Alternatives Analysis Report

for the East San Fernando Valley Transit Corridor

December 2012

Metro®

Prepared by the
U.S. Department of Transportation
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Abbreviations/Acronyms

AB	Assembly Bill
AA	Alternatives Analysis
AADT	Annual Average Daily Traffic
BRT	Bus Rapid Transit
CBM09	Corridor Base Model 2009
CEQA	California Environmental Quality Act
CH4	Methane
CNG	Compressed National Gas
CO2	Carbon Dioxide
DEIR	Draft Environmental Impact Report
DEIS	Draft Environmental Impact Statement
FTA	Federal Transit Administration
GHG	Greenhouse Gas
HOV	High Occupancy Vehicle
I	Interstate
LADOT	Los Angeles Department of Transportation
LAX	Los Angeles International Airport
LPA	Locally Preferred Alternative
LRT	Light Rail Transit
LRTP	Long Range Transportation Plan
Metro	Los Angeles County Metropolitan Transportation Authority
MOL	Metro Orange Line
MPH	Miles per Hour
MSF	Maintenance and Storage Facility
N2O	Nitrous Oxide
PE	Pacific Electric
ROW	Right of Way
RSTIS	Regional Surface Transportation Investment Study
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
TAZ	Traffic Analysis Zone
TCRP	Traffic Congestion Relief Program
TSM	Transportation System Management
UCLA	University of California, Los Angeles
VA-SACC	Veterans Affairs Sepulveda Ambulatory Care Center
VMT	Vehicle Miles Traveled

1.0 Introduction

1.1 STUDY BACKGROUND

What is the East San Fernando Valley Transit Corridor?

The Los Angeles County Metropolitan Transportation Authority (Metro) with the City of Los Angeles as project co-lead has undertaken an Alternatives Analysis (AA) to study the East San Fernando Valley Transit Corridor. The purpose of an AA is to define, screen, and recommend alternatives to be studied as part of a Draft Environmental Impact Statement/Environmental Report (DEIS/DEIR).

This project will enable 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 a future transit project in the study area. The Sepulveda Pass Corridor could someday link the West Los Angeles area to the east San Fernando Valley and the California High Speed Rail Project via the project corridor.

1.1.1. Study Area

Where is the study area located?

The project study area extends from Ventura Boulevard on the south, to the City of San Fernando, the Sylmar-San Fernando Metrolink Station and the Lakeview Terrace neighborhood on the north. The study area includes the two major north-south arterial roadways of Sepulveda and Van Nuys Boulevards, spanning 10-12 miles and the major north-west arterial roadway of San Fernando Road and north-east arterial roadway of Brand Boulevard. These roadways and nearby neighborhoods are the focus of the analysis presented within this document.

Bordering and traversing the area are several interregional freeways including the Ventura Freeway (US-101), the San Diego Freeway (I-405), the Golden State Freeway (I-5), the Ronald Reagan Freeway (SR-118) and the Foothill Freeway (I-210). To the east is the Hollywood Freeway (SR-170). There are three major transit corridors that serve interregional trips: the Metro Orange Line (MOL), the Metrolink Ventura Line and Amtrak service, and the Metrolink Antelope Valley Line.

The study area is comprised of a variety of land uses which include neighborhood and regional commercial uses; numerous car dealerships on Auto Row along Van Nuys Boulevard south of Chandler Boulevard; government services at the Van Nuys Civic Center; major shopping and office uses at the Sherman Oaks Galleria; and medium/high density residential throughout other parts of the study area. There are a number of other major activity centers in the surrounding area that are served directly and indirectly by Metro bus

lines including The Village at Sherman Oaks; Panorama Mall; Cal State Northridge; Bob Hope Airport; Van Nuys Airport; Mission Hills Hospital; Kaiser Permanente; and multiple schools, youth centers, and recreational centers.

An overview of the project study area is illustrated on Figure 1-1.

1.1.2. Alternatives Considered

What alternatives are under consideration?

Several alternatives are being studied as part of this AA to provide improved transit services within the eastern San Fernando Valley. The alternatives will be narrowed down as they are evaluated in relation to the purpose and need and evaluation criteria developed for the project. The following alternatives being studied include:

- **No Build Alternative** – Represents existing conditions in the study area including transportation projects currently under construction or funded for construction and operations by the year 2035. This alternative includes projects funded by Measure R and specified in the financially constrained element of Metro's Long Range Transportation Plan (LRTP) and Southern California Association of Governments (SCAG) 2012 constrained Regional Transportation Plan (RTP).

- **Transportation System Management (TSM) Alternative** – This alternative represents the No Build alternative plus lower cost capital and operational improvements to roadways including restriping, signal synchronization, and enhanced bus services designed to improve bus speeds. Additional transit service via increased frequency of bus services is a part of this alternative.

- **Bus Rapid Transit (BRT) Alternative** – A dedicated lane, fixed guideway, and/or mixed-flow operation would be established within the street right-of-way (ROW), for the establishment of new transit service. The BRT alternative would have station spacing approximately one mile apart, and passenger amenities similar to light rail service. This technology would be similar to the MOL or Metro Silver Lines, although it would not operate on a fully exclusive roadway.

- **Light Rail Transit (LRT) Alternative** – This alternative would use LRT vehicle technology and infrastructure that would operate within the street ROW using a dedicated guideway with stations approximately every mile. The technology would be similar to the existing Metro Blue, Green, Gold, and Exposition Lines.

- **Streetcar Alternative** – This technology is similar in some respects to light rail, but the vehicles are narrower and could operate in mixed-flow traffic within a standard roadway travel lane. The vehicles are generally operated as a single-unit or are articulated into a two-unit train. Streetcars have lower passenger capacity, less flexibility, and generally operate at lower operating speeds than LRT.

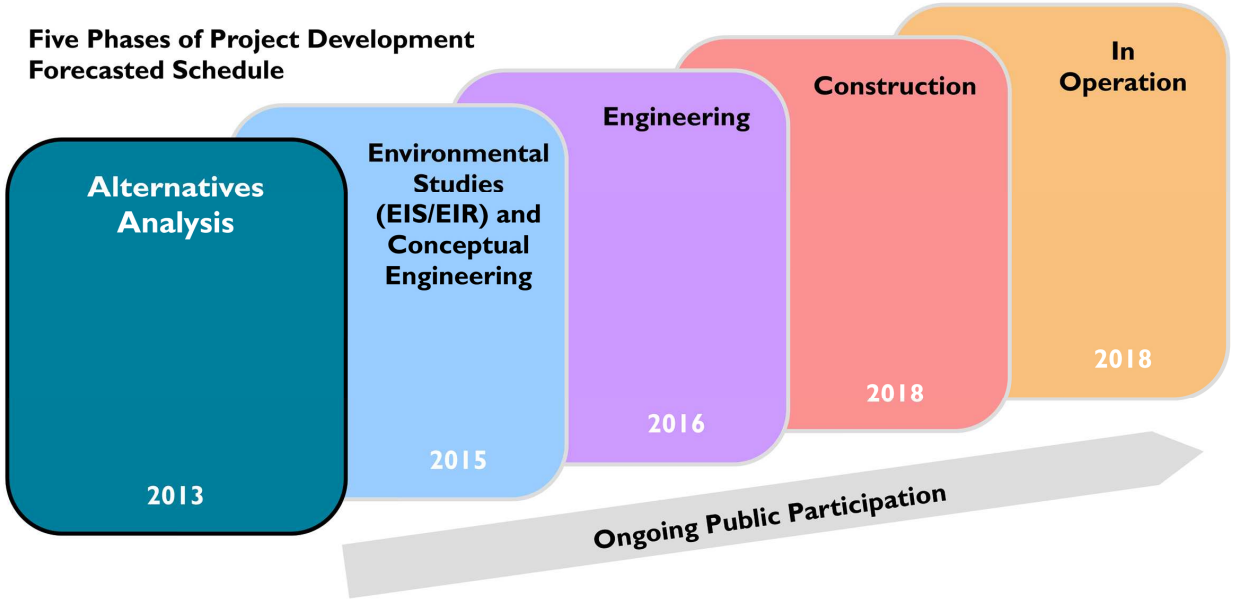
Figure 1-1 – Project Study Area

Source: Metro, 2012

1.2 Alternatives Analysis Report Purpose and Structure

The AA process defines the purpose and need for a project and subsequently identifies reasonable alternatives to be screened down based on a set of evaluation criteria and performance measures developed for the project. The screening is a technical analysis that considers the project's impacts and benefits to travel and mobility, connectivity, capital and operation costs, environmental, economic, and community input. Figure 1-2 illustrates the project development for the East San Fernando Valley Transit Corridor project.

Figure 1-2 – Project Development



The structure of this AA is as follows:

- **Section 2.0** discusses the *Purpose and Need* for the project and details specific objectives to address mobility issues in the eastern San Fernando Valley.
- **Section 3.0** describes the *Preliminary Definition of Alternatives* which details the characteristics associated with the transit options under consideration.
- **Section 4.0** explains the *Screening of Alternatives* and the two tiered screening process used to evaluate project alternatives for the potential recommendations for further study. This involves reducing alternatives that do not meet the purpose and need. Alternatives that are recommended for further study will be analyzed in the DEIS/DEIR.
- **Section 5.0** provides a *Public Outreach Summary* of community, stakeholder, and public agency outreach efforts.
- **Section 6.0** summarizes the *Recommended Project Alternatives* that are being advanced based on the final screening of alternatives.
- **Section 7.0** summarizes the *Alternatives Eliminated from Further Analysis* based on the final screening of alternatives.

2.0 Purpose and Need

The purpose of the project is to 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.

2.1. History and Background

The East San Fernando Valley Transit Corridor has been studied extensively over the past nine years. In 2000, the California State Legislature made funds available through a Traffic Congestion Relief Program (TCRP) grant, which was specifically to build a north/south bus project in the San Fernando Valley that would connect the Ventura Rapid Bus and the Burbank/Chandler alignment (Metro Orange Line (MOL)).

2.1.1. San Fernando Valley North-South Transit Corridor Regional Significant Transportation Investment Study (2003)

In May 2003, the 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 east San Fernando Valley.
- On 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 MOL Canoga Extension Project in July 2012.

2.1.2. LADOT San Fernando Valley North/South Transit Corridors Project (2008)

In 2010, LADOT provided minor refinements to the project definition for bus speeds on the remaining four San Fernando Valley north/south corridors and from that analysis recommended a number of near, medium and long-term improvements that included in addition to a Van Nuys Rapidway project, the implementation of improvements that included: signal timing changes at various intersections, intersection widening to add new turn pockets, widening and restriping to add new lanes at various locations, and bus stops with related pedestrian crossing enhancements.

2.1.3. East San Fernando Valley North-South Rapidway Project (2012)

The 2010 study by the City of Los Angeles recommended improvements to three of the targeted corridors (Reseda, Sepulveda, and Lankershim/San Fernando). The purpose of the study was to review and refine the 2010 City recommendations and identify feasible and beneficial improvements to north-south transit operating speeds and overall trip travel times, which could benefit existing and future bus passengers. The study determined that other than those projects currently being implemented by the City that no other improvements were recommended for implementation due primarily to high cost and negligible incremental bus trip travel time savings that would be experienced by Metro passengers.

2.2 PROJECT NEEDS

What is the purpose of the project and why is it needed?

Based on an evaluation of socioeconomic, congestion growth trends, travel conditions, and feedback from the project community meetings, it is demonstrated that existing and projected levels of traffic congestion limit mobility in general, and reduce the reliability of transit services and operations. In light of these conditions, the purpose of the 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
- 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 and high transit ridership
- Encourage modal shift to transit in the eastern San Fernando Valley, thereby improving air quality

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

The extent of the study area's transit dependency is supported in part by boarding and alighting data in the corridor as well as its socioeconomic profile. For example, the north-south Metro Bus lines have some of the highest ridership in the San Fernando Valley and Los Angeles County. Offering Metro riders an improved north-south transit connection is imperative to fostering increased future travel opportunities between key regional transit hubs.

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 impacted 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.

2.2.1.1. Existing Highway Network

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 to the greater Los Angeles region. They include the following:

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 and the I-5. The US-101 interchange is configured as a diamond, with ramps allowing access in all directions. The I-5 interchange provides ramps that allow movements to and from the south only.

Sepulveda Boulevard has interchanges with the US-101, the SR-118, and the I-5. The US-101 interchange provides ramps that allow movements to and from the east only. The SR-118 interchange is configured as a diamond, with ramps allowing access in all directions. The I-5 interchange provides ramps allowing movements to and from the south only.

San Fernando Road has interchanges with SR-118 that allow access in all directions.

2.2.1.2. Existing Arterial Roadways

The roadway system in the study area is primarily a grid-system that includes arterial, collectors, and local roads. The arterials within the study area are spaced at half-mile to one-mile distances.

Van Nuys Boulevard Corridor

The Van Nuys Boulevard ROW ranges from a width of 95 to 160 feet. In general, the majority of ROW in the corridor is 100 feet. There are generally two travel lanes in each direction throughout the corridor, with left-turn lanes at most intersections. Some segments have three through lanes in each direction, or have dual left-turn pockets (including the intersections with Roscoe Boulevard, Sherman Way, and the northbound US-101 on-ramp).

Left turn access to driveways is provided in mid-block sections by means of a continuous two-way left-turn lane, with the exception of a few blocks in Pacoima where there are raised median islands. Parking is allowed throughout the corridor. Most segments of the corridor have hourly parking restrictions that may include peak-hour restrictions, and there are metered parking spaces located in the Van Nuys Civic Center.

Van Nuys Boulevard does not currently have bicycle lanes or similar facilities. However, from the US-101 freeway to Foothill Boulevard, the roadway is designated by the 2010 City of Los Angeles Bicycle Plan, adopted by the City Council March 1, 2011, as a "Backbone Network" with a future lane designation.

Figure 2-1 illustrates Van Nuys Boulevard in the Civic Center area.

Figure 2-1 – Van Nuys Boulevard
(Source: KOA, 2011)

Sepulveda Boulevard Corridor

The Sepulveda Boulevard ROW ranges from a width of 100 to 168 feet. Similar to Van Nuys Boulevard, the majority of ROW in the corridor is 100 feet. There are generally three travel lanes in each direction throughout the corridor, with left-turn lanes at all intersections. Some segments have dual left-turn pockets (westbound and eastbound SR-118 on-ramps, Nordhoff Street, Roscoe Boulevard, Victory Boulevard, Burbank Boulevard, and Ventura Boulevard). Left turn access to driveways is provided in mid-block segments by means of a continuous two-way left-turn lane, with the exception of several blocks between Devonshire Street and Parthenia Place where there are raised median islands. Parking is permitted throughout the corridor and several segments have hourly parking restrictions. Metered parking spaces are provided in the southern part of the corridor, in the vicinity of the Sherman Oaks Galleria.

Bicycle lanes are not present on Sepulveda Boulevard, but are designated by the 2010 City of Los Angeles Bicycle Plan as part of the "Backbone Network" with a future lane designation between Ventura Boulevard and Rinaldi Street.

Figure 2-2 illustrates Sepulveda Boulevard near Sherman Way.

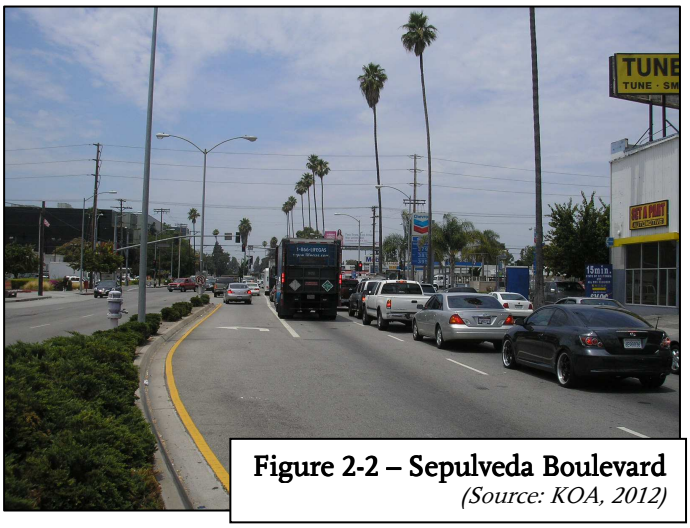


Figure 2-2 – Sepulveda Boulevard
(Source: KOA, 2012)

Brand Boulevard Corridor

Along Brand Boulevard, the ROW ranges from 80 to 145 feet. Two travel lanes in each direction are provided, with left-turn lanes at most intersections. Left turn access to driveways are restricted by a landscaped median that is provided along the entire length of the roadway. Southbound access to the I-5 freeway is provided via a westbound on-ramp. Parking is permitted along most of Brand Boulevard, and several segments have hourly parking restrictions. Metered parking spaces are provided near San Fernando Road.

Figure 2-3 – Brand Boulevard
(Source: STV, 2012)

Bicycle lanes are not present on Brand Boulevard. Brand Boulevard from Sepulveda Boulevard to the City of San Fernando is designated by the 2010 City of Los Angeles Bicycle Plan as part of the "Backbone Network" with a future lane designation.

Figure 2-3 illustrates Brand Boulevard near Noble Avenue.

San Fernando Road/Truman Street Corridor

San Fernando Road and Truman Street have narrower ROW widths compared to the Van Nuys, Sepulveda Boulevard, and Brand Boulevard corridors. The ROW on San Fernando Road ranges from 60 to 93 feet, while the Truman Street ROW ranges from 80 to 90 feet. San Fernando Road generally has two travel lanes in each direction throughout the study area, with left-turn lanes at major intersections. Between Fox and Hubbard Streets, Truman Street provides additional adjacent roadway capacity. Left turn access to driveways is provided in some mid-block sections by means of a continuous two-way left turn lane. Parking is allowed along some segments of San Fernando Road and Truman Street. This corridor parallels the Metrolink Antelope Valley Line tracks. Figure 2-4 illustrates San Fernando Road at Van Nuys Boulevard.

Bicycle facilities exist along portions of San Fernando Road. This includes a bicycle path from Roxford Street to La Rue Street. The roadway is designated by the 2010 City of Los Angeles Bicycle Plan as a bicycle path (separated, but parallel to the roadway) with a future lane designation.

Figure 2-4 – San Fernando Road
(Source: KOA, 2012)

2.2.1.3. Existing Transit Network

The project study area contains three major transit corridors (MOL, 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 MOL at the Van Nuys and Sepulveda stations.

Metro operates approximately 84 miles of rail service and 40 miles of dedicated busways (the MOL and the Metro Silver Line). Regional and local bus services are operated by Metro and municipal bus transit agencies. Metrolink provides commuter rail service with total route miles that exceed 500. Amtrak primarily provides intercity rail service between Los Angeles, Santa Barbara/San Luis Obispo, and San Diego.

The Metro Rapid Bus lines that operate in the area provide a core bus network that connects to local bus and shuttle services. Major bus lines include: the MOL and Metro Rapid Bus service on Van Nuys Boulevard, Sepulveda Boulevard, San Fernando Road/Truman Street, and Ventura Boulevard. Other bus lines that serve the study area include local lines, community circulators (DASH service), and non-Metro express bus service such as the City of Los Angeles Commuter Express.

The characteristics of Metro and LADOT bus services in the study area are summarized in Table 2-1, while Figure 2-5 illustrates transit lines within the study area.

2.2.1.4. Future Planned Projects

Future planned projects include capital improvements identified in Metro's 2009 Long Range Transportation Plan (LRTP) that will be implemented by 2035. This includes the installation of carpool lanes on the I-5 through Sun Valley, Pacoima, and Sylmar, and on the I-405 through the Sepulveda Pass.

The extension of the bicycle paths on Van Nuys Boulevard, Sepulveda Boulevard, and San Fernando Road/Truman Street corridors per the 2010 City of Los Angeles Bicycle Plan will need to be considered as part of any major modifications to the roadway.

Although the Sepulveda Pass Corridor and the California High Speed Rail projects will not likely be completed by the project buildout, these projects are discussed in the study as they would potentially link to the project thereby providing greater regional connectivity.

Table 2-1 – Existing Transit Services in Study Area

Agency	Line	From	To	Via	Peak Frequency	Daily Ridership
Metro	**North-South Bus Service**					
	94 **	Downtown LA	Sun Valley/San Fernando	San Fernando Rd	15 to 20 minutes	6,301
	224	Universal City	Sylmar	San Fernando Rd	12 minutes	9,948
	230	Studio City	Sylmar	Laurel Canyon Blvd / San Fernando Mission Blvd / Truman St	8 minutes	5,146
	233	Sherman Oaks	Lake View Terrace	Van Nuys Blvd	10 minutes	12,141
	234	Sherman Oaks	Sylmar	Sepulveda Blvd / Ventura Blvd / Magnolia Blvd / Kester Ave / 7th St / MaClay Ave	15 minutes	6,425
	237	Encino	Granada Hills / Sherman Oaks	Van Nuys Blvd / Victory Blvd / Woodley Ave	60 minutes	N/A
	290	Sunland	Sylmar	Foothill Blvd	22 to 40 minutes	1,152
	292	Burbank	Sylmar	Glenoaks Blvd	16 to 40 minutes	2,298
	656 *	Panorama City	Hollywood	Van Nuys Blvd / Burbank Blvd	**	N/A
	734	Sherman Oaks	Sylmar	Sepulveda Blvd / Brand Blvd / Truman St / Hubbard St	10 minutes	3,790
	761	Westwood	Pacoima	Van Nuys Blvd	10 minutes	11,090
	794	Downtown LA	Sylmar	San Fernando Rd / Hill St	10 minutes	5,395
	East-West Bus Service					
	150/240	Universal City	Woodland Hills / Northridge	Ventura Blvd / Van Nuys	15 to 30 minutes	11,638
	152	Woodland Hills	North Hollywood	Roscoe Blvd / Tuxford St / Sunland Blvd / Vineland Ave	8 to 18 minutes	13,150
	154	Tarzana	Burbank	Burbank Blvd / Oxnard St	60 minutes	1,018
	155	Sherman Oaks	Burbank	Riverside Dr / Olive Ave.	30 to 60 minutes	584
	156	Hollywood	Van Nuys	Burbank Blvd / Chandler Blvd / Vineland Ave	23 to 41 minutes	1,883
	158	Sherman Oaks	Chatsworth	Devonshire St / Woodman Ave	30 to 35 minutes	2,286
	162/163	West Hills	Sun Valley	Sherman Way	20 to 22.5 minutes	10,484
	164	West Hills	Burbank	Victory Blvd	10 to 20 minutes	7,851
	165	West Hills	Burbank	Vanowen St	6 minutes	9,023
	166/364	Chatsworth	Sun Valley	Nordhoff St / Osborne St	12 to 30 minutes	6,970
	167	Studio City	Chatsworth	Plummer St / Woodman Ave / Roscoe Ave / Coldwater Canyon Ave	40 to 50 minutes	N/A
	169	West Hills	Sunland	Saticoy Ave / Van Nuys Blvd / Chase St	60 minutes	2,428
	183	Sherman Oaks	Glendale	Magnolia Blvd / San Fernando Rd	26 to 60 minutes	2,300
	353	Woodland Hills	North Hollywood	Roscoe Blvd / Lankershim Blvd	11 to 50 minutes	N/A
	750	Woodland Hills	Universal City	Ventura Blvd / Topanga Canyon Blvd	10 minutes	5,126
	901/Orange	North Hollywood	Warner Center	Metro Orange Line	5 minutes	25,485
	East-West Bus Service					
LADOT	DASH	Panorama City/Van Nuys (Circular Loop)		Van Nuys Blvd / Parthenia St / Sherman Way / Hazeltine Ave / Victory Blvd	20 minutes	N/A
	DASH	Van Nuys/Studio City (Circular Loop)		Van Nuys Blvd / Hazeltine Ave / Oxnard St	30 minutes	N/A
	CE 409	Sylmar	Civic Center	Foothill Blvd	20 to 40 minutes	N/A
	CE419	Chatsworth	USC	Devonshire St / Chatsworth St / Sepulveda Blvd / SR-118	15 to 20 minutes	N/A
	CE 549	San Fernando Valley	Pasadena	Burbank Blvd / Lankershim Blvd / Riverside Dr	30 minutes	N/A
	CE 573	Encino/Mission Hills	Westwood/Century City	Balboa Blvd / I-405 / Sepulveda Blvd	15 to 45 minutes	N/A
	CE 574	Sylmar	LAX/El Segundo	Chatsworth St / Sepulveda Blvd / Brand Blvd / Truman St/ Hubbard St	30 to 50 minutes	N/A

Source: Metro, 2012.
The 300-series Metro lines (limited service) operate during peak periods only.
** This route operates during the late-night service hours only. Therefore, peak period frequency is negligible.*
*** This route operates on San Fernando Road on the weekend only. Therefore, peak period frequency is negligible.*

Figure 2-5 – Study Area Transit Map

Source: Metro, 2012

2.2.1.5. Highway Network Performance

Half of the freeway system in LA County has segments that operate at or approaching capacity in the morning and afternoon rush hours. (A road or highway is considered by transportation engineers to be at capacity when it reaches LOS E or F). Unlike other parts of the Southern California region, highway travel patterns for Los Angeles County are highly complex because there are so many widely dispersed activity centers. This differs from what is considered the traditional suburban-to-downtown directional commute pattern found in other areas.

The annual average daily traffic (AADT) growth on the freeways in the study area, through 2035, ranges from five percent to 39 percent. Representative freeway segments in the study area are summarized in Table 2-2, traffic on the I-5 to the north of the SR-118 is projected to grow by 39 percent, and traffic on the I-405 to the north of the US-101 is projected to grow by 22 percent.

Table 2-2 – Forecasted Freeway ADT Volumes in Study Area

Freeway Route	Postmile	Location	AADT Year 2010	AADT Year 2035	Percent Increase
I-5	38.502	South of Van Nuys Blvd.	268,437	354,751	32%
I-5	39.361	North of SR-118	169,952	236,796	39%
SR-170	15.988	North of Burbank Blvd.	239,665	258,523	8%
I-405	39.432	North of US 101	246,509	300,900	22%
I-405	43.756	North of Roscoe Blvd.	247,288	279,583	13%
I-405	46.85	South of SR-118	240,851	276,662	15%
I-405	47.754	South of Rinaldi Street	181,345	215,856	19%
I-210	5.911	North of SR-118	122,519	169,635	38%
I-210	5.911	South of SR-118	142,640	155,123	9%
SR-118	9.805	West of I-405	226,153	262,790	16%
SR-118	14.08	East of I-210	103,302	119,992	16%
US 101	15.908	West of Van Nuys Blvd.	274,936	290,047	5%

AADT = Annual Average Daily Traffic
Source: PB, Metro Model

2.2.1.6. Arterial Roadway Performance

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 2035, 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 mph, (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 mph, (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.

The average speed on key roadway segments within the study area are summarized in Table 2-3. The increased congestion and reduction in speeds is estimated to increase the vehicle delay at intersections in the study area.

The increased congestion and reduction of speeds will add to both automobile and transit vehicle delay at intersections in the study area. The analysis indicates that the increases in average vehicle delay per vehicle 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 in 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 of delay will experience 35 seconds of delay by the year 2035.

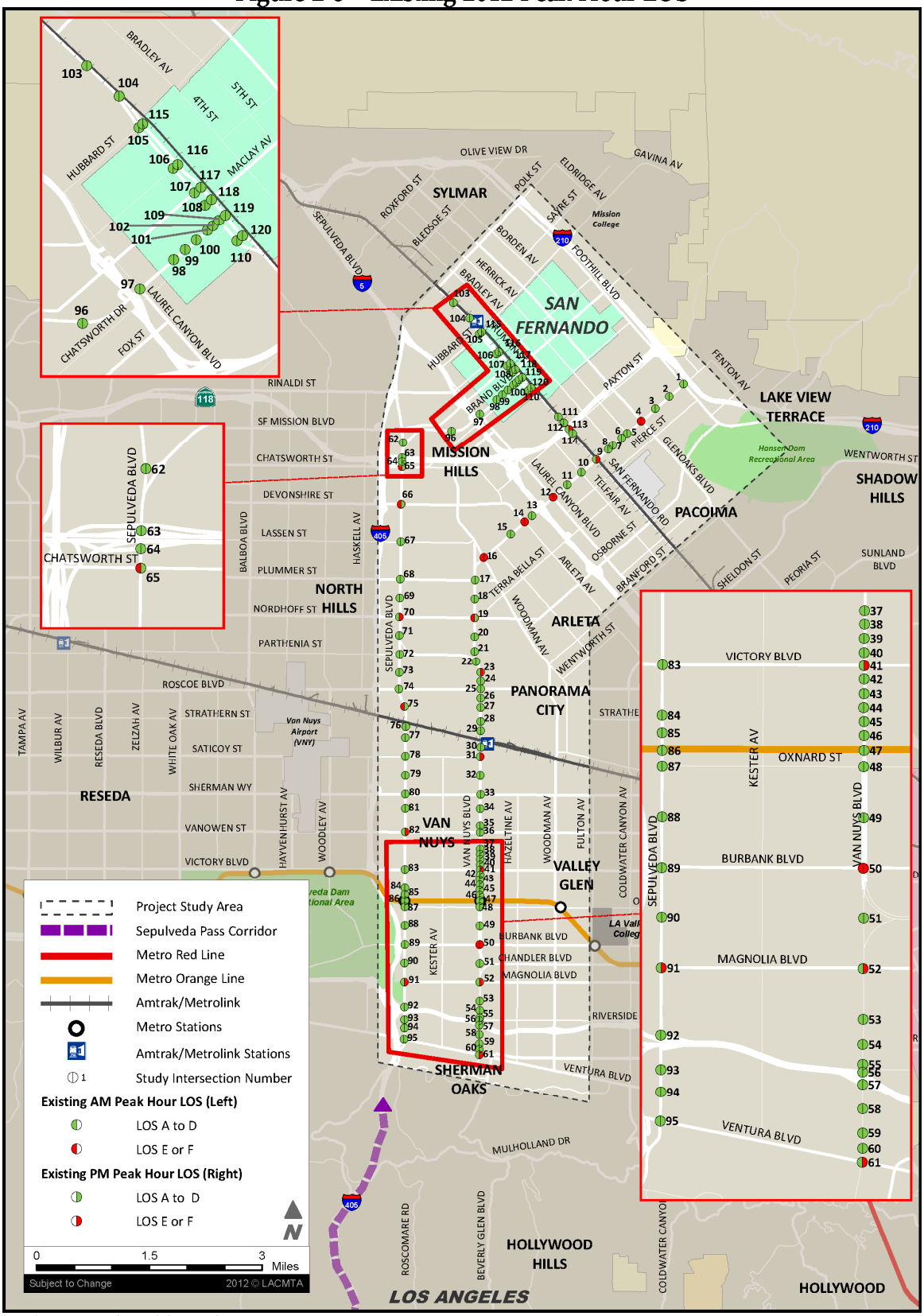
Based on travel projections from the Metro model, the number of study intersections currently operating at LOS E or F along the Van Nuys Boulevard corridor and the Sepulveda Boulevard corridor will more than double by the year 2035. Figures 2-6 and 2-7 illustrate the traffic conditions, for both existing and future buildout conditions.

Table 2-3 – 2010 and 2035 Average Speed on Key Roadways in Study Area

Study Locations	Direction	2010 Average Speed		2035 Average Speed		Percent Reduction Average Speed	
		AM [a]	PM [b]	AM [a]	PM [b]	AM [a]	PM [b]
Van Nuys Blvd.							
East of Laurel Canyon Blvd.	EB WB	34.5 33.8	32.6 33.0	33.3 21.7	20.8 30.0	-3% -36%	-36% -9%
North of Nordhoff St.	NB SB	34.5 29.7	30.3 33.0	34.1 22.7	21.9 30.6	-1% -24%	-28% -7%
North of Roscoe Blvd.	NB SB	33.3 15.6	16.4 29.3	31.6 8.6	9.4 28.6	-5% -45%	-43% -2%
North of Sherman Way	NB SB	35.2 24.3	23.2 34.0	34.8 15.8	16.5 32.6	-1% -35%	-29% -4%
North of Victory Blvd.	NB SB	34.9 26.3	25.9 33.7	34.5 19.4	19.6 33.0	-1% -26%	-24% -2%
South of Burbank Blvd.	NB SB	35.2 28.7	24.4 33.0	33.0 19.7	19.1 30.0	-6% -31%	-22% -9%
North of Ventura Blvd.	NB SB	29.4 25.6	26.5 29.4	25.6 21.2	25.1 27.1	-13% -17%	-5% -8%
Sepulveda Boulevard							
South of Devonshire Blvd.	NB SB	35.0 30.9	32.0 35.0	35.0 21.8	25.3 34.6	0% -29%	-21% -1%
North of Nordhoff St.	NB SB	34.9 31.2	32.6 34.9	34.9 22.2	24.8 34.5	0% -29%	-24% -1%
North of Roscoe Blvd.	NB SB	35.0 33.0	34.2 35.0	35.0 23.9	27.0 35.0	0% -28%	-21% 0%
North of Sherman Way	NB SB	35.1 29.2	29.7 35.1	35.1 23.8	25.0 35.1	0% -18%	-16% 0%
North of Victory Blvd.	NB SB	34.9 23.6	26.1 34.5	34.5 18.0	19.0 34.1	-1% -24%	-27% -1%
South of Burbank Blvd.	NB SB	34.1 25.9	22.1 34.5	34.5 18.9	19.1 33.7	1% -27%	-14% -2%
North of Ventura Blvd.	NB SB	30.7 19.7	14.5 29.3	32.3 14.2	11.8 28.0	5% -28%	-19% -4%

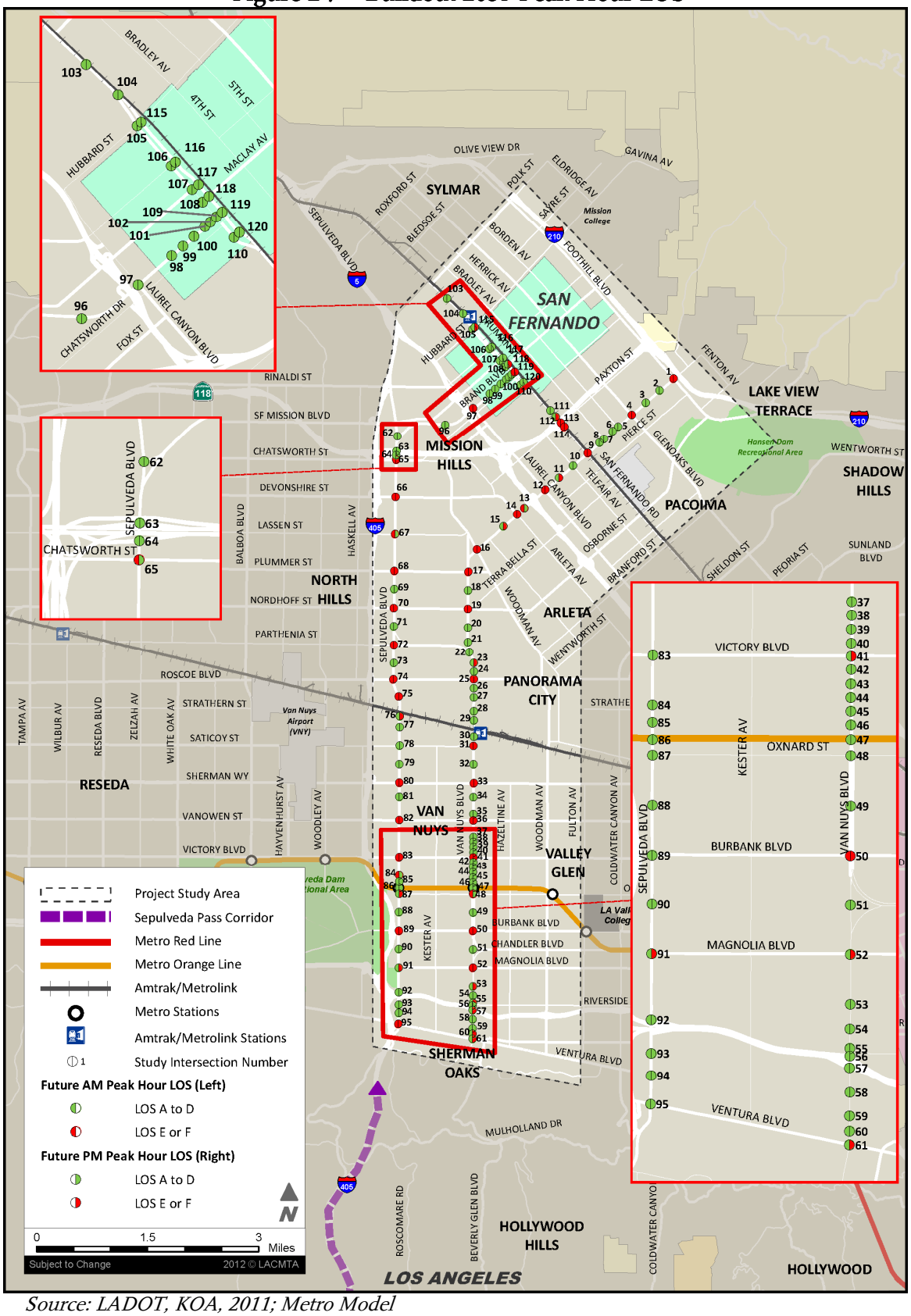
[a] AM peak period (6am-9am)
[b] PM peak period (3pm-7pm)
Source: Metro Model

Figure 2-6 – Existing 2012 Peak Hour LOS



Source: LADOT, KOA, 2011

Figure 2-7 – Buildout 2035 Peak Hour LOS



Source: LADOT, KOA, 2011; Metro Model

2.2.1.7. Transit System Performance

Based on existing Metro bus schedules and 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, Sepulveda Boulevard/Brand Boulevard, and San Fernando Road/Truman Street corridors was conducted.

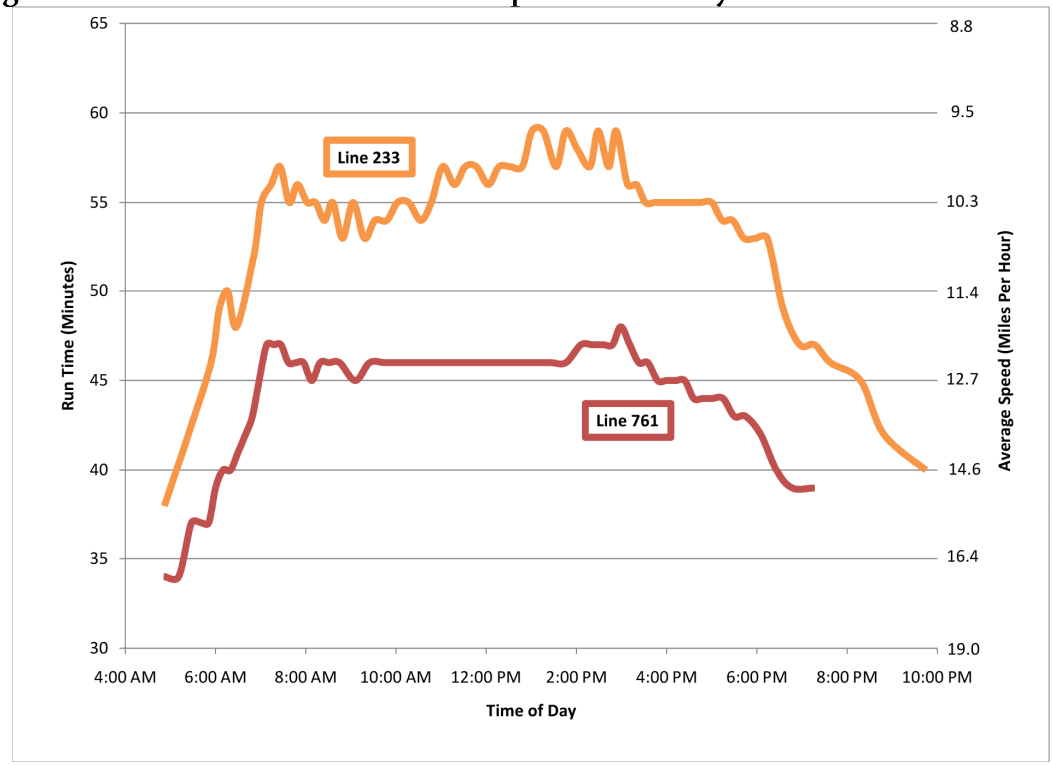
Van Nuys Boulevard

Rapid Line 761 and 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 2-8, Rapid Line 761 operates in the southbound direction from Van Nuys Boulevard/Glenoaks Boulevard to Ventura Boulevard/Sepulveda 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. The southbound trips of Local Line 233 have runtimes of five to 10 minutes longer to travel a distance similar to that of the Rapid Line due to more frequent stops, with speeds slowing to less than 10 miles per hour.

As illustrated by Figure 2-9, there is a similar situation northbound on Van Nuys Boulevard, with Rapid Line 761 scheduled runtimes of 10 to 15 minutes less to cover the route from Ventura Boulevard to Foothill Boulevard in the peak period than Local Line 233. Similar to the southbound direction of travel, the Local Line 233 averages speeds under 10 miles per hour in the peak, while the 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.

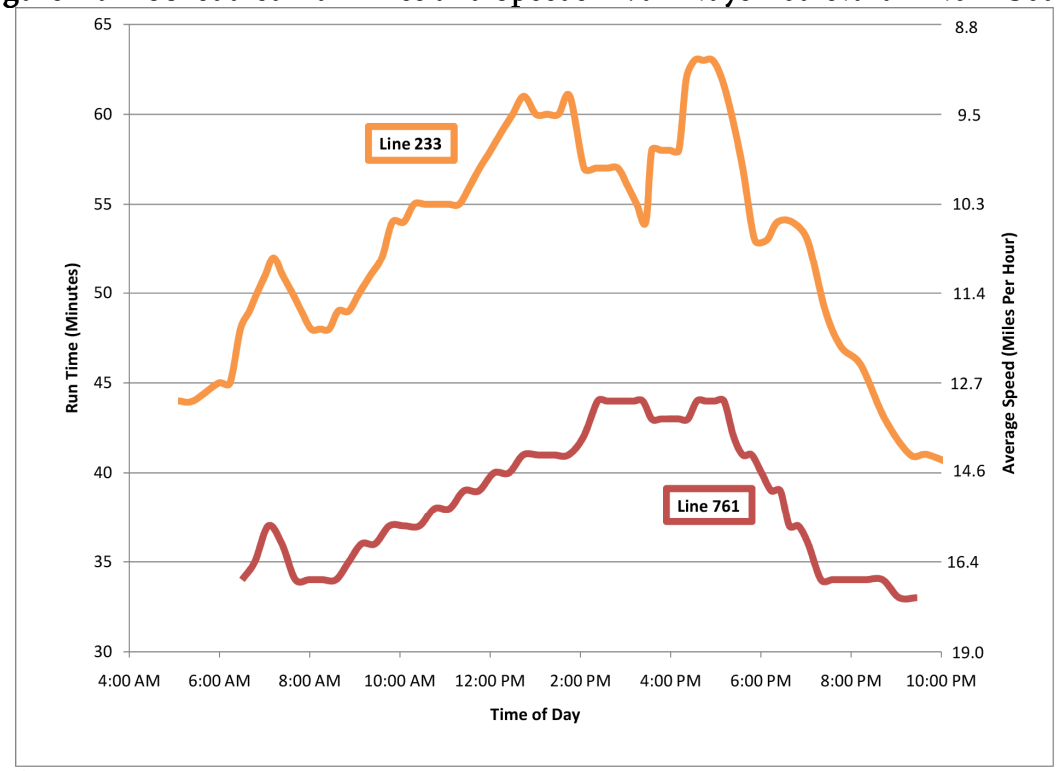
The significantly longer travel times and slower speeds during the peak hours for Metro buses along Van Nuys Boulevard support the need for a transit improvement including, but not limited to, an exclusive bus or rail guideway.

Figure 2-8 – Scheduled Runtimes and Speeds –Van Nuys Boulevard – Southbound



Source: Metro, 2011

Figure 2-9 – Scheduled Runtimes and Speeds – Van Nuys Boulevard – Northbound



Source: Metro, 2011

Sepulveda Boulevard/Brand Boulevard

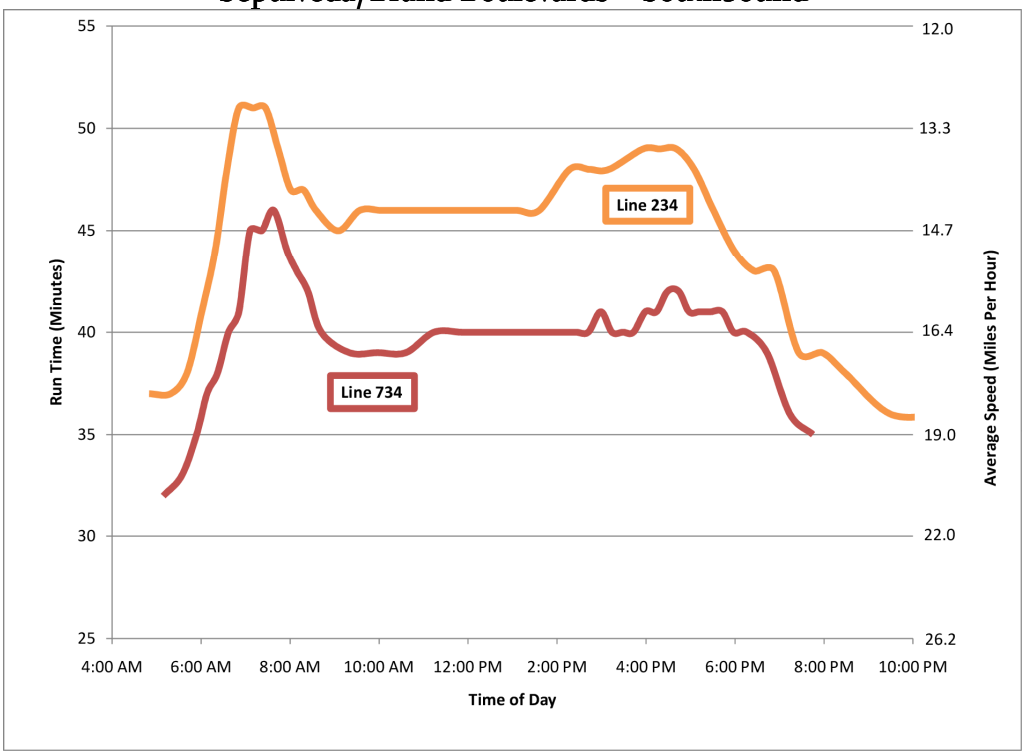
Rapid Line 734 and Local Line 234 operate the length of Brand and Sepulveda Boulevards in the San Fernando Valley from the Sylmar/San Fernando Metrolink Station (at Frank Modugno Drive and Truman Street, respectively) to Ventura Boulevard in Sherman Oaks. As is illustrated by Figure 2-10, Rapid Line 734 is scheduled to run the length of Brand and Sepulveda Boulevards in the southbound direction with a runtime of less than 35 minutes in the early morning hours, but this same trip has a runtime of over 45 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 12 miles per hour in the peak period. Scheduled southbound runtimes for the Local Line 234 are similar to the Rapid Line 734 throughout the day. The Local Line 234 is scheduled with the quickest runtime in the late night hours – approximately 35 minutes. At this time, the Local Line 234 can reach speeds of nearly 20 miles per hour.

As illustrated by Figure 2-11, the Rapid Line 734 running northbound along Sepulveda and Brand Boulevards is scheduled with runtimes approximately five minutes faster to cover the route from Ventura Boulevard to Sylmar/San Fernando Metrolink Station in the peak period compared to the Local Line 234. Speeds decrease by about five miles per hour in the peak period compared to the off-peak period.

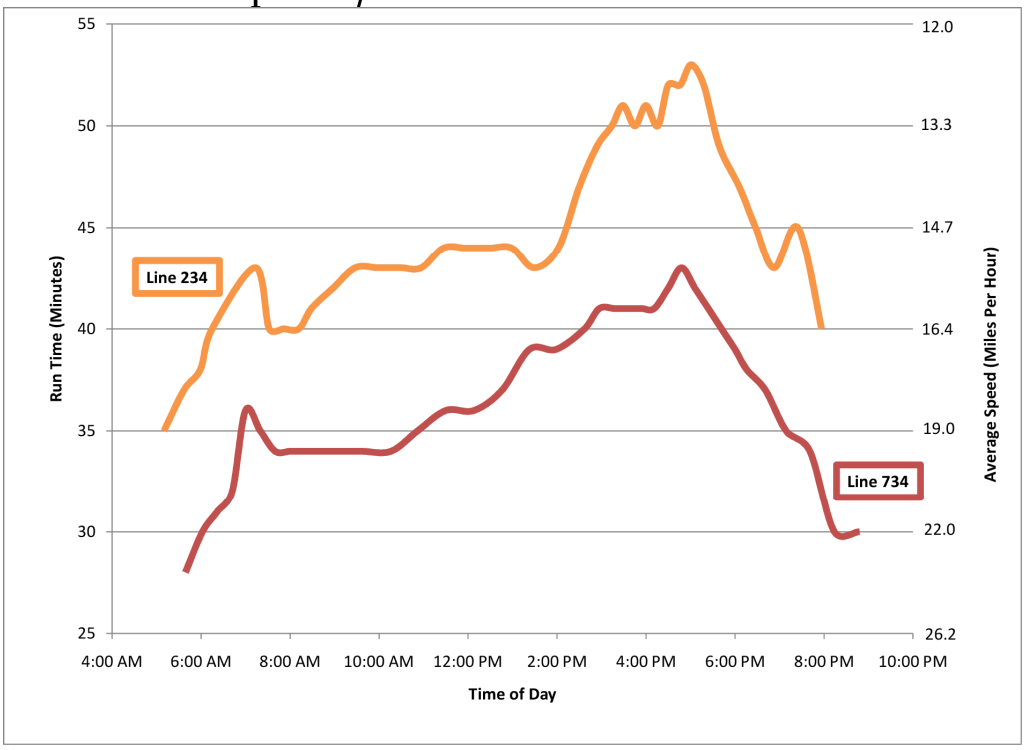
The lack of a substantial speed advantage for the Rapid Line in this corridor compared to the Local Line, and the longer travel times and slower speeds in the peak hour support the need for a transit improvement including, but not limited to, an exclusive bus or rail guideway.

Figure 2-10 – Scheduled Runtimes and Speeds – Sepulveda/Brand Boulevards – Southbound



Source: Metro, 2011

Figure 2-11 – Scheduled Runtimes and Speeds – Sepulveda/Brand Boulevards – Northbound



Source: Metro, 2011

San Fernando Road/Truman Street

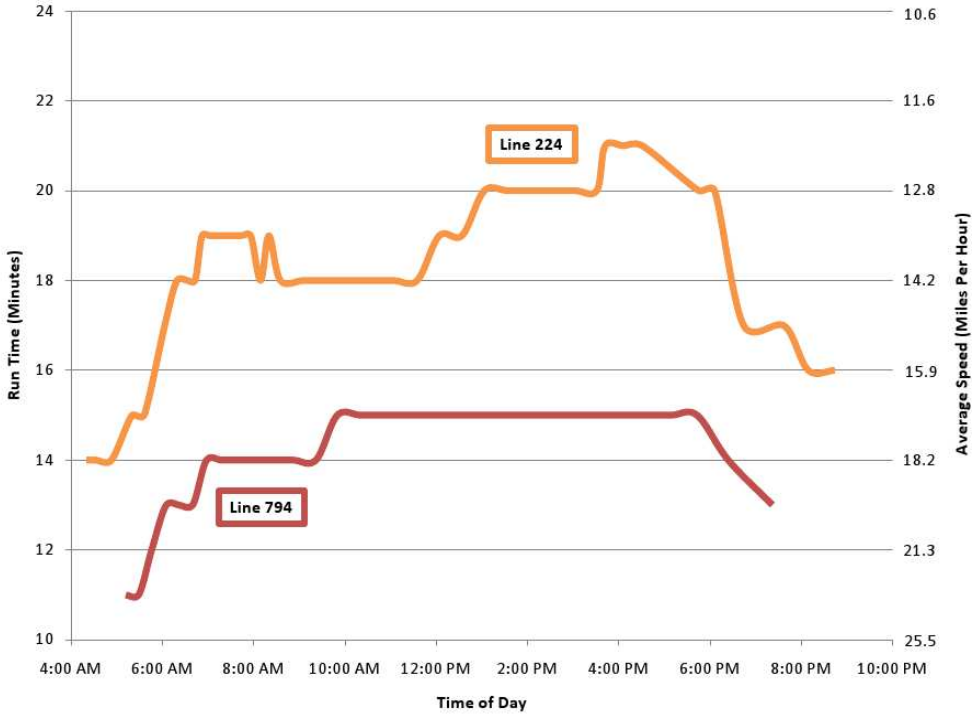
Rapid Line 794 operates along Truman Street and San Fernando Road from the Sylmar/San Fernando Metrolink Station in Sylmar. Within the study area, Rapid Line 794 is examined from Sylmar/San Fernando Metrolink Station to Osborne Street in Sun Valley. The existing Local Line 224 operates along Truman Street 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 and Sepulveda Boulevard/Brand Boulevard – each just under five miles in length.

As illustrated by Figure 2-12, the 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 Local Line 224 has a runtime that is 10 to 15 minutes slower for a similar distance as the Rapid Line 794. Speeds along the Local Line 224 are reduced to approximately 12 miles per hour during the peak period.

As illustrated by Figure 2-13, there is a similar situation traveling northbound on San Fernando Road and Truman Street, with the 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 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.

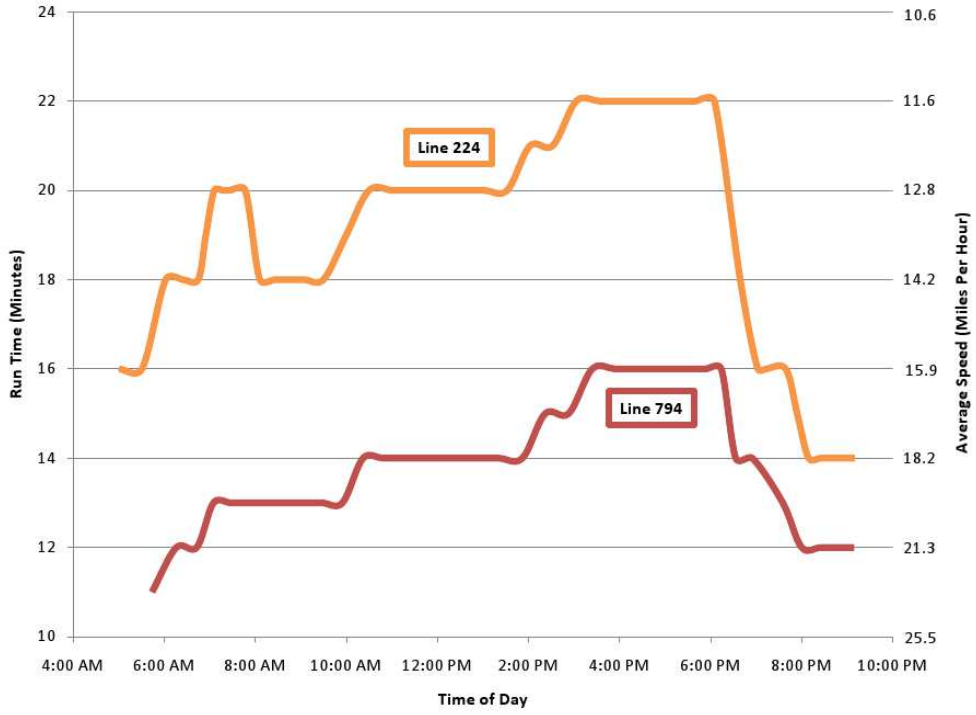
Rapid Line 794 generally has good performance along San Fernando Road, with a substantial travel time savings compared to Local Line 224 and only a small increase in runtimes during peak periods. Transit improvements including, but not limited to, bus or rail guideway would have a positive benefit for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

Figure 2-12 – Scheduled Runtimes and Speeds – San Fernando Road/Truman Street – Southbound



Source: Metro, 2011

Figure 2-13 – Scheduled Runtimes and Speeds – San Fernando Road/Truman Street – Northbound



Source: Metro, 2011

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, Sepulveda Boulevard/Brand Boulevard, and San Fernando Road/Truman Street travelers.

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

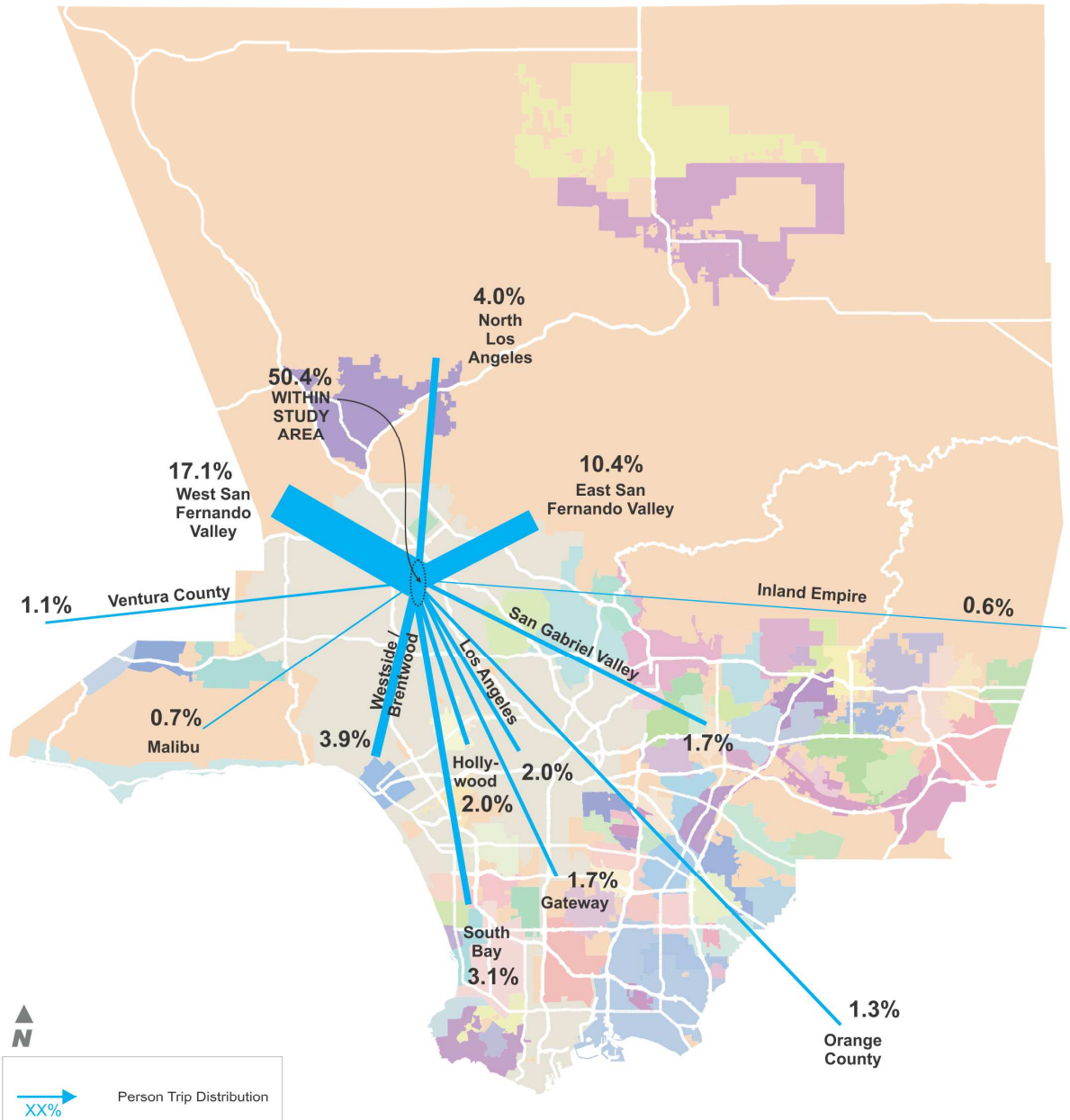
2.2.2.1. Trip Patterns

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. 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. 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. These general trip trends are expected to remain similar in 2035 and show a high attraction of trips between the central study area and the Civic Center 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. Figures 2-14 through 2-17 illustrate the trip patterns on a regional and local scale.

Because of the centralized trip patterns, transit accessibility and connectivity are integral to study area resident travel needs, especially 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 LADOT bus services for work and non-work trips within the study area and the greater Los Angeles County area.

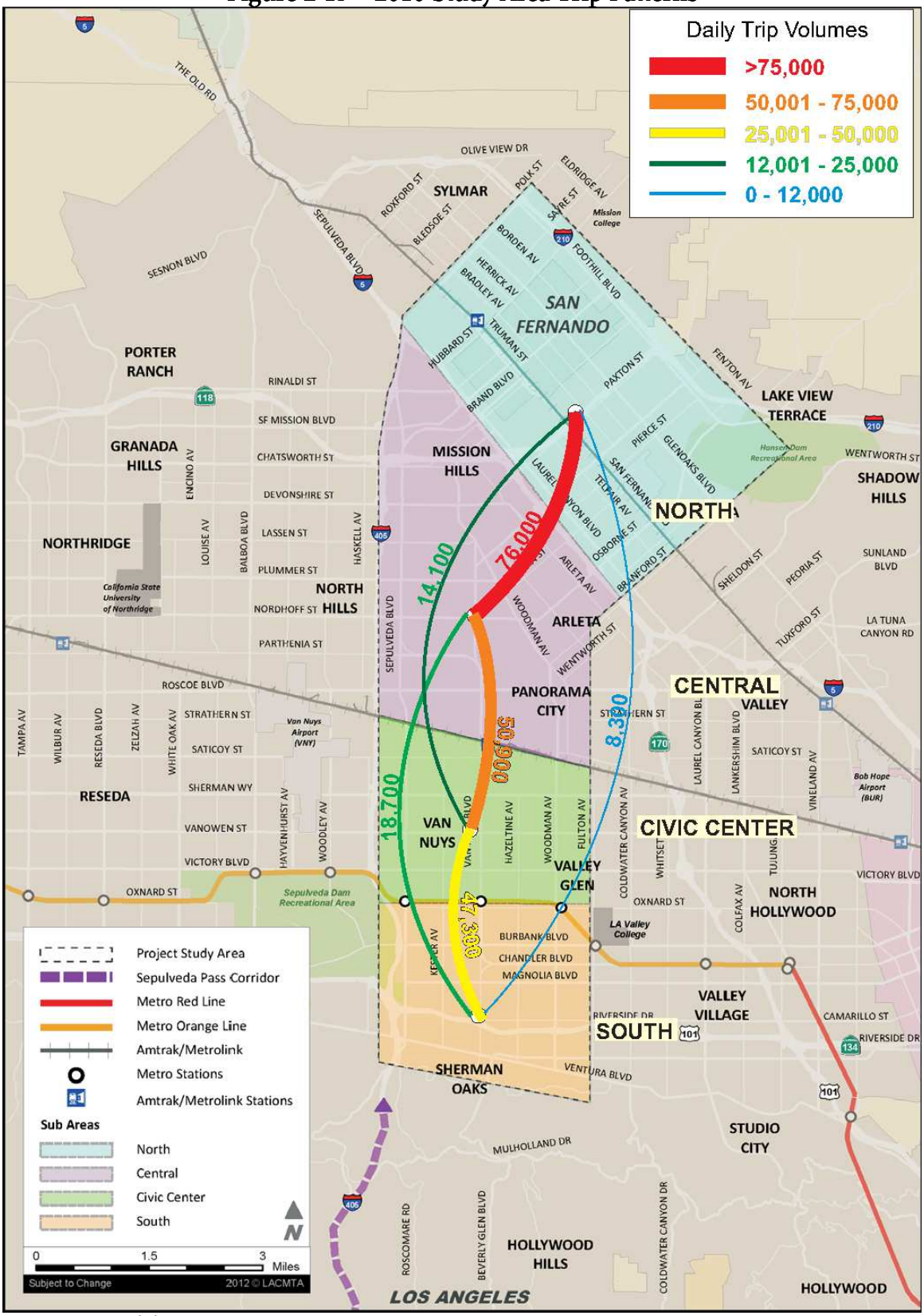
Existing Metro service boarding data generally supports these estimated trip patterns. The boarding activity is higher along the Van Nuys Boulevard corridor, at the MOL Van Nuys Station, Vanowen Street, Roscoe Boulevard, and Nordhoff Street stops. These locations are all located within the central study area and the Civic Center area. Along the Sepulveda Boulevard/Brand corridor, boarding patterns are similar to the Van Nuys Boulevard corridor. 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.

Figure 2-14 – 2010 Daily Trip Patterns



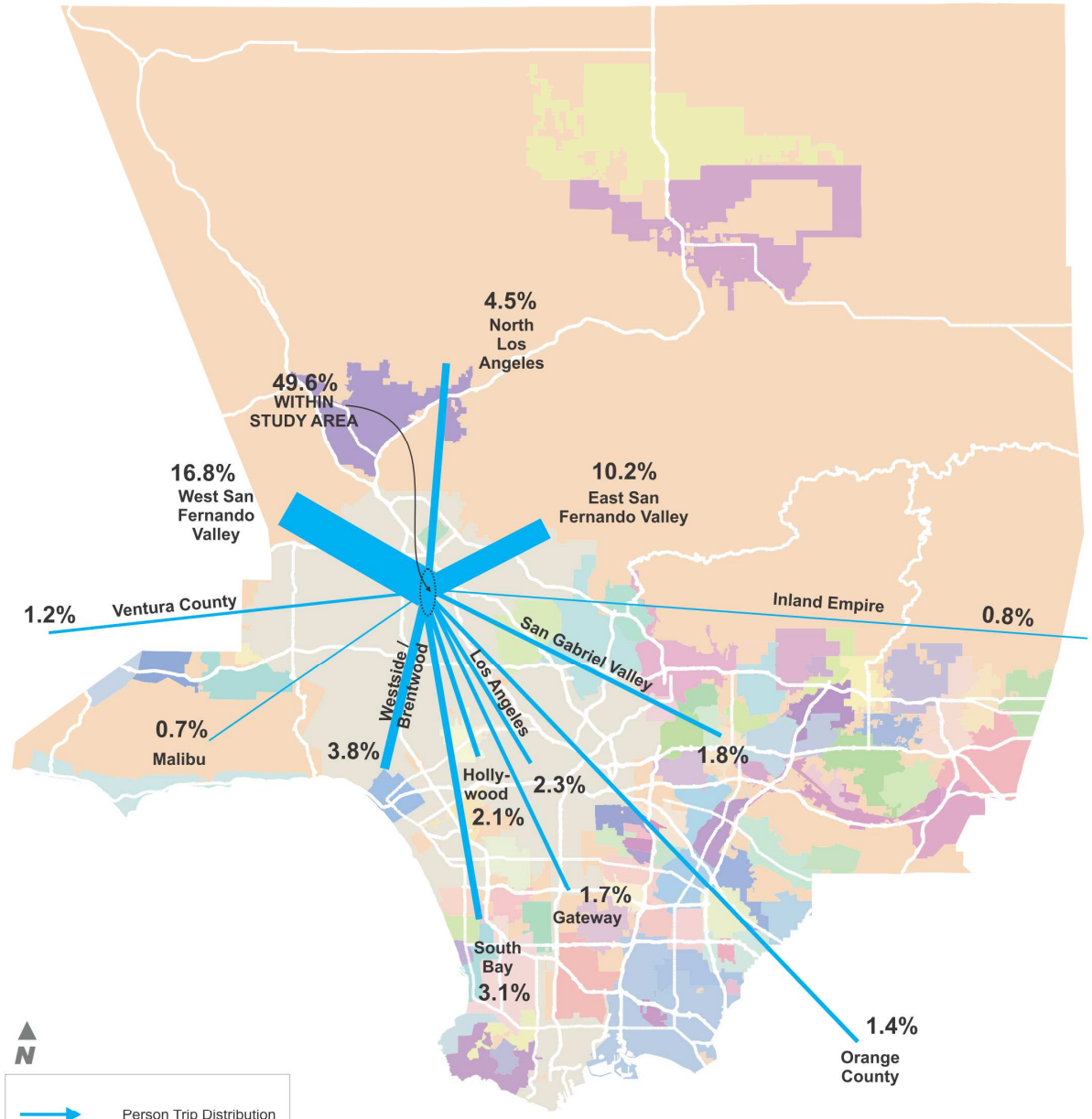
Source: Metro Model

Figure 2-15 – 2010 Study Area Trip Patterns



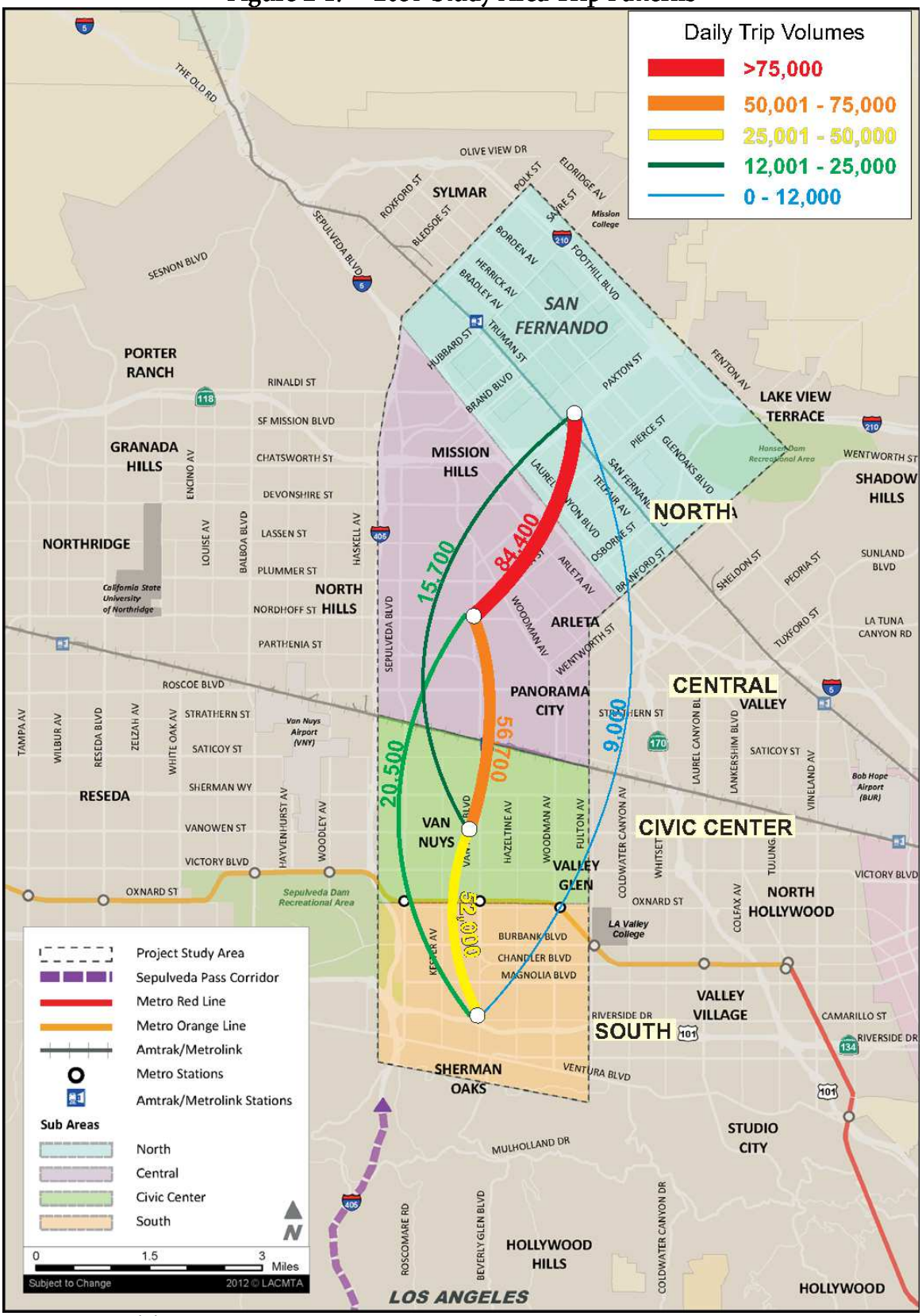
Source: Metro Model

Figure 2-16 – 2035 Daily Trip Patterns



Source: Metro Model

Figure 2-17 – 2035 Study Area Trip Patterns



Source: Metro Model

As indicated by Tables 2-4 and 2-5, the trip purposes for the study area and urban Los Angeles County remain fairly consistent, with primary trips being home to other destinations (these represent non-work trips to commercial centers, recreation, medical appointments, etc.). Within the study area, for the years 2010 and 2035, over 50 percent of the person trips are from home to other destinations (North – 55 percent, Central – 56 percent, Civic Center - 53 percent).

The south sub-area data, for both 2010 and 2035, indicates a lower percentage of "home-based to other" person trips, as compared to the overall study area and the urban Los Angeles County area. The south sub-area also has a higher percentage of "non-home based" person trips (i.e., starting trip somewhere other than home). The south sub-area "non-home based" person trips account for 36 (2010) to 37 (2035) percent of all the trip purposes, while the study area "non-home based" person trips accounts for 25 percent. The overall project study area and urban Los Angeles County area have similar 2010 and 2035 "home to work" person trips, accounting for approximately 20 percent of all trip purposes.

Table 2-4 – Daily 2010 Trip Purposes

Sub District	All Purposes	Home-Based Work Trips[1]	Home-Based Other Trips[2]	Non-Home-Based Trips[3]	Home-Based University Trips[4]
North	467,039	89,264	257,704	100,084	19,987
		19%	55%	21%	4%
Central	524,613	105,562	295,702	101,908	21,442
		20%	56%	19%	4%
Civic Center	321,753	59,662	169,297	82,297	10,498
		19%	53%	26%	3%
South	268,135	57,618	107,585	98,243	4,689
		21%	40%	37%	2%
Van Nuys Study Area	1,581,541	312,106	830,288	382,531	56,616
		20%	52%	24%	4%
Urban Los Angeles County	31,772,488	5,984,178	15,353,627	9,417,466	1,017,217
		19%	48%	30%	3%
2010 Total	62,902,601	12,032,028	30,507,892	18,385,312	1,977,369
		19%	49%	29%	3%

1 - Trips between home and work

2 - Miscellaneous trips between home and shopping/other

3 - Trips not based at home, such as between work and lunch

4 - Trips between home and universities/colleges

Source: Metro, PB, KOA

Table 2-5 – Daily 2035 Trip Purposes

Sub District	All Purposes	Home-Based Work Trips[1]	Home-Based Other Trips[2]	Non-Home-Based Trips[3]	Home-Based University Trips[4]
North	523,917	99,226	286,263	116,500	21,929
		19%	55%	22%	4%
Central	588,627	116,651	332,191	116,567	23,218
		20%	56%	20%	4%
Civic Center	364,566	67,524	191,519	94,303	11,219
		19%	53%	26%	3%
South	296,515	65,009	119,150	107,510	4,846
		22%	40%	36%	2%
Van Nuys Study Area	1,773,626	348,411	929,124	434,880	61,212
		20%	52%	25%	3%
Urban Los Angeles County	35,830,545	6,789,806	17,183,526	10,697,866	1,159,346
		19%	48%	30%	3%
2035 Total	79,225,010	15,207,549	38,080,530	23,513,383	2,423,548
		19%	48%	30%	3%

1 - Trips between home and work

2 - Miscellaneous trips between home and shopping/other

3 - Trips not based at home, such as between work and lunch

4 - Trips between home and universities/colleges

Source: Metro, PB, KOA

2.2.2.2. Activity Centers

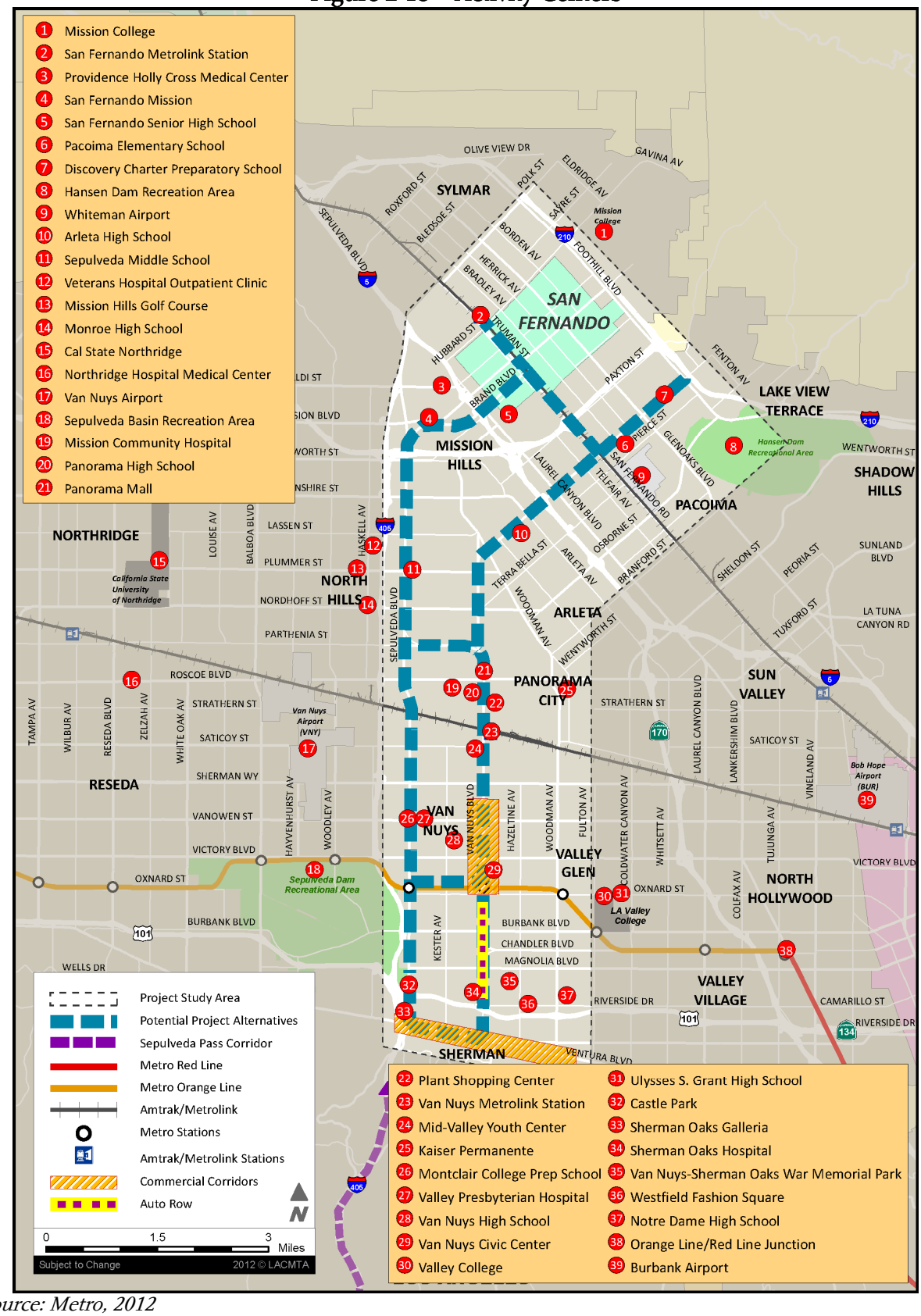
Major activity centers are located within the Van Nuys and Sepulveda Boulevard/Brand Boulevard corridors. In addition to study area specific activity centers, off-corridor locations are connected to the area by the gridiron pattern of roadways present in the San Fernando Valley. These activity centers generate a sizeable proportion of vehicle, transit, bicycle, and pedestrian trips.

The primary activity centers in the area include large-scale medical facilities such as the Kaiser Permanente Panorama City Medical Center, Valley Presbyterian Hospital, Sherman Oaks Hospital, and Mission Community Hospital. Major commercial developments in the area include Auto-Row and the Civic Center on Van Nuys Boulevard and large-scale shopping centers such as the Plant Shopping Center, Westfield Fashion Square, Sherman Oaks Galleria, The Village at Sherman Oaks, and the Panorama Mall. Transportation facilities that serve the region include Burbank Airport, Ventura/San Fernando Metrolink lines, and MOL/Red Line junction in North Hollywood. Higher educational institutions include Cal State Northridge, Mission College, Los Angeles Valley College, Arleta High School, Panorama High School, Van Nuys High School, and San Fernando Senior High School.

Of the activity centers in the study area, regional centers include Ventura Boulevard, segments of the Van Nuys Boulevard and Sepulveda Boulevard corridors, and downtown San Fernando.

Figure 2-18 illustrates activity center locations within the study area.

Figure 2-18 – Activity Centers



Source: Metro, 2012

2.2.3. Provide more reliable transit services within the eastern San Fernando Valley

2.2.3.1. Transit Operating Performance

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 will worsen. Providing transit services that are less impacted by increasing traffic congestion will provide increased reliability.

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/Brand Boulevard corridors, there is a lack of a substantial speed advantage for the Rapid Line, as compared to the Local Line.

Rapid Line 761 and 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 69 percent in the southbound direction and 75 percent in the northbound direction. The same occurs along the length of Sepulveda Boulevard/Brand 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 Local 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/Brand Boulevard corridors.

2.2.3.2. Transit On-Time Performance and Reliability

<u>Van Nuys Boulevard</u>

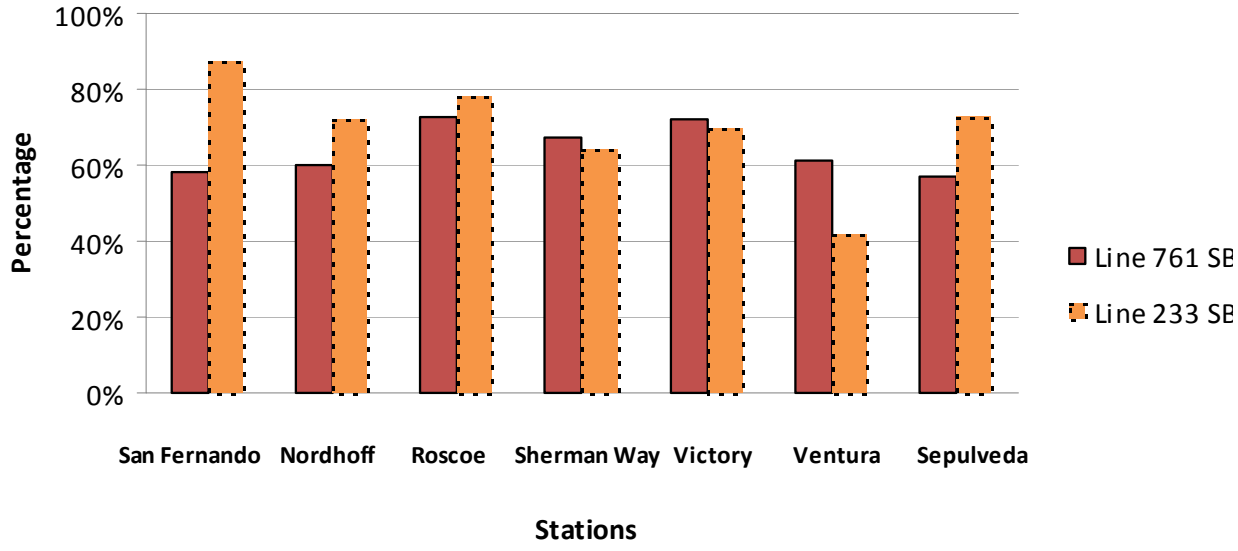
An examination of on-time performance statistics for the Rapid Line 761 and the Local Line 233 indicates that the lines are not currently meeting the on-time performance goal of 80 percent.

Figure 2-19 and Figure 2-20 below illustrate on-time performance at select service locations along the Van Nuys Boulevard corridor in both the north and southbound directions.

The Local Line 233 performs better than the Rapid Line 761, but the Local Line 233 still rates below 80 percent on-time performance at almost every time-point examined (excluding San Fernando Road in the southbound direction and Victory Boulevard in the northbound direction). The 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.

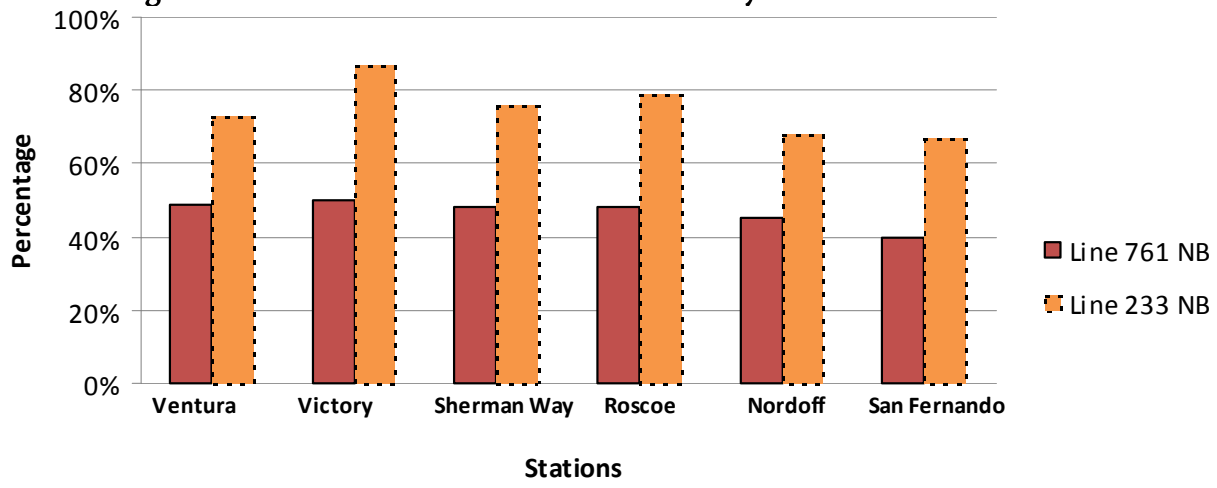
Transit service that is physically separated from auto traffic would allow for much more improved reliability of operations in this corridor, especially with the clear lack of advantage in reliability with the Rapid Bus service.

Figure 2-19 – On-Time Performance – Van Nuys Boulevard – Southbound



Source: Metro, 2011

Figure 2-20 – On-Time Performance – Van Nuys Boulevard – Northbound



Source: Metro, 2011

Sepulveda Boulevard/Brand Boulevard

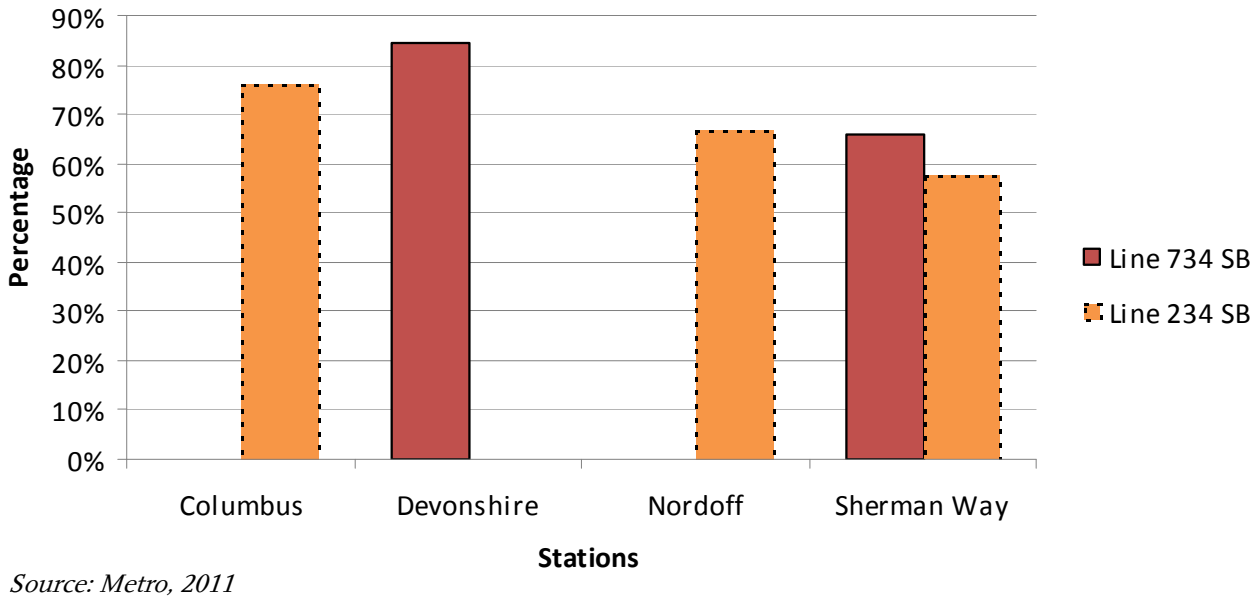
An examination of on-time performance statistics for the Rapid Line 734 and the Local Line 234 along Sepulveda and Brand Boulevards indicates that the lines are not currently meeting their on-time performance goals of 80 percent.

Figure 2-21 and Figure 2-22 below illustrate on-time performance at select service locations along Sepulveda and Brand Boulevards in both the north and southbound directions.

Metro Rapid Line 734 generally has better on-time performance than does Local Line 234, but Rapid Line 734 still operates below the goal at almost every time-point examined (excluding Devonshire Street in the southbound direction and Sherman Way in the northbound direction). The Local Line 234 performs particularly poorly in the southbound direction at Sherman Way, where on-time performance is just over 50 percent.

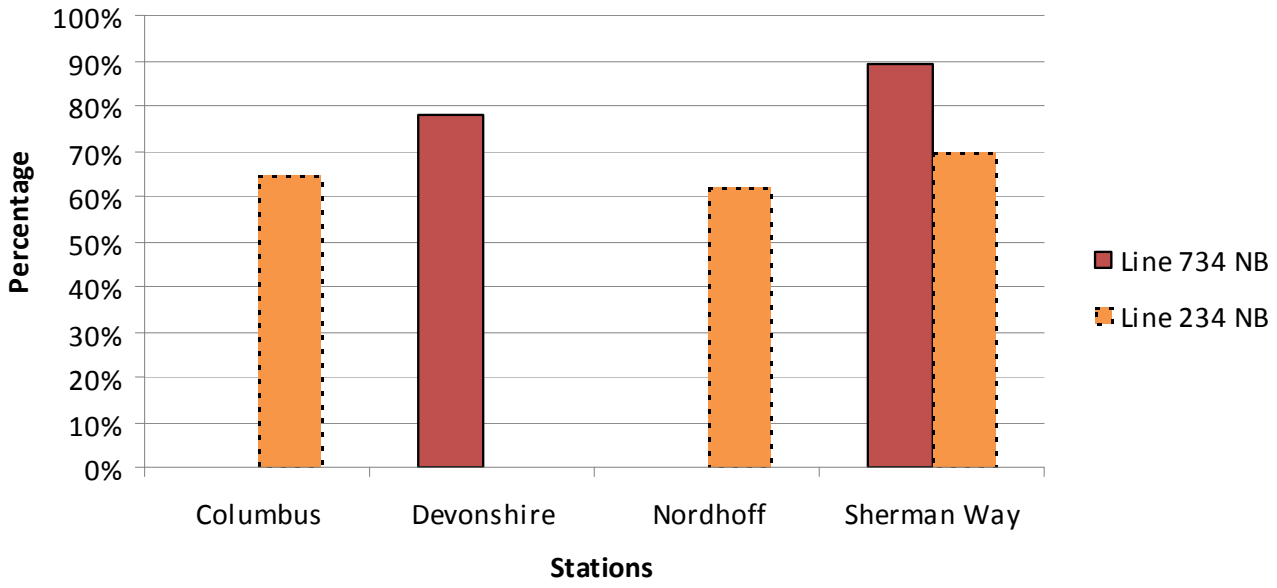
Transit service that is physically separated from auto traffic would allow for much improved reliability of operations in this corridor.

Figure 2-21 – On-Time Performance – Sepulveda/Brand Boulevards– Southbound



Source: Metro, 2011

Figure 2-22 – On-Time Performance – Sepulveda/Brand Boulevards – Northbound



Source: Metro, 2011

San Fernando Road/Truman Street

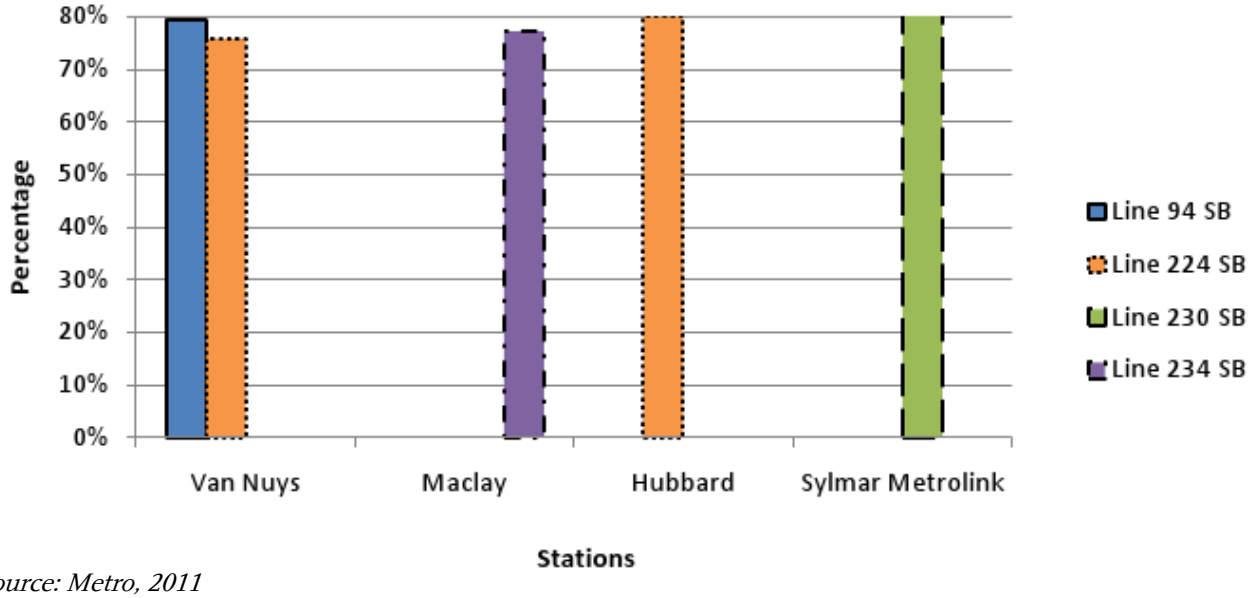
An examination of on-time performance statistics for the Local Lines 94, 224, 230 and 234 indicate that the lines are not currently meeting the on-time performance goals of 80 percent. Rapid Line 794 was not included in the evaluation due to data limitations.

Figure 2-23 and Figure 2-24 below illustrate on-time performance at select service locations along San Fernando Road and Truman Street in both the northbound and southbound directions.

The 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. Local Lines 94, 224 and 234 perform especially poorly in the northbound direction, with on-time performance below 60 percent. The Local Line 94 in the northbound direction performs particularly poorly, where on-time performance is under 50 percent.

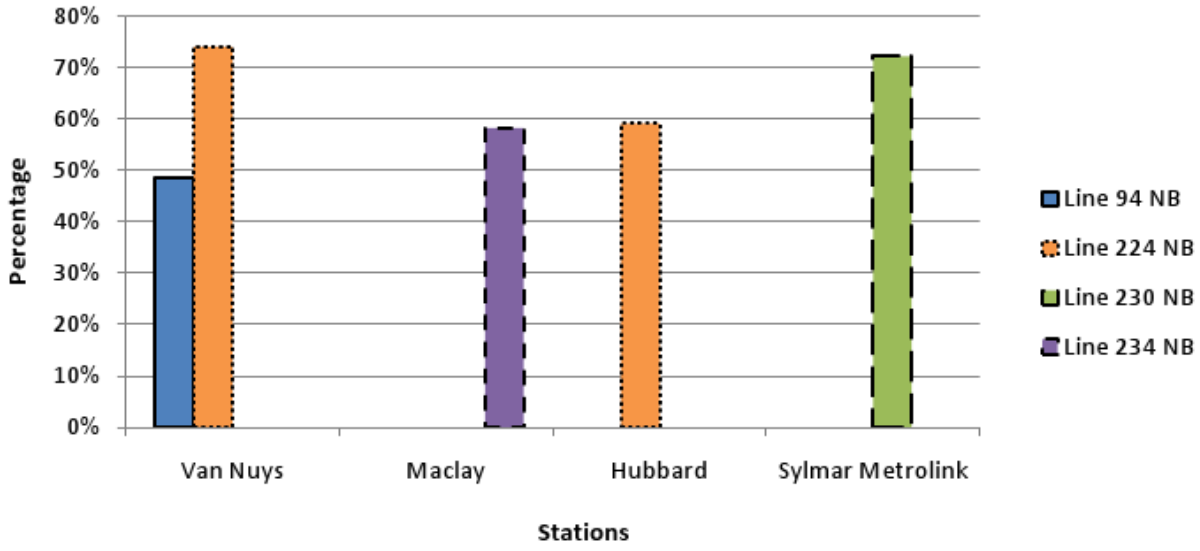
Transit service physically separated from auto traffic would allow for much improved reliability of operations in this corridor. This need supports the project purpose of transit reliability.

Figure 2-23 – On-Time Performance – San Fernando Road/Truman Street – Southbound



Source: Metro, 2011

Figure 2-24 – On-Time Performance – San Fernando Road/Truman Street – Northbound



Source: Metro, 2011

2.2.3.3. 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 2-25 through 2-27 illustrate the total loads for each bus line (northbound and southbound) that operates along Van Nuys Boulevard, Sepulveda Boulevard/Brand Boulevard, and San Fernando Road/Truman Street (the three main transit corridors in the study area). These figures also show the total combined loadings, which is a

sum of the passenger activity from all of the bus lines at each point along each of the corridors.

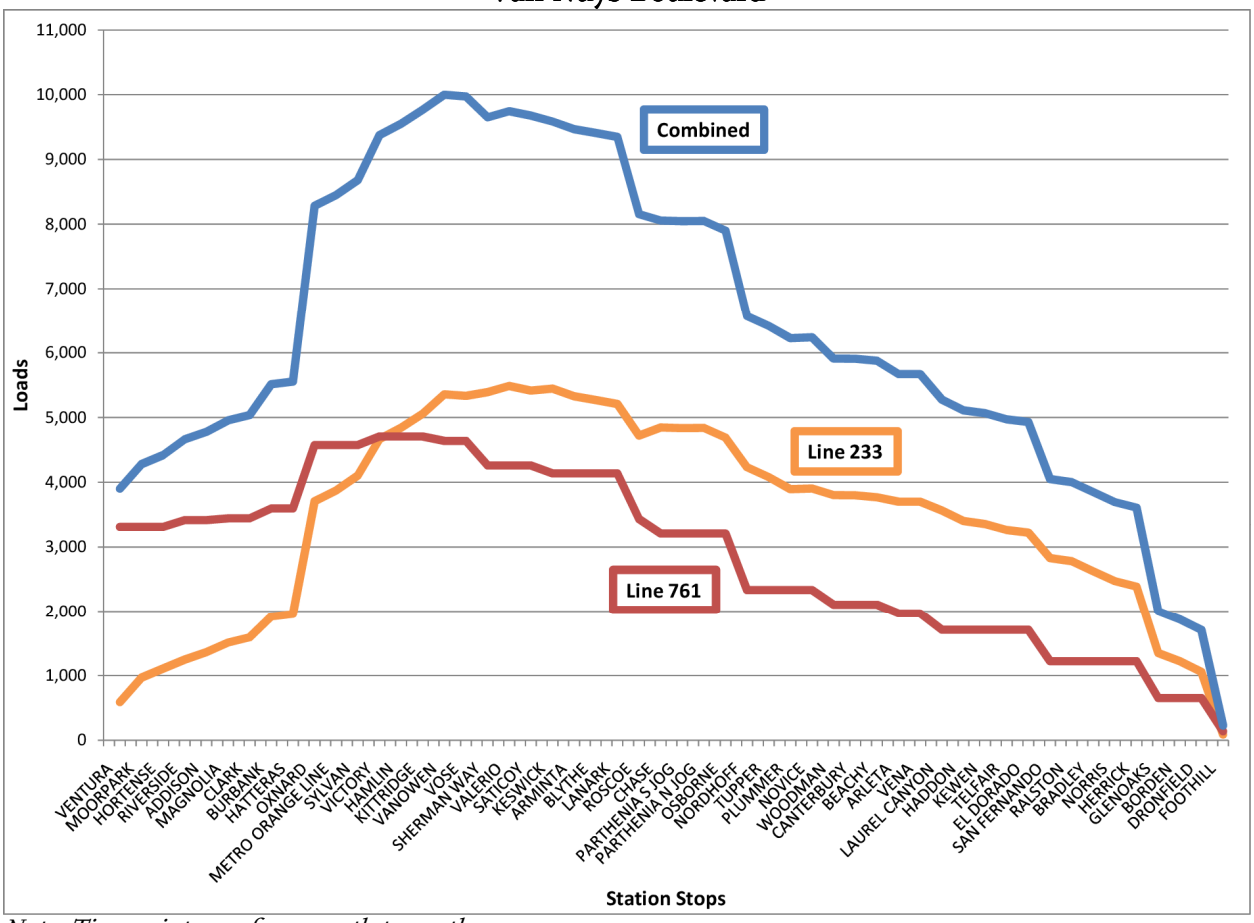
Van Nuys Boulevard

Figure 2-25 illustrates the total passenger loading (northbound and southbound) for Rapid Line 761 and 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 Rapid Line 761 peak between the MOL and Sherman Way in the Van Nuys Civic Center area. Total passenger loads on Local Line 233 tend to peak north of the MOL transfer point, particularly in the vicinity of Valerio, Saticoy and Keswick Streets.

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 Van Nuys Boulevard corridor during an average weekday. 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.

Figure 2-25 – Total Passenger Loading – Van Nuys Boulevard

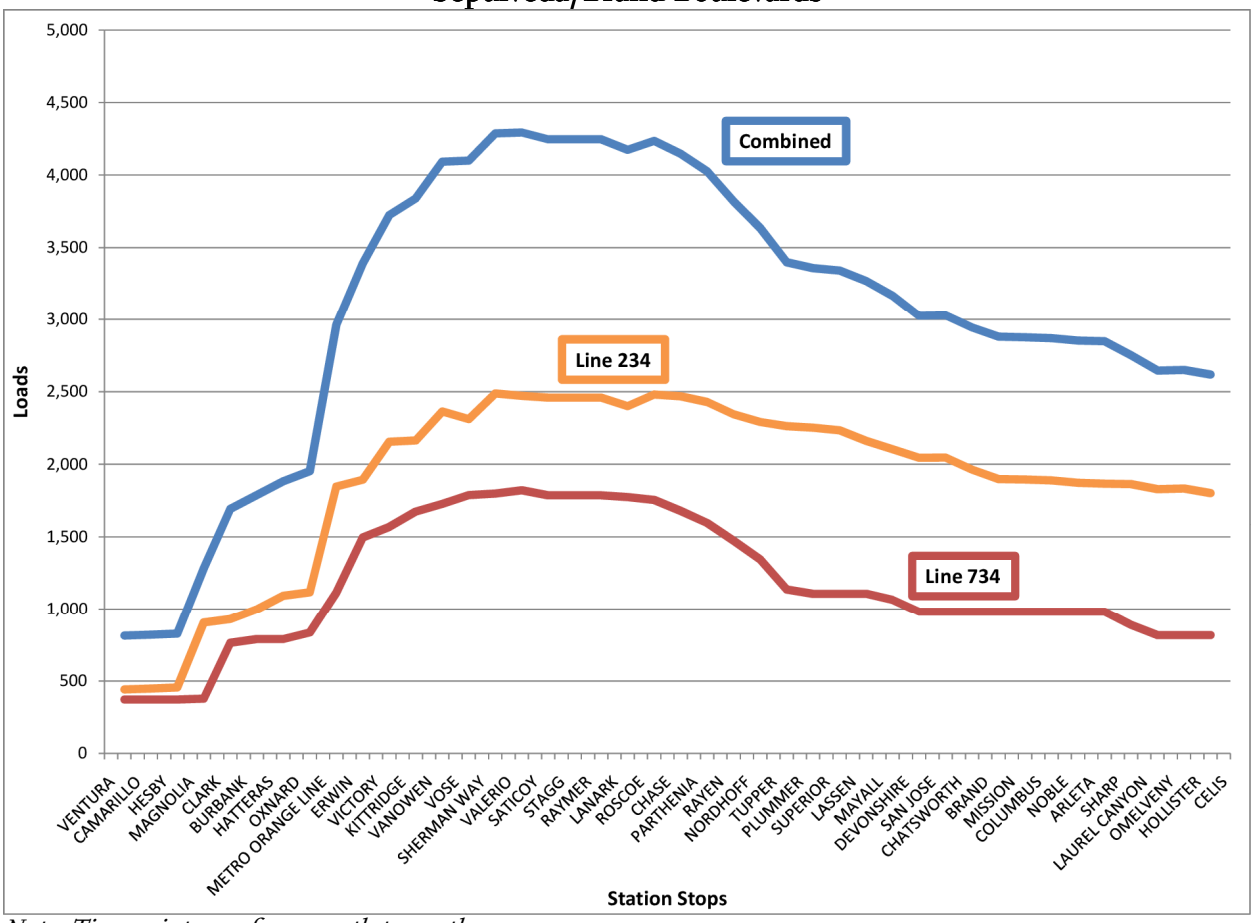


Note: Timepoints are from south to north.
Source: Metro, 2011

Sepulveda Boulevard/Brand Boulevard

Figure 2-26 illustrates the total passenger loading (northbound and southbound) for the Rapid Line 734 and the Local Line 234 along Sepulveda Boulevard and Brand Boulevard. The combined total is the sum of the loads on both lines for each stop.

Figure 2-26 – Total Passenger Loading – Sepulveda/Brand Boulevards



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

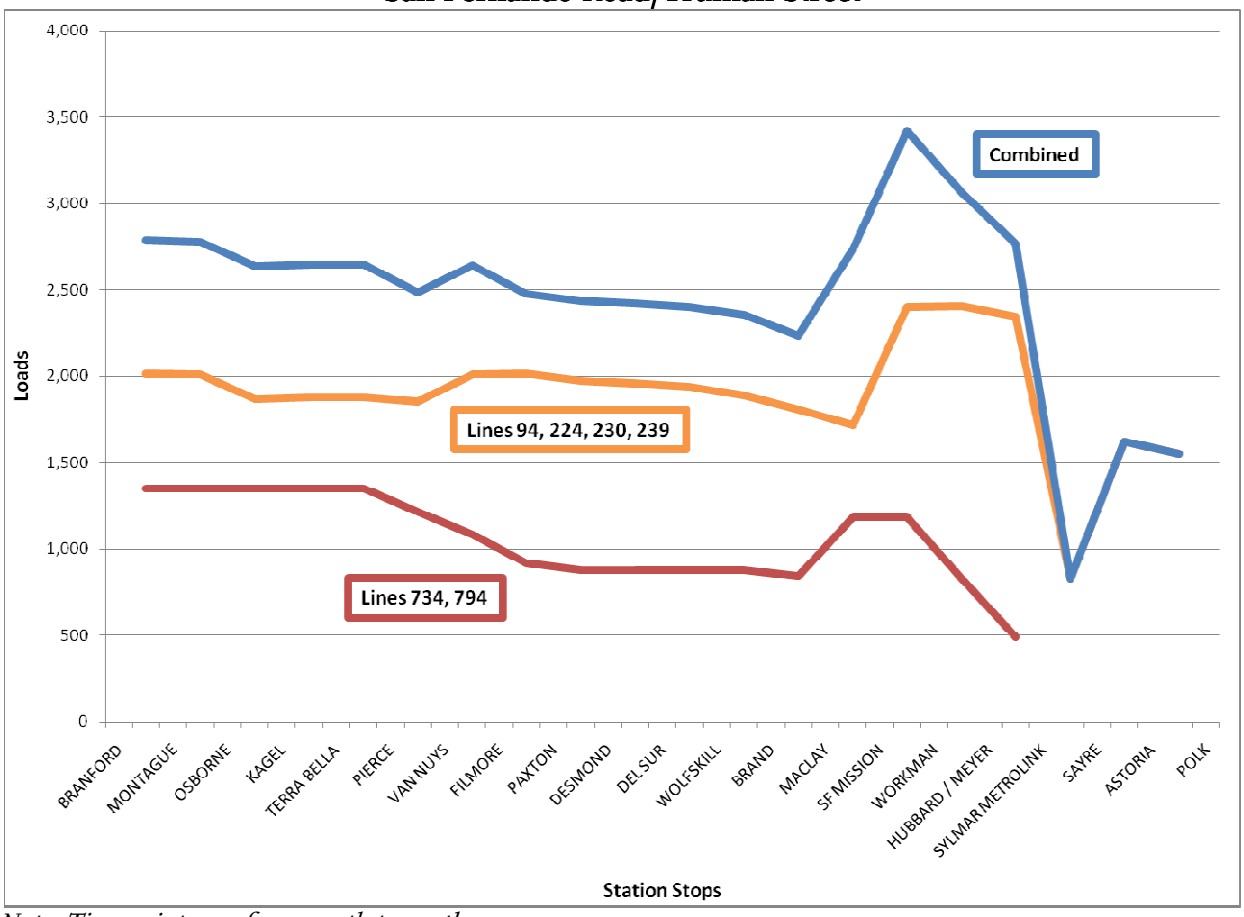
The passenger loads along the Rapid Line 734 peak to the north of the transfer point with the MOL, between the Vose and Lanark Streets stops. Although loads decline at stops to the north, they remain steady. Similar to Rapid Line 734, total loads along Local Line 234 peak north of the MOL transfer point in the vicinity of Vose and Valerio Streets and then decline, but also remain steady.

Nearly 4,500 transit patrons at the combined total peak load are using transit service along the central portion of Sepulveda Boulevard. This number is approximately half of the peak load along the Van Nuys Boulevard corridor.

San Fernando Road/Truman Street

Figure 2-27 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 2-27 – Total Passenger Loading – San Fernando Road/Truman Street



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

Passenger loads on the Rapid Lines 734 and 794 remain generally consistent throughout the corridor, although loads decrease north of the San Fernando Mission Boulevard stop. Loads on the 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 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 Local 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. This need supports the project purposes of transit accessibility/connectivity and the provision of transit service to transit dependent areas.

2.3.4. Provide additional transit options in an area with a large transit dependent population and high transit ridership

2.3.4.1. Transit Ridership

Bus Passenger Boardings

The Van Nuys Boulevard corridor has the seventh highest total transit boardings in the Metro system. The Sepulveda Boulevard/Brand Boulevard and San Fernando Road/Truman Street corridors also have some of the highest transit boardings in the San Fernando Valley. Figure 2-28 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. Van Nuys Boulevard north of Nordhoff Street also has higher boardings, especially between Laurel Canyon Boulevard and Glenoaks Boulevard. Sepulveda Boulevard also has substantial boardings between Nordhoff Street and the MOL. The San Fernando Road and Truman Street corridors do not have high boardings and alightings, in comparison to the overall study area.

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 (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.

Rail Passenger Boardings

Based on Metrolink data from 2011, the Antelope Valley Line has 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.

2.3.4.2. Transit Dependent Population

According to the Federal Transit Administration (FTA), transit dependence is defined as persons without private transportation; elderly (over the age of 65); youths (under the age of 18); and persons below poverty or median income levels defined by the U.S. Census Bureau. Populations that fall within this definition have a higher need for public transit for their local and regional mobility.

Figure 2-28 – Existing Metro Transit Boardings

Source: Metro, 2011

The demand in passenger boardings is constituted by both transit dependent and discretionary riders. The overall study area population density and the transit dependent population density are both more than twice that of the urbanized area of the County:

- Within the study area, there are a total of 11,967 households without vehicles. The study area average of 0.53 zero-vehicle households per acre is 77 percent higher than the 0.30 County average. As illustrated by Figure 2-29, the heaviest concentration of transit-dependent households without vehicles is in the central study area.
- Of the population within the study area, approximately 159,868 elderly persons and youth are considered transit dependent. The study area average transit dependent population of 7.04 persons per acre is 54 percent higher than the 3.21 County average. As illustrated in Figure 2-30, the highest concentration of transit dependent populations are located in the central portion of the study area.
- The study area average of 2.26 adult persons below the poverty line per acre is over two times the 1.08 County average, as illustrated by Figure 2-31.

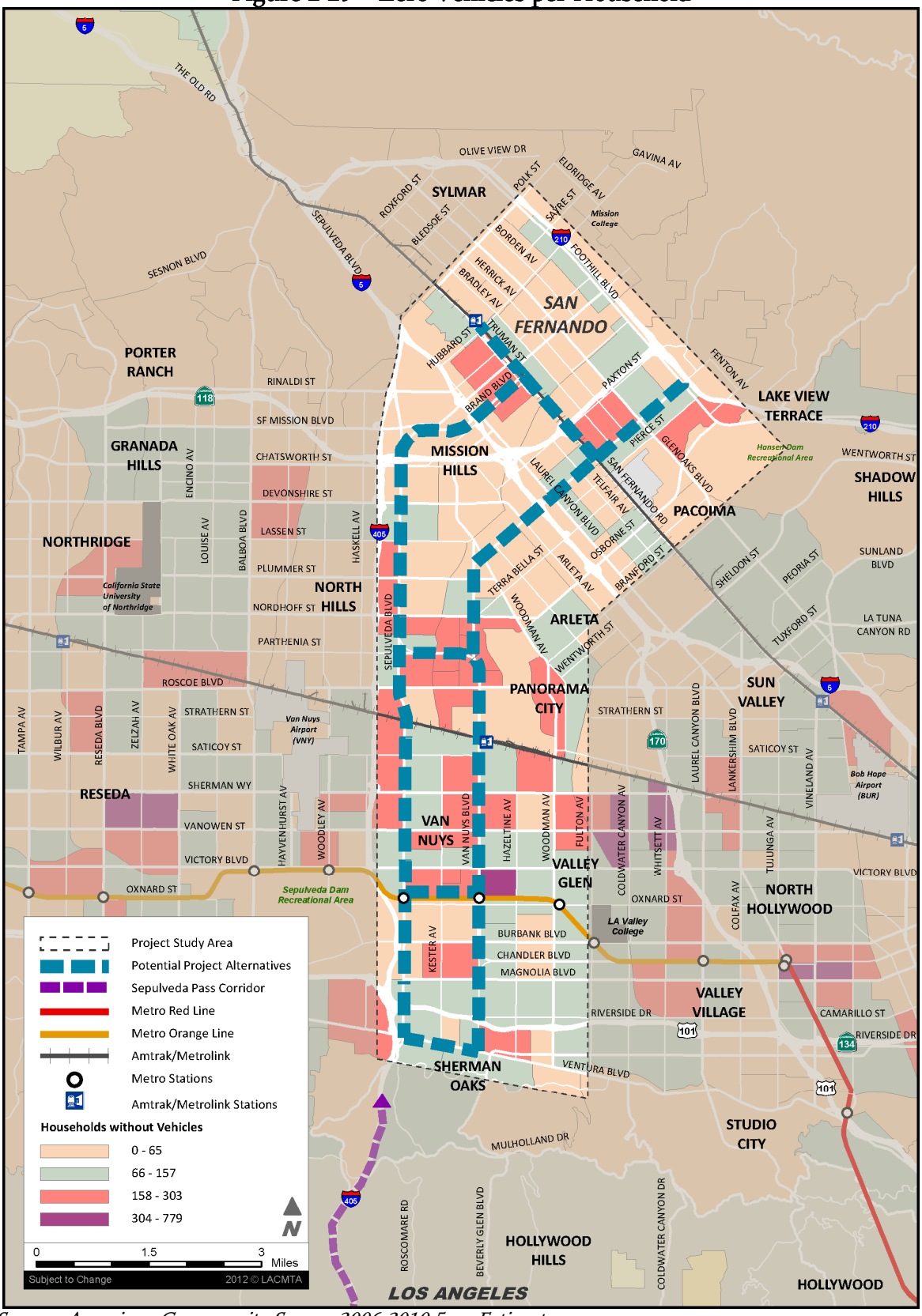
Although population density and transit dependent population characteristics are expected to stay the same or improve slightly, study area population is expected to increase by almost 12 percent by the year 2035, and area employment will increase by approximately 15 percent. With the increase in population and employment growth, it is likely that there will be an increase in bus crowding. Table 2-6 summarizes the population and employment trends.

Table 2-6 – Population and Employment Trends

Area	2010	2035	Growth Rate 2010-2035
Population			
Study Area	457,733	511,104	12%
San Fernando Valley	1,742,114	1,907,708	10%
City of Los Angeles	3,792,621	4,170,555	10%
County of Los Angeles	9,818,605	11,211,991	14%
Southern California Region	18,051,534	22,057,210	22%
Employment			
Study Area	141,471	161,797	14%
San Fernando Valley	752,029	877,635	17%
City of Los Angeles	1,650,417	1,906,811	16%
County of Los Angeles	5,713,857	6,663,931	17%
Southern California Region	8,815,413	11,283,355	28%

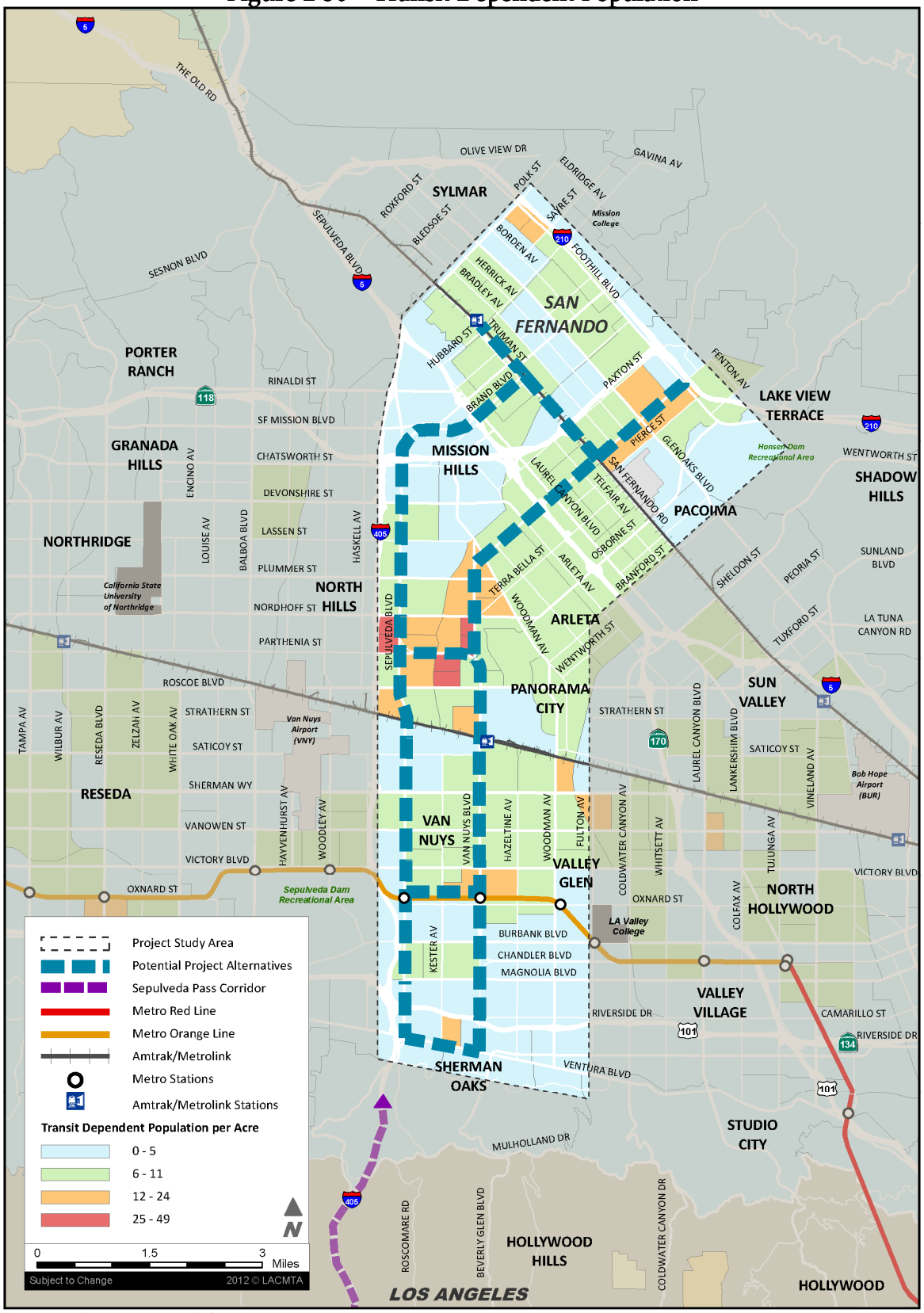
Source: 2012 RTP Model

Figure 2-29 – Zero Vehicles per Household



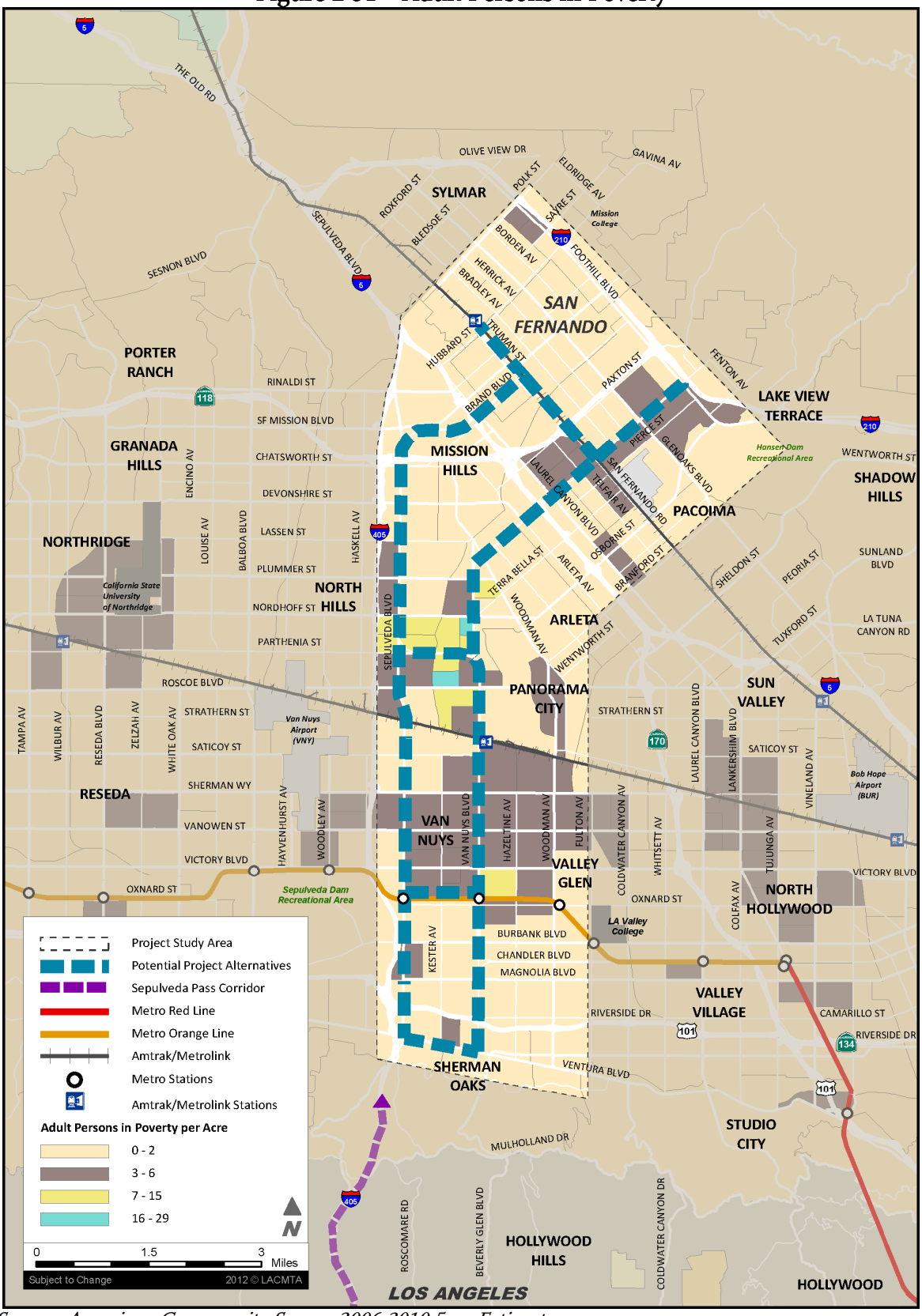
Source: American Community Survey 2006-2010 5 yr. Estimates

Figure 2-30 – Transit Dependent Population



Source: Census 2010 SF-1

Figure 2-31 – Adult Persons in Poverty



Source: American Community Survey 2006-2010 5 yr. Estimates

The large number of existing riders within the Van Nuys and Sepulveda Boulevard/Brand 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. This need supports the project purposes of transit accessibility/connectivity and the provision of service to transit dependent areas.

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

The East San Fernando Valley Transit Corridor is located within the Los Angeles County portion of the South Coast Air Basin (Basin), which has among the worst air quality in the nation. Mobile source emissions from vehicles are the single largest contributor to air quality problems.

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 2035. 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 enhanced 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.

The proposed project could also contribute to local and regional congestion relief, which is another important GHG emissions reduction strategy. Since the highest levels of mobile-source air quality issues occur at stop-and-go speeds (i.e., 0-25 miles per hour), the extent to which the proposed project can relieve congestion by enhancing overall transportation system efficiency, would assist in improving air quality. This need supports the project purpose of encouraging model shifts to transit.

2.3.5.1 Mode Shift

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 Bus Rapid Transit (BRT), streetcar, 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 MOL running on a guideway, are slowed by mixed-flow traffic and traffic signal operations.

The use of fossil fuels for transportation generates large amounts of GHG emissions, including carbon dioxide (CO2), nitrous oxide (N2O) and methane (CH4) which impact air quality in the area. The primary strategies for reducing emissions from transportation sources include transportation system improvements and operations efficiencies, and achieving reduction in the growth rate of vehicle miles traveled (VMT) as California's population continues to grow.

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 will 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.

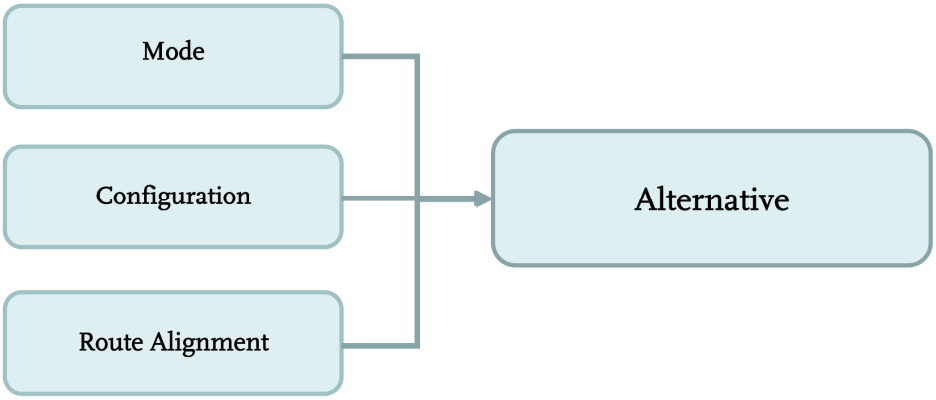
3.0 Preliminary Definition of Alternatives

What preliminary alternatives are being evaluated?

The alternatives for the East San Fernando Valley Transit Corridor project that were considered for screening include the No Build Alternative, Transportation System Management (TSM) Alternative, and build alternatives which comprise of a combination of mode, configuration, and route alignment. Potential modes considered include bus rapid transit (BRT), streetcar, and light rail transit (LRT). Configurations consist of curbside, median-running, and side-running. All reasonable (direct as possible, serving a minimum of key area activity centers) surface-running routes have been considered to provide a direct transit connection between Sherman Oaks at the southern end of the project corridor and either Pacoima or Sylmar and the City of San Fernando at the northern end.

Figure 3-1 illustrates how the separate options are combined to develop an alternative.

Figure 3-1 – Alternative Components



3.1 PRELIMINARY ALTERNATIVES

3.1.1. No Build Alternative

The No Build Alternative represents the predicted conditions for the year 2035, includes projects in the Long Range Transportation Plan (LRTP) and the Regional Transportation Plan (RTP), if no transit corridor is constructed. It establishes a baseline for comparison for the other alternatives in terms of benefits and costs, and in terms of environmental analysis.

3.1.2. Transportation System Management Alternative

The TSM Alternative may include relatively low cost transit service improvements and represents the best that can be done to improve transit service such as increased bus frequencies or minor modifications to the roadway network or traffic control systems. For this analysis, the TSM Alternative will consist of the No Build bus network and enhanced bus frequencies for the existing Van Nuys Rapid Bus 761. The Rapid Bus 761 would operate

headways reduced from 10 minutes peak/17.5 minutes off-peak to six-minutes peak/12 minutes off-peak. Additional TSM options that may be considered include, but are not limited to, traffic signalization improvements, off-board fare collection, bus stop amenities/improvements and bus schedule restructuring.

3.1.3. Build Alternatives

Each alternative consists of the following components: mode, configuration, and route alignment. These components are summarized below.

3.1.3.1. Mode

Below is a brief description of the main characteristics of the modal options considered for the East San Fernando Valley Transit Corridor.

Figure 3-2 – Bus Rapid Transit Mode

Bus Rapid Transit (BRT)

For this project, BRT is defined as generally operating in exclusive lanes but can also operate in mixed-flow traffic. BRT typically serves longer trips with higher frequency, speed, and reliability than standard Rapid or Local bus service. BRT vehicles are high capacity articulated buses, with each bus having the capacity to serve up to 75 passengers as shown in Figure 3-2. Metro currently operates two dedicated BRT services: the Metro Orange Line (MOL) and the Metro Silver Line. BRT buses can use existing Metro maintenance facilities. The Metro bus fleet is powered by compressed natural gas (CNG). Additional design features may include transit system priority at signalized intersections, enhanced bus stations and shelters, streetscaping, and off vehicle fare collection.

Streetcar

Streetcar refers to rail transit vehicles that are lighter and smaller than light rail vehicles currently operating on the Metro system, and are shown in Figure 3-3. Streetcars typically operate in mixed-flow lanes powered by overhead electrical power. Streetcar stations are generally more closely-spaced than BRT stops. The approximate passenger capacity is 140 passengers per car. This modal option would require a new maintenance facility since Metro does not operate streetcars as part of its transit fleet.

Figure 3-3 – Streetcar Mode

Light Rail Transit (LRT)

LRT operates with passenger railcars on standard gauge rail, operating within exclusive right-of-way (ROW) with overhead electric power, as displayed in Figure 3-4. The approximate capacity is 300 passengers per two-car train set. Stations are typically located at one-mile spacing, with high platforms that eliminate the need for patrons to board vehicles via stairs. Metro currently operates LRT vehicles on the Metro Blue Line, Expo Line, Green Line, and Gold Line, however, the lack of a direct rail connection means that a new maintenance facility would be required.

Figure 3-4 – Light Rail Transit Mode

Other Modes

Additional modes such as heavy rail were excluded from initial consideration because they are unlikely to serve the Corridor in an efficient and cost effective manner. Heavy rail lines are generally located along the very busiest transit corridors. The Metro Red and Purple Lines serve some of Los Angeles' densest areas including downtown Los Angeles, the Wilshire Corridor, and the Hollywood area. Although Van Nuys Boulevard has the seventh highest bus boardings in the Metro system, the land use density along the 11-mile study corridor is not sufficient to warrant a heavy rail investment. The Sepulveda Boulevard Corridor has appreciably less boardings than the Van Nuys Corridor and similar land use characteristics. Projected ridership for either corridor would not justify the extremely high cost to build heavy rail and was not carried forward for further analysis.

3.1.3.2. Configuration

Twelve configuration options that included varying combinations of transit lanes, vehicle travel lanes, bike lanes, curbside parking, station platforms, and sidewalks were developed for a 100-foot ROW, which is a typical minimum width along both Van Nuys Boulevard and Sepulveda Boulevard.

The configurations are organized in the following manner:

- *Curbside* – One curbside configuration was evaluated. The configuration consists of a transit lane located directly adjacent to the curb with curbside stops and two-travel lanes per direction. The transit lane would only operate during peak periods.
- *Median Running* – A total of seven median-running configurations were analyzed. The configuration consists of a transit lane located in the middle of the ROW as an exclusive guideway. Several variations were evaluated including, variations in the number of transit (one or two) and vehicle (one or two) travel lanes, station platforms (center or side), and amenities such as bike lanes and parking.

- *Side Running* – A total of four side-running configurations were analyzed. The configuration consists of an exclusive transit lane or mixed-flow lane with amenities that would include either bike lanes and/or parking between the transit lane and curb, curbside stops, and two-travel lanes per direction.

For more detail on the configurations, refer to the *Preliminary Definition of Alternatives* report.

3.1.3.3. Alignment

Several route alignments were considered within the public roadway ROW and within Metro-owned busway ROW (MOL). These route alignments consist of route segments which represent a linear subset of the overall alignment.

Initially, at the start of the project, only a single route had been considered for the project, running entirely within the publicly-owned ROW of Van Nuys Boulevard from Ventura Boulevard in Sherman Oaks to Foothill Boulevard in Lakeview Terrace. However, as a result of stakeholder input, the scope of the project was expanded to include alternatives within the Sepulveda Boulevard/Brand Boulevard corridor and a northern terminus at the Sylmar/San Fernando Metrolink Station.

Also desired was consideration of an alternative southern terminus in the vicinity of the intersection of Ventura Boulevard and Sepulveda Boulevard, near the northern end of a potential future Sepulveda Pass Corridor project. This southern terminus was considered in addition to the originally-considered Van Nuys Boulevard/Ventura Boulevard terminus. With two possible termini at both the northern and southern ends of the study area, a myriad of potential segments arose as candidates for the project route alternatives. For the purposes of this study, a terminus site represents the end of the East San Fernando Valley Transit Corridor, but might not necessarily represent the end of a transit line. Figure 3-5 illustrates the northern and southern terminus locations.

As the project moves forward, alternatives may be short lined as the evaluations and considerations toward connectivity and the project purposes are refined.

<u>Potential Route Segments</u>

Route segments were evaluated to determine feasible alignments in the study area. A segment was deemed infeasible if the 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 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 existing ROW on Van Nuys Boulevard, Sepulveda Boulevard or use a hybrid combination of both the Van Nuys Boulevard and Sepulveda Boulevard/Brand Boulevard corridors. Figure 3-5 illustrates the project alignments considered for the initial screening process, and those determined to be infeasible for further consideration due to physical limitations.

For more detail on the alignments, refer to the *Preliminary Definition of Alternatives* report.

3.2 Possible Operations

The possible operational characteristics are described in this section with respect to the various modes. These general characteristics include headways and system compatibility.

3.2.1. BRT

Potential operations for buses within the BRT lanes assumed six-minute headways during peak hours, and 12-minute headways during off-peak hours. Depending on the route alignment chosen, there is the possibility that one of the two Metro Rapid Bus lines – Metro Rapid Bus 761 (Van Nuys Boulevard) and the Metro Rapid Bus 734 (Sepulveda Boulevard) – that run north-south through the study area may be discontinued.

3.2.2. Streetcar

A streetcar alternative would operate on assumed six-minute headways during peak hours, and 12-minute headways during off-peak hours. Depending on the route alignment, existing bus service operating on Van Nuys Boulevard and Sepulveda Boulevard may be eliminated due to redundant service or may remain similar to the No Build Alternative.

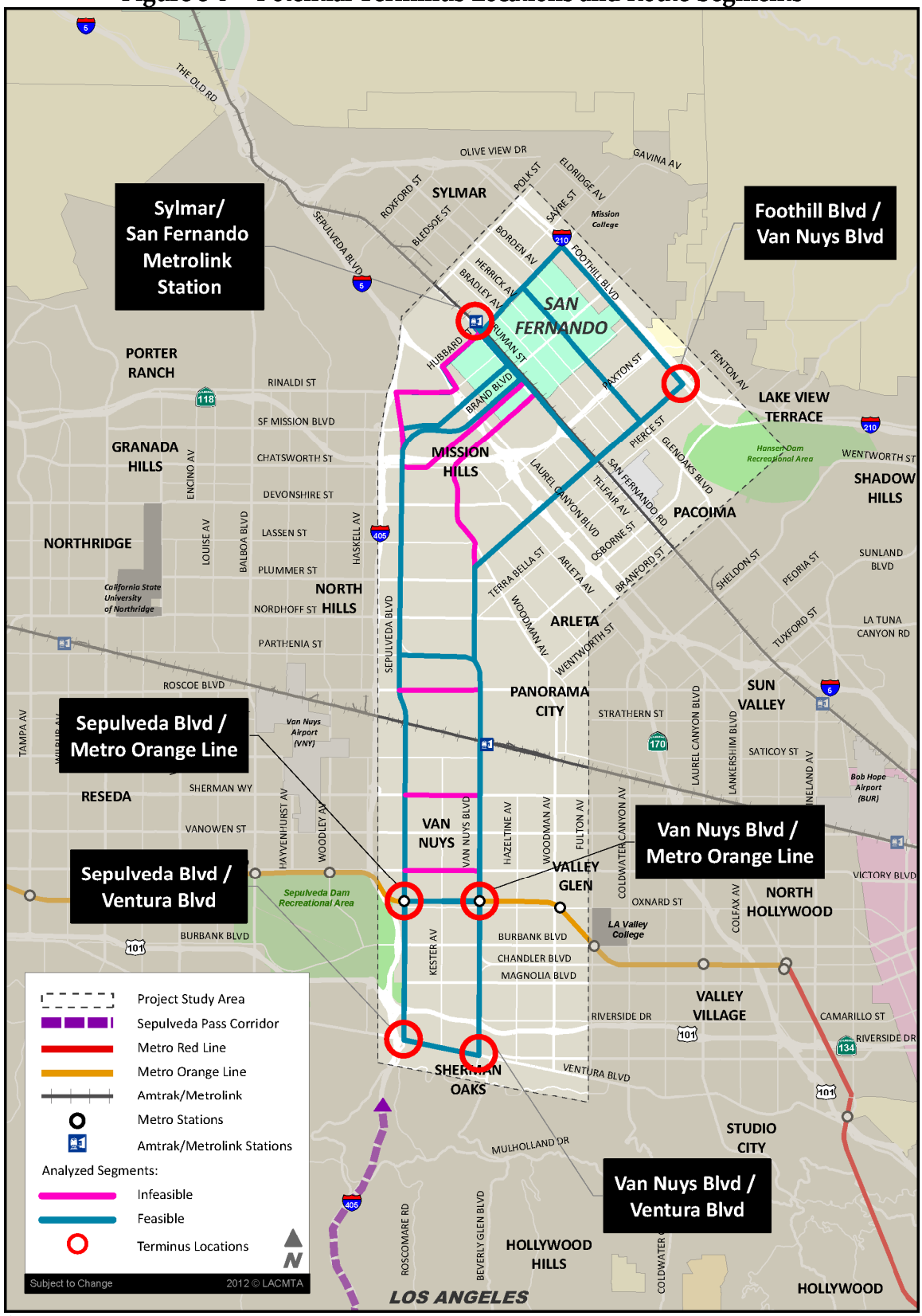
3.2.3. LRT

Similar to the streetcar operation, an LRT alternative would operate on assumed six-minute headways during peak hours, and 12-minute headways during off-peak hours. The background bus network operations would be dependent on the route alignment

3.3 Maintenance Facilities

Maintenance and Storage Facilities (MSFs) must be able to accommodate bus operations, maintenance, and administrative functions. Bus maintenance activities include vehicle cleaning, maintenance, repair, and storage. Thus, MSFs typically feature areas dedicated to interior and exterior vehicle cleaning and washing; preventative maintenance; tire, brake, battery and farebox electronics maintenance, repair, and replacement; fare collection; fueling; vehicle storage; and spare parts storage.

Figure 3-5 – Potential Terminus Locations and Route Segments



Source: Metro, 2012.

Because vehicles are most often dispatched from MSFs, drivers and operators consider the facilities their "home base". Space is needed for operations staff offices; dispatcher work stations; employee break rooms and/or lunchrooms; driver areas with lockers, showers, and restrooms; and employee and visitor parking.

Table 3-1 provides a summary of the general fleet sizes that would need to be accommodated within the project maintenance facility.

Table 3-1 – Summary of Approximate MSF Space Needs

Alternative	Approximate MSF Space Needs
No Build	No additional space needs
TSM	Space for 14 to 19 new buses
BRT	Space for 8 to 15 new buses
LRT	Ultimately 66 to 69 new LRVs (22 to 23 initially)
Streetcar	Ultimately 26 to 29 new streetcars

Source: STV, 2012

All of the project alternatives would require additional space to accommodate the maintenance and storage of transit vehicles. Metro has two existing bus MSFs located in the San Fernando Valley. These are Division 8 (West Valley) and Division 15 (East Valley). It is intended that one or more existing Metro bus MSFs in the San Fernando Valley would accommodate the additional buses needed for the bus alternatives. The rail alternatives (LRT and streetcar) would require new MSFs, as there are no existing facilities in the area to support the project.

The site size for a light rail MSF should accommodate the maximum number of vehicles required for service but also allow for the future expansion of transit service and the maintenance and storage of additional vehicles. The site size for a light rail MSF servicing vehicles operating along Van Nuys Boulevard, Sepulveda Boulevard, and/or San Fernando Road should be between approximately seven and 15 acres. Capacities of the various rail MSF options would be highly dependent on site acreage and geometry, and cannot be easily quantified until more-detailed designs have been completed for the preferred options.

A separate study will be completed for the identification of the best location for the maintenance facility. The related site screening process would include but not be limited to property availability determinations, the cost of land, environmental review, and consideration of community acceptability.

4.0 Screening of Alternatives

How were the alternatives screened?

Evaluation criteria were developed, which are further discussed in Section 4.3, as part of an iterative process of alternatives screening to best identify which alternatives should be evaluated in this Alternatives Analysis (AA) report and the later draft Environmental Impact Statement (DEIS)/Environmental Impact Report (DEIR). This process involves the gradual refinement of project alternative results for the eventual recommendation of the Locally Preferred Alternative (LPA).

The screening of project alternatives for this AA is organized into two tiers:

- **Tier I (Initial) Screening** – This initial analysis evaluates the project alternatives on a qualitative level to determine the alternatives that should be carried forward for further consideration.
- **Tier II (Final) Screening** – The final analysis will evaluate the project alternatives that were carried through from the initial screening process. This stage provides a more detailed quantitative analysis to further refine the project alternatives for community input and Metro Board, and Los Angeles City Council review and approval.

A more detailed discussion of the analysis for Tier I and Tier II screening of Analysis are described in the *Tier I – Initial Screening of Alternative* and *Tier II – Final Screening of Alternatives* reports.

4.1 Tier I Screening Process

Measures employed in the Tier I (initial) analysis are qualitative in nature. All build alternatives under consideration were ranked based on a comparative scale developed by the project team, in order to evaluate the alternatives against the goals of the Purpose and Need, and are discussed in Section 4.5 Tier I Evaluation of this report.

The Tier I screening was conducted in a two-stage (Stage I and Stage II) screening process to simplify the analysis. Stage I involved separating out the components of the alternatives into three modal, 12 configurations, and 14 routing options. These options are described within this report in Section 3.0 Preliminary Definition of Alternatives.

Once these categories were screened, the remaining mode, configuration, and route alignment options were combined and screened as part of the Stage II screening effort.

4.2 TIER II SCREEN PROCESS

The Tier II screening follows Tier I and evaluates the No Build Alternative and Transportation System Management (TSM) Alternative, along with six build alternatives that were carried through from the Tier I screening of alternatives.

As part of the Tier II screening, a more detailed quantitative analysis was undertaken to further refine the project alternatives. This phase included the development of operational plans, ridership forecasts, capital costs, and operational and maintenance costs for the No Build, TSM and six build alternatives. Additionally, an evaluation of the environmental benefits and impacts, and economic and land use considerations was conducted.

4.3 EVALUATION CRITERIA

What criteria are used for assessing the preliminary alternatives?

There are seven main evaluation criteria, each having a set of corresponding performance measures that were developed to help screen the alternatives. They are as follows:

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

Table 4-1 summarizes the evaluation criteria that were used in the screening of project alternatives and their corresponding performance measures.

Table 4-1 – Evaluation Criteria and Performance Measures

Evaluation Criteria	Performance Measures	
Travel and Mobility Benefits and Impacts	Annual Study Area Transit Ridership	Change in estimated study area daily boardings
	Annual Hours of System-wide Transit Users Benefit	Trip time savings multiplied by boardings
	Annual System-wide New Riders	Mode with higher speed, accessibility, and connectivity
	Annual Study Area Vehicle Miles Traveled (VMT) Reduction	Calculated VMT saving, with new trips on proposed alternatives
	Point to Point Travel Times (Journey Time)	Minutes between key destinations or route termini
	Vehicular Traffic Travel Time Impact	Impact in minutes of vehicle travel within the project corridor based on capacity available to traffic after implementation.

Table 4-1 – Evaluation Criteria and Performance Measures (continued)

Evaluation Criteria	Performance Measures	
Regional Connectivity	Intermodal System Connectivity	Ability to transfer from one mode to another, and the number of connections to other services.
	System Compatibility within the Region	Mode compatibility with existing transit vehicle types, ability to interline service with existing infrastructure.
	Comply with Long Range Regional Mobility Goal	Meeting mobility goals of the region's Long Range Transportation Plan (LRTP) and Southern California Association of Governments (SCAG) Regional Transportation Plan(RTP)/Sustaintable Community Strategy (SCS)
Cost-Effectiveness	Capital Costs	Cost of construction, initial investment on rolling stock, maintenance facilities.
	Incremental Annual Operations and Maintenance (O&M) Costs	Combined annualized capital cost and annual O&M cost.
	Incremental Cost Per New Transit Trip	Annualized cost per new transit trip.
Environmental Benefits and Impacts	Air Quality	Air quality degradation at hot spots due to increased congestion.
	Noise and Vibration	Noise and vibration increases at adjacent properties based on the approximate number of noise-sensitive receptors adjacent to the alignments.
	Geotechnical	Ground disturbance and significant volumes of excavated soils during construction. Locations in close proximity to or crossing (and thereby exposed) to geotechnical hazards such as liquefaction or Alquist-Priolo fault rupture hazard zones.
	Visual and Aesthetic	Removal of visual resources such as street trees or the creation of visual clutter and obstruction of key views due to new structures.
	Historic and Cultural Resources	Potential to encounter archaeological, paleontological, or historic resources during construction.
	Greenhouse Gases	Potential reductions in VMT and proportional reductions in greenhouse gases (GHGs).
	Parklands	Presence of adjacent parklands and the potential to result in right-of-way (ROW), noise, or visual impacts on these parklands.
	Traffic, Pedestrian, and Bicycle	Level of service (LOS) degradation, pedestrian conflicts, opportunities for bicyclists.
	Community Disruption and Displacement	Acquisition of ROW and residential or business displacements. Diminishing access to local properties or creating barriers to pedestrian or motor vehicle circulation.
	Hazardous Materials	Volume of excavation and potential for encountering contaminated soils and groundwater. Significant ground disturbance in proximity to hazardous materials generators or known contaminated sites.
	Biological Resources	Removal of street trees, affecting nesting birds and sensitive biological habitat.
	Construction	Temporary lane closures and traffic disruption, in addition to noise and vibration, air quality (dust emissions) impacts during construction.
Economic and Land Use Considerations	Accessibility - Transit Dependent Population	Low income households, low vehicle ownership households, and youth and senior populations in proximity to the corridor.
	Construction Employment Generation	The estimated number of construction jobs, indirect jobs from construction expenditures, and induced jobs from construction expenditures.
	Construction-related Takes	Potential loss of jobs, loss of aggregate wages, loss of retail sales, and loss of property tax.
	Economic Development	Net impact on jobs growth, net impact on aggregate wages, net impact on retails sales tax, and net impact on property taxes.
	Transit Supportive Land Use	Job-generating land uses by density, residential land uses by density.

Table 4-1 – Evaluation Criteria and Performance Measures (continued)

Evaluation Criteria	Performance Measures	
Community Input	Local and Regional Plan Consistency	The general compliance of each alternative to adopted land use plans.
	Community Integration and Input	Public comments from the community meetings.
	Integrate Backbone Bike Network and Pedestrian Linkages	The potential for integration and accommodation of various alternatives to the City's Backbone Bike Network and pedestrian linkages.
	Impact to On-Street Parking	The potential loss of on-street parking spaces.
	Safety and Security	The degree of safety and security perceived by passengers.
	Physical Environment	The type of environment created , and whether the community will be divided or segregated.
Financial Capability	Feasibility of Construction Within LRTP allocation	Capital construction costs for each alternative, which may include the construction of a guideway, stations, vehicles, and supporting facilities were evaluated to determine the potential fiscal impacts and cost effectiveness of each alternative. The East San Fernando Valley Transit Corridor project only has approximately $170.1 million allocated as part of the LRTP, any costs in excess of this amount will need to be funded by other sources

4.4 RIDERSHIP MODELING

The ridership data was generated from Metro's Model which was reviewed with FTA in September 2009 and FTA concurred the model was ready for forecasting.

The study area was divided into four Districts encompassing 97 Traffic Analysis Zones (TAZs.) The South Corridor District from the southern boundary south of Ventura Boulevard to Oxnard Street includes 12 TAZs. The Civic Center District is defined as the area between Oxnard Street and the Ventura County Metrolink Line and has 18 TAZs. The Central Corridor District is north of the Civic Center District, includes 35 TAZs and is defined as the area from the Metrolink Line north to Interstate 5 (I-5). The North Corridor District is the largest in terms of acreage of the four Districts it includes the area from north of I-5 to approximately one-quarter mile north of Foothill Boulevard, in this District the corridor changes to northeast-southwest oriented, and includes 32 TAZs.

In addition to the No Build and TSM alternatives, a total of six build alternatives were modeled as part of the ridership forecasting efforts. In coordination with Metro, an operating plan was developed for each alternative. This plan considered physical constraints and design criteria, including a detailed description of the network of bus routes and fixed guideway lines (included Metro, LADOT, and Metrolink service), route alignment, peak and base headways, type of equipment, operating speeds, station locations, parking availability, and other physical and operational factors. These plans were translated into travel forecasting networks.

Specific ridership forecasting performance measures that were evaluated during the screening of alternatives included the following:

- Study Area Transit Ridership - The daily study area transit trips were calculated by aggregating all the transit trips that were either produced (began) or attracted (ended) in the study area, this also includes those trips that both started and ended

in the study area. This does not include the transit trips that travel through the study area.

- Annual Hours of Transit User Benefit - User benefits are similar to travel time savings, but more comprehensive, as user benefits include the time savings for new riders as well as existing riders. User benefits are estimated from the travel demand forecasting model runs for the various build alternatives, relative to the baseline alternative. User benefits or disbenefits are assumed to arise due to changes in mobility for individual travelers that are caused by a project (or policy) and are measured in hours of travel time and aggregated over all travelers. For example, when an alternative's improvements cause changes in travel behavior that result in a change in mobility, such as shorter travel times (including wait time, in-vehicle time, or access time), or fewer transfers, this change may have benefits to new transit riders and to existing riders.

- New Transit Trips - The new transit trips (or new riders) for each alternative are simply the number of additional trips that the build alternative attracts over the TSM Alternative. These new riders would not be making their trip on transit without the addition of the new (or improved) service.

- Study Area Vehicle Miles Traveled Reduction - Vehicle miles of travel are an indicator of the amount of roadway travel. Generally, the higher the VMT the more roadway trips and the fewer transit trips on the system, as trips move out of autos and onto transit the VMT declines. However, given by 2035 there will be approximately 1.7 million daily person trips in the study area and of those three to four percent use transit, so to affect much of a change in VMT a large change away from single occupancy vehicles would be necessary. The change in VMT from the relative small change in transit service in the study area is minimal and variable depending on the trip changing modes and its associated trip length.

- Vehicular Traffic Travel Time - Vehicle-hours of delay is a common indicator to measure the level of congestion on the roadway network. It is calculated by determining the difference between the congested travel time and the free flow travel time, then multiplying that difference by the link volume for each roadway segment within the study area. As new transit services are added into the corridor providing more options travel patterns change and to a lesser extent trips may shift from auto to transit. Thus, the level of congestion on some roadway segments will be slightly eased.

4.5 TIER I EVALUATION

How was the Tier I screening of alternatives evaluated?

The two-stage Tier I screening analysis involved a general evaluation of the build alternatives based on collected data including demographics, land use patterns, transit ridership, traffic circulation, planning policies, and professional judgment related to the evaluation criteria and performance measures.

The initial alternatives were comparatively rated based upon the evaluation criteria utilizing a scale of high, medium, and low, with high representing 'best', medium representing 'good' and low representing 'less good'. For the Tier I screening, the scores were equally weighted.

4.5.1. Stage I

In Stage I of the Tier I screening process, an evaluation of three modes, 12 configurations, and 14 route alignments for a total of 29 options were evaluated independent of one another to determine the most feasible options for this project. The following tables highlight the performance measures that were evaluated for the presence of potential benefits and impacts related to each evaluation criteria. The primary determination whether or not to recommend an option are indicated by bold text within the table and/or by the community input and financial capability discussion that follows each section.

4.5.1.1. Mode

Three modal options - bus rapid transit (BRT), streetcar, and light rail transit (LRT) - were screened to determine the feasibility of the project. The mode recommendations were evaluated based on the evaluation criteria and performance measures set forth and are described in the following section. Table 4-2 summarizes the general reasoning for determinations associated with each performance measure.

4.5.1.2. Configuration

Twelve configurations were evaluated based on the understanding that a large portion of the study area corridors have a right-of-way (ROW) width of 100 feet. These configurations include curbside, median-running, and side-running options, which have a varying number of travel lanes (one or two), transit lanes (one or two), and may or may not incorporate bike lanes and parking. The configuration option recommendations are detailed in the following section. Table 4-3 summarizes the reason for determinations of each performance measure.

4.5.1.3. Alignment

Several routing alignment/terminus options were determined infeasible prior to the initial screening of the 14 routes described in this section. These options were pre-screened and are described in the *Preliminary Definition of Alternatives* report. The 14 alternatives that were evaluated in the Tier I screening process included alignments on Van Nuys Boulevard, Sepulveda Boulevard, and hybrids of the two corridors. Table 4-4 summarizes the general reasoning for determinations associated with each performance measure.

Table 4-2 – Recommended Mode Options

Mode	Travel & Mobility Benefits & Impacts	Regional Connectivity	Cost-Effectiveness	Environmental Benefits & Impacts	Economic & Land Use Considerations
	• BRT has a lower rider capacity than LRT • Ridership would be moderate compared to LRT and streetcar	**• Bus type is consistent with Metro's existing bus fleet and can be interlined with the existing MOL** **• Can be used in mixed-flow traffic in constrained locations**	**• Capital, operations, and maintenance costs would be lower than streetcar and LRT**	**• Visual and aesthetic impacts would be less** **• Grade separation would not be required** **• Noise and vibration impacts would be less with BRT**	• Construction would be less intensive thus producing fewer jobs • BRT may increase economic development but it largely depends on the level of capital investment *
Recommendation: BRT TO ADVANCE TO STAGE II					
The BRT mode was recommended for further analysis because it would improve end-to-end travel time in the east San Fernando Valley. The mode is compatible with the existing Metro bus fleet, provided that loading occurs on the right side and center platforms are not used, and would require the least amount of capital cost investment and presents lower environmental impacts.					
	**• Streetcars have lower rider capacity than LRT, which might place a limit on its potential success. They are often slower than buses and might have a lower rider throughput than buses.**	**• Metro does not operate streetcars and would need to procure all technology and facilities** **• This mode would not comply with the regional long range mobility goals due to lower travel speeds**	**• Capital, operations, and maintenance costs would be higher than BRT but lower than LRT** **• Every additional new trip would likely be more expensive than the BRT and LRT options due to smaller trains**	**• Visual and aesthetic impacts would be greater due to catenary system** **• Grade separation may be necessary depending on route** • Noise and vibration impacts would be higher with rail	• Construction would be more intensive thus increasing employment • Streetcar would increase economic development as it is similar to LRT and provides an impression of permanance *
Recommendation: STREETCAR ELIMINATED					
The streetcar mode was recommended for elimination due to the limitation on end-to-end travel time savings. Streetcars are generally used as circulators, operate in mixed-flow traffic, and are not as effective in providing mobility for long corridors as compared to BRT and LRT options. Additionally, Metro does not currently operate streetcar as part of their transit system thus not providing any system compatibility. Overall, this mode would have high capital, operations, and maintenance costs.					
	**• LRT would provide higher capacity and improvements in end-to-end travel time** **• Ridership would be higher than the other two modes**	**• Metro operates several LRT services** **• Complies with the long range mobility goals by providing connectivity and improving travel for the region** • LRT maintenance facilities do not exist in the Valley	• Capital, operations, and maintenance costs would be the highest of all the mode options	• Visual and aesthetic impacts would be greater due to catenary system • Grade separation may be necessary depending on route • Noise and vibration impacts would be higher with rail	**• Construction would be more intensive thus increasing employment** **• LRT would increase economic development due to the higher capital investment and impression of premanance ***
Recommendation: LRT TO ADVANCE TO STAGE II					
This configuration was recommended for further analysis because it would improve end-to-end mobility in the east San Fernando Valley. It has a high level of public support and would provide economic development opportunities for the area while increasing connectivity and mobility to the community.					

* United States General Accounting Office (GAO) reports on BRT (GAO-12-811;GAO-01-984) note that economic development associated with LRT are generally due to the higher capital investments which provides the impression of permanence. Therefore, BRT projects that closely resemble LRT have a higher likelihood of similar economic development.

Table 4-3 – Recommended Configuration Options

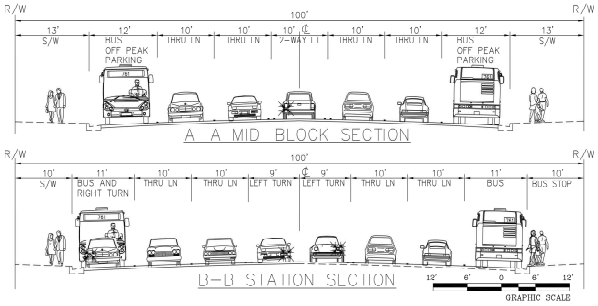
C1 CONFIGURATION	
FEATURES	 • Peak-hour curbside operation • Curbside stops • Bike lanes shared with bus • Off-peak on-street parking
Travel & Mobility Benefits & Impacts	**• Modest improvement of end-to-end transit travel time savings are anticipated with this configuration due to exclusive bus lane operations occurring only during peak-times, resulting in a slight increase in overall ridership** **• Improved journey time would probably be minimal because conflicts would continue to occur with right-turning vehicles, bicyclists, and parking** **• Additional corridor mobility benefits would be realized by the accommodation of shared bike lanes and vehicle turn-pockets throughout corridor where feasible**
Regional Connectivity	• Intermodal connectivity would provide transfer points to other regional transit services • Transit mobility, as set forth as a goal, should be enhanced during peak-hour operations • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	**• This configuration would require minimal construction, only signage, re-striping, and signal modifications** **• Because of the lower overall costs, every additional rider/cost per new trip would be less than any other configuration** • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Minimal, if any, geotechnical, historic and cultural, biological, parkland, hazardous material, and air quality impacts would be expected **• No visual and aesthetic and construction impacts would be expected with this alternative** **• Minimal property displacements would be expected**
Economic & Land Use Considerations	• Construction-related activities would be less intensive with a curbside configuration; therefore, providing less construction employment generation
RECOMMENDATION: ADVANCE TO STAGE II	
This configuration was recommended for further analysis because it requires the least amount of capital cost investment, presents minimal environmental impacts while providing improved peak-hour transit service.	

Table 4-3 – Recommended Configuration Options (continued)

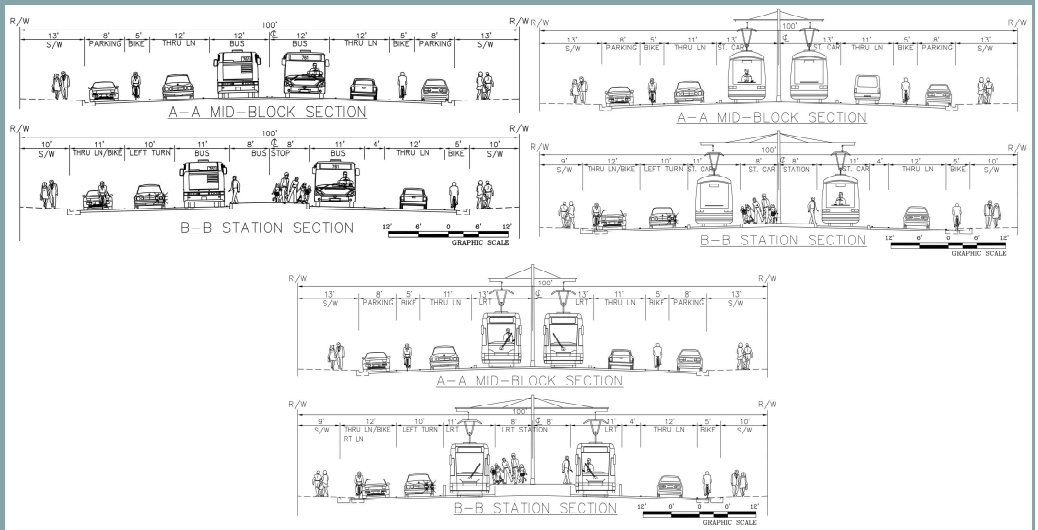
M1 CONFIGURATION	
FEATURES	 • Median-running operation • Center platforms • 1 Travel lane/direction • Bike lanes • On-street parking
Travel & Mobility Benefits & Impacts	• End-to-end transit travel time savings would be expected to improve with the median-running alignment due to reduced vehicle conflicts **• Provides only one travel lane per direction for mixed-flow traffic** **• Vehicles turning right would delay vehicles traveling through the intersection and prohibit/reduce turning movements at some intersections** • Additional corridor mobility benefits would be realized by the accommodation of bike lanes and vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	**• Transit mobility, as set forth as a goal, should be enhanced with the median-running operations; however, for regional mobility this would reduce the mixed-flow lanes to one lane per direction** • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	• The capital cost of this configuration would be higher than the side-running configurations as it requires construction of the median guideway, stations, and other roadway/intersection improvements • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected based on an at-grade analysis **• Traffic congestion would increase due to the reduced lane capacity to one-lane per direction**
Economic & Land Use	• Construction-related activities would likely be more intensive; therefore, providing more construction employment generation
RECOMMENDATION: ELIMINATED	
This configuration was recommended for elimination due to the reduced number of travel lanes (one-lane per direction) that would impact traffic in the study area. Mode specifics include an unconventional BRT operation (contra-flow); LRT would not encounter this problem.	

Table 4-3 – Recommended Configuration Options (continued)

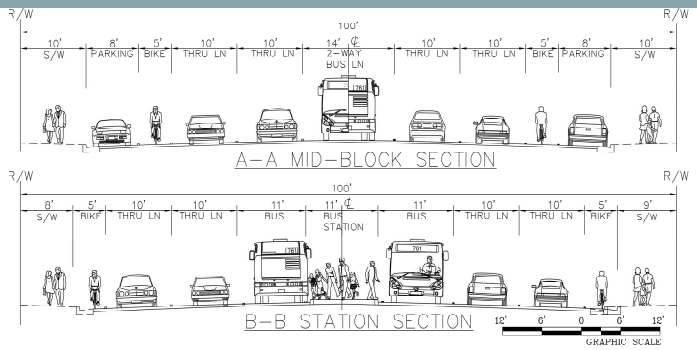
M2 CONFIGURATION	
FEATURES	 • Single lane median-running operation • Center platforms • 2 Travel lanes/direction • Bike lanes • On-street parking
Travel & Mobility Benefits & Impacts	**• Ridership increases would be expected to be low due to the decreased travel speeds associated with the single transit lane** **• Modest improvement to end-to-end transit travel time savings due to single transit lane** • Additional corridor mobility benefits would be realized by the accommodation of bike lanes and vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	• Intermodal connectivity would provide transfer points to other regional transit services **• Transit mobility would be minimal because there would be an increase in head-on transit vehicle conflicts due to single lane operations requiring that transit vehicles wait until the lane is clear** • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	• The capital cost would be higher than the curbside running alternative as it requires construction of median-running guideway, stations, and other roadway intersection improvements • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected based on an at-grade analysis • Visual and aesthetic and construction impacts would be expected
Economic & Land Use Considerations	• Construction-related activities would likely be more intensive; therefore, providing more construction employment generation
RECOMMENDATION: ELIMINATED	
This configuration was recommended for elimination due to the unconventional and limited operation, which would not benefit the overall end-to-end bidirectional transit mobility. This type of operation would be inefficient for end-to-end mobility because of the continual wait time.	

Table 4-3 – Recommended Configuration Options (continued)

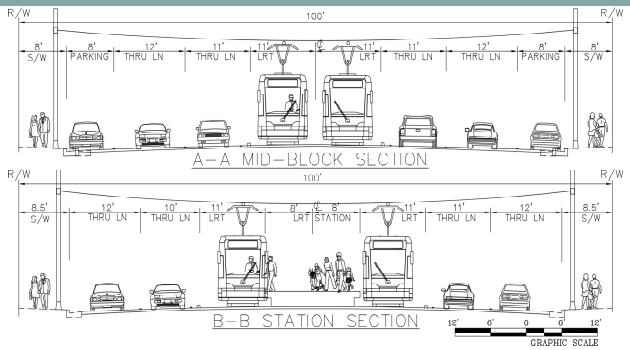
M3 CONFIGURATION	
FEATURES	 • Median-running operation • 2 Travel lanes/direction • Center platforms • On-street parking
Travel & Mobility Benefits & Impacts	• End-to-end transit travel time savings are expected to improve with the median-running configurations due to reduced vehicle conflicts • Additional corridor mobility benefits would be realized by the accommodation vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	• Intermodal connectivity would provide transfer points to other regional transit services • Transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	• The capital cost for median-running configurations would be higher than the curbside running alternative as it requires construction of median-running guideway, stations, and other roadway/intersection improvements • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected based on an at-grade analysis. • Visual and aesthetic impacts would be expected with this alternative
Economic & Land Use Considerations	• Construction-related activities would likely be more intensive; therefore, providing more construction employment generation
RECOMMENDATION: ELIMINATED	
Although this configuration would provide travel and mobility benefits capturing higher annual transit ridership and improving journey times and reducing VMT, it was recommended for elimination due to non-compliance with the City of LA 2010 Bike Plan with the exclusion of bike lanes.	

Table 4-3 – Recommended Configuration Options (continued)

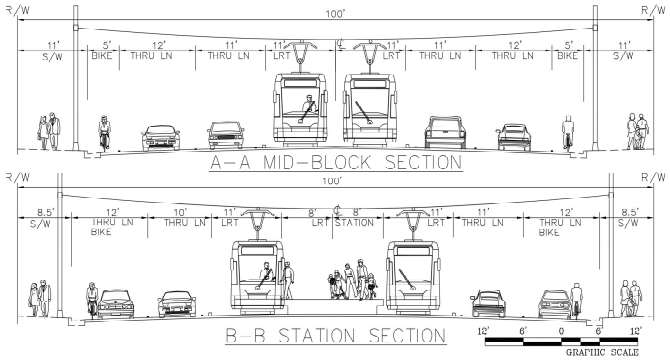
M4 CONFIGURATION	
FEATURES	 • Median-running operation • Center platforms • 2 Travel lanes/direction • Bike lanes
Travel & Mobility Benefits & Impacts	• End-to-end transit travel time savings are expected to improve with the median-running configurations due to reduced vehicle conflicts **• Additional corridor mobility benefits would be realized by the accommodation of bike lanes and vehicle turn-pockets throughout corridor where feasible**
Regional Connectivity	• Intermodal connectivity would provide transfer points to other regional transit services • Transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	• The capital cost for median-running configurations would be higher than the curbside running alternative as it requires construction of median-running guideway, stations, and other roadway intersection improvements • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected based on an at-grade analysis. • Visual and aesthetic impacts would be expected with this alternative
Economic & Land Use Considerations	• Construction-related activities would likely be more intensive; therefore, providing more construction employment generation
RECOMMENDATION: ADVANCE TO STAGE II	
This configuration is similar to Configuration M3; however, it was recommended for further analysis because in addition to the possible travel and mobility benefits it would provide bike lanes thus complying with the City of LA 2010 Bike Plan.	

Table 4-3 – Recommended Configuration Options (continued)

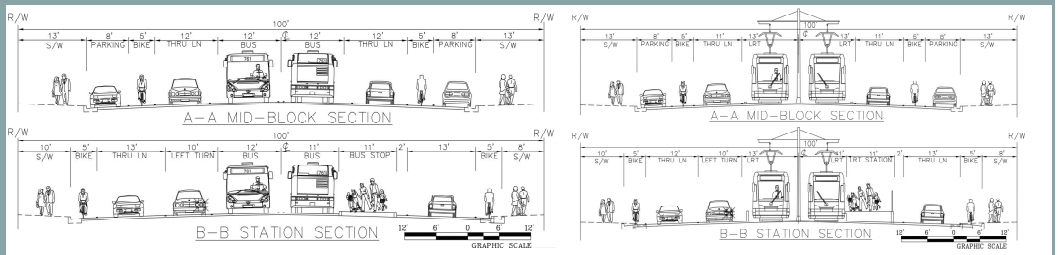
M5 CONFIGURATION	
FEATURES	 • Median-running operation • Side platforms • 1 Travel lane/direction • Bike lanes • On-street parking
Travel & Mobility Benefits & Impacts	• End-to-end transit travel time savings would be expected to improve with the median-running alignment due to reduced vehicle conflicts • **Provides only one travel lane per direction for mixed-flow traffic** • Additional corridor mobility benefits would be realized by the accommodation of bike lanes and vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	• Intermodal connectivity would provide transfer points to other regional transit services • **Transit mobility, as set forth as a goal, should be enhanced with the median-running operations; however, for regional mobility this would reduce the mixed-flow lanes to one lane per direction** • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	• The capital cost of this configuration would be higher than the curbside running alternative as it requires construction of median-running guideway, stations, and other roadway/intersection improvements • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Minimal geotechnical, historic and cultural, biological, parkland, hazardous material, visual and construction impacts would be expected with this configuration based on an at-grade analysis • **Traffic congestion would increase due to the reduced lane capacity to one-lane per direction**
Economic & Land Use	• Construction-related activities would likely be more intensive with this configuration; therefore, providing more construction employment generation
RECOMMENDATION: ELIMINATED	
This configuration was recommended for elimination because it would impact vehicular travel time. This configuration is the similar to Configuration M1 except for the station location (M1 – center platform; M5 – side platform).	

Table 4-3 – Recommended Configuration Options (continued)

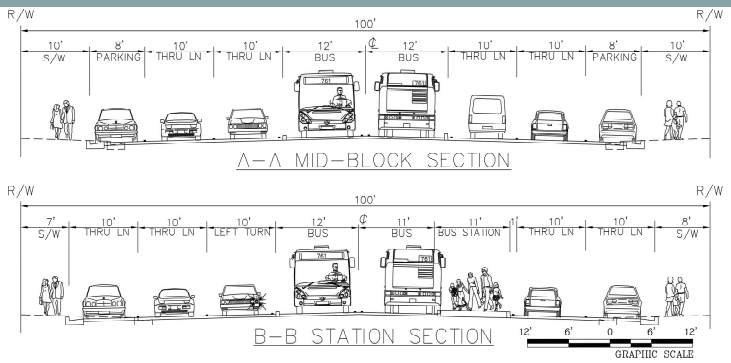
M6 CONFIGURATION	
FEATURES	 • Median-running operation • Side platforms • 2 Travel lanes/direction • On-street parking
Travel & Mobility Benefits & Impacts	• End-to-end transit travel time savings are expected to improve with the median-running configurations due to reduced vehicle conflicts • Additional corridor mobility benefits would be realized by the accommodation of vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	• Intermodal connectivity would provide transfer points to other regional transit services • Transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	• The capital cost for median-running configurations would be higher than the curbside running alternative as it requires construction of median-running guideway, stations, and other roadway/intersection improvements • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected based on an at-grade analysis • Visual and aesthetic impacts would be expected with this alternative
Economic & Land Use	• Construction-related activities would likely be more intensive; therefore, providing more construction employment generation
RECOMMENDATION: ELIMINATED	
This configuration is the similar to Configuration M3 except for the station location (M3 – center platform; M6 – side platform). Like M3, this configuration was recommended for elimination due to non-compliance with the City of LA 2010 Bike Plan with the exclusion of bike lanes.	

Table 4-3 – Recommended Configuration Options (continued)

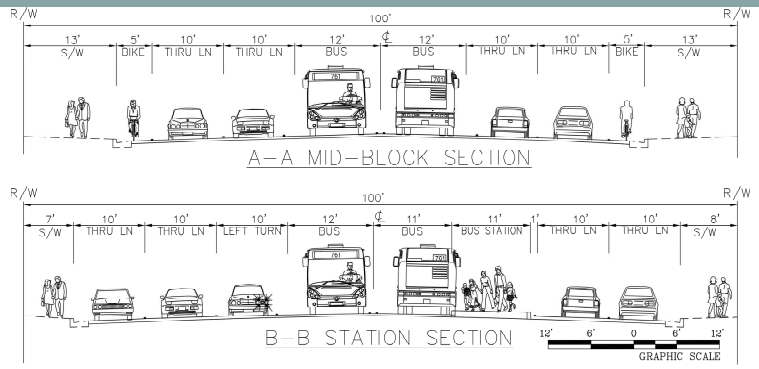
M7 CONFIGURATION	
FEATURES	 • Median-running operation • Side platforms • 2 Travel lanes/direction • Bike lanes
Travel & Mobility Benefits & Impacts	• End-to-end transit travel time savings are expected to improve with the median-running configurations due to reduced vehicle conflicts **• Additional corridor mobility benefits would be realized by the accommodation of bike lanes and vehicle turn-pockets throughout**
Regional Connectivity	• Intermodal connectivity would provide transfer points to other regional transit services • Transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	• The capital cost for median-running configurations would be higher than the curbside running alternative as it requires construction of median-running guideway, stations, and other roadway/intersection improvements • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected based on an at-grade analysis • Visual and aesthetic impacts would be expected with this alternative
Economic & Land Use	• Construction-related activities would likely be more intensive; therefore, providing more construction employment generation
RECOMMENDATION: ADVANCE TO STAGE II	
This configuration was recommended for further analysis because it was determined that even though the capital cost would be higher than other configurations, it would provide travel and mobility benefits capturing higher annual transit ridership and improving journey times and reducing VMT within the study area along with providing bike lanes thus complying with the City of LA 2010 Bike Plan. This configuration is the similar to Configuration M4 except for the station location (M4 – center platform; M7 – side platform).	

Table 4-3 – Recommended Configuration Options (continued)

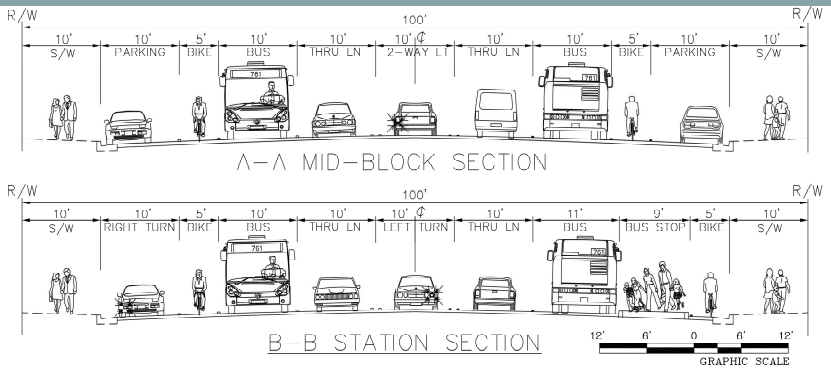
S1 CONFIGURATION	
FEATURES	 • Side-running operation • Curbside stops • 1 Travel lane/direction • Bike lanes • On-street parking
Travel & Mobility Benefits & Impacts	**• Improved transit mobility would be minimal because conflicts would continue to occur with right-turning vehicles, bicyclists, and parking vehicles** **• Provides one-travel lane per direction** • Additional corridor mobility benefits would be realized by the accommodation of bike lanes and vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	• Intermodal connectivity would provide transfer points to other regional transit services • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	• Capital cost would be lower than median running configurations • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected **• Traffic congestion would increase due to reduced lane capacity of one travel lane per direction**
Economic & Land Use Considerations	• Construction-related activities would likely be less intensive than median-running configurations; therefore, providing less construction employment generation
RECOMMENDATION: ELIMINATED	
This configuration was recommended for elimination due to the higher capital cost investment and reduced mixed-flow travel lanes (one-lane per direction) generating limited improvement to transit mobility as compared to Configuration C1.	

Table 4-3 – Recommended Configuration Options (continued)

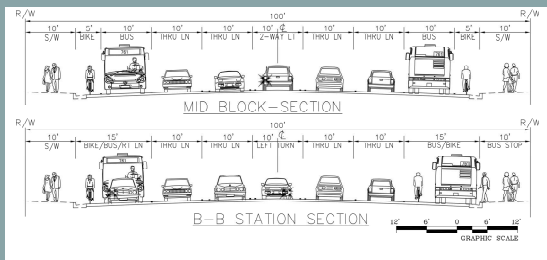
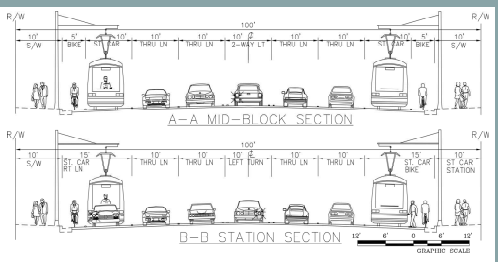
S2 CONFIGURATION	
FEATURES	  • Side-running operation • Curbside stops • 2 Travel lanes/direction • Bike lanes
Travel & Mobility Benefits & Impacts	• **Improved transit mobility would be minimal with this with this configuration because it would still encounter conflicts with other turning vehicles and bicycles** • Additional corridor mobility benefits would be realized by the accommodation of bike lanes and vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	• Intermodal connectivity would provide transfer points to other regional transit services • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	• Capital cost for this configuration would be less than median-running configurations • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits &	• Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected with this configuration, based on an at-grade analysis
Economic & Land Use	• Construction-related activities would likely be less intensive with side-running configurations. Therefore, providing less construction employment generation
RECOMMENDATION: ELIMINATED	
This configuration was recommended for elimination due to the higher capital cost investment and marginal annual VMT reduction and limited improvement to transit mobility as compared to Configuration C1.	

Table 4-3 – Recommended Configuration Options (continued)

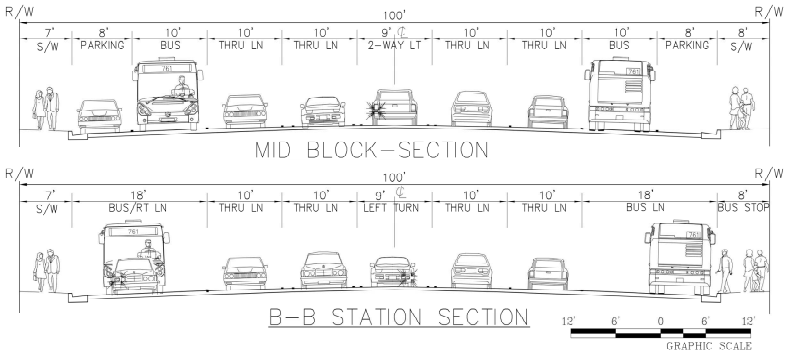
S3 CONFIGURATION	
FEATURES	 • Side-running operation • 2 Travel lanes/direction • Curbside stops • On-street parking
Travel & Mobility Benefits & Impacts	**• Improved transit mobility would probably be minimal with this configuration because it would still encounter some conflicts with other turning vehicles, bicycles and parked vehicles** • Additional corridor mobility benefits would be realized by the accommodation vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	• Intermodal connectivity would provide transfer points to other regional transit services • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	• Capital cost for side-running configurations would be less than median-running configurations • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Minimal geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected with this configuration, based on an at-grade analysis
Economic & Land Use Considerations	• Construction-related activities would likely be less intensive with side-running configurations; therefore, providing less construction employment generation
RECOMMENDATION: ELIMINATED	
This configuration was recommended for elimination due to the higher capital cost investment and marginal annual VMT reduction and limited improvement to transit mobility as compared to Configuration C1. Additionally, this configuration does not support multi-modal mobility by not providing bike lanes thus not complying with the City of LA 2010 Bike Plan.	

Table 4-3 – Recommended Configuration Options (continued)

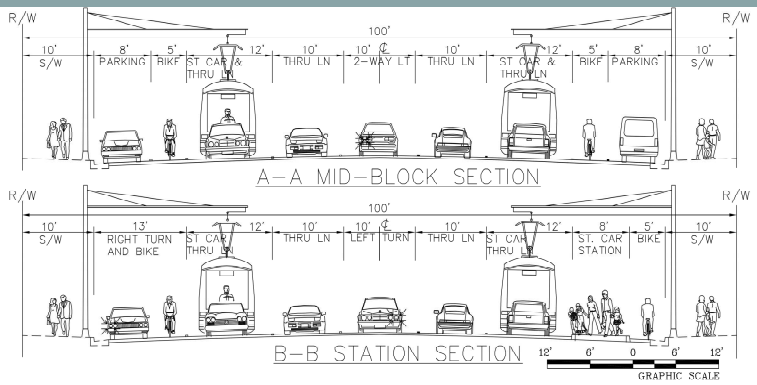
S4 CONFIGURATION	
FEATURES	 • Side-running operation in mixed-flow traffic • Curbside stops • 2 Travel lanes/direction shared with transit • Bike lanes • On-street parking
Travel & Mobility Benefits & Impacts	**• No improvement of end-to-end transit travel time savings are anticipated with this configuration since it would be operating in mixed-flow lanes and would encounter conflicts with other vehicles, bicycles and parked vehicles** • Additional corridor mobility benefits would be realized by the accommodation of bike lanes and vehicle turn-pockets throughout corridor where feasible
Regional Connectivity	• Intermodal connectivity would provide transfer points to other regional transit services **• This configuration would not comply with the transit mobility goal in providing better service than what is currently available** • Connections to regional transit service is dependent upon the alignment
Cost-Effectiveness	• Capital cost for side-running configurations would be less than median-running configurations • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits &	• Minimal, if any, geotechnical, historic and cultural, biological, parkland, hazardous material impacts would be expected with this configuration
RECOMMENDATION: ELIMINATED	
This configuration was recommended for elimination since there would be no improvement to travel mobility due to continued conflicts with vehicles, bicyclists, and parking vehicles.	

Table 4-4 – Recommended Route Alignment Options

ROUTE 1	
FEATURES	 Van Nuys Blvd./Ventura Blvd. - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd. *NOTE:* *The minimum ROW width of 100 feet through the entire corridor allows for a consistent cross-section from end to end. The Metrolink grade crossing and the potential California High Speed Rail corridor would force streetcar and LRT operations onto a grade separation, either aerial or underground, at San Fernando Road*
Travel & Mobility Benefits & Impacts	• **End-to-end transit travel time savings would be expected to improve as straighter routes would have faster journey times** • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and in the City of San Fernando
Regional Connectivity	• This route provides intermodal connectivity with regional transit services that includes Van Nuys Metrolink/Amtrak Station, and MOL • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	• The capital costs for this route would be lower than other routes given that the length of the alignment is shorter than the other routes • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Minimal geotechnical, biological, hazardous material, visual and aesthetic impacts, and property displacements would be expected but are dependent on mode and configuration
Economic & Land Use Considerations	• This route lies along various transit dependent communities along Van Nuys Boulevard • **This route is expected to have a significant effect on economic development as this route connects more commercial, civic and recreational land uses than other alignments**
RECOMMENDATION: ADVANCE TO STAGE II	
This route alignment was recommended for further review based on the high ridership potential, faster journey times, access for transit dependent populations, public interest in the corridor, and potential for economic development. It would provide key connections to several major hubs which include the Van Nuys Amtrak/Metrolink Station, the MOL, and the future Sepulveda Pass Corridor project.	

Table 4-4 – Recommended Route Alignment Options (continued)

ROUTE 2	
FEATURES	 Sepulveda Blvd./Ventura Blvd. - Ventura Blvd. - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station *NOTE:* *This alignment traverses constrained ROW along San Fernando Road where the width is insufficient for rail operations without extensive ROW acquisition. BRT buses would need to operate in mixed-flow lanes in that portion of the corridor.*
Travel & Mobility Benefits & Impacts	• End-to-end transit travel time savings would be expected to improve as straighter routes would have faster journey times **• Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and in the City of San Fernando**
Regional Connectivity	• Provides intermodal connectivity regional transit services that includes Van Nuys Metrolink/Amtrak Station, MOL, and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	• The capital costs for this route would be among the lowest compared to others given the length of the alignment • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Minimal geotechnical, biological, hazardous material, visual and aesthetic impacts, and property displacements would be expected but are dependent on mode and configuration
Economic & Land Use Considerations	• This route lies along various transit dependent communities along Van Nuys Boulevard **• This route is expected to have a significant effect on economic development as this route connects more commercial, civic and recreational land uses than other alignments**
RECOMMENDATION: ADVANCE TO STAGE II	
This route alignment was recommended for further review based on the high ridership potential, intermodal connectivity to key transit hubs (Sylmar/San Fernando Metrolink Station, Van Nuys Amtrak/Metrolink Station, the MOL, and the future Sepulveda Pass Corridor project), access for transit dependent populations, public interest in the corridor, and the potential for economic development.	

Table 4-4 – Recommended Route Alignment Options (continued)

ROUTE 3	
FEATURES	 Van Nuys Blvd./Ventura Blvd. - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - Brand Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station *NOTE:* *This alignment is suitable for all modal operations, although the Truman Street segment is narrow and may require a reduction of the roadway to one traffic lane in each direction to accommodate BRT, streetcar, or LRT. BRT has the option of running in mixed-flow operations.*
Travel & Mobility Benefits & Impacts	• Journey times are expected to be acceptable as the turns on this alignment would affect speeds and the overall operations • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and the City of San Fernando
Regional Connectivity	• Provides intermodal connectivity to regional transit services that includes Van Nuys Metrolink/Amtrak Station, MOL, and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	• Given the total length of this route, the capital costs would be expected to be more moderate compared to the other routes • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Geotechnical and biological impacts could occur along Parthenia Street and over the Pacoima Wash which may need to be covered for median-running configurations • Minimal property displacements would be expected but are dependent on the mode and configuration
Economic & Land Use Considerations	• Connects the communities along Van Nuys Boulevard on the southern portion of the corridor with highly transit dependent populations around Parthenia Street and along Sepulveda Boulevard **• This route is expected to have a moderate effect on economic development as it has less commercial land uses than other alignments**
RECOMMENDATION: ELIMINATED	
This route alignment was recommended for elimination as it is expected to have a lower effect on economic development (it has less commercial land use opportunities compared to similar alignments that could generate more development), travel times will be moderate, and a Brand Boulevard alignment has public opposition.	

Table 4-4 – Recommended Route Alignment Options (continued)

ROUTE 3S	
FEATURES	 Van Nuys Blvd./Ventura Blvd. - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - split couplet on Brand Blvd. & San Fernando Mission Rd. - Sylmar/San Fernando Metrolink Station *NOTE:* *This alignment is suitable for all mode operations, although the Truman Street segment is narrow and may require reduction of the roadway to one traffic lane in each direction to accommodate BRT, streetcar, or LRT. BRT has the option of running in mixed-flow operations.*
Travel & Mobility Benefits & Impacts	• Journey times are expected to be moderate as the turns on this alignment would affect speeds and the overall operation of the system • Vehicular traffic travel time impacts are expected around the Van Nuys Civic Center and the City of San Fernando
Regional Connectivity	• This route provides intermodal connectivity to regional transit services that includes Van Nuys Metrolink/Amtrak Station, MOL, and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	**• Due to the length of this alignment with the addition of the couplet, this route is expected to have higher capital costs than other routes** • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Geotechnical and biological impacts could occur along Parthenia Street. This alignment will travel on Parthenia Street, over the Pacoima Wash which may need to be covered for median-running configurations • Minimal property displacements would be expected but are dependent on the mode and configuration **• Minimal historic and cultural impact is anticipated as the corridor is proposed to run adjacent to the San Fernando Mission. Vibration during construction could be an issue** **• Parklands would likely be impacted as Brand Park lies between Brand Boulevard and San Fernando Mission Boulevard; however, this also depends on the mode and configuration**
Economic & Land Use Considerations	• Connects the communities along Van Nuys Boulevard on the southern portion of the corridor with highly transit dependent populations around Parthenia Street and along Sepulveda Boulevard **• This route is expected to have a moderate effect on economic development as it has less commercial land uses than other alignments**
RECOMMENDATION: ELIMINATED	
This route alignment was recommended for elimination for reasons similar to Route 3. This alignment would be expected to have a moderate effect on economic development, would have more traffic impacts due to the inclusion of San Fernando Mission Boulevard as part of a one-way couplet alignment, and travel times would be moderate.	

Table 4-4 – Recommended Route Alignment Options (continued)

ROUTE 4	
FEATURES	 Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd. *NOTE:* *The existing Metrolink and Union Pacific tracks as well as the potential California High Speed Rail would force streetcar and LRT into a grade separation over or under San Fernando Road.*
Travel & Mobility Benefits & Impacts	**• Journey times are expected to be moderate** • Vehicular traffic travel time is expected to be impacted in some areas – southern portion of Sepulveda Boulevard and Van Nuys Boulevard around the Civic Center
Regional Connectivity	• Intermodal connectivity to regional transit services includes Sepulveda and Van Nuys MOL Stations, and Van Nuys Metrolink/Amtrak Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	• The capital costs for this route would be among the lowest compared to other routes given the length of the alignment • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guidway maintenance.
Environmental Benefits & Impacts	• Minimal geotechnical, biological, hazardous material, visual and aesthetic impacts, and property displacements would be expected but are dependent on mode and configuration
Economic & Land Use Considerations	• This route lies along various transit dependent communities along Van Nuys Boulevard **• This route is expected to have a significant effect on economic development as it connects numerous commercial, civic and recreational land uses**
RECOMMENDATION: ADVANCE TO STAGE II	
This route was recommended for further review as ridership would be high along this alignment. The route would also connects to several transit services at the Van Nuys Metrolink/Amtrak Station, Sepulveda and Van Nuys MOL Station, and the future Sepulveda Pass Corridor project.	

Table 4-4 – Recommended Route Alignment Options (continued)

ROUTE 5	
FEATURES	 Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - Brand Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station *NOTE:* *This alignment is suitable for BRT and rail operations, although the Truman Street segment may result in a reduced number of traffic lanes.*
Travel & Mobility Benefits & Impacts	• Journey times are expected to be moderate • Vehicular traffic travel time is expected to be affected on the southern section of the route on Sepulveda Boulevard and in the City of San Fernando
Regional Connectivity	• This route provides intermodal connectivity to regional transit services that includes Sepulveda MOL Station and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	• The capital costs for this route would be lower than other routes given the length of the alignment • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Minimal geotechnical, biological, hazardous material impacts, and property displacements would be expected but are dependent on mode and configuration
Economic & Land Use Considerations	**• Offers less accessibility to the transit dependent population compared to other routes** **• The route would not have as significant of an effect on economic development compared to other alignments**
RECOMMENDATION: ELIMINATED	
This alternative was recommended for elimination based on the fact that there would not be substantial improvements to mobility and connectivity. The route would not include key areas along Van Nuys Boulevard that have higher transit dependent populations and transit ridership. There is also high public opposition to a project on Brand Boulevard.	

Table 4-4 – Recommended Route Alignment Options (continued)

ROUTE 5S	
FEATURES	 Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - split couplet on Brand Blvd. & San Fernando Mission Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station *NOTE:* *This alignment is suitable for BRT and rail operations, although the Truman Street segment may result in a reduced number of traffic lanes.*
Travel & Mobility Benefits & Impacts	• Journey times are expected to be moderate • Vehicular traffic travel time is expected to be affected on the southern section of the route on Sepulveda Boulevard, and in the City of San Fernando
Regional Connectivity	• Route provides intermodal connectivity to regional transit services that includes Sepulveda MOL Station and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	**• Due to the length of this alignment with the addition of the couplet, this route is expected to have higher capital costs than other routes** • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guidway maintenance.
Environmental Benefits & Impacts	• Minimal property displacements would be expected but are dependent on the mode and configuration **• Minimal historic and cultural impact is anticipated as the corridor is proposed to run near the San Fernando Mission. Vibration during construction could be an issue** **• Parklands may be impacted as Brand Park lies between Brand Boulevard and San Fernando Mission Boulevard**
Economic & Land Use Considerations	**• The route offers less accessibility to the transit dependent population compared to other routes** **• The route would not have as significant of an effect on economic development compared to other alignments**
RECOMMENDATION: ELIMINATED	
This alternative was recommended for elimination based on the similar findings from Route 5 and would likely have more impacts and capital costs due to the inclusion of San Fernando Mission Boulevard as part of a one-way couplet alignment.	

Table 4-4 – Recommended Route Alignment Options (continued)

ROUTE 6	
FEATURES	 Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station *NOTE:* *Similar to Route 2, this alignment may be unsuited for streetcar and LRT, due to the narrowness of the ROW along San Fernando Road; ROW acquisition would be necessary. BRT buses might have to operate in mixed-flow on that segment.*
Travel & Mobility Benefits & Impacts	• **Journey times are expected to be moderate** • Vehicular traffic travel time is expected to be impacted in some areas – southern portion of Sepulveda Boulevard, Van Nuys Boulevard around the Civic Center, and San Fernando Road
Regional Connectivity	• Intermodal connectivity to regional transit services that includes Sepulveda and Van Nuys MOL Stations, Van Nuys Metrolink/Amtrak Station, and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	• The capital costs for this route would be among the lowest compared to other routes • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guidway maintenance.
Environmental Benefits & -	• Minimal geotechnical, biological, hazardous material, property displacement, and visual impacts would be expected but are dependent on mode and configuration
Economic & Land Use Considerations	• This route lies along various transit dependent communities along Van Nuys Boulevard • **This route is expected to have a significant effect on economic development as this alignment connects numerous commercial, civic and recreational land uses**
RECOMMENDATION: ADVANCE TO STAGE II	
This route was recommended for further review as it would connect to several transit services which include the Sylmar/San Fernando Metrolink Station, Van Nuys Metrolink/Amtrak Station, Sepulveda and Van Nuys MOL Stations, and to the future Sepulveda Pass Corridor project. High ridership and public support are expected along this alignment. Economic development opportunities would be available along portions of Sepulveda Boulevard and Van Nuys Boulevard.	

Table 4-4 – Recommended Route Alignment Options (continued)

ROUTE 7	
FEATURES	 Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - Brand Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station *NOTE:* *This alignment is suitable for BRT, streetcar, and LRT median-running operations, although the northern segment on Truman Street might result in reduced traffic lanes.*
Travel & Mobility Benefits & Impacts	**• Journey times are expected to be moderate as the turns on this alignment would affect speeds and the overall operation of the system. However, portions of the route would operate along roadways with good LOS** • Vehicular traffic travel time is expected to be impacted in some areas – southern portion of Sepulveda Boulevard, Van Nuys Boulevard around the Civic Center, and around the City of San Fernando
Regional Connectivity	**• Intermodal connectivity to regional transit services that includes Sepulveda and Van Nuys MOL Stations, Van Nuys Metrolink/Amtrak Station, Sylmar/San Fernando Metrolink Station** **• Connection with the future Sepulveda Pass Corridor project**
Cost-Effectiveness	• The capital costs of this route would be expected to be higher than shorter routes • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Geotechnical and biological impacts could occur along Parthenia Street as the route will travel over the Pacoima Wash, which may need to be covered for median-running configurations • Minimal property displacements would be expected but are dependent on the mode and configuration
Economic & Land Use Considerations	• Compared to other routes, this alignment offers moderate accessibility to the transit dependent population • This route would be expected to increase economic development as it connects numerous commercial, civic and recreational land uses, although not as high as other routes that traverse Pacoima
RECOMMENDATION: ADVANCE TO STAGE II	
This route was recommended for further review, the despite pubic opposition along Brand Boulevard, as it would connect to several transit services which include the Sylmar/San Fernando Metrolink Station, Van Nuys Metrolink/Amtrak Station, Sepulveda and Van Nuys MOL Stations, and to the future Sepulveda Pass Corridor project. High ridership is expected along this alignment as it would operate along major activity centers along Sepulveda and Van Nuys Boulevard while providing improved journey time.	

Table 4-4 – Recommended Route Alignment Options (continued)

ROUTE 7S	
FEATURES	 Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - split couplet on Brand Blvd. & San Fernando Mission Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station *NOTE:* *This alignment is suitable for BRT, streetcar, and LRT median-running operations, although the northern segment on Truman Street might result in reduced traffic lanes.*
Travel & Mobility Benefits & Impacts	• Journey times are expected to be acceptable as the turns on this alignment would affect speeds and the overall operation of the system, however, portions of the route would operate in good LOS roadways • Vehicular traffic travel time is expected to be impacted in some areas – southern portion of Sepulveda Boulevard, Van Nuys Boulevard around the Civic Center, and around the City of San Fernando
Regional Connectivity	• Intermodal connectivity to regional transit services that includes Sepulveda and Van Nuys MOL Stations, Van Nuys Metrolink/Amtrak Station, Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	**• Due to the length of this alignment with the addition of the couplet, this route is expected to have higher capital costs than other routes** • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Geotechnical and biological impacts could occur along Parthenia Street. This alignment will travel on Parthenia Street, over the Pacoima Wash which may need to be covered for median-running configurations • Minimal property displacements would be expected **• Minimal historic and cultural impact is anticipated as the corridor is proposed to run adjacent to the San Fernando Mission. Vibration during construction could be an issue** **• Parklands would likely be impacted as Brand Park lies between Brand Boulevard and San Fernando Mission Boulevard; however, this also depends on the mode and configuration**
Economic & Land Use Considerations	• Connects the communities along Van Nuys Boulevard on the southern portion of the corridor with highly transit dependent populations around Parthenia Street and along Sepulveda Boulevard • This route would be expected to increase economic development as this alignment connects numerous commercial, civic and recreational land uses although not as high as other routes
RECOMMENDATION: ELIMINATED	
This route alignment was recommended for elimination. This route is similar to Route 7; however, with the addition of San Fernando Mission Boulevard as part of a couplet, the environmental impacts and project costs would be higher.	

Table 4-4 – Recommended Route Alignment Options (continued)

ROUTE 8	
FEATURES	 Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - Rinaldi St. - Laurel Canyon Blvd. - Hubbard St. - Truman St. - Sylmar/San Fernando Metrolink Station *NOTE:* *The sharp turns in the northern portion of the alignment would result in property acquisition and slow transit speeds for a median-running BRT, streetcar, or LRT configuration.*
Travel & Mobility Benefits & Impacts	**• Journey times are expected to be moderate; however, the northern portion of the route has several turns that impact travel times** • Vehicular traffic travel time is expected to be affected on the southern section of Sepulveda Boulevard
Regional Connectivity	• This route provides intermodal connectivity to regional transit services - Sepulveda MOL Station and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	• The capital costs for this route would be lower than other routes given its length • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Minimal geotechnical, biological, hazardous material and visual impacts would be expected but are dependent on mode and configuration • Minimal property displacements would be expected but are dependent on the mode and configuration
Economic & Land Use Considerations	**• This route offers less accessibility to the transit dependent population compared to other routes** **• The route would probably not have as significant of an effect on economic development compared to other routes**
RECOMMENDATION: ELIMINATED	
This alternative was recommended for elimination based on the fact that the region would not see substantial improvements to mobility and connectivity as it would not include key areas along Van Nuys Boulevard which has higher transit dependent populations and transit ridership.	

Table 4-4 – Recommended Route Alignment Options (continued)

ROUTE 9	
FEATURES	 Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - Rinaldi St. - Laurel Canyon Blvd. - Hubbard St. - Truman St. to Sylmar/San Fernando Metrolink Station *NOTE:* *The sharp turns in the northern portion of the alignment would result in property acquisition and slow transit speeds for a median-running BRT, streetcar, or LRT configuration.*
Travel & Mobility Benefits & Impacts	**• Journey times are expected to be slower than other alignments as the turns in the northern section would affect speeds** • Vehicular traffic travel time is expected to be affected on the southern section of the route - Sepulveda Boulevard and the Civic Center
Regional Connectivity	• Route provides intermodal connectivity to regional transit services that includes Sepulveda and Van Nuys MOL Stations, Van Nuys Metrolink/Amtrak Station, Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	• Given the total length of this route, the capital costs are expected to be higher than shorter routes • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Geotechnical and biological impacts could occur along Parthenia Street. This route will travel on Parthenia Street, over the Pacoima Wash which may need to be covered for median-running configurations • Visual and aesthetic impacts may occur with median-running configurations. • Property displacements would be expected but are dependent on the mode and configuration
Economic & Land Use Considerations	• This route offers moderate accessibility to the transit dependent population compared to other routes **• This route would have a moderate effect on economic development as this alignment connects numerous commercial, civic and recreational land uses**
RECOMMENDATION: ELIMINATED	
This route was recommendation for elimination as mobility would not be improved with this route alignment and due to the sharp turns particularly in the northern portion of the alignment.	

Table 4-4 – Recommended Route Alignment Options (continued)

ROUTE 10	
FEATURES	 Van Nuys Blvd./Ventura Blvd. - Van Nuys Blvd. Glenoaks Blvd. - N. Hubbard Ave. - Sylmar/San Fernando Metrolink Station *NOTE:* *The existing Metrolink and Union Pacific tracks as well as the potential California High Speed Rail would force streetcar and LRT into a grade separation over or under San Fernando Road.*
Travel & Mobility Benefits & Impacts	**• Acceptable journey times are expected, but not as high as other routes. The route is not as direct, as it travels north and then south to the Sylmar/San Fernando Metrolink Station** • Vehicular traffic travel time impacts are expected around the Civic Center, Glenoaks Boulevard, and Hubbard Avenue
Regional Connectivity	• This route provides intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	• The capital costs of this route is expected to be higher than other routes due to its length • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Visual and aesthetic impacts would be expected in the northern portion of the route, along Glenoaks Boulevard as this is more residential in nature • Minimal property displacements would be expected but are dependent on the mode and configuration
Economic & Land Use Considerations	• In general, this route serves transit dependent communities along Van Nuys Boulevard. However, the northern portion serves less transit dependent populations than other routes **• This route is expected to have a moderate effect on economic development although not as much as other alignments**
RECOMMENDATION: ELIMINATED	
This route alignment was recommended for elimination as this route would not provide as direct a route, as it would travel north and then south to connect to the Sylmar/San Fernando Metrolink Station. This would create increase journey times and increased capital costs.	

Table 4-4 – Recommended Route Alignment Options (continued)

ROUTE 11	
FEATURES	 Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Glenoaks Blvd. - Hubbard Ave. - Sylmar/San Fernando Metrolink Station *NOTE:* *The existing Metrolink and Union Pacific tracks as well as the potential California High Speed Rail would force streetcar and LRT into a grade separation over or under San Fernando Road.*
Travel & Mobility Benefits & Impacts	**• Acceptable journey times are expected, but not as high as other routes. The route is not as direct, as it travels north and then south to the Sylmar/San Fernando Metrolink Station** • Vehicular travel time impacts are expected on Sepulveda Boulevard, the Civic Center, Glenoaks Boulevard, and Hubbard Avenue
Regional Connectivity	• Route provides intermodal connectivity to regional transit services - Sepulveda and Van Nuys MOL Stations, Van Nuys Metrolink/Amtrak Station, and Sylmar/San Fernando Metrolink Station • Connection with the future Sepulveda Pass Corridor project
Cost-Effectiveness	• The capital costs of this route is expected to be higher than other routes due to its length • Operations and Maintenance (O&M) costs would be largely dependent on mode and operating characteristics. For BRT guideway alternatives, costs would include additional vehicles, stations, and guideway maintenance. The rail alternatives would include train sets, power signaling, communication, vehicle and rail guideway maintenance.
Environmental Benefits & Impacts	• Visual and aesthetic impacts would be expected in the northern portion of the route, along Glenoaks Boulevard as this is more residential in nature • Minimal property displacements would be expected but are dependent on the mode and configuration
Economic & Land Use Considerations	• In general, this route serves transit dependent communities along Van Nuys Boulevard. However, the northern portion serves less transit dependent populations than other routes **• This route is expected to have a moderate effect on economic development although not as much as other routes**
RECOMMENDATION: ELIMINATED	
This route was recommended for elimination based on similar findings from Route 10 - indirect route that would travel north and then south to connect to the Sylmar/San Fernando Metrolink Station and higher capital costs.	

Additional evaluation criteria that were evaluated for each mode, configuration, and alignment also included community input and financial capability. The general evaluation for these criteria is as follows:

Community Input

Seven community meetings were held prior to the evaluation of the community input performance measures that were applied for the Tier I screening (Stage I and II). Based on the general public input received during the meeting comment periods, the mode, configuration, and alignment options were assessed. The general comments included support and concerns for the project, and are as follows:

- Van Nuys Boulevard received high support as a project corridor, more so than Sepulveda Boulevard.
- Connecting to the Sylmar/San Fernando Metrolink Station and the future Sepulveda Pass Corridor project would be integral for improved mobility and regional connectivity.
- High public opposition for a project on Brand Boulevard due to the historic characteristic.
- Public support for the modes included high support for LRT, followed by BRT, and lastly minor support for streetcar.
- The community supported having bike lanes as part of the project.
- The community voiced strong support for improved mobility in the study area. Therefore, fewer conflicts with vehicles and bicycles would be of benefit.

Financial Capability

The financial capability considers the estimated capital costs in relation to the $170.1 million LRTP identified funds. The evaluation of the mode, configuration, and alignment options were dependent on these general principles:

- Mode – The cost of an LRT, followed by streetcar, would cost significantly more in terms of procuring trains, major infrastructure construction, and a new maintenance facility when compared to a BRT alternative.
- Configuration – Median-running configurations would be the most costly of the configurations due to the higher cost of the dedicated guideway that includes station platforms and pavement upgrades.
- Alignment – The costs are generally related to the length of the alignment. Therefore, the longer the route, the higher the cost.

4.5.2. Stage I Screening Results

The Stage I screening of modes, configurations, and route alignments are described in this section.

For the modal options, the top two modes which included BRT and LRT were recommended for further study as part of the Stage II analysis. Streetcar was eliminated due to the limitation on end-to-end travel time savings as this mode is not as effective in providing mobility for long corridors as compared to BRT and LRT options. Additionally, Metro does not currently operate streetcar as part of their transit system. Therefore, there would not be system compatibility.

Of the 12 configurations, the top three were selected to move forward into Stage II of the Tier I screening. In general, configurations that had a reduced number of travel lanes or were single-lane median-running were eliminated from further analysis. Additionally, side-running configurations were removed from consideration due to the relatively high capital costs for limited mobility improvements. The configurations that were recommended included two median-running options and one peak-hour curbside option.

The top five route alignments that were chosen for a Stage II evaluation included Routes 1, 2, 4, 6 and 7. These routes include alignments on Van Nuys Boulevard and several hybrid Van Nuys Boulevard and Sepulveda Boulevard/Brand Boulevard combinations. These routes show the most potential when considering the objective of the project in relation to connectivity and accessibility.

4.5.3. Stage II

The Stage II Tier I screening analysis combined the two modes with three configurations and five routing alignments for a total of 15 alternatives. These alternatives were screened to determine which would be recommended for further review in the Tier II (final) screening.

4.5.3.1 Alternatives

Table 4-5 summarizes the 15 alternatives that were evaluated in Stage II of the Tier I screening. The primary determination whether or not to recommend an alternative are indicated by bold text.

Table 4-5 – Recommended Project Alternatives

ALTERNATIVE 1C	
	 ROUTE - Van Nuys Blvd./Ventura Blvd. - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd. **MODE** - BRT
Travel & Mobility Benefits & Impacts	**• Improved journey time would be minimal as conflicts would continue to occur because even though an exclusive lane would be provided, it would still encounter conflicts with right-turning vehicles, bicyclists, and illegally parked vehicles** • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center • There is high ridership in the Van Nuys corridor
Regional Connectivity	• This alternative provides moderate intermodal connectivity to other regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, and future Sepulveda Pass Transit Corridor project **• Does not connect to the Sylmar/San Fernando Metrolink Station** **• Curbside bus service does not comply with long range mobility goals as it would only improve peak-hour mobility along the route**
Cost-Effectiveness	• This alternative would require no construction, only signage and re-striping • The O&M costs would be similar to existing Rapid Bus operations, but will depend on vehicle headways
Environmental Benefits & Impacts	• In general, the environmental impacts associated with this alternative would be minimal, if any
Economic & Land Use Considerations	• This route lies along various transit dependent communities along Van Nuys Boulevard
ELIMINATED	
This alternative was recommended for elimination due to the peak-period bus only lane. The route would not provide substantial improvements to mobility because of the limited operation of the transit lane. Additionally, conflicts with right-turning vehicles and the potential for illegally parked vehicles could affect service efficiency. It also does not connect to the Sylmar/San Fernando Metrolink Station	

Table 4-5 – Recommended Project Alternatives (continued)

ALTERNATIVE 1B	
	 **ROUTE** - Van Nuys Blvd./Ventura Blvd. - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd. **MODE** - BRT
Travel & Mobility Benefits & Impacts	• End-to-end transit travel time savings are expected to improve with a linear route and median-running alignment due to reduced vehicle conflicts • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center • There is high ridership in the Van Nuys corridor
Regional Connectivity	• This alternative provides moderate intermodal connectivity to other regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, and future Sepulveda Pass Transit Corridor project • **Does not connect to the Sylmar/San Fernando Metrolink Station** • A BRT option would comply with the long range mobility goals for the region by providing connectivity and improving travel for the region
Cost-Effectiveness	• The capital costs for BRT would be high as it would require major roadway reconstruction for dedicated guideway segments • The O&M costs for a BRT median-running guideway would be similar to existing Rapid Bus operations, but will depend on vehicle headways • Would require an expansion of existing bus maintenance facility
Environmental Benefits & Impacts	• Visual and aesthetic construction impacts would be expected with this alternative • Community disruption and potential property displacement may occur
Economic & Land Use Considerations	• This route is expected to have a significant effect on economic development as it connects more commercial, civic and recreational land uses than other alignments • This route lies along various transit dependent communities along Van Nuys Boulevard • South of the MOL, there is a higher density of zero vehicle households, transit dependent populations, and poverty
ELIMINATED	
This alternative was recommended for elimination due to limited intermodal system connectivity, especially at the northern terminus location.	

Table 4-5 – Recommended Project Alternatives (continued)

ALTERNATIVE 1L	
	 ROUTE - Van Nuys Blvd./Ventura Blvd. - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd. **MODE** - LRT
Travel & Mobility Benefits & Impacts	• End-to-end transit travel time savings are expected to improve with a linear route and median-running alignment due to reduced vehicle conflicts • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center • There is high ridership in the Van Nuys corridor
Regional Connectivity	• This alternative provides moderate intermodal connectivity to other regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, and future Sepulveda Pass Transit Corridor project **• Does not connect to the Sylmar/San Fernando Metrolink Station** • An LRT option would comply with the long range mobility goals for the region by providing connectivity and improving travel for the region
Cost-Effectiveness	• The capital costs for LRT would be expensive as it would require major roadway reconstruction • The O&M costs for an LRT median-running guideway would be high and is dependent on the operating headways and number of cars per train **• Grade-separation would be necessary at San Fernando Road because the LRT cannot cross the Metrolink Antelope Valley Line/Union Pacific tracks at grade** **• Would require land acquisition and construction of a maintenance facility**
Environmental Benefits & Impacts	• The visual and aesthetic impacts would be high due to the catenary system **• Grade-separation would be necessary at San Fernando Road because the LRT cannot cross the Metrolink Antelope Valley Line/Union Pacific tracks at grade**
Economic & Land Use Considerations	• This route is expected to have a significant effect on economic development as it connects more commercial, civic and recreational land uses than other alignments • This route lies along various transit dependent communities along Van Nuys Boulevard • South of the MOL, there is a higher density of zero vehicle households, transit dependent populations, and poverty
ELIMINATED	
This alternative was recommended for elimination due to the LRT's environmental impacts which outweigh the ridership and mobility benefits of the alternative. Ridership, mobility, and connectivity would improve in the east San Fernando Valley with a median-running LRT alternative, but there would be significant impacts including geotechnical, hazardous materials, biological, construction, visual and aesthetic. This is mainly attributed to the need to provide a grade-separation at San Fernando Road due to the Metrolink Antelope Valley Line/Union Pacific tracks. Additionally, this mode is capital intensive and would increase in costs with the need to grade-separate.	

Table 4-5 – Recommended Project Alternatives (continued)

ALTERNATIVE 2C	
	 **ROUTE** - Sepulveda Blvd./Ventura Blvd. - Ventura Blvd. - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station **MODE** - BRT
Travel & Mobility Benefits & Impacts	• **Improved journey time would be minimal as conflicts would continue to occur because even though an exclusive lane would be provided, it would still encounter conflicts with right-turning vehicles, bicyclists, and illegally parked vehicles** • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center • There is high ridership in the Van Nuys corridor
Regional Connectivity	• This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project • **Curbside bus service does not comply with long range mobility goals as it would only improve peak-hour mobility along the route**
Cost-Effectiveness	• This alternative would require no construction, only signage and re-striping • The O&M costs would be similar to existing Rapid Bus operations, but will depend on vehicle headways
Environmental Benefits & Impacts	• In general, the environmental impacts associated with this alternative would be minimal, if any
Economic & Land Use Considerations	• This route lies along various transit dependent communities along Van Nuys Boulevard
ELIMINATED	
This alternative was recommended for elimination due to the peak-period bus only lane. The route would not see substantial improvements to mobility because of the limited operation of the lane, conflicts with right-turning vehicles, and the potential for illegally parked vehicles impeding efficient service.	

Table 4-5 – Recommended Project Alternatives (continued)

ALTERNATIVE 2B	
	 **ROUTE** - Sepulveda Blvd./Ventura Blvd. - Ventura Blvd. - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station **MODE** - BRT
Travel & Mobility Benefits & Impacts	**• Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center. Compared to similar routes, it would encounter a smaller number of congested segments** **• Journey times are expected to improve moderately with this median-running BRT alignment as it operates in a dedicated guideway and mixed-flow traffic** **• There is high ridership in the Van Nuys corridor**
Regional Connectivity	**• This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project** • A BRT option would comply with the long range mobility goals for the region by providing connectivity and improving travel for the region
Cost-Effectiveness	• The capital costs for BRT would be expensive as it would require major roadway reconstruction for dedicated guideway segments • The O&M costs for a BRT median-running guideway would be similar to existing Rapid Bus operations, but will depend on vehicle headways • Would require an expansion of existing bus maintenance facility
Environmental Benefits & Impacts	• Visual and aesthetic construction impacts would be expected with this alternative • Community disruption and potential property displacement may occur
Economic & Land Use Considerations	**• This alternative is expected to have a significant effect on economic development as it connects more commercial, civic and recreational land uses than other alignments** **• This route lies along various transit dependent communities along Van Nuys Boulevard** **• South of the MOL, there is a higher density of zero vehicle households, transit dependent populations, and poverty**
RECOMMENDED FOR FURTHER STUDY	
This alternative was recommended for further study because it would improve end-to-end travel time in the east San Fernando Valley and would connect and traverse several connecting transit services such as Sepulveda and Van Nuys MOL Stations, and Van Nuys Metrolink/Amtrak Station, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Corridor project. The mode is compatible with the existing Metro bus fleet and would require less capital cost investment compared to a LRT, and presents minimal environmental impacts while providing improved mobility and connectivity to the study area.	

Table 4-5 – Recommended Project Alternatives (continued)

ALTERNATIVE 2L	
	 **ROUTE** - Sepulveda Blvd./Ventura Blvd. - Ventura Blvd. - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station **MODE** - LRT
Travel & Mobility Benefits & Impacts	**• Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center; however, compared to similar routes, it would encounter a smaller number of congested segments** **• Journey times are expected to improve with this median-running LRT alignment** **• There is high ridership in the Van Nuys corridor**
Regional Connectivity	**• This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project** • Improved transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts
Cost-Effectiveness	• The capital costs for LRT would be expensive as it would require major roadway reconstruction and land acquisition • The O&M costs for an LRT median-running guideway would be high and is dependent on the operating headways and number of cars per train • Would require land acquisition and construction of a maintenance facility
Environmental Benefits & Impacts	• The visual and aesthetic impacts would be high due to the catenary system • Property displacements would be expected as ROW acquisition will be necessary along San Fernando Road • Adequate ROW south of the MOL
Economic & Land Use Considerations	**• This alternative is expected to have a significant effect on economic development as it connects more commercial, civic and recreational land uses than other alignments** **• This route lies along various transit dependent communities along Van Nuys Boulevard** **• South of the MOL, there is a higher density of zero vehicle households, transit dependent populations, and poverty**
RECOMMENDED FOR FURTHER STUDY	
This alternative was recommended for further study since the ridership, mobility, and connectivity would improve in the east San Fernando Valley with a median-running LRT alternative. It would improve end-to-end travel time in the east San Fernando Valley and would connect and traverse several connecting transit services like Sepulveda and Van Nuys MOL Stations, and Van Nuys Metrolink/Amtrak Station, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Corridor project. Extensive right-of-way acquisition would be necessary along San Fernando Road.	

Table 4-5 – Recommended Project Alternatives (continued)

ALTERNATIVE 4C	
	 **ROUTE** - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd. **MODE** - BRT
Travel & Mobility Benefits & Impacts	• **Improved journey time would be minimal as conflicts would continue to occur because even though an exclusive lane would be provided, it would still encounter conflicts with right-turning vehicles, bicyclists, and illegally parked vehicles** • Vehicular traffic travel time is expected to be affected around the Van Nuys Civic Center and the southern portion of Sepulveda corridor • There is high ridership in the Van Nuys corridor
Regional Connectivity	• This alternative provides moderate intermodal connectivity to other regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, and future Sepulveda Pass Transit Corridor project • Does not connect to the Sylmar/San Fernando Metrolink Station • **Curbside bus service does not comply with long range mobility goals as it would only improve peak-hour mobility along the route**
Cost-Effectiveness	• This alternative would require no construction, only signage and re-striping • The O&M costs would be similar to existing Rapid Bus operations, but will depend on vehicle headways
Environmental Benefits & Impacts	• In general, the environmental impacts associated with this alternative would be minimal, if any
Economic & Land Use Considerations	• This route lies along various transit dependent communities along Van Nuys Boulevard
ELIMINATED	
This alternative was recommended for elimination due to the peak-period bus only lane for which the route would not see substantial improvements to mobility because of the limited operation of the lane and because conflicts with right-turning vehicles and the potential for illegally parked vehicles impeding on efficient service.	

Table 4-5 – Recommended Project Alternatives (continued)

ALTERNATIVE 4B	
	 **ROUTE** - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd. **MODE** - BRT
Travel & Mobility Benefits & Impacts	• **End-to-end transit travel time savings are expected to improve with a general linear route and median-running alignment due to reduced vehicle conflicts as the entire length of the route would be located in a dedicated guideway** • Vehicular traffic travel time is expected to be affected around the Van Nuys Civic Center and the southern portion of Sepulveda corridor • There is high ridership in the Van Nuys corridor
Regional Connectivity	• This alternative provides moderate intermodal connectivity to other regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, and future Sepulveda Pass Transit Corridor project • Does not connect to the Sylmar/San Fernando Metrolink Station • A BRT option would comply with the long range mobility goals for the region by providing connectivity and improving travel for the region
Cost-Effectiveness	• The capital costs for BRT would be expensive as it would require major roadway reconstruction for dedicated guideway segments • The O&M costs for a BRT median-running guideway would be similar to existing Rapid Bus operations, but will depend on vehicle headways • Would require an expansion of existing bus maintenance facility
Environmental Benefits & Impacts	• Visual and aesthetic construction impacts would be expected with this alternative • Community disruption and potential property displacement may occur
Economic & Land Use Considerations	• **This alternative is expected to have a significant effect on economic development as it connects commercial, civic and recreational land uses; however, not as much alternatives that continue on Van Nuys Boulevard** • This route lies along various transit dependent communities along Van Nuys Boulevard • **South of the MOL, this segment would not serve as dense a transit dependent population alternatives that continue on Van Nuys Boulevard**
RECOMMENDED FOR FURTHER STUDY	
This alternative was recommended for further analysis because it would improve end-to-end travel time in the east San Fernando Valley. The mode is compatible with the existing Metro bus fleet and would require less capital cost investment compared to a LRT and presents minimal environmental impacts while providing improved mobility and connectivity to the study area. Additionally, it would provide bikes lanes which are designated as bike routes within the City of LA Bike Plan.	

Table 4-5 – Recommended Project Alternatives (continued)

ALTERNATIVE 4L	
	 **ROUTE** - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Van Nuys Blvd./Foothill Blvd. **MODE** - LRT
Travel & Mobility Benefits & Impacts	• End-to-end transit travel time savings are expected to improve with a general linear route and median-running alignment due to reduced vehicle conflicts **• Vehicular traffic travel time is expected to be affected around the Van Nuys Civic Center and the southern portion of Sepulveda corridor** • There is high ridership in the Van Nuys corridor **• There is less ridership along the Sepulveda corridor south of the MOL in comparison to the same portion on the Van Nuys corridor** **• Proximity to I-405 and US-101 interchange creates more congestion along the southern portion of Sepulveda Boulevard so much so that the intersection of Sepulveda Boulevard/Ventura Boulevard is one of the most congested intersections in the Valley**
Regional Connectivity	• This alternative provides moderate intermodal connectivity to other regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, and future Sepulveda Pass Transit Corridor project **• Does not connect to the Sylmar/San Fernando Metrolink Station** • An LRT option would comply with the long range mobility goals for the region by providing connectivity and improving travel for the region
Cost-Effectiveness	• The capital costs for LRT would be expensive as it would require major roadway reconstruction and land acquisition • The O&M costs for an LRT median-running guideway would be high and is dependent on the operating headways and number of cars per train **• Grade-separation would be necessary at San Fernando Road because the LRT cannot cross the Metrolink Antelope Valley Line/Union Pacific tracks at grade** **• Would require land acquisition and construction of a maintenance facility**
Environmental Benefits & Impacts	• The visual and aesthetic impacts would be high due to the catenary system **• Grade-separation would be necessary at San Fernando Road because the LRT cannot cross the Metrolink Antelope Valley Line/Union Pacific tracks at grade** **• Constrained ROW south of the MOL**
Economic & Land Use Considerations	**• This alternative is expected to have a significant effect on economic development as it connects commercial, civic and recreational land uses; however, not as much alternatives that continue on Van Nuys Boulevard** • This route lies along various transit dependent communities along Van Nuys Boulevard **• South of the MOL, this segment would not serve as dense a transit dependent population alternatives that continue on Van Nuys Boulevard**
ELIMINATED	
This alternative was recommended for elimination due to the LRT's environmental impacts which outweigh the ridership and mobility benefits of the alternative. Ridership, mobility, and connectivity would improve in the east San Fernando Valley with a median-running LRT alternative, however, there would be significant impacts including geotechnical, hazardous materials, biological, visual and aesthetic. This is mainly attributed to the need to provide a grade-separation at San Fernando Road due to the Metrolink Antelope Valley Line/Union Pacific tracks. Additionally, this mode is capital intensive and would increase in costs with the need to grade separate.	

Table 4-5 – Recommended Project Alternatives (continued)

ALTERNATIVE 6C	
	 **ROUTE** - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station **MODE** - BRT
Travel & Mobility Benefits & Impacts	**• Improved journey time would be minimal as conflicts would continue to occur because even though an exclusive lane would be provided, it would still encounter conflicts with right-turning vehicles, bicyclists, and illegally parked vehicles** • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and the southern portion of Sepulveda corridor • There is high ridership in the Van Nuys corridor
Regional Connectivity	• This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project **• Curbside bus service does not comply with long range mobility goals as it would only improve peak-hour mobility along the route**
Cost-Effectiveness	• This alternative would require no construction, only signage and re-striping • The O&M costs would be similar to existing Rapid Bus operations, but will depend on vehicle headways
Environmental Benefits & Impacts	• In general, the environmental impacts associated with this alternative would be minimal, if any
Economic & Land Use Considerations	• This route lies along various transit dependent communities along Van Nuys Boulevard
ELIMINATED	
This alternative was recommended for elimination due to the peak-period bus only lane for which the route would not see substantial improvements to mobility because of the limited operation of the lane and because conflicts with right-turning vehicles and the potential for illegally parked vehicles impeding on efficient service.	

Table 4-5 – Recommended Project Alternatives (continued)

ALTERNATIVE 6B	
	 **ROUTE** - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station **MODE** - BRT
Travel & Mobility Benefits & Impacts	• Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and the southern portion of Sepulveda corridor **• Journey times are expected to improve with this median-running BRT alignment** • There is high ridership in the Van Nuys corridor **• Proximity to the I-405 and US-101 interchange creates more congestion along the southern portion of Sepulveda Boulevard, so much so that Sepulveda Boulevard/Ventura Boulevard is considered one of the most congested intersections in the Valley; therefore, the fact that it would operate in a dedicated guideway assists in improved transit mobility**
Regional Connectivity	• This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project • Improved transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts
Cost-Effectiveness	• The capital costs for BRT would be expensive as it would require major roadway reconstruction for dedicated guideway segments • The O&M costs for a BRT median-running guideway would be similar to existing Rapid Bus operations, but will depend on vehicle headways • Would require an expansion of existing bus maintenance facility
Environmental Benefits & Impacts	• Visual and aesthetic construction impacts would be expected with this alternative • Community disruption and potential property displacement may occur
Economic & Land Use Considerations	**• This alternative is expected to have a significant effect on economic development as it connects commercial, civic and recreational land uses; however, not as much alternatives that continue on Van Nuys Boulevard** • This route lies along various transit dependent communities along Van Nuys Boulevard **• South of the MOL, this segment would not serve as dense a transit dependent population alternatives that continue on Van Nuys Boulevard**
RECOMMENDED FOR FURTHER STUDY	
This alternative was recommended for further analysis because it would improve end-to-end travel time in the east San Fernando Valley and would connect and traverse through several connecting transit services like the Sepulveda and Van Nuys MOL Stations, Van Nuys Metrolink/Amtrak Station, Sylmar/San Fernando Metrolink Station, and with the future Sepulveda Pass Corridor project. The mode is compatible with the existing Metro bus fleet and would require less capital cost investment compared to a LRT and presents minimal environmental impacts while providing improved mobility and connectivity to the study area. Additionally, it would provide bikes lanes which are designated as bike routes within the City of LA Bike Plan.	

Table 4-5 – Recommended Project Alternatives (continued)

ALTERNATIVE 6L	
	 **ROUTE** - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - San Fernando Rd. - Truman St. - Sylmar/San Fernando Metrolink Station **MODE** - LRT
Travel & Mobility Benefits & Impacts	• Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and the southern portion of Sepulveda corridor **• Journey times are expected to improve with this median-running LRT alignment; however, are likely to be slower than alternatives that continue down Van Nuys Boulevard due to congestion in the southern portion of the route** • There is high ridership in the Van Nuys corridor **• There is less ridership along the Sepulveda corridor south of the MOL in comparison to the same portion on the Van Nuys corridor** **• Proximity to the I-405 and US-101 interchange creates more congestion along the southern portion of Sepulveda Boulevard, so much so that Sepulveda Boulevard/Ventura Boulevard is considered one of the most congested intersections in the Valley**
Regional Connectivity	• This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project • Improved transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts
Cost-Effectiveness	• The capital costs for LRT would be expensive as it would require major roadway reconstruction and land acquisition • The O&M costs for an LRT median-running guideway would be high and is dependent on the operating headways and number of cars per train **• Would require land acquisition and construction of a maintenance facility**
Environmental Benefits & Impacts	• The visual and aesthetic impacts would be high due to the catenary system • Property displacements would be expected as ROW acquisition will be necessary along San Fernando Road **• Constrained ROW south of the MOL**
Economic & Land Use Considerations	**• This alternative is expected to have a significant effect on economic development as it connects commercial, civic and recreational land uses, but not as much as alternatives that continue on Van Nuys Boulevard** • This route lies along various transit dependent communities along Van Nuys Boulevard **• South of the MOL, this segment would not serve as dense a transit dependent population alternatives that continue on Van Nuys Boulevard**
ELIMINATED	
This alternative was recommended for elimination as it would not serve as large of a transit dependent population compared to the other LRT alternatives. Additionally, journey times may be compromised due to congestion along portions of Van Nuys Boulevard and Sepulveda Boulevard. The capital costs would be higher due to the ROW acquisition along San Fernando Boulevard and potential constraints along Sepulveda Boulevard.	

Table 4-5 – Recommended Project Alternatives (continued)

ALTERNATIVE 7C	
	 **ROUTE** - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - Brand Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station **MODE** - BRT
Travel & Mobility Benefits & Impacts	• **Improved journey time would be minimal as conflicts would continue to occur because even though an exclusive lane would be provided, it would still encounter conflicts with right-turning vehicles, bicyclists, and illegally parked vehicles** • Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and the southern portion of Sepulveda corridor
Regional Connectivity	• This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project • **Curbside bus service does not comply with long range mobility goals as it would only improve peak-hour mobility along the route**
Cost-Effectiveness	• This alternative would require no construction, only signage and re-striping • The O&M costs would be similar to existing Rapid Bus operations, but will depend on vehicle headways
Environmental Benefits & Impacts	• In general, the environmental impacts associated with this alternative would be minimal, if any
Economic & Land Use Considerations	• Traverses transit dependent communities along Van Nuys Boulevard, Parthenia Street, and Sepulveda Boulevard
ELIMINATED	
This alternative was recommended for elimination due to the peak-period bus only lane. The route would not provide substantial improvements to mobility because of the limited operation of the lane, conflicts with right-turning vehicles, and the potential for illegally parked vehicles impeding on efficient service.	

Table 4-5 – Recommended Project Alternatives (continued)

ALTERNATIVE 7B	
	 **ROUTE** - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - Brand Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station **MODE** - BRT
Travel & Mobility Benefits & Impacts	• Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and the southern portion of Sepulveda corridor **• Proximity to the I-405 and US-101 interchange creates more congestion along the southern portion of Sepulveda Boulevard. Sepulveda Boulevard/Ventura Boulevard is considered one of the most congested intersections in the Valley. Operations in a dedicated guideway would improve transit mobility.**
Regional Connectivity	**• This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project** • Improved transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts
Cost-Effectiveness	• The capital costs for BRT would be expensive as it would require major roadway reconstruction for dedicated guideway segments • The O&M costs for a BRT median-running guideway would be similar to existing Rapid Bus operations, but will depend on vehicle headways • Would require an expansion of existing bus maintenance facility
Environmental Benefits & Impacts	• Visual and aesthetic construction impacts would be expected with this alternative • Community disruption and potential property displacement may occur
Economic & Land Use Considerations	**• This alternative is expected to have a significant effect on economic development as it connects commercial, civic and recreational land uses along Van Nuys Boulevard and Sepulveda Boulevard** **• Traverses transit dependent communities along Van Nuys Boulevard, Parthenia Street, and Sepulveda Boulevard** • South of the MOL, this segment would not serve as dense a transit dependent population alternatives that continue on Van Nuys Boulevard
RECOMMENDED FOR FURTHER STUDY	
This alternative was recommended for further study because it would improve end-to-end travel time in the east San Fernando Valley and would connect and traverse several connecting transit services like the Sepulveda and Van Nuys MOL Stations, Van Nuys Metrolink/Amtrak Station, Sylmar/San Fernando Metrolink Station, and the future Sepulveda Pass Corridor project. The mode is compatible with the existing Metro bus fleet and would require less capital cost investment compared to LRT. This alternative presents minimal environmental impacts while providing improved mobility and connectivity to the study area and support of the LA Bike Plan is more in line with the regional mobility goals.	

Table 4-5 – Recommended Project Alternatives (continued)

	ALTERNATIVE 7L
	 **ROUTE** - Sepulveda Blvd./Ventura Blvd. - Sepulveda Blvd. - MOL - Van Nuys Blvd. - Parthenia St. - Sepulveda Blvd. - Brand Blvd. - Truman St. - Sylmar/San Fernando Metrolink Station **MODE** - LRT
Travel & Mobility Benefits & Impacts	• Vehicular traffic travel time is expected to be impacted around the Van Nuys Civic Center and the southern portion of Sepulveda corridor **• Journey times are expected to improve with this median-running LRT alignment, even with congestion in the southern portion, since the northern portion is less congested compared to the similar segments on Van Nuys Boulevard** • There is high ridership in the central portion of Van Nuys Boulevard (Panorama City and Van Nuys) • There is lower ridership along the Sepulveda corridor south of the MOL in comparison to the same portion on the Van Nuys corridor • Proximity to the I-405 and US-101 interchange creates more congestion along the southern portion of Sepulveda Boulevard. Sepulveda Boulevard/Ventura Boulevard is considered one of the most congested intersections in the Valley.
Regional Connectivity	**• This alternative provides high intermodal connectivity to regional transit services - Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and future Sepulveda Pass Transit Corridor project** • Improved transit mobility, as set forth as a goal, should be enhanced with the median-running operations as there would be a reduction in conflicts
Cost-Effectiveness	• The capital costs for LRT would be expensive as it would require major roadway reconstruction and land acquisition • The O&M costs for an LRT median-running guideway would be high and is dependent on the operating headways and number of cars per train • Would require land acquisition and construction of a maintenance facility
Environmental Benefits & Impacts	• The visual and aesthetic impacts would be high due to the catenary system and along portions of Sepulveda Boulevard and Brand Boulevard • Constrained ROW south of the MOL
Economic & Land Use Considerations	**• This alternative is expected to have a significant effect on economic development as it connects commercial, civic and recreational land uses along Van Nuys Boulevard and Sepulveda Boulevard** **• Traverses transit dependent communities along Van Nuys Boulevard, Parthenia Street, and Sepulveda Boulevard** • South of the MOL, this segment would not serve as dense a transit dependent population as alternatives that continue on Van Nuys Boulevard
	RECOMMENDED FOR FURTHER STUDY
This alternative was recommended for further study for consideration as an LRT alternative. Ridership, mobility, and connectivity would improve in the east San Fernando Valley with a median-running LRT alternative. This alternative would serve both the Van Nuys Boulevard and Sepulveda Boulevard corridors. The LRT alternative also garnered strong public support.	

Similar to Stage I, the community input and financial capability evaluation criteria were analyzed for the 15 alternatives as part of the Stage II, Tier I screening of alternatives. In general, these followed the same determinations as Stage I that are discussed in Section 4.5.1. More specifically, as part of Stage II, the information pertaining to community input and financial capability were evaluated based on the totality of the alternative, which consists of the mode, configuration, and alignment option.

4.5.4. Stage II Screening Results

Based on the Tier I screening process, six build alternatives with the highest rankings (four BRT and two LRT) were recommended for further analysis as part of the Tier II screening analysis.

4.6 TIER II EVALUATION

How was the Tier II screening of alternatives evaluated?

The Tier II screening included an evaluation of the build alternatives relative to the evaluation criteria and their corresponding performance measures. This consisted of a primarily quantitative analysis that evaluated each performance measure in relation to the alternatives. The scores were based on a scale from one, representing the most potential impact/least beneficial, to five, representing the least potential impacts/most beneficial. Similar to the Tier I screening, the alternative scores were equally weighted.

4.6.1. Alternatives Being Evaluated

The six build alternatives that were recommended for further analysis in the Tier II screening process are summarized in Table 4-6.

Table 4-6 – Recommended Alternatives

ALTERNATIVE	2B	2L	4B	6B	7B	7L
						
Route	2		4	6	7	
Mode	BRT	LRT	BRT	BRT	BRT	LRT
Configuration	M7	M4	M7	M7	M7	M4
Alignment	Sepulveda/Ventura - Van Nuys/Ventura – Van Nuys Blvd. – San Fernando Rd. – Truman St. - Sylmar/San Fernando Metrolink Station	Van Nuys/Ventura – Van Nuys Blvd. – San Fernando Rd. – Truman St. - Sylmar/San Fernando Metrolink Station	Sepulveda/Ventura – Sepulveda – Metro Orange Line – Van Nuys Blvd. – Van Nuys/Foothill	Sepulveda/Ventura – Sepulveda – Metro Orange Line – Van Nuys Blvd. – San Fernando Rd. - Truman St. – Sylmar/San Fernando Metrolink Station	Sepulveda/Ventura – Sepulveda Blvd. – Metro Orange Line – Van Nuys Blvd. – Parthenia St. – Sepulveda Blvd. – Brand Blvd. – Truman St. – Sylmar/San Fernando Metrolink Station	
Route Length (miles)	12.2	11.2	11.0	12.0	12.9	12.9
	Dedicated: 6.5 miles	Dedicated Guideway	Dedicated Guideway	Dedicated: 9.4 miles	Dedicated: 11.9 miles	Dedicated Guideway
	Mixed-flow: 5.7 miles			Mixed-flow: 2.6 miles	Mixed-flow: 1 mile	
Lanes/Direction	2/3	2	2	2	2	2
Number of Dedicated Transit Lanes	2	2	2	2	2	2
Guideway Location	Median Running	Median Running	Median Running	Median Running	Median Running	Median Running
Station Location	Side Platform	Center Platform	Side Platform	Side Platform	Side Platform	Center Platform
Estimated Number of Stations	14	13	14	14	13	13
Peak/Off-Peak Headway (minutes)	6/12	6/12	6/12	6/12	6/12	6/12

- **Alternative 2B –** This generally median-running BRT would operate from the Sylmar/San Fernando Metrolink Station in the north to Sepulveda Boulevard/Ventura Boulevard in the south serving the City of San Fernando and Los Angeles communities of Pacoima, Arleta, Panorama City, Van Nuys, and Sherman Oaks with approximately 14 stations. Approximately 6.5 miles of the route would operate in a median-running configuration. The remaining 5.7 miles would operate in mixed-flow traffic between the Sylmar/San Fernando Metrolink Station and San Fernando Road/Van Nuys Boulevard, and south of the Metro Orange Line (MOL). The buses would continue south to serve Westwood.
- **Alternative 2L –** This median-running LRT alternative serves the same communities as Alternative 2B with approximately 13 stations; however, service terminates at Van Nuys Boulevard/Ventura Boulevard. The entire 11.2 mile route would operate in a dedicated guideway. A transfer would be required onto Rapid Line 761 to continue to Westwood. Right-of-way acquisition will be required along several segments.
- **Alternative 4B –** This median-running BRT would operate from Foothill Boulevard/Van Nuys Boulevard in the north to Sepulveda Boulevard/Ventura Boulevard in the south with a connection via the MOL. This route serves the Los Angeles communities of Pacoima, Lakeview Terrace, Arleta, Panorama City, Van Nuys, and Sherman Oaks with approximately 14 stations. The entire 11 mile route would operate in a dedicated guideway. The buses would continue south to serve Westwood. For access to the commercial corridor on Ventura Boulevard, between Sepulveda Boulevard and Van Nuys Boulevard, a transfer would be required.
- **Alternative 6B –** This generally median-running BRT would operate from the Sylmar/San Fernando Metrolink Station in the north to Sepulveda Boulevard/Ventura Boulevard in the south via the MOL. It would serve the City of San Fernando and Los Angeles communities of Pacoima, Arleta, Panorama City, Van Nuys, and Sherman Oaks with approximately 14 stations. Approximately 9.4 miles of the route operates in a median-running configuration. The remaining 2.6 miles would operate in mixed-flow traffic between the Sylmar/San Fernando Metrolink Station and San Fernando Road/Van Nuys Boulevard. The buses would continue south to serve Westwood. Access to the commercial corridor on Ventura Boulevard would require a transfer.
- **Alternative 7B –** This alternative is mainly a median-running BRT that would operate from the Sylmar/San Fernando Metrolink Station in the north to Sepulveda Boulevard/Ventura Boulevard in the south transitioning via Parthenia Street and the MOL. It would serve the City of San Fernando and Los Angeles communities of Mission Hills, Panorama City, Van Nuys, and Sherman Oaks with approximately 13 stations. Approximately 11.9 miles of the route operates in a median-running configuration. The remaining one mile would operate in mixed-flow traffic between the Sylmar/San Fernando Metrolink Station and San Fernando Road/Brand Boulevard. The buses would continue south to serve Westwood. Access to the commercial corridor on Ventura Boulevard would require a transfer.
- **Alternative 7L –** This median-running LRT alternative provides service to the same communities as Alternative 7B via approximately 13 stations. The entire 12.9 mile route would operate in a dedicated guideway. Unlike Alternative 7B, a transfer would be required onto Rapid Line 761, to continue to Westwood. Access to the commercial

corridor on Ventura Boulevard would require a transfer. Right-of-way acquisition will be required along several segments of this alternative.

4.6.2 Comparative Analysis of Alternatives

Evaluation criteria and the corresponding performance measures were developed as part of the screening process to determine which alternatives should be carried into the DEIS/DEIR. This section summarizes the analysis of the six build alternatives in relation to the criteria and incorporates public input from community meetings held in October 2011 and April/May/October 2012.

4.6.2.1. Travel and Mobility Benefits and Impacts

The travel and mobility benefits and impacts for the alternatives are compared in Table 4-7. The considerations include factors related to transit ridership, user benefits, new riders, vehicle miles traveled (VMT) reduction, journey times, and vehicular travel time impacts. The detailed description of how these measures are calculated are described in Section 4.4 Ridership Modeling, this section describes the results and the underpinnings.

Based on the comparison of alternatives, the primary findings of the analysis are as follows:

- Alternative 7B would have the highest ridership for the BRT alternatives, with a total of 34,695 daily/10,998,315 annual boardings by 2035.
- Of the LRT alternatives, Alternative 7L would have the highest ridership by 2035 with a total of 39,800 daily/12,616,600 annual boardings as it is projected to operate at a higher average speed than Alternative 2L since it would be traveling along less congested roadway segments.
- Although the LRT alternatives are projected to have the highest ridership totals, they would potentially have fewer user benefits and new riders than the BRT alternatives. This is a direct result of the transit markets the LRT alternatives are serving. For this project there are two main transit markets, one is for trips that begin and end in the corridor, and the other are those that only have one end in the corridor or travel through the corridor. Since the LRT alternatives only travel within the corridor, they only capture the benefits for one market. For example, for Alternative 7L, when only considering the user benefits within the study area, it creates about 3,500 hours of positive user benefits against the baseline. However, since the operating plan for Alternative 7L stops at Ventura Boulevard/Sepulveda Boulevard this creates disbenefits (negative user benefits) for existing and new riders when compared to the baseline alternative. There are two operating issues that contribute to the disbenefits: 1) for riders traveling through the study area to Westwood, the transfer required at Sepulveda Boulevard/Ventura Boulevard to Metro Rapid Line 761 makes the trip more onerous than in the baseline therefore creates negative user benefits; 2) Rapid Line 761 runs at six to 10 minute peak/off-peak headways in the baseline and 10/17.5 minute headways in the alternative. This means for travel outside of the corridor, from Ventura Boulevard to Westwood, there would be less frequent transit service for the customer than in the baseline. This would cause negative user benefits as well.

Table 4-7 – Travel and Mobility Benefits and Impacts Comparison

Travel and Mobility Benefits and Impacts	Annual Study Area Transit Ridership (Daily/Annual)	Annual Hours of System-wide Transit Users Benefit (Daily/Annual) *	Annual Sytem-wide New Riders (Daily/Annual) *
Alternative 2B	32,162 / 10,195,354	2,800 / 899,000	2,400 / 763,700
Alternative 2L	37,494 / 11,885,598	-1,179,900 / -3,700	-1,141,200 / -3,600
Alternative 4B	28,542 / 9,042,108	5,600 / 1,764,600	4,900 / 1,551,100
Alternative 6B	33,582 / 10,645,494	6,100 / 1,918,200	5,300 / 1,664,900
Alternative 7B	34,695 / 10,998,315	4,100 / 1,292,300	3,700 / 1,172,000
Alternative 7L	39,800 / 12,616,600	-1,281,400 / -4,000	-1,158,000 / -3,700

* – These measures are compared to the baseline alternative. The LRT Alternatives on a system-wide basis have negative user benefits (for the reasons described above), which means if there are no benefits over the baseline the alternative does not attract new riders.

Table 4-7 – Travel and Mobility Benefits and Impacts Comparison (continued)

Travel and Mobility Benefits and Impacts	Annual Study Area Vehicle Miles Traveled (VMT) Reduction (Daily/Annual)	Point to Point Travel Times (Journey Time in Minutes)				Vehicular Traffic Travel Time Impact (Daily/Annual)
		San Fernando to Sherman Oaks	Panorama City to Westwood	Sylmar/San Fernando Metrolink to North Hollywood	Pacoima to Van Nuys Civic Center	
Alternative 2B	5,763 / 1,826,800	40.4	85.1	51.0	23.6	99.3 / 31,500
Alternative 2L	5,780 / 1,826,480	35.5	68.8	48.6	22.6	101.1 / 31,700
Alternative 4B	5,758 / 1,825,200	46.8 *	74.9	68.2 *	23.6	92.2 / 31,400
Alternative 6B	5,758 / 1,825,400	41.3	74.9	51.0	23.6	99.0 / 31,400
Alternative 7B	5,762 / 1,826,500	40.8	74.9	50.5	27.4 **	98.9 / 31,400
Alternative 7L	5,772 / 1,829,700	38.8	72.3	48.9	32.3 **	101.1 / 31,700

* – Alternative 4B does not provide a BRT connection between San Fernando and Sherman Oaks, as its northern terminus is Foothill Blvd./Van Nuys Blvd.

* *– Alternatives 7B and 7L do not directly serve San Fernando Rd./Van Nuys Blvd.

- Alternative 7B would have the highest ridership for a total of 34,695 daily and 10,998,315 annual boardings. This is attributed to the reduced roadway congestion compared to the BRT alternatives. Additionally, of the alternatives that would have portions of the alignment operating in mixed-flow traffic (Alternative 2B and 6B), this alternative would operate for a shorter distance in mixed-flow traffic lanes.
- In general, the constraints associated with LRT alternatives would have the greatest impact to vehicular travel times. However, Alternative 7L would also reduce the study area VMT.

4.6.2.2. Regional Connectivity

Considerations of regional connectivity in relationship to the alternatives are compared in Table 4-8. The performance measures that were evaluated include intermodal system connectivity, system compatibility within the region, and compliance with the Long Range Regional Mobility Goal as outlined in the regional land use plans.

Table 4-8 – Regional Connectivity Comparison

Regional Connectivity			
	Intermodal System Connectivity (# of Connections)	System Compatibility within the Region	Comply with Long Range Regional Mobility Goal
Alternative 2B	35	✓	✓
Alternative 2L	28	✗	✓
Alternative 4B	31	✓	✓
Alternative 6B	34	✓	✓
Alternative 7B	34	✓	✓
Alternative 7L	32	✗	✓

Based on the comparison of alternatives, the primary findings of the analysis are as follows:

- Alternative 2B would provide the most intermodal connectivity to Metrolink, Amtrak, the MOL, and Metro Rapid and local bus lines. There is also potential future connections with the California High Speed Rail and the Sepulveda Pass Corridor projects. This route has the possibility of connecting to approximately 35 other transit systems in the study area when possible future connections are considered.

- All new LRT infrastructure would be necessary and it would not link to other LRT lines.
- Within the east San Fernando Valley, BRT would be compatible with existing service and the MOL.
- All of the alternatives would comply with the Metro LRTP by improving mobility in the region.

4.6.2.3. Cost Effectiveness

A comparison of the cost effectiveness for the alternatives is summarized in Table 4-9. The evaluation of this criteria considered factors associated with the capital costs, incremental annual operations and maintenance costs, and the incremental cost for each new rider.

Table 4-9 – Cost Effectiveness Comparison

Cost Effectiveness	Capital Costs ($ million, 2018)	Incremental Annual Operations and Maintenance (O&M) Costs ($ million, 2012)	Incremental Cost Per New Transit Trip
Alternative 2B	$252-440	$8.0	$330-576
Alternative 2L	$1,800-2,300	$35.6	*
Alternative 4B	$296-558	$7.3	$191-360
Alternative 6B	$283-520	$8.0	$170-312
Alternative 7B	$340-619	$8.8	$290-528
Alternative 7L	$1,700-2,300	$38.4	*

* Alternatives 2L and 7L do not generate a net increase in system wide transit trips over the Baseline. As described in section 4.5.2.1, as an example, Alternative 7L, when only considering the user benefits within the study area creates about 3,500 hours of positive user benefits against the baseline. However, since the operating plan for Alternative 7L stops at Ventura Boulevard/Sepulveda Boulevard this creates disbenefits associated with a transfer for passengers traveling to/from the corridor which is not the case in the BRT Alternatives (or Baseline), and the inconsistency in the frequency of service outside of the corridor.

Based on the comparison of alternatives, the primary findings of the analysis are as follows:

- The incremental annual O&M costs are compared to the No Build Alternative and include the costs of additional vehicles, station, and guideway maintenance for the BRT alternatives.

- The incremental annual O&M costs for the LRT alternatives include power and maintenance of vehicles and guideway maintenance.
- The lowest capital cost is Alternative 2B with a cost ranging from $252 to $440 million (2018 $), while Alternative 4B would have the lowest operations and maintenance cost at approximately $26.3 million.
- Alternative 6B would provide the most cost effectiveness when considering the incremental cost of each new transit trip at $360.
- The LRT alternatives incremental cost per new transit trip are not fully analyzed since these alternatives are projected to have net negative ridership due to additional transfers created, lower frequency of connecting transit service, and affects from various markets being served. This concept is discussed in further detail in Section 4.6.2.1 Travel and Mobility Benefits and Impacts.

4.6.2.4. Environmental Benefits and Impacts

Numerous environmental measures which include air quality, noise and vibration, geotechnical, visual and aesthetic, historic and cultural resources, greenhouse gases, parklands, traffic, pedestrian, and bicycles, community disruption and displacement, hazardous materials, biological resources, and construction were evaluated in relation to each project alternative. The comparative evaluation is summarized in Table 4-10.

Based on the comparison of alternatives, the primary findings of the analysis are as follows:

- From an overall environmental perspective, Alternative 4B would have the least amount of potential impacts.
- Air quality impacts considered short- and mid-term emissions since long-term emissions are anticipated to achieve considerable reductions due to improved fuel economy, emissions control technologies, migration to alternative fuels, and retirement of older vehicles. As a result, BRT alternatives would have less potential impacts as they would reduce more VMT and have less vehicle delay.
- LRT alternatives would produce high potential noise and vibration impacts along the proposed routes.
- Potential geotechnical impacts would occur with the LRT alternatives as they are more likely to impact the pavement.
- All the alternatives have the potential to create visual and aesthetic impacts due to the effects of median-running guideways. However, the LRT alternatives would create the most impacts due to their overhead catenary system which supplies electricity through overhead wires. Additionally, alternatives that operate along Brand Boulevard would have a higher visual and aesthetic impacts as this segment is highly residential.
- Historic and cultural resources are located in the vicinity of several of the alternatives. The LRT alternatives have a higher potential for impacting these resources due to their greater presence.
- Alternatives that would operate in dedicated guideways are likely to have fewer impacts to greenhouse gases in the study area.

Table 4-10 – Environmental Benefits and Impacts Comparison

Environmental Benefits and Impacts	Air Quality	Noise and Vibration	Geotechnical	Visual and Aesthetic	Historic and Cultural Resources	Greenhouse Gases	Parklands	Traffic, Pedestrian and Bicycle	Community Disruption and Displacement	Hazardous Materials	Biological Resources	Construction
Alternative 2B												
Alternative 2L												
Alternative 4B												
Alternative 6B												
Alternative 7B												
Alternative 7L												

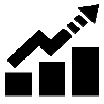
Least Potential Impacts
Fewer Potential Impacts
Moderate Potential Impacts
More Potential Impacts
Greatest Potential Impacts

- The alternatives were evaluated based on the number of parklands adjacent to the alignments and the potential impacts. Based on this evaluation, in general, the LRT alternatives would have a greater potential impact to parklands.
- Based on potential impacts to traffic, pedestrian, and bicycles, Alternatives 2B and 4B would cause slightly less impacts as compared to similar alternatives.
- Alternative 7L would not generate as many impacts to planned bicycle facilities compared to the other alternatives.
- Community disruption and displacement would be significant for the LRT alternatives, more so for Alternative 2L due to potential ROW acquisition along a portion of the northern alignment.
- Potential impacts to hazardous materials in the ROW are higher for LRT alternatives due to potential issues related to arsenic, lead, herbicides, and pesticides.
- All of the alternatives would have slight differences with respect to biological resources; however, Alternative 4B would have slightly less potential to affect special-status plants and bat species.
- Construction associated with the building of an LRT alternative would cause the greatest potential impacts during the construction period.

4.6.2.5. Economic and Land Use Considerations

Economic and land use considerations were evaluated for the alternatives to compare performances measures that include transit dependence, construction employment generation, construction-related takes (i.e. ROW acquisition), economic development, and transit supportive land use. Table 4-11 summarizes the alternatives comparison.

Table 4-11 – Economic and Land Use Considerations Comparison

Economic and Land Use Considerations	 Accessibility - Transit Dependent Population	 Construction Employment Generation	 Construction-related Takes	 Economic Development	 Transit Supportive Land Use
Alternative 2B					
Alternative 2L					
Alternative 4B					
Alternative 6B					
Alternative 7B					
Alternative 7L					

Very Low
Low
Medium
High
Very High

Based on the comparison of alternatives, the primary findings of the analysis are as follows:

- All of the project alternatives would serve transit dependent populations in the project study area. Alternatives that serve the Sylmar/San Fernando Metrolink Station and operate to Van Nuys Boulevard/Ventura Boulevard would serve a greater number of transit dependent populations along Van Nuys Boulevard in comparison to alignments that traverse Sepulveda Boulevard, between the MOL and Ventura Boulevard.
- Construction employment generation would be highest under the LRT alternatives as this mode would have a higher intensity of infrastructure construction.
- Similar to the employment generation, because of the higher infrastructure needs under the LRT alternatives, these would create the most impacts compared to BRT.
- Of the BRT alternatives, Alternatives 6B and 7B would likely spur more economic development due to the community and land uses these alignments would serve.
- Of the LRT alternatives, Alternative 7L would potentially create more economic development.
- The land uses within the study area would be supportive of any of the transit alternatives under consideration.

4.6.2.6. Community Input

The community input evaluates the alternatives based on public, organization, and agency input as related to local and regional plan consistency, community integration and support, integration into the Backbone Bike Network and pedestrian linkages, impacts to on-street parking, safety and security, and the physical environment. The comparison of alternatives for community input is summarized in Table 4-12.

Based on the comparison of alternatives, the primary findings of the analysis are as follows:

- Performance measures related to local and regional plan consistency, impacts to on-street parking, and safety and security received very few or no community comments during the most recent round of community meetings.
- Determination for the community integration and support measure was based on the community survey that was distributed during the meetings. The overall sentiment was in support of the LRT mode, with Alternative 2L being favored over Alternative 7L. Of the four BRT alternatives surveyed, all four were received similar support. Alternatives 6B and 7B were tied, followed by Alternative 2B, and 4B.
- Public comments demonstrated interest in bike lanes, especially the potential to integrate a bicycle network with the LRT alternatives since LRT has a greater capacity for transporting bikes.
- The public noted concern for Alternative 7B and 7L due to the segment that would operate along Brand Boulevard and the potential impacts to the physical environment.

Table 4-12 – Community Input Comparison

Community Input	Local and Regional Plan Consistency	Community Integration and Support	Integrate Backbone Bike Network and Pedestrian Linkages	Impact to On-Street Parking	Safety and Security	Physical Environment
Alternative 2B	*	Low	Medium	*	*	Low
Alternative 2L	*	High	Medium	*	*	Low
Alternative 4B	*	Very Low	Medium	*	*	Low
Alternative 6B	*	Low	Medium	*	*	Low
Alternative 7B	*	Low	Medium	*	*	Very Low
Alternative 7L	*	High	Medium	*	*	Very Low

* Very few or no public comments were received

Very Low
Low
Medium
High
Very High

4.6.2.7. Financial Capability

The East San Fernando Valley Transit Corridor project only has $170.1 million allocated as part of the LRTP; any costs in excess of this amount will need to be funded by other sources. Capital construction costs for each alternative, which may include the construction of a guideway, stations, vehicles, and supporting facilities, were evaluated to determine the potential fiscal impacts and cost effectiveness of each alternative. These alternatives have been evaluated on a general level (five-percent engineered), and as the project moves forward, future phases of work, design and costs will be refined.

The comparison of alternatives includes an evaluation of the funding shortfall for each alternative as summarized in Table 4-13.

Based on the comparison of alternatives, the primary findings of the analysis are as follows:

- All six build alternatives would encounter construction funding shortfalls based on the LRTP identified funds of $170.1 million.
- The funding shortfalls for the BRT alternatives range from $82 million to $449 million (2018 $).
- The LRT alternative funding shortfalls are more or less equal at $1.6 billion to $2.1 billion (2018 $).
- Alternative 2B would be the closest to the currently allocated LRTP identified funds, followed by Alternative 6B and 4B.

- The LRT alternatives cost approximately nine to 13 times more than the allocated LRTP identified funds, thereby far exceeding the funding that is currently available for this project.

Table 4-13 – Financial Capability Comparison

Financial Feasibility			
	Estimated Project Cost ($ million, 2018)		
	LRTP Allocation	Shortfall	Total Cost
Alternative 2B	($170)	($82-270)	$250-440
Alternative 2L	($170)	($1,600-2,100)	$1,800-2,300
Alternative 4B	($170)	($126-388)	$300-560
Alternative 6B	($170)	($113-350)	$280-520
Alternative 7B	($170)	($170-449)	$340-620
Alternative 7L	($170)	($1,600-2,100)	$1,700-2,300

5.0 Public Outreach Summary

What was the public outreach process undertaken for the project?

A robust public participation program was undertaken to educate stakeholders regarding the proposed project and potential alternatives related to mode and alignment that are being considered. During this initial (Alternative Analysis) phase, the Los Angeles County Metropolitan Transportation Authority (Metro), in collaboration with the City of Los Angeles Department of Transportation (LADOT), in cooperation with the City of San Fernando sought feedback from stakeholders regarding alternatives being considered for the East San Fernando Valley Transit Corridor project.

The East San Fernando Valley Transit Corridor Study began in 2011 as the Van Nuys Boulevard Transit Corridor Study. The objective of the study is to evaluate ways to improve north-south transit opportunities in east San Fernando Valley. After the first series of community meetings were held in October 2011, based on an analysis of community comments, the project team concluded that it was necessary to expand the study to examine the possibility that Sepulveda Boulevard may also present a viable option for a new north-south transit system. Additionally, the study was also expanded to include the Sylmar/San Fernando Metrolink Station as a potential northern terminus/origination point.

The study has been underway for over a year. During this time, three rounds of community meetings, consisting of 11 separating meetings were, held – October 2011, April 2012 and October 2012. The outreach team focused activities on engaging and informing stakeholders about the overall project and study process.

Public outreach for the project occurred on a multitude of levels – postcard mailers, stakeholder e-mail blasts, take-ones, social media channels such as Facebook and Twitter, newspapers, a project website, community events, farmers markets, neighborhood council meetings, and neighborhood and business organizations. Metro staff also briefed representatives from the offices of federal, state, and local elected officials.

The comments have been considered in the screening of alternatives process as part of the community input evaluation criteria.

5.1 Public Outreach – Summary of Meetings

5.1.1. Community Meetings

There were three rounds of community meetings consisting of 11 separate meetings between October 2011 and October 2012. The meeting dates, locations, and attendances were as follows:

- Three community meetings were held in the Van Nuys Boulevard corridor:
  - October 24, 2011 at Panorama High School (47 stakeholders signed in)

  - October 25, 2011 at Pacoima Neighborhood City Hall (45 stakeholders signed in)
  - October 26, 2011 at Van Nuys Civic Center (58 stakeholders signed in)
- Three community meetings were held in the Sepulveda Boulevard corridor:
  - April 12, 2012 at San Fernando Regional Pool Facility (43 stakeholders signed in)
  - April 17, 2012 at St. Mary Byzantine Catholic Church (36 stakeholders signed in)
  - April 18, 2012 at Valley Presbyterian Hospital (22 stakeholders signed in)
  - May 1, 2012 at Mission Community Police Station (38 stakeholders signed in)
- Four community meetings were held in the project study area:
  - Tuesday, October 2 at Sepulveda Middle School in Mission Hills (35 stakeholders signed in)
  - Thursday, October 4 at San Fernando High School in San Fernando (44 stakeholders signed in)
  - Saturday, October 6 at Panorama High School in Panorama City (40 stakeholders signed in)
  - Tuesday, October 9 at Marvin Braude Civic Center in Van Nuys (56 stakeholders signed in)

5.1.2. Legislative Briefings

The three rounds of community meetings included briefings to the San Fernando Valley Elected Officials' Staff – October 6, 2011, March 29, 2012, and September 28, 2012. During these briefings, Metro presented information updates on the project. Some of the Elected Official offices that took part in the briefings included:

- Congressman Brad Sherman
- Senator Alex Padilla
- Senator Carol Liu
- Assemblyman Felipe Fuentes
- Assemblyman Bob Blumenfeld
- Assemblyman Mike Feuer
- Mayor Antonio Villaraigosa
- Councilman Tony Cardenas
- Councilman Richard Alarcon
- Councilman Paul Krekorian
- City of San Fernando

5.1.3. Stakeholder Briefings

Along with the community meetings and legislative briefings, stakeholder briefings occurred throughout the outreach process and were as follows:

- Seventeen stakeholder meetings occurred between October 6, 2011 and November 19, 2011
- Four stakeholder meetings occurred between March 29, 2012 and April 18, 2012
- Seventeen stakeholder meetings occurred between July 19, 2012 and November 12, 2012

5.1.4. Public Outreach Materials

Public outreach materials were prepared to inform, educate and engage stakeholders at the open houses and beyond. These provided background on the project, information on the meeting format, as well as provided avenues for stakeholders to provide their input and ideas to Metro for consideration in project planning. The outreach materials included:

- Fact Sheet (bilingual)
- Frequently Asked Questions (bilingual)
- Contact card
- Comment Sheet (bilingual)
- Survey (bilingual)
- Welcome Road Map (bilingual)
- PowerPoint Presentation

5.1.5. Digital Engagement

Digital engagement employed the utilization of social networks to disseminate the project information and connect with the online public. A Facebook page and Twitter account were created and titled Metro Van Nuys to provide information to followers. The pages were eventually updated to reflect the expansion of the study area. As of October 2012, the East San Fernando Valley Transit Corridor Facebook page had 591 Likes and East SFV Transit Twitter page had 91 followers receiving real-time information updates for the new study area.

5.1.6. Notifications

The community meetings were noticed via:

- A postcard mailer to more than 150,000 occupants within the project area and key stakeholder groups
- Take-ones on San Fernando Valley Bus routes
- E-mail blasts sent to the stakeholder database
- Drop-ins and material distribution to key groups in the project area
- Delivered posters to area businesses and centers of activity along the Van Nuys Boulevard and Sepulveda Boulevard corridors
- Distributed flyers throughout the study area
- Elected officials' offices and their website calendars

- Online media channels, including:
  - Facebook at MetroVanNuys and EastSFVTransit
  - Twitter @metrovannuys and @eastsfvtransit
  - Metro.net/vannuys and Metro.net/eastsfvtransit
  - The Source Blog
  - LA Streetsblog
  - Transit Coalition Blog
  - Daily News Blog
  - EveryBlock Blog
- Newspaper Display Ads on:
  - Los Angeles Daily News
  - San Fernando Valley Business Journal
  - La Opinion (Spanish-language)
  - El Sol (Spanish-language)
  - Azbarez (Armenian-language)
- Community Events

5.1.7. Community Meeting Stations

The meetings were conducted utilizing an open house format allowing participants to drop in at any time and learn about the project. The last round of meetings included a presentation allowing participants to learn and speak directly to study team members and get an overview regarding the project during the meeting timeframe. Project team members were available to walk attendees through a series of information boards, answer questions and receive feedback. The meetings generally included the following stations that served to explain the project:

- Sign-in/Registration
- Project Overview – provided a video overview of the project along with boards presenting: Where are we in the process? What is being studied? What is the study area?
- Purpose & Need/Screening Criteria – highlighted the project's goals and criteria for screening down the alternatives presented
- Study Area Characteristics – provided demographics information about the corridor
- Mode Options – showcased the proposed modes: Bus Rapid Transit (BRT), Streetcar, and Light Rail Transit (LRT)
- Alternatives Under Consideration – What type of system is being considered? How do they compare against each other? What do you think makes more sense?
- Screening Process – How will a decision be made as to what is further studied? What is an EIR/EIS? How do my comments help that process?
- Interactive Model – allowed participants to create their vision of transit on Van Nuys Boulevard using blocks, toys and other materials
- Corridor Map – allowed participants to write their comments regarding specific areas of the corridor on an oversized corridor map

- Interactive Map – allowing attendees to show where they live, work and play by placing dots on the study area map
- Comments – allowed participants to share their comments via:
    - Comment Forms
    - Online Questionnaire
    - Video Commentary Recordings

5.1.8. Summary of Comments

The comments have been considered in the screening of alternatives process as part of the community input evaluation criteria. Nearly 1,400 comments were received over the course of the three comment periods. The general comments regarding the project included:

- **Mode –** There were comments supporting all three modes, but they were mainly focused on BRT and LRT. The stakeholders showed support for BRT as a safe, low cost option similar to the MOL which would also support local businesses, and provide more direct routes than rail. LRT is another favored mode as it is considered faster and carries more people in one trip, with the capacity to hold bicycles and wheelchairs, than other modes of transit. General mode related comments included:

  BRT comments
    - BRT is least expensive and more efficient
    - Prefer bus only lanes similar to Wilshire Boulevard
    - BRT is a "band-aid" and is not faster

  Streetcar comments
    - Utilize the streetcar on original PE ROW
    - Streetcar is the wrong vehicle given the length of the corridor

  LRT comments
    - LRT is faster and carries more people in one trip than other modes
    - Increase rail options for the Valley
    - LRT is better for businesses and the local communities
    - Stakeholders and the east San Fernando Valley deserve the best and most efficient mode
    - LRT is too expensive

- **Alignment –** The stakeholders preferred Van Nuys Boulevard as there are more activity centers such as government facilities, institutional, and commercial centers and better ridership in the corridor. Other comments included providing connections to the Sylmar/San Fernando Metrolink Station and the future Sepulveda Pass Corridor project. Concerns were raised over an alignment on Brand Boulevard as it would adversely impact its historic character, and with a potential LRT alternative on Van Nuys Boulevard south of the MOL which would create challenges for auto dealership operations in the area. Other alignment related comments included:

    - Provide connections to the MOL, Amtrak stations, and Mission College

- Consider utilizing Rinaldi Street instead of Brand Boulevard to avoid impacting the single family residences
- Use Brand Boulevard and San Fernando Mission Road as a turn around to connect back to Sepulveda Boulevard
- Utilize San Fernando Mission Road instead of Brand Boulevard
- Consider Laurel Canyon Boulevard instead of Sepulveda Boulevard to San Fernando Mission Boulevard

- **Project Alternatives –** Of the six build alternatives presented to the stakeholders at the last round of community meetings, the LRT alternatives were favored over the BRT alternatives with Alternative 2L appearing as the favorite. Of the BRT alternatives, Alternative 6B and 7B were slightly favored over Alternative 2B and 4B. Alternative specific comments included:

  No Build Alternative comments
  - There is already a lot of traffic on Van Nuys Boulevard and another mode of transit would just increase traffic hazards
  - Transit options will only bring crime to businesses and residences nearby
  - New modes will take away lanes for cars and add to traffic
  - The No Build options is not an option - the east San Fernando Valley deserves a new public transit system

  TSM Alternative comments
  - Need traffic signal synchronization
  - Improve overall service by adding Metro Rapid Bus and added Metro Lines along Van Nuys Boulevard

  Alternative 7L (referred to as LRT-1 at the community meetings) comments
  - Leaves out major ridership connections on Van Nuys Boulevard
  - A hybrid between LRT-1 and LRT-2 would better serve the ridership needs of the study area
  - Follows the old Pacific Electric (Red Car) Line which makes sense

  Alternative 2L (referred to as LRT-2 at the community meetings) comments
  - Van Nuys Boulevard would have more ridership than the Sepulveda Boulevard alignment
  - Avoids Brand Boulevard, which contains single-family housing, that are opposed to building in the median
  - Would be the best option for moving residents locally and beyond

  Alternative 7B (referred to as BRT-1 at the community meetings) comments
  - Support for this alternative along Sepulveda Boulevard south of MOL and north of Parthenia Street

  Alternative 2B (referred to as BRT-2 at the community meetings) comments
  - Preferred for cost, speed of construction, and flexibility

  Alternative 6B (referred to as BRT-3 at the community meetings) comments
  - Most economical and quickest option to develop

  Alternative 4B (referred to as BRT-4 at the community meetings) comments
  - Cost efficient with multi-use of MOL
  - Has shortest time between both termini

- **Bus Operations –** General comments received included:
  - Increase bus service frequencies, especially Metro Rapid Line 761
  - Improve bus benches and shelters
  - Suggestions for an off-street payment system to speed up boarding process and utilizing all doors for boarding would improve speed and create efficiencies
  - Provide platform-level boarding for bus making it easier for the elderly, children and wheeled entry and exit

- **Bicycles/Bike Lanes –** General comments received included:
  - Consider bus, light rail options with opportunity for biking and walking
  - Bike racks and lockers at every transit stop since the average travel to transit by bike is two miles per a Metro study as bikers need the option of leaving their bikes behind
  - Include bicycle buffered/protected lanes along the route
  - Bike lanes must be included with any project moving forward
  - Bicycles and wheelchairs are better accommodated on LRT
  - Bikeway is preferred versus street parking if having to make a choice
  - There is no room on Van Nuys Boulevard for bicycles

- **Pedestrians –** General comments received included:
  - Provide pedestrian priority at traffic signals
  - Make wider sidewalks for pedestrians
  - Encourage a pedestrian experience

A summary of the public comments are provided in Appendix A along with meeting materials and notifications.

6.0 Recommended Project Alternatives

What alternatives are recommended for further analysis?

Based on the Tier I and Tier II screening process, six build alternatives were evaluated to determine recommendations for further study. The evaluation considered two LRT alternatives and four BRT alternatives as part of the comparative analysis. Table 6-1 summarizes the comparative analysis for the LRT alternatives, while Table 6-2 summarizes the BRT alternatives analysis.

Table 6-1 – LRT Alternatives Analysis

LRT ALTERNATIVES		
	2L	**7L**
Travel and Mobility Benefits and Impacts	●	●
Regional Connectivity	◒	◒
Cost Effectiveness	◒	◒
Environmental Benefits and Impacts	◒	◒
Economic and Land Use Considerations	◒	○
Community Input	◒	○
Financial Capability	○	○
MATRIX TOTAL	◒	◔
COST TOTAL (2018 $)	**$1.8-$2.3b**	**$1.7-$2.3b**

Dedicated Guideway

Best performing ← → Worse performing

● ◔ ◒ ◕ ○

Table 6-2 – BRT Alternatives Analysis

Dedicated Guideway

Mixed-Flow Operation

Best performing ⟷ Worse performing

● ◕ ◒ ◔ ○

BRT ALTERNATIVES	2B	4B	6B	7B
Travel and Mobility Benefits and Impacts	○	◒	●	◒
Regional Connectivity	●	○	●	◒
Cost Effectiveness	○	●	●	○
Environmental Benefits and Impacts	●	●	●	◒
Economic and Land Use Considerations	●	◒	●	◒
Community Input	◕	◒	●	○
Financial Capability	◒	○	◒	○
MATRIX TOTAL	◕	◒	●	○
COST TOTAL (2018 $)	**$250-$440m**	**$300-$560m**	**$280-$520m**	**$340-$620m**

The following alternatives have been recommended for further study as part of the DEIS/DEIR:

- **No Build Alternative –** This alternative includes existing transit and highway networks and programmed improvements through the year 2035. This alternative includes projects funded by Measure R and specified in the financially constrained element of Metro's Long Range Transportation Plan (LRTP) and Southern California Association of Governments (SCAG) 2012 constrained Regional Transportation Plan (RTP).

- **Transportation System Management (TSM) Alternative –** This alternative represents lower cost capital and operational improvements to roadways including restriping, signal synchronization, and enhanced bus services designed to improve bus speeds. It would include enhanced bus frequencies for the existing Rapid Bus Line 761 that operates on Van Nuys Boulevard and connects the east San Fernando Valley with Westwood.

RECOMMENDED LRT ALTERNATIVE - 2L

Route

• The LRT Alignment would travel from the Sylmar/San Fernando Metrolink Station south/east to Van Nuys Blvd. and then south to Ventura Blvd. It could be completed in phases which could include starting the alignment at the Van Nuys Blvd./MOL Station to the south, or terminating at Van Nuys Blvd./San Fernando Rd. to the north.

Ridership

• With the highest projected 2035 average weekday boardings of the LRT alternatives at 37,500, this median-running alternative would provide improved travel times to key regional transit services that include the Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and a potential connection to the future Sepulveda Pass Corridor project. This alternative also has the highest system-wide transit user benefit, and would generate the highest number of new system-wide riders.

Operating Costs and Travel Times

• This route would have the lowest operations and maintenance (O&M) costs among all LRT options, and would provide the lowest point-to-point travel times. It also provides a linear alignment along Van Nuys Blvd. which is ideal for LRT operations.

Transit Dependency

• This route would serve various transit dependent communities along Van Nuys Blvd.

Community Plans

• The route is consistent with several community plans (Sherman Oaks - Studio City - Toluca Lake - Cahuenga Pass; Van Nuys - North Sherman Oaks; Mission Hills - Panorama City - North Hills; Arleta - Pacoima) since it improves mobility and would increase the use of public transportation.

Public Comment

• Based on public comments and input, it has the highest level of community support. It provides the capacity needed for the ridership generated in the corridor, connects to the Sylmar/San Fernando Metrolink Station, and has the potential to connect to the future Sepulveda Pass Corridor project.

RECOMMENDED BRT ALTERNATIVE - 6B OPTIONS 1, 2, AND 3

Route

• The dedicated busway would:

Option 1 - terminate at the Metro Orange Line (MOL) allowing buses to proceed south via Van Nuys Blvd. and Ventura Blvd. in mixed flow traffic

Option 2- terminate at the Sepulveda MOL Station and provide a connection to the I-405 Freeway

Option 3 - dedicated lane via Sepulveda Blvd. to Ventura Boulevard. The Lakeview Terrace community would connect to the BRT via the existing local bus line 233.

Ridership

• With the highest projected 2035 average weekday boardings of the BRT alternatives at 33,600, and the highest system-wide transit user benefits and highest generation of new system-wide riders, this generally median-running BRT alternative would provide the most intermodal connectivity, providing links to the Van Nuys Metrolink/Amtrak Station, MOL, Sylmar/San Fernando Metrolink Station, and a potential connection to the future Sepulveda Pass Corridor project.

Operating Costs

• This route has the lowest cost per new transit rider over all the other BRT alternatives under consideration.

Transit Dependency

• Along with 2B, these are the only routes that serve various transit dependent communities while providing regional connections.

Community Plans

• The route is consistent with several community plans (Van Nuys - North Sherman Oaks; Mission Hills - Panorama City - North Hills; Arleta - Pacoima) since it improves mobility and would increase the use of public transportation.

Public Comment

• Based on public comments and input, this alternative has the highest level of public support of all the BRT alternatives. It serves the Van Nuys Boulevard corridor that generates high ridership, provides connection to the Sylmar/San Fernando Metrolink Station, and has the potential to connect to the future Sepulveda Pass Corridor project.

Table 6-3 summarizes the recommended build alternatives that includes Alternative 2L and Alternative 6B.

Table 6-3 – Summary of Build Alternatives Evaluation

Summary of East San Fernando Valley Transit Corridor Evaluation		
	Alternative 2L	**Alternative 6B** *Options 1, 2 and 3*
Mode	**Light Rail Transit**	**Bus Rapid Transit**
Alignment	**Van Nuys/Ventura-Van Nuys Blvd.-San Fernando Rd.-Truman St.-Sylmar/San Fernando Metrolink Station**	**Option 1** - terminate at the Metro Orange Line (MOL) allowing buses to proceed south via Van Nuys Blvd. and Ventura Blvd. in mixed flow traffic **Option 2**- terminate at the Sepulveda MOL Station and provide a connection to the I-405 Freeway **Option 3** - dedicated lane via Sepulveda Blvd. to Ventura Boulevard. The Lakeview Terrace community would connect to the BRT via an existing local bus line.
Route Length (miles)	**11.2**	**12.0**
Travel Time (minutes)	**35.5**	**41.3**
Projected 2035 Average Weekday Boardings	**37,500**	**33,600**
Intermodal Connections	**28**	**34**
Cost Total (2018$)	**$1.8-$2.3b**	**$250-$520m**

The build alternatives that are being recommended based on the screening of alternatives as part of the AA include one LRT alternative (Alternative 2L) and one BRT alternative (Alternative 6B) with three options (Options 1, 2, and 3). The BRT options under consideration include terminating the dedicated guideway at the MOL, either at the Van Nuys Station under Option 1 or at the Sepulveda Station under Option 2; Option 3 would continue on a dedicated lane from the MOL Sepulveda Station south on Sepulveda Boulevard towards Ventura Boulevard. These alternatives and any corresponding options will be further analyzed in the DEIR/DEIS. Figures 6-1 and 6-2 illustrate the two recommended alternatives in greater detail.

Figure 6-1 – Alternative 2L

Source: Metro, 2012.

Figure 6-2 – Alternative 6B with Options 1, 2 and 3

Source: Metro, 2012.