compared with the build alternatives, it has the longest travel time and the lowest number of new linked trips. Alternative 4 (LRT) would provide the fewest new stations; however, it would have the highest average weekday daily boardings, with 69,221.

#### 6.3.2.2 Environmental Impacts Remaining after Mitigation

As shown in Table 6-4, above, both Alternatives 3 and 4 would result in more adverse environmental effects/significant impacts after mitigation compared with the other alternatives. With regard to the unavoidable community and neighborhood impacts associated with the build alternatives, both Alternative 3 and 4 would provide benefits in most of the other categories that federal guidance (Sections 4.4.1.1 through 4.4.1.3) considers in weighing the effect of a project on quality of life by increasing mobility and access to the various populations, businesses, and community services listed in that guidance. Nonetheless, the adverse changes to the physical character of the existing community (removal of bicycle lanes, increased congestion with turn restrictions, and narrowing of sidewalks) in this area cannot be fully mitigated.

Table ES-1 in the Executive Summary of this DEIS/DEIR summarizes the impacts, mitigation measures, and impacts remaining after mitigation associated with each alternative.

# 6.4 Environmentally Superior Alternative

Identification of an environmentally superior alternative is required per Section 15126.6(e)(2) of the California Environmental Quality Act (CEQA) Guidelines. In general, the environmentally superior alternative is the alternative that would be expected to generate the fewest adverse impacts. In this case, the No-Build Alternative would result in the fewest impacts on the existing environment. However, it should also be recognized that there could be adverse transportation, air quality, and greenhouse gas environmental consequences from making no improvements to transit service along the project corridor, and none of the mobility and connectivity benefits for the community that could occur under the proposed build alternatives would occur under the No-Build Alternative.

Pursuant to CEQA regulations (see CEQA Guidelines Section 15126.6(e)(2), when the No-Project (aka No-Build) Alternative is the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives. To determine which of the other alternatives would be environmentally superior, the analysis focuses on those impacts identified as adverse and/or significant and unavoidable, even after mitigation.

As shown in s 6-4, the TSM Alternative would not result in any significant impacts/adverse effects after mitigation, as opposed to all four build alternatives, which would result in significant impacts/adverse effects after mitigation. The TSM Alternative would, therefore, be the environmentally superior alternative. However, as shown in Table 6-4, the TSM Alternative would meet only one of the three primary project objectives. Alternatives 1 through 4 would meet most of the project objectives; Alternative 4 would meet all the project objectives. Among Alternatives 1 through 4, Alternative 1 would be the environmentally superior alternative because, as shown in Table 6-4, it would result in unavoidable significant adverse impacts in five of the 11 environmental impact categories identified in the table, compared with seven for Alternative 2 and 11 for Alternatives 3 and 4. However, it should be noted that Alternative 1 would not provide the mobility and environmental benefits that could occur, for example, under Alternative 4, which would have the greatest number of transit trips and the greatest travel time reductions. Alternative 4 is the only alternative that would substantively reduce greenhouse gas emissions because of grade separation along the most congested portion of the corridor and its much higher average weekday daily boardings.

# 6.5 Alternatives Considered But Eliminated

Section 15126.6(c) of the State CEQA Guidelines requires EIRs to identify any alternatives that were considered by the lead agency but rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination.

As stated at the beginning of this chapter, a formal alternative analysis process was completed for the proposed project and an AA Report that presents the results of that process was completed in December 2012. According to the proposed project's AA Report, seven main evaluation criteria, each having a set of corresponding performance measures, were developed to help screen the alternatives that were developed during the alternative analysis process. These criteria include the following:

- Travel and mobility benefits and impacts;
- Regional connectivity;
- Cost effectiveness;
- Environmental benefits and impacts;
- Economic and land use considerations;
- Community input; and
- Financial capability.

Performance measures associated with these criteria are included in Appendix F.

The following alternative alignments were identified and considered but subsequently eliminated from further review in this DEIS/DEIR during the alternative analysis process and as a result of the DEIS/DEIR scoping process:

- Sepulveda Boulevard – Other than the southern segment, this alignment failed to link with many primary destination points. It would realize fewer boardings than an alignment that would travel primarily on Van Nuys Boulevard, which has higher transit-dependent populations and transit ridership. Furthermore, it was opposed by the community in the northern section of the alignment. There was strong community support for an alignment on Van Nuys Boulevard.
- I-210 Freeway Terminus Point – An alignment to this location failed to link with local/regional bus or rail service and lacked the ridership potential compared with an alignment that would terminate at the Sylmar/San Fernando Metrolink station. The Metrolink station provides regional and local linkages, a park-and-ride lot, and bus layover facilities, and it garnered greater community support.
- Van Nuys Boulevard between the Metro Orange Line and Ventura Boulevard – Van Nuys Boulevard is significantly wider south of the Metro Orange Line, resulting in buses being able to travel at higher speeds. Although buses travel faster, boardings decrease significantly because of the nature of the businesses along this stretch of the Boulevard. Because of the low number of boardings and the existing efficiency of bus service, it was determined that there was little to no need for enhanced transit service south of the Metro Orange Line. Additionally, because the alignment of the future Sepulveda Pass Transit Project has not yet been determined, including the location where such a transit line would connect to existing transit lines in the San Fernando Valley, it was decided that this transit corridor should not preclude the location of the connection. Therefore, the southern terminus for this corridor was modified to be at an existing transit line, the Metro Orange Line.

It should be noted that the Curbside BRT Alternative was eliminated from further consideration during the alternatives analysis process because it failed to achieve several of the operational efficiencies that were called for in the project's purpose and need. After further analysis, this alternative is being reconsidered and included for evaluation in this DEIS/DEIR because 1) it could meet most of the project's objectives and purpose and need, 2) it could have the least impact on existing traffic, and 3) it has the potential to be constructed within the budget reserved for this project in the Board-adopted 2009 LRTP. In addition, this alternative allows for bicycles to travel in the proposed curbside lanes, sharing the lane with only buses, in response to comments received on the alternatives analysis in support of bicycle facilities along the corridor. The other alternatives being considered would require bicycles to travel in mixed-flow traffic lanes because of ROW constraints.

# 6.6 Identification of a Locally Preferred Alternative

The LPA is the alternative that will be identified in the FEIS/FEIR. Following the DEIS/DEIR public comment period, the Metro Board of Directors may choose to select an LPA after examining the DEIS/DEIR, comments received during the public comment period, and other relevant information. After certification of the FEIS/FEIR, Metro will consider officially adopting a project alternative for implementation. For informational purposes, the differences among the BRT and rail alternatives are highlighted below.

## 6.6.1 BRT Alternatives

The station locations for the two BRT alternatives considered are virtually identical. However, under Alternative 1, buses would operate in a curb lane; under Alternative 2, buses would operate in the median of Van Nuys Boulevard. The significant differences are outlined below.

| Alternative 1: Curb-Running BRT | Alternative 2: Median-Running BRT |
|---|---|
| Local buses could share the dedicated bus lane with BRT but may slow BRT buses. | Local buses would remain in the curb lane with mixed-flow traffic, while BRT would operate in the median. |
| Bicyclists could share the dedicated lane with buses but may slow BRT speeds. | Bicyclists would share the curb lane with automobile traffic. |
| Right-turning vehicles at driveways and intersections would negatively affect travel speeds (projected to average 13.4 mph). | Right-turning vehicles would not affect median-running buses, resulting in superior travel speeds (projected to average 15 mph). |
| Left turns into business driveways and onto secondary streets would be permitted. | Left turns into business driveways and onto secondary streets would be prohibited. |
| On-street parking would be permitted from 7 p.m. to 7 a.m. | On-street parking would be prohibited. |
| Stations would be on the curb along Van Nuys Boulevard, thereby requiring less roadway width to construct. | Stations would be in the median of Van Nuys Boulevard, which would result in narrower lanes and/or narrower sidewalks. |
| Fare transactions and barrier gates would be more challenging on curbs. | Fare transactions and barrier gates would be easier to accommodate in a median bus station. |
| Due to an exclusive bus bench contract with the Los Angeles Department of Transportation, it may not be possible to build sidewalk stations. | Median bus stations would resemble Metro rail stations. |

## 6.6.2 Rail Alternatives

The differences between the alignments and operational characteristics of the two rail alternatives considered are more significant than those of the BRT alternatives, as outlined below.

| Alternative 3: Low-Floor LRT/Tram | Alternative 4: LRT |
|---|---|
| Twenty-eight stations. | Fourteen stations. |
| Frequent stops, resulting in longer travel times (42 minutes end to end) and fewer overall boardings (35,800 projected average weekday total corridor boardings) compared with LRT. | Fewer stops, resulting in faster travel times (29 minutes end to end) and more boardings (47,440 projected average weekday total corridor boardings) compared with Low-Floor LRT/Tram. |
| No subway segment or grade separations | Two and one-half miles of subway and three subway stations |
| Dedicated ROW on Van Nuys Boulevard (6.2 miles) and mixed-flow lanes on San Fernando Road (2.5 miles). | Dedicated ROW for full length (9.2 miles). |
| Adjacent local bus service replaced with additional rail stations and more frequent train service in the median. | Local bus service would remain in the curb lane, while rail would operate in the median. |
| Low-floor trains and curb platforms (14 inches). | High-floor trains and platforms (39 inches). |
| Projected $1.3 billion cost (2014 dollars). | Projected $2.75 billion cost (2014 dollars). |

After public comments are evaluated and funding identified, staff members would evaluate the rail and bus alternatives, recognizing public support, technical merit, and available financial resources. Because there are significant differences between the two rail alternatives, both of which have positive attributes, if rail is selected as the preferred alternative, then the alternative could be a hybrid of both. For example, the evaluation of the two rail alternatives found:

- The fewer stations of the LRT Alternative (Alternative 4) would result in superior travel speeds and a greater number of overall boardings compared with the Low-Floor LRT/Tram Alternative (Alternative 3);
- The recommended 2.5-mile subway portion of the LRT Alternative (Alternative 4) would be very expensive and have a significant construction impact; it would result in little time savings compared with the at-grade Low-Floor LRT/Tram Alternative (Alternative 3);
- The Low-Floor/LRT Alternative (Alternative 3) would not require long ADA ramps, and as a consequence, stations placed in the median of Van Nuys Boulevard would require smaller envelopes of space compared with stations for the LRT Alternative (Alternative 4);
- Stations for the LRT/Tram Alternative (Alternative 3) would be narrower, similar to systems in Europe. However, these narrower stations may not have the space needed to accommodate the newly adopted Board of Directors fare gate criteria for station designs;
- Operating trains on a dedicated rail ROW adjacent to San Fernando Road (Alternative 4) would result in fewer train/automobile conflicts compared with operating trains in mixed-flow traffic (Alternative 3); and
- The Low-Floor LRT/Tram Alternative (Alternative 3) would replace local bus service with more frequent rail service; however, this would result in fewer overall boardings and require trains to stop more often, which would result in slower travel speeds.

The above-mentioned considerations, and others identified during the 45-day public comment period and public hearings, will be taken into consideration when the LPA is recommended by the staff and reviewed for action by the Metro Board of Directors.

# Chapter 7
# Public and Agency Outreach

## 7.1 Introduction and Summary of Outreach Efforts

Metro initiated a comprehensive outreach program for the East San Fernando Valley Transit Corridor Project in 2011, at the outset of the Alternatives Analysis (AA) phase. Metro has continued to keep elected officials, community leaders and the general public informed of the status of the technical analysis and schedule for completion of the environmental documents throughout the preparation of this Draft EIS/EIR. The outreach program is focused on increasing project awareness and education, disseminating project information, garnering public input, and supporting the technical and legal environmental processes. Through the use of traditional and innovative outreach methods, the outreach activities conducted during the AA, Draft EIS/EIR, and post-scoping phases have yielded nearly 300 comments; Metro has hosted and presented at over 100 meetings sharing project information with over 2,900 participants. As the Draft EIS/EIR was being prepared, Metro continued to provide project updates and answer questions at public meetings throughout the San Fernando Valley. These efforts have included an array of project stakeholders, including elected officials, the San Fernando Valley Council of Governments, resource agencies, the residential and business community (including the chambers of commerce and neighborhood councils), civic and professional organizations, and many others. A complete listing of stakeholders and meetings is included in Appendix DD, Agency Coordination and Public Involvement, of this Draft EIS/EIR.

Through the use of public open houses, focus groups, workshops, tours, participation in community events, social media outlets, and webinars, project stakeholders have been involved in each of the major technical milestones of the project development process that has occurred to date.

This chapter, together with the supporting information included in Appendix CC, Final Scoping Report, and Appendix DD, Agency Coordination and Public Involvement, of this Draft EIS/EIR, documents the outreach efforts completed during the AA phase through the release of the Draft EIS/EIR.

## 7.2 Background

In 2011, Metro initiated a comprehensive public participation program for the East San Fernando Valley Transit Corridor Project. This program used various communication tools to reach out to the large project study area, which encompasses the length of the 9.2-mile project corridor. Stakeholders and interested parties were informed and educated about the various project development phases, including the AA phase, the Draft EIS/EIR phase, and future project development phases, including the Final EIS/EIR and preliminary engineering.

## 7.3 Public Participation Plan

To inform the public and provide opportunities for comment at key milestones throughout the study, a detailed Public Participation Plan (PPP) was developed at the commencement of the AA phase (included in Appendix CC, Final Scoping Report, of this Draft EIS/EIR). The PPP includes community profiles illustrating the unique characteristics of each community within the project area, detailed stakeholder database categories, collateral material recommendations, AA and Draft EIS/EIR notification strategies, communication protocols, proposed schedules for interfacing with the public and elected officials, and recommendations for meeting formats throughout both the AA and Draft EIS/EIR phases. The PPP served as a blueprint for outreach activities and has been integrated into the technical project schedule.

In order to adapt to the communities' needs and allow appropriate modifications and refinements to the project alternatives, the PPP strategies are flexible and can be modified to meet the project demands and political climate when and where necessary. As detailed below, the PPP for the East San Fernando Valley Transit Corridor Project is consistent with outreach requirements outlined in the Moving Ahead for Progress in the 21st Century (MAP-21) and incorporates the public participation requirements of the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), and Federal Transit Administration (FTA) New Starts Program.

# 7.4 Government and Other Agency Consultation

## 7.4.1 Section 6002 of SAFETEA-LU

Section 6002 of SAFETEA-LU promotes efficient project management by lead agencies and enhanced opportunities for coordination with the public and other federal, state, local, and tribal government agencies during project development. In accordance with these requirements, Metro, in coordination with FTA, prepared and mailed Participating Agency invitation letters to the following agencies on March 8, 2013:

- California Air Resources Board
- California Department of Conservation Division of Land Resource Protection
- California Department of Fish and Wildlife
- California High Speed Rail Authority
- California Highway Patrol
- California Native American Heritage Commission
- California Public Utilities Commission
- California Transportation Commission
- California Wildlife Conservation Board
- California Department of Transportation (Caltrans)
- California Department of Toxic Substances Control
- California State Clearinghouse
- Federal Aviation Administration
- Federal Highway Administration
- Federal Transit Administration

- Los Angeles Police Department
- State Historic Preservation Officer, Office of Historic Preservation
- State Water Resources Control Board
- Transportation Security Administration
- U.S. Army Corps of Engineers
- U.S. Department of Energy
- U.S. Department of Energy Western Area Power Administration
- U.S. Department of Housing and Urban Development
- U.S. Department of the Interior
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service

Agencies were given until May 6, 2013 (8 weeks from the date of the letter) to respond. None of the agencies invited to be Participating Agencies accepted the invitation to become a Participating Agency.

Considering the role and responsibility of cooperating agencies, it was determined that no federal, state, or local agency was to be a cooperating agency, therefore no agencies were invited to be cooperating agencies.

Outreach efforts to agencies affiliated with the project included agency scoping meetings, participation in the Technical Advisory Committee (TAC), and one interagency scoping meeting attended by respresentatives of Caltrans District 7 and the U.S. Army Corps of Engineers.

Additionally, SAFETEA-LU requires that the planning processes "be developed in consultation with all interested parties and provide that all interested parties have reasonable opportunities to comment on the contents of the transportation plan." As part of the outreach program during the AA and Draft EIS/EIR phases, Metro has held over 100 meetings with a wide array of stakeholder groups, including:

- 18 community meetings;
- 85 small group meetings, including neighborhood groups, chambers, interested groups, business associations, schools, universities, churches, foundations, and hospitals;
- 6 elected official briefings with federal, state, regional, and local officials;
- 5 meetings with City staff;
- 2 meetings with the executive office and transportation committees of the San Fernando Valley Council of Government;
- 3 meetings with the Metro Board of Directors staff and committees;
- 1 meeting with regulatory and other agencies, at which only representatives from Caltrans and the Army Corps of Engineers attended, with comments on impacts to freeway ramps, and coordination for Section 404 permits, respectively; and
- 10 TAC meetings.

A complete list of meetings, and briefings is included in Appendix DD, Agency Coordination and Public Involvement, of this Draft EIS/EIR.

## 7.4.2 Section 106 Consultation

To comply with Section 106 requirements, FTA sent a Letter of Initiation to the State Historic Preservation Officer (SHPO) initiating consultation under Section 106 of the National Historic Preservation Act. The letter also included the area of potential effects (APE) maps for the build alternatives and requested SHPO's concurrence with these maps.

The project team (Metro and the FTA) consulted with the project reviewer at OHP to determine the scope of identification efforts and to delineate the APE. In accordance with the Section 106 requirements, FTA and Metro consulted with SHPO via conference call on April 14, 2013 to discuss the appropriate level of effort for the identification and evaluation of built environment historical resources and to determine the appropriate APE. FTA sent a letter to the California SHPO on April 17, 2015 (resubmitted April 28, 2015). Metro's consultants sent letters to the Native American parties on March 18, 2016. A letter of concurrence was received from the California SHPO on June 2, 2015.

During preparation of the Draft EIS/EIR, Metro contacted local historic groups and stakeholders who potentially have an interest in the project. Metro also contacted and consulted with Native American groups, as identified in the State of California's Native American Heritage Commission (NAHC) scoping comment letter submitted on March 17, 2016. An inventory of properties within the APE and listed in the National Register of Historic Places, as well as those properties potentially eligible for listing, has been conducted. SHPO's concurrence on the determinations of effects for federal historic resources occurred on April 5, 2017, with a follow-up letter from the SHPO on June 21, 2017. (Refer to Section 4.16, Historical, Archaeological, and Paleontological Resources, and Appendix S, Cultural Resources Technical Report, for more information.)

## 7.4.3 Tribal Coordination

During preparation of this Draft EIS/EIR, the team conferred with the NAHC, local California Indian organizations, and interested public historical and cultural organizations. The NAHC conducted a search of the sacred lands file and provided the results on March 17, 2016. As recommended by the NAHC, individuals who may have further knowledge of sacred or prehistoric cultural resources within the project area were contacted. These included individuals from the San Fernando Band of Mission Indians, Gabrielino/Tongva San Gabriel Band of Mission Indians, Gabrieleno Band of Mission Indians-Kizh Nation, Gabrielino/Tongva Nation, Fernandeno Tataviam Band of Mission Indians, Soboba Band of Luiseno Indians, Gabrielino-Tongva Tribe, and the LA City/County Native American Heritage Commision. Coordination with SHPO, interested parties of the Native American Heritage Commission, and the Native American community is ongoing. A complete list of all parties consulted during preparation of this Draft EIS/EIR is included in Appendix DD, Agency Coordination and Public Involvement, of this Draft EIS/EIR.

As of July 1, 2015, Public Resources Code Sections 21080.3.1 and 21080.3.2 require public agencies to consult with Native American tribes ideintied by the Native American Heritage Commission (NAHC) for the purpose of mitigating impacts to tribal cultural resources. It should be noted that this proposed project's environmental analysis began with the Notice of Preparation and Public Scoping period in March 2013, and thus pre-dates the new requirements under Public Resources Code Sections 21080.3.1 and 21080.3.2. Therefore, tribal coordination as described in the preceding paragraph was carried out according to the protocol prior to passage of AB 52, which established Public Resources Code Sections 21080.3.1 and 21080.3.2.

# 7.5 Community Outreach

A variety of notification tools were used during the AA and Draft EIS/EIR phases to reach out to targeted audiences. Outreach methods included:

- Direct mail notification
- Email notification
- Newspaper display ads and online ads
- Meetings with cities, chambers of commerce, councils of governments, and educational institutions
- Placement of pamphlets in Metro buses and trains
- Stakeholder briefings
- Posters at key locations along the corridor
- Project website
- Project helpline
- School district meeting flyer
- Social media – Facebook and Twitter
- Online blogs
- City and chamber newsletters
- City cable channels and electronic boards
- Door-to-door canvassing efforts
- Information booths at various community events

This set of notification tools was customized throughout the AA and Draft EIS/EIR phases of the project, taking into account cost-effectiveness and trying to maximize stakeholder participation.

Throughout the AA and Draft EIS/EIR phases, a variety of informational documents was made available to the public. These included project fact sheets, frequently asked questions, meeting notices, electronic newsletters/e-bulletins, and other collateral materials. In addition, a complete set of collateral pieces was developed and distributed at community meetings, stakeholder briefings, and public events, as well as electronically when requested. These collateral materials were updated throughout the project development process and were produced in English and Spanish. These materials are included in Appendix DD, Agency Coordination and Public Involvement, of this Draft EIS/EIR.

## 7.5.1 Alternatives Analysis Phase

As discussed above, in 2011 Metro initiated the AA phase of the East San Fernando Valley Transit Corridor Project. The focus of the outreach program during the AA phase was to increase project awareness and initiate public participation in the multi-phased project development process. Public participation during this phase assisted in the refinement of alternatives. Ultimately, during the AA phase 26 project alternatives were narrowed down to six.

At the outset of the AA phase, early scoping was conducted for the project. A total of 14 early scoping meetings, including 11 community meetings and three elected official briefings, were held between October 6, 2011 and October 9, 2012. Meeting locations were selected to maximize attendance and community input. Interpreters were available at the 11 community meetings to provide simultaneous Spanish translation. A detailed list of the early scoping meeting dates and times is included in Appendix DD, Agency Coordination and Public Involvement, of this Draft EIS/EIR.

A total of 175 attendees, representing a crosssection of the project area communities, participated in the early scoping meetings held in 2011 through 2012. Participants were well-versed on the issues and opportunities associated with the proposed East San Fernando Valley Transit Corridor Project and commented on various topics, including Light Rail Technology as the preferred mode of transit, input on the most desirable alignment, and terminus points. A comprehensive summary of information presented and comments received at these meetings is included in Appendix DD, Agency Coordination and Public Involvement, of this Draft EIS/EIR.

## 7.5.2 Draft EIS/EIR Phase

The scoping period began with the publication of the Notice of Preparation/Notice of Intent on March 1, 2013 and continued through May 6, 2013. During the 65-day scoping period, Metro hosted a total of four scoping meetings, including four public meetings, an elected officials briefing, and one agency scoping meeting. The meetings were attended by approximately 150 people. In addition to the official scoping meetings, Metro also participated in various City and stakeholder events as requested by the respective groups to enhance the outreach effort and increase awareness during the scoping period. (For a detailed list of the scoping meeting dates and times, please refer to Appendix CC, Final Scoping Report, of this Draft EIS/EIR.)

During the 65-day scoping period, Metro accepted oral comments at meetings and via the project helpline, written comments on meeting comment card, via letters, e-mailed comments to the Metro project manager, social media comments via Facebook and Twitter and electronic comments via the Metro project website. A total of over 400 oral and/or written public comments were received from agencies and the public, including elected officials, residents, grassroots organizations, chambers of commerce, developers, hospitals, agencies, educational institutions, and businesses.

The comments received demonstrated substantial support for LRT as the preferred transit mode. Other common themes included strong support of bike lanes and bicycle facilities, improvements to existing bus operations, and ensuring the proposed project connects with any future transit line along the Sepulveda Pass in order to maintain the connection between the East San Fernando Valley and Westwood now provided by Rapid Line 761.

Appendix CC, Final Scoping Report, of this Draft EIS/EIR, includes the scoping comment log, which lists all comments received during the scoping period.

## 7.5.3 Post-Scoping

Outside of the scoping period and during preparation of the technical reports and Draft EIS/EIR, Metro hosted additional community meetings. These meetings included:

- Thursday, November 6, 2014, 6:00 – 7:30 pm - San Fernando Regional Pool Facility, City of San Fernando

- Wednesday, November 12, 2014, 4:30 – 6:00 pm - Marvin Braude Constituent Service Center, Van Nuys
- Thursday, November 13, 2014, 6:00 – 7:30 pm - Pacoima Neighborhood City Hall, Pacoima

Focus group meetings were also hosted by Metro to elicit feedback from the various business owners and employees along the Van Nuys Boulevard corridor. Nine meetings were held on:

- Friday, March 6, 2015 - 9:00 – 10:00 a.m. - Van Nuys Recreation Center, Van Nuys
- Monday, March 9, 2015 - 8:30 – 9:30 a.m. - Los Tres Hermanos Restaurant, Van Nuys
- Tuesday, March 10, 2015 - 8:30 – 9:30 a.m. - Plaza del Valle Community Room, Panorama City
- Thursday, March 12, 2015 - 10:00 – 11:00 a.m. - Marvin Braude Constituent Center, Van Nuys
- Friday, March 13, 2015 - 8:30 – 9:30 a.m. - San Fernando City Hall Community Room, San Fernando
- Monday, March 16, 2015 - 10:00 – 11:00 a.m. - Hometown Buffet, Panorama City
- Tuesday, March 24, 2015 - 8:30 – 9:30 a.m. - La Sirenita Restaurant, Panorama City
- Wednesday, March 25, 2015 - 8:30 – 9:30 a.m. Pacoima Neighborhood City Hall, Pacoima
- Thursday, March 26, 2015 - 9:00 – 10:00 a.m. Van Nuys Multipurpose Center, Van Nuys

# 7.6 Public Hearings

Following the release of the Draft EIS/EIR, a 45 day public comment period will be held from September 1, 2017, to October 17, 2017. Five public hearings will be held to receive oral and written comments on the Draft EIS/EIR. The public hearings will be held along the corridor in the Cities of Los Angeles and San Fernando. Metro will provide notice of these public hearings in compliance with CEQA and NEPA and will follow the same notification methods that proved effective during scoping. The following outreach strategies will be implemented:

- Direct mail notification
- Email notification
- Legal, display, and online newspaper ads
- Placement of notices in Metro buses and trains
- Project website
- Project helpline
- School district coordination
- Corridor City coordination and notification plan
- City and chamber newsletters
- City cable channels and electronic boards
- Social media – Facebook and Twitter
- Online blogs

During the formal comment period for the Draft EIS/EIR, agencies and the public will be able to submit comments in writing directly to Metro and FTA. Comments will also be received at the public hearings through a court reporter. The Draft EIS/EIR will also be distributed on Metro's website at www.metro.net/projects/east-sfv. CDs and paper copies will also be available for public review at the public hearings and at the following depositories:

- Metro Records Management Center, Plaza Level, One Gateway Plaza, Los Angeles, CA 90012, rmc@metro.net
- Metro Transportation Library, One Gateway Plaza, Los Angeles, CA 90012, 15th floor, (213) 922-4859, mailto:library@metro.net
- Lake View Terrace Branch Library,12002 Osborne Street, Lake View Terrace, CA 91342
- Los Angeles Public Library, Central Library, 630 W. 5th Street, Los Angeles, CA 90071
- Los Angeles Public Library, Van Nuys Branch, 6250 Sylmar Avenue, Van Nuys, CA 91401
- Pacoima Branch Library, 13605 Van Nuys Boulevard, Pacoima, CA 91331
- Panorama City Branch Library, 14345 Roscoe Boulevard, Panorama City, CA 91402
- San Fernando Library, 217 North Maclay Avenue, San Fernando, CA 91340
- Sherman Oaks Branch Library, 14245 Moorpark Street, Sherman Oaks, CA 91423
- Sylmar Branch Library, 14561 Polk Street, Sylmar, CA 91342

# 7.7 Accommodations for Minority, Low-Income, and Persons with Disabilities

Special outreach efforts were made to reach minority, low-income, and limited English proficiency (LEP) populations and persons with disabilities. The communities along the East San Fernando Valley Transit Corridor are diverse, with approximately 71.7 percent Hispanic or Latino, 16 percent White (Non-Hispanic), 7.1 percent Asian, and 3.5 percent Black/African American (Non-Hispanic). In addition, of the 256 block groups in the project study area, 239 contain low-income populations; 100 percent of the block groups adjacent to the project area contain low-income populations and 93.4 percent of the study area contains low-income populations. Low-income households are defined as below 80 percent of the Area Median Income (AMI).

Bilingual (English/Spanish) announcements and briefings to neighborhood councils, local business groups, and non-governmental organizations were conducted. These announcements and briefings were also posted in a widely distributed Spanish language newspaper, *La Opinión*.

Strategies to reach minority, low-income, and disabled populations included holding meetings in transit-accessible locations and at a variety of meeting times, including nights and weekends, in order to allow maximum participation. All meeting announcements, advertisements, brochures, and collateral materials have been produced bilingually (English/Spanish).

In addition, Metro produced a bilingual document for the public so that meeting attendees could easily request project materials in Spanish or English. The bilingual request document was written in both Spanish and English to ensure stakeholders' full comprehension. All meeting venues were Americans with Disabilities Act (ADA) compliant and accessible.

# Appendix A
# List of Acronyms and Abbreviations

Appendix A
# List of Acronyms and Abbreviations

| | |
|---|---|
| °F | Fahrenheit |
| AA | Alternatives Analysis |
| AA Report | Alternatives Analysis Report |
| AADT | annual average daily traffic |
| AAQS | ambient air quality standards |
| AB | Assembly Bill |
| ACM | asbestos-containing material |
| ACS | American Community Survey |
| ADA | Americans with Disabilities Act |
| ADL | aerially deposited lead |
| APE | Area of Potential Effects |
| APEFZ | Alquist-Priolo Earthquake Fault Zone |
| APN | Assessor's Parcel Number |
| AQMP | Air Quality Management Plan |
| BAT | best available technology |
| BCT | best conventional pollutant control technology |
| BEA | Bureau of Economic Analysis |
| bgs | below ground surface |
| BID | Business Improvement District |
| BLS | Bureau of Labor Statistics |
| BMP | best management practice |
| BP | Before Present |
| BRT | bus rapid transit |
| $C_2F_6$ | perfluoroethane |
| CAA | Clean Air Act |
| CAAQS | California ambient air quality standards |
| CAHSR | California High-Speed Rail |
| CAHSR | California's High Speed Rail |
| Cal/OSHA | California Occupational Safety and Health Administration |
| CalEEMod | California Emissions Estimator Model |
| Caltrans | California Department of Transportation |
| CBD | Central Business District |
| CBP | County Business Pattern |
| CCTV | closed-circuit television cameras |
| CDFW | California Department of Fish and Wildlife |
| CDO | Community Design Overlay |
| CEC | California Energy Commission |
| CEQ | Council on Environmental Quality |

| | |
|---|---|
| CEQA | California Environmental Quality Act |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CESA | California Endangered Species Act |
| $CF_4$ | perfluoromethane |
| CFC | chlorofluorocarbon |
| CFR | Code of Federal Regulations |
| CGS | California Geological Survey |
| $CH_4$ | methane |
| CHRIS | California Historic Resources Information System |
| CIDH | cast in drilled hole |
| CMA | Critical Movement Analysis |
| CMAQ | Congestion Management and Air Quality |
| CMP | Congestion Management Plan |
| CNG | compressed natural gas |
| CNPS | California Native Plant Society |
| CO | carbon monoxide |
| CO Protocol | Transportation Project-Level Carbon Monoxide Protocol |
| $CO_2$ | carbon dioxide |
| $CO_2e$ | carbon dioxide equivalent |
| Construction General Permit | General Permit for Stormwater Discharges Associated with Construction Activity |
| CPA | Community Plan Area |
| CPUC | California Public Utilities Commission |
| CRHR | California Register of Historical Resources |
| CWA | Clean Water Act |
| CWC | California Water Code |
| dBA | A-weighted decibels |
| DEIS/DEIR | Draft Environmental Impact Statement/Environmental Impact Report |
| DOGGR | Division of Oil, Gas, and Geothermal Resources |
| DOT | U.S. Department of Transportation |
| DPM | diesel particulate matter |
| DWP | Department of Water and Power |
| EDD | Employment Development Department |
| EO | Executive Order |
| EPA | Environmental Protection Agency |
| EPCA | Energy Policy and Conservation Act of 1975 |
| ERNS | Emergency Response and Notification System |
| ESA | Environmental Site Assessment |
| ESA | Endangered Species Act |
| ESFV | East San Fernando Valley |
| FAA | Federal Aviation Administration |
| FAST | Fixing America's Surface Transportation |

| | |
|---|---|
| FHWA | Federal Highway Administration |
| FRSA | Fault Rupture Study Area |
| FTA | Federal Transit Administration |
| GGE | gallons of gasoline equivalent |
| GHG | greenhouse gas |
| HABS | Historic American Building Survey |
| HAER | Historic American Engineering Record |
| HCFC | hydrochlorofluorocarbon |
| HCM | Highway Capacity Manual |
| HFC | hydrofluorocarbon |
| HPOZ | Historic Preservation Overlay Zone |
| I | Interstate |
| I-210 | Interstate 210 |
| I-405 | Interstate 405 |
| kWh | kilowatt hours |
| LA River | Los Angeles River |
| LACM | Natural History Museum of Los Angeles County |
| LADBS | Los Angeles Department of Building and Safety |
| LADOT | Los Angeles Department of Transportation |
| LADWP | Los Angeles Department of Water and Power |
| LAFD | Los Angeles Fire Department |
| LAHCM | Los Angeles Historic-Cultural Monument |
| LAMC | Los Angeles Municipal Code |
| LAPD | Los Angeles Police Department |
| LAPD | Los Angeles Police Department |
| LASD | Los Angeles County Sheriff's Department |
| LASHA | Los Angeles Suburban Home Association |
| LAUSD | Los Angeles Unified School District |
| LBP | lead-based paint |
| LEP | limited English proficiency |
| LID | low-impact development |
| $L_{max}$ | maximum sound level |
| LOS | levels of service |
| LPA | Locally Preferred Alternative |
| LRT | light rail transit |
| LRTP | Long Range Transportation Plan |
| LST | localized significance threshold |
| LU | landscape unit |
| LUST | leaking underground storage tank |
| MAP-21 | Moving Ahead for Progress in the 21st Century Act |
| MATES IV | Multiple Air Toxics Exposure Study IV |
| Metro | Los Angeles County Metropolitan Transportation Authority |

| | |
|---|---|
| MLD | Most Likely Descendent |
| MMBTU | million British thermal units |
| MMRP | Mitigation Monitoring and Reporting Program |
| MMT | million metric tons |
| MOA | Memorandum of Agreement |
| MOA | memorandum of agreement |
| MOL | Metro Orange Line |
| MOS | Minimal Operable Segment |
| mph | miles per hour |
| MRCA | Mountains Recreation Conservation Authority |
| MSAT | mobile-source air toxic |
| MSF | maintenance and storage facility |
| MSL | mean sea level |
| MT | metric tons |
| MT | metric tons |
| MWD | Metropolitan Water District of Southern California |
| $N_2O$ | nitrous oxide |
| NAAQS | national ambient air quality standards |
| NAGPRA | Native American Graves Protection and Repatriation Act |
| NEPA | National Environmental Policy Act |
| NFIP | National Flood Insurance Program |
| NHPA | National Historic Preservation Act |
| $NO_2$ | nitrogen dioxide |
| NOD | Notice of Determination |
| $NO_X$ | nitrogen oxides |
| NOx | oxides of nitrogen |
| NPL | National Priority List |
| NPS | National Park Service |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| $O_3$ | ozone |
| O&M | operating and maintenance |
| OCS | overhead contact system |
| OHP | Office of Historic Preservation |
| OHR | Office of Historic Resources |
| OPR | Office of Planning and Research |
| OSHA | Occupational Safety and Health Administration |
| PAZ | Parking Analysis Zone |
| Pb | lead |
| PCB | polychlorinated biphenyl |
| PCE | perchloroethylene |
| PFC | perfluorocarbon |

| | |
|---|---|
| PFYC | Potential Fossil Yield |
| PID | photoionization detector |
| PM10 | particulate matter 10 microns in diameter or less |
| PM2.5 | particulate matter 2.5 microns in diameter or less |
| PMP | Paleontological Mitigation Plan |
| PMR | Paleontological Mitigation Report |
| POAQC | project of air quality concern |
| ppm | parts per million |
| PPV | peak particle velocity |
| PRC | Public Resources Code |
| PWA | Progress Works Administration |
| RCB | reinforced concrete box |
| RCP | Regional Comprehensive Plan |
| RCRA | Resource Conservation and Recovery Act |
| REC | recognizable environmental concern |
| RIP | Regional Improvement Program |
| ROD | Record of Decision |
| ROG | reactive organic gas |
| ROW | right-of-way |
| RSTIS | Regional Significant Transportation Investment Study |
| RTP/SCS | Regional Transportation Plan/Sustainable Communities Strategy |
| RSTP | Regional Surface Transportation Program |
| RV | Representative Viewpoint |
| RWQCB | Regional Water Quality Control Board |
| SAFETEA-LU | Safe, Accountable, Flexible, Efficient Transportation Equity Act of 2003: A Legacy for Users |
| SARA | Superfund Amendments and Reauthorization Act |
| SB | Senate Bill |
| SCAG | Southern California Association of Governments |
| SCAQMD | South Coast Air Quality Management District |
| SCC | Standard Cost Categories |
| SCCIC | South Central Coastal Information Center |
| SCRRA | Southern California Regional Rail Authority |
| sf | square feet |
| $SF_6$ | sulfur hexafluoride |
| SFFHA | San Fernando Farm Homestead Association |
| SHPO | State Historic Preservation Officer |
| SIP | State Implementation Plan |
| $SO_2$ | sulfur dioxide |
| SPA | Special Planning Area |
| SR | State Route |
| SRA | Source Receptor Area |

| | |
|---|---|
| STIP | State Transportation Improvement Program |
| SVOCs | semi-volatile organic compounds |
| SWP | State Water Project |
| SWPPP | Stormwater Pollution Prevention Plan |
| TAC | Technical Advisory Committee |
| TACs | toxic air contaminants |
| TAZ | traffic analysis zone |
| TBM | tunnel boring machine |
| TCE | trichloroethylene |
| TCRP | Traffic Congestion Relief Program |
| TCWG | Transportation Conformity Working Group |
| TIFIA | Transportation Infrastructure Finance and Innovation Act |
| TMP | Traffic Management Plan |
| TNI | Targeted Neighborhood Initiative |
| TNW | Traditionally Navigable Water |
| TOD | transit-oriented development |
| TPH | total petroleum hydrocarbons |
| TPSS | traction power substation |
| TSM | Transportation Systems Management |
| TSM | Transportation Systems Management |
| TWW | treated wood waste |
| UBC | Uniform Building Code |
| ULARA | Upper Los Angeles River Area |
| USACE | U.S. Army Corps of Engineers |
| USC | United States Code |
| USDA | U.S. Department of Agriculture |
| USDOT | U.S. Department of Transportation |
| USEPA | U.S. Environmental Protection Agency |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| UST | underground storage tank |
| VHT | vehicle hours traveled |
| VMT | vehicle miles traveled |
| VOCs | volatile organic compounds |
| YOE | year of expenditure |
| WBM | welded boltless manganese |
| WoS | waters of the state |
| WoUS | waters of the United States |
| $\mu g/m^3$ | microgram per cubic meter |

# Appendix B
# List of Preparers

Appendix B
# List of Preparers

## Public Agencies

### *U.S. Department of Transportation*
### *Federal Transit Administration*

Raymond Sukys, Director
Office of Planning and Project Development, FTA Region IX

Ray Tellis, Team Leader
FTA/FHWA Los Angeles Metropolitan Office

Mary Nguyen, Environmental Protection Specialist
FTA/FHWA Los Angeles Metropolitan Office

### *Los Angeles County Metropolitan Transportation Authority*

Renee Berlin, Managing Executive Officer
Executive Office Transportation Corridors/Systemwide Planning

David Mieger, Executive Officer
Transit Corridors/Systemwide Planning

Walt Davis, Transportation Planning Project Manager
San Fernando Valley/North County Area Planning Team

Ryan Greenway, Transportation Planner
San Fernando Valley/North County Area

Jody Litvak, Community Relations Manager

Lilian De Loza-Gutierrez, Community Relations Manager

Karen Swift, Community Relations Manager

Dan Levy, Executive Officer
Civil Rights Program Compliance

Rick Meade, Executive Officer
Engineering and Construction

Bruce Shelburne, Executive Director
Rail Operations

Alan Patashnick, Director
Countywide Planning and Development

Andres Di Zitti, Transportation Planner
San Fernando Valley/North County Area

Dana Jones, Transportation Planner

Robert Farley, Transportation Planning Manager

Stewart Chesler, Transportation Planning Manager

### *City of Los Angeles Department of Transportation*

Jay Kim, Assistant General Manager
Mobility Management Group

Jesus Serrano, Transportation Engineer
Transit Corridor Development

Shawn Mohamadkhani, Transportation Engineer

### *City of San Fernando*

Ron Ruiz, Public Works Director

## Consultants

### *KOA Corporation*

Jimmy Lin, Project Director

Joel Falter, Project Manager/Planning & Environmental Task Manager

Brian Marchetti, Transportation/Traffic Planning and Engineering

Hilary Mau, Deputy Project Manager

Walter Okitsu, Engineering Task Manager

Frank Benavidez, Project Cost & Schedule Control

Ben Chan, Traffic Signal Operations Task Leader

## *ICF International*

Lee Lisecki, Project Director and Project Manager

Mario Anaya, Deputy Project Manager

John Mathias, Lead Technical Editor

Tamseel Mir, Environmental Planner

Mikael Romich, Senior Biologist

Russel Sweet, Biologist

Peter Feldman, Environmental Planner

Alexa La Plante, Water Resources

Rusty Whisman, Environmental Planner

Keith Cooper, Senior Air Quality/Climate Change Specialist

Stephen Bryne, Senior Archaeologist

Mark Robinson, Senior Archaeologist

Andrew Johnson, Environmental Planner

## *GPA Consulting*

Rich Galvin, Principal Environmental Planner

Andrea Galvin, Principal Architectural Historian

Jeanne Ogar, Senior Environmental Planner

Marieka Schrader, Senior Environmental Planner

Erinn Silva, Senior Environmental Planner

Amanda Yoder, Architectural Historian

## *Diaz•Yourman & Associates*

Gary Gilbert, Geotechnical & Hazardous Materials Task Manager

Matthew Dennerline, Environmental Specialist/Engineer

Charles Chen, Environmental Specialist/Engineer

## *John Kaliski Architects*

John Kaliski, Principal Station Planner/Urban Designer

## *Stanley R. Hoffman Associates*

Stanley R. Hoffman, Economic & Fiscal Impacts Manager

Bravish Rau Mallavarpu, Economic & Fiscal Impacts Planner

Kendra Chan, Economic & Fiscal Impacts Planner

## *ATS Consulting*

Hugh Saurenman, Principal Noise & Acoustics Manager

Shannon McKenna, Senior Noise & Acoustics Analyst

## *Cogstone*

Sherri Gust, Principal Paleontologist

Kimberly Scott, Senior Paleontologist

Jay Schneider, Senior Paleontologist

## *STV, Incorporated*

Tyler Bonstead, Principal Operations & MSF Planner/Engineer

Eric Banghart, Operations & MSF Planner/Engineer

## *Parsons Brinckerhoff*

Dawn McKinstry, Principal Ridership/Travel Demand Forecasting Engineer

Jielin Sun, Ridership/Travel Demand Forecasting

## *W2 Design Incorporated*

Patrick D. Wong, Principal Drainage/Hydraulics/Utilities Engineer

Donald Kurisu, Drainage/Hydraulics/Utilities Engineer

## *Wagner Surveying & Engineering*

Stephanie Wagner, Surveying, Mapping, Aerial Photography

Larry Carlson, Surveying, Mapping, Aerial Photography

## *CNS Engineers Incorporated*

James J. Lu, Stuctures/Bridges Engineer

Quyet T. Nguyen, Structures/Bridges Engineer

## *CLR Analytics*

Lianyu Chu, Video Simulation

Huabing Wang, Video Simulation

# Appendix C
# List of Draft EIS/EIR Recipients

Appendix C

# List of Draft EIS/EIR Recipients

| Agency/Organization | Contact | Contact Information |
|---|---|---|
| Advisory Council on Historic Preservation | John M. Fowler, Executive Director | 401 F Street NW, Suite 308 Washington, DC 20001-2637 |
| Amtrak | Alex Khalfin, Senior Specialist Government Affairs-West | 530 Water Street Oakland, CA 94607 |
| Arleta Neighborhood Council | | 9300 Laurel Canyon, 2nd Floor Arleta, CA 91331 |
| California Air Resources Board | Mary D. Nichols, Chairperson | PO Box 2815 Sacrament, CA 95814 |
| California Department of Conservation, Division of Land Resource Protection | John Lowrie, Assistant Director | 801 K Street, MS 14-15 Sacramento, CA 95814-3528 |
| California Department of Fish and Wildlife, Region 5 | Ed Pert, Regional Manager | 3883 Ruffin Road San Diego, CA 92123 |
| California Department of Toxic Substances Control | Andre Amy, Regulatory Assistance Officer | 9211 Oakdale Ave. Chatsworth, CA 91311 |
| California Department of Transportation, District 7, Division of Environmental Planning | Ron Kosinski, Deputy District Director | 100 S. Main Street, MS16A Los Angeles, CA 90012 |
| California Department of Transportation, District 7, Office of Regional Planning and Public Transportation | Linda C. Wright | 100 South Main Street, MS16 Los Angeles, CA 90012 |
| California High Speed Rail Authority | Tom Fellenz, Interim Chief Executive Officer | 770 L Street, Suite 1160 Sacramento, CA 95814 |
| California Highway Patrol, Southern Division | | 411 North Central Avenue Glendale, CA 91203 |
| California Native American Heritage Commission | Cynthia Gomez, Executive Secretary | 1550 Harbor Blvd, Suite 100 West Sacramento, CA 95691 |
| California Public Utilities Commission | Michael Picker | 320 West 4th Street, Ste. 500 Los Angeles, CA 90013 |
| California State Assembly, District 39 | The Honorable Assembly Member Raul Bocanegra | State Capitol P.O. Box 942849 Sacramento, CA 94249-0039 |
| California State Assembly, District 46 | The Honorable Assembly Member Adrin Nazarian | State Capitol P.O. Box 942849 Sacramento, CA 94249-0046 |
| California State Clearinghouse | Scott Morgan, Director | 1400 Tenth Street Sacramento, CA 95814 |
| California State Senate, District 18 | The Honorable Senator Robert M. Hertzberg | 6150 Van Nuys Boulevard #400 Van Nuys, CA 91401 |
| California Transportation Commission | Susan Bransen, Executive Director | 1120 N Street, MS 52 Sacramento, CA 95814 |
| California Wildlife Conservation Board | John P. Donnelly, Executive Director | 1416 Ninth Street Sacramento, CA 95814 |
| CHAMPS Charter High School of the Arts | | 6842 Van Nuys Boulevard, Van Nuys, CA 91405 |
| City of Los Angeles, Building and Safety | Raymond Chan, General Manager | 201 N. Figueroa, Suite 1000 Los Angeles, CA 90012 |

| Agency/Organization | Contact | Contact Information |
|---|---|---|
| City of Los Angeles, Bureau of Sanitation | Enrique C. Zaldivar P.E., Director | 2714 Media Center Drive<br>Los Angeles, CA 90065 |
| City of Los Angeles, Cultural Affairs | Danielle Brazell, General Manager | 201 N. Figueroa, Suite 1400<br>Los Angeles, CA 90012 |
| City of Los Angeles Department of Public Works, Bureau of Engineering | Gary Lee Moore, PE, ENV SP<br>City Engineer | 1149 S. Broadway, Suite 700<br>Los Angeles, CA 90015 |
| City of Los Angeles Department of Public Works – Street Services | Nazario Sauceda, Director | 1149 S. Boradway, Suite 400<br>Los Angeles, CA 90015 |
| City of Los Angeles, Department of Recreation and Parks | Michael A. Shull, General Manager | 221 N. Figueroa Street,<br>3rd Floor, Suite 350<br>Los Angeles, CA 90012 |
| City of Los Angeles Department of Transportation | Seleta Reynolds, General Manager | 100 S. Main St., 10th Floor<br>Los Angeles, CA 90012 |
| City of Los Angeles Department of Transportation | Jay Kim, Assistant General Manager – Mobility Management Group | 100 S. Main St., 10th Floor<br>Los Angeles, CA 90012 |
| City of Los Angeles Department of Transportation | Jesus Serrano, Transportation Engineer – Transit Corridor Development | 100 S. Main St., 10th Floor<br>Los Angeles, CA 90012 |
| City of Los Angeles Department of Transportation | Verej Janoyan, Acting Principal Transportation Engineer – Design Division | 100 S. Main St., 10th Floor<br>Los Angeles, CA 90012 |
| City of Los Angeles Department of Water and Power | Marcie L. Edwards, General Manager | 111 North Hope Street<br>Los Angeles, CA 90012 |
| City of Los Angeles, Emergency Management | Alfred Poirier, Interim General Manager | 200 N. Spring Street, Room 1533<br>Los Angeles, CA 90012 |
| City of Los Angeles Office of Historic Resources | Ken Bernstein, Manager | 200 N. Spring Street, Room 559<br>Los Angeles, CA 90012 |
| City of Los Angeles, Office of the Mayor | The Honorable Mayor Eric Garcetti | 200 N. Spring Street<br>Los Angeles, CA 90012 |
| City of San Fernando Community Development Department | | 117 MacNeil Street<br>San Fernando, CA 91340 |
| City of San Fernando Police Department | | 117 MacNeil Street<br>San Fernando, CA 91340 |
| City of San Fernando Public Works Department | Ron Ruiz, Director | 117 MacNeil Street<br>San Fernando, CA 91340 |
| City of San Fernando Recreation and Community Services | | 117 MacNeil Street<br>San Fernando, CA 91340 |
| City of Santa Clarita Transit District | | 28250 Constellation Road<br>Santa Clarita, CA 91355 |
| County of Los Angeles 3rd Supervisory District | The Honorable Supervisor Sheila Kuehl | 7555 Van Nuys Blvd. Suite 1<br>Van Nuys, CA 91405 |
| County of Los Angeles Department of Regional Planning | Richard J. Bruckner, Director of Planning | 320 West Temple Street,<br>13th Floor<br>Los Angeles, CA 90012 |
| County of Los Angeles Department of Parks and Recreation | John Wicker, Director | 510 South Vermont Avenue<br>Los Angeles, CA 90020 |

| Agency/Organization | Contact | Contact Information |
|---|---|---|
| Fernandeño Tataviam Band of Mission Indians | The Honorable Caitlin Gulley, Director<br>Tribal and Cultural Preservation Department | 1019 Second Street<br>San Fernando, CA 91340 |
| Gabrieleño Band of Mission Indians Kizh Nation | The Honorable Andrew Salas, Chairman | PO Box 393<br>Covina, CA 91723 |
| Gabrielino Tongva Indians of California Tribal Council | The Honorable Robert F. Dorame<br>Tribal Chair/Cultural Resources | P.O. Box 490<br>Bellflower, CA 90707 |
| Gabrielino/Tongva Nation | The Honorable Sandonne Goad, Chairperson | 106 ½ Judge John Aiso St., #231<br>Los Angeles, CA 90012 |
| Gabrielino/Tongva San Gabriel Band of Mission Indians | The Honorable Anthony Morales, Chairperson | P.O. Box 693<br>San Gabriel, CA 91778 |
| Gabrielino-Tongva Tribe | The Honorable Linda Candelaria<br>Co-Chairperson | 1999 Avenue of the Stars, Suite 1100<br>Los Angeles, CA 90067 |
| General Services Administration | Andrew S. McMahon, Regional Administrator | 50 United Nations Plaza<br>San Francisco, CA 94102 |
| Granada Hills North Neighborhood Council | Michael Greenwald | 11139 Woodley Avenue<br>Granada Hills, CA 91344 |
| Granada Hills South Neighborhood Council | Brad Smith | 11024 Balboa Blvd, Box 767<br>Granada Hills, CA 91344 |
| Greater Los Angeles Vector Control | CEQA Compliance | 12545 Florence Avenue<br>Santa Fe Springs, CA 90670 |
| LA City/County Native American Indian Commission | Rob Andrade, Executive Director | 3175 West 6th Street, Room 403<br>Los Angeles, CA 90020 |
| Lake View Terrace Branch Library | Connie Dosch, Senior Librarian | 12002 Osborne Street<br>Lake View Terrace, CA 91342 |
| LAUSD Board of Education Board District 3 | The Honorable Scott Schmerelson | 6651 #A Balboa Blvd.<br>Lake Balboa, CA 91406 |
| LAUSD Board of Education Board District 6 | The Honorable Mónica Ratliff | 8401 Arleta Avenue<br>Sun Valley, CA 91352 |
| LAUSD Office of Environmental Health and Safety | Robert Laughton, Director | 333 South Beaudry Avenue, 21st Floor<br>Los Angeles, CA 90017 |
| Los Angeles City Council District 2 | The Honorable Councilmember Paul Krekorian | 200 North Spring Street, Room 435<br>Los Angeles, CA 90012 |
| Los Angeles City Council District 4 | The Honorable Councilmember David Ryu | 200 North Spring Street, Room 425<br>Los Angeles, CA 90012 |
| Los Angeles City Council District 6 | The Honorable Councilmember Nury Martinez | 200 N. Spring Street, Room 470<br>Los Angeles, CA 90012 |
| Los Angeles City Council District 7 | The Honorable Councilmember Monica Rodriguez | 200 N. Spring Street, Room 455<br>Los Angeles, CA 90012 |
| Los Angeles County Department of Public Works | Gail Farber, PE, Director | 900 S. Fremont Avenue<br>Alhambra, CA 91803 |
| Los Angeles County Department of Public Works, Water Resources Division | Gary Hildebrand, Deputy Director | 900 S. Fremont Avenue, 11th Floor<br>Alhambra, CA 91803-1331 |
| Los Angeles County Fire Department | Daryl L. Osby, Fire Chief | 1320 North Eastern Avenue<br>Los Angeles, CA 90063 |
| Los Angeles County Sheriff's Department | Sheriff Jim McDonnell | 211 West Temple Street<br>Los Angeles, CA 90012 |

| Agency/Organization | Contact | Contact Information |
|---|---|---|
| Los Angeles Department of City Planning Major Projects (Valley) | Elva O'Donnell | 6262 Van Nuys Boulevard, 3rd Floor, MS 366<br>Van Nuys, CA 91401 |
| Los Angeles Department of City Planning | Vincent P. Bertoni, AICP, Director of City Planning | 200 N. Spring Street, 5th Floor<br>Los Angeles, CA 90012 |
| Los Angeles Fire Department | Ralph M. Terrazas, Fire Chief | 200 Main Street, 16th Floor<br>Los Angeles, CA 90012 |
| Los Angeles Fire Department - Bureau of Fire Prevention Bureau | Inspector – Central Division | 200 N. Main Street, 16th Floor<br>Los Angeles, CA 90012 |
| Los Angeles Police Department | Charlie Beck, Chief of Police | 100 W. 1st Street<br>Los Angeles, CA 90012 |
| Los Angeles Public Library Central Library | Kren Malone, Director | 630 W. 5th Street<br>Los Angeles, CA 90071 |
| Los Angeles Public Library Van Nuys Branch | Kevin Hasely, Acting Senior Librarian | 6250 Sylmar Avenue<br>Van Nuys, CA 91401 |
| Los Angeles Regional Water Quality Control Board | Samuel Unger, Executive Officer II | 320 West 4th Street, Suite 200<br>Los Angeles, CA 90013 |
| Los Angeles Unified School District | Michelle King, Superintendent | 333 South Beaudry Avenue<br>Los Angeles, CA 90017 |
| Metrolink | Art Leahy, Chief Executive Officer | One Gateway Plaza, 12th Floor<br>Los Angeles, CA 90012 |
| Metropolitan Water District of Southern California – CEQA Compliance | Bart Koch, Op. Safety & Env. Services Section | 700 North Alameda Street<br>Los Angeles, CA 90012-2944 |
| Mission Hills Neighborhood Council | Jesse M. Martinez, President | PO Box 7604<br>Mission Hills, CA 91346 |
| Pacoima Beautiful | Max Podemski, Planning Director | 13520 Van Nuys Blvd., Suite 200<br>Pacoima, CA 91331 |
| Pacoima Branch Library | Laura Contin, Senior Librarian | 13605 Van Nuys Boulevard<br>Pacoima, CA 91331 |
| Pacoima Neighborhood Council | Mr. Reuben Garcia | 13605 Van Nuys Boulevard<br>Pacoima, CA 91331 |
| Panorama City Branch Library | Teri Markson, Senior Librarian | 14345 Roscoe Boulevard<br>Panorama City, CA 91402 |
| Panorama City Neighborhood Council | Viviano Montes, Board Chair | 14850 Roscoe Blvd, 2nd Floor<br>Panorama City, CA 91402 |
| PUC Schools | Edwin Torres-Zometa, Director of Campus Operations | 1405 North San Fernando Blvd., Suite 303, Burbank, CA 91504 |
| San Fernando Band of Mission Indians | The Honorable John Valenzuela, Chairperson | P.O. Box 221838<br>Newhall, CA 91322 |
| San Fernando Library | | 217 North Maclay Avenue<br>San Fernando, CA 91340 |
| Sanitation Districts of Los Angeles County | Grace Robinson Hyde, Chief Engineer and General Manager | 1955 Workman Mill Road<br>Whittier, CA 90607-4998 |
| SEA Charter School, Pacoima Education Center | | 13456 Van Nuys Blvd., Pacoima, CA 91331 |
| Sherman Oaks Branch Library | Arthur Pond, Senior Librarian | 14245 Moorpark Street<br>Sherman Oaks, CA 91423 |
| Sherman Oaks Neighborhood Council | Jill Banks Barad, President | PO BOX 5721<br>Sherman Oaks, CA 91413 |
| Soboba Band of Luiseño Indians | The Honorable Joseph Ontiveros,<br>Cultural Resources Director | P.O. Box 487<br>San Jacinto, CA 92581 |

| Agency/Organization | Contact | Contact Information |
|---|---|---|
| Southern California Association of Governments - Intergovernmental Review | Lijin Sun | 818 W. Seventh Street, 12th Floor<br>Los Angeles, CA 90017-3435 |
| Southern California Edison | Pedro J. Pizarro, President | PO Box 800<br>Los Angeles, CA 90017 |
| Southern California Gas Company | Bret Lane,<br>Chief Operating Officer | PO Box 3150<br>San Dimas, CA 91773 |
| South Coast Air Quality Management District | Wayne Nastri, Acting Executive Officer | 21865 Copley Drive<br>Diamond Bar, CA 91765 |
| State Office of Historic Preservation | Julianne Polanco<br>State Historic Preservation Officer | 1725 23rd Street, Suite 100<br>Sacramento, CA 95816 |
| State Water Resources Control Board | Felicia Marcus, Chair | 10011 I Street<br>Sacramento, CA 95814 |
| Sun Valley Area Neighborhood Council | Mike O'Gara, President | PO Box 457<br>Sun Valley, CA 91353-0457 |
| Sylmar Branch Library | Ardem Tajerian, Acting Senior Librarian | 14561 Polk Street<br>Sylmar, CA 91342 |
| Sylmar Neighborhood Council | Ann Job, President | PO Box 921023<br>Sylmar, CA 91342 |
| Union Pacific | Daniel Z. Moreno, Manager of Industry and Public Projects | 2015 S. Willow Ave.<br>Bloomington, CA 92316 |
| United States Access Board | Scott Windley | 1331 F Street, NW, Suite 1000<br>Washington, DC 20004-1111 |
| United States Army Corps of Engineers | Colonel Kirk Gibbs, District Commander | 915 Wilshire Boulevard,<br>Suite 980<br>Los Angeles, CA 90017 |
| United States Department of Homeland Security, Transportation Security Administration | Huban A. Gowadia, Acting Administrator | 601 12th Street South<br>Arlington, VA 22202 |
| United States Department of Housing and Urban Development, Los Angeles Field Office | Ray Brewer, Field Office Director | 611 West Sixth Street, Suite 801<br>Los Angeles, CA 90017 |
| United States Department of the Interior, Office of Environmental Policy and Compliance | Janet Whitlock, Regional Environmental Officer | 333 Bush Street, Suite 515<br>San Francisco, CA 94104 |
| United States Department of Transportation – Federal Aviation Administration | Glen A. Martin, Western-Pacific Region Regional Administrator | PO Box 92007<br>Los Angeles, CA 90009 |
| United States Department of Transportation – Federal Highway Administration – California Division | Vincent Mammano, Division Administrator | 650 Capitol Mall, Suite 4-100<br>Sacramento, CA 95814 |
| United States Department of Transportation – Federal Railroad Administration | Regional Administrator | 801 I Street, Suite 466<br>Sacramento, CA 95814 |
| United States Department of Transportation – Federal Transit Administration | Los Angeles Metropolitan Office | 888 S. Figueroa, Suite 2170<br>Los Angeles, CA 90017 |

| Agency/Organization | Contact | Contact Information |
|---|---|---|
| United States Environmental Protection Agency, Environmental Review Section – Region 9 | Kathleen Goforth, Manager – Environmental Review Section | 75 Hawthorne Street<br>Mail Code: ENF-4-2<br>San Francisco, CA 94105 |
| United States Fish and Wildlife Service | Jim Bartel, Field Supervisor | 2177 Salk Avenue – Suite 250<br>Carlsbad, CA 92011 |
| United States House of Representatives | The Honorable Congressman Brad Sherman | 5000 Van Nuys Blvd., Suite 420<br>Sherman Oaks, CA 91403 |
| United States House of Representatives | The Honorable Congressman Tony Cárdenas | 8134 Van Nuys Blvd. Suite 206<br>Panorama City, CA 91402 |
| United States Senate | The Honorable Senator Kamala D. Harris | 312 N. Spring Street, Suite 1748<br>Los Angeles, CA 90012 |
| United States Senate | The Honorable Senator Dianne Feinstein | 11111 Santa Monica Boulevard, Suite 915<br>Los Angeles, CA 90025 |
| Van Nuys Neighborhood Council | George Thomas, President | P.O. Box 56298<br>Sherman Oaks, CA 91413 |

# Appendix D
# References

# Appendix D
# References

## Chapter 1

California State Legislature. 2000. *The Traffic Congestion Relief Act of 2000.* Chapter 4.5. Available: <http://www.catc.ca.gov/programs/tcrp/TCRP_Statutes.pdf>.

Southern California Association of Governments. 2012. *Regional Transportation Plan.* Available: <http://rtpscs.scag.ca.gov>. Accessed: March 25, 2013.

U.S. Census Bureau. n.d. Frequently Asked Questions: Group Quarters. Available: <https://ask.census.gov/faq.php?id=5000&faqId=1681>. Accessed : March 22, 2016.

## Chapter 2

None.

## Chapter 3

Association of Environmental Professionals. 2012. *California Environmental Quality Act (CEQA) Statute and Guidelines.* Reproduced with permission from the California Resources Agency. Available: <http://ceres.ca.gov/ceqa/docs/CEQA_Handbook_2012_wo_covers.pdf>. Accessed: February 13, 2013.

Council on Environmental Quality. 2005. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.* Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 15, 2013.

Governor's Office of Planning and Research. 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September. Available: <http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 12, 2013.

## Chapter 4

### Section 4.1

Association of Environmental Professionals. 2012. *California Environmental Quality Act (CEQA) Statute and Guidelines.* Reproduced with permission from the California Resources Agency. Available: <http://ceres.ca.gov/ceqa/docs/CEQA_Handbook_2012_wo_covers.pdf>. Accessed: February 13, 2013.

City of Los Angeles. 1999a. *City of Los Angeles General Plan.* Transportation Element. Adopted September 8. Available: <http://cityplanning.lacity.org/cwd/gnlpln/transelt/index.htm>. Accessed: February 13, 2013.

City of Los Angeles. 2002a. *City of Los Angeles General Plan*. Transportation Element, Highways and Freeways, North Valley Subarea, Map A2. June. Available: <http://cityplanning.lacity.org/cwd/gnlpln/transelt/TEMaps/A2NVly.gif>. Accessed: February 12, 2013.

City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide*. H, Land Use. Available: <http://www.ci.la.ca.us/ead/programs/Thresholds/H-Land%20Use.pdf>. Accessed: February 13, 2013.

City of Los Angeles. 2015. City of Los Angeles Mobility Plan 2035, An Element of the General Plan. May 28, 2015 Draft. Available: <https://cityclerk.lacity.org/lacityclerkconnect/index.cfm?fa=ccfi.viewrecord&ncfms=&cfnumber=15-0719>. Accessed: September 30, 2015.

City of Los Angeles. n.d. *Municipal Code, Chapter I (Planning and Zoning Code), Chapter I, General Provisions and Zoning, Article 2, Specific Planning – Zoning Comprehensive Zoning Plan*. Available: <http://www.amlegal.com/nxt/gateway.dll/California/lapz/municipalcodechapteriplanningandzoningco/chapterigeneralprovisionsandzoning/article2specificplanning-zoningcomprehen?f=templates$fn=default.htm$3.0$vid=amlegal:lapz_ca$anc=>. Accessed: February 13, 2013.

City of San Fernando. 1987. *City of San Fernando General Plan.*

City of San Fernando. 2005. *The San Fernando Corridors Specific Plan.* Adopted January. Available: <http://www.ci.san-fernando.ca.us/sfold/news/specific_plan/sf_corridors_sp_final.pdf>. Accessed: February 13, 2013.

Council on Environmental Quality. 2005. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.* Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 15, 2013.

ESRI. 2013. *ArcGIS: Geographic Information Systems Desktop Application.*

Governor's Office of Planning and Research. 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September. Available: <http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 12, 2013.

Southern California Regional Rail Authority (Metrolink). n.d. *Van Nuys Station*. Available: <http://www.metrolinktrains.com/>. Accessed: November 8, 2011.

### Section 4.2

Association of Environmental Professionals. 2012. *California Environmental Quality Act (CEQA)* Statute *and Guidelines.* Reproduced with permission from the California Resources Agency. Available: <http://ceres.ca.gov/ceqa/docs/CEQA_Handbook_2012_wo_covers.pdf>. Accessed: February 13, 2013.

City of Los Angeles, 2014. Zone Info & Map Access System (ZIMAS). Available: <http://zimas.lacity.org/>. Accessed: November 6, 2014.

Governor's Office of Planning and Research. 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September. Available: <http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 12, 2013.

KOA Corporation. 2015. *East San Fernando Valley Transit Corridor Draft EIS/EIR Real Estate and Acquisitions Technical Report.* April.

LoopNet.com. n.d. *Property Search by Map Area*. Available: <http://www.loopnet.com/. Accessed: December, 9 2014.

Section 4.3

California Employment Development Department. 2010. *Quarterly Census of Employment and Wages.*

California Natural Resources Agency. 2010b. *State CEQA Guidelines, 14 CCR Section 15382.* Available: <http://ceres.ca.gov/ceqa/guidelines/art20.html>. Accessed: April 18, 2013.

Council on Environmental Quality. 2005. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.* Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 15, 2013.

County of Los Angeles Office of the Assessor. 2014. Los Angeles County Assessor's parcel data.

IMPLAN Group, LLC. 2013. IMPLAN System (data and software).

KOA and ICF International. 2014. Maps of study area and transit corridor.

Southern California Association of Governments. 2012. *2012 Regional Transportation Plan.* Available: <http://rtpscs.scag.ca.gov>. Accessed: March 25, 2013.

Southern California Association of Governments. 2012. *2012 Regional Transportation Plan, Tier 2 Socioeconomic Data.*

U.S. Census Bureau. 2011. *Decennial Census: 2009 American Community Survey, 2000 Census Transportation Planning Package, and 2002–2009 Longitudinal Employer/Household Dynamics Census File.*

U.S. Census Bureau. 2014. *2009–2013 American Community Survey 5-year Estimates.* Available: <http://factfinder2.census.gov>. Accessed: December 1, 2014.

Section 4.4

California Natural Resources Agency. 2010b. *State CEQA Guidelines, 14 CCR Section 15382.* Available: <http://ceres.ca.gov/ceqa/guidelines/art20.html>. Accessed: February 15, 2013.

Council on Environmental Quality. 2005. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.* Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 15, 2013.

City of Los Angeles. 1996. *Arleta-Pacoima Community Plan*. Approved November 6. Available: <http://cityplanning.lacity.org/complan/pdf/arlcptxt.pdf>. Accessed: February 13, 2013.

City of Los Angeles. 1997. *Sylmar Community Plan*. Adopted August 8. Available: <http://cityplanning.lacity.org/complan/pdf/sylcptxt.pdf>. Accessed: February 16, 2013.

City of Los Angeles. 1998a. *Pacoima Town Center Targeted Neighborhood Initiative*. Available: <http://cityplanning.lacity.org/complan/rproginfo/TNI/tnimap/tni-paco.pdf>. Accessed: February 13, 2013.

City of Los Angeles. 1998b. *Van Nuys-North Sherman Oaks Community Plan*. Adopted September 9. Available: <http://cityplanning.lacity.org/complan/pdf/vnycptxt.pdf>. Accessed: February 13, 2013.

City of Los Angeles. 1999. *Mission Hills-Panorama City-North Hills Community Plan*. Adopted June 9. Available: <http://cityplanning.lacity.org/complan/pdf/msscptxt.pdf>. Accessed: February 13, 2013.

City of Los Angeles. 2000. *Van Nuys Auto Row Business Improvement District*. March. Available: <http://cityplanning.lacity.org/complan/rproginfo/BID/bidmap/vnyauto.pdf>. Accessed: February 15, 2013.

City of Los Angeles. 2001a. *Osborne Corridor Targeted Neighborhood Initiative (TNI)*. Available: <http://cityplanning.lacity.org/complan/rproginfo/TNI/tnimap/osborncor.pdf>. Accessed: February 14, 2013.

City of Los Angeles. 2001b. *Van Nuys Targeted Neighborhood Initiative (TNI II).* Available: <http://planning.lacity.org/complan/rproginfo/TNI/tniarea/vannuys2.htm>. Accessed: February 13, 2013.

City of Los Angeles. 2002. *Van Nuys Boulevard Targeted Neighborhood Initiative (TNI).* Available: <http://planning.lacity.org/complan/rproginfo/TNI/tniarea/vannuystni.htm>. Accessed: November 18, 2011.

City of Los Angeles. 2003a. *Pacoima Community Design Overlay (CDO) Design Guidelines and Standards*. Approved May 22. Available: <http://cityplanning.lacity.org/complan/othrplan/pdf/PacoimaCDOGuidelines.pdf>. Accessed: February 13, 2013.

City of Los Angeles. 2003b. *Panorama City Community Design Overlay (CDO) Design Guidelines and Standards*. Approved March 27. Available: <http://cityplanning.lacity.org/complan/othrplan/pdf/PanoramaCityCDO_guidelines.pdf. Accessed: February 15, 2013.

City of Los Angeles. 2004. *Van Nuys Central Business District Community Design Overlay District (CDO) Design Guidelines and Standards.* Revised August 16. Available: <http://cityplanning.lacity.org/complan/othrplan/pdf/vnycbdcdotxt.pdf>. Accessed: February 13, 2013.

City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide, H. Land Use*. Available: <http://www.ci.la.ca.us/ead/programs/Thresholds/H-Land%20Use.pdf>. Accessed: February 13, 2013.

City of Los Angeles. 2009. *Panorama City Business Improvement District*. Approved March.

City of Los Angeles. 2011. *Zoning Information File #2418.* Department of Building and Safety. Effective July 25.

City of Los Angeles Neighborhood Development Department. n.d. *Neighborhood Council Map.* Available <www.lacityneighborhoods.com/map.htm>. Accessed: February 11, 2013.

City of San Fernando. 1987. *City of San Fernando Revised General Plan.* Prepared by Castaneda & Associates. Available: <http://www.ci.san-fernando.ca.us/city_government/departments/comdev/forms_docs/General%20Plan%20-%20Complete.pdf>. Accessed: February 21, 2013.

Governor's Office of Planning and Research. 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September. Available: <http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 12, 2013.

Sylmar Chamber of Commerce. 2012. *The Vista at Sylmar*. Available: <http://www.sylmarchamber.com/sylmarbid.html>. Accessed: November 10, 2014.

U.S. Department of Transportation, Federal Highway Administration. 1996. *Community Impact Assessment: A Quick Reference for Transportation*. September. Available: <http://www.ciatrans.net/CIA_Quick_Reference/Purpose.html. Accessed: March 7, 2013.

**Section 4.5**

California Natural Resources Agency. 2010b. *State CEQA Guidelines, 14 CCR Section 15382.* Available: <http://ceres.ca.gov/ceqa/guidelines/art20.html>. Accessed: February 15, 2013.

City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide*. K, Public Services. Available: <http://www.ci.la.ca.us/ead/programs/Thresholds/K-Public%20Services.pdf>. Accessed: February 13, 2013.

Council on Environmental Quality. 2005. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.* Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 15, 2013.

Federal Highway Administration. 1981. *Visual Impact Assessment for Highway Projects.* March 1981.

Google. 2015. Google Street View in Google Maps.

GPA. 2013. *Site Visit Photographs and Observations*. March 14.

GPA 2014. *Site Visit Photographs and Observations*.

U.S. Census Bureau. 2010. 2010 Census. Detailed tables generated by Mandy Jones using American FactFinder. Available: <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>. Accessed February 13, 2013.

**Section 4.6**

California Air Resources Board. 1999. *California Air Toxics* Program Background. Available: <http://www.arb.ca.gov/toxics/background.htm>. August 12, 1999.

California Air Resources Board. 2013b. *Top 4 Measurements and Days above the Standard*. Available:<http://www.arb.ca.gov/adam/cgi-bin/db2www/adamtop4b.d2w/start>.

California Air Resources Board. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective.* Available: <http://www.arb.ca.gov/ch/landuse.htm. April.

City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide*.

Council on Environmental Quality. 2005. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.* Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 21, 2013.

Federal Highway Administration and U.S. Environmental Protection Agency. 2010. *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas.* December.

Federal Highway Administration and U.S. Environmental Protection Agency. 2013. Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas. November.

Federal Highway Administration. 2012. *Interim Guidance Update on Mobile-Source Air Toxic Analysis in NEPA Documents*. December.

South Coast Air Quality Management District. 2012. *Final 2012 Air Quality Management Plan.* Available:<http://www.aqmd.gov/aqmp/2012aqmp/draft/index.html>. December 7.

Garza, V., P. Graney, D. Sperling. 1997. *Transportation Project-level Carbon Monoxide Protocol.* Developed for Caltrans by the Institute of Transportation Studies at the University of California, Davis.

Governor's Office of Planning and Research. 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September. Available: <http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 12, 2013.

KOA Corporation.2013. *East San Fernando Valley Transit Corridor Traffic Impact Analysis*. April.

South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. November.

South Coast Air Quality Management District. 2003. *Localized Significance Threshold Methodology for CEQA Evaluations*. June.

South Coast Air Quality Management District. 2006. *Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology.* October.

South Coast Air Quality Management District. 2014. *Draft Mobile Air Toxics Exposure Study MATES IV.* Carcinogenic Risk Interactive Map. Available: <http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iv>. Accessed March 30, 2015.

U.S. Environmental Protection Agency. 2013b*. Compilation of Air Pollutant Emission Factors.* AP-42, Section 13.2.1.

Western Regional Climate Center. 2013. *Los Angeles Area, California Climate Summaries.* San Fernando, California (047759). Available: <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5115>. Accessed: July 29, 2013.

#### Personal Communication

Brady, Mike. January 6, 2010—email to ICF regarding the analysis of MSATs in Caltrans documents.

### Section 4.7

Association of Environmental Professionals. 2012. *California Environmental Quality Act (CEQA) Statute and Guidelines.* Reproduced with permission from the California Resources Agency. Available: <http://ceres.ca.gov/ceqa/docs/CEQA_Handbook_2012_wo_covers.pdf>. Accessed: February 13, 2013.

California Air Resources Board. 2013. *California Greenhouse Gas Inventory for 2000–2010 by Category, as Defined in the Scoping Plan.*

California Energy Commission. 2006. *Our Changing Climate, Assessing the Risks to California, 2006 Biennial Report*. California Climate Change Center, California Energy Commission Staff Paper, Sacramento, CA. Report CEC-500-2006-077.

Council on Environmental Quality. 2005. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.* Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 21, 2013.

Governor's Office of Planning and Research. 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September. Available: <http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 12, 2013.

KOA Corporation. 2015. *Transportation Impacts Report for the East San Fernando Valey Transit Corridor Project.*

South Coast Air Quality Management District. 2008. *Proposal: Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans.* Available: <http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2>. Accessed: March 27, 2015.

U.S. Energy Information Administration. 2014. *State-Level Energy-Related Carbon Dioxide Emissions, 2000–2011*. Tables 5 and 8. Available: <http://www.eia.gov/environment/emissions/state/analysis/pdf/stateanalysis.pdf>.

**Section 4.8**

ATS Consulting. 2015. *East San Fernando Valley Transit Corridor Noise and Vibration Impacts Report.* Pasadena, CA.

Federal Transit Administration. 2006. *Transit Noise and Vibration Impact Assessment.* Washington, D.C.

**Section 4.9**

Association of Environmental Professionals. 2012. *California Environmental Quality Act (CEQA) Statute and Guidelines.* Reproduced with permission from the California Resources Agency. Available: <http://ceres.ca.gov/ceqa/docs/CEQA_Handbook_2012_wo_covers.pdf>. Accessed: February 13, 2013.

Bryant, W.A., and E.W. Hart. 2007. *Fault Rupture Hazard Zones in California.* Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zone Maps. California Division of Mines and Geology Special Publication 42, Interim Revision 2007.

California Geological Survey. 1997 (revised 2001). *Seismic Hazard Zone Report 008.* Seismic Hazard Zone Report for the Van Nuys 7.5-minute Quadrangle, Los Angeles County, California.

California Geological Survey. 1998. Open File Report 98-06, Seismic Hazard Evaluation for the San Fernando 7.5-Minute Quadrangle, Los Angeles County, California.

California Geological Survey. 2010. *Fault Activity Map of California*. Geologic Data Map No. 6, Compilation and Interpretation by Charles W. Jennings and William A. Bryant.

City of Los Angeles. 1996. *Safety Element of the Los Angeles City General Plan*. Department of City Planning, Los Angeles, California, City Plan Case No. 95-0371, Adopted November 26, 1996.

City of Los Angeles. 2004. *Hillside Ordinance Map*.

City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide*. E, Geology.

Council on Environmental Quality. 2005. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.* Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 15, 2013.

Governor's Office of Planning and Research. 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September. Available: <http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 12, 2013.

Hesson, B.H. 1993. Oat Mountain and Pacoima Oil Fields, California Department of Conservation Division of Oil, Gas, and Geothermal Resources, Publication TR42.

Los Angeles County Metropolitan Transportation Authority. 2012. *Metro Design Criteria.*

Yerkes, R.F., and R.H. Campbell. 2005. *Preliminary Geologic Map of the Los Angeles 30' x 60' Quadrangle, Southern California.* U.S. Department of the Interior. U.S. Geological Survey Open File Report 2005-1019, Scale 1:100000.

### Section 4.10

Association of Environmental Professionals. 2015. *California Environmental Quality Act (CEQA) Statute and Guidelines.*

Council on Environmental Quality. 2005. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.* Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 15, 2013.

Governor's Office of Planning and Research. 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September. Available: <http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 12, 2013.

### Section 4.11

Association of Environmental Professionals. 2012. *California Environmental Quality Act (CEQA) Statute and Guidelines.* Reproduced with permission from the California Resources Agency. Available: <http://ceres.ca.gov/ceqa/docs/CEQA_Handbook_2012_wo_covers.pdf>. Accessed: February 13, 2013.

California Energy Commission. 2011. *Transportation Energy Forecasts and Analyses for the 2011 Integrated Energy Policy Report.* Draft staff report. August. Report No. CEC-600-2011-007-SD. Available: <http://energy.ca.gov/2011publications/CEC-600-2011-007/CEC-600-2011-007-SD.pdf>. Accessed: February 17, 2013.

California Energy Commission. 2012. *2011 Integrated Energy Policy Report*. February. Available: <http://www.energy.ca.gov/2011publications/CEC-100-2011-001/CEC-100-2011-001-CMF.pdf>. Accessed: February 14, 2013.

California Energy Commission. 2013. *Energy Almanac. California Petroleum Statistics and Data.* Available: <http://energyalmanac.ca.gov/petroleum/index.html>. Accessed: February 14, 2013.

California Energy Commission. 2014. *California Energy Almanac: 2013 Total System Power in Gigawatt Hours.* Available: <http://energyalmanac.ca.gov/electricity/total_system_power.html>. Accessed: December 10, 2014.

California Energy Commission. 2014b. *2014 Integrated Energy Policy Report*. Available: <http://www.energy.ca.gov/2014publications/CEC-100-2014-001/CEC-100-2014-001-CMF.pdf>. Accessed: April 3, 2015.

City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide*.

Council on Environmental Quality. 2005. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.* Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 15, 2013.

Governor's Office of Planning and Research. 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September. Available: <http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 12, 2013.

KOA Corporation. 2015. Transportation Impact Report for the East San Fernando Valley Transit Corridor Project. March

Los Angeles County Metropolitan Transportation Authority. 2010. *Greenhouse Gas Emissions Cost Effectiveness Study.* Available:<http://media.metro.net/projects_studies/sustainability/images/GHGCE_2010_0818.pdf>. Accessed: April 22, 2015.

Los Angeles County Metropolitan Transportation Authority. 2012. *Moving Towards Sustainability, 2012 Metro Sustainability Report, Using Operational Metrics*. Available: <http://www.metro.net/projects_studies/sustainability/images/Sustainability_Report.pdf>. Accessed: February 21, 2013.

Los Angeles County Metropolitan Transportation Authority. 2014. 2014 Metro Energy and Resource Report. Available: <http://media.metro.net/projects_studies/sustainability/images/report_ecsd_2014-0624.pdf>. Accessed: May 19, 2015.

Los Angeles Department of Water and Power. 2012. *Power Integrated Resource Plan.*

Los Angeles Department of Water and Power. 2014. 2014 Power Integrated Resource Plan.

South Coast Air Quality Management District. 2012. *2012 Air Quality Management Plan.* Chapter 10: Energy and Climate. Available: <http://www.aqmd.gov/aqmp/2012aqmp/Final/Ch10.pdf>. Accessed: February 18, 2013.

Southern California Association of Governments. 2012. *2012–2035 Regional Transportation Plan/Sustainable Communities Strategy*. April. Available: <http://rtpscs.scag.ca.gov/Documents/2012/final/f2012RTPSCS.pdf>. Accessed: February 13, 2013.

U.S. Energy Information Administration. 2014a. *California Energy Consumption Estimates by Source, 2012*. Available: <http://www.eia.gov/state/?sid=CA#tabs-1>. Accessed: December 10, 2014.

U.S. Energy Information Administration. 2014b. *California Energy Consumption by End-Use Sector, 2012.* Available: <http://www.eia.gov/state/?sid=CA#tabs-1>. Accessed: December 10, 2014.

### Section 4.12

Baldwin, Bruce G., Douglas Goldman, David J Keil, Robert Patterson, Thomas J. Rosatti, Dieter Wilken (eds.). 2012. *Jepson Manual, Vascular Plants of California*.

California Department of Fish and Game. 2011. *Special Animals List.*

California Department of Fish and Wildlife. 2013. *California Natural Diversity Database.* Sacramento, CA: Wildlife Habitat Data Analysis Branch, Habitat Conservation Division>. Accessed: February 25, 2013.

California Native Plant Society. 2013. *Inventory of Rare and Endangered Plants* (online edition, v7-11). Sacramento, CA. Available: <http://www.cnps.org/inventory>. Accessed: February 25, 2013.

City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide.*

Google Earth. 2013. *Aerials*. August 26.

Governor's Office of Planning and Research. 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September. Available: <http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 12, 2013.

Holland, R. F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California.* Sacramento, CA: California Department of Fish and Game, Nongame Heritage Program. 156 pp.

Los Angeles County Department of Public Works. 2006. *Hydrology Manual*. Appendix B, Hydrologic Maps. Available: <http://ladpw.org/wrd/publication/engineering/2006_Hydrology_Manual/2006%20Hydrology%20Manual-Divided.pdf>. Accessed: March 1, 2013.

Natural Resources Conservation Service. 2013. *Web Soil Survey.*

Sawyer, John O., Todd Keeler-Wolf, and Julie M. Evens. 2009*. A Manual of California Vegetation.* Second edition. Sacramento, CA: California Native Plant Society. pp. 1,300. ISBN 978-0-943460-49-9.

U.S. Fish and Wildlife Service. 2013. *Database of Threatened and Endangered Species.* Carlsbad office. March 5.

#### Personal Communication

Ruiz, Ron. Public Works Director, City of San Fernando. March 26, 2013—email conversation.

### Section 4.13

Association of Environmental Professionals. 2012. *California Environmental Quality Act (CEQA) Statute and Guidelines.* Reproduced with permission from the California Resources Agency. Available: <http://ceres.ca.gov/ceqa/docs/CEQA_Handbook_2012_wo_covers.pdf>. Accessed: February 13, 2013.

Council on Environmental Quality. 2005. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.* Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 15, 2013.

Governor’s Office of Planning and Research. 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September. Available: <http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 12, 2013.

Metropolitan Water District of Southern California. 2007. *Groundwater Assessment Study*. Chapter IV – Groundwater Basin Reports. San Fernando Valley Basins. Web. 1 May 2014.http://www.mwdh2o.com/mwdh2o/pages/yourwater/supply/groundwater/PDFs/SanFernandoValleyBasins/UpperLARiverAreaBasins.pdf.

Upper Los Angeles River Area Watermaster. 2013. *Groundwater Pumping and Spreading Plan to the Upper Los Angeles River Area.* Annual Report, 2012–2017 Water Years. December. Available: <http://ularawatermaster.com/public_resources/WY-2012-17-ULARA-Pump&Spread-12-2013.pdf>. Accessed: February 11, 2015.

### Section 4.14

Association of Environmental Professionals. 2014. *State CEQA Guidelines*.

California Environmental Resources Evaluation System. n.d. *Criteria for Defining Environmental Significance.* September. Available: <http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 21, 2013.

City of Los Angeles Fire Department. 2013a. *Find a Station.* Available: <http://lafd.org/>. Accessed: February 2013.

City of Los Angeles Police Department. 2013. *Our Communities*. Available: <http://www.lapdonline.org/our_communities>. Accessed: March 2013.

City of Los Angeles. n.d. *City of Los Angeles General Plan*. Safety Element. Exhibit D. <http://cityplanning.lacity.org/cwd/gnlpln/saftyelt.pdf>. Accessed: March 27, 2014.

City of San Fernando Police Department. n.d. *Police*. Available: <http://www.ci.san-fernando.ca.us/city_government/departments/police/index.shtml>. Accessed: March 9, 2013.

Council on Environmental Quality. 2005. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.* Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 21, 2013.

Governor’s Office of Planning and Research. 1994. *Thresholds of Significance: Criteria for Defining Environmental Significance*. September. Available: <http://ceres.ca.gov/ceqa/more/tas/Threshold.html>. Accessed: February 21, 2013.

ICF International. 2015. *Safety and Security Impact Report, East San Fernando Valley Transit Corridor Project.*

KOA Corporation. 2015. *Safety and Security Impact Report.*

Los Angeles County Sheriff's Department. 2011. *2011 Synopsis. Transit Services Bureau.* Available: <http://www.lasdhq.org/sites/yir9600/yir2011/tsb/synopsis.htm>. Accessed: March 10, 2013.

Los Angeles County Sheriff's Department. 2012. *Light-Rail/Bus 2012 Crime Incident and Arrest Summary and Arrest Statistics.* Transit Services Bureau. Available: <http://www.lasdhq.org/sites/yir9600/yir2012/tsb/11.htm>. Accessed: March 17, 2014.

Los Angeles Department of Transportation. n.d. *Rider's Code of Conduct*. Transit Services. Available: <http://www.ladottransit.com/conduct.html>. Accessed: April 20, 2015.

Los Angeles Sheriff's Department. 2010. *Light-Rail/Bus 2010 Incident and Arrest Summary*. Transit Services Bureau. Available: <http://app1.lasd.org/caas_web/era02/index.cfm?mod=mnu&locat=cit_LRBUS>. Accessed: March 17, 2014.

Safe Transportation Research and Education Center. 2014. *Safetrec.* Available: <http://safetrec.berkeley.edu/>. Accessed: April 20, 2015.


### Personal Communication

Morris, Michael. Crime Analyst, Los Angeles County Sheriff's Department, Transit Policing Division. August 4, 2015—email message.


## Section 4.15

California Natural Resources Agency. 2010b. *State CEQA Guidelines, 14 CCR Section 15382.* Available: <http://ceres.ca.gov/ceqa/guidelines/art20.html>. Accessed: February 15, 2013.

City of Los Angeles Department of Recreation and Parks. 2013. *Map Locator*. Available:<http://raponline.lacity.org/maplocator/>. Accessed: March 4, 2013.

City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide*. K. Public Services. Available: <http://www.ci.la.ca.us/ead/programs/Thresholds/K-Public%20Services.pdf>. Accessed: February 13, 2013.

City of San Fernando. 2008. *San Fernando Downtown Parking Lots Environmental Impact Report, Section 5.9, Police Protection Services.* Available: <http://www.ci.san-fernando.ca.us/city_government/departments/comdev/news/Draft%20EIR/Sec05.09.PoliceProtection.pdf>. Accessed: December 18, 2014.

City of San Fernando. n.d. Departments. Available <http://www.ci.sanfernando.ca.us/city_government/departments>. Accessed March 4, 2013.

Council on Environmental Quality. 2005. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index*. Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 15, 2013.

County of Los Angeles Public Library. 2013. *Find Your Library*. Available: <http://www.colapublib.org/libs/>. Accessed: March 5, 2013.

County of Los Angeles. 2014. *Ford Theatres Project Environmental Impact Report, J.2 Public Services – Police Protection*. Available: <http://file.lacounty.gov/dpr/cms1_215045.pdf>. Accessed: December 18, 2014.

Google Inc. 2013a. *Google Earth*. Version 7.0.2. Available:

<http://www.google.com/earth/download/ge/agree.html>. Accessed: February 13, 2013.

Google Inc. 2013b . *Google Maps*. Available: <http://maps.google.com/>. Accessed: February 13, 2013.

Los Angeles Fire Department. 2014. *FireStatLA, City-wide Response Metrics.* Available: <http://www.lafd.org/sites/default/files/pdf_files/12-10-2014_CityWide.pdf>. Accessed: December 18, 2014.

Los Angeles Fire Department. n.d. *Fire Station Locator.* Available <http://lafd.org/find-a-firestation/275-fire-station-locator>. Accessed March 4, 2013.

Los Angeles Police Department. n.d. *Map of Valley Bureau*. Available: <http://www.lapdonline.org/valley_bureau/content_basic_view/9255>. Accessed: March 4, 2013.

Los Angeles Public Library. n.d. Locations and Hours. Available: <http://www.lapl.org/branches/branch_map.pdf>. Accessed: March 4, 2013.

Los Angeles School Board. 2012. District 6 Map. May 7. Available:<http://laschoolboard.org/sites/default/files/images/maps/2012-13BoardDistrict6Map.pdf>. Accessed: March 4, 2013.

**Section 4.16**

Bean, L.J., and C.R. Smith. 1978. Gabrielino. In R.F. Heizer, vol. ed., *Handbook of North American Indians*, Vol. 8., California, pp. 550–563. Washington, DC: Smithsonian Institution.

Council on Environmental Quality. 2005. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.* Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 15, 2013.

County of Los Angeles Public Library. n.d. *San Fernando Community History.* <http://www.colapublib.org/history/sanfernando/>. Accessed: May 14, 2013.

City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide*. K. Public Services. Available: <http://www.ci.la.ca.us/ead/programs/Thresholds/K-Public%20Services.pdf>. Accessed: February 15, 2013.

Dibblee, T.W. 1991a. Geologic Map of the San Fernando and Van Nuys (north ½) Quadrangles, Los Angeles County, California. Ed. by H.M. Ehrenspeck. Dibblee Geological Foundation Map DF-33.

Dibblee, T.W. 1991b. Geologic Map of the Beverly Hills and Van Nuys (south ½) Quadrangles, Los Angeles County, California. Ed. by H.M. Ehrenspeck. Dibblee Geological Foundation Map DF-31.

Howell, Craig. 1982. Site record for 19-001124 (CA-LAN-1124), on File at the South Central Coastal Information Center, California State University, Fullerton.

Johnson, K.L. 1966. *LAN-2:* A Late Manifestation of the Topanga Complex in Southern California Prehistory. Berkeley: University of California. *Anthropological Records* 23:1–36.

Knight, Albert. 2001. Site record for 19-00268, on File at the South Central Coastal Information Center, California State University, Fullerton.

Kroeber, A.L. 1925. *Handbook of the Indians of California*. Washington, DC: Smithsonian Institution. Bureau of American Ethnology Bulletin 78.

Kroeber, A.L. 1925. Handbook of the Indians of California, Washington D.C.: Smithsonian Institution, Bureau of American Ethnology Bulletin 78.

Leonard Pitt and Dale Pitt. 1997. *Los Angeles A to Z: An Encyclopedia of the City and County.* Berkeley: University of California Press.

McLeod, S.A. 2012. Vertebrate Paleontology Records Check for Paleontological Resources for the Proposed Van Nuys Corridor Project #2100, in the City of Los Angeles, Los Angeles County, Project Area. July. On file at Cogstone, Santa Ana, California.

Moratto, Michael J. 2004. *California Archaeology*. Academic Press, Inc.

Pacoima Chamber of Commerce. n.d. *Pacoima's History*. Available: <http://www.pacoimachamber.com/pacoimas-history/>. Accessed: May 14, 2013.

Roderick, Kevin. *The San Fernando Valley: America's Suburb*. Los Angeles: Los Angeles Times Books, 2001.

Treganza, A.E., and A. Bierman. 1958. The Topanga Culture: Final Report on Excavations, 1948. Berkeley. University of California. *Anthropological Records* 20(2):45–86.

U.S. Geological Survey. 1996. USGS Response to an Urban Earthquake: Northridge'94. U.S. Geological Survey Open-File Report 96-263. Available: <http://pubs.usgs.gov/of/1996/ofr-96-0263/index.html>. Accessed: February 19, 2013.

Yerkes, R.F., and R.H. Campbell. 2005. Preliminary Geologic Map of the Los Angeles 30' x 60' Quadrangle, Southern California. Version 1.0. USGS Open file report 2005-1019. Available: <http://pubs.usgs.gov/of/2005/1019>. Accessed: February 15, 2013.

### Section 4.17

California Natural Resources Agency. 2010a. *State CEQA Guidelines, 14 CCR Section 15358*. Available: <http://ceres.ca.gov/ceqa/guidelines/art20.html>. Accessed: February 15, 2013.

_____. 2010b. *State CEQA Guidelines, 14 CCR Section 15382.* Available: <http://ceres.ca.gov/ceqa/guidelines/art20.html>. Accessed: February 15, 2013.

City of Los Angeles. 1993. *City of Los Angeles/Planning Department Land Use/Transportation Policy.* Adopted November 2. Available: <http://www.metro.net/images/Land_Use-Transportation_Policy.pdf>. Accessed: February 16, 2013.

_____. 2011. 2010 Bicycle Plan. March. Available: <http://planning.lacity.org/cwd/gnlpln/transelt/NewBikePlan/Txt/LA%20CITY%20BICYCLE%20PLAN.pdf>. Accessed: January 13, 2015.

_____. 2013. General Plan. Available: <http://cityplanning.lacity.org/>. Accessed: March 1, 2013.

City of San Fernando. 1987. *City of San Fernando Revised General Plan.* Prepared by Castaneda & Associates. Available: <http://www.ci.san-fernando.ca.us/city_government/departments/comdev/forms_docs/General%20Plan%20-%20Complete.pdf>. Accessed: February 21, 2013.

_____. 2005. *The San Fernando Corridors Specific Plan*. Adopted January. Available: <http://www.ci.san-fernando.ca.us/sfold/news/specific_plan/sf_corridors_sp_final.pdf>. Accessed: February 13, 2013.

Council on Environmental Quality. n.d. *Regulations for Implementing NEPA, 40 CFR Section 1508.8*. Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 15, 2013.

_____. 1997. *Environmental Justice Guidance Under the National Environmental Policy Act*. Available: <http://www.epa.gov/compliance/ej/resources/policy/ej_guidance_nepa_ceq1297.pdf>. Accessed: February 25, 2013.

Diaz•Yourman & Associates. 2014. *Environmental Site Assessment: Eastern San Fernando Valley Transit Corridor*. November.

Esri. 2013. *Esri - GIS Mapping Software, Solutions, Services, Map Apps, and Data.* Maps throughout this report were created using ArcGIS® software by Esri. ArcGIS® and ArcMap™ are the intellectual property of Esri and are used herein under license. Copyright Esri. All rights reserved. For more information about Esri® software, please visit www.esri.com.

Federal Transit Administration. 2012. *FTA Circular 4703.1, Environmental Justice Policy Guidance for Federal Transit Administration Recipients.* August 15. Available: <http://www.fta.dot.gov/documents/FTA_EJ_Circular_7.14-12_FINAL.pdf>. Accessed: February 26, 2013.

Google, Inc. 2013. *Google Maps*. Available: <http://maps.google.com/>. Accessed: February 13, 2013.

KOA Corporation. 2011. *Van Nuys Boulevard Corridor Mobility Study, Purpose and Need Framework*. Monterey Park, CA.

Metro. 2014. *Metro Complete Streets Policy.* Available: <http://media.metro.net/projects_studies/sustainability/images/policy_completestreets_2014-10.pdf>. Accessed: July 22, 2015.

President William J. Clinton. 1994a. *Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (Federal Register Volume 59, Number 32).* February 11. Available: <http://www.archives.gov/federal-register/executive-orders/pdf/12898.pdf>. Accessed: February 27, 2013.

U.S. Census Bureau. 2000. *2000 Census.* Detailed Tables Generated by Mandy Jones using American FactFinder. Available: <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>. Accessed: February 13, 2013.

_____. 2010. *2010 Census*. Detailed Tables Generated by Mandy Jones using American FactFinder. Available: <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>. Accessed: February 13, 2013.

United States Congress. 1964. Title VI of the 1964 Civil Rights Act, 42 USC Section 2000d. Available: <http://www.justice.gov/crt/about/cor/coord/titlevistat.php>. Accessed: March 4, 2013.

United States Congress. 1969. *National Environmental Policy Act of 1969, as amended, 42 USC Section 4331.* Available: <http://ceq.hss.doe.gov/nepa/regs/nepa/nepaeqia.htm>. Accessed: February 26, 2013.

### Section 4.18

Association of Environmental Professionals. 2015. *CEQA Statute and Guidelines.*

City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide*. Available: <http://www.http://environmentla.com/programs/Thresholds/Jci.la.ca.us/ead/programs/Thresholds/J-Population%20and%20Housing.pdf>. Accessed: March 30, 2015.

Council on Environmental Quality. 2005. *CEQ – Regulations for Implementing NEPA, 40 CFR Part 1508, Terminology and Index.* Available: <http://ceq.hss.doe.gov/nepa/regs/ceq/1508.htm>. Accessed: February 21, 2013.

Southern California Association of Governments. 2012. *Final Adopted Integrated Growth Forecast*. Available: <http://www.scag.ca.gov/forecast/adoptedgrowth.htm>.

U.S. Census Bureau. 2014. *American Community Survey, 2007–2011, 5-Year Estimates.* Table DP04.

## Chapter 5

City of Los Angeles. 2011. 2010 Bicycle Plan, A Component of the City of Los Angeles Transportation Element. Adopted March 1. Available: <http://planning.lacity.org/cwd/gnlpln/transelt/NewBikePlan/Txt/LA%20CITY%20BICYCLE%20PLAN.pdf>. Accessed: November 5, 2015

GPA Consulting. 2015. Historical Resources Impacts Report for the East San Fernando Valley Transit Corridor Project.

## Chapter 6

None.

## Chapter 7

None.