Gold Line Phase II

Pasadena to Montclair - Foothill Extension

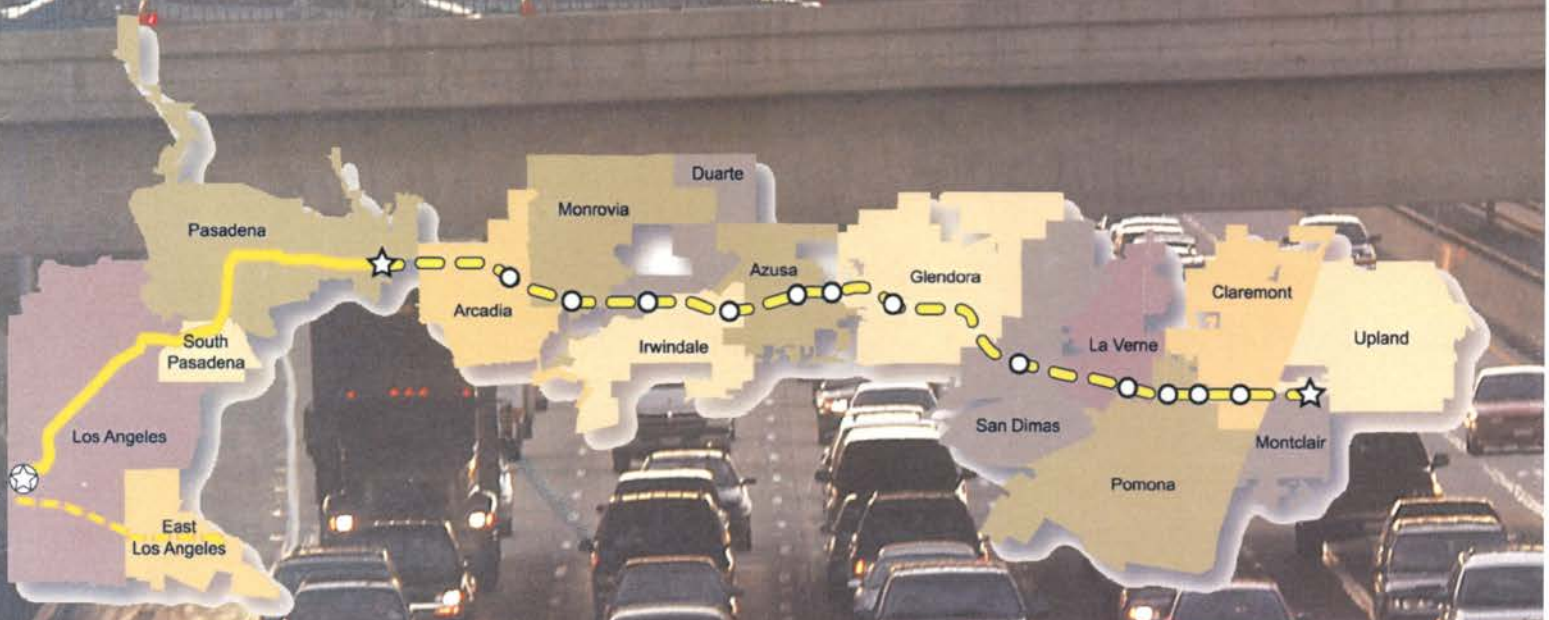
Draft Environmental Impact Statement

Draft Environmental Impact Report

(SCH No. 200361157)

April 2004

Volume 2, Book 2: DEIS/ DEIR



METRO GOLD LINE FOOTHILL EXTENSION

U.S. Department of Transportation
Federal Transit Administration

3-12 RAILROAD OPERATIONS

Summary of Impacts

The proposed LRT service would have impacts on freight service that is currently provided by the BNSF Railway over the LACMTA-owned tracks. For either of the LRT Alternatives, with a Double Track Configuration throughout, all customers presently served by BNSF would need to be relocated or switched to service by trucks, so that the entire LACMTA right-of-way would be available for two exclusive LRT tracks. The negotiations to enable either customer relocation, or changes in freight service from rail to truck, could be a time-consuming and perhaps expensive process. A second Double Track Configuration that is technically possible would be to provide two tracks throughout the system, with freight movements constrained to the hours when LRT service is not operated. However, this would limit freight operations to a two-to-three-hour period after midnight, which could be difficult for some customers. A third arrangement would be a Triple Track Configuration where two exclusive LRT tracks would be built alongside the BNSF freight line, separated by a fence, allowing the retention of all present freight service. For the Full Build Alternative, a 6,000-foot-long siding in Irwindale would need to be replaced at another location in the BNSF network.

3-12.1 Existing Conditions

In 1992 the Los Angeles County Metropolitan Transportation Authority (LACMTA) purchased the tracks and right-of-way of the Pasadena Subdivision of the Atchison Topeka and Santa Fe (AT&SF) Railway (now BNSF), which ran between Los Angeles and San Bernardino. The portion between Los Angeles and the Sierra Madre Villa Station at the easterly end of Pasadena (Pasadena Gold Line Phase I) began operation exclusively as an LRT route in July 2003. The proposed Pasadena Gold Line Phase II is a 25-mile extension of Phase I and would link the Sierra Madre Villa Station with the Montclair TransCenter, located just east of the Los Angeles County line. East of Santa Anita Avenue in Arcadia, the alignment is still an active BNSF freight line. East of Cambridge Avenue in Claremont, the proposed LRT would share the right-of-way with both Metrolink commuter rail services and BNSF freight service. Just east of Claremont Station, the LRT would diverge from the Metrolink/BNSF right-of-way and follow the abandoned Pacific Electric right-of-way, terminating at a proposed Montclair Station (North) that would lie along the northerly edge of the present Montclair TransCenter. An alternative alignment would continue east from Claremont on Metrolink/BNSF right-of-way to Montclair Station (South) and could share a platform with the Montclair Metrolink Station.

This section presents potential LRT operational scenarios for the Phase II alignment and describes the issues and impacts for each. It should be noted that since LRT vehicles do not meet certain crashworthiness standards, they cannot occupy a track with a BNSF freight train at the same time, and any track sharing would have to be time separated.

3-12.1.1 Present Freight Service

a. Service Frequency

There is presently one weekly freight train between Monrovia (Magnolia Avenue) and Irwindale (Miller Brewery) and one train six days a week between Irwindale and Kaiser Yard in Fontana, the originating point. The train to Miller Brewery typically operates in the late morning hours, but can travel at other times. Two evening or Sunday extras to the brewery are typically run once a month. It should be noted

that freight service can occur at any time in response to market demand or as needed by the railroad company to shift cars within their network

b. Freight Service By Municipality

The status of this service as it pertains to the individual municipalities is described below:

Arcadia

There is an unofficial "team track" (shared use) utilizing the old mainline between Santa Anita Avenue and First Street that is rarely used. Owners of private railroad cars currently store their equipment on a siding adjacent to A&A Building Materials, which has not seen rail freight deliveries in years.

Monrovia

There is a grain distribution center owned by Valley Grain between Magnolia and Myrtle Avenues that requires a weekly delivery of approximately five grain cars. While this is the only active siding in Monrovia there is an old section of track (still connected to the mainline) just east of Myrtle Avenue that at one time served a building now used by Advantage Distribution & Bodyworks Equipment.

Duarte

There are no existing sidings or freight deliveries of any kind in the city of Duarte. However, there is an annual Christmas Train operated by BNSF that stops at a small shelter at the City of Hope to give terminally ill children a chance to ride a "real train."

Irwindale

There is a daily 20- to 30-car train serving the Miller Brewery. Another spur extending about a mile south of the brewery has periodic deliveries of one or two tank cars. Also, there is a long 6,000-foot siding between the San Gabriel River and the bridge over the Route 210 Freeway that is used by BNSF for storage.

Azusa

Between the bridge over the Interstate Route 210 Freeway and Virginia Avenue there is a 1,500-foot siding with a short spur track angling to the north. At one time this was known as the Ogle spur, but its current status is unknown. Just east of the bridge over Foothill Boulevard there is a spur track serving Totten Tubes with a one car per week delivery. The spur uses the east leg of a former wye. (Totten Tubes could potentially be served by a currently unused Union Pacific Railroad spur track that at one time served Heppner Hardwoods but abuts the north end of the Totten Tubes property). At the old Santa Fe Azusa station there is a long siding that is designated as a team track.

Glendora

At the site of the old Santa Fe Glendora station there is a long siding that is designated as a team track.

San Dimas

Across from the old Santa Fe San Dimas station (now a museum) there is a short siding that is designated as a team track which typically sees several tank cars delivered on a weekly basis to Orange Line Oil Company (a Pomona distributor of Castrol lube oil). A stub-end siding just east of Monte Vista Avenue is used by Metrolink for maintenance purposes.

La Verne

At Wheeler Road there is a three quarter mile spur to the F. E. Weymouth Filtration Plant owned by MWD that takes chemical deliveries once or twice a year. Otherwise, there are no existing sidings or freight deliveries of any kind in the city of La Verne.

Pomona

Just west of Garey Avenue there are spur tracks serving a warehouse distributor who requires about 10 freight cars each day. The siding tracks in this area also serve as a marshalling yard that is used to make up trains for service to the west.

Claremont

There are no existing sidings or freight deliveries in the city of Claremont.

City Of Montclair

There are no existing sidings or freight deliveries west of Central Avenue in the City of Montclair.

City of Upland

There are no existing sidings or fright deliveries.

3-12.1.2 LACMTA Right-of-Way Purchase Agreement

a. Governing Document

The governing document for the operational relationship between LACMTA and the BNSF (former AT&SF Railway) is the Purchase and Sale Agreement, dated October 30, 1992. While the supplement documents of Agreements for Shared Use for the various properties purchased (Harbor Subdivision, San Jacinto Subdivision, Redlands Subdivision, San Bernardino Subdivision, etc.) all have impacting contractual clauses, the primary legal vehicle that sets the terms and conditions for joint operation on the Pasadena Subdivision is the Term Sheet of the Purchase and Sale Agreement, Section 5.B.4, pages 32 through 34.

b. Summary Of BNSF Operating Rights

The Purchase and Sale Agreement contains several key points. They all pertain to the active track between Arcadia (MP 124.2) and Claremont (CP Cambridge) (MP 105.4) and are described as follows:

- Freight service (with no restriction on the number of trains) may be run on this trackage except during the Pasadena Commuter Periods of 5 AM to 8 AM and 4:30 PM to 7:30 PM.
- BNSF pays only agreed upon improvements for freight and passenger service. [The passenger service was Amtrak, which no longer uses the line].
- BNSF is not obligated to participate in grade separation projects beyond the $500,000 annual contribution cap covering all the subdivisions involved in the Purchase and Sale Agreement.
- A minimum vertical clearance of 26 feet from top of rail must be maintained where new construction is involved to permit future electrification. [It is highly unlikely this line will ever be electrified, so a 24-foot clearance would probably be agreeable to BNSF].
- BNSF maintains industry tracks. [The remainder of trackage is maintained by SCRRA].
- BNSF owns a Freight Service Easement of 10 feet on either side of the centerline of all tracks up to a height of 26 feet from top of rail and within 3 feet of any freight loading facilities now or in the future.
- The LACMTA (or governing agency) shall be responsible for the entire cost of upgrading the Pasadena Subdivision as necessary to commence LRT operations.
- All disputes between LACMTA (or governing agency) and BNSF must follow a specified arbitration process.

3-12.2 Operational Scenarios and Impacts

It should be emphasized that the LRT operating scenarios considered are solely in response to the present BNSF freight operations on the Pasadena Subdivision. West of Cambridge Avenue (the easterly end of this subdivision) the LRT would always be a 2-track system completely separated from both the commuter operations of Metrolink and freight operations of BNSF. The only impact to the latter operations would be the required track and station relocations at Claremont and Montclair, which would be staged to allow continued service at all times.

On the Pasadena Subdivision where BNSF still serves freight customers, there are three possible track configurations. The first would be a Double Track Configuration throughout, where all customers presently served by BNSF would relocate or switch to trucks, making the entire LACMTA right-of-way available for two exclusive LRT tracks. A second Double Track Configuration that is technically possible would provide two tracks throughout the system, with freight movements constrained to the hours when LRT service is not operated. However, this would limit freight operations to a two to three hour period after midnight. The third arrangement is a Triple Track Configuration where two exclusive LRT tracks would be built alongside the BNSF freight line, separated by a fence, allowing the retention of all present freight service.

Another option would be a combination of the two types of configurations, where freight service would be abandoned west of Irwindale, resulting in a Double Track Configuration between Pasadena and Irwindale and a Triple Track Configuration between Irwindale and Pomona. It should be noted that in all these configurations, the 6,000-foot siding in Irwindale used to store intermodal train cars on an almost daily basis, would have to be replaced in kind somewhere on the BNSF system. Potential sites include areas in the vicinity of the cities of Arlington and Corona where there are long stretches of track between grade crossings.

3-12.2.1 Triple Track Configuration

The Triple Track Configuration would be far more complicated and costly to construct than the Double Track Configurations. In addition to two new LRT tracks, a new freight track would be required at many locations and new double track LRT bridges would be necessary. While the BNSF freight track mainline would always be on the south side of the LRT east of Irwindale, there are several spur tracks that would cross the LRT at grade, requiring an automatic interlock system to prevent physical LRT/BNSF conflict. No less than three locations were identified where automatic interlocking would be necessary, namely, the lead spur serving the warehouse distributor at Pomona, the Metropolitan Water District (MWD) spur at Wheeler Avenue, and the Totten Tubes spur in Azusa. West of Irwindale, the BNSF track would be on the north side of the LRT, requiring an additional automatic interlock just east of the San Gabriel River where it would cross the LRT. It should be noted that, while there are presently no active freight customers west of Monrovia, the additional two-mile track segment to Arcadia is considered active by BNSF and would have to be officially abandoned.

3-12.2.2 Double Track Configurations

From a construction cost standpoint, the Double Track Configurations would be the least expensive to build for several reasons:

1. The use of the existing railroad grade would be maximized, thus minimizing guideway earthwork and street reconstruction at grade crossings.
2. The present storm runoff system could be largely maintained with minimal additional drainage work required.
3. Many existing railroad bridges could be reused, requiring simply an adjacent new single-track structure.
4. Sites for Traction Power Sub-stations (TPSS) in LACMTA right-of-way alongside the LRT would be far less problematic.

Other costs, however, such as compensation to BNSF for loss of freight business, compensation to freight customers for additional trucking costs, and potential relocation of businesses would have to be considered.

3-12.2.3 Combination of Configurations

This scenario would be a Double Track Configuration to Irwindale and a Triple Track Configuration for the remainder of the Pasadena Subdivision. It would eliminate an expensive three-track system between Monrovia and Irwindale that presently serves a single weekly customer in Monrovia. The bulk of BNSF freight business would be preserved, resulting in minimum compensation to business and the railroad.

3-12.3 Impacts Addressed Through Regulatory Compliance

There are no specific federal or state regulations that apply to impacts to freight service.

3-12.4 Mitigation

3-12.4.1 Triple Track Configuration

To enable current freight operations to continue on a single track, two measures would be necessary:

- Switches to allow freight trains to move from one side of the right-of-way to another to reach customers.
- Replacement of the 6,000 foot long siding in Irwindale at another location in the BNSF network.

These measures would be implemented during the construction period.

3-12.4.2 Double Track Configurations

To enable current freight operations to continue on shared track, three measures would be necessary:

- Switches to allow freight trains to move from one side of the right-of-way to another to reach customers.
- Replacement of the 6,000 foot long siding in Irwindale at another location in the BNSF network.
- A constrained operating schedule under which freight service would occur during LRT non-revenue hours.
- As an alternative to the constrained operating service, implement strategies for the delivery and/or pick-up of goods via trucks.

The first two measures would be implemented during the construction period, while the third and/or fourth would be implemented during the operational period. It should be noted that negotiating changes in delivery methods could be a very time-consuming process.

3-12.5 Impact Results With Mitigation

For the Triple Track Configuration, following installation of switches, freight service to customers would be able to continue much as it does now, with some short-term scheduling constraints when a freight train would need to transition across LRT tracks. Replacement of the 6,000 foot siding within the BNSF network would allow the functions now occurring in Irwindale to be accomplished elsewhere, with the net result system continuation of system capacities.

For the Double Track Configuration with ongoing freight service, following installation of switches, freight customers would be able to receive service as they do now. However, the hours of freight service would be constrained to hours when LRT vehicles would not be in service. This could result in loss of freight customers if individual businesses determine they cannot operate under a constrained delivery schedule. Replacement of the 6,000 foot siding within the BNSF network would allow the functions now occurring in Irwindale to be accomplished elsewhere, with the net result system continuation of system capacities.

For the Double Track Configuration with freight service supplanted, it is assumed that individual businesses could continue to operate in an economically sound manner if truck service is available at similar costs (or subsidized to a similar costs). The financial impact to the BNSF for the potential shift of customers to truck service cannot be estimated at this time because the financial arrangements between the railroad and its customers are confidential.

3-13 SAFETY AND SECURITY

Summary of Impacts

On a statistical basis, safety hazards to motorists, pedestrians, and bicyclists could increase due to increased close interactions with trains, especially at at-grade crossings.

Potential safety and security impacts during the construction period would be addressed for all alternatives through compliance with federal OHSA, state (CALOSHA), and LACMTA policies which provide for protection of workers and site visitors. Grade-crossing safety would be addressed for all rail alternatives through compliance with CPUC requirements.

Long term safety and security impacts would be addressed for all alternatives through compliance with federal OHSA, state (CALOSHA), and LACMTA policies which provide for protection of workers and users. Grade-crossing safety would be addressed for all rail alternatives through compliance with CPUC requirements.

Introduction

Safety and security, as it pertains to the Gold Line Phase II Project, is concerned with three general topics:

1. Accident prevention (including accidents involving vehicles, bicycles, and pedestrians; and injuries);
2. Crime prevention (including crimes against patrons and/or employees, theft, and fare evasion); and
3. Emergency response.

This section focuses on the first two topics and how there may be a potential impact on each due to the implementation of the Gold Line Phase II Project. The third topic, emergency response, is addressed in Section 3-4, Community Facilities and Services.

3-13.1 Existing Conditions

The Federal Railroad Administration (FRA), under the umbrella of the U.S. Department of Transportation (DOT), was created by the Department of Transportation Act of 1966 (49 U.S.C. 103, Section 3[e][1]). The FRA was created primarily to promulgate and enforce rail safety regulations, administer railroad assistance programs, and conduct research and development in support of improved railroad safety and national rail transportation policy.

The FRA Office of Safety promotes and regulates safety throughout the Nation's railroad industry. It employs more than 415 federal safety inspectors and operates out of eight regional offices. FRA inspectors specialize in five safety disciplines and numerous grade crossing and trespass-prevention initiatives: *Track, Signal and Train Control, Motive Power and Equipment, Operating Practices, Hazardous Materials, and Highway-Rail Grade Crossing Safety.* The Office trains and certifies state safety inspectors to enforce federal rail safety regulations. Central to the success of the rail safety effort is the ability to understand the nature of rail-related accidents and to analyze trends in railroad safety. To do this, the Office of Safety collects rail accident/incident data from the railroads and converts this information into meaningful statistical tables, charts, and reports.

The California Public Utilities Commission (CPUC) has regulatory and safety oversight over railroads and rail transit systems in the State. The responsibility is divided among three programs within the Consumer Protections and Safety Division (CPSD): 1) Railroad Safety, 2) Highway-Rail Crossing Safety, and 3) Rail Transit Safety. The Railroad Safety Branch has safety oversight of heavy freight and passenger railroads. The CPUC coordinates with the Federal Railroad Administration (FRA) and it is the largest participating state agency in the nation to ensure that railroads comply with federal railroad safety regulations resulting from the 1970 Federal Railroad Safety Act as codified in Part 49 of the Code of Federal Regulations (CFR).

The Rail Safety and Crossings Branch is responsible for implementing the CPUC's Highway-Rail Crossing Program, which oversees the safety for all public and private highway-rail crossings in California. The CPUC authorizes construction of new at-grade highway-rail crossings and construction of underpasses or overheads. The CPUC staff reviews proposals of crossings, investigates deficiencies of warning devices or other safety features at existing at-grade crossings, and recommends engineering improvements to prevent accidents. These activities include the development and enforcement of uniform safety standards, analyzing data for crossing closure, reviewing grade crossing warning devises, and analyzing rail accident data for the Commission's *Annual Report of Railroad Accidents Occurring in California.*

The Rail Transit Safety Branch covers light rail, rapid rail, and cable cars. The Commission's authority over transit agencies is based in state law and delegated by the FRA through CFR 49, Part 659. The Rail Transit Safety Branch is responsible for overseeing the safety of public transit guide-ways and ensures that transit agencies have and follow system safety programs that integrate safety in all facets of transit system operations.

The California Department of Transportation (Caltrans) is responsible for the design, construction, maintenance, and operation of the California State Highway System, as well as that portion of the Interstate Highway System within the state's boundaries. Alone and in partnership with Amtrak, Caltrans is also involved in the support of inter-city passenger rail service in California, and is a leader in promoting the use of alternative modes of transportation. In 1972, Assembly Bill 69 set down the current framework of Caltrans.

There are two Caltrans programs specifically designed to improve railroad safety: 1) the Caltrans Rail Safety Program and 2) the California Operation Lifesaver Program. The Caltrans Rail Safety Program focuses on vehicular and pedestrian accidents involving passenger trains financed by Caltrans. The California Operation Lifesaver Program emphasizes education on safety issues related to highway-rail crossing related accidents. A few educational programs offered by California Operation Lifesaver include the "Highways or Dieways" Campaign, which emphasizes alerting the public to the vehicle and train accidents through television public service announcements, public service radio announcements, and magazine and newspaper advertising. Pedestrian safety is the California Operation Lifesaver Program's primary priority.

The Los Angeles County Metropolitan Transit Authority (LACMTA) operates bus, light rail, and heavy rail subway service for daily passenger boarding, and owns railroad right-of-way (ROW) over which Metrolink trains are currently operating. As part of its responsibilities, the LACMTA implements its *System Safety Program Plan* to maintain and improve the safety of commuter operations, reduce costs associated with accidents, and comply with state regulations. These safety measures have been established to ensure worker and passenger safety, crime prevention, adequate emergency response, and emergency procedures to be followed in the event of a natural disaster. The LACMTA currently provides police surveillance (via contracts with the Los Angeles County Sheriff's Department [LASD]), non-

uniformed police inspectors on transit buses and at major transit nodes, closed-circuit television surveillance in some locations, and an emergency radio response system.

Security, cameras, and law enforcement for LACMTA facilities is provided on a 24-hour per day, 7-day per week basis or as needed to solve specifically targeted problem areas. Criminal reports or arrests, other than those accomplished by special enforcement officers remain the jurisdiction of the local law enforcement agency where the activity occurs.

The design of existing LACMTA fixed rail facilities (including vehicles, stations, parking lots, etc.) is intended to provide a safe, secure, and comfortable transit system. Included among these features are station and platform amenities, park-and-ride lots, and security lighting. Some locations may include an Advanced Traveler Information System (ATIS), bike lockers, map cases, and ticket vending machines. Security-related design features may include emergency telephones at station platforms, public announcement (PA) systems, open sight lines, graffiti-resistant material, crosswalks, and a contract for security patrol.

The LASD Transit Police Services Bureau currently provides security services for LACMTA customers, employees, and facilities. Both special officers and deputies are assigned to LACMTA to provide law enforcement services. They provide field response to minor incidents involving LACMTA vehicles, as well as regular patrols of LACMTA property. The LASD also provides special enforcement deputies, who work both in uniform and plain clothes, depending on the type of enforcement conducted. Sheriff's are on duty during system hours of operation, with detective support ten hours per day Monday-Friday. The LASD also oversees the LACMTA Security force, which patrols LACMTA headquarters and Metro bus and rail yards, as well as an LACMTA counter-terrorism and threat assessment team.

In the past, both the LASD and the Los Angeles Police Department (LAPD) provided security services for the LACMTA. However, as of March 25, 2003, the LASD will have sole jurisdiction over LACMTA ROWs and facilities. This will improve safety by consolidating the agency's security force into a "more seamless, more efficient, one-voice operation," according to the LACMTA Chief of Transit Police, Dan Finkelstein.

Over the last 10 years, the LACMTA has established several transit-specific projects and programs to further enhance safety for its passengers, employees, and the community. These include:

- Photo equipment installed on vehicles to permit live video surveillance and recording.
- Direct communication between drivers and the LASD Transit Dispatch/Emergency Response Center.
- The Transit Safety Awareness Program, which communicates safety information to motorists and pedestrians through transit user aids, bus stop information signs, and the Internet.
- The "Safety Begins With Me" Campaign, which promotes safety around Metro trains and buses by placing newspaper and outdoor advertisements urging safety and by supporting a community safety outreach program designed to remind citizens of their responsibility and awareness of their own safety when riding LACMTA rail and buses.
- The "Metro Experience" mobile safety-theater, which educates the public about rail safety through the use of advanced video and 3-D effects to simulate the true operation of a Metro train. It provides an opportunity to make a compelling and lasting impression on children and adults about rail safety.
- LACMTA's Injury and Illness Prevention Program, which addresses workplace safety procedures, communication with employees on health and safety issues, identification and resolution of unsafe

conditions, procedures for investigating workplace injuries and illnesses, and occupational health and safety training.

- Community Emergency Response Training (CERT) in collaboration with the Los Angeles City Fire Department (LACFD), in which employees are trained in earthquake awareness, disaster medical procedures, and rescue operations.

Due to the implementation of these programs by the LACMTA, workplace accidents have decreased significantly. In 2003, the total new worker's compensation claims per 100 employees decreased 31 percent from 2002 levels; the number of lost workdays decreased by 14.4 percent. In addition, public liability/property damage claims also fell within all five Metro Service Sector areas and on Metro Rail lines by 18.3 percent between 2002 and 2003. Similar claims for Metro Rail only decreased by 27.6 percent and LACMTA's total public liability/property damage expenses decreased by 46.7 percent.

Also, in an effort to reduce the number of "S-turns," in which motorists use open traffic lanes to drive around closed traffic gates, the LACMTA plans to install four gates, rather than the conventional two at historically accident-prone at-grade crossings. This program applies to the Metro Blue Line (MBL) and would also apply to the Gold Line Phases I and II. LACMTA attributes most accidents involving MBL trains/motor vehicles with a growing number of motorists making illegal left turns into the path of the train along streets where the rail line runs down the middle of the street. The four-gate intersection is designed to prevent illegal left turns.

LACMTA authorities consistently argue that they believe the large number of deaths and injuries on the MBL is caused by the risky behavior of pedestrians and motorists, who flout traffic laws and warning signals as they cross in front of trains. LACMTA investigations have held victims to be at fault in all cases.

However, another possible cause for a number of these accidents may be due to an optical effect in which larger objects in motion appear to be moving more slowly than they really are traveling. In other words, people misestimate the speed of trains. In addition, the problem is compounded by the fact that when a motorist looks down the track at an intersection, they see the tracks as converging in the distance at the vanishing point rather than parallel. It is thought that motorists learn to associate that apparent convergence with distance and, therefore, we are likely to assume that the trains are farther away. In response to this new perspective about at-grade accidents, it would behoove the LACMTA to proactively explore options that would educate the public about this hidden optical danger when at grade crossings.

In response to the alarming number of train/motor vehicle and train/pedestrian accidents that have occurred on the MBL from Los Angeles to Long Beach, the LACMTA adopted the MBL Grade Crossing Safety Improvement Program. This Program is designed to reduce the number of accidents and enhance public safety at the crossings and includes engineering, enforcement, education, and legislation to effectuate this improvement. Specifically, this Program:

- Established a traffic detail with the LASD for increased enforcement of traffic violations at MBL at-grade crossings. In a 90-day trial span, traffic detail deputies wrote 7,760 citations. During the length of the detail, deputies have written over 14,000 citations.
- Installed photo enforcement cameras to photograph motorists driving under or around railroad crossing gates. Two photographs, one of the vehicle's license plate and the other of the driver's face, are taken as the basis for issuing a citation. The camera equipment is mounted in a 12-foot high bullet-resistant cabinet.

The result of these efforts was a 92 percent reduction in the number of violations occurring at the at-grade crossings. The success of the LASD's enforcement and photo enforcement programs at the LACMTA indicates that these same programs can be applied to any urban LRT that has at-grade railroad crossings.

Input on safety and security issues has been obtained from LACMTA staff members who developed considerable expertise in dealing with many of the safety and security impacts expected to result from construction and operation of light rail on the surface and in the subway. Pedestrian and transit patron safety and the safety of train operation is a major concern especially with the presence of trains operating on city streets, particularly the number of trains running during weekday peak hours.

In response to these concerns, an estimate of the possible number LRT accidents that might be expected in the Corridor was made using MBL data from CPUC's *Annual Report of Railroad Accidents Occurring in California, 1999*. The decision to use MBL data to estimate Gold Line Phase II potential accidents stems from the similarities between MBL and Gold Line Phase II in that both will run through dense urban environments with numerous at-grade crossings and that heavy freight trains may use the tracks alongside LRT.

Most train accidents fall into the categories of railroad-only accidents and accidents at at-grade crossings. Railroad-only accident causes include human error, equipment failure, and track failure. At-grade crossing accidents are caused by vehicles or pedestrians unsuccessfully crossing before the train passes through. The types of accidents related to these causes are derailments, head-on collisions, and rear-end collisions. All accidents are a concern to the railroads and the public; however, train derailments are of special concern in the event that the train is carrying hazardous materials.

According to CPUC's report, MBL accidents occurred at a rate of 2.41 accidents per 100,000 train miles in California from 1990 to 1999. The average annual mileage for the MBL over the same timeframe is 1.46 million train miles. Therefore, 35.19 accidents per year occurred on the MBL and it is estimated that the same annual accident rate will occur for Gold Line Phase II. In addition, the casualty rate for the MBL over the same timeframe is 1.36 casualties per 100,000 train miles and, therefore, 19.86 casualties per year occurred on the MBL and it is likely that the same annual casualty rate will occur for Gold Line Phase II.

In 1999, a record 50 train accidents occurred on the MBL. Of this number, 39 involved motor vehicles, eight involved pedestrians, and two involved other (e.g. while boarding). Of these 50 accidents, 10 people were killed and 40 people were injured. Of all other LRT agencies in California in 1999, the MBL total number of accidents accounts for 34.8 percent of the total accidents for all agencies. This percentage is significantly disproportionate from other California agencies. However, motorists who made an illegal left turn into the path of the train caused 32 of the total 50 accidents. Motorists running a light or stop sign caused another three accidents and motorists running the gate caused two more accidents. Another two accidents occurred by other means including those involving motor vehicles at locations other than at at-grade crossings. A majority of these accidents could have been prevented if four-gate at-grade crossings were installed at high-risk intersections to reduce the number of illegal left turns by impatient or confused motorists. Also, the use of and well-maintained and demarcated pedestrian crosswalks and large, clearly written, and bilingual instructional signs would reduce the number of confused pedestrians around at-grade crossings.

The analysis of security issues focuses on the potential for violent crimes, property theft, fare evasion, and vandalism. This analysis reviews project design features in the context of LACMTA procedures and prior experience of other rail systems to assess impacts. The LASD Transit Services Bureau crime data related to LACMTA operations are examined. The statistics compiled by the Transit Services Bureau for 1999 through 2001 is shown in **Table 3-13.1.**

TABLE 3-13.1
LASD TRANSIT SERVICES BUREAU INCIDENT DETAIL FOR LACMTA TRAIN/BUS FACILITIES AND RIGHT OF WAY

Crime	1999	2000	2001
Total (sans Vandalism)	391	509	409
Homicide	0	1	0
Forcible Rape	2	1	4
Robbery	67	63	83
Aggravated Assault	78	152	35
Burglary	10	13	4
Larceny Theft	163	187	190
Grand Theft Auto	69	91	93
Arson	2	1	0
Vandalism	371	NA	560

Source: LASD Transit Services Bureau 1999, 2000, 2001; Myra L. Frank & Associates, 2003.

Of these crimes, robbery, aggravated assault, larceny theft, grand theft auto, and vandalism appear to have the greatest incidence on LACMTA property. The analysis of the chapter will focus on the potential for crimes against persons, property theft, and vandalism.

Station and track design (i.e., access, layout, exits, alarms, evacuation) and operational procedures (i.e., interagency agreement, training, evacuation) are pertinent to the effectiveness and timeliness of emergency response. A more in-depth discussion about emergency response during construction and operation of the proposed project can be found in Chapter 3-4 of this document.

Police protection services in the proposed corridor are provided by a combination of individual city police departments and the LASD. Individual city police departments serve the Cities of Arcadia, Azusa, Claremont, Glendora, Irwindale, La Verne, Monrovia, Montclair, Pasadena, and Upland. The Cities of Bradbury, Duarte, Pomona, San Dimas, and the unincorporated portions of Los Angeles County are served by the LASD. There are two LASD Bureaus serving the proposed corridor including the Temple Bureau and the San Dimas Bureau. There are nine county and city police stations located within 1 mile of the proposed alignment.

Fire protection services in the proposed corridor are provided by a combination of individual city fire departments and the Los Angeles County Fire Department (LACOFD). The Cities of Arcadia, La Verne, Monrovia, Pasadena, and Sierra Madre are served by their individual city fire departments. The Cities of Azusa, Claremont, Duarte, Glendora, Irwindale, Pomona, San Dimas, and the unincorporated portions of Los Angeles County are served by the LACOFD. The proposed corridor is located within the service area of LACOFD Battalions 2, 15, and 16. There are 16 city and county fire stations located within 1 mile of the proposed alignment.

Each City's General Plan was reviewed to see if anything specific was detailed about safety and security concerning railroads. The results of this inquiry yielded these mandates about railroad safety and security, and safety and security in general, contained within the General Plans:

- The City of Arcadia's General Plan mandates that "where there is a potential for impacts on security or law enforcement services, involve Police personnel in the development review process by referring development requests to the Police Department for review and comment." Also, the Plan recommends "integrating crime prevention concepts in to the design and construction of new development."
- The City of Pasadena's General Plan mandates "maintenance and expansion of the level of law enforcement activities required to achieve a reduction in the crime rate" and "to seek citizen involvement in the development of crime prevention and control programs."
- The City of Monrovia's General Plan specifically mandates that the City "provide for safe operations of rail service, truck/auto/bus traffic, pedestrians, bicycles, and other modes by adhering to state and national standards and uniform practices." The Plan also states that the City will "continue improvements for safe and efficient designs to minimize the impact of at-grade arterial railroad crossings."
- The City of La Verne's General Plan also specifically mandates that the city will "conduct a survey of traffic accidents to identify dangerous intersections and railroad grade crossings (both existing and proposed) and develop improvements for identified intersections." The Plan also decrees that the City will "educate our residents so that they can protect themselves against avoidable accidents," "patrol our neighborhoods for dangerous activity," and "provide a fully staffed and properly equipped Police and Fire force." In addition, the plan states that the city will "continue to fund Neighborhood Watch and Business Watch programs" and will "apply standards for defensible space as part of the city design review process."
- The City of Pomona's General Plan states "traffic safety is also an important consideration when rail lines cross public streets. Grade separated crossings have been used at major rail crossings in the central-core area and have greatly improved traffic circulation and safety there."
- The City of Claremont's General Plan mandates that "the City shall encourage the use of design concepts facilitating defensible space and other means of inhibiting crime."

Original scoping meetings were held with the various cities that the proposed Gold Line Phase II will travel through or in close proximity to and questionnaires about their concerns regarding various potential impacts were distributed to proper city representatives. These inquiries yielded the concerns about safety and security shown in Table 3-13.2.

TABLE 3-13.2
CORRIDOR CITIES' INITIAL CONCERNS REGARDING GOLD LINE PHASE II EFFECTS ON SAFETY AND SECURITY

City	Comments
Arcadia	Parking lot security; safety of passengers and employees to and from personal vehicles; assurances of emergency vehicle access during and after construction; protection and maintenance of and access to fire hydrants
Azusa	None
Claremont	Effects on emergency response times
Duarte	None
Glendora	None
Irwindale	None
La Verne	Train/pedestrian, train/bicycle, and train/motor vehicle interactions at crossings and elsewhere; affects on emergency response times
Monrovia	Train/pedestrian interaction at stations and crossings; safety fencing along ROW
Montclair	Effects on emergency response times
Pomona	None
San Dimas	None
South Pasadena	Train/pedestrian and train/school children interactions (City has schools in close proximity to crossings); effects on emergency response times

Source: Myra L. Frank & Associates, 2003.

Based on this initial scoping, most of the concerns from the various cities revolve around issues of: (1) accident prevention, (2) crime prevention, and (3) emergency response. The impacts and mitigation sections of this chapter focus primarily on accident and crime prevention. Chapter 3-4 of this document addresses emergency response.

3-13.2 Environmental Impacts

3-13.2.1 Evaluation Methodology

The No Build alternative was compared with the Transportation System Management (TSM) alternative, the LRT, Triple Track alternative, and two LRT, Double Track alternatives. The assessment of safety and security issues addresses accident prevention and crime prevention with regard to both construction and operations in the immediate and long-term timeframes. The cumulative impacts of both construction and operations will also be discussed for each alternative as well as for the immediate and long-term effects of impacts addressed by regulatory compliance. The project would have an adverse impact under the National Environmental Policy Act (NEPA)/a significant impact under the California Environmental Quality Act (CEQA) if it unduly exposes the public to increased danger from accidents or exposes the public to crime.

The TSM alternative enhances bus service in the Phase II corridor by providing or improving connecting service to the Phase I Gold Line station at Sierra Madre Villa and by providing a substantive increase in arterial bus and express bus service to the cities within the Phase II corridor.

The LRT, Double Track alternatives are two different options for utilizing a corridor with two tracks. The two options are as follows: 1) LRT on double tracks with no freight operations and 2) LRT on double tracks with continuing freight service, but with time separation for the freight service. Neither option would have LRT and freight trains operating on the same tracks at the same time.

The LRT, Triple Track alternative consists of LRT operations on two tracks with continuing freight operations on a third track.

Safety and security impact and mitigation analysis of the LRT, Triple Track alternative and the two LRT, Double Track alternatives will not address specific differences between the options except to note here that any alternative with continuing freight operations or with more tracks constructed will likely result in more total accidents than alternatives without continuing freight operations or with less or no new tracks constructed. Therefore, the potential for increased total accidents from least to greatest is the LRT, Double Track alternative with no freight operations; the LRT, Double Track alternative with freight operations; and the LRT, Triple Track alternative for all alternatives that will construct new track and may have freight operations.

Accident prevention analysis addresses accidents resulting from operation of project alternatives. Safety issues to be considered include the potential for train/motor vehicle, train/pedestrian, and other types of accidents. Accidents can occur at park-and-ride lots, at-grade crossings, stations or waiting platforms, or on the ROW. Accident prevention also relates to train maintenance, as well as station and track design (i.e., lighting, fencing, signage, surface and material, control devises, etc.).

Crime prevention addresses crimes against persons or property potentially occurring during operation of the proposed project. Crime prevention measures are typically implemented to manage this potential risk through station and track design (i.e., layout, lighting, sight lines) and operational procedures including security along the track, at park-and-ride lots, stations, and graffiti removal.

Local crime statistics, project design features, LACMTA procedures, and safety records have been reviewed. The analysis focuses on the potential for crimes against persons, property theft, and vandalism.

3-13.2.2 Impact Criteria

a. NEPA Impact Criteria

NEPA regulations require federal agencies to study the proposed action's effects on the quality of the human environment; however, NEPA does not mandate that these effects be mitigated. NEPA defines the human environment broadly, and includes an assessment of the effects to many different aspects of the natural environment, built environment, and human health. Federal agencies must also discuss economic and social effects if these effects are interrelated with effects of the natural or physical environment. Direct effects are caused by the proposed action and occur at the same time and place as the action. Direct effects typically arise from construction activities associated with the proposed action or alternatives. Indirect effects are reasonably foreseeable effects caused by the proposed action or alternatives, but occur later in time or are further removed from the project site than direct effects. Cumulative effects result from the proposed action's incremental impacts when these impacts are added to impacts of other past, present, and reasonably foreseeable future actions, regardless of the agency or person who undertakes them.

The following qualitative thresholds of significance for safety and security of the Gold Line Phase II Project will be adopted to determine if impacts from the construction and operation of the proposed project are an adverse impact under NEPA. The proposed project impacts would be adverse if it:

1. Causes safety hazards to motorists, especially at grade crossings. For purposes of this discussion, a safety hazard will be defined as any action that increases the likelihood of accidents.
2. Causes safety hazards to pedestrians and bicyclists, especially at grade crossings.
3. Causes increased railroad-only accidents (e.g. derailments); and/or
4. Causes increased crime incidences within the proposed project site or in adjacent areas from the project site.

For the discussion of impacts below, impacts will be considered if they potentially cause any increase in safety hazards to motor vehicles, pedestrians, or bicyclists, railroad-only accidents, and/or crime incidences. The mitigation section below will discuss possible measures to reduce adverse impacts discussed to less than adverse levels.

b. CEQA Impact Criteria

CEQA does not require discussion of safety and security issues. Therefore, there are no CEQA impact criteria for safety and security.

3-13.2.3 Construction-Period Impacts

a. No Build Alternative

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena and Pasadena. The projects in the No Build Alternative that could affect safety and security in these cities are completion and service on the Eastside LRT Extension, implementation of increased service on Phase I of the Gold Line LRT, and countywide bus service improvements.

The Eastside LRT Extension has the greatest potential for construction period safety and security impacts due to the magnitude and complexity of construction. The environmental document prepared for the project did not identify adverse construction period impacts when the practices codified in federal OSHA, CALOSHA, and LACTMA policies and regulations are applied. Construction of other No Build projects would also be conducted in accordance with these policies and regulations and would not result in adverse construction period impacts under NEPA.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte and Irwindale. The No-Build alternative would maintain the current LACMTA and Foothill Transit routes in the study corridor. Current requirements for construction of any LACMTA and Foothill Transit facilities that might be required, such as additional or larger bus stops, would be employed. Construction impacts would be less than adverse impact under NEPA.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, LaVerne, Pomona, Claremont, Montclair and Upland. The No-Build alternative would maintain the current LACMTA and Foothill Transit routes and services in the study corridor. Construction period impacts would be less than adverse, as discussed under Phase II Segment 1 cities.

b. Transportation System Management (TSM) Alternative

The TSM alternative is a reconfiguring of existing LACMTA and Foothill Transit bus operations to enhance service to cities within the proposed Phase II study area and requires no major construction to implement. Current requirements for construction of any LACMTA and Foothill Transit facilities that might be required, such as additional or larger bus stops, would be employed. Construction impacts would be less than adverse impact under NEPA in all Phase I and Phase II cities under the TSM alternative.

c. LRT, Triple Track Configuration

During the construction phase of the LRT, Triple Track alternative, safety hazards to motorists, pedestrians, and bicyclists will probably increase due to the number and proximity of vehicles and people adjacent to the construction of LACMTA facilities and ROW improvements; this is potentially an adverse impact.

Increases in railroad-only accidents along the proposed corridor will not occur during the construction of the proposed project, as there will be no trains on the tracks. This is not an adverse/significant impact. Along the existing Phase I corridor, increases greater than the current baseline potential for railroad-only accidents will likely not occur; this is also not an adverse impact.

Crime incidences adjacent to the proposed project site are not likely to increase due to the construction of the proposed alternative. However, increases in incidences may occur within the construction site (i.e. theft of construction machinery and materials); this is potentially an adverse impact.

Phase I – The Cities Affected and the Effects

Construction of the proposed LRT, Triple Track alternative would not have an adverse impact on public safety and security within Phase I cities since there are no Triple Track elements in those cities. The overall Triple Track configuration does not include three tracks in Pasadena, since no freight customers exist to the west of Monrovia. Railroad-only accidents will likely not increase during construction of the Phase II corridor in comparison to the current baseline potential for railroad-only accidents within the Phase I corridor. Crime incidences in areas adjacent to the Phase I corridor will not likely increase during construction of the Phase II corridor in comparison to the current baseline potential for crime adjacent to the Phase I corridor.

Phase II, Segment 1 – The Cities Affected and the Effects

Construction of the proposed LRT, Triple Track alternative could have temporary adverse impacts on public safety and security within Phase II, Segment 1 cities. During the construction phase of this proposed alternative, safety hazards to motorists, pedestrians, and bicyclists could increase due to the number and proximity of vehicles and people adjacent to the construction of facilities and ROW improvements. The potential for safety and security adverse impacts would be tempered by compliance

with safety and security programs of OSHA, CALOSHA and LACMTA, which are designed to reduce potential impacts during construction to less than adverse levels.

Increases in railroad-only accidents will not occur during the construction of the proposed project in Phase II, Segment 1 cities, as there will be no additional trains on the tracks. Crime incidences adjacent to the proposed project site are not likely to increase due to the construction of the proposed triple Track configuration within Phase II, Segment 1 cities. However, increases in incidences may occur within the construction site (i.e., theft of construction machinery and materials). This is a potentially adverse effect that would be minimized by typical site security practices used by contractors.

Phase II, Segment 2 – The Cities Affected and the Effects

See Section 3-13.2.3.c, Phase II, Segment 1 above.

Summary of Triple Track Impacts for Full Build Alternative

Construction of the LRT, Triple Track alternative in Phase II, Segments 1 and 2 would not have an adverse impact on safety and security since construction would be implemented in accordance with regulations and policies that have been developed to assure worker and public safety and security during construction.

Summary of Triple Track Impacts for Build LRT Alternative to Maintenance Facility

Impacts for the Triple Track configuration in Phase II, Segment 1 would be the same as for the Full Build Alternative above.

d. LRT, Double Track Configurations

During the construction phase of the Double Track configurations, potential impacts would be the same as discussed under the Triple Track configuration.

Summary of Double Track Impacts for Full Build LRT Alternative

Construction of the Double Track configurations would not have an adverse impact on safety and security in Phase II, Segments 1 and 2 would not have an adverse impact on safety and security since construction would be implemented in accordance with regulations and policies which have been developed to assure worker and public safety and security during construction.

Summary of Double Track Impacts for Build LRT Alternative to Maintenance Facility

Impacts for the Double Track configurations in Phase II, Segment 1 would be the same as for the Full Build Alternative above.

3-13.2.4 Long-Term Impacts

a. No Build Alternative

Phase I – The Cities Affected and the Effects

Operation of the Eastside LRT Extension and increased service of Phase I of the Gold Line would place incremental increased demands for implementation of the safety and security programs identified in Section 3-13.1. There is a statistical possibility of increased rail-only accidents due to the introduction of new service on the Eastside LRT Extension and increased service of Phase I of the Gold Line.

Phase II, Segment 1 – The Cities Affected and the Effects

The No-Build alternative would maintain current LACMTA and Foothill Transit routes. As ridership on these routes increase, there would be incremental increased demands for implementation of the safety and security programs identified in Section 3-13.1. There is a statistical possibility of increased rail-only accidents within the Phase I cities due to increased service of Phase I of the Gold Line.

Phase II, Segment 2 – The Cities Affected and the Effects

The No-Build alternative would maintain current LACMTA and Foothill Transit routes. As ridership on these routes increase, there would incremental increased demands for implementation of the safety and security programs identified in Section 3-13.1.

b. Transportation System Management (TSM) Alternative

The TSM alternative is a reconfiguring of existing LACMTA bus operations to enhance service to cities within the proposed Phase II corridor. Specifically, this alternative would substantially increase peak and off-peak period service frequencies to Downtown Pasadena and among the other cities and major activity areas within the corridor. This alteration of LACMTA bus service will increase the total number of buses on city streets within the corridor and, with the bus accident rate remaining the same, this alternative will likely cause an increase in the total number of bus accidents over time. However, this would not be an adverse impact because this alternative will not increase the baseline potential for bus accidents.

Phase I – The Cities Affected and the Effects

Alteration of LACMTA bus service, under the TSM alternative, will not increase the total number of buses on city streets within the Phase I corridor and, with the bus accident rate remaining the same, this alternative will not likely cause an increase in the total number bus accidents over time. Accordingly, there should not result in an adverse impact.

Phase II, Segment 1 – The Cities Affected and the Effects

Alteration of LACMTA bus service, under the TSM alternative, will increase the total number of buses on city streets within the Phase II, Segment 1 corridor and, with the bus accident rate remaining the same, this alternative could likely cause an increase in the total number bus accidents over time. However, this is not an adverse impact because this alternative will not increase the baseline potential for bus accidents. The same would be true for Phase II, Segment 2.

Phase II, Segment 2 – The Cities Affected and the Effects

See Section 3-13.2.4.b, Phase II, Segment 1 above.

c. LRT, Triple Track Configuration

During the operational phase of the LRT, Triple Track alternative, on a statistical basis, safety hazards to motorists, pedestrians, and bicyclists could increase due to increased close interactions with trains, especially at at-grade crossings. The statistical increase is largely driven by the comparison of new, frequent LRT service through at-grade crossings, compared to very infrequent freight rail service. This increase would be a potentially adverse impact.

Increases in railroad-only accidents also could occur during the operation of the proposed project, again driven by the by the comparison of new, frequent LRT service through at-grade crossings, compared to very infrequent freight rail service. This increase would be a potentially an adverse impact.

In Phase I cities, increases in frequency of LRT service is driven by implementation of the Eastside LRT Extension. As the frequency of service increases over that of current Gold Line Phase I operations, on a statistical basis, safety hazards to motorists, pedestrians, and bicyclists could increase due to increased close interactions with trains, especially at at-grade crossings.

Summary of Triple Track Impacts for Full Build LRT Alternative

Operation of the LRT, Triple Track alternative could have an adverse impact on safety of motorists, pedestrians, and bicyclists within Phase II, Segment 1 and 2 cities due to both the increased frequency of LRT trains passing through the cites, and the concurrent operation of freight service on the third track. There is a statistical possibility of increased rail-only accidents within cities due to more frequent or new LRT service. There would be little likelihood of accidents involving LRT and freight trains, since they would operate on separate tracks.

Summary of Triple Track Impacts for Build LRT Alternative to Maintenance Facility

The statistical possibility of impacts for the Triple Track configuration for Phase I, Segment 1 cities would be the similar as identified above for the Full Build Alternative, except that there would be a lower statistical probability of accidents in Pasadena, Arcadia and in Monrovia to the west of the proposed station since the triple track would end near the Monrovia station.

d. LRT, Double Track Alternatives

Operation of the LRT Double Track configurations would have the same overall potential impacts as identified for the Triple Track configuration. The potential for at-grade accidents or railroad-only accidents would be slightly less for the Double Track configurations since freight trains would be constrained from daytime operations.

3-13.2.5 Cumulative Impacts

There are potential cumulative impacts for the No Build, TSM, Full Build, and Build LRT Alternative to Maintenance Facility, since each of this would place an incremental increase in demand on safety and

security programs. The No Build and TSM alternatives would have comparatively low potential for cumulative impacts since neither would create the same sort of new circumstances for accidents at the rail alternatives and would not create new at-grade crossings. Such crossings could be considered as indicators for likely locations for accidents to increase, as a result of conflict between autos/pedestrians and trains. The Full Build LRT alternative would have the highest incremental change, since it would add 12 new stations to the system, and cross 45 streets at-grade. By comparison the Build LRT Alternative to Maintenance Facility would add 4 new stations and cross 10 streets at-grade. Potential cumulative impacts would be slightly higher for the Triple Track configurations since freight and LRT vehicles would operate concurrently.

3-13.2.6 Impacts Addressed by Regulatory Compliance

a. Construction Period Impacts

Impacts that would arise from construction of any of the alternatives were identified in Section 3-13.2.3, above. Elimination or reduction of these construction period impacts would occur through two steps, as follows: 1) compliance with local, state or federal regulations or permits that have been developed by agencies to manage construction impacts, to meet legally established environmental impact criteria or thresholds, and/or to ensure that actions occurring under agency approvals or permits are in compliance with laws and policies and 2) implementation of the proposed alternatives with additional construction period mitigation measures defined in Section 13-3.1. Following is a discussion of the construction period impacts for each of the alternatives that would be addressed by the first step, regulatory compliance.

Potential safety and security impacts during the construction period would be addressed for all alternatives through compliance with federal OHSA, state (CALOSHA), and LACMTA policies which provide for protection of workers and site visitors. Grade-crossing safety would be addressed for all rail alternatives through compliance with CPUC requirements. On a statistical basis, safety hazards to motorists, pedestrians, and bicyclists could increase due to increased close interactions with trains, especially at at-grade crossings.

b. Long-Term Impacts

Long-term impacts associated with of the alternatives were identified above in Section 3-13.2.4. Elimination or reduction of these long-term impacts would occur through two steps, as follows: 1) compliance with local, state or federal regulations or permits that have been developed by agencies to manage construction impacts, to meet legally established environmental impact criteria or thresholds, and/or to ensure that actions occurring under agency approvals or permits are in compliance with laws and policies and 2) implementation of the proposed alternatives with additional mitigation measures defined in Section 13-3.2. Following is a discussion of the long-term impacts for each of the alternatives that would be addressed by the first step, regulatory compliance.

Long term safety and security impacts would be addressed for all alternatives through compliance with federal OHSA, state (CALOSHA), and LACMTA policies which provide for protection of workers and users, as well as the programs outlined in Section 3-13.1. Grade-crossing safety would be addressed for all rail alternatives through compliance with CPUC requirements.

3-13.3 Potential Mitigation

3-13.3.1 Construction-Period Mitigation Measures

Construction of any of the alternatives would be conducted in accordance with OHSA, state (CALOSHA), and LACMTA policies and practices. These practices have been shown to reduce potential impacts to less than adverse/ less than significant. No additional mitigation measures are required for the No Build Alternative, TSM Alternative, or LRT Build Alternatives.

3-13.3.2 Long-Term Mitigation

Operation of any of the alternatives would be conducted in accordance with OHSA, state (CALOSHA), CPUC, and LACMTA policies and practices. These practices have been shown to reduce potential impacts to less than adverse under NEPA/ less than significant under CEQA. No additional safety and security mitigation measures are required for the No Build Alternative, TSM Alternative, or LRT Build Alternatives.

3-13.4 Impacts After Mitigation

3-13.4.1 Construction Period

Construction period impacts would be eliminated or reduced to a less than adverse level by complying with the local, state, and/or federal regulatory requirements discussed in Section 3-13.2.6. These regulatory requirements are sufficient to reduce safety and security construction period impacts to less than adverse under NEPA and no additional measures are required. Construction period impacts would be not adverse under NEPA for all alternatives.

3-13.4.2 Long-Term Impacts

Long term impacts would be eliminated or reduced to a less than adverse level by complying with the local, state, and/or federal regulatory requirements discussed in Section 3-13.2.6 and no additional measures to mitigate impacts to safety and security are required for any of the alternatives.

3-14 SOCIOECONOMICS

Summary of Impacts

The No Build and TSM alternative be expected to have negligible socioeconomic impacts within the cities of the study corridor.

During construction, socioeconomic impacts could occur to local business if access were restricted. Temporary access routings would be developed and implemented during the construction period.

Long-term socioeconomic impacts could arise in the vicinity of new LRT stations and the Maintenance and Operations Facility. Socioeconomic impacts around stations could arise from development or redevelopment driven by transit access. Development and redevelopment is controlled by local government. Long-term impacts may be identified by the planning and approval processes of these governments. Under CEQA, these impacts would typically be mitigated to less than significant levels through a combination of compliance with regulatory requirements and mitigation measures developed by the cities.

Long-term socioeconomic impacts could also arise from the acquisition of properties for the LRT alternatives, or if those acquisitions were to result in the loss of employment. Implementation of the proposed project would occur under the auspices of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (Uniform Act). The Uniform Act mandates that acquisitions be made at fair market value, and provides assistance for residential and business relocations caused by a federally-sponsored project. State- and local-level projects are also implemented under programs that are consistent with the Uniform Act.

For the Maintenance and Operations Facility, long-term socioeconomic changes could occur in Irwindale and nearby communities to the extent that businesses that would serve that facility may choose to locate in those cities. If new or changed business activities were to occur, it can be assumed that the activities would have to comply with federal, state or local environmental regulations.

3-14.1 Existing Conditions

The study area for discussion of socioeconomics includes the 13 cities adjacent to the Gold Line Phase II Extension Project, as those would be the cities served by the proposed project. From west to east, the cities are:

Phase II, Segment 1 Cities: Pasadena, Arcadia, Monrovia, Duarte, and Irwindale.

Phase II, Segment 2 Cities: Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland.

Table 3-14.1 shows population change in the study area from 1990–2025. Population calculations for 1990 and 2000 are based on U.S. Census data. Population forecasts are based on the Southern California Association of Governments (SCAG) 2001 Regional Transportation Plan Update.

TABLE 3-14.1
LOCAL AND REGIONAL POPULATION CHANGE

City	1990 Population	2000 Population	Percent Change 1990–2000	Forecasted Population	Percent Change 2000–2025
Arcadia	48,290	53,054	+9.9	54,783	+3.1
Azusa	41,333	44,712	+8.2	51,595	+15.4
Claremont	32,503	33,998	+4.6	39,575	+16.4
Duarte	20,688	21,486	+3.9	27,101	+26.1
Glendora	47,828	49,415	+3.3	56,992	+15.3
Irwindale	1,050	1,446	+37.7	2,256	+56.0
La Verne	30,897	31,638	+2.4	37,411	+18.2
Montclair	28,434	33,049	+16.2	41,464	+25.5
Monrovia	35,761	36,929	+3.3	45,743	+23.9
Pasadena	131,591	133,936	+1.8	173,643	+29.6
Pomona	131,723	149,473	+13.5	189,687	+26.9
San Dimas	32,397	34,980	+8.0	40,488	+22.6
Upland	63,374	68,393	+7.9	88,166	+28.9
Study Area	**645,869**	**692,509**	**+7.2**	**848,904**	**+22.6**
LA County	8,863,164	9,519,338	+7.4	12,338,000	+29.6
SB County	1,418,380	1,709,434	+20.5	2,787,000	+63.0

Sources: U.S. Bureau of the Census, 2000 (SF1). Forecasts: 2001 SCAG RTP Update.

Table 3-14.2 provides information on employment in the study area for the period from 2000–2025. Employment forecasts are from the SCAG 2001 Regional Transportation Plan Update.

TABLE 3-14.2
CHANGE IN EMPLOYMENT

City	2000	2005	2010	2015	2020	2025	Percent Change 2000–2025
Arcadia	23,744	24,274	24,800	25,172	25,393	25,644	+8.0
Azusa	14,505	15,047	15,635	15,998	16,282	16,613	+14.5
Claremont	11,960	12,246	12,563	12,797	12,940	13,104	+9.5
Duarte	9,914	10,824	11,758	12,338	12,816	13,330	+34.4
Glendora	18,018	18,444	19,157	19,607	19,925	20,269	+12.5
Irwindale	32,550	37,886	43,322	46,550	49,432	51,512	+58.2
La Verne	8,996	9,504	10.130	10,523	10,835	11,172	+24.2
Montclair	17,357	19,649	22,296	23,833	25,198	26,653	+53.5
Monrovia	22,083	23,046	23,978	24,588	25,038	25,525	+15.6
Pasadena	93,287	96,502	99.749	101.977	103,578	105,366	+12.9
Pomona	50,609	52,726	54,948	56,404	57,453	58,644	+15.9
San Dimas	15,422	16,549	17,641	18,326	18,854	19,476	+26.3
Upland	28,313	32,398	37,080	39,821	42,263	44,875	+58.5
Study Area	**346,758**	**369,096**	**393,057**	**407,934**	**420,007**	**432,183**	**+24.6**
LA County	4,312,264	4,655,000	4,890,000	5,029,000	5,156,000	5,291,000	+22.7
SB County	735,589	715,000	852,000	933,000	1,007,000	1,086,000	+47.6

Sources: U.S. Bureau of the Census, 2000. Forecasts: 2001 SCAG RTP Update.

The study area contained more than 346,000 jobs in 2000. The employment forecasts from SCAG indicate that by 2025 an additional 85,425 jobs will be created within the area, a 24.6% increase from 2000. The largest employment centers are in Pasadena and Pomona. The cities of Duarte, Irwindale, San Dimas, and La Verne are forecasted to have employment growth greater than that of Los Angeles County. Employment growth for the cities of Montclair and Upland is forecasted to be greater than the rate for San Bernardino County. Between 2000 and 2025, approximately one job is forecasted to be created for every three new Los Angeles County residents. However, in the study area, approximately one job is forecasted to be created for every two new Los Angeles County residents. These employment data reflect that the proposed project area is currently an important regional employment corridor, and the forecasts indicate that the corridor's importance as a regional employment will continue. An important feature of these employment numbers is that they reflect the presence of stable employment centers, such as colleges and hospitals.

The study area is ethnically diverse, as is typical of the Los Angeles metropolitan region. **Table 3-14.3** shows the reported ethnic breakdown of cites in the study area, where approximately 60% of the population is non-white. Persons of Hispanic or Latino origin represent the largest non-white segment of the study area at 269,307 persons, or about 39% of the total population. The highest percentages of non-whites were found in the cities of Duarte, Irwindale, Azusa, and Pomona in Los Angeles County, and Montclair in San Bernardino County; all of the cities were predominately Hispanic or Latino.

Among the data gathered in the 2000 Census was information on how people made their journey to work, as shown in **Table 3-14.4**. These data indicate that approximately 88% of workers over the age of 16 living in the study area use a private vehicle to get to work, and approximately 4% used public transit. In Pasadena, before the opening of Gold Line Phase I in that city, 5% of workers used pubic transit. In Irwindale, 8% of workers used public transit. In Claremont, 3% of workers used public transit, 14% walked to work, and 5% worked at home. In all other cities in the Los Angeles County portion of the study area, a smaller percentage of workers took public transit to work than they did in Los Angeles County as a whole (7%). These numbers likely reflect that only bus services and limited amounts of commuter rail service were available in 2000 to residents of the Los Angeles County study area, as compared to other portions of Los Angeles County. In San Bernardino County, workers in Montclair and Upland used public transit at rates 50% higher than that county as a whole.

Table 3-14.5 reports income data for the study area. Approximately 14% of the population within the Gold Line Phase II Extension Project area was below the poverty level, which is 4% lower than Los Angeles County. Azusa and Pomona are the only cities in the Los Angeles County portion of the study area that had a higher percentage of persons below the poverty line than Los Angeles County as a whole. Montclair showed a poverty level that was 1% higher than San Bernardino County as a whole. Per capita income in the study area averaged $21,889, which was approximately $1,200 a year higher than it is in Los Angeles County and about $5,000 a year higher than San Bernardino County. The cities of Irwindale, Azusa, Pomona, and Montclair had markedly lower per capita incomes (less than 70% or $14,000) compared to the study area.

TABLE 3-14.3
EXISTING REGIONAL AND LOCAL POPULATION CHARACTERISTICS—RACE/ETHNICITY (2000)

City	Total Population	White	%	Black	%	Native American	%	Asian	%	Native Hawaiian/ Pacific Islander	%	Other	%	Two or more races	%	Hispanic	%
Arcadia	52,951	21,365	40	434	1	122	0	23,959	45	62	0	184	0	1,585	3	5,240	10
Azusa	44,371	10,459	24	1,514	3	220	0	2,424	5	80	0	63	0	909	2	28,702	65
Claremont	33,978	21,831	64	1,603	5	60	0	3,913	12	27	0	94	0	1,127	3	5,323	16
Duarte	21,486	6,853	32	1,865	9	98	0	2,698	13	36	0	57	0	611	3	9,268	43
Glendora	49,719	33,380	67	664	1	190	0	3,212	6	25	0	73	0	1,158	2	11,017	22
Irwindale	1,472	119	8	0	0	6	0	15	1	6	0	0	0	25	2	1,301	88
La Verne	31,845	20,443	64	879	3	22	0	2,348	7	38	0	39	0	846	3	7,230	23
Montclair	33,119	7,914	24	2,056	6	46	0	2,601	8	97	0	0	0	493	1	19,912	60
Monrovia	36,817	17,017	46	2,984	8	196	1	2,480	7	32	0	69	0	1,062	3	12,977	35
Pasadena	133,871	51,998	39	18,672	14	340	0	13,261	10	101	0	249	0	4,446	3	44,804	33
Pomona	149,644	25,189	17	13,541	9	496	0	10,598	7	178	0	183	0	2,942	2	96,517	64
San Dimas	35,064	21,306	61	946	3	96	0	3,136	9	4	0	36	0	1,305	4	8,235	23
Upland	68,427	37,435	55	4,866	7	417	1	4,951	7	72	0	146	0	1,759	3	18,781	27
Study Area	**692,764**	**275,309**	**40**	**50,024**	**7**	**2,309**	**0**	**75,596**	**11**	**758**	**0**	**1,193**	**0**	**18,268**	**3**	**269,307**	**39**
LA County	9,519,338	2,946,145	31	891,194	9	26,141	0	1,123,964	12	24,376	0	18,859	0	245,172	3	4,243,487	45
SB County	1,709.434	749, 224	44	147,488	9	10,249	1	77,205	5	4,601	0	2,999	0	46,766	3	669,902	39

Source: U.S. Bureau of the Census, 2000.
Percentages less than one are shown as zero.

TABLE 3-14.4
EXISTING REGIONAL AND LOCAL POPULATION CHARACTERISTICS—MEANS OF TRANSPORTATION TO WORK (2000)

City	Total Workers	Car, truck, or van	%	Public Transit	%	Motor-cycle	%	Bicycle	%	Walked	%	Other means	%	Worked at home	%
Arcadia	22,935	21,089	92	556	2	76	0	21	0	293	1	54	0	846	4
Azusa	17,520	14,776	84	685	4	56	0	406	2	1,098	6	157	1	342	2
Claremont	15,805	12,189	77	453	3	40	0	152	1	2,156	14	41	0	774	5
Duarte	9,224	8,256	90	345	4	14	0	24	0	220	2	54	1	311	3
Glendora	23,362	21,677	93	448	2	59	0	65	0	317	1	80	0	716	3
Irwindale	571	475	83	47	8	0	0	10	2	38	7	0	0	1	0
La Verne	15,245	13,991	92	460	3	27	0	57	0	308	2	38	0	364	2
Montclair	12,252	11,108	91	359	3	32	0	80	1	292	2	146	1	235	2
Monrovia	16,477	14,714	89	474	3	35	0	143	1	557	3	96	1	458	3
Pasadena	61,891	51,861	84	2,897	5	71	0	878	1	3,280	5	532	1	2,372	4
Pomona	52,066	46,209	89	2,573	5	75	0	514	1	1,022	2	602	1	1,071	2
San Dimas	16,647	15,263	92	305	2	61	0	39	0	345	2	88	1	546	3
Upland	31,569	28,685	91	795	3	89	0	80	0	681	2	254	1	985	1
Study Area	**295,564**	**260.293**	**88**	**10.,397**	**4**	**635**	**0**	**2,469**	**1**	**10,607**	**4**	**2,142**	**1**	**9.021**	**3**
LA County	3,858,750	3,296,964	85	254,091	7	6,758	0	24,015	1	113,004	3	29,275	1	134,643	3
SB County	658,708	600,169	91	12,267	2	1,467	0	2,715	0	15,867	2	5,187	1	20,676	3

Source: U.S. Bureau of the Census, 2000.

Percentages less than one are shown as zero.

Note: Percentages less than one are shown as zero

TABLE 3-14.5
EXISTING REGIONAL AND LOCAL POPULATION CHARACTERISTICS—INCOME/POVERTY (2000)

Area	Total Population	Below Poverty Level	Percent	Per Capita Income in 1999
Arcadia	52,403	4,150	8	$28,400
Azusa	42,241	7,926	19	$13,412
Claremont	29,032	2,328	8	$28,843
Duarte	20,912	2,353	11	$19,648
Glendora	48,710	2,856	6	$25,993
Irwindale	1,467	240	16	$13,144
La Verne	31,153	1,464	5	$26,689
Montclair	32,688	5,690	17	$13,566
Monrovia	36,600	4,797	13	$21,686
Pasadena	131,350	20,909	16	$28,186
Pomona	144,137	31,149	22	$13,336
San Dimas	34,291	2,167	6	$28,321
Upland	67,797	8,106	12	$23,343
Study Area	**627,781**	**94,135**	**14**	**$21,889**
LA County	9,349,771	1,674,599	18	$20,683
SB County	1,662,617	263,412	16	$16,856

Source: U.S. Bureau of the Census, 2000.

Like the rest of Los Angeles County, housing vacancies in the study area were low (less than 4%). As shown in **Table 3-14.6**, vacancies were less than 2% in the cities of Duarte, Glendora, La Verne, and Claremont. Compared to San Bernardino County, which had a vacancy rate of 12%, the cities of Montclair and Upland had vacancy rates of 4% and 3%, respectively.

Homeownership in the Los Angeles portion of the study area was higher than it was in Los Angeles County as a whole, with the exception of Pasadena, where the homeownership rate was 2% lower. In Montclair and Upland, the homeownership rate was similar to the overall San Bernardino County rate (57%). The average household size in the study area (2.93 persons per household) was nearly the same as it was in Los Angles County (2.98 persons per household), but less than in San Bernardino County (3.19 persons per household). The household size in Montclair (3.70) was higher than in San Bernardino County.

TABLE 3-14.6
LOCAL AND REGIONAL HOUSING OCCUPANCY, TENURE, AND SIZE

City	Total	Vacant	%	Occupied	%	Owner Occupied	%	Renter Occupied	%	Average Household
Arcadia	19,981	847	4	19,134	96	11,921	62	7,213	38	2.74
Azusa	12,919	480	4	12,439	96	6,264	50	6,175	50	3.41
Claremont	11,577	273	2	11,304	98	7,570	67	3,734	33	2.55
Duarte	6,805	170	2	6,635	98	4,710	71	1,925	29	3.16
Glendora	17,169	312	2	16,857	98	12,385	73	4,472	27	2.89
Irwindale	417	13	3	404	97	277	69	127	31	3.64
La Verne	11,288	218	2	11,070	98	8,643	78	2,427	22	2.81
Montclair	9,179	380	4	8,799	96	5,320	58	3,479	38	3.70
Monrovia	13,929	448	3	13,481	97	6,471	48	7,010	52	2.71
Pasadena	54,114	2,287	4	51,827	96	23,670	46	28,157	54	2.51
Pomona	39,620	1,730	4	37,890	96	21,684	57	16,206	43	3.82
San Dimas	12,585	352	3	12,233	97	8,998	74	3,235	26	2.77
Upland	25,469	912	3	24,557	96	14,470	57	10,087	40	2.76
Study Area	**235,952**	**8,422**	**3**	**226,630**	**96**	**133,283**	**58**	**94,247**	**42**	**2.93**
LA County	3,270,909	137,135	4	3,133,774	96	1,499,694	48	1,634,080	52	2.98
SB County	601,369	72,775	12	528,594	87	341,014	57	187,580	31	3.15

Source: U.S. Bureau of the Census, 2000.

3-14.2 Environmental Impacts

3-14.2.1 Evaluation Methodology

Impact criteria were established through consideration of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) guidelines and standard professional practice. The proposed project was then evaluated using the impact criteria to determine what the level of impact on population, housing, and employment conditions, if any, would result.

3-14.2.2 Impact Criteria

a. NEPA Impact Criteria

There are no FTA-specific criteria for determining adverse impacts for socioeconomic impacts. Executive Order 12898 focuses on disproportionate impacts to minority and low-income populations, not whether there is an impact. The CEQA criteria utilized for assessing impacts and whether those impacts are significant provide a more comprehensive approach, and also include evaluation of the disproportionately high impacts to minority or low income populations.

b. CEQA Impact Criteria

The proposed project would result in a significant impact under CEQA if:

- The proposed project would displace substantial numbers of existing housing units or people, necessitating the construction of replacement housing; or
- The proposed project would displace substantial numbers of existing businesses or employees, necessitating the construction of replacement businesses; or
- The proposed project would substantially impair access to, from, or within a neighborhood, or create a barrier within a neighborhood; or
- The proposed project would induce substantial unplanned population growth, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure); or
- The proposed project would have a disproportionately high and adverse effect on minority or low-income population groups.

3-14.2.3 Construction-Period Impacts

a. No Build Alternative

The No Build Alternative includes the extension of Interstate 210 (I-210) from Interstate 15 (I-15) to Interstate 215 (I-215); implementation of increased service on Phase I of the Gold Line LRT; completion and service on the Eastside LRT Extension; and countywide bus service improvements, including in the San Gabriel Valley. Construction period impacts would be greatest for the I-210 extension and Eastside LRT Extension due to the scope and magnitude of construction activities. The I-210 extension would be about 10 miles long, and is more than 5 miles east of the Phase II study area. The Eastside LRT Extension is approximately 6 miles long and connects to the south end of the Phase I LRT service. Construction needed to implement increased service on Phase I of the Gold Line would be limited to areas where traction power substations would be added. Construction impacts to implement increases in countywide bus service are likely to be limited to modifications or additional bus stops.

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. The projects in the No Build Alternative that could affect these cities are completion and service on the Eastside LRT Extension, implementation of increased service on Phase I of the Gold Line LRT, and countywide bus service improvements.

Construction impacts would occur in the City of Los Angeles from construction of the Eastside LRT Extension. The construction impacts and mitigations measures of this project are described in the Draft Supplemental Environmental Impact Statement/Draft Subsequent Environmental Impact Report (FTA and LACMTA 2001). Increasing service on Phase I of the Gold Line would not require any property acquisitions that could potentially affect socio-economics. More service could mean a potential increase in persons boarding and alighting at Phase I stations; however, these patrons would likely be composed mostly of persons who live or work in these areas now. Accordingly, there is little likelihood of a substantive change in the socioeconomic makeup in Phase I cities. See Table 3-15.26 for the changes in ridership in Phase I cities in 2025, which include the assumption that the Full Build Phase II and Eastside LRT projects are in place. This maximum ridership scenario indicates that ridership would increase by over 1,000 persons at Union Station, but only between 30 and 80 persons at the other Phase I stations in Los Angeles. The maximum ridership scenario shows an increase of less than 50 persons in South Pasadena; and increases of between about 30 and 250 at Pasadena stations. There is a forecasted decrease of about 250 boardings at Sierra Madre Villa station, reflecting that it would no longer be the terminal station and patrons who now use that location would be boarding further east in the system.

The portion of countywide bus improvements that may occur within the Phase I cities (Los Angeles, South Pasadena, and Pasadena) during the construction period for the proposed project is not expected to include substantial amounts of construction in the Phase I cities. The planned service improvements would be likely to include upgraded or additional bus stops. No property acquisitions are anticipated. Due to the very limited areas of construction of such facilities, effects would be expected to be less than adverse under NEPA and less than significant under CEQA. For example, creating new bus stops would typically involve construction for less than 2 weeks at each site. Increases in bus service could have some beneficial effects to neighborhoods by increasing transit accessibility to and among housing, commercial activities, and jobs for area residents. However, the amount of improved access is not likely to be of sufficient magnitude to induce substantial changes in housing, employment, or the location and economic viability of commercial activities. The limited amount of construction and the minimal effect of increased transit service associated with countywide bus improvements would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic makeup of Phase I cities.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. The projects in the No Build Alternative affecting these cities during the Phase II construction period are implementation of increased service on Phase I of the Gold Line LRT and countywide bus service improvements.

Completion of the Eastside Extension and increased Gold Line Phase I service have the potential to increase ridership to and from LRT stations in Pasadena during the construction of Phase II. As reported above, the maximum ridership scenario shows a drop in boardings at Sierra Madre Villa station, reflecting that it would no longer be the terminal station and patrons who now use that location would be boarding further east in the system.

The portion of countywide bus improvements that may occur within the Phase II, Segment 1 cities is not expected to include substantial amounts of construction. The planned service improvements would be likely to include upgraded or additional bus stops. No property acquisitions are anticipated. Due to the very limited areas of construction of such facilities, effects to socioeconomic characteristics would be expected to be less than adverse under NEPA and less than significant under CEQA. For example, creating new bus stops would typically involve construction for less than 2 weeks at each site, which should not substantively affect the operation of local businesses. Increases in bus service could have some beneficial effects to neighborhoods by increasing transit accessibility to and among housing,

commercial activities, and jobs for area residents. However, the amount of improved access is not likely to be of sufficient magnitude to induce substantial changes in housing, employment, or the location and economic viability of commercial activities. The limited amount of construction and the minimal effect of increased transit service associated with countywide bus improvements would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic makeup of Phase II, Segment 1 cities.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The project in the No Build Alternative affecting the cities during the construction period of the proposed project is the Los Angeles County bus service improvements. Even though Montclair and Upland are in San Bernardino County, they are affected by changes in Los Angeles County bus service because that service is linked to the Montclair TransCenter. The Eastside Extension and increased service on Phase I of the Gold Line LRT would not have an effect on Segment 2 cities because there would be no stations in these cities. As noted earlier, the proposed extension of I-210 eastward is more than 5 miles east of the eastern end of the proposed project study area. Due to this distance, no effects from the freeway extension are expected within the study area.

The potential impact of increased bus service to the Phase II, Segment 2 cities during the construction period is the same as for the Phase II, Segment 1 cities. The limited amount of construction and the minimal effect of increased transit service associated with countywide bus improvements would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic makeup of Phase II, Segment 2 cities.

b. Transportation System Management Alternative

The Transportation System Management (TSM) Alternative includes changes to existing bus routes to provide or improve connecting service to the Gold Line Phase I station at Sierra Madre Villa, and increasing peak and off-peak period service frequencies to downtown Pasadena (the study area's largest employment center) and among the cities and major activity centers within the study area. Areas to the west of Duarte would have service increases from 11 buses per hour in each direction to 20 buses per hour. Areas to the east of Duarte would increase from eight buses per hour in each direction to 15 buses per hour.

Implementation of these proposed bus route changes is not expected to include major construction or acquisition of property. The planned service improvements would be likely to include upgraded or additional bus stops. For the purpose of analysis, bus stop construction is assumed to be limited to a 2-week period. Also for purposes of analysis, a horizon year of 2010 is used, even though some of the TSM improvements could occur before or after that year. That year is used because the project includes forecasts of transit ridership for that date.

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. The projects in the TSM Alternative that could affect these cities are changes to MTA Routes 177 and 188 and Foothill Transit Routes 184, 187, 189, 494, and 690.

The City of Los Angeles is affected only by Foothill Route 494, which links Glendora and Monrovia to downtown Los Angeles via the El Monte Busway. As discussed under the No Build Alternative, the

levels of change in bus routes under the TSM Alternative are not expected to affect the overall socioeconomic makeup of communities.

The TSM Alternative does not include any bus route changes that would affect bus service in the City of South Pasadena.

The TSM Alternative's changes in bus service would potentially affect the City of Pasadena since the increases in service are designed specifically to provide better access to and from the Sierra Madre Villa station. Increasing bus frequencies would not require construction since existing bus shelters and bus dropoffs at Gold Line stations would continue to be used. Increases in bus service could have some beneficial effects to neighborhoods by increasing transit accessibility to and among housing, commercial activities, and jobs for area residents. However, the amount of improved access is not likely to be of sufficient magnitude to induce substantial changes in housing, employment, or the location and economic viability of commercial activities. Relatively intense development in the vicinity of the Sierra Madre Villa station is recognized in the East Pasadena Specific Plan. The minimal effect of increased transit service associated with TSM improvements would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic makeup of the Phase I cities from the TSM Alternative during the construction period.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. The projects in the TSM Alternative that affect these cities are changes to MTA Routes 177 and 188 and Foothill Transit Routes 184, 187, 189, 494, and 690.

The TSM Alternative's changes in bus service would potentially affect the cities since the increases in service are designed specifically to provide better access to and from the Gold Line Phase I station at Sierra Madre Villa. The cities of Pasadena, Arcadia, Monrovia, and Duarte would have peak period service increases from 11 buses per hour in each direction to 20 buses per hour. East of Duarte (including Foothill Transit Routes 187 and 189, which serve the City of Irwindale on Foothill Boulevard), the peak period service increase would be from 8 buses per hour to 15 buses per hour.

Increasing bus frequencies would not require construction since existing bus shelters and the bus dropoffs at Gold Line stations would continue to be used. Increases in bus service could have some beneficial effects to neighborhoods by increasing transit accessibility to and among housing, commercial activities, and jobs for area residents. However, the amount of improved access is not likely to be of sufficient magnitude to induce substantial changes in housing, employment, or the location and economic viability of commercial activities. The minimal effect of increased transit service associated with TSM improvements would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic makeup of the Phase II, Segment 1 cities from the TSM Alternative during the construction period.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The projects in the TSM Alternative that affect these cities are changes to Foothill Transit Routes 184, 187, 189, 494, and 690.

The TSM Alternative's changes in bus service would potentially affect these cities since the increases in service are designed specifically to provide better access to and from the proposed project's stations. The cities in Phase II, Segment 2 would see an increase in peak period service from 8 buses per hour to 15

buses per hour. The potential effect of these service increases is the same in Segment 2 cities as described above for Segment 1. The minimal effect of increased transit service associated with TSM improvements would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic makeup of the Phase II, Segment 2 cities from the TSM Alternative during the construction period.

c. LRT Triple Track Configuration

For this LRT Alternative, existing freight service within the proposed project area would be continued eastward from Duarte using a single track within the existing railroad right-of-way. Between Duarte and the proposed Maintenance and Operation Facility in Irwindale, the freight track would be on the north side of the railroad right-of-way. To the east of the Maintenance and Operation Facility in Irwindale, the freight track would be on the south side of the railroad right-of-way. Two new tracks would be added for operation of the LRT service. New LRT stations would be built in the cities of Arcadia, Monrovia, Duarte, Irwindale, Azusa, Glendora, San Dimas, La Verne, Pomona, and Claremont, and a shared station would be built for Montclair and Upland.

Within the LRT Triple Track Configuration, there are two operation alternatives: extending LRT service only through Phase II Segment 1 (Pasadena to Irwindale) or extending service through Phase II Segments 1 and 2 (Pasadena to Montclair/Upland).

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. There are no physical elements of the LRT Triple Track Configuration Alternative that affect these cities.

There would be increases in ridership in the Phase I cities arising from extending LRT service into the proposed project corridor, and thus improving accessibility to jobs. Initial ridership estimates for the full LRT system (i.e., Eastside Extension, Phase I, and Phase II [including operating scenarios for either Segment 1 only or Segments 1 and 2]) indicate that daily boardings in 2025 would be as shown in Table 3-15.26 in the Traffic and Transportation Section. This maximum ridership scenario indicates that ridership would increase by over 1,000 persons at Union Station, but only between 30 and 80 persons at the other Phase I stations in Los Angeles. The maximum ridership scenario shows an increase of less than 50 persons in South Pasadena; and increases of between about 30 and 250 at Pasadena stations. There is a forecasted decrease of about 250 boardings at Sierra Madre Villa station, reflecting that it would no longer be the terminal station and patrons who now use that location would be boarding further east in the system.

The effect of the small changes in boardings associated with the LRT Triple Track Configuration Alternative for either operating scenario (Segment 1 or Segments 1 and 2) would not be of sufficient magnitude to change the overall socioeconomic makeup of Phase I cities during the construction period. The change in boarding would not be of sufficient magnitude to induce substantial changes in housing, employment, or the location and economic viability of commercial activities. The minimal effect of change in transit service associated with the LRT Triple Track Configuration Alternative would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic characteristics of Phase I cities during the construction period.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. The easternmost freight customer in the proposed project area is located just east of Myrtle Avenue in

Monrovia. The LRT Triple Track Configuration Alternative would include a freight track on the north side of the railroad right-of-way through Monrovia, Duarte, and Irwindale. The freight track would end at the last customer's location and would not continue west into Pasadena or Arcadia. Two tracks for LRT operation would be provided throughout Segment 1. LRT stations in Segment 1 would include the existing station at Sierra Madre Villa in Pasadena and new stations in Arcadia, Monrovia, Duarte, and Irwindale.

LRT service through Phase II, Segment 1 would be affected by either of the proposed operating scenarios (Segment 1 or Segments 1 and 2). These operating scenarios apply to either the LRT Triple Track or Double Track Configurations.

The 2025 ridership forecast for the LRT stations in Segment 1indicate the following daily boardings for the Full Build Alternative (Segments 1 and 2):

- Arcadia would have daily boardings of about 1, 850
- Monrovia would have daily boardings of about 1,580
- Duarte would have daily boardings of about 1,300
- Irwindale would have daily boardings of about 2,165.

Since these Segment 1 stations would be built before those in Segment 2, a portion of these forecasted boardings could become a reality while during construction in Segment 2. The 2010 boardings could influence socioeconomic conditions on a localized basis, but are not anticipated to be sufficient to induce major changes in socioeconomic conditions. As discussed in detail in the Land Use section individual cities have and will consider land use changes near the proposed LRT stations that respond to availability of LRT and bus transit. The level of forecasted boardings could result in some shifting of the specific locations of housing or commercial activities, but is not likely to be of significant magnitude to induce major changes in socioeconomic characteristics of the cities. Substantive changes in socioeconomic characteristics are driven by overall market conditions in the cities and the region, and large-scale land use changes, such as conversion of agricultural lands to residential or commercial uses. There are no large-scale conversions proposed in the Segment 1 cities that are related to the proposed LRT stations or services.

The effect of boardings associated with the LRT Triple Track Configuration for either operating scenario (Segment 1 or Segments 1 and 2) would not be of sufficient magnitude to change the overall socioeconomic makeup of Phase II, Segment 1 cities. The limited effect of new transit service associated with the LRT Triple Track Configuration would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic characteristics of Phase II, Segment 1 cities.

Construction activities to implement the LRT Triple Track Configuration Alternative would include rehabilitation of the existing railroad right-of-way, laying of new tracks, installation of an overhead power system and signal equipment, and building new station platforms and parking facilities. Depending on how the proposed project is implemented, construction activities would occur over time as a series of overlapping actions. The duration or frequency of construction at a particular location cannot be predicted at this time. However, based on experience from construction of LRT systems in California, and from construction of Phase I, there are no indicators that the construction process results in substantial changes to the overall socioeconomic characteristics of a community.

There is the potential for temporary and localized impacts to occur during the construction process that might affect residents or businesses. These temporary impacts are usually associated with access

restrictions to property. These can be in the form of temporary loss of parking for customers and access to delivery docks or closures of walkways. Under NEPA, construction period impacts are typically considered to be temporary and not adverse. Under CEQA, construction period impacts can be considered to be significant and to require mitigation. Since this environmental document is being prepared based only on conceptual-level design, there is insufficient data to formally determine if construction period impacts would be significant under CEQA. Using a conservative approach, it is assumed that construction period impacts may be significant under CEQA and mitigation measures would be needed to reduce construction period impacts to less-than-significant levels. A menu of potential mitigation measures for the construction period is shown in Section 3-14.3.1.

Phase II, Segment 2 - The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The LRT Triple Track Configuration Alternative would include a freight track on the south side of the railroad right-of-way through the cities. New LRT stations would be built in each community, except for a joint station serving Montclair and Upland.

Under the operating scenario that limits LRT service to Segment 1 only, the impacts to Segment 2 cities would be the same as described for either the No Build or TSM Alternatives. The minimal effect of increased transit service associated with either the No Build or TSM Alternatives would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic makeup of the Phase II, Segment 2 cities during the construction phase.

The overall impacts of the LRT Triple Track Configuration for the Full Build Alternative (Segments 1 and 2) would be the same for Segment 2 cities as was described for the Segment 1 cities. LRT boardings would not be of sufficient magnitude to change the overall socioeconomic makeup of Phase II, Segment 2 cities. Socioeconomic conditions in Upland are poised to change as a result of new developments at the west end of that city that will add hundreds of new residences, as well as commercial development.

The forecasted boardings for the Segment 2 cities 2025 are presented below. It should be noted that boardings would vary depending on which of the potential station sites in La Verne and Pomona are considered.

- About 1,100 boardings are forecasted for the proposed downtown Azusa station.
- The proposed Citrus Avenue station in Azusa would have daily boardings of about 750 persons.
- The proposed Glendora station would have daily boardings of about 1,200 persons.
- About 1,000 daily boardings would occur in San Dimas.
- Depending on which station site is selected in La Verne, daily boardings are forecasted to be about between 900 and 1,000 persons.
- Also depending on which station site is selected in Pomona, daily boardings are forecasted to be between 1,100 and 1,400 persons.
- In Claremont, daily LRT boardings are forecasted to be a between 1,940 and 2,000 persons.
- For the joint Montclair/Upland station, the forecasted daily boardings are about 2,300 persons.

During the Segment 2 construction period, boardings would begin to occur from west to east as stations are completed and linked to the LRT system. A portion of the 2025 boardings would begin to occur, which could have very localized effects on socioeconomic conditions. Overall, however, the limited effect of new transit service associated with the LRT Triple Track Configuration in the 2010 period would

result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic characteristics of Phase II, Segment 2 cities.

As discussed for Segment 1 cities, localized and temporary socioeconomic impacts may occur during the construction period that may be significant under CEQA. Since this environmental document is being prepared based only on conceptual-level design, there is insufficient data to formally determine if construction period impacts would be significant under CEQA. Using a conservative approach, it is assumed that construction period impacts may be significant under CEQA and mitigation measures would be needed to reduce construction period impacts to less-than-significant levels. A menu of potential mitigation measures for the construction period is shown in Section 3-14.3.1.

Summary of Triple Track Impacts for Full Build Alternative

For the LRT Triple Track physical configuration of the Full Build Alternative (operations in Segments 1 and 2), there would be no adverse effects under NEPA to the overall socioeconomic characteristics of cities in Phase I, in Phase II, Segment 1, or in Phase II, Segment 2 during the construction period.

Under CEQA, there would not be significant impacts to the overall socioeconomic characteristics of cities in Phase I, in Phase II, Segment 1, or in Phase II, Segment 2, but localized, potentially significant impacts may occur during the construction period.

Summary of Triple Track Impacts for Build LRT Alternative to Maintenance Facility

For the LRT Triple Track physical configuration of the Build LRT Alternative to Maintenance Facility (operations in Segment 1 only), there would be no adverse effects under NEPA to the overall socioeconomic characteristics of cities in Phase I or Phase II Segment 1 during the construction period.

Under CEQA, there would not be significant impacts to the overall socioeconomic characteristics of cities in Phase I or in Phase II Segment 1, but localized, potentially significant impacts may occur during the construction period.

d. LRT, Double Track Alternatives

For the LRT Double Track Alternative, there are two options for dealing with freight. Under the first option, existing freight service within the Phase II area would be discontinued and tracks in the right-of-way would be used only for LRT service. Freight service to locations in the Phase II area would be provided either from other rail lines or the rail service would be supplanted by truck service. Under the second option, freight would be time-separated from LRT operations. The two tracks in the rail right-of-way would support operation of the LRT service during the majority of a 24-hour day, and freight operations would occur only during hours when LRT service movements does not occur. New LRT stations would be built in the cities of Arcadia. Monrovia, Duarte, Irwindale, Azusa, Glendora, San Dimas, La Verne, Pomona, and Claremont, and a shared station would be built for Montclair and Upland.

Within the LRT Double Track Configuration, there are two LRT operational alternatives: extending LRT service only through Phase II Segment 1 (Pasadena to Irwindale), or extending service through Phase II Segments 1 and 2 (Pasadena to Montclair/Upland).

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena and Pasadena. There are no physical elements of the LRT Double Track configuration that affect these cities.

The 2010 ridership forecasts for Phase I cities for the Double Track configuration (all variations) are the same as for the Triple Track configuration described above. The forecasted change in boardings at stations in the Phase I area is the same. The effect of these small changes in boardings associated with the LRT Double Track configuration for either operating scenario (Segment 1 only or Segment 1+2) would not be of sufficient magnitude to change the overall socioeconomic makeup of Phase I cities. The change in boarding would not be of sufficient magnitude to induce substantial changes in housing, employment, or the location and economic viability of commercial activities. The minimal effect of change in transit service associated with the LRT Triple Track Alternative would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic characteristics of Phase I cities.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte and Irwindale. The easternmost freight customer in the Phase II area is located just east of Myrtle Avenue in Monrovia. For the LRT Double Track configuration, that customer could be served in one of two ways. Under the first option, freight rail service would be supplanted by truck service. Under the second option, the customer would be serviced during the hours when LRT service is not in effect. The other freight customer in Segment 1 is Miller Brewing in Irwindale. For the LRT Double Track configuration, rail freight service would be provided via a different rail route. LRT stations in Segment 1 would include the existing station at Sierra Madre Villa in Pasadena, and new stations in Arcadia, Monrovia, Duarte and Irwindale.

The impacts of the Double Track Alternative (all variations) to the overall socioeconomic characteristics of the Phase II, Segment 1 cities would be the same as for the Triple Track Alternative for Phase II, Segment 1. The forecasted boardings would not be affected by the variations in how freight service is provided, and conversely does not affect the viability of either freight delivery option. The boardings at these stations could influence socioeconomic conditions on a localized basis. The level of forecasted boardings could result in some shifting of the specific locations of housing or commercial activities, but is not likely to be of significant magnitude to induce major changes in socioeconomic characteristics of the cities. Substantive changes in socioeconomic characteristics are driven by overall market conditions in the cities and the region, and large-scale land use changes, such as conversion of agricultural lands to residential or commercial uses. There are no large-scale conversions proposed in the Segment 1 cities that are related to the proposed LRT stations or services.

The effect of boardings associated with the LRT Double Track configuration for either LRT operating scenario (Segment 1 only or Segment 1+2) and for either freight scenario (rail service supplanted to truck service or time-separated rail service) would not be of sufficient magnitude to change the overall socioeconomic makeup of Phase II Segment 1 cities. The limited effect of new transit service associated with the LRT Double Track Alternative would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic characteristics of Phase II Segment 1 cities.

The potential for localized, temporary construction period impacts that may be significant under CEQA is the same for the Double Track Alternative as described above for the Triple Track Alternative for Phase II, Segment 1 cities. Inasmuch as this environmental document is being prepared based only on conceptual-level design, there is insufficient data to formally determine if construction period impacts would be significant under CEQA. Using a conservative approach, it is assumed that construction period impacts may be significant under CEQA and mitigation measures would be needed to reduce construction

period impacts to less than significant levels. A menu of potential mitigation measures for the construction period is shown in Section 3-14.3.1.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. There are three locations within these cities that currently receive freight service via the railroad right-of-way. For the LRT Double Track configuration, freight customers could be served in one of two ways. Under the first option, freight rail service would be supplanted by truck service. Under the second option, customers would be serviced during the hours when LRT service is not in effect.

Under the operating scenario that limits LRT service to Segment 1 only, the impacts to Segment 2 cities would be the same as described for either the No Build or TSM alternatives. The minimal effect of increased transit service associated with either the No Build or TSM alternatives would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic makeup of the Phase II Segment 2 cities.

The impacts of the LRT Double Track Alternative for the Full Build operating scenario (Segment 1+2) and for either freight scenario (rail service supplanted to truck service or time-separated rail service) would be the same for Segment 2 cities as was described for the Segment 1 cities. This is because LRT boardings would not be of sufficient magnitude to change the overall socioeconomic makeup of Phase II Segment 2 cities. As previously noted, socioeconomic conditions in Azusa and Glendora are poised for change as a result of redevelopment of the Monrovia Nurseries properties. Socioeconomic impacts in Upland are poised to change as a result of new developments at the west end of that city which will add hundreds of new residences, as well as commercial development.

Under either LRT operating scenario (Segment 1 only or Segment 1+2), there is the potential for localized, temporary construction period impacts that may be significant under CEQA, as described above for the Triple Track Alternative for Phase II, Segment 1 cities. Inasmuch as this environmental document is being prepared based only on conceptual-level design, there is insufficient data to formally determine if construction period impacts would be significant under CEQA. Using a conservative approach, it is assumed that construction period impacts may be significant under CEQA and mitigation measures would be needed to reduce construction period impacts to less than significant levels. A menu of potential mitigation measures for the construction period is shown in Section 3-14.3.1.

Summary of Double Track Impacts for Full Build LRT Alternative

For the LRT Double Track physical configuration of the Full Build Alternative (operations in Segment 1+2), and for either freight scenario (rail service supplanted to truck service or time-separated rail service), there would be not adverse effects under NEPA to the overall socioeconomic characteristics of cities in Phase I, Phase II Segment 1, or Phase II Segment 2.

Under CEQA, there would not be significant impacts to the overall socioeconomic characteristics of cities in Phase I, in Phase II Segment 1, or in Phase II Segment 2, but localized, potentially significant impacts may occur during the construction period.

Summary of Double Track Impacts for Build LRT Alternative to Maintenance Facility

For the LRT Double Track physical configuration of the Build LRT Alternative to Maintenance Facility (operations in Segment 1 only), and for either freight scenario (rail service supplanted to truck service or time-separated rail service), there would be no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic characteristics of cities in Phase I, Phase II Segment 1, or Phase II Segment 2.

Under CEQA, there would not be significant impacts to the overall socioeconomic characteristics of cities in Phase I, in Phase II Segment 1, or in Phase II Segment 2, but localized, potentially significant impacts may occur during the construction period.

3-14.2.4 Long-Term Impacts

a. No Build Alternative

The No Build Alternative includes extension of I-210 from I-15 to I-215, implementation of increased service on Phase I of the Gold Line LRT, completion and service on the Eastside LRT Extension, and countywide bus service improvements, including the San Gabriel Valley. Potential long-term impacts would arise from new or increased transportation service provided by these projects.

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena and Pasadena. The projects in the No Build Alternative that could affect these cities in the long-term are completion and service on the Eastside LRT Extension, implementation of increased service on Phase I of the Gold Line LRT, and countywide bus service improvements.

The city of Los Angeles would likely see long-term benefits as a result of development of the Eastside LRT Extension. Among the benefits would be improved transit accessibility and reliability of service, improved access to jobs, as well as the community and economic benefits associated with LRT service. These benefits are discussed in the he Draft Supplemental Environmental Impact Statement/ Draft Subsequent Environmental Impact Report (FTA and LACMTA, 2001) for the Eastside Extension project. This document concluded that after mitigation measures were factored in, the only long-term, potentially significant impacts under CEQA were to traffic at 14 intersections.

Increasing LRT service on Phase I of the Gold Line would increase access to jobs in each of the Phase 1 cities that are located in proximity to, or convenient access to, this transit service. Forecasts of employment growth in each of the cities by SCAG in the 2001 Regional Transportation Plan (2001 RTP or Community Link 2001) recognize and reflect the effects of LRT service at the proposed increased service levels. These forecasts have been concurred by each of the cities for planning purposes. These planning forecasts are considered in each city in their individual analyses of proposed development or redevelopment projects, and in potential planning and zoning designations. SCAG's RTP 2001 Programmatic Environmental Impact Report (PEIR) stated that it was "not anticipated that changes to the transportation network included in the 2001 RTP Update will substantially change population, employment and household rates of growth or distribution of growth." The PEIR reported that the impact of the RTP would be less than significant with regard to overall socioeconomic conditions and that no mitigation measures would be required. A review of socioeconomic conditions in the Phase I cities that could logically be associated with the introduction of LRT service indicate that transit-oriented

development (TOD) has begun near some Phase I stations. Examples are new residential and mixed use developments in South Pasadena and Pasadena. Increasing LRT service would be likely to support and continue TOD activities, resulting in possible shifts in the locations of employment and residential development.

That portion of countywide bus improvements which may occur within the Phase I cities (Los Angeles, South Pasadena and Pasadena) between now and 2025 could have some beneficial effects to neighborhoods by increasing transit accessibility to and among housing, commercial activities, and jobs for area residents. However, the amount of improved access is not likely to be of sufficient magnitude to induce long-term changes in housing, employment, or the location and economic viability of commercial activities. The limited effect of increased transit service associated with countywide bus improvements would result in no long-term adverse effects under NEPA and no long-term significant impacts under CEQA to the overall socioeconomic makeup of Phase I cities from this element of the No Build Alternative.

None of the elements of the No Build Alternative would create adverse effects under NEPA nor significant impacts under CEQA to long-term socioeconomic conditions in the Phase I cities because of the following: (1) the forecasted socioeconomic conditions associated with increasing LRT service in Phase I have been concurred in by the individual cities; (2) those forecasts have been assimilated into the cities' planning processes; (3) a program-level CEQA analysis of potential impacts has already been completed that identified no significant impacts; (4) TOD activities have begun to occur that appear consistent with SCAG's socioeconomic growth forecasts; (5) each cities' development approval authority is designed to identify and eliminate or reduce potential negative impacts associated with specific projects; and (6) the limited amount of construction associated with the No Build Alternative and the incremental increase in transit service would not be of sufficient magnitude to induce substantial change.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte and Irwindale. The projects in the No Build Alternative that could affect these cities in the long-term are completion and service on the Eastside LRT Extension, implementation of increased service on Phase I of the Gold Line LRT, and countywide bus service improvements.

There would be increases in ridership in the Phase I cities arising from extending LRT service into East Los Angeles and increases in Phase I service. However, when the data in Table 3-15.26 is considered, it is clear that there would be only small changes in boardings at the Segment 1 stations. The change in boarding would not be of sufficient magnitude to induce substantial changes in housing, employment, or the location and economic viability of commercial activities. The minimal effect of change in service associated with the No Build Alternative would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic characteristics of Phase II Segment 1 cities.

The potential long-term impact of increased bus service to the Phase II, Segment 1 cities would result from new or improved transit service. As noted for the Phase I cities, countywide bus improvements could have some beneficial effects to neighborhoods by increasing transit accessibility to and among housing, commercial activities, and jobs for area residents. However, the amount of improved access is not likely to be of sufficient magnitude to induce long-term changes in housing, employment, or the location and economic viability of commercial activities. The limited effect of increased bus service associated with countywide bus improvements would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic makeup of Phase II Segment 1 cities from this element of the No Build Alternative.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The project in the No Build Alternative affecting the cities in the long-term is the Los Angeles county bus service improvements. Although Montclair and Upland are in San Bernardino County, they are affected by changes in Los Angeles County bus service because that service is linked to the Montclair TransCenter. The Eastside LRT extension and increased service on Phase I of the Gold Line LRT would not have an effect on these cities because there would be no stations in these cities. As noted earlier, the proposed extension of I-210 eastward is more than 5 miles east of the eastern end of the Phase II study area. Due to this distance, no effects from the freeway extension are expected within the study corridor.

The impact of bus service improvements would be the same in Phase II, Segment 2 cities as described for the Segment 1 cities. The limited effect of increased bus service associated with countywide bus improvements would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic makeup of Phase II Segment 2 cities from this element of the No Build Alternative.

Socioeconomic conditions in Azusa and Glendora are poised to change as a result of redevelopment of the Monrovia Nursery properties. Socioeconomic conditions in Upland are poised to change as a result of new developments at the west end of that city which will add hundreds of new residences, as well as commercial development.

b. Transportation System Management (TSM) Alternative

The TSM Alternative includes changes to existing bus routes to provide or improve connecting service to the Gold Line Phase I station at Sierra Madre Villa, and increasing peak period and off-peak period services frequencies to downtown Pasadena (the study corridor's largest employment center) and among the cities and major activity centers within the study area. Areas to the west of Duarte would have service increases from 11 buses per hour in each direction to 20 buses per hour. Areas to the east of Duarte would increase from 8 buses per hour in each direction to 15 buses per hour. The long-term impacts of these changes would result from the incremental increase in transit service. Increases in bus service could have some beneficial effects to neighborhoods by increasing transit accessibility to and among housing, commercial activities, and jobs for area residents.

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena and Pasadena. The projects in the TSM Alternative that could affect these cities are changes to MTA Routes 177 and 188, Foothill Routes 184, 187, 189, 494, and 690.

The city of Los Angeles is affected only by Foothill route 494, which links Glendora and Monrovia via the El Monte Busway to downtown Los Angeles. As discussed under the No Build Alternative, the levels of change in bus routes under the TSM Alternative are not expected to affect the long-term overall socioeconomic makeup of communities.

The TSM Alternative does not include any bus route changes that would affect bus service in the city of South Pasadena.

The TSM Alternative's changes in bus service would potentially affect the city of Pasadena since the increases in service are designed specifically to provide better access to and from the Gold Line Phase I

stations. However, the initial ridership estimates for the TSM Alternative indicate that daily boardings in 2025 (compared to the No Build Alternative) would decrease by about 10 persons at the Fillmore station, increase by about 35 persons at the Del Mar station, increase by about 110 at the Holly Street, be about the same at the Lake Street station and increase by about 10 at the Allen Avenue station. For the TSM Alternative, the forecast indicates there would be a decrease in boardings at the Sierra Madre Villa station of about 85 persons. These small changes in boardings would not be sufficient to generate substantive changes in the long-term socioeconomic makeup of Pasadena.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte and Irwindale. The projects in the TSM Alternative which affect these cities are changes to MTA Routes 177 and 188, Foothill Routes 184, 187, 189, 494 and 690.

The TSM Alternative's changes in bus service would potentially affect the cities since the increases in service are designed specifically to provide better access to and from the Gold Line Phase I station at Sierra Madre Villa. The cities of Pasadena, Arcadia, Monrovia and Duarte would have peak period service increases from 11 buses per hour in each direction to 20 buses per hour. East of Duarte (including Foothill routes 187 and 189 which serve the city of Irwindale on Foothill Boulevard) the peak period service increase would be from 8 buses per hour to 15.

The amount of improved access is not likely to be of sufficient magnitude to induce substantial changes in housing, employment, or the location and economic viability of commercial activities. The minimal effect of increased transit service associated with TSM improvements would result in no adverse effects under NEPA and no significant impacts under CEQA to the long-term overall socioeconomic makeup of the Phase II Segment 1 cities.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The projects in the TSM Alternative that affect these cities are changes to Foothill Routes 184, 187, 189, 494, and 690.

The TSM Alternative's changes in bus service would potentially affect these cities since the increases in service are designed specifically to provide better access to and from the Gold Line Phase I stations. The cities in Phase II, Segment 2 would see an increase in peak period service increase from 8 buses per hour to 15. The potential effect of these service increases is the same in Segment 2 cities as described for Segment 1 above. The minimal effect of increased transit service associated with TSM improvements would result in no adverse effects under NEPA and no significant impacts under CEQA to the long-term overall socioeconomic makeup of the Phase II Segment 2 cities.

c. LRT, Triple Track Configuration

For this LRT Alternative, existing freight service within the Phase II area would be continued eastward from Duarte, using a single track within the existing railroad right-of-way. Between Duarte and the proposed Maintenance and Operation Facility in Irwindale, the freight track would be on the north side of the railroad right-of-way. To the east of the Maintenance and Operation Facility in Irwindale, the freight track would be on the south side of the railroad right-of-way. Two new tracks would be added for operation of the LRT service. New LRT stations would be built in the cities of Arcadia. Monrovia, Duarte, Irwindale, Azusa, Glendora, San Dimas, La Verne, Pomona, and Claremont, and a shared station would be built for Montclair and Upland.

Within the LRT Triple Track Configuration, there are two operation alternatives: extending LRT service only through Phase II Segment 1 (Pasadena to Irwindale), or extending service through Phase II Segments 1 and 2 (Pasadena to Montclair/Upland).

Long-term impacts could arise from the introduction of LRT service to the Phase II study corridor and the creation of 11 new LRT stations and a maintenance and operations facility. Potential impacts would generally be focused around new stations to the extent that new facilities (stations and parking) are created, or that land uses and activities change as a result of being located in proximity to the stations.

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena and Pasadena. There are no physical elements of the LRT Triple Track configuration that affect these cities.

There would be increases in ridership in the Phase I cities arising from extending LRT service into the Phase II corridor, and thus improving accessibility to jobs. See Table 3-15.26 for the changes in ridership in Phase I cities in 2025, which include the assumption that the Full Build Phase II and Eastside LRT projects are in place. This maximum ridership scenario indicates that ridership would increase by over 1,000 persons at Union Station, but only between 30 and 80 persons at the other Phase I stations in Los Angeles. The maximum ridership scenario shows an increase of less than 50 persons in South Pasadena; and increases of between about 30 and 250 at Pasadena stations. There is a forecasted decrease of about 250 boardings at Sierra Madre Villa station, reflecting that it would no longer be the terminal station and patrons who now use that location would be boarding further east in the system.

The effect of these small changes in boardings associated with the Full Build Alternative would not be of sufficient magnitude to change the overall socioeconomic makeup of Phase I cities. The change in boarding would not be of sufficient magnitude to induce substantial changes in housing, employment, or the location and economic viability of commercial activities. The minimal effect of change in service associated with the LRT Triple Track Alternative would result in no adverse effects under NEPA and no significant impacts under CEQA to the long-term overall socioeconomic characteristics of Phase I cities.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte and Irwindale. The easternmost freight customer in the Phase II area is located just east of Myrtle Avenue in Monrovia. The LRT Triple Track configuration would include a freight track on the north side of the railroad right-of-way through Monrovia, Duarte and Irwindale. The freight track would end at the last customer's location and would not continue west into Arcadia or Pasadena. Two tracks for LRT operation would be provided throughout Segment 1. LRT stations in Segment 1 would include the existing station at Sierra Madre Villa in Pasadena, and new stations in Arcadia, Monrovia, Duarte and Irwindale.

LRT service through Phase II, Segment 1 would be affected by either of the proposed operating scenarios (Segment 1 or Segment 1+2). These operating scenarios apply to either the LRT Triple Track or Double Track physical alternatives.

The 2025 ridership forecast for the LRT stations in Segment 1 indicates the following daily boardings. These forecasted numbers are shown in Table 3-15.18 and 3-15.19 and are summarized below.

- Arcadia would have daily boardings of about 1, 850
- Monrovia would have daily boardings of about 1,580

- Duarte would have daily boardings of about 1,300
- Irwindale would have daily boardings of about 2,165.

The boardings at these stations could influence socioeconomic conditions on a localized basis. As discussed in detail in the Land Use section, individual cities have and will consider land use changes in the vicinity of the proposed LRT stations that respond to availability of LRT and bus transit. The level of forecasted boardings could result in some shifting of the specific locations of housing or commercial activities, but is not likely to be of significant magnitude to induce major changes in socioeconomic characteristics of the cities. Substantive changes in socioeconomic characteristics are driven by overall market conditions in the cities and the region, and large-scale land use changes, such as conversion of agricultural lands to residential or commercial uses. There are no large-scale conversions proposed in the Segment 1 cities that are related to the proposed LRT stations or services.

Cities in the corridor have initiated planning to respond to and accommodate potential land use changes in the vicinity of proposed LRT stations. Specific information on these plans is discussed in the Land Use section. The introduction of LRT stations may influence how specific sites near the stations are developed or redeveloped. The introduction of LRT service is likely to be of importance on a local basis, and could be a driving force in planning, rezoning, and development and redevelopment. However, these changes are not anticipated to be of sufficient magnitude to have an effect on the overall socioeconomic characteristics of the individual communities or of the study corridor. The limited effect of new transit service associated with the LRT Triple Track Alternative would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic characteristics of Phase II Segment 1 cities.

Under NEPA and CEQA, long-term beneficial impacts would appear likely to result from the LRT Triple Track Alternative to the extent that the alternative reinforces the economic vitality of individual communities and serves as a catalyst for types of development or redevelopment envisioned and/or enabled by local plans.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The LRT Triple Track configuration would include a freight track on the south side of the railroad right-of-way through the cities. New LRT stations would be built in each community, except for a joint station serving Montclair and Upland.

Under the operating scenario that limits LRT service to Segment 1 only, the long-term impacts to Segment 2 cities would be the same as the long-term impacts described for either the No Build or TSM alternatives. The minimal effect of increased bus service associated with either the No Build or TSM alternatives (but no LRT service) would result in no adverse effects under NEPA and no significant impacts under CEQA to the long-term overall socioeconomic makeup of the Phase II Segment 2 cities.

The forecasted boardings for the Full Build Alternative (operation in Segments 1+2) for 2025 are presented below. It should be noted that boardings would vary depending on which of the potential station sites in La Verne and Pomona are considered.

- About 1,100 boardings are forecasted for the proposed downtown Azusa station.
- The proposed Citrus Avenue station in Azusa would have daily boardings of about 750 persons.
- The proposed Glendora station would have daily boardings of about 1,200 persons.
- About 1,000 daily boardings would occur in San Dimas.

- Depending on which station site is selected in La Verne, daily boardings are forecasted to be about between 900 and 1,000 persons.
- Also depending on which station site is selected in Pomona, daily boardings are forecasted to be between 1,100 and 1,400 persons.
- In Claremont, daily LRT boardings are forecasted to be a between 1,940 and 2,000 persons.
- For the joint Montclair/Upland station, the forecasted daily boardings are about 2,300 persons.

The overall impacts of the LRT Triple Track Alternative for the Full Build operating scenario (Segment 1+2) would be the same for Segment 2 cities as was described for the Segment 1 cities. LRT boardings would not be of sufficient magnitude to change the long-term overall socioeconomic makeup of Phase II Segment 2 cities. Socioeconomic conditions in Azusa and Glendora are poised to change as a result of redevelopment of the Monrovia Nursery properties. Socioeconomic conditions in Upland are poised to change as a result of new developments at the west end of that city which will add hundreds of new residences, as well as commercial development.

Summary of Triple Track Impacts for Full Build LRT Alternative

The long-term overall impacts of the LRT Triple Track Alternative for the Full Build operating scenario (Segment 1+2) would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic characteristics of Phase I, Phase II Segment 1, or Phase II Segment 2 cities.

Summary of Triple Track Impacts for Build LRT Alternative to Maintenance Facility

The long-term overall impacts of the LRT Triple Track Alternative for the Full Build operating scenario (Segment 1+2) would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic characteristics of Phase I or Phase II Segment 1 cities.

d. LRT, Double Track Alternatives

For the LRT Double Track Alternative, there are two options for dealing with freight. Under the first option, existing freight service within the Phase II area would be discontinued and tracks in the right-of-way would be used only for LRT service. Freight service to locations in the Phase II area would be provided either from other rail lines or the rail service would be supplanted by truck service. Under the second option, freight would be time-separated from LRT operations. The two tracks in the rail right-of-way would support operation of the LRT service during the majority of a 24-hour day, and freight operations would occur only during hours when LRT service movements does not occur. New LRT stations would be built in the cities of Arcadia, Monrovia, Duarte, Irwindale, Azusa, Glendora, San Dimas, La Verne, Pomona, and Claremont, and a shared station would be built for Montclair and Upland.

Within the LRT Double Track Configuration, there are two LRT operational alternatives: extending LRT service only through Phase II Segment 1 (Pasadena to Irwindale), or extending service through Phase II Segments 1 and 2 (Pasadena to Montclair/Upland).

Long-term impacts could arise from the introduction of LRT service to the Phase II study corridor and the creation of 11 new LRT stations and a maintenance and operations facility. Potential impacts would generally be focused around new stations to the extent that new facilities (stations and parking) are created, or that land uses and activities change as a result of being located in proximity to the stations.

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena and Pasadena. There are no physical elements of the LRT Double Track configuration that affect these cities.

Potential increases in ridership in the Phase I cities could result from extending LRT service into the Phase II corridor, and thus improving accessibility to jobs. However, initial ridership estimates for the full LRT system (i.e., Eastside plus Gold Line Phase I plus Gold Line Phase II [including Segment 1 only or Segments 1 and 2]) indicate minor changes in daily boardings. These changes would not be of sufficient magnitude to induce substantial changes in housing, employment, or the location and economic viability of commercial activities. The minimal effect of change in service associated with the LRT Double Track Alternative would result in no adverse effects under NEPA and no significant impacts under CEQA to the long-term overall socioeconomic characteristics of Phase I cities.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte and Irwindale. The easternmost freight customer in the Phase II area is located just east of Myrtle Avenue in Monrovia. For the LRT Double Track configuration, that customer could be served in one of two ways. Under the first option, freight rail service would be supplanted by truck service. Under the second option, the customer would be serviced during the hours when LRT service is not in effect. The other freight customer is Segment 1 is Miller Brewing. For the LRT Double Track configuration, rail freight service would be provided via a different rail route. LRT stations in Segment 1 would include the existing station at Sierra Madre Villa in Pasadena, and new stations in Arcadia, Monrovia, Duarte and Irwindale.

The long-term impacts of the Double Track Alternative (all variations) to the overall socioeconomic characteristics of the Phase II, Segment 1 cities would be the same as for the long-term impacts of the Triple Track Alternative for Phase II, Segment 1. The forecasted boardings would not be affected by the variations in how freight service is provided, and conversely does not affect the viability of either freight delivery option. The boardings at these stations could influence socioeconomic conditions on a localized basis. The level of forecasted boardings could result in some shifting of the specific locations of housing or commercial activities, but is not likely to be of significant magnitude to induce major changes in socioeconomic characteristics of the cities. Substantive changes in socioeconomic characteristics are driven by overall market conditions in the cities and the region, and large-scale land use changes, such as conversion of agricultural lands to residential or commercial uses. There are no large-scale conversions proposed in the Segment 1 cities that are related to the proposed LRT stations or services.

The long-term effects of boardings associated with the LRT Double Track configuration for either LRT operating scenario (Segment 1 only or Segment 1+2) and for either freight scenario (rail service supplanted to truck service or time-separated rail service) would not be of sufficient magnitude to change the overall socioeconomic makeup of Phase II Segment 1 cities. The limited effect of new transit service associated with the LRT Double Track Alternative would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic characteristics of Phase II Segment 1 cities.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. For the LRT Double Track configuration, freight customers could be served in one of two ways. Under the first option, freight rail service would be supplanted by truck service. Under the second option, customers would be serviced during the hours when LRT service is not in effect.

Under the operating scenario that limits LRT service to Segment 1 only, the impacts to Segment 2 cities would be the same as described for either the No Build or TSM alternatives since there would be no LRT service. The minimal effect of increased bus service associated with either the No Build or TSM alternatives would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic makeup of the Phase II Segment 2 cities.

Summary of Double Track Impacts for Full Build LRT Alternative

The long-term overall impacts of the LRT Double Track Alternative for the Full Build operating scenario (Segment 1 and 2) would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic characteristics of Phase I, Phase II Segment 1, or Phase II Segment 2 cities.

Summary of Double Track Impacts for Build LRT Alternative to Maintenance Facility

The long-term overall impacts of the LRT Double Track Alternative for the Full Build operating scenario (Segment 1 and 2) would result in no adverse effects under NEPA and no significant impacts under CEQA to the overall socioeconomic characteristics of Phase I or Phase II Segment 1 cities.

3-14.2.5 Cumulative Impacts

a. No Build Alternative

Cumulative impacts could potentially occur from implementation of the No Build Alternative, which includes extension of I-210 in San Bernardino County, construction and service on the Eastside LRT Extension, implementation of increased service on Phase I of the Gold Line LRT, and countywide bus service improvements. Of these projects, extension of I-210 in San Bernardino County, construction and service on the Eastside LRT Extension have the greatest potential to contribute to cumulative socioeconomic impacts by providing improved transportation service. In the case of extending I-210, additional freeway access would likely support new or additional residential and commercial development. The approval of such residential and commercial development is under the authority of San Bernardino County and individual cities. The Eastside LRT Extension is likely to support redevelopment around stations, which could alter the socioeconomic characteristics of neighborhoods to some degree. Changes around these future LRT stations would be under the jurisdiction of Los Angeles County and the City of Los Angeles.

The projects included in the No Build Alternative are spread across cities in Los Angeles and San Bernardino counties, and would be implemented in a series of construction contracts over the coming decade. Since the projects are so widespread, cumulative impacts, either from construction or operation of the No Build Alternative projects would not be likely to occur to a particular city or neighborhood. Other projects that may occur during the No Build construction period are listed in Appendix G, Related Projects. These projects range from redevelopment of individual parcels to redevelopment of the Monrovia Nursery properties in Azusa and Glendora. Large-scale projects have a higher potential to contribute to cumulative socioeconomic impacts. A review of the related projects (many of which are defined only at the conceptual level) does not reveal a combination of such projects with No Build projects that appear likely to create substantial cumulative impacts.

b. TSM Alternative

The TSM Alternative includes changes in bus service in the Phase II study area. These changes are intended to increase the effectiveness of existing bus service and do not include adding new routes. Adjustments to bus service would not be likely to contribute to cumulative socioeconomic impacts, either from a regional perspective or within an individual city or neighborhood.

c. LRT Alternatives

The types of potential for cumulative socioeconomic impacts would be the same for either the Triple Track or Double Track configurations since the ridership forecast for both configurations is virtually identical. The total potential for cumulative impacts would be greater for the Full Build Alternative (Segments 1 and 2) than the Build Alternative to Maintenance Facility (Segment 1 only) because of the additional stations in Segment 2.

Cumulative impacts would be mostly likely to arise from the combination of additional transit ridership and redevelopment around stations, which could include changes in land use. Potential cumulative impacts associated with changes in land use are discussed in Section 3-10. In general, land use changes in station areas associated with LRT service have already been accounted for by individual cities' planning efforts. This planning typically calls for increased residential densities or commercial activity within walking distances of stations. These increases in density or activity would be consistent with the overall socioeconomic profile of the individual cities; no substantive changes would occur as the result of LRT service. The City of Upland has the greatest amount of forecasted change in its socioeconomic profile, arising from planned development to the north and east of the proposed Montclair/Upland LRT stations. These changes arise from current planning and approval activities that recognize, but are not dependent on, proposed LRT service.

3-14.2.6 Impacts Addressed by Regulatory Compliance

a. Construction Period Impacts

There are no specific regulations related to socioeconomic impacts during construction. There are typically policies associated with assuring access to residential and commercial properties so that such properties remain viable. For all alternatives, it is assumed that temporary access routings for pedestrians and vehicles would be provided as needed. Overall, ensuring that temporary access routings are provided for pedestrians and vehicles can be assumed to be a regulatory requirement, and would result in no adverse effects under NEPA and no significant impacts under CEQA to socioeconomic characteristics.

Summary of Impacts for No Build Alternative Addressed by Regulatory Compliance

Ensuring that temporary access routings are provided for pedestrians and vehicles is the only regulatory requirement associated with socioeconomic issues under the No Build Alternative, and would result in no adverse effects under NEPA and no significant impacts under CEQA to socioeconomic characteristics.

b. Transportation System Management (TSM) Alternative

The TSM Alternative includes changes in bus routes and could include minor construction at bus stops. As described under the No Build Alternative, construction could temporarily affect access to residences and businesses in Phase I or Phase II cities.

Summary of Construction-Period Impacts for TSM Alternative Addressed by Regulatory Compliance

Ensuring that temporary access routings are provided for pedestrians and vehicles is the only regulatory requirement associated with socioeconomic issues for the construction period for the TSM Alternative, and would result in no adverse effects under NEPA and no significant impacts under CEQA to socioeconomic characteristics.

c. LRT, Triple Track Configuration

For the Triple Track configuration, potential socioeconomic impacts during the construction period are related to restrictions on access to residential or business properties if such restriction would affect the viability of these properties.

Phase I – The Cities Affected and the Results of Regulatory Compliance

There is no Triple Track configuration in any of the cities in Phase I and thus no regulatory compliance applies. Under the overall Triple Track Alternative, the portion of the alignment in Pasadena would be served by double tracking since there is no need for triple tracks west of Duarte. Accordingly there is no need for regulatory compliance in these cities.

Phase II, Segment 1 - The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte and Irwindale. LRT stations in Segment 1 would include the existing station at Sierra Madre Villa in Pasadena, and new stations in Arcadia, Monrovia, Duarte, and Irwindale. Construction period impacts affecting access to properties, which has the potential to affect socioeconomic characteristics, are most likely to occur in the vicinity of the new stations. As previously stated, ensuring that temporary access routings are provided for pedestrians and vehicles is the only regulatory requirement associated with socioeconomic issues for the construction period.

Phase II, Segment 2 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. New stations would be built in each, except for a joint Montclair/Upland station. Construction period impacts affecting access to properties, which has the potential to affect socioeconomic characteristics, are most likely to occur in the vicinity of the new stations. As previously stated, ensuring that temporary access routings are provided for pedestrians and vehicles is the only regulatory requirement associated with socioeconomic issues for the construction period.

Summary of Construction Period Impacts for Full Build Alternative, Triple Track Configuration, Addressed by Regulatory Compliance

Ensuring that temporary access routings are provided for pedestrians and vehicles is the only regulatory requirement associated with socioeconomic issues for the construction period for the Full Build LRT Alternative (Phase I and Phase II, Segment 1 and 2) Triple Track configuration. Meeting this requirement would result in no adverse effects under NEPA and no significant impacts under CEQA to socioeconomic characteristics.

Summary of Construction Period Impacts for Build LRT Alternative to Maintenance Facility, Triple Track Configuration Addressed by Regulatory Compliance

Ensuring that temporary access routings are provided for pedestrians and vehicles is the only regulatory requirement associated with socioeconomic issues for the construction period for the Build LRT Alternative to Maintenance Facility (Phase I and Phase II, Segment 1 only) Triple Track configuration. Meeting this requirement would result in no adverse effects under NEPA and no significant impacts under CEQA to socioeconomic characteristics.

d. LRT, Double Track Configurations

The need for regulatory compliance during the construction period for the Double Track configurations is the same as described above for Phase I and Phase II for the Triple Track Configurations.

Summary of Construction Period Impacts for Full Build Alternative, Double Track Configurations, Addressed by Regulatory Compliance

Ensuring that temporary access routings are provided for pedestrians and vehicles is the only regulatory requirement associated with socioeconomic issues for the construction period for the Full Build LRT Alternative (Phase I and Phase II, Segment 1 and 2) Double Track configurations. Meeting this requirement would result in no adverse effects under NEPA and no significant impacts under CEQA to socioeconomic characteristics.

Summary of Construction Period Impacts for Build LRT Alternative to Maintenance Facility, Double Track Configurations, Addressed by Regulatory Compliance

Ensuring that temporary access routings are provided for pedestrians and vehicles is the only regulatory requirement associated with socioeconomic issues for the construction period for the Build LRT Alternative to Maintenance Facility (Phase I and Phase II, Segment 1 only) Double Track configurations. Meeting this requirement would result in no adverse effects under NEPA and no significant impacts under CEQA to socioeconomic characteristics.

3-14.2.7 Long-term Impacts

Long-term impacts associated with the alternatives were identified in Section 3-14.1.2.4, above. Elimination or reduction of these long-term impacts would occur through two steps, as follows:

(1) compliance with local, state or federal regulations or permits that have been developed by agencies to manage construction impacts, to meet legally established environmental impact criteria or thresholds, and/or to ensure that actions occurring under agency approvals or permits are in compliance with laws and policies, and (2) implementation of the proposed alternatives with additional mitigation measures defined in Section 31-4.1.3.2. Following is a discussion of the long-term impacts for each of the alternatives that would be addressed by the first step, regulatory compliance.

Long-term socioeconomic impacts could arise in the vicinity of new LRT stations and the Maintenance and Operations Facility. Socioeconomic impacts around stations could arise from development or redevelopment driven by transit access. As described in the Land Use section (Section 3-10), development and redevelopment is controlled by local government. Long-term impacts may be identified by the planning and approval processes of these governments. Under CEQA, these impacts would typically be mitigated to less than significant levels through a combination of compliance with regulatory requirements and mitigation measures.

Long-term socioeconomic impacts could also arise from the acquisition of properties for the proposed project, or if those acquisitions were to result in the loss of employment. As described in the Acquisitions and Displacements section (Section 3-1), implementation of the proposed project would occur under the auspices of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (Uniform Act). The Uniform Act mandates that acquisitions be made at fair market value, and provides assistance for residential and business relocations caused by a federally-sponsored project. State- and local-level projects are also implemented under programs that are consistent with the Uniform Act.

For the Maintenance and Operations Facility, long-term socioeconomic changes could occur in Irwindale and nearby communities to the extent that businesses that would serve that facility may choose to locate in those cities. If new or changed business activities were to occur, it can be assumed that the activities would have to comply with federal, state or local environmental regulations.

a. No Build Alternative

Any property acquisitions and relocations that would occur as part of a No Build Alternative project would occur under the auspices of the Uniform Act or similar policy.

Phase I – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase I are Los Angeles, South Pasadena and Pasadena. The projects in the No Build Alternative that could affect these cities are completion and service on the Eastside LRT Extension, implementation of increased service on Phase I of the Gold Line LRT, and countywide bus service improvements.

Property acquisitions and relocations would occur in Los Angeles as part of the Eastside LRT Extension. Long-term impacts (loss of properties and relocations) are discussed in the environmental document for that project. Any property acquisitions and relocations that would occur as part that project would occur under the auspices of the Uniform Act or similar policy.

Increased service on Phase I of the Gold Line LRT is likely to include property acquisition for additional TPSs. LACTMA has initiated an environmental document that will identify property needs and any necessary relocations. Any property acquisitions and relocations that would be needed would occur under the auspices of the LACMTA policy.

No property acquisitions or relocations would occur in South Pasadena or Pasadena for the No Build Alternative.

Phase II, Segment 1 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte and Irwindale. The projects in the No Build Alternative affecting these cities during the Phase II construction period are implementation of increased service on Phase I of the Gold Line LRT and countywide bus service improvements. No property acquisitions or relocations are necessary in any of these cities for the No Build Alternative.

Phase II, Segment 2 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The project in the No Build Alternative affecting the cities during the construction period of the proposed Phase II is the Los Angeles county bus service improvements. Even though Montclair and Upland are in San Bernardino County, they are affected by changes in Los Angeles County bus service because that service is linked to the Montclair TransCenter. No property acquisitions or relocations are necessary in any of these cities for the No Build Alternative.

Summary of Long-term Impacts for No Build Alternative Addressed by Regulatory Compliance

The long-term socioeconomic impacts for the No Build Alternative that could arise from property acquisitions and relocations would be reduced or eliminated by compliance with the Uniform Act or similar policy.

b. Transportation System Management (TSM) Alternative

The TSM Alternative includes changes to existing bus routes to provide or improve connecting service to the Gold Line Phase I station at Sierra Madre Villa, and increasing peak period and off-peak period services frequencies to downtown Pasadena (the study corridor's largest employment center) and among the cities and major activity centers within the study area. Implementation of these proposed bus route changes is not expected to include major construction or acquisition of property. Accordingly, there would be no long-term socioeconomic impacts associated with acquisitions or relocations, and no need to comply with the Uniform Act.

Increases in transit access would be likely to support current land uses, including concentrations of commercial activities. Increased transit access could influence decisions for development or redevelopment around transit nodes, which has the potential to alter socioeconomic conditions. Approvals of such projects are under the control of local government. It is assumed that any project approvals would include requirements to comply with federal, state and local requirements.

Phase I – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase I are Los Angeles, South Pasadena and Pasadena. The projects in the TSM Alternative that could affect these cities are changes to MTA Routes 177 and 188, Foothill Routes 184, 187, 189, 494

and 690. The city of Los Angeles is affected only by Foothill route 494, which links Glendora and Monrovia via the El Monte Busway to downtown Los Angeles. The TSM Alternative does not include any bus route changes that would affect bus service in the city of South Pasadena.

The only city affected by TSM projects is Pasadena. As noted above, additional transit access could influence decisions for development or redevelopment around transit nodes, which has the potential to alter socioeconomic conditions. Approvals of such projects are under the control of the city and any project approvals would include requirements to comply with federal, state and local requirements.

Ridership on Phase I of the Gold Line would increase slightly as a result of improved access to the terminal station at Sierra Madre Villas. However, there would be little change in the boardings at stations in South Pasadena or Los Angeles. The incremental change in boardings from the No Build to the TSM Alternative would not be sufficient to induce socioeconomic changes.

Phase II, Segment 1 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte and Irwindale. The projects in the TSM Alternative which affect these cities are changes to MTA Routes 177 and 188, Foothill Routes 184, 187, 189, 494 and 690. Additional transit access could influence decisions for development or redevelopment along transit lines, which has the potential to alter socioeconomic conditions. Approvals of such projects are under the control of the cities and any project approvals would include requirements to comply with federal, state and local requirements.

Phase II, Segment 2 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The projects in the TSM Alternative that affect these cities are changes to Foothill Routes 184, 187, 189, 494 and 690. Additional transit access could influence decisions for development or redevelopment along transit lines, which has the potential to alter socioeconomic conditions. Approvals of such projects is under the control of the cities and any project approvals would include requirements to comply with federal, state and local requirements

Summary of Long-term Impacts for TSM Alternative Addressed by Regulatory Compliance

Additional transit access could influence decisions for development or redevelopment along transit lines, which has the potential to alter socioeconomic conditions. Approvals of such projects are under the control of the cities and any project approvals would include requirements to comply with federal, state and local requirements.

c. LRT, Triple Track Configuration

Long-term socioeconomic impacts associated with LRT could arise in the vicinity of new LRT stations and the Maintenance and Operations Facility. Socioeconomic impacts around stations could arise from development or redevelopment driven by transit access. As described in the Land Use section (Section 3-10), development and redevelopment is controlled by local government. Long-term impacts may be identified by the planning and approval processes of these governments. Under CEQA, these

impacts would typically be mitigated to less than significant levels through a combination of compliance with regulatory requirements and mitigation measures.

Phase I – The Cities Affected and the Results of Regulatory Compliance

Phase I includes Los Angeles, South Pasadena and Pasadena. There are no elements of the Triple Track configuration in these cities. Under the overall Triple Track configuration, the portion within Pasadena would be served by double tracks since there is no need for three tracks west of Monrovia. Since there are no elements in these cities, regulatory compliance is not applicable.

Phase II, Segment 1 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte and Irwindale. Long-term impacts to socioeconomics could arise from the acquisition of properties for the proposed project, or if those acquisitions were to result in the loss of employment. As described in the Acquisitions and Displacements section (Section 3-1), implementation of the proposed project would occur under the auspices of the Uniform Act. The Uniform Act requires that acquisitions be made at fair market value and provides assistance for residential and business relocations caused by a federally-sponsored project. State- and local-level projects are also implemented under programs that are consistent with the Uniform Act.

For the Maintenance and Operations Facility, long-term socioeconomic changes could occur in Irwindale and nearby communities to the extent that businesses that would serve that facility may choose to locate in those cities. If new or changed business activities were to occur, it can be assumed that the activities would have to comply with federal, state or local environmental regulations.

Phase II, Segment 2 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The potential long-term impacts are the same as described for Phase I (without the Maintenance and Operations Facility).

Summary of Long-term Impacts for Triple Track Configuration Addressed by Regulatory Compliance

For the Full Build LRT Alternative, Triple Track configuration, long-term impacts to socioeconomics could arise from the acquisition of properties for the proposed project, or if those acquisitions were to result in the loss of employment. Implementation of the proposed project would occur under the auspices of the Uniform Act. The Uniform Act requires that acquisitions be made at fair market value and provides assistance for residential and business relocations caused by a federally-sponsored project. State- and local-level projects are also implemented under programs that are consistent with the Uniform Act.

For the Build LRT Alternative to Maintenance Facility (Pasadena to Irwindale), the same potential long-term socioeconomic impacts associated with property acquisitions and displacements could occur. Implementation of the proposed project would occur under the auspices of the Uniform Act. The Uniform Act requires that acquisitions be made at fair market value and provides assistance for residential

and business relocations caused by a federally sponsored project. State- and local-level projects are also implemented under programs that are consistent with the Uniform Act.

d. LRT, Double Track Configurations

The potential long-term socioeconomic impacts associated with property acquisitions and displacements under the Triple Track configuration would apply. The potential impacts would be the same in Phase I and Phase II cities. As above, these impacts would be eliminated or reduced by compliance with the Uniform Act.

Summary of Long-term Impacts for Full Build Alternative, Double Track Configurations Addressed by Regulatory Compliance

Long-term socioeconomic impacts for the Double Track configurations for the Full Build LRT Alternative (Phase II, Segments 1 and 2) could arise with property acquisitions and displacements. Implementation of the proposed project would occur under the auspices of the Uniform Act.

Summary of Long-term Impacts for Build LRT Alternative to Maintenance Facility, Double Track Configurations Addressed by Regulatory Compliance

For the Build LRT Alternative to Maintenance Facility (Segment 1 only) long-term socioeconomic impacts for the Double Track configurations could arise with property acquisitions and displacements. Implementation of the proposed project would occur under the auspices of the Uniform Act.

3-14.2.8 Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, signed on February 11, 1994, directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse human health or environmental effects of federal projects and programs on minority and low-income populations to the greatest extent practicable and permitted by law. The term "minority" includes persons who identify themselves as Black, Asian/Pacific Islander, Native American, or of Hispanic origin. The term "low-income" includes persons whose household income is at or below the U.S. Department of Health and Human Services (HHS) poverty guidelines. A different threshold (e.g., U.S. Census Bureau poverty threshold) may be utilized as long as it is not selectively implemented and is inclusive of all persons at or below the HHS poverty guidelines.

The discussion of environmental justice that follows has been prepared in accordance with the applicable guidance for addressing environmental justice, including: DOT Order 5610.2 (April 15, 1997), FHWA Order 6640.23 (December 2, 1998), and FHWA Western Resource Center Interim Guidance (March 2, 1999). Consistent with this guidance, the environmental justice analysis for the proposed project describes: (1) the existing population and the presence of minority and low-income population groups; (2) potential adverse effects on the overall project area population, including minority and low-income population groups; (3) disproportionately high and adverse effects on minority and low-income population groups; and (4) community outreach and public involvement efforts.

(1) *Existing Population:* The demographic data collected at the City and census tract levels indicate that the proportions of minority and low-income populations throughout both Segment 1 and Segment 2 project areas are generally similar to those in the County of Los Angeles. Table 3-14.3 shows that the

individual cities all contain substantial percentages of minority population groups. This ranges from a low of 33 percent minority to a high of 92 percent in Irwindale, which has a population of less than 1,500 persons. As shown in Table 3-14.5, 18 percent of Los Angeles County qualifies as low-income, while only the cities of Azusa and Pomona have higher percentages of low-income population (19 and 22 percent, respectively). In summary, most areas along the project corridor are characterized by a diverse, heterogeneous population typical of the Southern California region.

(2) Effects on Overall Population: The technical analyses by environmental topic conducted as part of the NEPA and CEQA processes have determined that the proposed project would result in potentially adverse effects during the construction period for air quality, biological resources, traffic and water quality. Potential construction period air impacts would occur along the entire right-of-way and at each proposed station/parking area, so impacts would be spread among all population groups along the corridor; no disproportionate impacts would occur. Potential biological impacts would occur at the proposed Maintenance and Operating Facility in Irwindale. There are no biological impacts to humans. Potential construction-period impacts would occur along the entire right-of-way and at each proposed station/parking area, so impacts would be spread among all population groups along the corridor; no disproportionate impacts would occur. Mitigation measures and regulatory compliance methods have been identified to address all of these construction period adverse affects. No long–term adverse effects were identified and no residual or unavoidable adverse effects are expected. Beneficial effects are expected for all population groups with respect to improved traffic circulation and mobility.

(3) *Disproportionately High and Adverse Effects on Minority and/or Low-Income Populations:* Taking into consideration the mitigation measures that have been proposed in the environmental document, the impact avoidance and minimization efforts that have occurred during the project planning and development process, and the potential benefits that would accrue to the community, environmental justice considerations require an assessment of whether the effects of the project on minority and low-income groups could be considered disproportionately high and adverse.

The determination of whether or not the effects of the proposed project are disproportionately high and adverse depends on whether (1) the effects of the project are predominately borne by a minority or low-income population, or (2) the effects of the project are appreciably more severe or greater in magnitude to minority or low-income populations compared to the effects on non-minority or non-low-income populations. See *FHWA Western Resource Center Interim Guidance – Addressing Environmental Justice in the EA/EIS* (1999). Using the potential construction period air quality impact issue as an example: potential impacts would occur along the entire right-of-way and at each proposed station/parking area, so impacts would be spread among all population groups along the corridor; no disproportionate impacts would occur. Since the adverse effects of the project would be fully mitigated, they would not be borne by any population group, including minority and low-income populations. Thus, no disproportionately high and adverse effects on minority and/or low-income populations would result.

4) *Community Outreach and Public Involvement:* The proposed project is the culmination of prior planning studies that included input from public groups along the corridor. Additional outreach and involvement efforts are expected to continue as part of the ongoing environmental compliance and project development processes. Where necessary, these efforts will include mechanisms to reduce cultural, language, and economic barriers to participation. See Chapter 8.

Project planning has been, and the proposed project will be, developed in accordance with Title VI of the Civil Rights Act of 1964, which provides that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. In addition, the project will be developed in conformity with related statutes and regulations mandating that no person in

the State of California shall, on grounds of race, color, sex, age, national origin, or disabling condition, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity administered by or on the behalf of the California State Department of Transportation.

The proposed project will continue to comply with applicable federal requirements promulgated in accordance with Executive Order 13166, *Improving Access to Services for Persons with Limited English Proficiency* (August 11, 2000), which requires that federal programs and activities be accessible to persons with limited English language proficiency.

3-14.3 Potential Mitigation

3-14.3.1 Construction Period Mitigation Measures

Construction period socioeconomic impacts would be eliminated or reduced to less than adverse under NEPA by ensuring that adequate access is provided to residential and business properties (see Section 3-1.1.1), so no additional measures to mitigate impacts are required. The No Build Alternative, TSM Alternative, and none of the LRT Build alternatives require construction-period mitigation measures for socioeconomic impacts under NEPA.

However, under CEQA, construction period impacts that restrict access to properties are potentially significant. Additionally, members of the public are especially sensitive about changes in access to their residences or businesses. To address these concerns, the following preventative measures would be implemented, as well as an overall Traffic Management Plan.

- Schedules for street closures would be developed in consultation with each corridor city.
- Advance notices will be posted on city streets indicating when access will be closed or limited.
- Signs indicating access routes, alternate access points, and that affected business are open will be posted.
- Newspaper notices will be placed indicating street and access closures.
- The Construction Authority website will include information on planned street and access closures.

3-14.3.2 Long-term Mitigation

All socioeconomic impacts would be not adverse (under NEPA)/ less than significant (under CEQA), and no mitigation measures would be required for any of the alternatives.

3-14.4 Impact Results with Mitigation

All socioeconomic impacts would be not adverse (under NEPA)/ less than significant (under CEQA), and no mitigation measures would be required for any of the alternatives.

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3-15 TRAFFIC AND TRANSPORTATION

Summary of Impacts

The No Build and TSM alternatives are not expected to have adverse/significant traffic impacts in the cities in the study corridor.

For the LRT alternatives, adverse/significant construction-period impacts for both transit and traffic are anticipated at five intersection locations, one intersection each in Arcadia and San Dimas and three intersections in Glendora. For the LRT Double Track configurations, adverse/significant construction-period impacts for both transit and traffic are anticipated at one intersection located in Arcadia. Construction period mitigation measures and conducting street closures during the night hours, would reduce construction period impacts to less than adverse/less than significant.

Operation of the Full Build LRT alternative would result in adverse/significant impacts at 33 intersections across the 24-mile corridor. Mitigation measures would reduce impacts to less than adverse/less than significant.

3-15.1 Existing Conditions

Existing, transit and roadway conditions within the study area are presented in the following sections.

3-15.1.1 Transit

The Phase II study area has one of the most extensive networks of bus routes in the San Gabriel Valley. The study area's transit routes generally follow a grid pattern and include many express and local routes. Five public transit agencies operate bus service in the Phase II study area: the Los Angeles Metropolitan Transportation Authority, Foothill Transit, Pasadena Area Rapid Transit System, the City of Duarte, Omnitrans and Metrolink. **Table 3-15.1** lists all the current Phase II study area bus transit routes including the end destinations of their services, and **Figures 3-15.1 to 3-15.5** illustrates these routes.

TABLE 3-15.1
BUS TRANSIT ROUTES WITHIN THE PHASE II STUDY AREA

Operator	Line(s)	Destination
Duarte	Blue	Community Connector (Duarte)
	Green	Community Connector (Duarte)
Foothill Transit	184	Duarte – Monrovia – Arcadia
	185	Azusa – West Covina – Hacienda Heights
	187/189	Claremont – Glendora – Pasadena
	190	Montclair – Pomona Fairplex – Cal Poly
	272	Duarte – Baldwin Park – West Covina
	280	Azusa – Puente Hills Mall
	281	Glendora – West Covina – Puente Hills Mall
	283/284	West Covina – Covina – San Dimas – Glendora

TABLE 3-15.1 *Continued*
BUS TRANSIT ROUTES WITHIN THE PHASE II STUDY AREA

Operator	Line(s)	Destination
	291	La Verne – Pomona – South Pomona
	292/294	Claremont– Montclair – Pomona
	480/481	Montclair – West Covina – El Monte – Los Angeles
	488	Glendora – West Covina – Los Angeles
	492	Montclair – Arcadia – Los Angeles
	494	San Dimas – Glendora – Los Angeles
	498	Citrus Collage – LA (Express)
	499	San Dimas Park & Ride – Via Verde Park & Ride – LA (Express)
	690	Montclair – Pasadena – LA (Express)
	699	Montclair TransCenter – Fairplex P & R – Lakes P & R – LA (Express)
	851	Covina – Glendora
	855	Pomona TransCenter – Claremont
MTA	79	LA – Arcadia
	177	La Canada Flintridge – Pasadena – Arcadia – Monrovia – Duarte
	180/181/380	Hollywood – Glendale – Eagle Rock – Pasadena – Altadena
	188	Altadena – Pasadena – Arcadia – Duarte
	260	Compton – Long Beach – Monterey Park – Pasadena – Altadena
	264	Rosemead – San Gabriel – San Marino – Pasadena – Altadena
	266	Lakewood – Pasadena
	267	El Monte – Temple City – Arcadia – Pasadena – Altadena
	268	El Monte – Arcadia – Pasadena – Altadena – La Canada Flintridge
	270	Monrovia – El Monte – Whittier – Santa Fe Springs – Norwalk – Cerritos
	487	LA – San Gabriel – Rosemead – Pasadena – Sierra Madre (Express)
	489	Hastings Ranch – Temple City – Rosemead Blvd. – LA (Express)
	491	Sierra Madre – Arcadia – El Monte – LA (Express)
Omnitrans	65	Montclair – Chino Hills
	66	Fontana – Foothill – Montclair
	68	Indian Hill – Montclair – Chaffey College
	70	Montclair – Ontario – Rancho Cucamonga
	90	Montclair – Ontario – San Bernardino
Pasadena ARTS	31/32	Community Connector (Pasadena)
	40	Community Connector (Pasadena)
	60	Community Connector (Pasadena)
Metrolink		LA – Claremont – San Bernardino

Source: 2003 Duarte, MTA, Foothill Transit, Omnitrans, and Pasadena ARTS timetables.

Most of the heavily used routes are those that run in an east-west direction. These include bus routes that operate on Foothill Boulevard, Interstate 210 Freeway, Interstate 10 Freeway, Colorado Boulevard, Huntington Drive, Bonita Avenue, and Arrow Highway. Rosemead Boulevard and Peck Road are two north-south streets on which heavily used bus routes also operate. The predominant flow of transit passengers in the corridor is in an east-west orientation. Many of these routes experience very high ridership during peak periods. **Table 3-15.2** shows the service frequency (headways) for all the bus lines in the corridor. This table illustrates the high demand for service on many of the lines, particularly on Foothill Transit lines 480/481 and 498 where headways during the morning peak period average five to 10 minutes. Gold Line Phase I debuted on July 26, 2003. It provides light rail service to transit riders from Union Station in downtown Los Angeles to Pasadena.

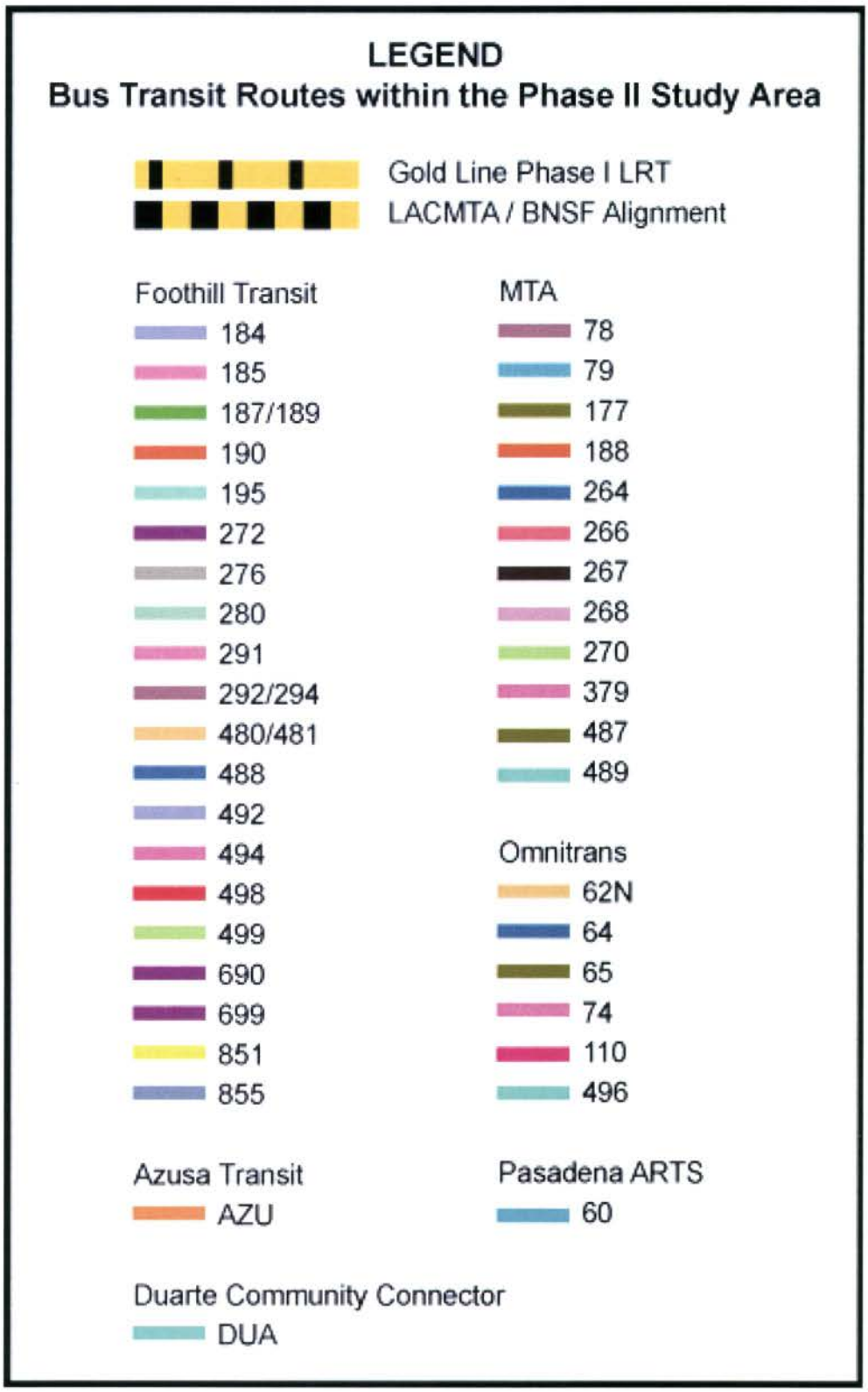


Figure 3-15.1: Legend for Figures 3-15.2 to 3-15.5

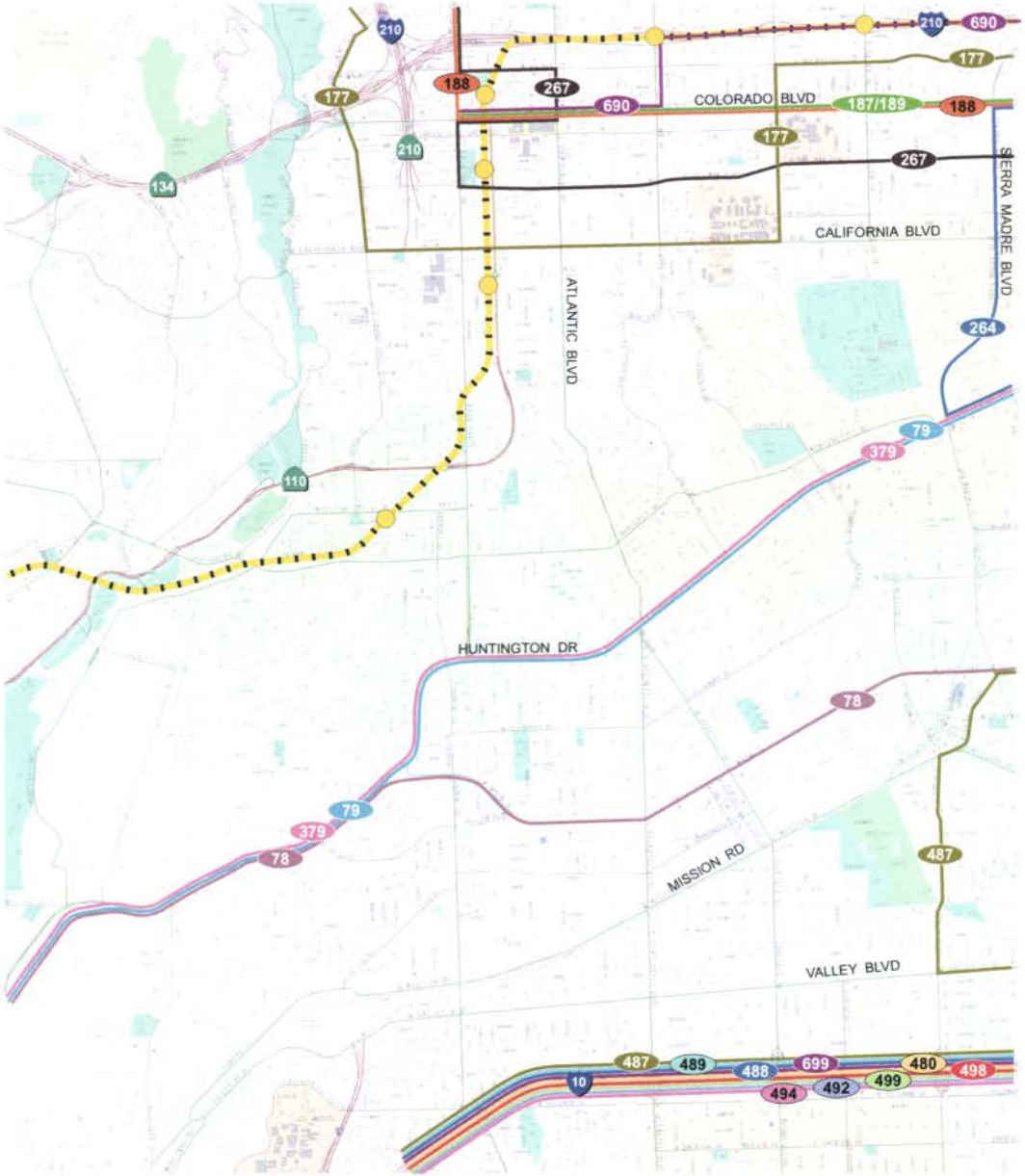


Figure 3-15.2: Transit Service, No Build Alternative, Map 1 of 4

Figure 3-15.3: Transit Service, No Build Alternative, Map 2 of 4

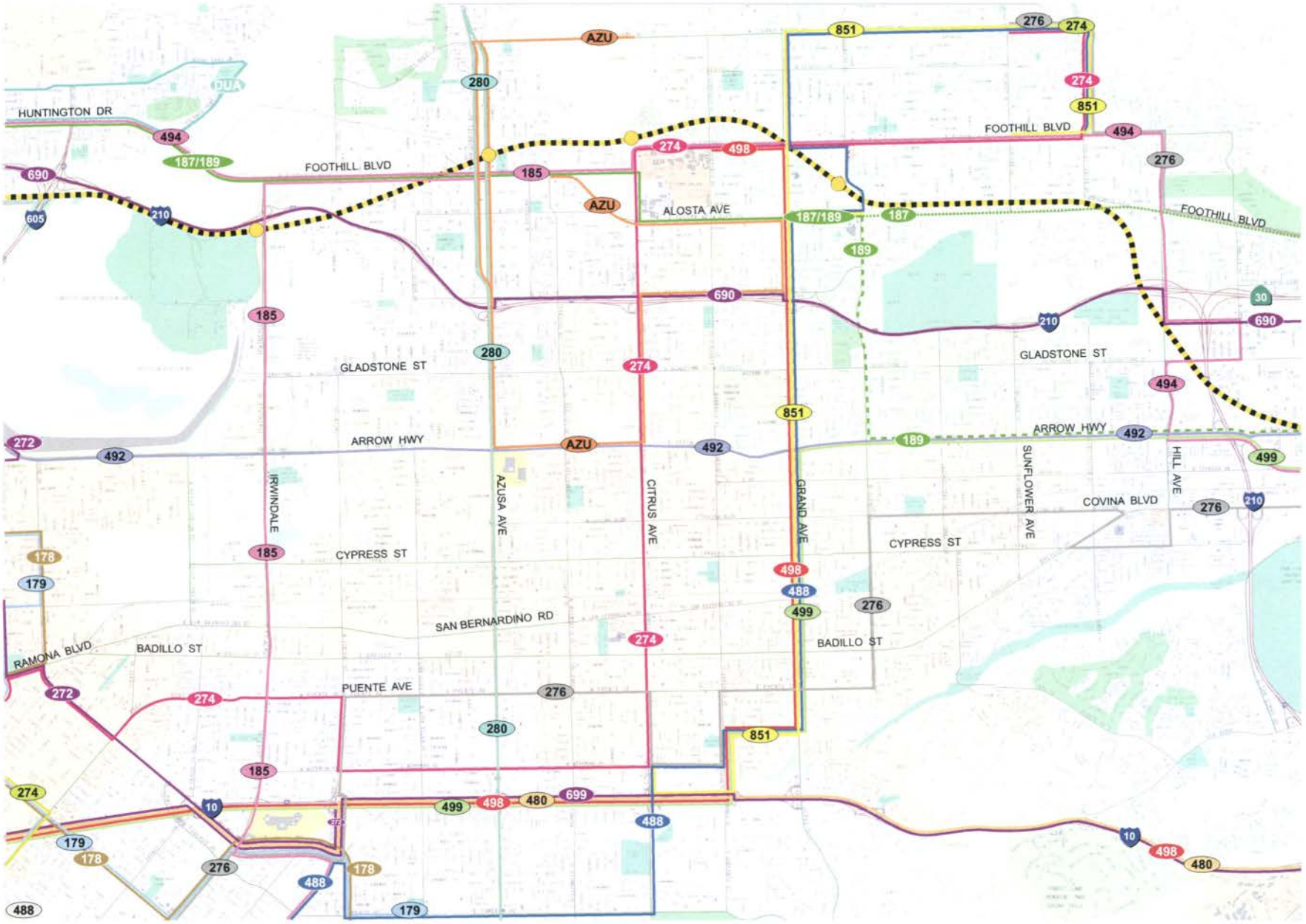


Figure 3-15.4: Transit Service, No Build Alternative, Map 3 of 4

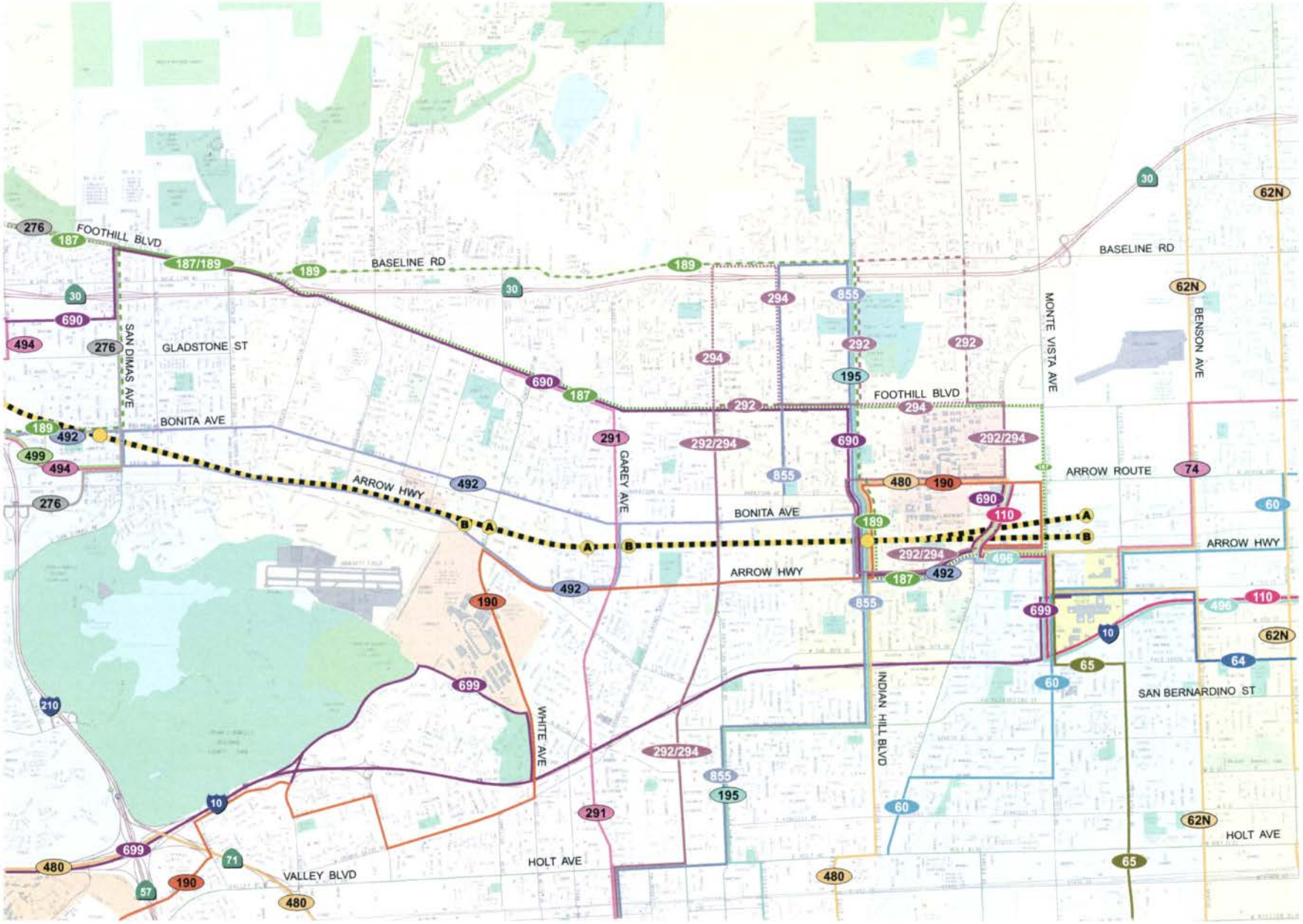


Figure 3-15.5: Transit Service, No Build Alternative, Map 4 of 4

TABLE 3-15.2
FREQUENCY OF TRANSIT SERVICE (IN MINUTES)

Operator	Line	Days	AM Peak 6-9am	Midday 9am-3pm	PM Peak 3-7pm	Evening 7pm-11pm	Owl 11pm-6am	Hours of Service
Duarte Transit	Blue	Weekday	60	60	60			7am-7pm
		Saturday	60	60	60			8am-6pm
	Green	Weekday	60	60	60			7am-7pm
Foothill Transit	184	Weekday	45	45	45			5am-7pm
		Weekend	45	45	45			5am-7pm
	185	Weekday	30	30	30	60		5am-10:30pm
		Weekend	30	30	30			6am-8pm
	187	Weekday	15	15	15	30	60	4am-1am
	189	Saturday	30	30	30	60		5am-12m
		Sunday	60	60	60	60		6am-10pm
	190	Weekday	30	60	30	30		5am-12pm
		Weekend	60	60	60	30		6am-12pm
	272	Weekday	30	30	30	60		5am-10pm
		Weekend	30	30	30			6am-7pm
	280	Weekday	15	15	15	30		5am-11:30pm
		Weekend	15	15	15	15		6am-11:30pm
	281	Weekday	30	30	30	30		4am-10pm
		Weekend	60	60	60	60		6am-8pm
	283	Weekday	60	60	60	60		5am-9:30am
	284	Weekend	60	60	60	60		5am-9:30am
	291	Weekday	15	15	15	60		5am-12am
		Weekend	30	30	30			6am-7pm
	292	Weekday	60	60	60	60		6am-9pm
	294	Weekend	60	60	60	60		7am-9pm
	480	Weekday	5	15	10	10	60	12am-12am
	481	Saturday	15	15	15	60	60	12am-12am
		Sunday	15	15	15	60	60	12am-12am
	488	Weekday	30	60	30	60		5am-10pm
		Weekend	60	60	60	60		5am-9pm
	492	Weekday	30	25	30	45		5am-10:30pm
		Weekend	60	60	60	60		6am-8pm
	494	Weekday	30		30			EB 4pm-7pm
								WB 5am-8:30am

TABLE 3-15.2 *continued*
FREQUENCY OF TRANSIT SERVICE (IN MINUTES)

Operator	Line	Days	AM Peak 6-9am	Midday 9am-3pm	PM Peak 3-7pm	Evening 7pm-11pm	Owl 11pm-6am	Hours of Service
	498	Weekday	5-15		5-15			EB 2pm-8pm WB 5am-10am
	499	Weekday	12		15			EB 3pm-8pm WB 5:30am-9am
	690	Weekday	30		30			EB 3:30pm-8pm WB 5am-9am
	699	Weekday	10		10			EB 2pm-8:30pm WB 4am-9:30am
	851	Weekday	30-60		30-60			6am-5pm
	855	Weekday	10		60			5am-7pm
MTA	79	Weekday	20	30	20	45	60	6am-1am
		Saturday	30	30	30	50	60	6am-1am
		Sunday	60	40	40	50	60	5am-1am
	177	Weekday	30	60	60	60		6am-8pm
	180	Weekday	15	20	15	30	60	5am-5am
	181	Saturday	15	20	15	30	60	4am-4am
	380	Sunday	15	20	15	30	60	4am-4am
	188	Weekday	45	60	45			5am-8pm
	260	Weekday	15	30	15	30		4am-11pm
		Weekend	15-20	15-20	15-20	30		5am-11pm
	264	Weekday	40	40	30			5am-8pm
		Weekend	60	60				7am-7pm
	266	Weekday	25	40	30	60		4am-11:30pm
		Saturday	50	40	40	60		5am-11:30pm
		Sunday	50	40	40	60		5:30am-10pm
	267	Weekday	40	40	40	60		5:30am-8:30pm
		Weekend	60	60	60	60		6am-8pm
	268	Weekday	35	45	25	50		5:30am-9pm
		Saturday	60	60	60	60		7am-9pm
		Sunday	60	60	60	60		7am-8:15pm
	270	Weekday	50	60	45	60		5am-10:30pm
		Saturday	60	60	60	60		6am-8pm
		Sunday	60	60	60	60		6am-8pm

TABLE 3-15.2 *continued*
FREQUENCY OF TRANSIT SERVICE (IN MINUTES)

Operator	Line	Days	AM Peak 6-9am	Midday 9am-3pm	PM Peak 3-7pm	Evening 7pm-11pm	Owl 11pm-6am	Hours of Service
	487	Weekday	30	45	10	60		6am-10pm
		Saturday	45	45	45	45		6:15am-9:30pm
		Sunday	60	60	60	60		7am-9:15pm
	489	Weekday	25		40			6am-6pm
	491	Weekday	30	30	30	30		5am-9pm
		Saturday	45	45	45	45		6am-10pm
		Sunday	60	60	60	60		7am-9pm
Omnitrans	65	Weekday	30	30	30	60		5am-11pm
		Weekend	60	60	60			6am-7:15pm
	66	Weekday	30	30	30	60		4am-11pm
		Saturday	30	30	30			7am-7pm
		Sunday	60	60	60			7am-7pm
	68	Weekday	30	30	30	60		4am-11pm
		Weekend	60	60	60	60		6am-8pm
	70	Weekday	30	30	30	30		5am-10pm
		Saturday	30	30	30			7am-7pm
		Sunday	60	60	60			7am-7pm
	90	Weekday	45	45	45	60		5am-10pm
		Saturday	45	45	45	60		5am-10pm
		Sunday	60	60	60	60		7am-8pm
Pasadena ARTS	31	Weekday	60	60	60	60		7am-8pm
	32	Saturday		60	60	60		11am-8pm
		Sunday		60	60			11am-5pm
	40	Weekday	30	30	30	30		7am-8pm
		Saturday		30	30	30		11am-8pm
		Sunday		30	30			11am-5pm
	60	Weekday	30		30			6am-9am
								4pm-8pm
Metrolink		Weekday	20-30	60	20-30	60	30-45	4:15am-9pm
		Saturday	120	90-120	90			7am-8:30pm
		Sunday	210	210	210			6:45am-7pm

Notes: EB= East Bound WB= West Bound
Source: 2003 Duarte, MTA, Foothill Transit, Omnitrans, Pasadena ARTS and Metrolink timetables.

3-15.1.2 Traffic

a. Traffic Count Locations

In order to determine the existing traffic operating conditions in the Phase II study area and perform traffic analysis for the future year 2025, tube counts were take at 55 roadway segments and manual turning movement counts were conducted at 123 intersections. The jurisdictions that are represented by the traffic analysis locations include the cities of Pasadena, Arcadia, Monrovia, Duarte, Irwindale, Azusa, Glendora, San Dimas, La Verne, Pomona, and Claremont in Los Angeles County and the cities of Upland and Montclair in San Bernardino County. The roadway segment analysis was performed using average daily traffic (ADT) volumes taken from the tube counts. The intersections were analyzed using PM peak hour intersection movement volumes. **Figures 3-15.6 to 3-15.20** show the tube count and intersection locations where data was collected to be used in the traffic analysis for this DEIS/DEIR.

b. Existing Roadway Segment Analysis

In September and October 2003, new average daily traffic (ADT) counts were taken at 55 roadway segments within the Phase II Corridor. The 24-hour manual tube counts at the 55 roadway segment locations were collected to determine existing daily traffic operations. Six of the roadway segments under consideration travel in the east-west direction and the remaining segments travel in the north-south direction.

Each roadway segment was analyzed to determine daily operations and level of service. Level of service (LOS) is a qualitative measure used to describe the condition of traffic flow, ranging from excellent conditions at LOS A to overload conditions at LOS F. LOS D is typically recognized as the minimum level of service that is acceptable in urban areas. The definition of each level of service is included in **Table 3-15.3**.

TABLE 3-15.3
ROADWAY SEGMENT LEVEL OF SERVICE DEFINITIONS

Level of Service	Volume/Capacity Ratio	Definition
A	0.000–0.600	EXCELLENT. Free flow, light volumes
B	0.601–0.700	VERY GOOD. Free to stable flow, light to moderate volumes
C	0.701–0.800	GOOD. Stable flow, moderate volumes, freedom to maneuver noticeably restricted
D	0.801–0.900	FAIR. Approaches unstable flow, moderate to heavy volumes, limited freedom to maneuver
E	0.901–1.000	POOR. Extremely unstable flow, heavy volumes, maneuverability and psychological comfort extremely poor
F	>1.000	FAILURE. Forced or breakdown conditions, slow speeds, tremendous delays with continuously increasing queue lengths

Source: Transportation Research Board, Highway Capacity Manual, Special Report 209, 2000.

Figure 3-15.6: Traffic Count Locations - Sierra Madre

Figure 3-15.7: Traffic Count Locations - Arcadia

Figure 3-15.8: Traffic Count Locations - Monrovia

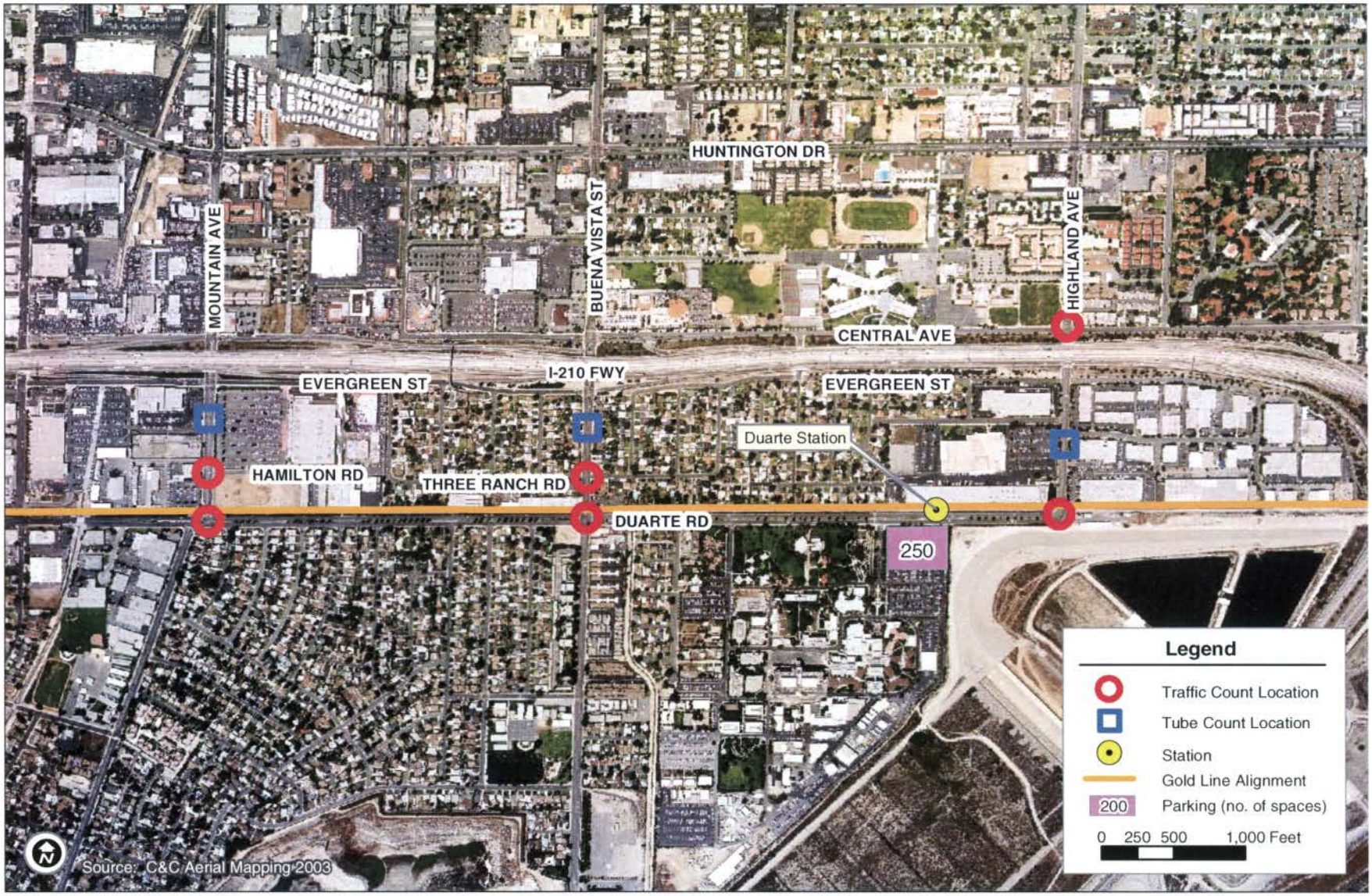


Figure 3-15.9: Traffic Count Locations - Duarte

Figure 3-15.10: Traffic Count Locations - Irwindale

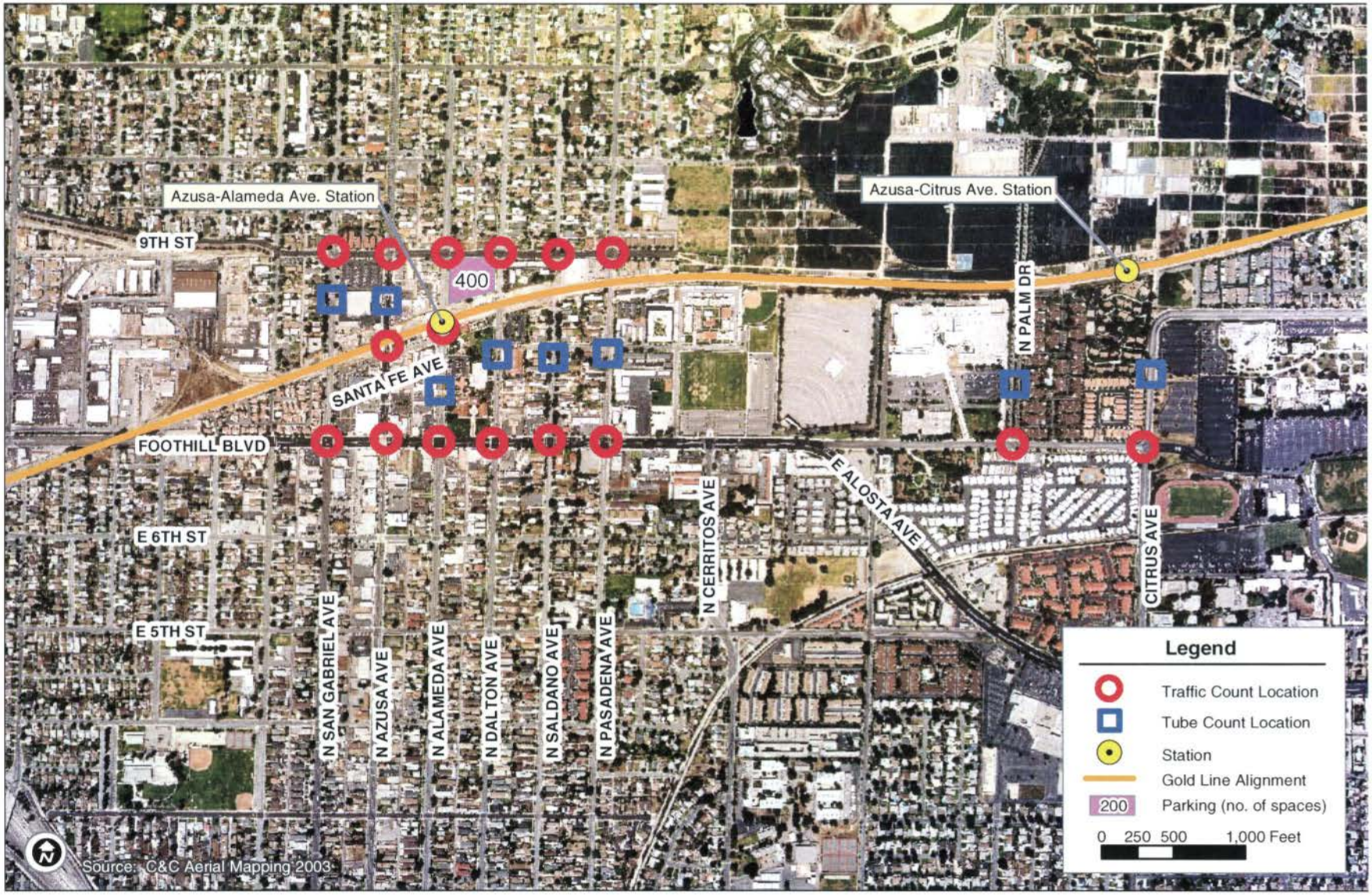


Figure 3-15.11: Traffic Count Locations - Azusa

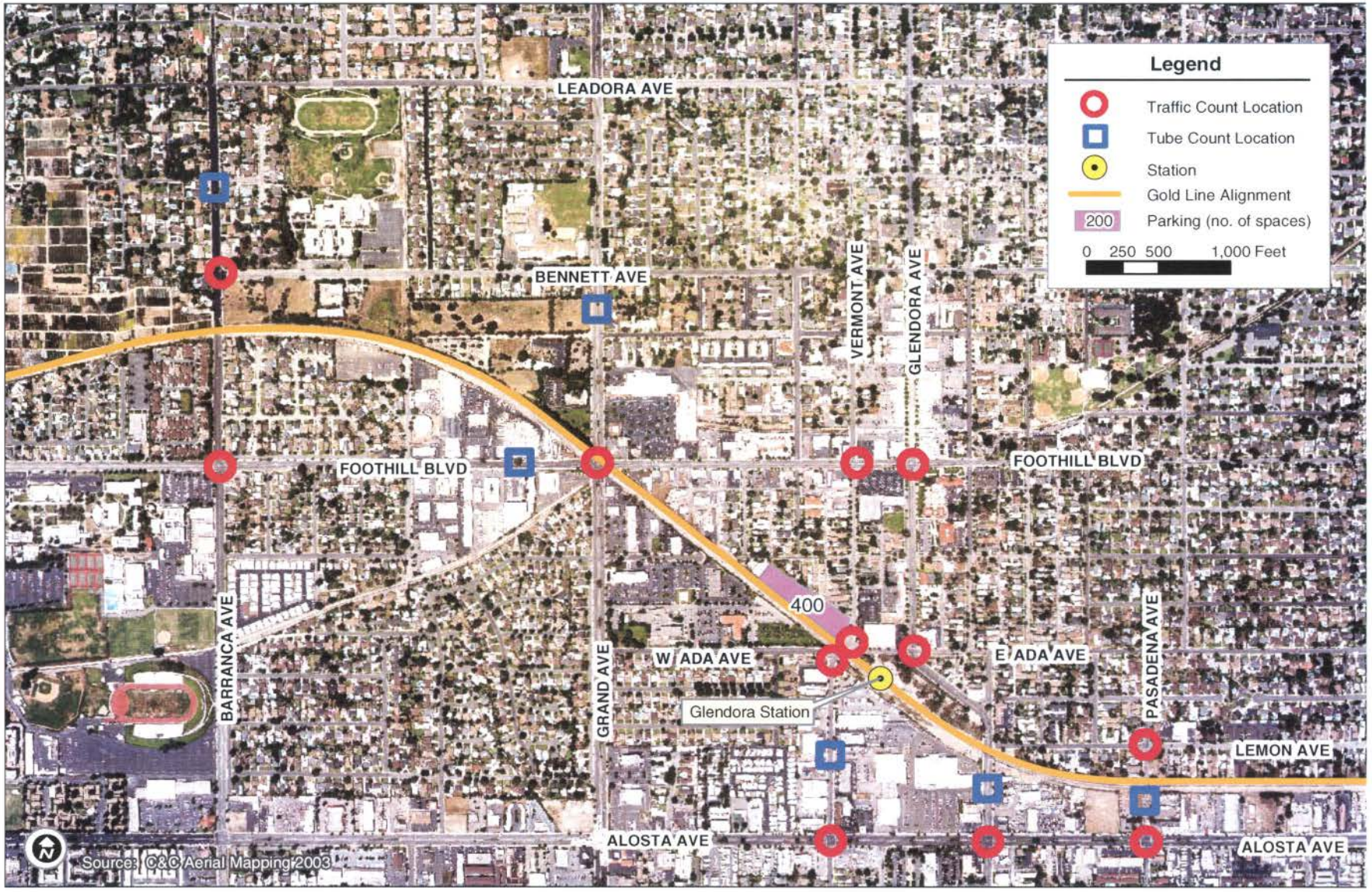


Figure 3-15.12: Traffic Count Locations - Glendora (1 of 3)

Figure 3-15.13: Traffic Count Locations - Glendora (2 of 3)

Figure 3-15.14: Traffic Count Locations - Glendora (3 of 3)

Figure 3-15.15: Traffic Count Locations - San Dimas (1 of 2)

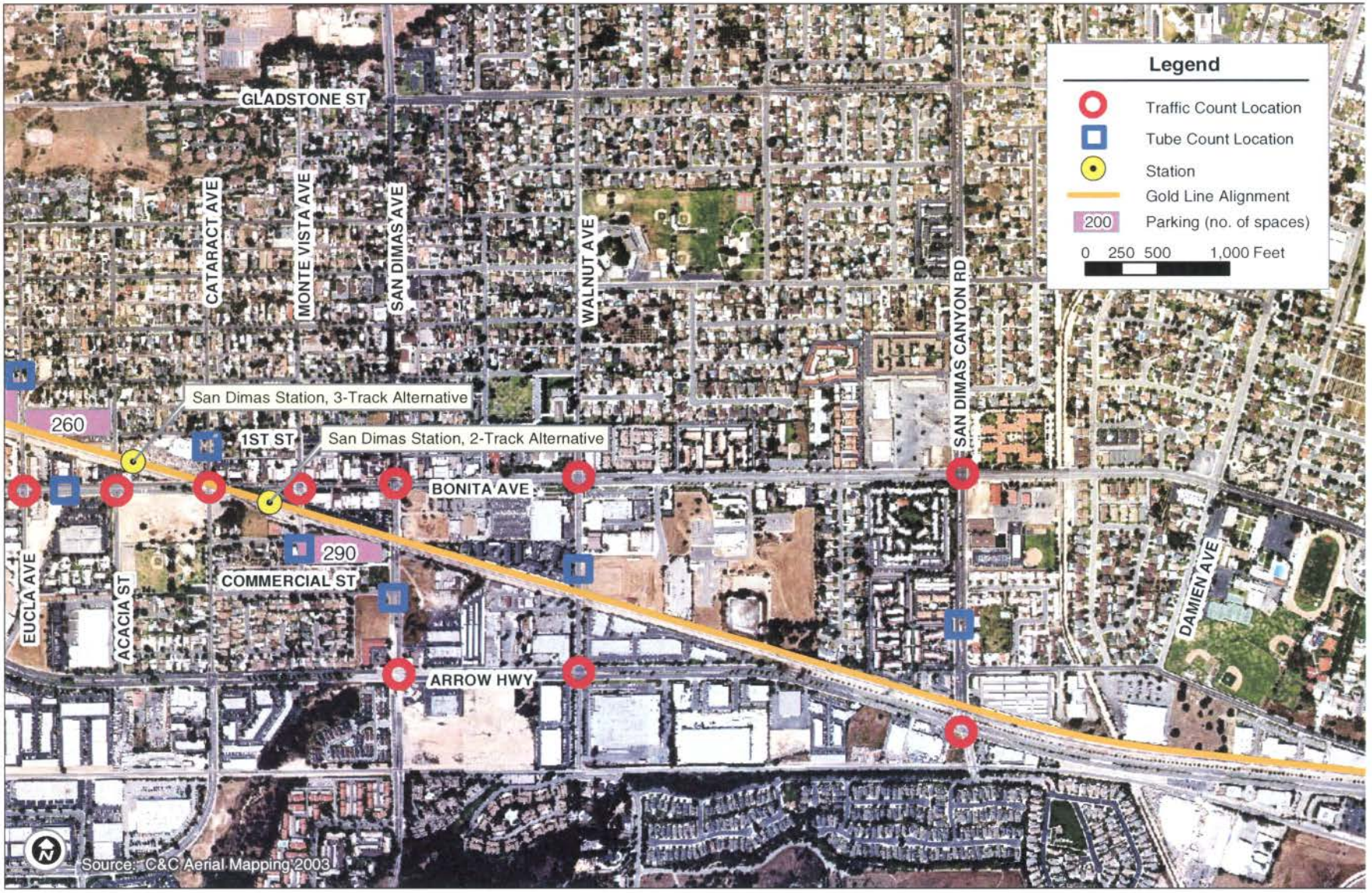


Figure 3-15.16: Traffic Count Locations - San Dimas (2 of 2)

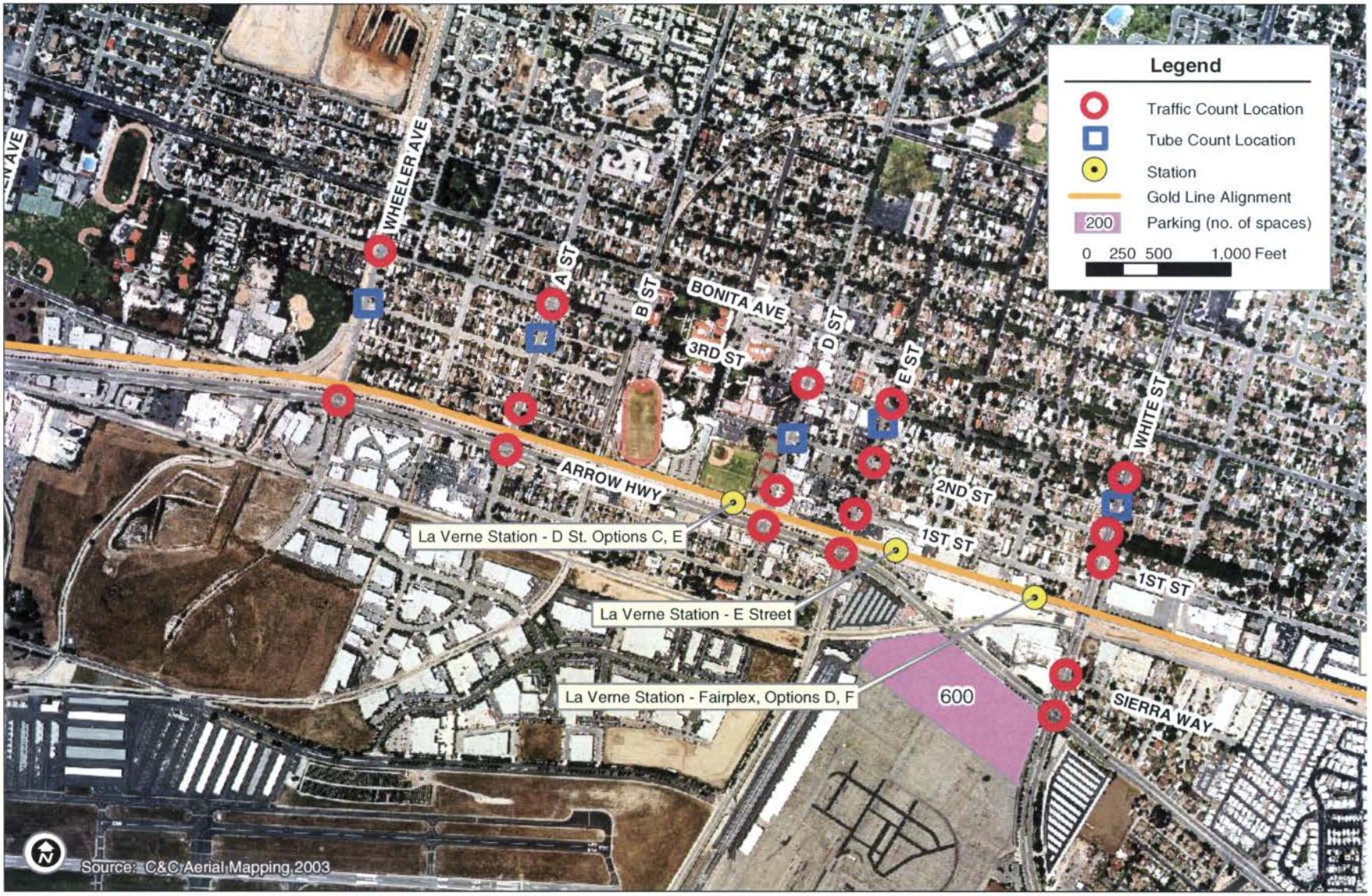


Figure 3-15.17: Traffic Count Locations - La Verne

Figure 3-15.18: Traffic Count Locations - Pomona

Figure 3-15.19: Traffic Count Locations - Claremont

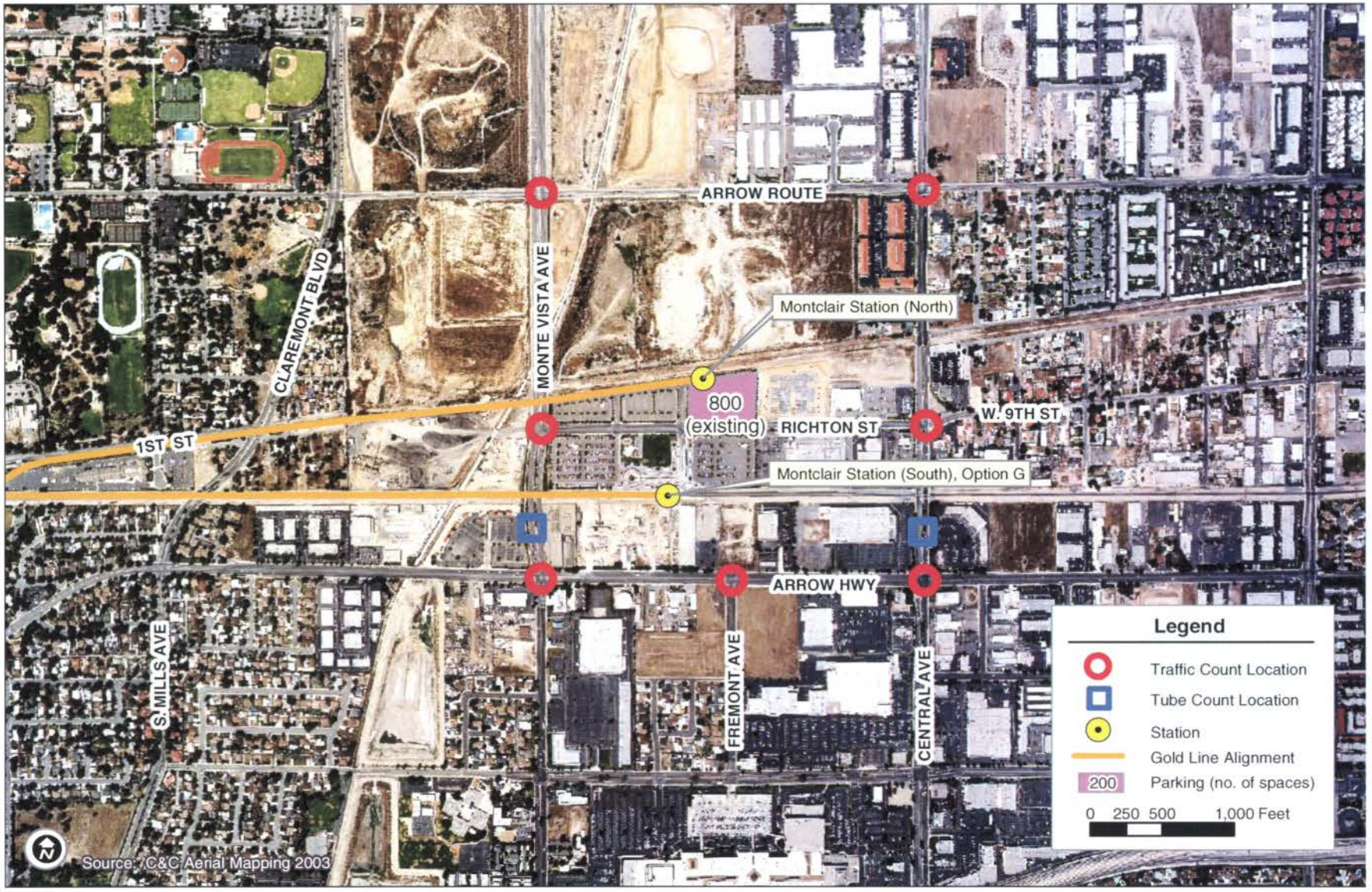


Figure 3-15.20: Traffic Count Locations - Montclair

The existing conditions analysis was performed for the 55 study segments. The results of the analysis showed two roadway segments experiencing an existing LOS F traffic operating condition. These segments are located on Santa Anita Avenue between Huntington Drive and Colorado Boulevard and Irwindale Avenue between Foothill Boulevard and Gladstone Street (LOS F). Three roadway segments experienced an existing LOS D condition. These segments are Mayflower Avenue between Duarte Road and Diamond Street, North Towne Avenue between Arrow Highway and Bonita Avenue, and Central Avenue between Richton Street and Arrow Highway. The remaining roadway segments exhibit levels of service conditions of A, B, and C traffic operations. **Table 3-15.4** shows capacities, volumes, volume-to-capacity ratios, and corresponding levels of service for each roadway segment location analyzed in the Phase II study area.

TABLE 3-15.4
EXISTING CONDITIONS ROADWAY SEGMENT ADT ANALYSIS

Roadway Segment	Between	And	Capacity	Volume	V/C[1]	LOS[2]
City of Pasadena						
Sierra Madre Villa Av	Foothill Blvd	Colorado Blvd	32,000[3]	21,917	0.68	B
City of Arcadia						
N First Av	Huntington Dr	Colorado Blvd	24,000[4]	7,632	0.32	A
Santa Anita Av	***Huntington Dr***	***Colorado Blvd***	***32,000***	***34,693***	***1.08***	***F***
Santa Clara St	Santa Anita Av	N Second Av	12,000	7,319	0.61	B
Colorado Blvd	E of Santa Anita Av	---	32,000	11,244	0.35	A
City of Monrovia						
California Av	Duarte Rd	Evergreen Av	16,000	10,603	0.66	B
Myrtle Av	Duarte Rd	Evergreen Av	32,000	23,847	0.75	C
Magnolia Av	Duarte Rd	Evergreen Av	12,000	6,238	0.52	A
Mayflower Av	Duarte Rd	Diamond St	16,000	13,882	0.87	D
City of Duarte						
Highland Av	Duarte Rd	Evergreen Av	32,000	8,321	0.26	A
Buena Vista St	Duarte Rd	Evergreen Av	32,000	15,922	0.50	A
Mountain Av	Duarte Rd	Evergreen Av	32,000	14,740	0.46	A
City of Irwindale						
Irwindale Av	***Foothill Blvd***	***Gladstone St***	***32,000***	***33,403***	***1.04***	***F***
W First St	Western Terminus	Irwindale Av	12,000	7,157	0.60	A
City of Azusa						
N Citrus Av	E Foothill Blvd	W Foothill Blvd	32,000	10,630	0.33	A
N Palm Dr	N of E Foothill Blvd	---	12,000	1,247	0.10	A
N Pasadena Av	E Foothill Blvd	E Ninth St	12,000	5,136	0.43	A

TABLE 3-15.4 *continued*
EXISTING CONDITIONS ROADWAY SEGMENT ADT ANALYSIS

Roadway Segment	Between	And	Capacity	Volume	V/C[1]	LOS[2]
N Soldano Av	E Foothill Blvd	E Ninth St	12,000	908	0.08	A
N Dalton Av	E Foothill Blvd	E Ninth St	12,000	1,523	0.13	A
N Alameda Av	E Foothill Blvd	E Ninth St	12,000	2,762	0.23	A
N Azusa Av	Foothill Blvd	Ninth St	48,000	9,387	0.20	A
N San Gabriel Av	Foothill Blvd	Ninth St	16,000	9,923	0.62	B
N Virginia Av	S of W Foothill Blvd	---	12,000	5,516	0.46	A
City of Glendora						
S Lone Hill Av	W Gladstone St	Auto Center Dr	32,000	25,137	0.79	C
S Loraine Av	E Alosta Av	E Lemon Av	16,000	10,332	0.65	B
S Elwood Av	E Alosta Av	E Lemon Av	12,000	2,037	0.17	A
S Glenwood Av	E Alosta Av	E Lemon Av	12,000	2,116	0.18	A
S Pasadena Av	E Alosta Av	E Lemon Av	12,000	2,399	0.20	A
S Glendora Av	Alosta Av	Foothill Blvd	32,000	16,588	0.52	A
S Vermont Av	W Alosta Av	W Foothill Blvd	12,000	3,783	0.32	A
Grand Av	W Alosta Av	W Leadora Av	32,000	9,021	0.28	A
Foothill Blvd	Barranca Av	Glendora Av	16,000	11,291	0.71	C
N Barranca Av	W Foothill Blvd	W Leadora Av	12,000	7,353	0.61	B
City of San Dimas						
San Dimas Canyon Rd	Arrow Hwy	Bonita Av	32,000	8,632	0.27	A
Walnut Av	E Arrow Hwy	E Bonita Av	16,000	4,735	0.30	A
San Dimas Av	Arrow Hwy	Bonita Av	32,000	7,993	0.25	A
Monte Vista Av	Commercial St	Bonita Av	12,000	487	0.04	A
Cataract Av	Arrow Hwy	First St	12,000	2,947	0.25	A
Bonita Av	Eucla Av	San Dimas Av	32,000	15,201	0.48	A
Eucla Av	Bonita Av	Third St	12,000	3,005	0.25	A
W Gladstone St	Lone Hill Av	Amelia Av	32,000	10,459	0.33	A
City of La Verne						
White Av	Arrow Hwy	Third St	32,000	17,951	0.56	A
E St	Arrow Hwy	Third St	16,000	5,592	0.35	A
D St	Arrow Hwy	Third St	12,000	6,105	0.51	A
A St	Arrow Hwy	Third St	12,000	1,106	0.09	A

TABLE 3-15.4 *continued*
EXISTING CONDITIONS ROADWAY SEGMENT ADT ANALYSIS

Roadway Segment	Between	And	Capacity	Volume	V/C[1]	LOS[2]
Wheeler Av	Arrow Hwy	Third St	32,000	8,773	0.27	A
City of Pomona						
N Towne Av	Arrow Hwy	Bonita Av	32,000	26,341	0.82	D
N Garey Av	Arrow Hwy	Bonita Av	32,000	21,698	0.68	B
Fulton Rd	Arrow Hwy	Bonita Av	16,000	2,098	0.13	A
City of Claremont						
S Mills Av/Claremont Blvd	Arrow Hwy	E First St	32,000	8,500	0.27	A
Indian Hill Blvd	Arrow Hwy	Bonita Av	32,000	20,143	0.63	B
College Av	E Arrow Hwy	W Bonita Av	12,000	6,062	0.51	A
Cambridge Av	W Arrow Hwy	Bonita Av	12,000	4,346	0.36	A
City of Montclair						
Monte Vista Av	Richton St	Arrow Hwy	32,000	18,790	0.59	A
Central Av	Richton St	Arrow Hwy	32,000	27,302	0.85	D

[1] Volume/Capacity Ratio
[2] Level of Service
Capacity of 32,000 assumes 1,600 vehicles per hour per lane multiplied by number of lanes, divided by a k-factor of 0.1.
Capacity of 24,000 assumes 1,200 vehicles per hour per lane multiplied by number of lanes, divided by a k-factor of 0.1.
Source: City of Pasadena, Wiltec, Parsons Brinckerhoff, 2003.

c. Existing Intersection Peak Hour Traffic Analysis

The 123 turn movement counts were collected to assess the existing peak hour traffic conditions within the study area. The chosen intersections are located both along the proposed LRT alignment and along adjacent streets. The evening peak hour was identified as the critical time period for an assessment of existing conditions because, in general, it represents the worst-case conditions. Peak hour traffic count data for the six intersections located in Pasadena were provided by the City of Pasadena.

Each study intersection was analyzed to determine peak hour operations and level of service. For intersections, the level of service definitions are presented in **Tables 3-15.5 and 3-15.6** for signalized and stop-controlled intersections, respectively.

TABLE 3-15.5
SIGNALIZED LEVEL OF SERVICE DEFINITIONS

Level of Service	Volume/Capacity Ratio	Definition
A	0.000–0.600	EXCELLENT. No vehicle waits longer than one red light and no approach phase are fully used.
B	0.601–0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701–0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801–0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901–1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	>1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board, Circular No. 212, Interim Materials on Highway Capacity, 1980.

TABLE 3-15.6
UNSIGNALIZED LEVEL OF SERVICE DEFINITIONS

Level of Service	Average Vehicle Delay (in seconds)
A	$\leq$ 10.0
B	> 10.0 and $\leq$ 15.0
C	> 15.0 and $\leq$ 25.0
D	> 25.0 and $\leq$ 35.0
E	> 35.0 and $\leq$ 50.0
F	> 50.0

Source: Transportation Research Board, Highway Capacity Manual, Special Report 209, 2000.

The TRAFFIX software, developed by Dowling Associates, was utilized to analyze peak hour intersection traffic operating conditions. For signalized intersections, the analysis was performed using the Circular 212 Planning method, outlined by the Transportation Research Board (TRB) in 1980. The four-way and two-way stop-controlled intersection analysis techniques published in the 2000 Highway Capacity Manual (HCM) were used to analyze the unsignalized intersections.

The intersection analysis resulted in 11 of the 123 locations operating at LOS E or worse. These intersection locations are shown listed in **Table 3-15.7** and in bold. The remaining 112 intersections

currently operate at LOS D or better during the PM peak hour. The results of the existing PM peak hour traffic operations and corresponding level of service at each of the study intersections are presented in **Table 3-15.8**.

TABLE 3-15.7
INTERSECTIONS CURRENTLY OPERATING AT LOS E OR F

Intersection	Jurisdiction	Control Type
Sierra Madre Villa and Foothill – Pasadena	Pasadena	Signalized
Sierra Madre Villa and Colorado – Pasadena	Pasadena	Signalized
Myrtle and Central – Monrovia	Monrovia	Signalized
Irwindale and Foothill – Irwindale	Irwindale	Signalized
Dalton and Foothill – Azusa	Azusa	2-Way Stop
Glenwood and Alosta – Glendora	Glendora	2-Way Stop
A St and Arrow Hwy – La Verne	La Verne	2-Way Stop
White and Second – La Verne	La Verne	2-Way Stop
White and First – La Verne	La Verne	2-Way Stop
Fulton and Arrow Hwy – Pomona	Pomona	2-Way Stop
Towne Ave and Town Center Dr – Pomona	Pomona	2-Way Stop

TABLE 3-15.8
EXISTING INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Sierra Madre Villa Ave	***Foothill Blvd***	***Pasadena***	***1.228***	***F***
Sierra Madre Villa Ave	GL Parking Garage	Pasadena	14.5	B
Sierra Madre Villa Ave	WB I-210 Fwy	Pasadena	0.506	A
Sierra Madre Villa Ave	EB I-210 Fwy	Pasadena	0.457	A
Sierra Madre Villa Ave	***Colorado Blvd***	***Pasadena***	***1.474***	***F***
Foothill Blvd	Halstead St	Pasadena	0.659	B
Santa Anita Ave	Colorado Blvd	Arcadia	0.706	C
Santa Anita Ave	La Porte St	Arcadia	14.6	B
Santa Anita Ave	Santa Clara St	Arcadia	0.674	B
First Ave	Colorado Blvd	Arcadia	0.660	B
First Ave	Santa Clara St	Arcadia	0.509	B
First Ave	Huntington Dr	Arcadia	0.743	C
Second Ave	Santa Clara St	Arcadia	0.463	A
Mayflower Ave	Diamond St	Monrovia	19.4	C
Mayflower Ave	Duarte Rd	Monrovia	0.607	B
Magnolia Ave	Evergreen Ave	Monrovia	19.7	C

TABLE 3-15.8 *continued*
EXISTING INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Magnolia Ave	Genoa St	Monrovia	11.0	B
Magnolia Ave	Duarte Rd	Monrovia	0.487	A
Myrtle Ave	***Central Ave (210 WB)***	***Monrovia***	***0.964***	***E***
Myrtle Ave	Evergreen Ave (210 EB)	Monrovia	0.846	D
Myrtle Ave	Duarte Rd	Monrovia	0.728	C
California Ave	Duarte Rd	Monrovia	0.684	B
Mountain Ave	Hamilton Rd	Duarte	20.2	C
Mountain Ave	Duarte Rd	Duarte	0.609	B
Buena Vista St	Three Ranch Rd	Duarte	19.3	C
Buena Vista St	Duarte Rd	Duarte	0.603	B
Highland Ave	Central Ave	Duarte	23.6	C
Irwindale Ave	***Foothill Blvd***	***Irwindale***	***1.176***	***F***
Irwindale Ave	WB I-210 Fwy	Irwindale	0.506	A
Irwindale Ave	EB I-210 Fwy	Irwindale	0.839	D
Irwindale Ave	Montoya St	Irwindale	9.300	A
Irwindale Ave	First St	Irwindale	0.556	A
Irwindale Ave	Gladstone St	Irwindale	0.692	B
Peckham Ave	First St	Irwindale	9.600	A
Virginia Ave	Foothill Blvd	Azusa	0.565	A
Virginia Ave	Sixth St	Azusa	11.2	B
San Gabriel Ave	Ninth St	Azusa	0.173	A
San Gabriel Ave	Foothill Blvd	Azusa	0.571	A
Azusa Ave	Ninth St	Azusa	17.6	C
Azusa Ave	Santa Fe Ave	Azusa	14.0	B
Azusa Ave	Foothill Blvd	Azusa	0.635	B
Alameda Ave	Ninth St	Azusa	11.2	B
Alameda Ave	Santa Fe Ave	Azusa	9.000	A
Alameda Ave	Foothill Blvd	Azusa	0.521	A
Dalton Ave	Ninth St	Azusa	10.4	B
Dalton Ave	***Foothill Blvd***	***Azusa***	***64.2***	***F***
Soldano Ave	Ninth St	Azusa	9.500	A
Soldano Ave	Foothill Blvd	Azusa	25.6	D
Pasadena Ave	Ninth St	Azusa	0.245	A
Pasadena Ave	Foothill Blvd	Azusa	0.604	B
Palm Dr	Foothill Blvd	Azusa	15.9	C
Citrus Ave	Foothill Blvd	Azusa	0.597	A

TABLE 3-15.8
EXISTING INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Barranca Ave	Bennett Ave	Glendora	11.4	B
Barranca Ave	Foothill Blvd	Glendora	0.385	A
Grand Ave	Foothill Blvd	Glendora	0.613	B
Vermont Ave	Ada Ave	Glendora	11.5	B
Vermont Ave	Alosta Ave	Glendora	0.429	A
Vermont Ave	Foothill Blvd	Glendora	0.595	A
Vermont Ave	Ada Ave	Glendora	11.0	B
Glendora Ave	Foothill Blvd	Glendora	0.594	A
Glendora Ave	Ada Ave	Glendora	0.453	B
Glendora Ave	Alosta Ave	Glendora	0.816	D
Pasadena Ave	Lemon Ave	Glendora	0.111	A
Pasadena Ave	Alosta Ave	Glendora	0.410	A
Glenwood Ave	Lemon Ave	Glendora	10.0	A
Glenwood Ave	***Alosta Ave***	***Glendora***	***66.1***	***F***
Elwood Ave	Lemon Ave	Glendora	9.800	A
Elwood Ave	Alosta Ave	Glendora	0.565	A
Loraine Ave	Lemon Ave	Glendora	15.5	C
Loraine Ave	Alosta Ave	Glendora	0.551	A
Lone Hill Ave	Auto Center Dr	Glendora	0.782	C
Lone Hill Ave	Gladstone St	San Dimas	0.514	A
Eucla Ave	Bonita Ave	San Dimas	0.349	A
Acacia Ave	Bonita Ave	San Dimas	17.6	C
Cataract Ave	Bonita Ave	San Dimas	19.0	C
Monte Vista Ave	Bonita Ave	San Dimas	23.5	C
San Dimas Ave	Bonita Ave	San Dimas	0.605	B
San Dimas Ave	Arrow Hwy	San Dimas	0.663	B
Walnut Ave	Bonita Ave	San Dimas	0.517	A
Walnut Ave	Arrow Hwy	San Dimas	0.534	A
San Dimas Canyon Rd	Bonita Ave	San Dimas	0.382	A
San Dimas Canyon Rd	Arrow Hwy	San Dimas	0.502	A
Wheeler Ave	Third St	La Verne	14.9	B
Wheeler Ave	Arrow Hwy	La Verne	0.551	A
A St	Third St	La Verne	9.900	A
A St	First St	La Verne	9.200	A
A St	***Arrow Hwy***	***La Verne***	***59.8***	***F***
D St	Third St	La Verne	0.480	B

TABLE 3-15.8 *continued*
EXISTING INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
D St	First St	La Verne	10.3	B
D St	Arrow Hwy	La Verne	0.365	A
E St	Third St	La Verne	0.432	B
E St	Second St	La Verne	12.0	B
E St	First St	La Verne	10.5	B
E St	Arrow Hwy	La Verne	0.575	A
White Ave	Third St	La Verne	28.9	D
White Ave	***Second St***	***La Verne***	***39.0***	***E***
White Ave	***First St***	***La Verne***	***36.4***	***E***
White Ave	Sierra Way	La Verne	14.0	B
White Ave	Arrow Hwy	La Verne	0.826	D
Fulton Rd	Bonita Ave	Pomona	27.2	D
Fulton Rd	***Arrow Hwy***	***Pomona***	***44.9***	***E***
Garey Ave	Bonita Ave	Pomona	0.515	A
Garey Ave	Santa Fe St	Pomona	12.5	B
Garey Ave	Arrow Hwy	Pomona	0.603	B
Towne Ave	Bonita Ave	Pomona	0.500	A
Towne Ave	***Towne Center Dr***	***Pomona***	***37.0***	***E***
Towne Ave	Arrow Hwy	Pomona	0.766	C
Indian Hill Blvd	Bonita Ave	Claremont	0.627	B
Indian Hill Blvd	First St	Claremont	0.605	B
Indian Hill Blvd	Santa Fe St	Claremont	34.9	D
Indian Hill Blvd	Arrow Hwy	Claremont	0.668	B
College Ave	Bonita Ave	Claremont	0.409	B
College Ave	First St	Claremont	0.575	B
College Ave	Arrow Hwy	Claremont	0.462	A
Claremont Blvd	First St	Claremont	0.262	A
Mills/Claremont	Arrow Hwy	Claremont	0.531	A
Monte Vista Ave	Arrow Route	Montclair	0.446	A
Monte Vista Ave	Richton St	Montclair	0.346	A
Monte Vista Ave	Arrow Hwy	Montclair	0.680	B
Fremont Ave	Arrow Hwy	Montclair	0.352	A
Central Ave	Arrow Route	Montclair	0.592	A
Central Ave	Richton St / W 9th St	Montclair	0.464	A
Central Ave	Arrow Hwy	Montclair	0.621	B

Source: Parsons Brinckerhoff, 2003.

3-15.2 Environmental Impacts

3-15.2.1 Evaluation Methodology

The evaluation methodology used to determine the impacts on transit and traffic operations due to the proposed Gold Line Phase II alternatives consisted of the development of future year 2025 transit and traffic forecasts using the MTA travel demand forecasting model, followed by performing LOS analyses utilizing the same procedures used in developing the existing traffic operating conditions. Consequently, the Circular 212 Planning method was used to determine PM peak hour LOS operations for signalized intersections and the 2000 Highway Capacity Manual method was used for unsignalized intersections (two-way and four-way stop control). Similar to the existing conditions analysis, the TRAFFIX software was used for performing the LOS analysis. An impact was deemed to occur at intersection locations by the proposed LRT project if the difference between the Build and No Build conditions is greater than a predetermined threshold. This threshold is identified in the following section.

3-15.2.2 Impact Criteria

The impact methodology used to determine adverse or significant impacts at the study intersections, due to the proposed Gold Line Phase II project, consists of identifying the change in delay (for unsignalized intersections) or volume-to-capacity ratio (for signalized intersections) between the No Build and Build conditions. Since the LRT alignment passes through several jurisdictions, impact criteria that is uniform and can be applied across all the jurisdictions (including Montclair and Upland in San Bernardino County) was selected. The significant impact criteria utilized in this comparison was based on the Traffic Impact Analysis (TIA) guidelines set forth in the 2001 Congestion Management Program (CMP) for Los Angeles County.

Based on the CMP, a signalized intersection is considered to be adversely or significantly impacted if the resulting LOS is E or F and the change in V/C ratio from the No Build condition is greater than 0.020. An unsignalized intersection is considered to be adversely or significantly impacted if the resulting LOS is E or F and the change in Delay from the No Build condition is greater than 2 percent. These impact criteria are summarized in **Table 3-15.9** and will be used under both NEPA and CEQA.

TABLE 3-15.9
LOS ANGELES COUNTY CMP INTERSECTION CRITERIA

Intersection V/C Ratio or Delay with Project Traffic	Significant Increase in V/C Ratio or Delay
V/C Ratio = 0.901 or greater (signalized)	> 0.020
Delay = 35.1 veh./sec. or greater (unsignalized)	> 2%

Source: Congestion Management Program for Los Angeles County, Traffic Impact Analysis Guidelines, 2001.

a. NEPA Impact Criteria

The criteria used to determine adverse effects under NEPA is presented in the previous section and summarized in **Table 3-15.9**.

b. CEQA Impact Criteria

The criteria used to determine adverse effects under CEQA is presented in the previous section and summarized in **Table 3-15.9**.

3-15.2.3 Construction-Period Impacts

a. No Build Alternative

The No Build Alternative includes all highway and transit projects and operations that the region and MTA expect to be in place by the year 2025. These transportation projects were identified earlier in Section 2-3.1.1 and are accounted for in the travel demand forecasting model. No construction due to the Gold Line Phase II project is anticipated for the No Build alternative; consequently, there are no project related construction-period impacts.

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. No construction is anticipated for the No Build Alternative; consequently, there are no construction-period impacts.

Phase II, Segment 1- The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. No construction is anticipated for the No Build alternative; consequently, there are no construction-period impacts.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. No construction is anticipated for the No Build alternative; consequently, there are no construction-period impacts.

b. Transportation System Management (TSM) Alternative

The TSM alternative enhances transit service within the Phase II corridor by increasing bus frequency during the peak and off-peak conditions and providing improved connectivity to the Phase I Gold Line station at Sierra Madre Villa. The highway/roadway improvements in the TSM Alternative would be the same as in the No Build Alternative. As a result, no construction is anticipated for the TSM alternative; consequently, there are no construction-period impacts.

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. No construction is anticipated for the TSM alternative; consequently, there are no construction-period impacts.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. No construction is anticipated for the TSM alternative; consequently, there are no construction-period impacts.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. No construction is anticipated for the TSM alternative; consequently, there are no construction-period impacts.

c. LRT, Triple Track Configuration

During construction of the Gold Line Phase II LRT triple track configuration, it may be necessary for traffic lanes to be temporarily closed. Generally, lane closures would take place at night in order to minimize traffic disruptions. Construction activities that entail the relocation of utilities and the construction of trackways and stations would require the temporary closure of lanes at roadways with at-grade crossings. Three types of grade crossing configurations were identified; mid-block locations, locations adjacent to an intersection and locations where the tracks diagonally cross the intersection. With temporary lane closures occurring during the night, it is anticipated that construction impacts will be minimal at the mid-block and adjacent intersection locations. Since these lane closures are expected to take place during the night hours and outside the AM and PM peak commuting periods, there will be no impacts to both transit and traffic. Intersection operating conditions would remain at acceptable service levels because of the low traffic volumes that travel during the night. In addition, during the lane closures detour routes will be identified and clearly signed. However, at the five locations where the tracks diagonally cross the intersection, full closure of the intersection during the night hours is expected. At these select locations, impacts during construction would be considered adverse/significant and would require the development of mitigation measures.

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. During construction of the project, the Gold Line Phase I will continue to operate under normal conditions. Consequently, no construction is anticipated along this segment and there are no construction-period impacts.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. As noted earlier, it is anticipated that temporary lane closures would take place during the night hours when traffic volumes are substantially lower than the AM and PM peak periods. Some bus routes may require re-routing and stops may be temporarily relocated. In addition, detour routes may be implemented and clearly signed to temporarily divert traffic flow away from the closure area. There is one location in Arcadia where the tracks diagonally cross the intersection at First Avenue/Santa Clara Street. During construction, this intersection would be closed at night and transit and traffic would be re-routed to bypass the closure. Since traffic volumes are low during the night hours, it is anticipated that this adverse/significant impact can be mitigated by diverting traffic and clearly signing the detour route.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. It is anticipated that temporary lane closures would take place during the night hours when traffic volumes are substantially lower than the AM and PM peak periods. Some bus routes may require re-routing and stops may be temporarily relocated. In addition, detour routes may be implemented and clearly signed to temporarily divert traffic flow away from the closure area. The tracks diagonally cross the intersection at a total of four locations, three in Glendora, and one in San Dimas. The Glendora intersections are at Vermont Avenue/Ada Avenue, Grand Avenue/Foothill Boulevard, and Lone Hill Avenue/Allen Avenue. The San Dimas intersection is at Cataract Avenue/ Bonita Avenue. During construction, these four intersections would be closed at night and transit and traffic would be re-routed to bypass the closure. Since traffic volumes are low during the night hours, it is anticipated that this adverse/significant impact can be mitigated by diverting traffic and clearly signing the detour route.

Summary of Triple Track Impacts for Full Build Alternative

Adverse/significant construction-period impacts for both transit and traffic are anticipated at five intersection locations, one intersection each in Arcadia and San Dimas and three intersections in Glendora. The Arcadia intersection is at First Avenue/Santa Clara Street and the San Dimas intersection is at Cataract Avenue/ Bonita Avenue. The three Glendora intersections are at Vermont Avenue/Ada Avenue, Grand Avenue/Foothill Boulevard, and Lone Hill Avenue/Allen Avenue.

Summary of Triple Track Impacts for Build LRT Alternative to Maintenance Facility

Adverse/significant construction-period impacts for both transit and traffic are anticipated at one intersection located in Arcadia. The Arcadia intersection is at First Avenue/Santa Clara Street.

d. LRT, Double Track Configuration

The construction-period impacts for the LRT, Double Track Configuration are the same as the impacts previously discussed for the LRT, Triple Track Configuration. During construction of the Gold Line Phase II LRT double track configuration, it may be necessary for traffic lanes to be temporarily closed. Generally, lane closures would take place at night in order to minimize traffic disruptions. Construction activities that entail the relocation of utilities and the construction of trackways and stations would require the temporary closure of lanes at roadways with at-grade crossings. Three types of grade crossing configurations were identified; mid-block locations, locations adjacent to an intersection and locations where the tracks diagonally cross the intersection. With temporary lane closures occurring during the night, it is anticipated that construction impacts will be minimal at the mid-block and adjacent intersection locations. Since these lane closures are expected to take place during the night hours and outside the AM and PM peak commuting periods, there will be no impacts to both transit and traffic. Intersection operating conditions would remain at acceptable service levels because of the low traffic volumes that travel during the night. In addition, during the lane closures detour routes will be identified and clearly signed. However, at the five locations where the tracks diagonally cross the intersection, full closure of the intersection during the night hours is expected. At these select locations, impacts during construction would be considered adverse/significant and would require the development of mitigation measures.

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. During construction of the project, the Gold Line Phase I will continue to operate under normal conditions. Consequently, no construction is anticipated along this segment and there are no construction-period impacts.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. As noted earlier, it is anticipated that temporary lane closures would take place during the night hours when traffic volumes are substantially lower than the AM and PM peak periods. Some bus routes may require re-routing and stops may be temporarily relocated. In addition, detour routes may be implemented and clearly signed to temporarily divert traffic flow away from the closure area. There is one location in Arcadia where the tracks diagonally cross the intersection at First Avenue/Santa Clara Street. During construction, this intersection would be closed at night and transit and traffic would be re-routed to bypass the closure. Since traffic volumes are low during the night hours, it is anticipated that this adverse/significant impact can be mitigated by diverting traffic and clearly signing the detour route.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. It is anticipated that temporary lane closures would take place during the night hours when traffic volumes are substantially lower than the AM and PM peak periods. Some bus routes may require re-routing and stops may be temporarily relocated. In addition, detour routes may be implemented and clearly signed to temporarily divert traffic flow away from the closure area. The tracks diagonally cross the intersection at a total of four locations, three in Glendora, and one in San Dimas. The Glendora intersections are at Vermont Avenue/Ada Avenue, Grand Avenue/Foothill Boulevard, and Lone Hill Avenue/Allen Avenue. The San Dimas intersection is at Cataract Avenue/ Bonita Avenue. During construction, these four intersections would be closed at night and transit and traffic would be re-routed to bypass the closure. Since traffic volumes are low during the night hours, it is anticipated that this adverse/significant impact can be mitigated by diverting traffic and clearly signing the detour route.

Summary of Double Track Impacts for Full Build LRT Alternative

Adverse/significant construction-period impacts for both transit and traffic are anticipated at five intersection locations, one intersection each in Arcadia and San Dimas and three intersections in Glendora. The Arcadia intersection is at First Avenue/Santa Clara Street and the San Dimas intersection is at Cataract Avenue/ Bonita Avenue. The three Glendora intersections are at Vermont Avenue/Ada Avenue, Grand Avenue/Foothill Boulevard, and Lone Hill Avenue/Allen Avenue.

Summary of Double Track Impacts for Build LRT Alternative to Maintenance Facility

Adverse/significant construction-period impacts for both transit and traffic are anticipated at one intersection located in Arcadia. The Arcadia intersection is at First Avenue/Santa Clara Street.

3-15.2.4 Long-Term Impacts

a. No Build Alternative

Transit

For transit, the No-Build alternative provides no significant improvement in services in the Phase II study area. As the population grows, the demand for transit service provision and service reliability will increase. Without the introduction of premium transit service in the Phase II, such as a light rail system, transit service performance will likely decrease due to increased traffic congestion. This is likely to make travel via transit a less attractive option for San Gabriel Valley patrons. For those transit patrons that have no other travel options, travel times will increase and transit usage will be less convenient. In other words, if significant improvements in transit service are not provided, those that rely on the public transit system will be significantly affected.

Traffic Operations

For traffic operations, year 2025 traffic forecasts were developed so that potential changes with the proposed LRT system can be evaluated and compared to the No Build condition. The following paragraphs present the development of growth factors and the resulting traffic operations for the No Build condition.

The year 2025 No Build conditions were discussed with representatives of the project team and SCAG. The study area was analyzed based upon: historical traffic data, potential population, and employment growth within the 13 cities of the study area, and the long-range traffic projections from the modeling efforts as part of this study. This assessment resulted in the determination that the No Build future traffic projections would be developed by factoring the existing peak hour traffic data with a growth factor developed for each city. The growth factor represents the growth rate for each city based on population annual growth and half the rate of the employment annual growth, accumulated from 2003 to 2025. The total growth factor and the annual growth rates are provided in **Table 3-15.10**.

TABLE 3-15.10
YEAR 2025 NO BUILD GROWTH FACTORS

City	Percent Population Annual Growth	Percent Employment Annual Growth	Percent Combined Annual Growth	Percent Combined Accumulated Growth
	2000 to 2025	2000 to 2025	(POP+EMP/2)	2003 to 2025
Pasadena	1.04	0.49	1.29	32.52
Arcadia	0.13	0.31	0.28	6.40
Monrovia	0.86	0.58	1.15	28.61
Duarte	0.93	1.19	1.53	39.62
Irwindale	1.80	1.85	2.72	80.54
Azusa	0.57	0.54	0.85	20.38
Glendora	0.57	0.47	0.81	19.38
San Dimas	0.59	0.94	1.06	25.99
La Verne	0.67	0.87	1.11	27.43
Pomona	0.96	0.59	1.25	31.52
Claremont	0.61	0.37	0.79	18.96
Montclair	0.91	1.73	1.78	47.32
Upland	1.02	1.86	1.95	52.96
Study Area	0.82	0.88	1.26	31.72

Source: SCAG 2003.

The growth factors were applied to each of the 123 study intersections according to their jurisdiction. The future No Build conditions were analyzed and the resulting operating conditions and corresponding levels of service are provided in **Table 3-15.11**. As noted earlier, this analysis includes all highway and transit projects and operations that the region and MTA expect to be in place by the year 2025. These transportation projects were identified earlier in Section 2-3.1.1 and are accounted for in the travel demand forecasting model that was used to develop the growth factors.

A review of the results presented in the table indicates that under the No Build Alternative, 90 intersections will continue to operate at LOS D or better. The remaining 33 intersections are projected to operate at LOS E or F and are highlighted in the table by bold italics.

TABLE 3-15.11
YEAR 2025 NO BUILD INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Sierra Madre Villa Ave	***Foothill Blvd***	***Pasadena***	***1.627***	***F***
Sierra Madre Villa Ave	Gold Line Parking Garage	Pasadena	20.4	C
Sierra Madre Villa Ave	WB I-210 Fwy	Pasadena	0.671	B
Sierra Madre Villa Ave	EB I-210 Fwy	Pasadena	0.606	B
Sierra Madre Villa Ave	***Colorado Blvd***	***Pasadena***	***1.618***	***F***
Foothill Blvd	Halstead St	Pasadena	0.874	D
Santa Anita Ave	Colorado Blvd	Arcadia	0.752	C
Santa Anita Ave	La Porte St	Arcadia	15.4	C
Santa Anita Ave	Santa Clara St	Arcadia	0.718	C
First Ave	Colorado Blvd	Arcadia	0.702	C
First Ave	Santa Clara St	Arcadia	0.554	B
First Ave	Huntington Dr	Arcadia	0.791	C
Second Ave	Santa Clara St	Arcadia	0.493	A
Mayflower Ave	***Diamond St***	***Monrovia***	***40.6***	***E***
Mayflower Ave	Duarte Rd	Monrovia	0.781	C
Magnolia Ave	Evergreen Ave	Monrovia	33.9	D
Magnolia Ave	Genoa St	Monrovia	12.1	B
Magnolia Ave	Duarte Rd	Monrovia	0.627	B
Myrtle Ave	***Central Ave (210 WB)***	***Monrovia***	***1.239***	***F***
Myrtle Ave	***Evergreen Ave (210 EB)***	***Monrovia***	***1.088***	***F***
Myrtle Ave	***Duarte Rd***	***Monrovia***	***0.937***	***E***
California Ave	Duarte Rd	Monrovia	0.879	D
Mountain Ave	***Hamilton Rd***	***Duarte***	***66.8***	***F***
Mountain Ave	Duarte Rd	Duarte	0.850	D
Buena Vista St	***Three Ranch Rd***	***Duarte***	***42.7***	***E***
Buena Vista St	Duarte Rd	Duarte	0.841	D
Highland Ave	***Central Ave***	***Duarte***	***108.0***	***F***
Irwindale Ave	***Foothill Blvd***	***Irwindale***	***2.123***	***F***
Irwindale Ave	***WB I-210 Fwy***	***Irwindale***	***0.913***	***E***
Irwindale Ave	***EB I-210 Fwy***	***Irwindale***	***1.515***	***F***
Irwindale Ave	Montoya St	Irwindale	13.2	B
Irwindale Ave	***First St***	***Irwindale***	***1.004***	***F***
Irwindale Ave	***Gladstone St***	***Irwindale***	***1.249***	***F***
Peckham Ave	First St	Irwindale	11.0	B
Virginia Ave	Foothill Blvd	Azusa	0.680	B
Virginia Ave	Sixth St	Azusa	12.0	B

TABLE 3-15.11
YEAR 2025 NO BUILD INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
San Gabriel Ave	Ninth St	Azusa	0.208	A
San Gabriel Ave	Foothill Blvd	Azusa	0.687	B
Azusa Ave	Ninth St	Azusa	23.8	C
Azusa Ave	Santa Fe Ave	Azusa	15.7	C
Azusa Ave	Foothill Blvd	Azusa	0.765	C
Alameda Ave	Ninth St	Azusa	12.1	B
Alameda Ave	Santa Fe Ave	Azusa	9.1	A
Alameda Ave	Foothill Blvd	Azusa	0.627	B
Dalton Ave	Ninth St	Azusa	10.8	B
Dalton Ave	***Foothill Blvd***	***Azusa***	***317.3***	***F***
Soldano Ave	Ninth St	Azusa	9.8	A
Soldano Ave	***Foothill Blvd***	***Azusa***	***42.6***	***E***
Pasadena Ave	Ninth St	Azusa	0.305	A
Pasadena Ave	Foothill Blvd	Azusa	0.727	C
Palm Dr	Foothill Blvd	Azusa	22.0	C
Citrus Ave	Foothill Blvd	Azusa	0.719	C
Barranca Ave	Bennett Ave	Glendora	12.4	B
Barranca Ave	Foothill Blvd	Glendora	0.471	A
Grand Ave	Foothill Blvd	Glendora	0.731	C
Vermont Ave	Ada Ave	Glendora	11.3	B
Vermont Ave	Alosta Ave	Glendora	0.512	A
Vermont Ave	Foothill Blvd	Glendora	0.478	A
Vermont Ave	Ada Ave	Glendora	12.8	B
Glendora Ave	Foothill Blvd	Glendora	0.709	C
Glendora Ave	Ada Ave	Glendora	0.576	B
Glendora Ave	***Alosta Ave***	***Glendora***	***0.974***	***E***
Pasadena Ave	Lemon Ave	Glendora	0.133	A
Pasadena Ave	Alosta Ave	Glendora	0.719	C
Glenwood Ave	Lemon Ave	Glendora	10.3	B
Glenwood Ave	***Alosta Ave***	***Glendora***	***300.1***	***F***
Elwood Ave	Lemon Ave	Glendora	10.1	B
Elwood Ave	Alosta Ave	Glendora	0.673	B
Loraine Ave	Lemon Ave	Glendora	18.6	C
Loraine Ave	Alosta Ave	Glendora	0.658	B
Lone Hill Ave	***Auto Center Dr***	***Glendora***	***0.933***	***E***
Lone Hill Ave	Gladstone St	San Dimas	0.648	B

TABLE 3-15.11
YEAR 2025 NO BUILD INTERSECTION LEVEL OF SERVICE ANALYSIS

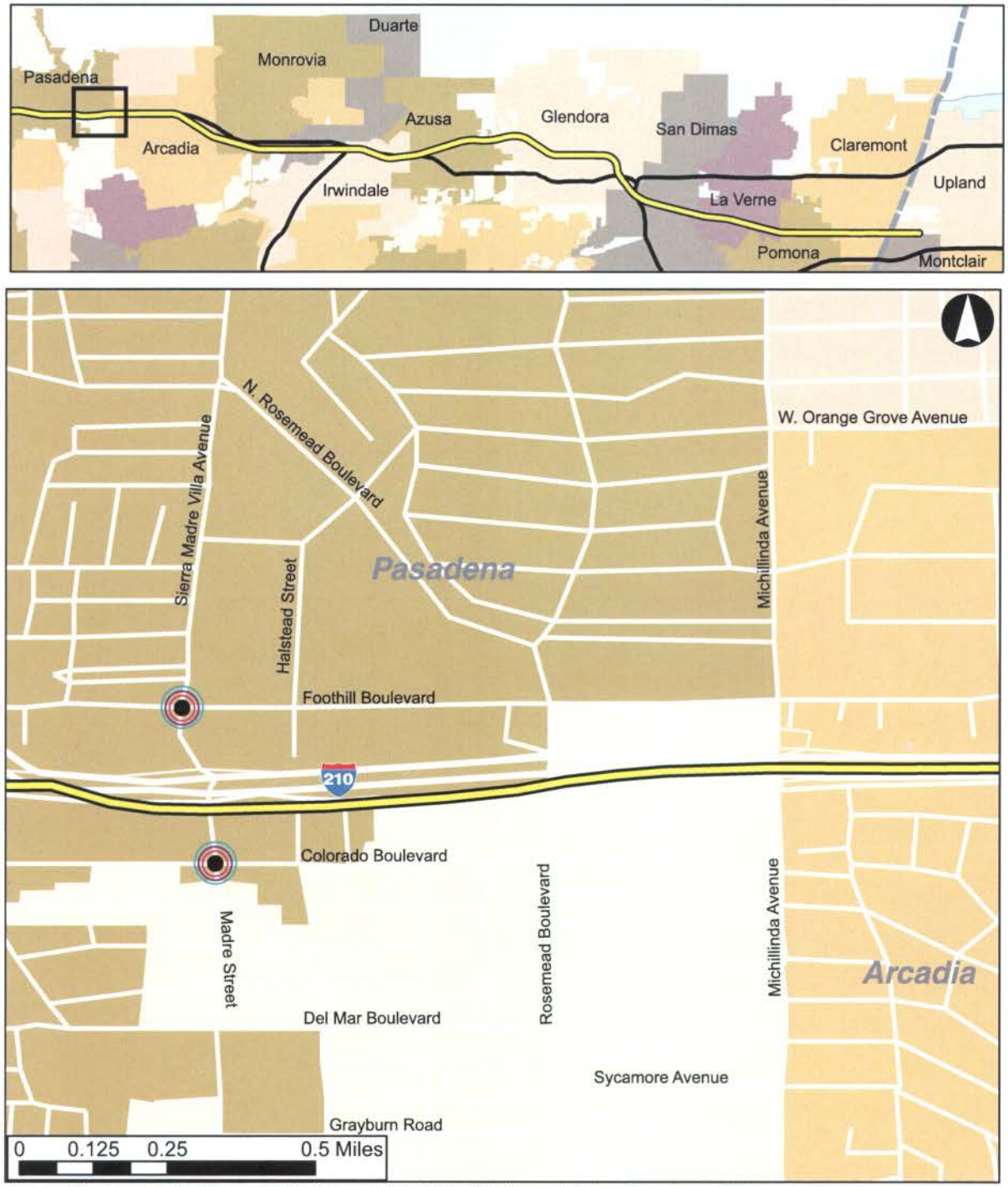
N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Eucla Ave	Bonita Ave	San Dimas	0.440	A
Acacia Ave	Bonita Ave	San Dimas	27.9	D
Cataract Ave	***Bonita Ave***	***San Dimas***	***41.4***	***E***
Monte Vista Ave	***Bonita Ave***	***San Dimas***	***40.4***	***E***
San Dimas Ave	Bonita Ave	San Dimas	0.762	C
San Dimas Ave	Arrow Hwy	San Dimas	0.836	D
Walnut Ave	Bonita Ave	San Dimas	0.651	B
Walnut Ave	Arrow Hwy	San Dimas	0.673	B
San Dimas Canyon Rd	Bonita Ave	San Dimas	0.481	A
San Dimas Canyon Rd	Arrow Hwy	San Dimas	0.626	B
Wheeler Ave	Third St	La Verne	20.9	C
Wheeler Ave	Arrow Hwy	La Verne	0.702	C
A St	Third St	La Verne	10.3	B
A St	First St	La Verne	9.4	A
A St	***Arrow Hwy***	***La Verne***	***247.2***	***F***
D St	Third St	La Verne	0.664	B
D St	First St	La Verne	11.1	B
D St	Arrow Hwy	La Verne	0.464	A
E St	Third St	La Verne	0.574	B
E St	Second St	La Verne	13.6	B
E St	First St	La Verne	11.4	B
E St	Arrow Hwy	La Verne	0.733	C
White Ave	***Third St***	***La Verne***	***57.6***	***F***
White Ave	***Second St***	***La Verne***	***88.7***	***F***
White Ave	***First St***	***La Verne***	***123.6***	***F***
White Ave	Sierra Way	La Verne	18.6	C
White Ave	***Arrow Hwy***	***La Verne***	***1.052***	***F***
Fulton Rd	***Bonita Ave***	***Pomona***	***82.2***	***F***
Fulton Rd	***Arrow Hwy***	***Pomona***	***171.1***	***F***
Garey Ave	Bonita Ave	Pomona	0.678	B
Garey Ave	Santa Fe St	Pomona	15.9	C
Garey Ave	Arrow Hwy	Pomona	0.793	C
Towne Ave	Bonita Ave	Pomona	0.651	B
Towne Ave	***Towne Center Dr***	***Pomona***	***134.7***	***F***
Towne Ave	***Arrow Hwy***	***Pomona***	***1.008***	***F***
Indian Hill Blvd	Bonita Ave	Claremont	0.746	C

TABLE 3-15.11
YEAR 2025 NO BUILD INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Indian Hill Blvd	First St	Claremont	0.719	C
Indian Hill Blvd	***Santa Fe St***	***Claremont***	***93.3***	***F***
Indian Hill Blvd	Arrow Hwy	Claremont	0.793	C
College Ave	Bonita Ave	Claremont	0.508	B
College Ave	First St	Claremont	0.729	C
College Ave	Arrow Hwy	Claremont	0.549	A
Claremont Blvd	First St	Claremont	0.312	A
Mills/Claremont	Arrow Hwy	Claremont	0.632	B
Monte Vista Ave	Arrow Route	Montclair	0.658	B
Monte Vista Ave	Richton St	Montclair	0.509	A
Monte Vista Ave	***Arrow Hwy***	***Montclair***	***1.003***	***F***
Fremont Ave	Arrow Hwy	Montclair	0.518	A
Central Ave	Arrow Route	Montclair	0.863	D
Central Ave	Richton St / W 9th St	Montclair	0.683	B
Central Ave	***Arrow Hwy***	***Montclair***	***0.915***	***E***

Source: Parsons Brinckerhoff, 2003.

Intersections with LOS E or F for both current and/or future conditions are shown in **Figures 3-15.21 through 3-15.44**. It should be noted that Figures 3-15.31 and 3-15.32 in the City of Pomona refer to a Full Build LRT Option D alternative. This is described in Chapter 2 and relates to an option where the La Verne station is proposed as a combined station with Metrolink at Fairplex and consequently the Pomona station is located at Towne Avenue.



Source: U.S. Census TIGER Data, 2004; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Legend

- Proposed Stations
- Proposed Gold Line
- Intersections With Existing LOS of E or F
- No Build - 2025 Predicted Intersection LOS of E or F
- TSM - 2025 Predicted Intersection LOS of E or F
- Full Build LRT - 2025 Predicted Intersection LOS of E or F

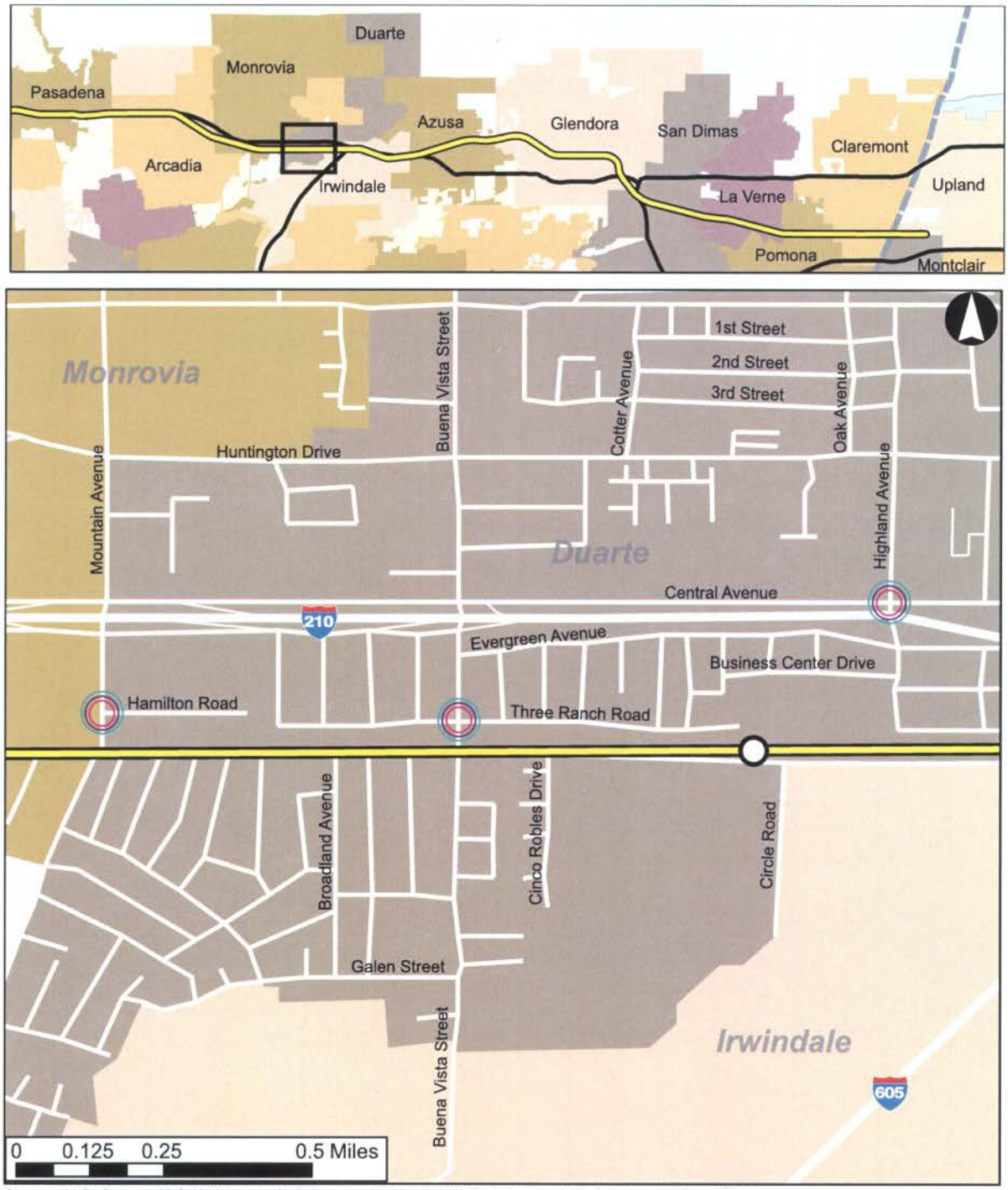
Figure 3-15.21: Intersection Level of Service Analysis - Pasadena

Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Legend

- Proposed Stations
- Proposed Gold Line
- Intersections With Existing LOS of E or F
- No Build - 2025 Predicted Intersection LOS of E or F
- TSM - 2025 Predicted Intersection LOS of E or F
- Full Build LRT - 2025 Predicted Intersection LOS of E or F

Figure 3-15.22: Intersection Level of Service Analysis - Monrovia

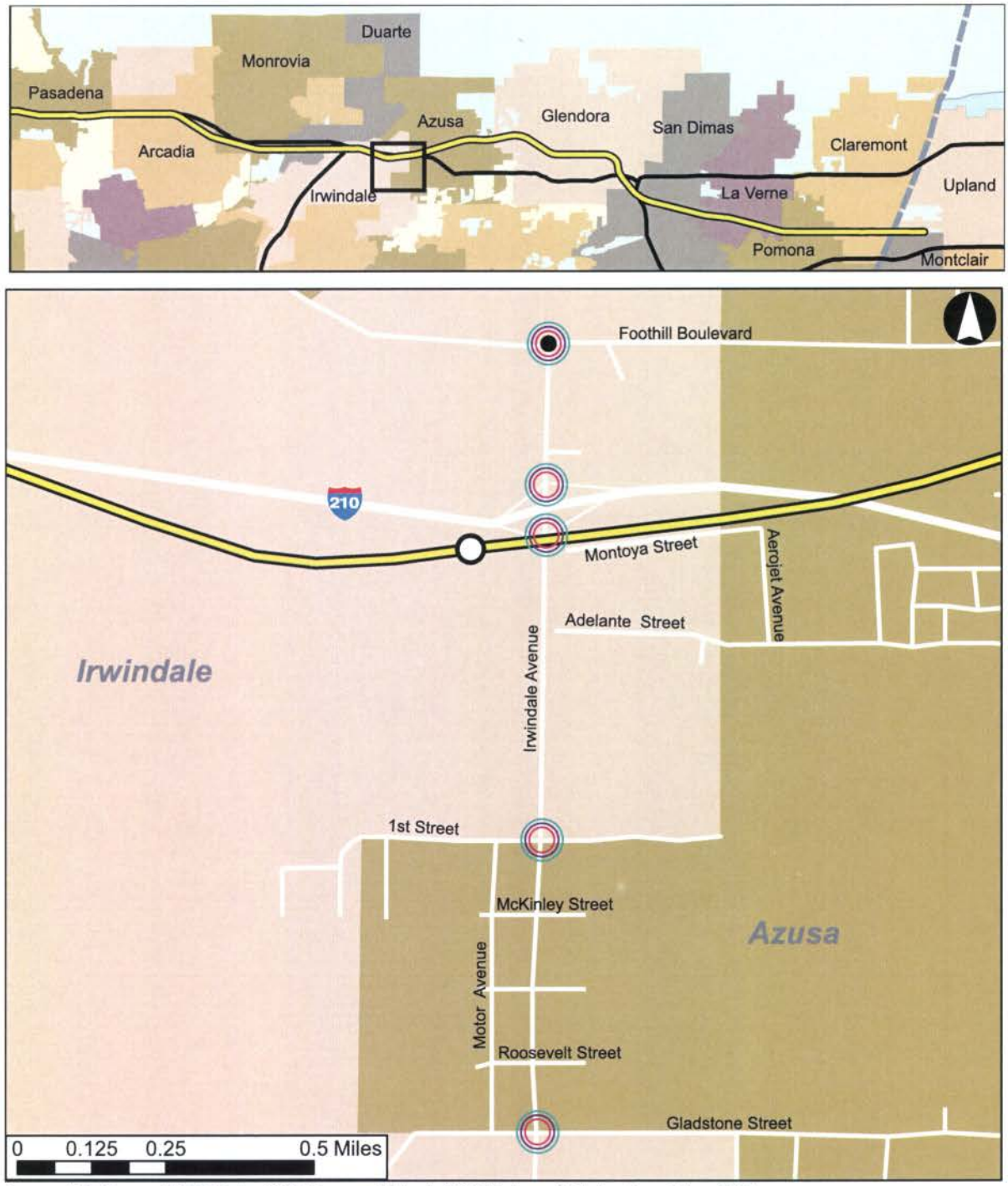


Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Legend

- Proposed Stations
- Proposed Gold Line
- Intersections With Existing LOS of E or F
- No Build - 2025 Predicted Intersection LOS of E or F
- TSM - 2025 Predicted Intersection LOS of E or F
- Full Build LRT - 2025 Predicted Intersection LOS of E or F

Figure 3-15.23: Intersection Level of Service Analysis - Duarte



Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Legend

- Proposed Stations
- Proposed Gold Line
- Intersections With Existing LOS of E or F
- No Build - 2025 Predicted Intersection LOS of E or F
- TSM - 2025 Predicted Intersection LOS of E or F
- Full Build LRT - 2025 Predicted Intersection LOS of E or F

Figure 3-15.24: Intersection Level of Service Analysis - Irwindale

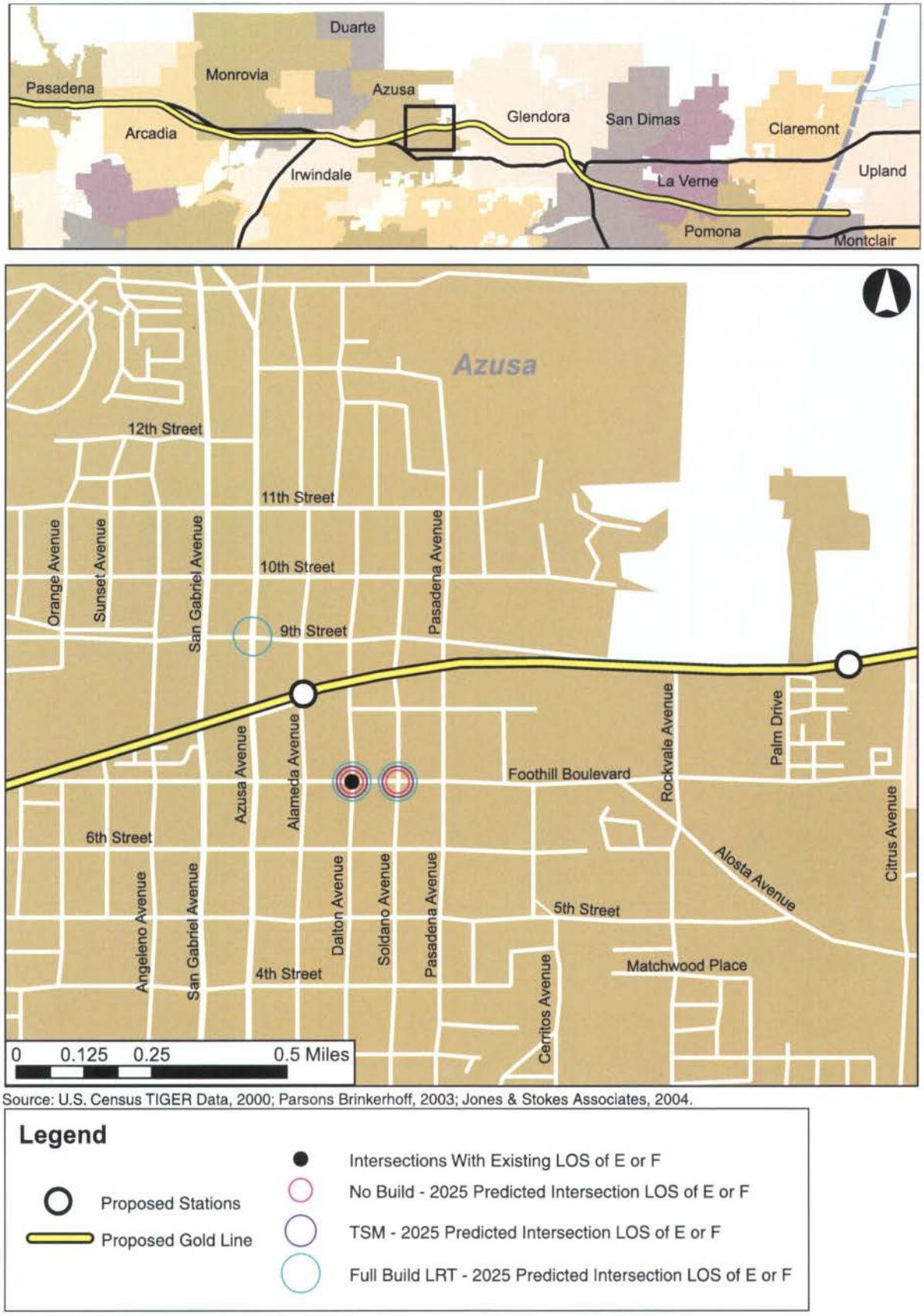
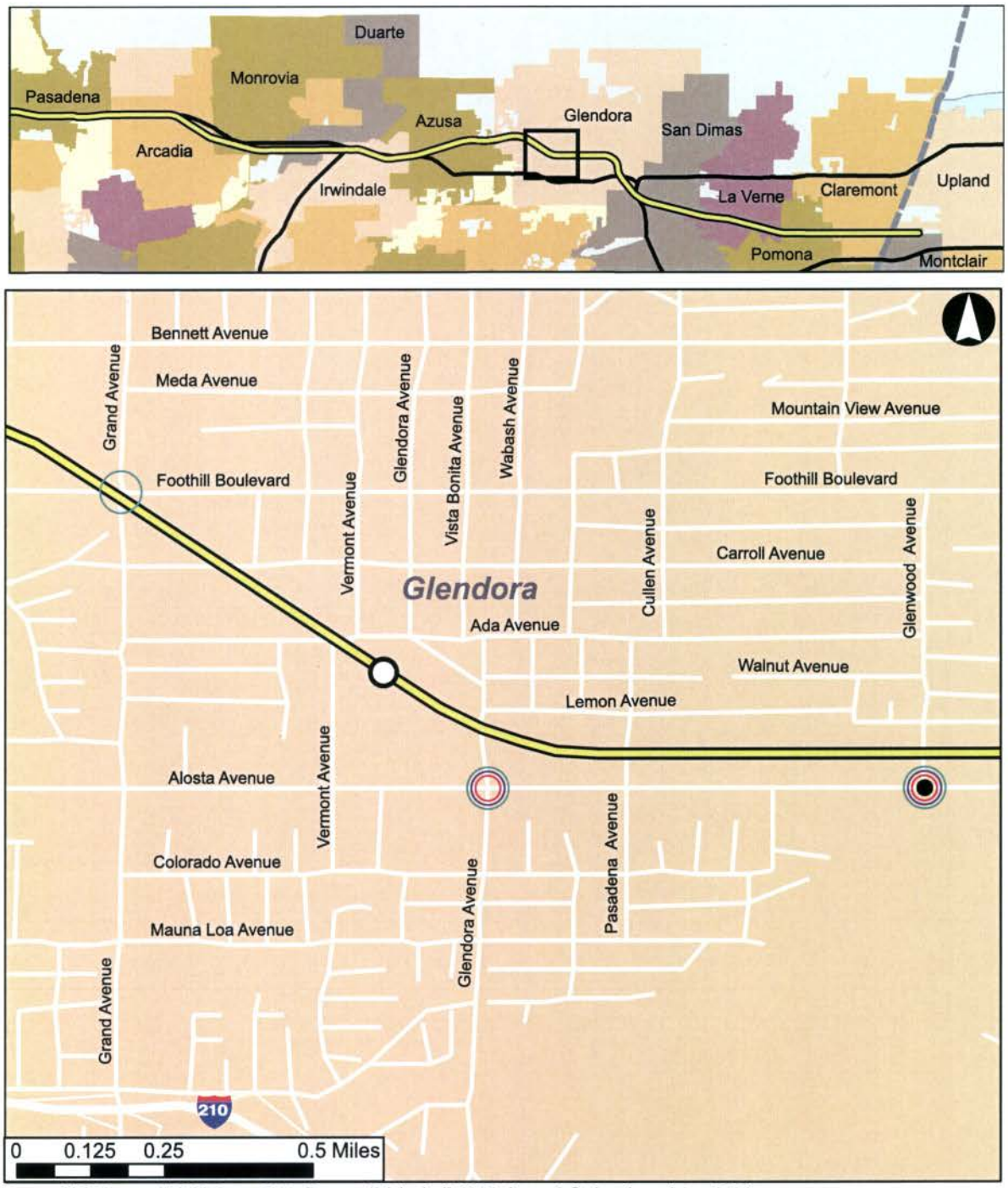


Figure 3-15.25: Intersection Level of Service Analysis - Azusa



Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Legend

- Proposed Stations
- Proposed Gold Line
- Intersections With Existing LOS of E or F
- No Build - 2025 Predicted Intersection LOS of E or F
- TSM - 2025 Predicted Intersection LOS of E or F
- Full Build LRT - 2025 Predicted Intersection LOS of E or F

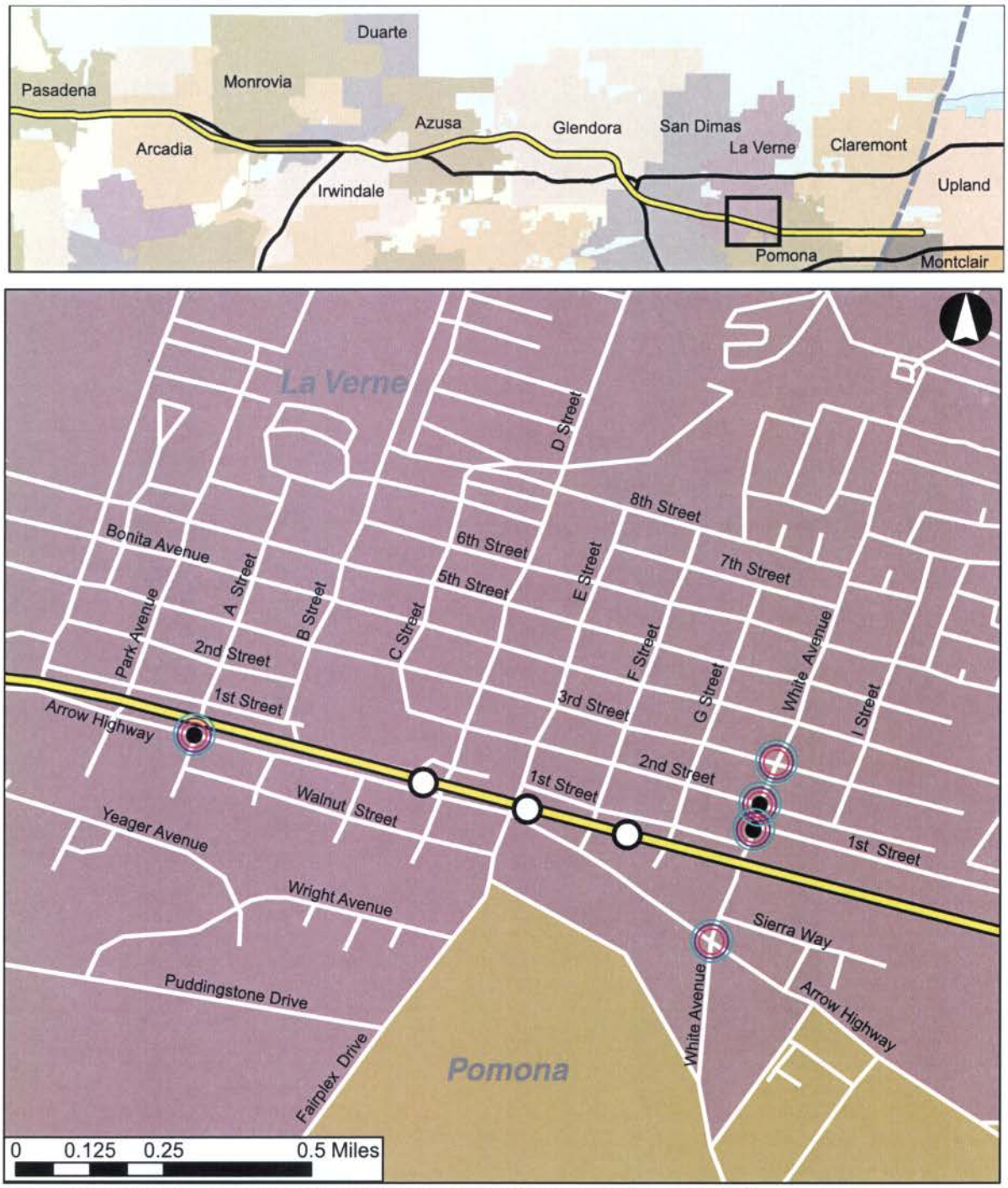
Figure 3-15.26: Intersection Level of Service Analysis - Glendora

Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Legend

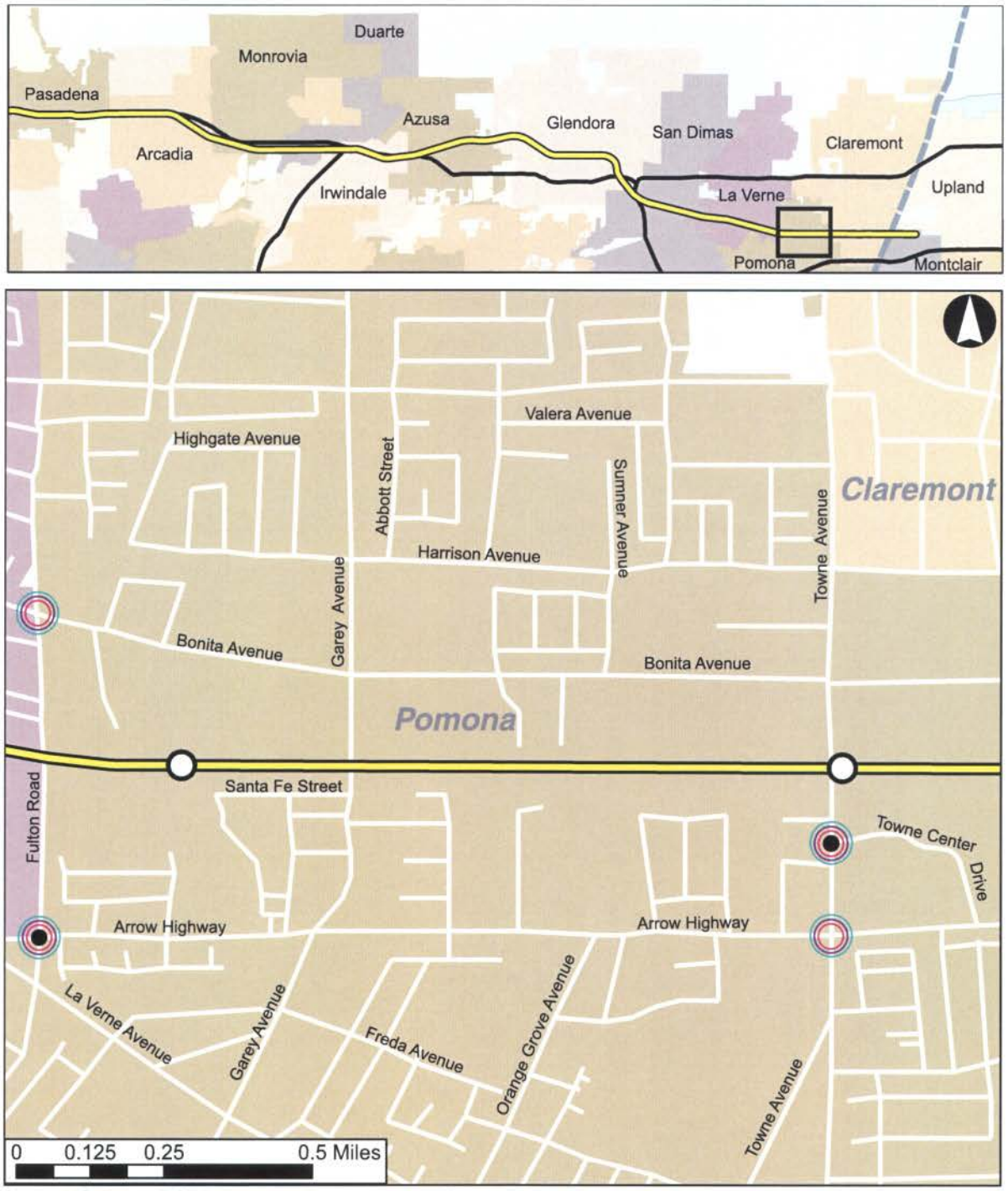
- Proposed Stations
- Proposed Gold Line
- Intersections With Existing LOS of E or F
- No Build - 2025 Predicted Intersection LOS of E or F
- TSM - 2025 Predicted Intersection LOS of E or F
- Full Build LRT - 2025 Predicted Intersection LOS of E or F

Figure 3-15.27: Intersection Level of Service Analysis - Glendora/San Dimas



Source: U.S. Census TIGER Data 2000; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Figure 3-15.28: Intersection Level of Service Analysis - La Verne

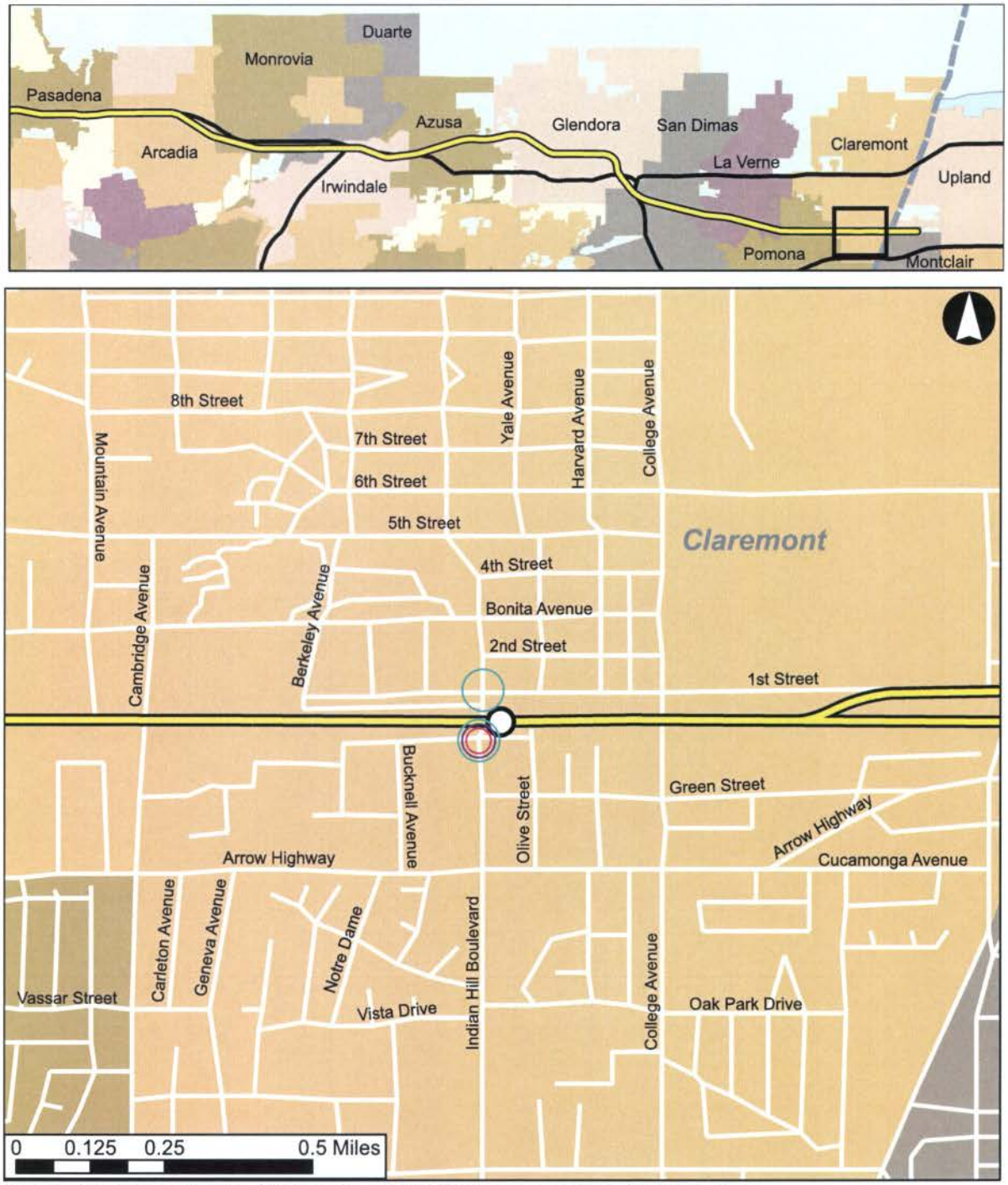


Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff 2003; Jones & Stokes Associates, 2004.

Legend

- Proposed Stations
- Proposed Gold Line
- Intersections With Existing LOS of E or F
- No Build - 2025 Predicted Intersection LOS of E or F
- TSM - 2025 Predicted Intersection LOS of E or F
- Full Build LRT - 2025 Predicted Intersection LOS of E or F

Figure 3-15.29: Intersection Level of Service Analysis - Pomona

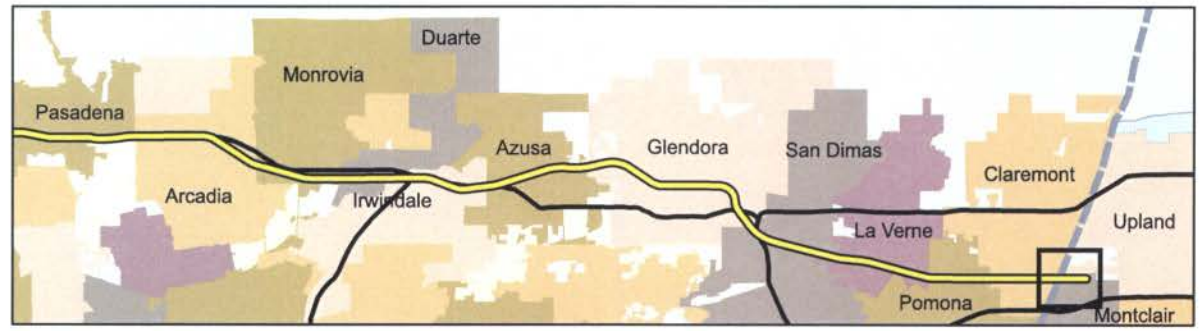


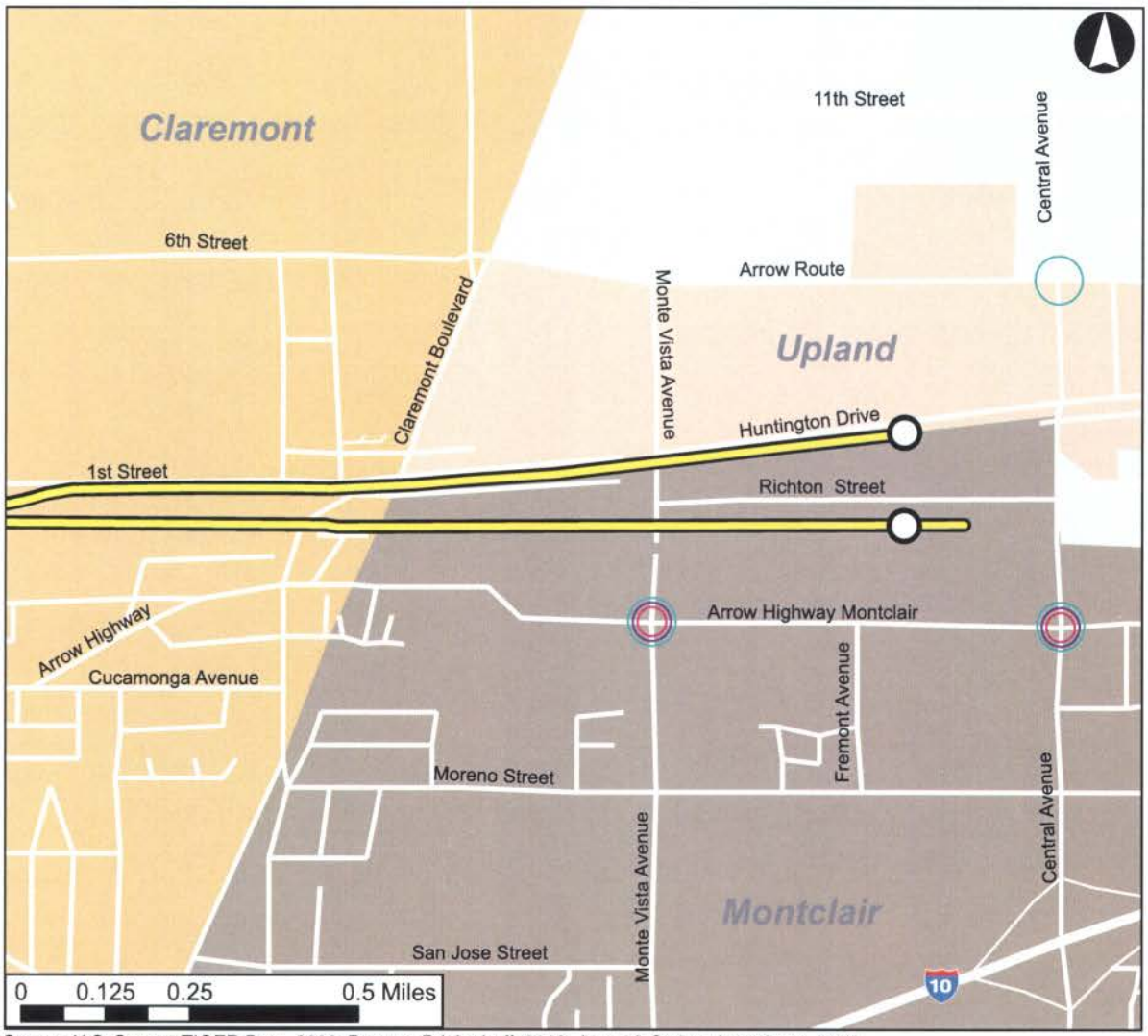
Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Legend

- Proposed Stations
- Proposed Gold Line
- Intersections With Existing LOS of E or F
- No Build - 2025 Predicted Intersection LOS of E or F
- TSM - 2025 Predicted Intersection LOS of E or F
- Full Build LRT - 2025 Predicted Intersection LOS of E or F

Figure 3-15.30: Intersection Level of Service Analysis - Claremont





Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Legend

- Proposed Stations
- Proposed Gold Line
- Intersections With Existing LOS of E or F
- No Build - 2025 Predicted Intersection LOS of E or F
- TSM - 2025 Predicted Intersection LOS of E or F
- Full Build LRT - 2025 Predicted Intersection LOS of E or F

Figure 3-15.31: Intersection Level of Service Analysis - Montclair/Upland

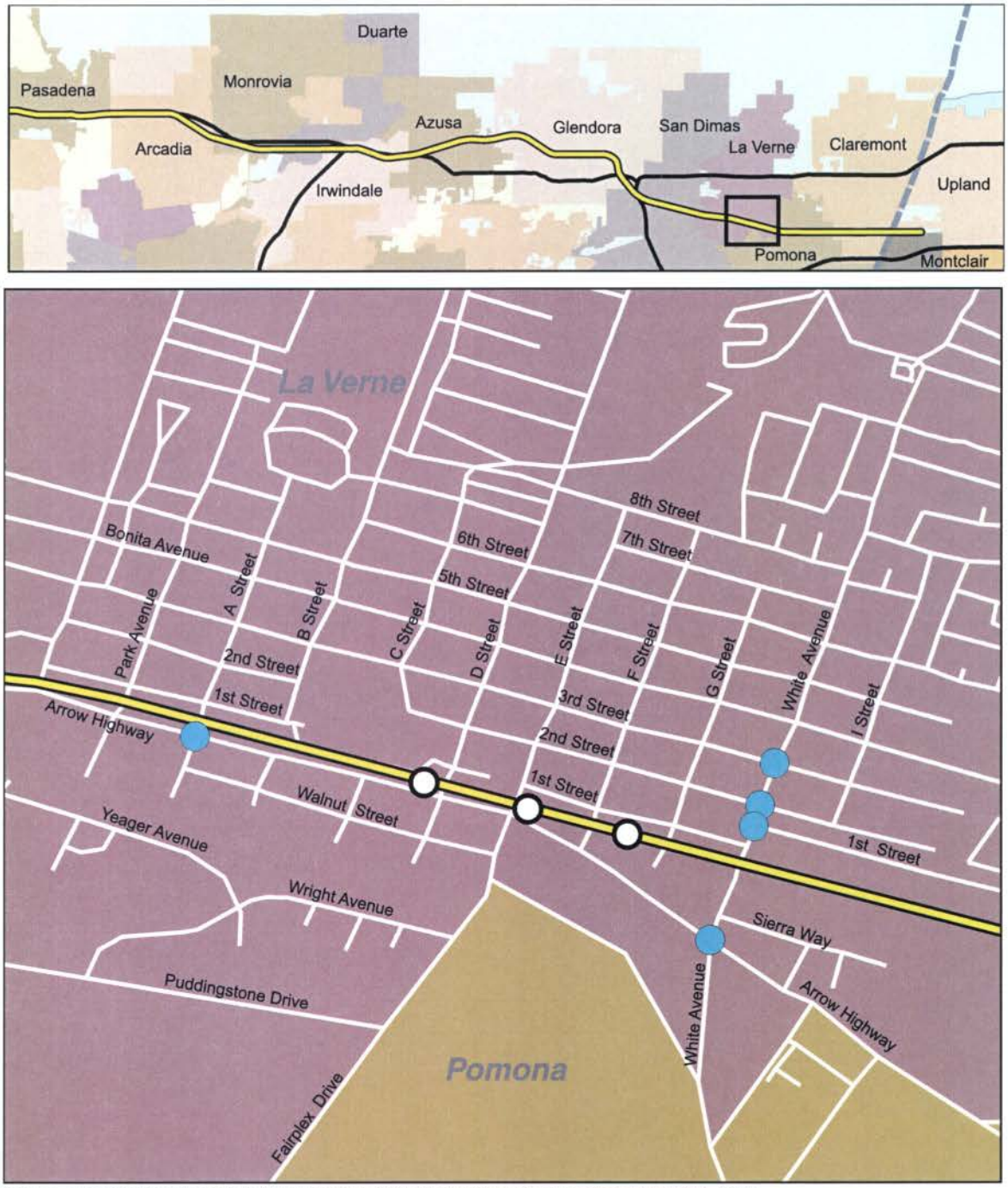
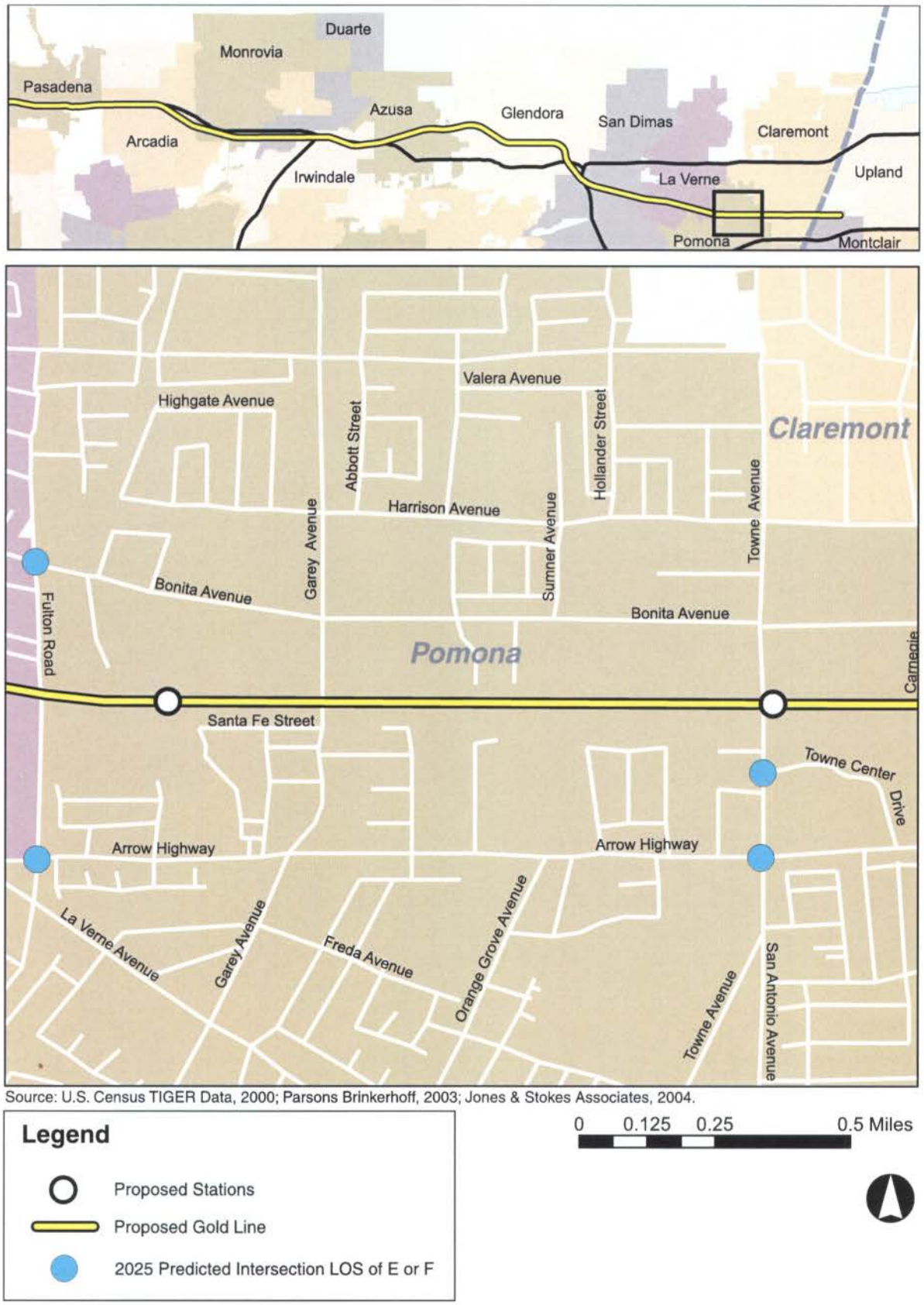
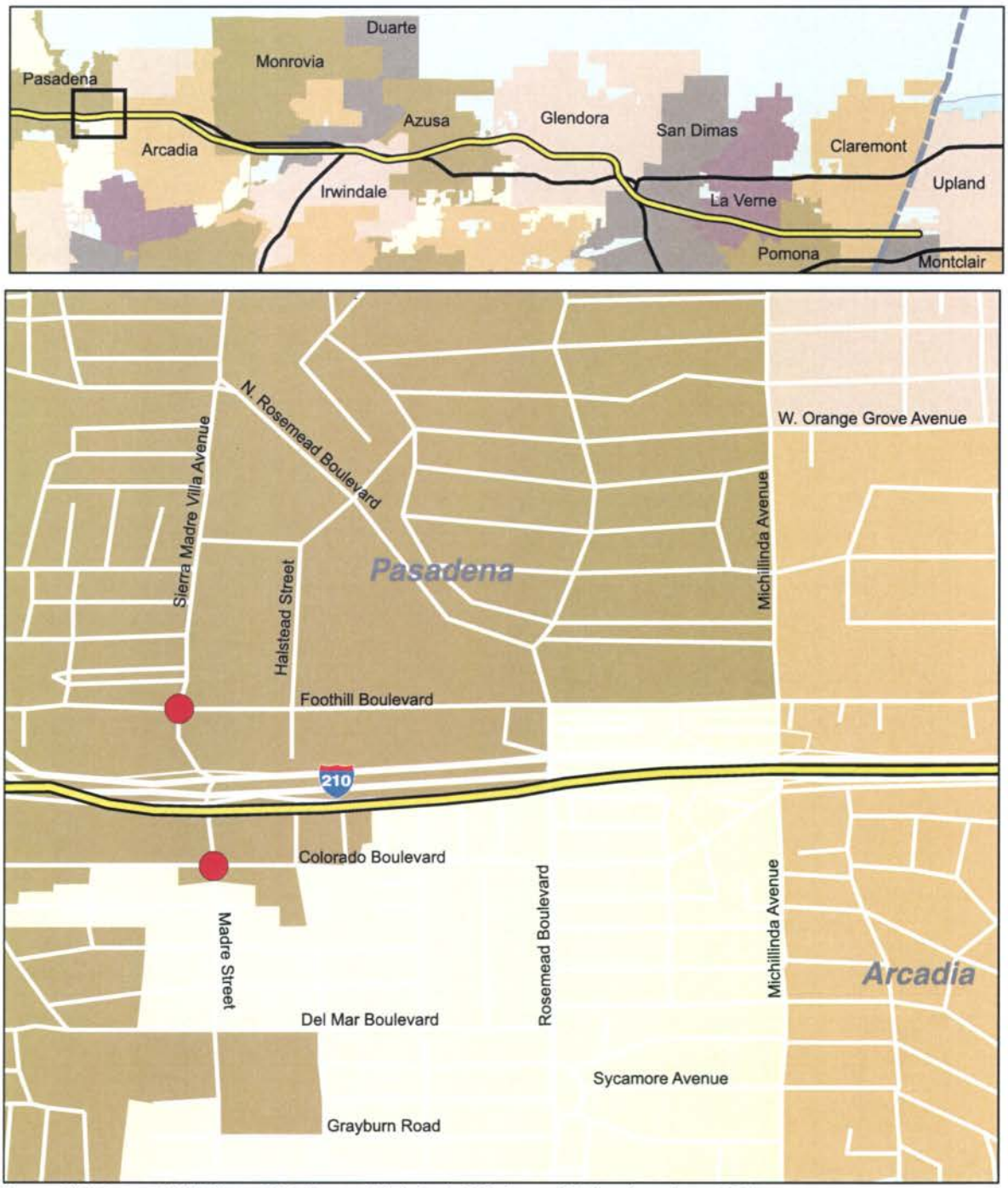


Figure 3-15.32: Option D Alternative - Intersection Level of Service Analysis - La Verne



Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Figure 3-15.33: Option D Alternative - Intersection Level of Service Analysis - Pomona



Source: U.S. Census TIGER Data, 2004; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Figure 3-15.34: Build LRT Alternative to Maintenance Facility Intersection Level of Service Analysis - Pasadena

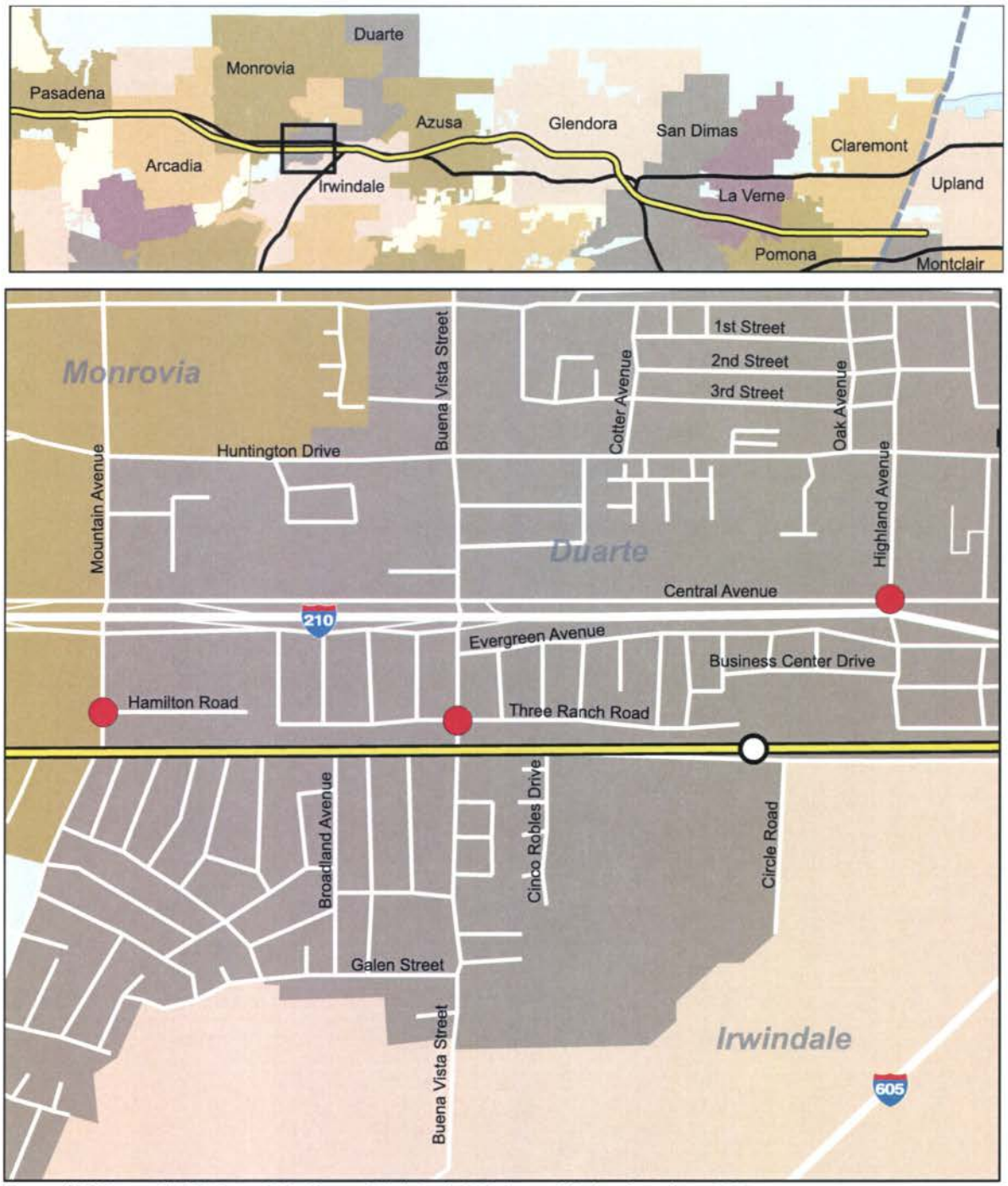
Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

0 0.125 0.25 0.5 Miles

Legend

- Proposed Stations
- Proposed Gold Line
- 2025 Predicted Intersection of LOS E or F

Figure 3-15.35: Build LRT Alternative to Maintenance Facility Intersection Level of Service Analysis - Monrovia



Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Figure 3-15.36: Build LRT Alternative to Maintenance Facility Intersection Level of Service Analysis - Duarte

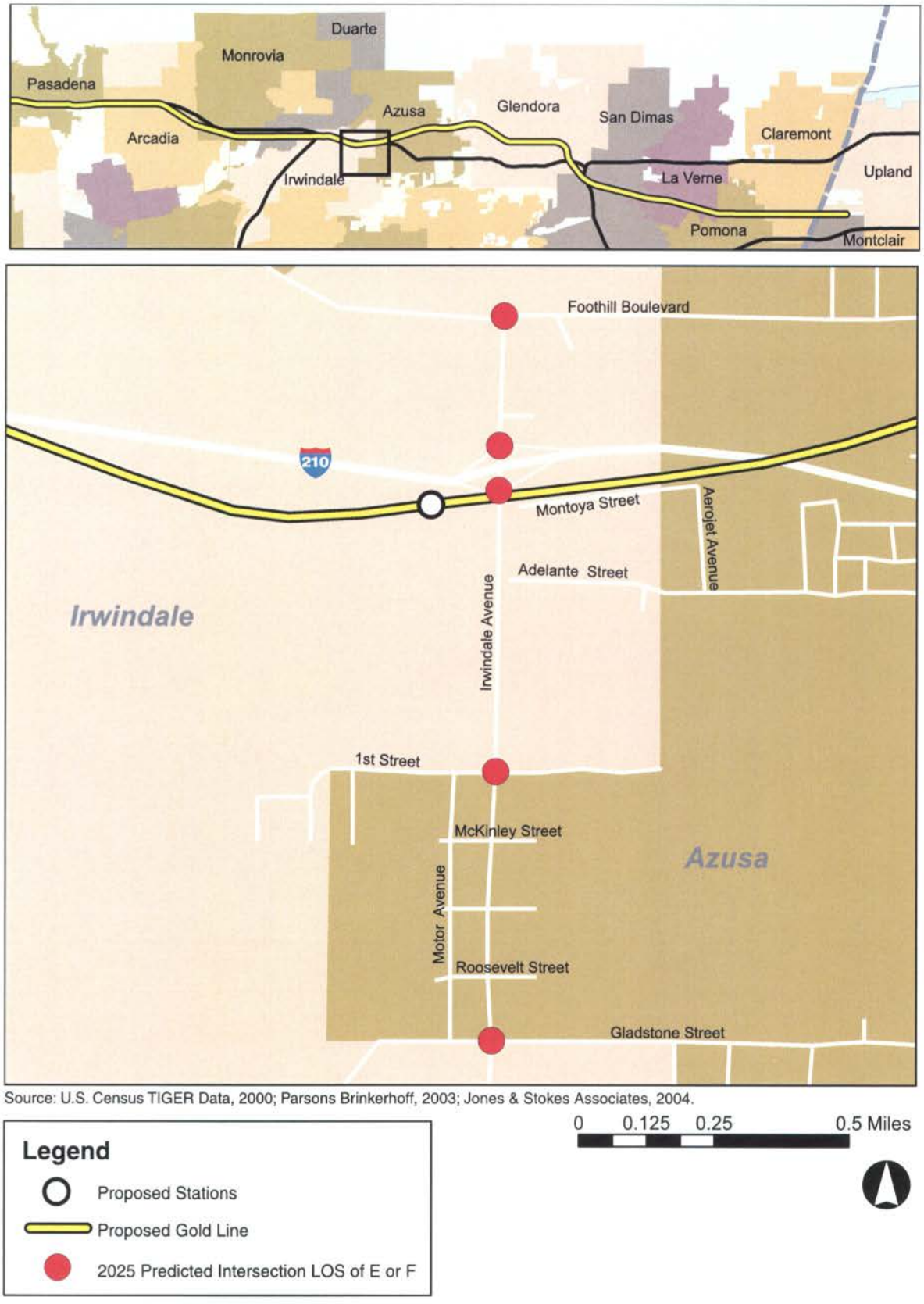
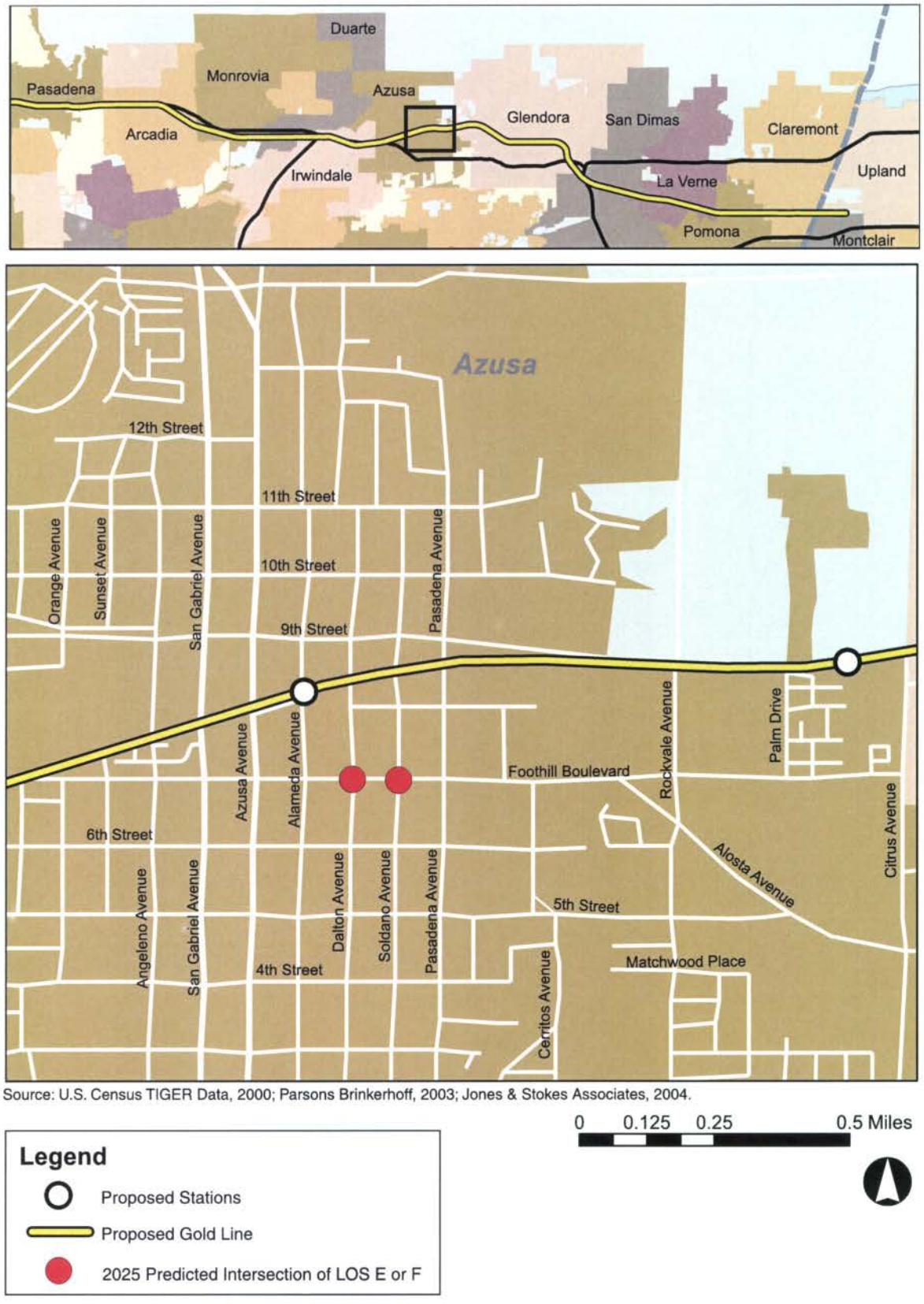


Figure 3-15.37: Build LRT Alternative to Maintenance Facility Intersection Level of Service Analysis - Irwindale



Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Figure 3-15.38: Build LRT Alternative to Maintenance Facility Intersection Level of Service Analysis - Azusa

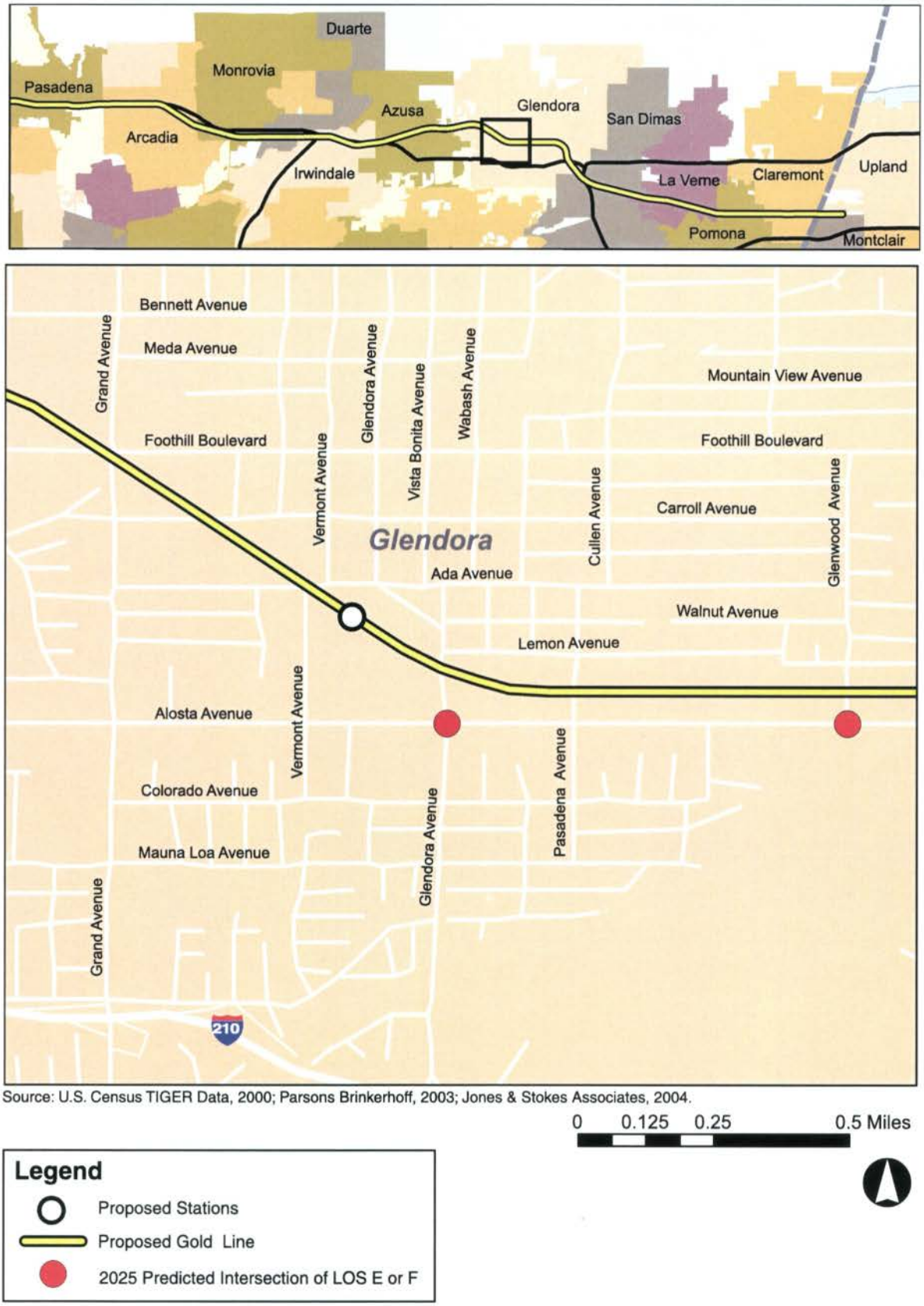


Figure 3-15.39: Build LRT Alternative to Maintenance Facility Intersection Level of Service Analysis - Glendora

Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Figure 3-15.40: Build LRT Alternative to Maintenance Facility Intersection Level of Service Analysis - Glendora/San Dimas

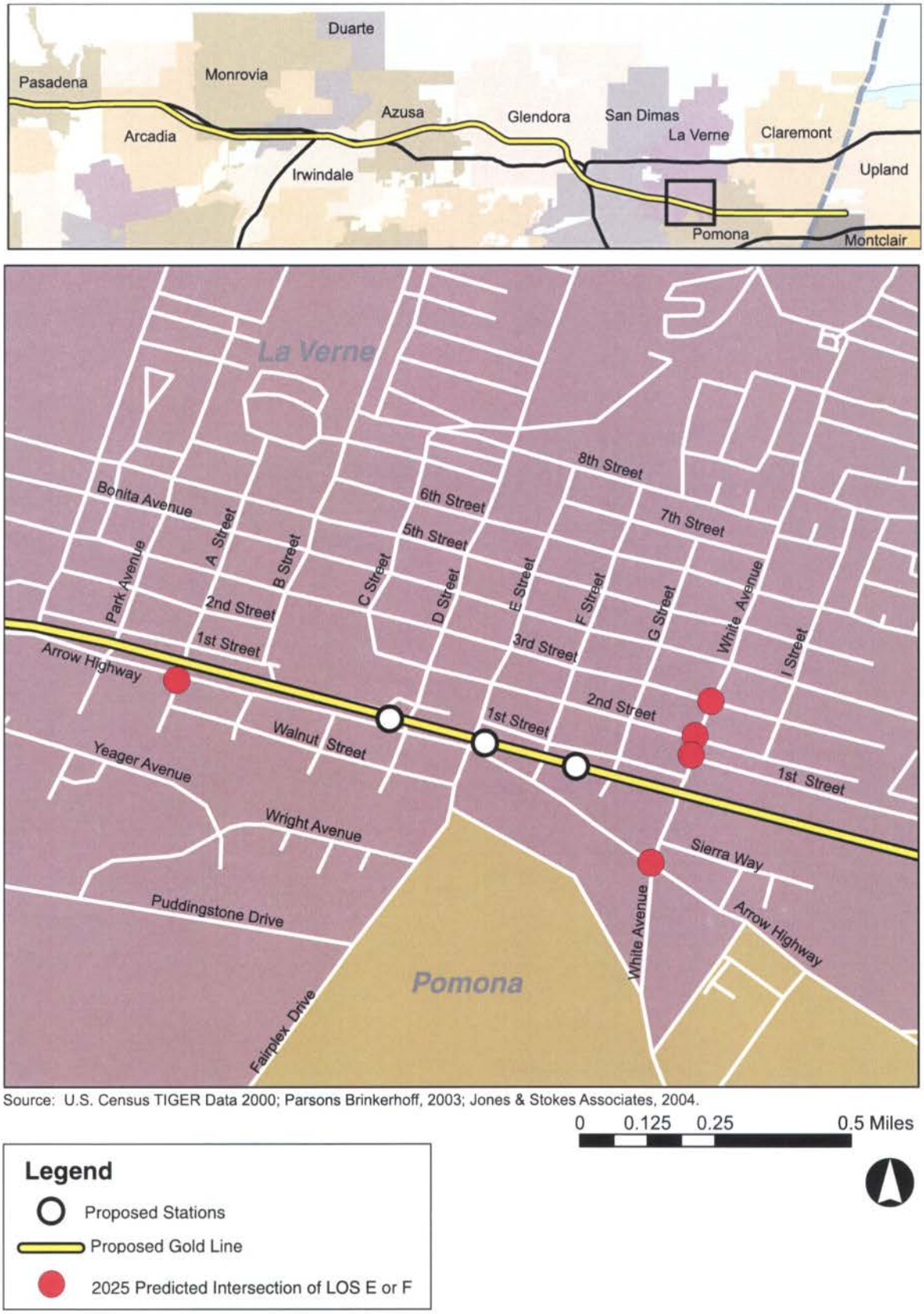
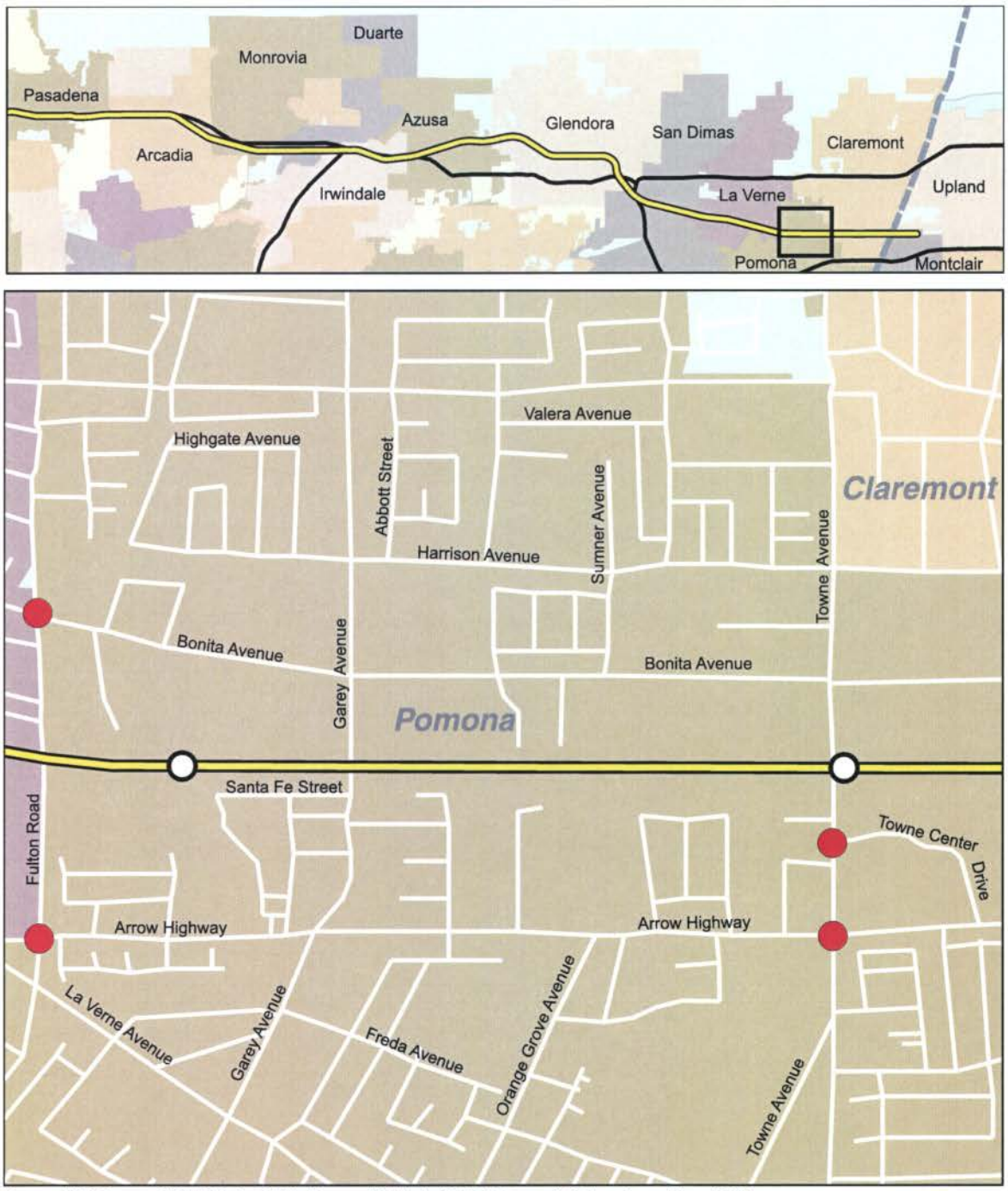
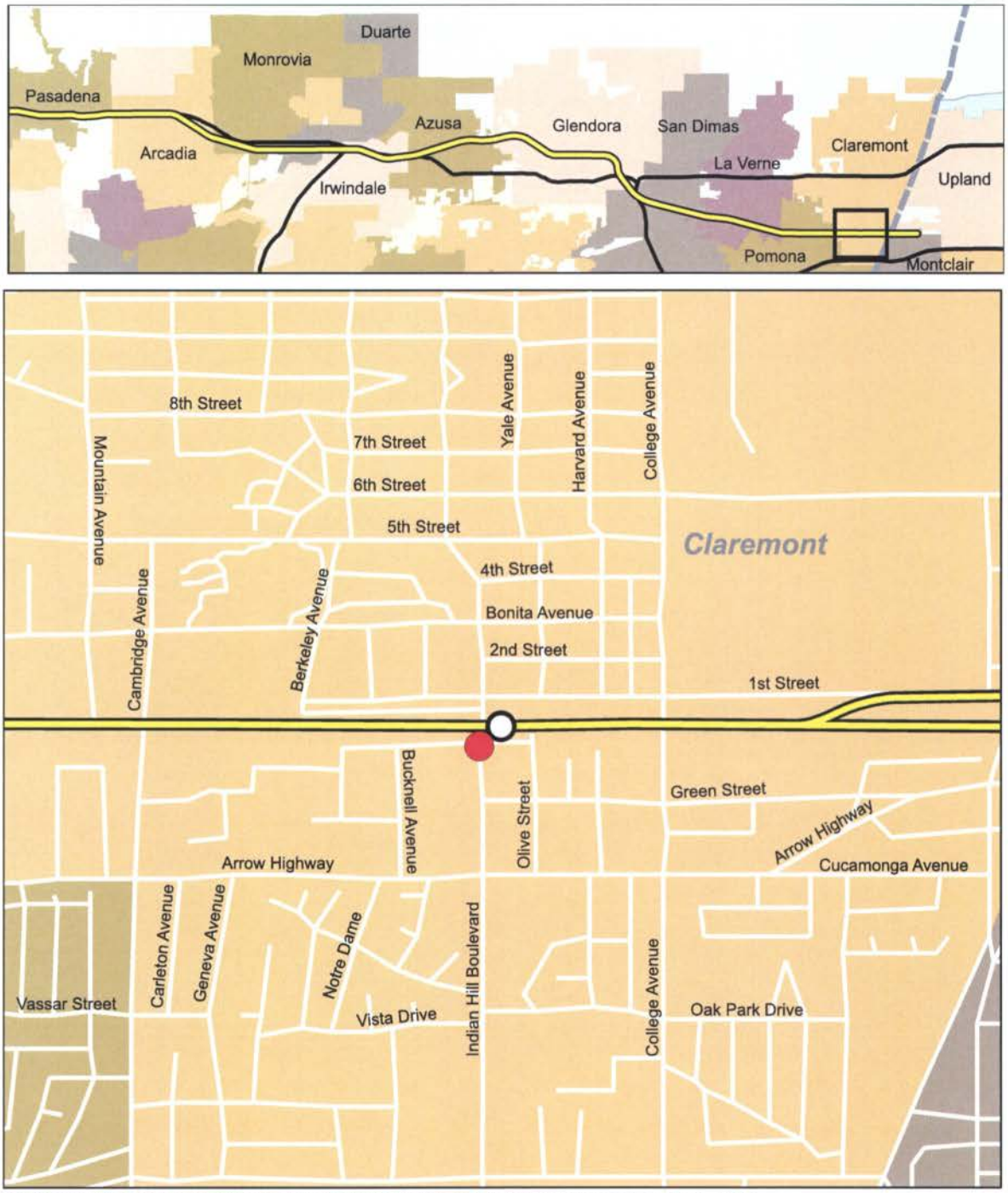


Figure 3-15.41: Build LRT Alternative to Maintenance Facility Intersection Level of Service Analysis - La Verne



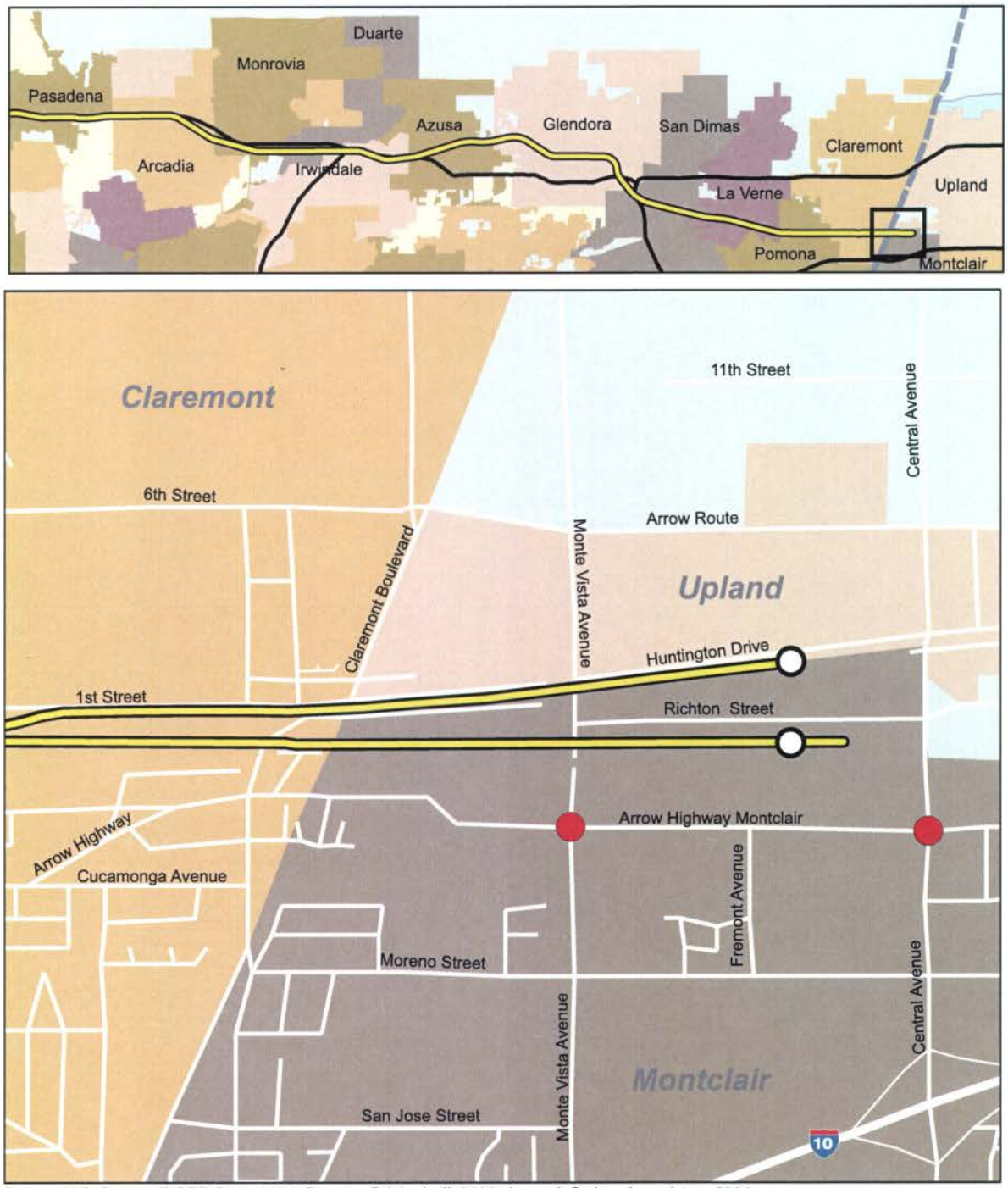
Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff 2003; Jones & Stokes Associates, 2004.

Figure 3-15.42: Build LRT Alternative to Maintenance Facility Intersection Level of Service Analysis - Pomona



Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Figure 3-15.43: Build LRT Alternative to Maintenance Facility Intersection Level of Service Analysis - Claremont



Source: U.S. Census TIGER Data, 2000; Parsons Brinkerhoff, 2003; Jones & Stokes Associates, 2004.

Figure 3-15.44: Build LRT Alternative to Maintenance Facility Intersection Level of Service Analysis - Montclair

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. No long-term impacts are expected for the No Build alternative.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. No long-term impacts are expected for the No Build alternative.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. No long-term impacts are expected for the No Build alternative.

b. Transportation System Management (TSM) Alternative

Transit

The primary component of the TSM alternative (FTA Baseline definition) is to enhance bus service along the Phase II Study Area corridor by providing or improving connecting service to the Gold Line Phase I station at Sierra Madre Villa, as well as increasing peak period and off-peak period service frequencies to downtown Pasadena (the study area's largest employment center) and among the other cities and major activity centers within the Study Area. Refer to **Table 3-15.12** for bus routes with reduced headways in the TSM alternative to enhance service.

The TSM alternative provides a substantive increase in arterial bus and express bus service to the Study Area. To the areas east of Duarte the peak period bus service would go from 8 buses per hour in each direction to 14 buses per hour. The areas west of Duarte would have service increased from 11 buses per hour in each direction to 20 buses per hour.

TABLE 3-15.12
TRANSPORTATION SYSTEM MANAGEMENT (TSM)
CHANGES IN HEADWAYS (IN MINUTES) TO ENHANCE BUS SERVICE

Route	Description	No Build		TSM	
		Peak	Off-Peak	Peak	Off-Peak
MTA 177	La Canada Flintridge/Arcadia/Duarte	30	60	15	30
MTA 188	Fair Oaks/Colorado Blvd./Duarte Rd.	45	60	15	30
Foothill 184	Duarte/Monrovia/Arcadia/Pasadena	60	60	30	30
Foothill 187	Claremont/Montclair/Pasadena	30	60	15	30
Foothill 189	Claremont/Montclair/Pasadena	30	60	15	30
Foothill 494	Glendora/Monrovia/Los Angeles	30	0	20	0
Foothill 690 (Express)	Montclair – Express Service to Pasadena via 210 Freeway Corridor	30	0	10	20

Traffic Operations

❑ Shifts in Traffic Patterns

Adjustments to traffic flow patterns due to the proposed TSM alternative were determined by utilizing projections from the transportation demand model developed for this study. The year 2025 No Build and TSM peak period model data were compared to determine the effects of the proposed bus service enhancements on traffic flow and circulation patterns. The PM peak period link data from the No Build and TSM travel demand model outputs were utilized in this analysis. The results of the comparison between the year 2025 traffic forecasts for the TSM alternative versus the year 2025 traffic forecasts for the No Build alternative are presented in **Table 3-15.13**, which shows the percent change in traffic patterns.

TABLE 3-15.13
PERCENT CHANGE IN TRAFFIC PATTERNS FOR THE TSM ALTERNATIVE FROM THE NO BUILD ALTERNATIVE BY CITY

City	Percent Change from No Build 2003 to 2025
Pasadena	-0.18
Arcadia	-0.16
Monrovia	-0.16
Duarte	-0.25
Irwindale	-0.13
Azusa	-0.16
Glendora	-0.39
San Dimas	0.00
La Verne	0.00
Pomona	-0.18
Claremont	0.00
Montclair	-0.48

Source: Parsons Brinckerhoff, 2003,

The overall shifts in traffic identified above, were applied to the year 2025 No Build PM peak hour turning movement volumes in order to develop the future PM peak hour turning movement traffic projections for the TSM alternative at each of the 123 study intersections.

❑ Intersection Traffic Service

The future PM peak hour traffic volumes at the 123 study intersections were determined based upon the anticipated shifts in traffic patterns identified in the previous section. Future traffic operations were evaluated by incorporating the volumes, roadway geometrics, type of control and signal phasing, where applicable using the TRAFFIX software. The resulting intersection operations and levels of service are presented in **Table 3-15.14**. As indicated in the table, 90 intersections are anticipated to operate at LOS

D or better and the remaining 33 intersections would operate at LOS E or F. Figures 3-15.21 through 3-15.44 show intersections with LOS of E or F for current or future conditions.

TABLE 3-15.14
YEAR 2025 TSM INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Sierra Madre Villa Ave	***Foothill Blvd***	***Pasadena***	***1.624***	***F***
Sierra Madre Villa Ave	Gold Line Parking Garage	Pasadena	20.4	C
Sierra Madre Villa Ave	WB I-210 Fwy	Pasadena	0.669	B
Sierra Madre Villa Ave	EB I-210 Fwy	Pasadena	0.605	B
Sierra Madre Villa Ave	***Colorado Blvd***	***Pasadena***	***1.615***	***F***
Foothill Blvd	Halstead St	Pasadena	0.872	D
Santa Anita Ave	Colorado Blvd	Arcadia	0.751	C
Santa Anita Ave	La Porte St	Arcadia	15.4	C
Santa Anita Ave	Santa Clara St	Arcadia	0.717	C
First Ave	Colorado Blvd	Arcadia	0.701	C
First Ave	Santa Clara St	Arcadia	0.553	B
First Ave	Huntington Dr	Arcadia	0.791	C
Second Ave	Santa Clara St	Arcadia	0.492	A
Mayflower Ave	***Diamond St***	***Monrovia***	***40.3***	***E***
Mayflower Ave	Duarte Rd	Monrovia	0.777	C
Magnolia Ave	Evergreen Ave	Monrovia	33.4	D
Magnolia Ave	Genoa St	Monrovia	12.1	B
Magnolia Ave	Duarte Rd	Monrovia	0.624	B
Myrtle Ave	***Central Ave (210 WB)***	***Monrovia***	***1.233***	***F***
Myrtle Ave	***Evergreen Ave (210 EB)***	***Monrovia***	***1.082***	***F***
Myrtle Ave	***Duarte Rd***	***Monrovia***	***0.932***	***E***
California Ave	Duarte Rd	Monrovia	0.875	D
Mountain Ave	***Hamilton Rd***	***Duarte***	***64.8***	***F***
Mountain Ave	Duarte Rd	Duarte	0.847	D
Buena Vista St	***Three Ranch Rd***	***Duarte***	***42.3***	***E***
Buena Vista St	Duarte Rd	Duarte	0.839	D
Highland Ave	***Central Ave***	***Duarte***	***106.4***	***F***
Irwindale Ave	***Foothill Blvd***	***Irwindale***	***2.123***	***F***
Irwindale Ave	***WB I-210 Fwy***	***Irwindale***	***0.913***	***E***
Irwindale Ave	***EB I-210 Fwy***	***Irwindale***	***1.515***	***F***
Irwindale Ave	Montoya St	Irwindale	13.2	B
Irwindale Ave	***First St***	***Irwindale***	***1.004***	***F***
Irwindale Ave	***Gladstone St***	***Irwindale***	***1.249***	***F***
Peckham Ave	First St	Irwindale	11.0	B

TABLE 3-15.14 *continued*
YEAR 2025 TSM INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Virginia Ave	Foothill Blvd	Azusa	0.680	B
Virginia Ave	Sixth St	Azusa	12.0	B
San Gabriel Ave	Ninth St	Azusa	0.208	A
San Gabriel Ave	Foothill Blvd	Azusa	0.687	B
Azusa Ave	Ninth St	Azusa	23.8	C
Azusa Ave	Santa Fe Ave	Azusa	15.7	C
Azusa Ave	Foothill Blvd	Azusa	0.765	C
Alameda Ave	Ninth St	Azusa	12.1	B
Alameda Ave	Santa Fe Ave	Azusa	9.1	A
Alameda Ave	Foothill Blvd	Azusa	0.627	B
Dalton Ave	Ninth St	Azusa	10.8	B
Dalton Ave	***Foothill Blvd***	***Azusa***	***317.3***	***F***
Soldano Ave	Ninth St	Azusa	9.8	A
Soldano Ave	***Foothill Blvd***	***Azusa***	***42.6***	***E***
Pasadena Ave	Ninth St	Azusa	0.305	A
Pasadena Ave	Foothill Blvd	Azusa	0.727	C
Palm Dr	Foothill Blvd	Azusa	22.0	C
Citrus Ave	Foothill Blvd	Azusa	0.719	C
Barranca Ave	Bennett Ave	Glendora	12.4	B
Barranca Ave	Foothill Blvd	Glendora	0.471	A
Grand Ave	Foothill Blvd	Glendora	0.731	C
Vermont Ave	Ada Ave	Glendora	11.3	B
Vermont Ave	Alosta Ave	Glendora	0.512	A
Vermont Ave	Foothill Blvd	Glendora	0.478	A
Vermont Ave	Ada Ave	Glendora	12.8	B
Glendora Ave	Foothill Blvd	Glendora	0.709	C
Glendora Ave	Ada Ave	Glendora	0.576	B
Glendora Ave	***Alosta Ave***	***Glendora***	***0.973***	***E***
Pasadena Ave	Lemon Ave	Glendora	0.133	A
Pasadena Ave	Alosta Ave	Glendora	0.719	C
Glenwood Ave	Lemon Ave	Glendora	10.3	B
Glenwood Ave	***Alosta Ave***	***Glendora***	***297.8***	***F***
Elwood Ave	Lemon Ave	Glendora	10.1	B
Elwood Ave	Alosta Ave	Glendora	0.673	B
Loraine Ave	Lemon Ave	Glendora	18.6	C
Loraine Ave	Alosta Ave	Glendora	0.658	B

TABLE 3-15.14
YEAR 2025 TSM INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Lone Hill Ave	***Auto Center Dr***	***Glendora***	***0.932***	***E***
Lone Hill Ave	Gladstone St	San Dimas	0.647	B
Eucla Ave	Bonita Ave	San Dimas	0.440	A
Acacia Ave	Bonita Ave	San Dimas	27.8	D
Cataract Ave	***Bonita Ave***	***San Dimas***	***41.2***	***E***
Monte Vista Ave	***Bonita Ave***	***San Dimas***	***40.2***	***E***
San Dimas Ave	Bonita Ave	San Dimas	0.762	C
San Dimas Ave	Arrow Hwy	San Dimas	0.835	D
Walnut Ave	Bonita Ave	San Dimas	0.651	B
Walnut Ave	Arrow Hwy	San Dimas	0.673	B
San Dimas Canyon Rd	Bonita Ave	San Dimas	0.481	A
San Dimas Canyon Rd	Arrow Hwy	San Dimas	0.626	B
Wheeler Ave	Third St	La Verne	20.9	C
Wheeler Ave	Arrow Hwy	La Verne	0.702	C
A St	Third St	La Verne	10.3	B
A St	First St	La Verne	9.4	A
A St	***Arrow Hwy***	***La Verne***	***244.1***	***F***
D St	Third St	La Verne	0.664	B
D St	First St	La Verne	11.1	B
D St	Arrow Hwy	La Verne	0.464	A
E St	Third St	La Verne	0.574	B
E St	Second St	La Verne	13.5	B
E St	First St	La Verne	11.3	B
E St	Arrow Hwy	La Verne	0.732	C
White Ave	***Third St***	***La Verne***	***57.3***	***F***
White Ave	***Second St***	***La Verne***	***88.2***	***F***
White Ave	***First St***	***La Verne***	***122.6***	***F***
White Ave	Sierra Way	La Verne	18.6	C
White Ave	***Arrow Hwy***	***La Verne***	***1.051***	***F***
Fulton Rd	***Bonita Ave***	***Pomona***	***82.2***	***F***
Fulton Rd	***Arrow Hwy***	***Pomona***	***171.1***	***F***
Garey Ave	Bonita Ave	Pomona	0.678	B
Garey Ave	Santa Fe St	Pomona	15.9	C
Garey Ave	Arrow Hwy	Pomona	0.793	C
Towne Ave	Bonita Ave	Pomona	0.651	B
Towne Ave	***Towne Center Dr***	***Pomona***	***134.7***	***F***

TABLE 3-15.14
YEAR 2025 TSM INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Towne Ave	***Arrow Hwy***	***Pomona***	***1.008***	***F***
Indian Hill Blvd	Bonita Ave	Claremont	0.745	C
Indian Hill Blvd	First St	Claremont	0.717	C
Indian Hill Blvd	***Santa Fe St***	***Claremont***	***92.2***	***F***
Indian Hill Blvd	Arrow Hwy	Claremont	0.792	C
College Ave	Bonita Ave	Claremont	0.506	B
College Ave	First St	Claremont	0.727	C
College Ave	Arrow Hwy	Claremont	0.548	A
Claremont Blvd	First St	Claremont	0.311	A
Mills/Claremont	Arrow Hwy	Claremont	0.631	B
Monte Vista Ave	Arrow Route	Montclair	0.658	B
Monte Vista Ave	Richton St	Montclair	0.509	A
Monte Vista Ave	***Arrow Hwy***	***Montclair***	***1.003***	***F***
Fremont Ave	Arrow Hwy	Montclair	0.518	A
Central Ave	Arrow Route	Montclair	0.863	D
Central Ave	Richton St / W 9th St	Montclair	0.683	B
Central Ave	***Arrow Hwy***	***Montclair***	***0.915***	***E***

Source: Parsons Brinckerhoff, 2003.

Using the threshold criteria presented earlier in **Table 3-15.9**, the future intersection operating conditions under the TSM alternative were compared with the No Build to identify adversely/significantly impacted locations. As seen in **Table 3-15.15**, no intersections are anticipated to be adversely/significantly impacted. It should be noted that due to the proposed bus service enhancements, traffic operations at 48 of the intersections are expected to improve in the TSM alternative, as denoted by the decrease in V/C or Delay.

TABLE 3-15.15
SUMMARY OF INTERSECTION IMPACTS
COMPARISON BETWEEN THE TSM AND NO BUILD ALTERNATIVES

N/S Street	E/W Street	Jurisdiction	Change in V/C or Delay	Significant Impact
Sierra Madre Villa Ave	Foothill Blvd	Pasadena	-0.003	NO
Sierra Madre Villa Ave	Gold Line Parking Garage	Pasadena	0.0	NO
Sierra Madre Villa Ave	WB I-210 Fwy	Pasadena	-0.002	NO
Sierra Madre Villa Ave	EB I-210 Fwy	Pasadena	-0.001	NO
Sierra Madre Villa Ave	Colorado Blvd	Pasadena	-0.003	NO
Foothill Blvd	Halstead St	Pasadena	-0.002	NO
Santa Anita Ave	Colorado Blvd	Arcadia	-0.001	NO
Santa Anita Ave	La Porte St	Arcadia	0.0	NO
Santa Anita Ave	Santa Clara St	Arcadia	-0.001	NO
First Ave	Colorado Blvd	Arcadia	-0.001	NO
First Ave	Santa Clara St	Arcadia	-0.001	NO
First Ave	Huntington Dr	Arcadia	0.000	NO
Second Ave	Santa Clara St	Arcadia	-0.001	NO
Mayflower Ave	Diamond St	Monrovia	-0.3	NO
Mayflower Ave	Duarte Rd	Monrovia	-0.004	NO
Magnolia Ave	Evergreen Ave	Monrovia	-0.5	NO
Magnolia Ave	Genoa St	Monrovia	0.0	NO
Magnolia Ave	Duarte Rd	Monrovia	-0.003	NO
Myrtle Ave	Central Ave (210 WB)	Monrovia	-0.006	NO
Myrtle Ave	Evergreen Ave (210 EB)	Monrovia	-0.006	NO
Myrtle Ave	Duarte Rd	Monrovia	-0.005	NO
California Ave	Duarte Rd	Monrovia	-0.004	NO
Mountain Ave	Hamilton Rd	Duarte	-2.0	NO
Mountain Ave	Duarte Rd	Duarte	-0.003	NO
Buena Vista St	Three Ranch Rd	Duarte	-0.4	NO
Buena Vista St	Duarte Rd	Duarte	-0.002	NO
Highland Ave	Central Ave	Duarte	-1.6	NO
Irwindale Ave	Foothill Blvd	Irwindale	0.000	NO
Irwindale Ave	WB I-210 Fwy	Irwindale	0.000	NO
Irwindale Ave	EB I-210 Fwy	Irwindale	0.00	NO
Irwindale Ave	Montoya St	Irwindale	0.0	NO
Irwindale Ave	First St	Irwindale	0.000	NO
Irwindale Ave	Gladstone St	Irwindale	0.000	NO
Peckham Ave	First St	Irwindale	0.0	NO
Virginia Ave	Foothill Blvd	Azusa	0.000	NO
Virginia Ave	Sixth St	Azusa	0.0	NO

TABLE 3-15.15 *continued*
SUMMARY OF INTERSECTION IMPACTS
COMPARISON BETWEEN THE TSM AND NO BUILD ALTERNATIVES

N/S Street	E/W Street	Jurisdiction	Change in V/C or Delay	Significant Impact
San Gabriel Ave	Ninth St	Azusa	0.000	NO
San Gabriel Ave	Foothill Blvd	Azusa	0.000	NO
Azusa Ave	Ninth St	Azusa	0.0	NO
Azusa Ave	Santa Fe Ave	Azusa	0.0	NO
Azusa Ave	Foothill Blvd	Azusa	0.000	NO
Alameda Ave	Ninth St	Azusa	0.0	NO
Alameda Ave	Santa Fe Ave	Azusa	0.0	NO
Alameda Ave	Foothill Blvd	Azusa	0.000	NO
Dalton Ave	Ninth St	Azusa	0.0	NO
Dalton Ave	Foothill Blvd	Azusa	0.0	NO
Soldano Ave	Ninth St	Azusa	0.0	NO
Soldano Ave	Foothill Blvd	Azusa	0.0	NO
Pasadena Ave	Ninth St	Azusa	0.000	NO
Pasadena Ave	Foothill Blvd	Azusa	0.000	NO
Palm Dr	Foothill Blvd	Azusa	0.0	NO
Citrus Ave	Foothill Blvd	Azusa	0.000	NO
Barranca Ave	Bennett Ave	Glendora	0.0	NO
Barranca Ave	Foothill Blvd	Glendora	0.000	NO
Grand Ave	Foothill Blvd	Glendora	0.000	NO
Vermont Ave	Ada Ave	Glendora	0.0	NO
Vermont Ave	Alosta Ave	Glendora	0.000	NO
Vermont Ave	Foothill Blvd	Glendora	0.000	NO
Vermont Ave	Ada Ave	Glendora	0.0	NO
Glendora Ave	Foothill Blvd	Glendora	0.000	NO
Glendora Ave	Ada Ave	Glendora	0.000	NO
Glendora Ave	Alosta Ave	Glendora	-0.001	NO
Pasadena Ave	Lemon Ave	Glendora	0.000	NO
Pasadena Ave	Alosta Ave	Glendora	0.000	NO
Glenwood Ave	Lemon Ave	Glendora	0.0	NO
Glenwood Ave	Alosta Ave	Glendora	-2.3	NO
Elwood Ave	Lemon Ave	Glendora	0.0	NO
Elwood Ave	Alosta Ave	Glendora	0.000	NO
Loraine Ave	Lemon Ave	Glendora	0.0	NO
Loraine Ave	Alosta Ave	Glendora	0.000	NO
Lone Hill Ave	Auto Center Dr	Glendora	-0.001	NO
Lone Hill Ave	Gladstone St	San Dimas	-0.001	NO

TABLE 3-15.15
SUMMARY OF INTERSECTION IMPACTS
COMPARISON BETWEEN THE TSM AND NO BUILD ALTERNATIVES

N/S Street	E/W Street	Jurisdiction	Change in V/C or Delay	Significant Impact
Eucla Ave	Bonita Ave	San Dimas	0.000	NO
Acacia Ave	Bonita Ave	San Dimas	-0.1	NO
Cataract Ave	Bonita Ave	San Dimas	-0.2	NO
Monte Vista Ave	Bonita Ave	San Dimas	-0.2	NO
San Dimas Ave	Bonita Ave	San Dimas	0.000	NO
San Dimas Ave	Arrow Hwy	San Dimas	-0.001	NO
Walnut Ave	Bonita Ave	San Dimas	0.000	NO
Walnut Ave	Arrow Hwy	San Dimas	0.000	NO
San Dimas Canyon Rd	Bonita Ave	San Dimas	0.000	NO
San Dimas Canyon Rd	Arrow Hwy	San Dimas	0.000	NO
Wheeler Ave	Third St	La Verne	0.0	NO
Wheeler Ave	Arrow Hwy	La Verne	0.000	NO
A St	Third St	La Verne	0.0	NO
A St	First St	La Verne	0.0	NO
A St	Arrow Hwy	La Verne	-3.1	NO
D St	Third St	La Verne	0.000	NO
D St	First St	La Verne	0.0	NO
D St	Arrow Hwy	La Verne	0.000	NO
E St	Third St	La Verne	0.000	NO
E St	Second St	La Verne	-0.1	NO
E St	First St	La Verne	-0.1	NO
E St	Arrow Hwy	La Verne	-0.001	NO
White Ave	Third St	La Verne	-0.3	NO
White Ave	Second St	La Verne	-0.5	NO
White Ave	First St	La Verne	-1.0	NO
White Ave	Sierra Way	La Verne	0.0	NO
White Ave	Arrow Hwy	La Verne	-0.001	NO
Fulton Rd	Bonita Ave	Pomona	0.0	NO
Fulton Rd	Arrow Hwy	Pomona	0.0	NO
Garey Ave	Bonita Ave	Pomona	0.000	NO
Garey Ave	Santa Fe St	Pomona	0.0	NO
Garey Ave	Arrow Hwy	Pomona	0.000	NO
Towne Ave	Bonita Ave	Pomona	0.000	NO
Towne Ave	Towne Center Dr	Pomona	0.0	NO
Towne Ave	Arrow Hwy	Pomona	0.000	NO
Indian Hill Blvd	Bonita Ave	Claremont	-0.001	NO

TABLE 3-15.15 *continued*
SUMMARY OF INTERSECTION IMPACTS
COMPARISON BETWEEN THE TSM AND NO BUILD ALTERNATIVES

N/S Street	E/W Street	Jurisdiction	Change in V/C or Delay	Significant Impact
Indian Hill Blvd	First St	Claremont	-0.002	NO
Indian Hill Blvd	Santa Fe St	Claremont	-1.1	NO
Indian Hill Blvd	Arrow Hwy	Claremont	-0.001	NO
College Ave	Bonita Ave	Claremont	-0.002	NO
College Ave	First St	Claremont	-0.002	NO
College Ave	Arrow Hwy	Claremont	-0.001	NO
Claremont Blvd	First St	Claremont	-0.001	NO
Mills/Claremont	Arrow Hwy	Claremont	-0.001	NO
Monte Vista Ave	Arrow Route	Montclair	0.000	NO
Monte Vista Ave	Richton St	Montclair	0.000	NO
Monte Vista Ave	Arrow Hwy	Montclair	0.000	NO
Fremont Ave	Arrow Hwy	Montclair	0.000	NO
Central Ave	Arrow Route	Montclair	0.000	NO
Central Ave	Richton St / W 9th St	Montclair	0.000	NO
Central Ave	Arrow Hwy	Montclair	0.000	NO

Source: Parsons Brinckerhoff, 2003.

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. No long-term impacts are expected for the TSM alternative.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. As shown in Table 3-15.15, no long-term impacts are expected for the TSM alternative.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. As shown in Table 3-15.15, no long-term impacts are expected for the TSM alternative.

c. LRT, Triple Track Configuration

Transit

❑ Regional Transit Access and Connectivity

Implementation of the Full Build LRT alternative would result in an increase in the provision of transit service. There would be the introduction of a premium service that would serve the region and provide improved service reliability and a decrease in travel times for transit patrons. Forecast data indicate that transit ridership would increase in this segment of the corridor with the introduction of the improved service.

The introduction of a light rail system into the Phase II study area would provide passengers with greater access to regional transit opportunities and would provide for improved regional transit connectivity. Transfers could be made at Union Station to a variety of different transit alternatives. The Phase II Light Rail system will provide continuing service to Union Station in downtown Los Angeles and extending to the Pomona/Atlantic Station in East Los Angeles. Transfers can be made to the Metro Red Line at Union Station with its subway service to Wilshire Center and North Hollywood. The Long Beach Blue Line can also be accessed via the Red Line at the 7th/Metro Center station in downtown Los Angeles, and the Green Line to Norwalk and Redondo Beach is accessible via the Long Beach Blue Line. Dozens of local and express bus lines converge at Union Station, and several transit providers service Union Station, including Santa Monica's Big Blue Bus, LADOT, Foothill Transit, Torrance Transit, Santa Clarita Transit, and the Antelope Valley Transportation Authority. Metrolink commuter rail service is also available for regional travel to Ventura, San Bernardino, Riverside, Orange, and San Diego counties as well as to northern Los Angeles County. Amtrak rail service can also be accessed at Union Station for long-distance travel to other cities in California and the nation.

In order to enhance transit connectivity in the Full Build LRT alternative, the frequencies of several bus service routes in the No Build alternative were increased. **Table 3-15.16** presents the proposed changes to the headways for select routes to enhance bus service in the Full Build LRT alternative. Consequently, transit impacts on regional access and connectivity as a result of the Full Build LRT alternative are expected to be beneficial.

TABLE 3-15.16
FULL BUILD LRT ALTERNATIVE
CHANGES IN HEADWAYS (IN MINUTES) TO ENHANCED BUS SERVICE

Route	Description	No Build		Full Build LRT	
		Peak	Off-Peak	Peak	Off-Peak
MTA 177	La Canada Flintridge/Arcadia/Duarte	30	60	20	40
MTA 188	Fair Oaks/Colorado Blvd./Duarte Rd.	45	60	20	40
Foothill 184	Duarte/Monrovia/Arcadia/Pasadena	60	60	30	30
Foothill 187	Claremont/Montclair/Pasadena	30	60	30	40
Foothill 189	Claremont/Montclair/Pasadena	30	60	30	40
Foothill 690 (Express)	Montclair – Express Service to Pasadena via 210 Freeway Corridor	30	0	20	30

❑ Bus Route Interface

In order to maintain connectivity with other transit operators and bus services within the corridor, it is important that proposed stations interface with existing and proposed bus routes. The proposed transit operating plan for the Full Build LRT alternative offers a connection of existing bus lines at each station location. At three station locations, it is proposed that certain bus lines be considered for rerouting in order to provide improved access to the light rail system. Rerouting considerations would follow the typical bus route changes process for MTA, Foothill Transit, and Omnitrans, including a public review period and comment process and input from members of the Bus Riders Union.

The following routes currently stop in the vicinity of Montclair, however, in conjunction with the LRT system they would need to be extended to reach the Montclair station.

- Foothill Transit Line 292, Pomona/Claremont College/Montclair shuttle;
- Foothill Transit Line 480, Montclair/West Covina/El Monte/Los Angeles;
- Foothill Transit Line 492, Montclair/Arcadia/Los Angeles; and
- Omnitrans Line 65, Montclair/Chino Hills.

In addition, the routes that had walk links added in lieu of being modified are as follows:

- Foothill Transit Lines 187/189, Claremont/Pasadena and
- Foothill Transit Line 190, Montclair/Cal Poly.

According to Federal Transit Administration regulations and guidelines for entities that receive federal transit funding, a public hearing must be offered for a change in fare structure or for service changes that affect more than 25 percent of the revenue or route-miles for a given transit line. CEQA requires that impacts be measured against criteria for significance and that all significant impacts be addressed and/or mitigated. The above bus route modifications constitute a less than significant impact and require no mitigation. **Table 3-15.17** shows the interface of bus lines at each station along the alignment of the Full Build LRT alternative.

TABLE 3-15.17
BUS ROUTE INTERFACE AT LRT STATIONS

Station	Operator	Line	Destinations
Sierra Madre Villa/ Foothill	Foothill	184	Duarte – Arcadia
		187/189	Claremont – Pasadena
	MTA	177	La Canada Flintridge – Duarte
		180/181/380	Hollywood – Altadena
		264	Rosemead – Altadena
		266	Lakewood – Pasadena
		267	El Monte – Altadena
		268	El Monte – La Canada Flintridge
	Pasadena	31/32	Community Connector (Pasadena)
		40	Community Connector (Pasadena)
		60	Community Connector (Pasadena)

TABLE 3-15.17 *continued*
BUS ROUTE INTERFACE AT LRT STATIONS

Station	Operator	Line	Destinations
First Ave/	Foothill	184	Duarte – Arcadia
Santa Clara St		187/189	Claremont – Pasadena
	MTA	79	LA – Arcadia
		491	Sierra Madre – LA (Express)
Myrtle Ave/	Foothill	494	San Dimas – Los Angeles
Railroad Ave/	MTA	177	La Canada Flintridge – Duarte
Duarte Rd		264	Rosemead – Altadena
		270	Monrovia – Cerritos
Hope Dr/	Duarte	Blue	Community Connector (Duarte)
Duarte Rd/		Green	Community Connector (Duarte)
Three Ranch Road	Foothill	184	Duarte – Arcadia
		187/189	Claremont – Pasadena
		272	Duarte – West Covina
		494	San Dimas – Los Angeles
	MTA	177	La Canada Flintridge – Duarte
		264	Rosemead – Altadena
N Irwindale Ave/	Foothill	185	Azusa – Hacienda Heights
Montoya St			
Azusa Ave/	Foothill	185	Azusa – Hacienda Heights
Alameda Ave/		187/189	Claremont – Pasadena
Railroad		280	Azusa – Puente Hills Mall
		494	San Dimas – Los Angeles
Citrus/Railroad	Foothill	281	Glendora – Puente Hills Mall
		488	Glendora – Los Angeles
		498	Citrus College – LA (Express)
Glendora Ave/	Foothill	187/189	Claremont – Pasadena
Ada Ave/		283	West Covina – Glendora
Walnut Ave/		488	Glendora – Los Angeles
Vermont Ave		494	San Dimas – Los Angeles
		851	Covina – Glendora
N Monte Vista Ave/	Foothill	284	West Covina – Glendora
N Cataract Ave/		492	Montclair – Arcadia – Los Angeles
Bonita Ave		494	San Dimas – Los Angeles
White/Railroad	Foothill	190	Montclair – Cal Poly
		492	Montclair – Los Angeles
Garey Ave/	Foothill	190	Montclair – Cal Poly
W Santa Fe St		291	La Verne – South Pomona

TABLE 3-15.17
BUS ROUTE INTERFACE AT LRT STATIONS

Station	Operator	Line	Destinations
	Metrolink	San Bernardino	Los Angeles – San Bernardino
Harvard Ave/	Foothill	187/189	Claremont – Pasadena
Railroad/		190	Montclair – Cal Poly
Spring St		292/294	Claremont– Pomona
		480/481	Montclair – Los Angeles
		492	Montclair – Los Angeles
		690	Montclair – Los Angeles (Express)
		855	Pomona TransCenter – Claremont
	Metrolink	San Bernardino	Los Angeles – San Bernardino
Montclair Center/	Foothill	187/189	Claremont – Pasadena
PE RR		292/294	Claremont– Montclair – Pomona
(north of Metrolink		480/481	Montclair – Los Angeles
Station)		492	Montclair – Los Angeles
		690	Montclair – Los Angeles (Express)
		699	Montclair – Los Angeles (Express)
	Omnitrans	65	Montclair – Chino Hills
		66	Fontana – Montclair
		68	Indian Hill – Chaffey College
		70	Montclair – Rancho Cucamonga
		90	Montclair – San Bernardino
	Metrolink	San Bernardino	Los Angeles – San Bernardino

Sources: 2003 Duarte, MTA, Foothill Transit, Omnitrans, and Pasadena ARTS timetables; Parsons Brinckerhoff.

❑ Bus Operation Impacts

Generally speaking, bus stop locations will remain in the current locations under the Full Build LRT alternative. Some stops may be relocated in order to better interface with the LRT stations. Bus stops will be located close to the street corner where there is access to the station entrance at station locations.

❑ Metrolink Operation Impacts

The Full Build LRT alternative would overlap with a short segment of the Metrolink San Bernardino Line from Pomona to Montclair. The LRT system would run along the same right-of-way as the Metrolink but LRT trains would operate on separate tracks and utilize separate platforms from the Metrolink commuter trains.

❑ Full Build LRT Alternative Patronage Forecasts

Table 3-15.18 shows the projected daily passenger boardings at each station based on the results of the transportation travel demand model for the Full Build LRT alternative. The highest number of passengers boarding the Phase II system is at the terminal station in Montclair, with the next highest being at Irwindale. The stations with the highest patronage have the greatest number of connecting transit services. The highest concentration of boardings occurs during the peak periods as people utilize the system on their trips to and from their places of employment. Total boardings for the Phase II LRT system are projected to be 17,611 passengers per day by the year 2025. Combined boardings for the Gold Line Phase I and its extension to Montclair, the Gold Line Phase II, are expected to be 78,679 passengers per day by the year 2025. This daily total is inclusive of the Eastside LRT Extension project.

TABLE 3-15.18
FULL BUILD LRT ALTERNATIVE
DAILY LRT BOARDINGS BY STATION

Station	Peak	Off-Peak	Total Daily
Arcadia	1,532	320	1,852
Monrovia	1,336	257	1,593
Duarte	1,073	242	1,315
Irwindale	1,852	314	2,166
Azusa – Alameda	883	235	1,117
Azusa – Citrus	617	148	765
Glendora	1,001	219	1,220
San Dimas	829	170	999
La Verne	710	209	918
Pomona	1,094	296	1,390
Claremont	1,464	526	1,990
Montclair	1,636	650	2,286
Total Phase II Segment 1 & 2 Daily Boardings			17,611
Eastside, Phase I and Phase II Segment 1 & 2 Combined Daily Boardings			78,679

Source: Parsons Brinckerhoff, 2003.

❑ Full Build LRT Alternative, Option D Patronage Forecasts

As described in Chapter 2, the La Verne station for the Full Build LRT alternative is located at White Avenue and the Pomona station is located at Garey Avenue. A Full Build LRT Option D alternative is also evaluated, where the La Verne station is proposed, as a combined station with Metrolink at Fairplex and the Pomona station is located at Towne Avenue. Due to this change in station location assumptions, the patronage forecasts differ from the previous discussion.

Table 3-15.19 shows the projected daily passenger boardings at each station based on the results of the transportation travel demand model for the Full Build LRT Option D alternative. Similarly, the highest number of passengers boarding is at the terminal station in Montclair, with the next highest being at Irwindale. The stations with the highest patronage have the greatest number of connecting transit

services. The highest concentration of boardings occurs during the peak periods as people utilize the system on their trips to and from their places of employment. Total boardings for the Phase II LRT system are projected to be 17,425 passengers per day by the year 2025. Combined boardings for the Gold Line Phase I and its extension to Montclair, the Gold Line Phase II, are expected to be 78,570 passengers per day by the year 2025. This daily total is inclusive of the Eastside LRT Extension project.

TABLE 3-15.19
FULL BUILD LRT OPTION D ALTERNATIVE
DAILY LRT BOARDINGS BY STATION

Station	Peak	Off-Peak	Total Daily
Arcadia	1,554	298	1,851
Monrovia	1,328	254	1,582
Duarte	1,069	236	1,305
Irwindale	1,849	316	2,165
Azusa - Alameda	884	231	1,115
Azusa – Citrus	616	139	755
Glendora	1,015	217	1,232
San Dimas	840	175	1,015
La Verne	819	233	1,052
Pomona	867	241	1,108
Claremont	1,445	496	1,941
Montclair	1,653	652	2,304
Total Phase II Segment 1 & 2 Daily Boardings			17,425
Eastside, Phase I and Phase II Segment 1 & 2 Combined Daily Boardings			78,570

Source: Parsons Brinckerhoff, 2003.

Traffic Operations

❑ Shifts in Traffic Patterns

Similar to the TSM alternative, adjustments to traffic flow patterns due to the proposed LRT project were determined by utilizing projections from the transportation model developed for this study. The year 2025 No Build and the Full Build LRT peak period model data were compared to determine the effects of the proposed project on traffic flow and circulation patterns. The PM peak period link data from the No Build and Full Build LRT travel demand model outputs were utilized in this analysis. The results of the comparison between the year 2025 traffic forecasts for the Full Build LRT alternative versus the year 2025 traffic forecasts for the No Build alternative are presented in **Table 3-15.20**, which shows the percent change in traffic patterns.

The overall shifts in traffic identified above, were applied to the year 2025 No Build PM peak hour turning movement volumes in order to develop the future PM peak hour turning movement traffic projections for the Full Build LRT alternative at each of the 123 study intersections.

TABLE 3-15.20
PERCENT CHANGE IN TRAFFIC PATTERNS FOR THE FULL BUILD LRT FROM THE NO BUILD ALTERNATIVE BY CITY

City	Percent Change from No Build 2003 to 2025
Pasadena	-0.25
Arcadia	-0.62
Monrovia	-0.16
Duarte	-0.25
Irwindale	-0.33
Azusa	-0.62
Glendora	-0.96
San Dimas	-0.04
La Verne	-0.68
Pomona	-0.25
Claremont	-0.54
Montclair	-1.17

Source: Parsons Brinckerhoff, 2003.

❑ Intersection Traffic Service

Similar to the TSM alternative, the future PM peak hour traffic volumes at the 123 study intersections were determined based upon the anticipated shifts in traffic patterns identified in the previous section. However, due to the fact that intersections surrounding the stations will experience increased vehicular activity because of the proposed parking, the turning movement volumes were adjusted to reflect this condition. Trips generated to and from the parking area at each station were determined and distributed along the roadway network to reflect station access conditions. The station access analysis assumed a parking occupancy of approximately 95%, and a concentration of 65% of parking patrons leaving within the PM peak hour. In addition, it was assumed that 10% of those vehicles accessing the station were kiss-and-ride patrons. A total of 8,150 parking spaces distributed among the 13 stations will be provided to serve the Gold Line Phase II LRT system. **Table 3-15.21** shows the number of parking spaces allocated at each station.

TABLE 3-15.21
FULL BUILD LRT ALTERNATIVE
PARKING SPACE PROVISIONS BY STATION

City	Parking Location(s)	Gold Line Stalls
Pasadena	Existing Structure	1,000
Arcadia	(1) Southwest corner of N. First St. and Wheeler Ave.	743
	(2) Surface lot at northwest corner of Front St. and Santa Clara St.	57
Monrovia	(1) City is in process of building 205 surface spaces at SW corner of E. Pomona Ave. and S. Myrtle Ave.	100
	(2) Structure to be located at triangle of land south of tracks, N of W. Duarte Rd., E of Peck Rd.	500
Duarte	S of E. Duarte Road, on existing City of Hope surface lot.	250
Irwindale	Structure on SW corner of I-210 Freeway and N. Irwindale Ave.	700
Azusa	(1) N of tracks, between Alameda and Dalton Avenues, 2 level parking structure.	400
	(2) Parking to be provided by developer.	350
Glendora	N of tracks, E of S. Vermont Ave., on trapezoidal plot of land	400
San Dimas	(1) Surface parking at 2.25 acre Vue Sign property at the northwest corner Bonita Ave and Acacia Ave.(note Acacia Ave does not go through to Bonita)	200
	(2) Surface parking at 2.9 acre Henkle & McCoy property at NW corner of Eucla & Railroad ROW	260
	(3) Surface parking at proposed old depot, south of the tracks	0
	(4) Structure over existing Park-n-Ride lot S of ROW, must also accommodate existing PNR stalls	290
La Verne	Option A: Fairplex land, Surface lot	600
	Option B: Fairplex land, Structure by others, assume surface lot	600
Pomona	Option A: 3 level parking structure at vacant lot W of Garey, S of Bonita	800
	Option B: surface parking N of ROW, E of Towne Ave.	800
Claremont	(1) Structure N of ROW, W of Indian Hill Blvd., S of W. 1st St.	600
	(2) Can utilize unused Metrolink surface parking E of College Ave. and N of ROW.	100
Montclair	Utilize existing parking at transit center, no structure.	800
Total		8,150

In addition, five intersections are configured such that the LRT tracks cross diagonally through the intersection. At these locations, the traffic signals on the proposed LRT alignment would require modification. An exclusive signal phase for the LRT would be necessary where all other traffic movements are stopped. At these five locations, the analysis incorporated a capacity reduction factor to reflect the time required by the LRT signal phase. The LRT capacity reduction factor was determined to be equivalent to a V/C of 0.14. This amount was added to the V/C ratio and equates to approximately

200 to 225 passenger cars added to the critical movement. This factor was based upon the following assumptions:

- Operation of 3-car trains at 10-minute headways per direction (train length is assumed to be approximately 270 feet).
- An average LRT running operating speed of 55 miles per hour.
- An average diagonal cross-street width of about 150 feet.

Future traffic operations were evaluated by incorporating the volumes, roadway geometrics, type of control and signal phasing, where applicable using the TRAFFIX software. The resulting intersection operations and LOS under the Full Build LRT alternative are presented in **Table 3-15.22**. As indicated in the table, 83 intersections are anticipated to operate at LOS D or better and the remaining 40 intersections would operate at LOS E or F. Figures 3-15.21 through 3-15.44 show intersections with LOS of E or F for current or future conditions.

TABLE 3-15.22
YEAR 2025 FULL BUILD LRT ALTERNATIVE
INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Sierra Madre Villa Ave	***Foothill Blvd***	***Pasadena***	***1.624***	***F***
Sierra Madre Villa Ave	Gold Line Parking Garage	Pasadena	20.4	C
Sierra Madre Villa Ave	WB I-210 Fwy	Pasadena	0.669	B
Sierra Madre Villa Ave	EB I-210 Fwy	Pasadena	0.605	B
Sierra Madre Villa Ave	***Colorado Blvd***	***Pasadena***	***1.614***	***F***
Foothill Blvd	Halstead St	Pasadena	0.872	D
Santa Anita Ave	Colorado Blvd	Arcadia	0.780	C
Santa Anita Ave	La Porte St	Arcadia	16.7	C
Santa Anita Ave	Santa Clara St	Arcadia	0.840	D
First Ave	Colorado Blvd	Arcadia	0.738	C
First Ave	Santa Clara St	Arcadia	0.873	D
First Ave	Huntington Dr	Arcadia	0.821	D
Second Ave	Santa Clara St	Arcadia	0.515	A
Mayflower Ave	***Diamond St***	***Monrovia***	***40.6***	***E***
Mayflower Ave	Duarte Rd	Monrovia	0.786	C
Magnolia Ave	***Evergreen Ave***	***Monrovia***	***36.7***	***E***
Magnolia Ave	Genoa St	Monrovia	12.5	B
Magnolia Ave	Duarte Rd	Monrovia	0.653	B
Myrtle Ave	***Central Ave (210 WB)***	***Monrovia***	***1.264***	***F***
Myrtle Ave	***Evergreen Ave (210 EB)***	***Monrovia***	***1.194***	***F***
Myrtle Ave	***Duarte Rd***	***Monrovia***	***0.969***	***E***
California Ave	***Duarte Rd***	***Monrovia***	***0.933***	***E***
Mountain Ave	***Hamilton Rd***	***Duarte***	***67.4***	***F***

TABLE 3-15.22 *continued*
YEAR 2025 FULL BUILD LRT ALTERNATIVE
INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Mountain Ave	Duarte Rd	Duarte	0.855	D
Buena Vista St	***Three Ranch Rd***	***Duarte***	***49.0***	***E***
Buena Vista St	Duarte Rd	Duarte	0.887	D
Highland Ave	***Central Ave***	***Duarte***	***112.9***	***F***
Irwindale Ave	***Foothill Blvd***	***Irwindale***	***2.144***	***F***
Irwindale Ave	***WB I-210 Fwy***	***Irwindale***	***0.906***	***E***
Irwindale Ave	***EB I-210 Fwy***	***Irwindale***	***1.598***	***F***
Irwindale Ave	Montoya St	Irwindale	13.1	B
Irwindale Ave	***First St***	***Irwindale***	***1.039***	***F***
Irwindale Ave	***Gladstone St***	***Irwindale***	***1.254***	***F***
Peckham Ave	First St	Irwindale	11.0	B
Virginia Ave	Foothill Blvd	Azusa	0.680	B
Virginia Ave	Sixth St	Azusa	12.0	B
San Gabriel Ave	Ninth St	Azusa	0.229	A
San Gabriel Ave	Foothill Blvd	Azusa	0.715	C
Azusa Ave	***Ninth St***	***Azusa***	***111.5***	***F***
Azusa Ave	Santa Fe Ave	Azusa	17.1	C
Azusa Ave	Foothill Blvd	Azusa	0.797	C
Alameda Ave	Ninth St	Azusa	22.1	C
Alameda Ave	Santa Fe Ave	Azusa	9.3	A
Alameda Ave	Foothill Blvd	Azusa	0.664	B
Dalton Ave	Ninth St	Azusa	12.4	B
Dalton Ave	***Foothill Blvd***	***Azusa***	***NA***	***F***
Soldano Ave	Ninth St	Azusa	9.8	A
Soldano Ave	***Foothill Blvd***	***Azusa***	***60.6***	***F***
Pasadena Ave	Ninth St	Azusa	0.303	A
Pasadena Ave	Foothill Blvd	Azusa	0.763	C
Palm Dr	Foothill Blvd	Azusa	27.7	D
Citrus Ave	Foothill Blvd	Azusa	0.833	D
Barranca Ave	Bennett Ave	Glendora	12.5	B
Barranca Ave	Foothill Blvd	Glendora	0.494	A
Grand Ave	***Foothill Blvd***	***Glendora***	***0.918***	***E***
Vermont Ave	Ada Ave	Glendora	12.9	B
Vermont Ave	Alosta Ave	Glendora	0.525	A
Vermont Ave	Foothill Blvd	Glendora	0.555	A
Vermont Ave	Ada Ave	Glendora	14.6	B

TABLE 3-15.22 *continued*
YEAR 2025 FULL BUILD LRT ALTERNATIVE
INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Glendora Ave	Foothill Blvd	Glendora	0.741	C
Glendora Ave	Ada Ave	Glendora	0.863	C
Glendora Ave	***Alosta Ave***	***Glendora***	***1.042***	***F***
Pasadena Ave	Lemon Ave	Glendora	0.133	A
Pasadena Ave	Alosta Ave	Glendora	0.784	C
Glenwood Ave	Lemon Ave	Glendora	10.5	B
Glenwood Ave	***Alosta Ave***	***Glendora***	***337.7***	***F***
Elwood Ave	Lemon Ave	Glendora	10.2	B
Elwood Ave	Alosta Ave	Glendora	0.691	B
Loraine Ave	Lemon Ave	Glendora	18.8	C
Loraine Ave	Alosta Ave	Glendora	0.662	B
Lone Hill Ave	***Auto Center Dr***	***Glendora***	***0.931***	***E***
Lone Hill Ave	Gladstone St	San Dimas	0.656	B
Eucla Ave	Bonita Ave	San Dimas	0.625	B
Acacia Ave	***Bonita Ave***	***San Dimas***	***106.9***	***F***
Cataract Ave	***Bonita Ave***	***San Dimas***	***278.3***	***F***
Monte Vista Ave	***Bonita Ave***	***San Dimas***	***129.1***	***F***
San Dimas Ave	Bonita Ave	San Dimas	0.772	C
San Dimas Ave	Arrow Hwy	San Dimas	0.845	D
Walnut Ave	Bonita Ave	San Dimas	0.664	B
Walnut Ave	Arrow Hwy	San Dimas	0.682	B
San Dimas Canyon Rd	Bonita Ave	San Dimas	0.492	A
San Dimas Canyon Rd	Arrow Hwy	San Dimas	0.638	B
Wheeler Ave	Third St	La Verne	24.1	C
Wheeler Ave	Arrow Hwy	La Verne	0.722	C
A St	Third St	La Verne	10.6	B
A St	First St	La Verne	9.5	A
A St	***Arrow Hwy***	***La Verne***	***289.1***	***F***
D St	Third St	La Verne	0.706	C
D St	First St	La Verne	11.4	B
D St	Arrow Hwy	La Verne	0.492	A
E St	Third St	La Verne	0.653	B
E St	Second St	La Verne	14.9	B
E St	First St	La Verne	12.0	B
E St	Arrow Hwy	La Verne	0.747	C
White Ave	***Third St***	***La Verne***	***67.6***	***F***

TABLE 3-15.22 *continued*
YEAR 2025 FULL BUILD LRT ALTERNATIVE
INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
White Ave	***Second St***	***La Verne***	***106.1***	***F***
White Ave	***First St***	***La Verne***	***212.5***	***F***
White Ave	Sierra Way	La Verne	20.1	C
White Ave	***Arrow Hwy***	***La Verne***	***1.106***	***F***
Fulton Rd	***Bonita Ave***	***Pomona***	***96.8***	***F***
Fulton Rd	***Arrow Hwy***	***Pomona***	***215.0***	***F***
Garey Ave	Bonita Ave	Pomona	0.735	C
Garey Ave	Santa Fe St	Pomona	16.5	C
Garey Ave	Arrow Hwy	Pomona	0.832	D
Towne Ave	Bonita Ave	Pomona	0.851	D
Towne Ave	***Towne Center Dr***	***Pomona***	***164.1***	***F***
Towne Ave	***Arrow Hwy***	***Pomona***	***1.047***	***F***
Indian Hill Blvd	Bonita Ave	Claremont	0.783	C
Indian Hill Blvd	***First St***	***Claremont***	***0.914***	***E***
Indian Hill Blvd	***Santa Fe St***	***Claremont***	***169.3***	***F***
Indian Hill Blvd	Arrow Hwy	Claremont	0.873	D
College Ave	Bonita Ave	Claremont	0.536	B
College Ave	First St	Claremont	0.823	C
College Ave	Arrow Hwy	Claremont	0.602	B
Claremont Blvd	First St	Claremont	0.358	A
Mills/Claremont	Arrow Hwy	Claremont	0.639	B
Monte Vista Ave	Arrow Route	Montclair	0.688	B
Monte Vista Ave	Richton St	Montclair	0.636	B
Monte Vista Ave	***Arrow Hwy***	***Montclair***	***1.040***	***F***
Fremont Ave	Arrow Hwy	Montclair	0.548	A
Central Ave	***Arrow Route***	***Montclair***	***0.901***	***E***
Central Ave	Richton St / W 9th St	Montclair	0.765	C
Central Ave	***Arrow Hwy***	***Montclair***	***0.974***	***E***

Source: Parsons Brinckerhoff, 2003.

Using the threshold criteria presented earlier in **Table 3-15.9**, the future intersection operating conditions under the Full Build LRT alternative were compared with the No Build to identify adversely/significantly impacted locations. As seen in **Table 3-15.23**, a total of 33 intersections are anticipated to be adversely/significantly impacted prior to any mitigation measures. Also, it should be noted that due to some of the bus enhancements discussed earlier in the transit section, traffic operations at 9 of the

intersections are expected to improve. Figures 3-15.21 through 3-15.44 show intersections with LOS of E or F for current or future conditions.

TABLE 3-15.23
SUMMARY OF INTERSECTION IMPACTS
COMPARISON BETWEEN THE FULL BUILD LRT AND NO BUILD ALTERNATIVES

N/S Street	E/W Street	Jurisdiction	Change in V/C or Delay	Significant Impact
Sierra Madre Villa Ave	Foothill Blvd	Pasadena	-0.003	NO
Sierra Madre Villa Ave	Gold Line Parking Garage	Pasadena	0.0	NO
Sierra Madre Villa Ave	WB I-210 Fwy	Pasadena	-0.002	NO
Sierra Madre Villa Ave	EB I-210 Fwy	Pasadena	-0.001	NO
Sierra Madre Villa Ave	Colorado Blvd	Pasadena	-0.004	NO
Foothill Blvd	Halstead St	Pasadena	-0.002	NO
Santa Anita Ave	Colorado Blvd	Arcadia	0.028	NO
Santa Anita Ave	La Porte St	Arcadia	1.3	NO
Santa Anita Ave	Santa Clara St	Arcadia	0.122	NO
First Ave	Colorado Blvd	Arcadia	0.036	NO
First Ave	Santa Clara St	Arcadia	0.319	NO
First Ave	Huntington Dr	Arcadia	0.030	NO
Second Ave	Santa Clara St	Arcadia	0.022	NO
Mayflower Ave	Diamond St	Monrovia	0.0	NO
Mayflower Ave	Duarte Rd	Monrovia	0.005	NO
Magnolia Ave	***Evergreen Ave***	***Monrovia***	***2.8***	***YES***
Magnolia Ave	Genoa St	Monrovia	0.4	NO
Magnolia Ave	Duarte Rd	Monrovia	0.026	NO
Myrtle Ave	***Central Ave (210 WB)***	***Monrovia***	***0.025***	***YES***
Myrtle Ave	***Evergreen Ave (210 EB)***	***Monrovia***	***0.106***	***YES***
Myrtle Ave	***Duarte Rd***	***Monrovia***	***0.032***	***YES***
California Ave	***Duarte Rd***	***Monrovia***	***0.054***	***YES***
Mountain Ave	Hamilton Rd	Duarte	0.6	NO
Mountain Ave	Duarte Rd	Duarte	0.005	NO
Buena Vista St	***Three Ranch Rd***	***Duarte***	***6.3***	***YES***
Buena Vista St	Duarte Rd	Duarte	0.046	NO
Highland Ave	***Central Ave***	***Duarte***	***4.9***	***YES***
Irwindale Ave	***Foothill Blvd***	***Irwindale***	***0.021***	***YES***
Irwindale Ave	WB I-210 Fwy	Irwindale	-0.007	NO
Irwindale Ave	***EB I-210 Fwy***	***Irwindale***	***0.083***	***YES***
Irwindale Ave	Montoya St	Irwindale	-0.1	NO
Irwindale Ave	***First St***	***Irwindale***	***0.035***	***YES***
Irwindale Ave	Gladstone St	Irwindale	0.005	NO
Peckham Ave	First St	Irwindale	0.0	NO

TABLE 3-15.23 *continued*
SUMMARY OF INTERSECTION IMPACTS
COMPARISON BETWEEN THE FULL BUILD LRT AND NO BUILD ALTERNATIVES

N/S Street	E/W Street	Jurisdiction	Change in V/C or Delay	Significant Impact
Virginia Ave	Foothill Blvd	Azusa	0.000	NO
Virginia Ave	Sixth St	Azusa	0.0	NO
San Gabriel Ave	Ninth St	Azusa	0.021	NO
San Gabriel Ave	Foothill Blvd	Azusa	0.028	NO
Azusa Ave	***Ninth St***	***Azusa***	***87.7***	***YES***
Azusa Ave	Santa Fe Ave	Azusa	1.4	NO
Azusa Ave	Foothill Blvd	Azusa	0.032	NO
Alameda Ave	Ninth St	Azusa	10.0	NO
Alameda Ave	Santa Fe Ave	Azusa	0.2	NO
Alameda Ave	Foothill Blvd	Azusa	0.037	NO
Dalton Ave	Ninth St	Azusa	1.6	NO
Dalton Ave	***Foothill Blvd***	***Azusa***	***NA***	***YES***
Soldano Ave	Ninth St	Azusa	0.0	NO
Soldano Ave	***Foothill Blvd***	***Azusa***	***18.0***	***YES***
Pasadena Ave	Ninth St	Azusa	-0.002	NO
Pasadena Ave	Foothill Blvd	Azusa	0.036	NO
Palm Dr	Foothill Blvd	Azusa	5.7	NO
Citrus Ave	Foothill Blvd	Azusa	0.114	NO
Barranca Ave	Bennett Ave	Glendora	0.1	NO
Barranca Ave	Foothill Blvd	Glendora	0.023	NO
Grand Ave	***Foothill Blvd***	***Glendora***	***0.187***	***YES***
Vermont Ave	Ada Ave	Glendora	1.6	NO
Vermont Ave	Alosta Ave	Glendora	0.013	NO
Vermont Ave	Foothill Blvd	Glendora	0.077	NO
Vermont Ave	Ada Ave	Glendora	1.8	NO
Glendora Ave	Foothill Blvd	Glendora	0.032	NO
Glendora Ave	Ada Ave	Glendora	0.287	NO
Glendora Ave	***Alosta Ave***	***Glendora***	***0.068***	***YES***
Pasadena Ave	Lemon Ave	Glendora	0.000	NO
Pasadena Ave	Alosta Ave	Glendora	0.065	NO
Glenwood Ave	Lemon Ave	Glendora	0.2	NO
Glenwood Ave	***Alosta Ave***	***Glendora***	***37.6***	***YES***
Elwood Ave	Lemon Ave	Glendora	0.1	NO
Elwood Ave	Alosta Ave	Glendora	0.018	NO
Loraine Ave	Lemon Ave	Glendora	0.2	NO
Loraine Ave	Alosta Ave	Glendora	0.004	NO

TABLE 3-15.23 *continued*
SUMMARY OF INTERSECTION IMPACTS
COMPARISON BETWEEN THE FULL BUILD LRT AND NO BUILD ALTERNATIVES

N/S Street	E/W Street	Jurisdiction	Change in V/C or Delay	Significant Impact
Lone Hill Ave	Auto Center Dr	Glendora	-0.002	NO
Lone Hill Ave	Gladstone St	San Dimas	0.008	NO
Eucla Ave	Bonita Ave	San Dimas	0.185	NO
Acacia Ave	***Bonita Ave***	***San Dimas***	***79.0***	***YES***
Cataract Ave	***Bonita Ave***	***San Dimas***	***236.9***	***YES***
Monte Vista Ave	***Bonita Ave***	***San Dimas***	***88.7***	***YES***
San Dimas Ave	Bonita Ave	San Dimas	0.010	NO
San Dimas Ave	Arrow Hwy	San Dimas	0.009	NO
Walnut Ave	Bonita Ave	San Dimas	0.013	NO
Walnut Ave	Arrow Hwy	San Dimas	0.009	NO
San Dimas Canyon Rd	Bonita Ave	San Dimas	0.011	NO
San Dimas Canyon Rd	Arrow Hwy	San Dimas	0.012	NO
Wheeler Ave	Third St	La Verne	3.2	NO
Wheeler Ave	Arrow Hwy	La Verne	0.020	NO
A St	Third St	La Verne	0.3	NO
A St	First St	La Verne	0.1	NO
A St	***Arrow Hwy***	***La Verne***	***41.9***	***YES***
D St	Third St	La Verne	0.042	NO
D St	First St	La Verne	0.3	NO
D St	Arrow Hwy	La Verne	0.028	NO
E St	Third St	La Verne	0.079	NO
E St	Second St	La Verne	1.3	NO
E St	First St	La Verne	0.6	NO
E St	Arrow Hwy	La Verne	0.014	NO
White Ave	***Third St***	***La Verne***	***10.0***	***YES***
White Ave	***Second St***	***La Verne***	***17.4***	***YES***
White Ave	***First St***	***La Verne***	***88.9***	***YES***
White Ave	Sierra Way	La Verne	1.5	NO
White Ave	***Arrow Hwy***	***La Verne***	***0.054***	***YES***
Fulton Rd	***Bonita Ave***	***Pomona***	***14.6***	***YES***
Fulton Rd	***Arrow Hwy***	***Pomona***	***43.9***	***YES***
Garey Ave	Bonita Ave	Pomona	0.057	NO
Garey Ave	Santa Fe St	Pomona	0.6	NO
Garey Ave	Arrow Hwy	Pomona	0.039	NO
Towne Ave	Bonita Ave	Pomona	0.200	NO
Towne Ave	***Towne Center Dr***	***Pomona***	***29.4***	***YES***

TABLE 3-15.23 *continued*
SUMMARY OF INTERSECTION IMPACTS
COMPARISON BETWEEN THE FULL BUILD LRT AND NO BUILD ALTERNATIVES

N/S Street	E/W Street	Jurisdiction	Change in V/C or Delay	Significant Impact
Towne Ave	***Arrow Hwy***	***Pomona***	***0.039***	***YES***
Indian Hill Blvd	Bonita Ave	Claremont	0.037	NO
Indian Hill Blvd	***First St***	***Claremont***	***0.195***	***YES***
Indian Hill Blvd	***Santa Fe St***	***Claremont***	***76.0***	***YES***
Indian Hill Blvd	Arrow Hwy	Claremont	0.080	NO
College Ave	Bonita Ave	Claremont	0.028	NO
College Ave	First St	Claremont	0.094	NO
College Ave	Arrow Hwy	Claremont	0.053	NO
Claremont Blvd	First St	Claremont	0.046	NO
Mills/Claremont	Arrow Hwy	Claremont	0.007	NO
Monte Vista Ave	Arrow Route	Montclair	0.030	NO
Monte Vista Ave	Richton St	Montclair	0.127	NO
Monte Vista Ave	***Arrow Hwy***	***Montclair***	***0.037***	***YES***
Fremont Ave	Arrow Hwy	Montclair	0.030	NO
Central Ave	***Arrow Route***	***Montclair***	***0.038***	***YES***
Central Ave	Richton St / W 9th St	Montclair	0.082	NO
Central Ave	***Arrow Hwy***	***Montclair***	***0.059***	***YES***

Source: Parsons Brinckerhoff, 2003.

❑ Full Build LRT, Option D Intersection Traffic Service

As described in Chapter 2, the La Verne station for the Full Build LRT alternative is located at White Avenue and the Pomona station is located at Garey Avenue. A Full Build LRT Option D alternative is also evaluated, where the La Verne station is proposed as a combined station with Metrolink at Fairplex and the Pomona station is located at Towne Avenue. Due to this change in station location assumptions, the intersection traffic service levels in the cities of La Verne and Pomona differ from those reported in the previous section because of the change in the locations affected by the parking ingress and egress.

Future traffic operations were evaluated by incorporating the volumes, roadway geometrics, type of control and signal phasing, where applicable using the TRAFFIX software. The resulting intersection operations and levels of service in La Verne and Pomona are presented in **Table 3-15.24**. Using the threshold criteria presented earlier in **Table 3-15.9**, the future intersection operating conditions under the Full Build LRT Option D alternative were compared with the No Build to identify adversely/significantly impacted locations as shown in **Table 3-15.25**. Figures 3-15.21 through 3-15.44 show intersections with LOS of E or F for current or future conditions.

TABLE 3-15.24
YEAR 2025 FULL BUILD LRT OPTION D ALTERNATIVE
INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Wheeler Ave	Third St	La Verne	24.0	C
Wheeler Ave	Arrow Hwy	La Verne	0.720	C
A St	Third St	La Verne	10.6	B
A St	First St	La Verne	9.5	A
A St	***Arrow Hwy***	***La Verne***	***285.3***	***F***
D St	Third St	La Verne	0.704	C
D St	First St	La Verne	11.4	B
D St	Arrow Hwy	La Verne	0.491	A
E St	Third St	La Verne	0.653	B
E St	Second St	La Verne	14.9	B
E St	First St	La Verne	12.0	B
E St	Arrow Hwy	La Verne	0.745	C
White Ave	***Third St***	***La Verne***	***67.1***	***F***
White Ave	***Second St***	***La Verne***	***105.0***	***F***
White Ave	***First St***	***La Verne***	***208.9***	***F***
White Ave	Sierra Way	La Verne	20.0	C
White Ave	***Arrow Hwy***	***La Verne***	***1.103***	***F***
Fulton Rd	***Bonita Ave***	***Pomona***	***124.5***	***F***
Fulton Rd	***Arrow Hwy***	***Pomona***	***317.1***	***F***
Garey Ave	Bonita Ave	Pomona	0.890	D
Garey Ave	Santa Fe St	Pomona	18.0	C
Garey Ave	Arrow Hwy	Pomona	0.860	D
Towne Ave	Bonita Ave	Pomona	0.722	C
Towne Ave	***Towne Center Dr***	***Pomona***	***141.4***	***F***
Towne Ave	***Arrow Hwy***	***Pomona***	***1.031***	***F***

Source: Parsons Brinckerhoff, 2003

TABLE 3-15.25
SUMMARY OF INTERSECTION IMPACTS
COMPARISON BETWEEN
FULL BUILD LRT OPTION D AND NO BUILD ALTERNATIVES

N/S Street	E/W Street	Jurisdiction	Change in V/C or Delay	Significant Impact
Wheeler Ave	Third St	La Verne	3.1	NO
Wheeler Ave	Arrow Hwy	La Verne	0.018	NO
A St	Third St	La Verne	0.3	NO
A St	First St	La Verne	0.1	NO
A St	***Arrow Hwy***	***La Verne***	***38.1***	***YES***
D St	Third St	La Verne	0.040	NO
D St	First St	La Verne	0.3	NO
D St	Arrow Hwy	La Verne	0.027	NO
E St	Third St	La Verne	0.079	NO
E St	Second St	La Verne	1.3	NO
E St	First St	La Verne	0.6	NO
E St	Arrow Hwy	La Verne	0.012	NO
White Ave	***Third St***	***La Verne***	***9.5***	***YES***
White Ave	***Second St***	***La Verne***	***16.3***	***YES***
White Ave	***First St***	***La Verne***	***85.3***	***YES***
White Ave	Sierra Way	La Verne	1.4	NO
White Ave	***Arrow Hwy***	***La Verne***	***0.051***	***YES***
Fulton Rd	***Bonita Ave***	***Pomona***	***42.8***	***YES***
Fulton Rd	***Arrow Hwy***	***Pomona***	***146.0***	***YES***
Garey Ave	Bonita Ave	Pomona	0.213	NO
Garey Ave	Santa Fe St	Pomona	2.1	NO
Garey Ave	Arrow Hwy	Pomona	0.067	NO
Towne Ave	Bonita Ave	Pomona	0.071	NO
Towne Ave	***Towne Center Dr***	***Pomona***	***6.7***	***YES***
Towne Ave	***Arrow Hwy***	***Pomona***	***0.023***	***YES***

Source: Parsons Brinckerhoff, 2003.

❑ Grade Crossing Initial Screening

The proposed Gold Line Phase II alignment traverses 45 at-grade crossing locations. The objective of this evaluation is to determine if the existing at-grade crossing is feasible or if a grade separation should be required based on a preliminary planning level assessment. The grade crossing screening analysis was performed using the MTA Grade Crossing Policy for Light Rail Transit. Using the roadway volumes, number of lanes and train frequencies, each at-grade crossing location was plotted on the Initial Screening Chart. The chart is divided into three regions, "at-grade operation should be feasible", "possible at-grade

operation" and "grade separation usually required." The results showed that the ten crossings listed below lie in the "possible at-grade operation."

- Santa Anita Avenue;
- First Avenue/Santa Clara Street;
- Myrtle Avenue;
- Grand Avenue/Foothill Boulevard;
- Lone Hill Avenue/Auto Center Drive;
- Gladstone Street;
- Cataract Avenue/Bonita Avenue;
- San Dimas Avenue;
- Garey Avenue; and
- Towne Avenue.

In addition, three crossings fall in the borderline region between the "at-grade operation should be feasible" category and the "possible at-grade operation." These three crossings are located at:

- Buena Vista Street;
- White Avenue; and
- Indian Hill Boulevard.

The remaining 32 at-grade crossing locations lie in the "at-grade operation should be feasible" region.

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. From a transit perspective, the extension of the Gold Line Phase II project is expected to increase ridership at stations along Phase I. The number of daily boardings is presented in **Table 3-15.26**. As shown in the table, the effect of the Phase II project is noticeable at Union Station and minimal at most of the other stations along the Phase I corridor. In addition, total daily boardings at the Sierra Madre Villa Station in Pasadena are expected to decrease because it is no longer the line terminus and patrons can continue further east. These changes in boardings at the Phase I stations due to the Phase II projects are not expected to result in any negative impacts.

TABLE 3-15.26
CHANGE IN PHASE I DAILY BOARDINGS BY STATION
DUE TO THE FULL BUILD LRT ALTERNATIVE

Station	Peak	Off-Peak	Total Daily
Los Angeles Stations			
Union Station	750	274	1,024
Spring/College	21	10	31
26th/19th	44	1	44
Marmion/Figueroa	41	6	47
SW Museum/Figueroa	12	5	16
Marmion/57th	62	15	77
South Pasadena Station			
Mission	38	10	47
Pasadena Stations			
Filmore	61	11	72
Del Mar	113	23	136
Holly (Parsons PNR)	179	60	239
Lake	153	39	192
Allen	59	-28	31
Sierra Madre Villa	-268	14	-254

Source: Parsons Brinckerhoff, 2003.

Phase II, Segment 1 - The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. The Full Build LRT alternative will result in adverse/significant impacts at five intersections in Monrovia, two intersections in Duarte and three intersections in Irwindale. The specific impacts are discussed in the previous section. Proposed mitigation measures are presented in Section 3-15.3.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The Full Build LRT alternative will result in adverse/significant impacts at three intersections in Azusa, four intersections in Glendora, three intersections in San Dimas, five intersections in La Verne, four intersections in Pomona, two intersections in Claremont and three intersections in Montclair. The specific impacts are discussed in the previous section. Proposed mitigation measures are presented in Section 3-15.3. The Full Build LRT Option D alternative will also have the same number of locations impacted.

Summary of Triple Track Impacts for Full Build LRT Alternative

The Triple Track impacts for the Full Build LRT and the Full Build LRT Option D alternatives are discussed and summarized in the previous sections.

Summary of Triple Track Impacts for Build LRT Alternative to Maintenance Facility

❑ Transit

For the most part, the transit impacts are the same as the impacts on the Phase II Segment 1 from Pasadena to Irwindale in the Full Build LRT alternative. In the areas east of Irwindale, the transit impacts are the same as the No Build alternative.

❑ Regional Transit Access and Connectivity

If the Build LRT Alternative to Maintenance Facility is implemented, an increase in the provision of transit service would occur. There would be the introduction of a premium service that would be regionally serving and provide improved service reliability and a decrease in travel times for transit patrons. Forecast data indicate that transit ridership would increase in this segment of the corridor with the introduction of the improved service.

The introduction of a light rail system into the Phase II study area would provide passengers with greater access to regional transit opportunities and would provide for improved regional transit connectivity. Transfers could be made at Union Station to a variety of different transit alternatives. The Phase II Light Rail system will provide continuing service to Union Station in downtown Los Angeles and to the Pomona/Atlantic Station in East Los Angeles. Transfers can be made to the Metro Red Line at Union Station with its subway service to Wilshire Center and North Hollywood. The Long Beach Blue Line can also be accessed via the Red Line at the 7th/Metro Center station in Downtown Los Angeles, and the Green Line to Norwalk and Redondo Beach is accessible via the Long Beach Blue Line. Dozens of local and express bus lines converge at Union Station, and several transit providers service Union Station, including Santa Monica's Big Blue Bus, LADOT, Foothill Transit, Torrance Transit, Santa Clarita Transit, and the Antelope Valley Transportation Authority. Metrolink commuter rail service is also available for regional travel to Ventura, San Bernardino, Riverside, Orange, and San Diego counties as well as to northern Los Angeles County. Amtrak rail service can also be accessed at Union Station for long-distance travel to other cities in California and the nation. Impacts on regional transit access and connectivity as a result of the LRT Build Alternative are beneficial.

❑ Bus Route Interface

The Build LRT Alternative to Maintenance Facility would not overlap with any bus routes or Metrolink routes. There are no changes from Phase II Segment 1 of the Full Build LRT alternative. East of Irwindale the bus routes would remain the same as the No Build alternative.

❑ Bus Operation Impacts

There are no changes from Phase II Segment 1 of the Full Build LRT alternative. East of Irwindale the bus routes would remain the same as the No Build alternative.

❑ Metrolink Operation Impacts

There are no changes from Phase II Segment 1 of the Full Build LRT alternative. East of Irwindale the bus routes would remain the same as the No Build alternative.

❑ Build LRT Alternative to Maintenance Facility Patronage Forecasts

Table 3-15.27 shows the projected passenger boardings at each station based on transportation travel demand model results for the Build LRT Alternative to Maintenance Facility. The highest number of passengers boarding the system is at the terminal station in Irwindale, with the next highest being at Arcadia. The stations with the highest patronage have the greatest number of connecting transit services. The highest concentration of boardings occurs during the peak periods as people utilize the system on their trips to and from their places of employment. Total boardings for the Build LRT to Maintenance Facility are projected to be 6,573 passengers per day by the year 2025. Combined boardings for the Gold Line Phase I and its extension to Irwindale, are expected to be 66,520 passengers per day by the year 2025. This daily total is inclusive of the Eastside LRT Extension project.

TABLE 3-15.27
BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY
DAILY LRT BOARDINGS BY STATION

Station	Peak	Off-Peak	Total Daily
Arcadia	1,447	281	1,728
Monrovia	1,240	236	1,475
Duarte	1,159	217	1,376
Irwindale	1,705	289	1,994
Total Phase II, Segment 1 Daily Boardings			6,573
Eastside, Phase I and Phase II Segment 1 Combined Daily Boardings			66,520

Source: Parsons Brinckerhoff, 2003.

Traffic Operations

The Build LRT Alternative to Maintenance Facility extends the existing Gold Line Phase I an additional 12 miles from the Sierra Madre Villa Station in Pasadena to Irwindale.

❑ Shifts in Traffic Patterns

As with the TSM Alternative, adjustments to traffic flow patterns due to the proposed LRT project were determined by utilizing projections from the transportation model developed for this study. The year 2025 No Build and Build LRT to Maintenance Facility peak period model data were compared to determine the effects of the proposed project on traffic flow and circulation patterns. The PM peak period link data from each model output were utilized in this analysis. The results of the comparison between the year 2025 traffic forecasts for the No Build alternative and the Build LRT Alternative to Maintenance Facility analysis are presented in **Table 3-15.28**, which shows the percent change in traffic patterns. It should be noted that the Build LRT Alternative to Maintenance Facility reduces traffic volumes on almost all streets in the study area from the No Build alternative due to the introduction of a new transit service.

TABLE 3-15.28
PERCENT CHANGE IN TRAFFIC PATTERNS FOR THE BUILD LRT TO MAINTENANCE FACILITY FROM THE NO BUILD ALTERNATIVE BY CITY

City	Percent Change from No Build 2003 to 2025
Pasadena	-0.26
Arcadia	-0.42
Monrovia	-0.16
Duarte	-0.25
Irwindale	-0.13
Azusa	-0.42
Glendora	-0.59
San Dimas	0.00
La Verne	-0.28
Pomona	-0.26
Claremont	-0.06
Montclair	-0.97

Source: Parsons Brinckerhoff, 2003.

The overall shifts in traffic identified above were applied to the year 2025 No Build PM peak hour turning movement volumes in order to develop the future PM peak hour turning movement traffic projections for the Build LRT Alternative to Maintenance Facility at each of the 123 study intersections.

❑ Intersection Traffic Service

The future PM peak hour traffic volumes at the 123 study intersections were determined based upon the anticipated shifts in traffic patterns identified above and took into consideration station parking access. The future traffic operations were evaluated by incorporating the volumes, roadway geometrics, type of control and signal phasing, where applicable, using the TRAFFIX software. The resulting intersection operations and level of service are presented in **Table 3-15.29**. As indicated in the table, 87 intersections are anticipated to operate at LOS D or better and the remaining 36 intersections would operate at LOS E or F. Figures 3-15.21 through 3-15.44 show intersections with LOS of E or F for current or future conditions.

TABLE 3-15.29
YEAR 2025 BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY
INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Sierra Madre Villa Ave	***Foothill Blvd***	***Pasadena***	***1.623***	***F***
Sierra Madre Villa Ave	Gold Line Parking Garage	Pasadena	20.4	C
Sierra Madre Villa Ave	WB I-210 Fwy	Pasadena	0.669	B
Sierra Madre Villa Ave	EB I-210 Fwy	Pasadena	0.605	B
Sierra Madre Villa Ave	***Colorado Blvd***	***Pasadena***	***1.614***	***F***
Foothill Blvd	Halstead St	Pasadena	0.872	D
Santa Anita Ave	Colorado Blvd	Arcadia	0.781	C
Santa Anita Ave	La Porte St	Arcadia	16.7	C
Santa Anita Ave	Santa Clara St	Arcadia	0.841	D
First Ave	Colorado Blvd	Arcadia	0.739	C
First Ave	Santa Clara St	Arcadia	0.874	D
First Ave	Huntington Dr	Arcadia	0.824	D
Second Ave	Santa Clara St	Arcadia	0.515	A
Mayflower Ave	***Diamond St***	***Monrovia***	***40.7***	***E***
Mayflower Ave	Duarte Rd	Monrovia	0.787	C
Magnolia Ave	***Evergreen Ave***	***Monrovia***	***37.1***	***E***
Magnolia Ave	Genoa St	Monrovia	12.5	B
Magnolia Ave	Duarte Rd	Monrovia	0.654	B
Myrtle Ave	***Central Ave (210 WB)***	***Monrovia***	***1.266***	***F***
Myrtle Ave	***Evergreen Ave (210 EB)***	***Monrovia***	***1.196***	***F***
Myrtle Ave	***Duarte Rd***	***Monrovia***	***0.971***	***E***
California Ave	***Duarte Rd***	***Monrovia***	***0.935***	***E***
Mountain Ave	***Hamilton Rd***	***Duarte***	***68.4***	***F***
Mountain Ave	Duarte Rd	Duarte	0.859	D
Buena Vista St	***Three Ranch Rd***	***Duarte***	***49.6***	***E***
Buena Vista St	Duarte Rd	Duarte	0.891	D
Highland Ave	***Central Ave***	***Duarte***	***114.3***	***F***
Irwindale Ave	***Foothill Blvd***	***Irwindale***	***2.152***	***F***
Irwindale Ave	***WB I-210 Fwy***	***Irwindale***	***0.910***	***E***
Irwindale Ave	***EB I-210 Fwy***	***Irwindale***	***1.603***	***F***
Irwindale Ave	Montoya St	Irwindale	13.2	B
Irwindale Ave	***First St***	***Irwindale***	***1.042***	***F***
Irwindale Ave	***Gladstone St***	***Irwindale***	***1.260***	***F***
Peckham Ave	First St	Irwindale	11.0	B
Virginia Ave	Foothill Blvd	Azusa	0.680	B
Virginia Ave	Sixth St	Azusa	12.0	B

TABLE 3-15.29 *continued*
YEAR 2025 BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY
INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
San Gabriel Ave	Ninth St	Azusa	0.208	A
San Gabriel Ave	Foothill Blvd	Azusa	0.687	B
Azusa Ave	Ninth St	Azusa	23.8	C
Azusa Ave	Santa Fe Ave	Azusa	15.7	C
Azusa Ave	Foothill Blvd	Azusa	0.765	C
Alameda Ave	Ninth St	Azusa	12.1	B
Alameda Ave	Santa Fe Ave	Azusa	9.1	A
Alameda Ave	Foothill Blvd	Azusa	0.627	B
Dalton Ave	Ninth St	Azusa	10.8	B
Dalton Ave	***Foothill Blvd***	***Azusa***	***315.7***	***F***
Soldano Ave	Ninth St	Azusa	9.8	A
Soldano Ave	***Foothill Blvd***	***Azusa***	***42.5***	***E***
Pasadena Ave	Ninth St	Azusa	0.305	A
Pasadena Ave	Foothill Blvd	Azusa	0.727	C
Palm Dr	Foothill Blvd	Azusa	22.0	C
Citrus Ave	Foothill Blvd	Azusa	0.719	C
Barranca Ave	Bennett Ave	Glendora	12.4	B
Barranca Ave	Foothill Blvd	Glendora	0.471	A
Grand Ave	Foothill Blvd	Glendora	0.731	C
Vermont Ave	Ada Ave	Glendora	11.3	B
Vermont Ave	Alosta Ave	Glendora	0.512	A
Vermont Ave	Foothill Blvd	Glendora	0.478	A
Vermont Ave	Ada Ave	Glendora	12.8	B
Glendora Ave	Foothill Blvd	Glendora	0.709	C
Glendora Ave	Ada Ave	Glendora	0.576	B
Glendora Ave	***Alosta Ave***	***Glendora***	***0.973***	***E***
Pasadena Ave	Lemon Ave	Glendora	0.133	A
Pasadena Ave	Alosta Ave	Glendora	0.719	C
Glenwood Ave	Lemon Ave	Glendora	10.3	B
Glenwood Ave	***Alosta Ave***	***Glendora***	***297.8***	***F***
Elwood Ave	Lemon Ave	Glendora	10.1	B
Elwood Ave	Alosta Ave	Glendora	0.673	B
Loraine Ave	Lemon Ave	Glendora	18.6	C
Loraine Ave	Alosta Ave	Glendora	0.658	B
Lone Hill Ave	***Auto Center Dr***	***Glendora***	***0.932***	***E***
Lone Hill Ave	Gladstone St	San Dimas	0.647	B

TABLE 3-15.29 *continued*
YEAR 2025 BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Eucla Ave	Bonita Ave	San Dimas	0.440	A
Acacia Ave	Bonita Ave	San Dimas	27.8	D
Cataract Ave	***Bonita Ave***	***San Dimas***	***41.2***	***E***
Monte Vista Ave	***Bonita Ave***	***San Dimas***	***40.2***	***E***
San Dimas Ave	Bonita Ave	San Dimas	0.762	C
San Dimas Ave	Arrow Hwy	San Dimas	0.835	D
Walnut Ave	Bonita Ave	San Dimas	0.651	B
Walnut Ave	Arrow Hwy	San Dimas	0.673	B
San Dimas Canyon Rd	Bonita Ave	San Dimas	0.481	A
San Dimas Canyon Rd	Arrow Hwy	San Dimas	0.626	B
Wheeler Ave	Third St	La Verne	20.9	C
Wheeler Ave	Arrow Hwy	La Verne	0.702	C
A St	Third St	La Verne	10.3	B
A St	First St	La Verne	9.4	A
A St	***Arrow Hwy***	***La Verne***	***244.1***	***F***
D St	Third St	La Verne	0.664	B
D St	First St	La Verne	11.1	B
D St	Arrow Hwy	La Verne	0.464	A
E St	Third St	La Verne	0.574	B
E St	Second St	La Verne	13.5	B
E St	First St	La Verne	11.3	B
E St	Arrow Hwy	La Verne	0.732	C
White Ave	***Third St***	***La Verne***	***57.3***	***F***
White Ave	***Second St***	***La Verne***	***88.2***	***F***
White Ave	***First St***	***La Verne***	***122.6***	***F***
White Ave	Sierra Way	La Verne	18.6	C
White Ave	***Arrow Hwy***	***La Verne***	***1.051***	***F***
Fulton Rd	***Bonita Ave***	***Pomona***	***82.2***	***F***
Fulton Rd	***Arrow Hwy***	***Pomona***	***171.1***	***F***
Garey Ave	Bonita Ave	Pomona	0.678	B
Garey Ave	Santa Fe St	Pomona	15.9	C
Garey Ave	Arrow Hwy	Pomona	0.793	C
Towne Ave	Bonita Ave	Pomona	0.651	B
Towne Ave	***Towne Center Dr***	***Pomona***	***134.7***	***F***
Towne Ave	***Arrow Hwy***	***Pomona***	***1.008***	***F***
Indian Hill Blvd	Bonita Ave	Claremont	0.745	C

TABLE 3-15.29 *continued*
YEAR 2025 BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Indian Hill Blvd	First St	Claremont	0.717	C
Indian Hill Blvd	***Santa Fe St***	***Claremont***	***92.2***	***F***
Indian Hill Blvd	Arrow Hwy	Claremont	0.792	C
College Ave	Bonita Ave	Claremont	0.506	B
College Ave	First St	Claremont	0.727	C
College Ave	Arrow Hwy	Claremont	0.548	A
Claremont Blvd	First St	Claremont	0.311	A
Mills/Claremont	Arrow Hwy	Claremont	0.631	B
Monte Vista Ave	Arrow Route	Montclair	0.654	B
Monte Vista Ave	Richton St	Montclair	0.507	A
Monte Vista Ave	***Arrow Hwy***	***Montclair***	***0.999***	***E***
Fremont Ave	Arrow Hwy	Montclair	0.516	A
Central Ave	***Arrow Route***	***Montclair***	***0.868***	***D***
Central Ave	Richton St / W 9th St	Montclair	0.680	B
Central Ave	***Arrow Hwy***	***Montclair***	***0.911***	***E***

Source: Parsons Brinckerhoff, 2003.

Using the thresholds presented earlier in **Table 3-15.9**, the future intersection operating conditions under the Build LRT Alternative to Maintenance Facility were compared with the No Build to identify adversely/significantly impacted locations. As shown in **Table 3-15.30**, a total of 11 study intersections are anticipated to be adversely/significantly impacted prior to any mitigation measures. Also, it should be noted that due to the proposed LRT project, traffic operations at 39 intersections are expected to improve. Figures 3-15.21 through 3-15.44 show intersections with LOS of E or F for current or future conditions.

TABLE 3-15.30
SUMMARY OF INTERSECTION IMPACTS
COMPARISON BETWEEN BUILD LRT TO MAINTENANCE FACILITY AND NO BUILD

N/S Street	E/W Street	Jurisdiction	Change in V/C or Delay	Significant Impact
Sierra Madre Villa Ave	Foothill Blvd	Pasadena	-0.004	NO
Sierra Madre Villa Ave	GL Parking Garage	Pasadena	0.0	NO
Sierra Madre Villa Ave	WB I-210 Fwy	Pasadena	-0.002	NO
Sierra Madre Villa Ave	EB I-210 Fwy	Pasadena	-0.001	NO
Sierra Madre Villa Ave	Colorado Blvd	Pasadena	-0.004	NO
Foothill Blvd	Halstead St	Pasadena	-0.002	NO
Santa Anita Ave	Colorado Blvd	Arcadia	0.029	NO
Santa Anita Ave	La Porte St	Arcadia	1.3	NO
Santa Anita Ave	Santa Clara St	Arcadia	0.123	NO
First Ave	Colorado Blvd	Arcadia	0.037	NO
First Ave	Santa Clara St	Arcadia	0.320	NO
First Ave	Huntington Dr	Arcadia	0.033	NO
Second Ave	Santa Clara St	Arcadia	0.022	NO
Mayflower Ave	Diamond St	Monrovia	0.1	NO
Mayflower Ave	Duarte Rd	Monrovia	0.006	NO
Magnolia Ave	***Evergreen Ave***	***Monrovia***	***3.2***	***YES***
Magnolia Ave	Genoa St	Monrovia	0.4	NO
Magnolia Ave	Duarte Rd	Monrovia	0.027	NO
Myrtle Ave	***Central Ave (210 WB)***	***Monrovia***	***0.027***	***YES***
Myrtle Ave	***Evergreen Ave (210 EB)***	***Monrovia***	***0.108***	***YES***
Myrtle Ave	***Duarte Rd***	***Monrovia***	***0.034***	***YES***
California Ave	***Duarte Rd***	***Monrovia***	***0.056***	***YES***
Mountain Ave	***Hamilton Rd***	***Duarte***	***1.6***	***YES***
Mountain Ave	Duarte Rd	Duarte	0.009	NO
Buena Vista St	***Three Ranch Rd***	***Duarte***	***6.9***	***YES***
Buena Vista St	Duarte Rd	Duarte	0.050	NO
Highland Ave	***Central Ave***	***Duarte***	***6.3***	***YES***
Irwindale Ave	***Foothill Blvd***	***Irwindale***	***0.029***	***YES***
Irwindale Ave	WB I-210 Fwy	Irwindale	-0.003	NO
Irwindale Ave	***EB I-210 Fwy***	***Irwindale***	***0.088***	***YES***
Irwindale Ave	Montoya St	Irwindale	0.0	NO
Irwindale Ave	***First St***	***Irwindale***	***0.038***	***YES***
Irwindale Ave	Gladstone St	Irwindale	0.011	NO
Peckham Ave	First St	Irwindale	0.0	NO
Virginia Ave	Foothill Blvd	Azusa	0.000	NO
Virginia Ave	Sixth St	Azusa	0.0	NO

TABLE 3-15.30 *continued*
SUMMARY OF INTERSECTION IMPACTS
COMPARISON BETWEEN BUILD LRT TO MAINTENANCE FACILITY AND NO BUILD

N/S Street	E/W Street	Jurisdiction	Change in V/C or Delay	Significant Impact
San Gabriel Ave	Ninth St	Azusa	0.000	NO
San Gabriel Ave	Foothill Blvd	Azusa	0.000	NO
Azusa Ave	Ninth St	Azusa	0.0	NO
Azusa Ave	Santa Fe Ave	Azusa	0.0	NO
Azusa Ave	Foothill Blvd	Azusa	0.000	NO
Alameda Ave	Ninth St	Azusa	0.0	NO
Alameda Ave	Santa Fe Ave	Azusa	0.0	NO
Alameda Ave	Foothill Blvd	Azusa	0.000	NO
Dalton Ave	Ninth St	Azusa	0.0	NO
Dalton Ave	Foothill Blvd	Azusa	-1.6	NO
Soldano Ave	Ninth St	Azusa	0.0	NO
Soldano Ave	Foothill Blvd	Azusa	-0.1	NO
Pasadena Ave	Ninth St	Azusa	0.000	NO
Pasadena Ave	Foothill Blvd	Azusa	0.000	NO
Palm Dr	Foothill Blvd	Azusa	0.0	NO
Citrus Ave	Foothill Blvd	Azusa	0.000	NO
Barranca Ave	Bennett Ave	Glendora	0.0	NO
Barranca Ave	Foothill Blvd	Glendora	0.000	NO
Grand Ave	Foothill Blvd	Glendora	0.000	NO
Vermont Ave	Ada Ave	Glendora	0.0	NO
Vermont Ave	Alosta Ave	Glendora	0.000	NO
Vermont Ave	Foothill Blvd	Glendora	0.000	NO
Vermont Ave	Ada Ave	Glendora	0.0	NO
Glendora Ave	Foothill Blvd	Glendora	0.000	NO
Glendora Ave	Ada Ave	Glendora	0.000	NO
Glendora Ave	Alosta Ave	Glendora	-0.001	NO
Pasadena Ave	Lemon Ave	Glendora	0.000	NO
Pasadena Ave	Alosta Ave	Glendora	0.000	NO
Glenwood Ave	Lemon Ave	Glendora	0.0	NO
Glenwood Ave	Alosta Ave	Glendora	-2.3	NO
Elwood Ave	Lemon Ave	Glendora	0.0	NO
Elwood Ave	Alosta Ave	Glendora	0.000	NO
Loraine Ave	Lemon Ave	Glendora	0.0	NO
Loraine Ave	Alosta Ave	Glendora	0.000	NO
Lone Hill Ave	Auto Center Dr	Glendora	-0.001	NO
Lone Hill Ave	Gladstone St	San Dimas	-0.001	NO

TABLE 3-15.30 *continued*
SUMMARY OF INTERSECTION IMPACTS
COMPARISON BETWEEN BUILD LRT TO MAINTENANCE FACILITY AND NO BUILD

N/S Street	E/W Street	Jurisdiction	Change in V/C or Delay	Significant Impact
Eucla Ave	Bonita Ave	San Dimas	0.000	NO
Acacia Ave	Bonita Ave	San Dimas	-0.1	NO
Cataract Ave	Bonita Ave	San Dimas	-0.2	NO
Monte Vista Ave	Bonita Ave	San Dimas	-0.2	NO
San Dimas Ave	Bonita Ave	San Dimas	0.000	NO
San Dimas Ave	Arrow Hwy	San Dimas	-0.001	NO
Walnut Ave	Bonita Ave	San Dimas	0.000	NO
Walnut Ave	Arrow Hwy	San Dimas	0.000	NO
San Dimas Canyon Rd	Bonita Ave	San Dimas	0.000	NO
San Dimas Canyon Rd	Arrow Hwy	San Dimas	0.000	NO
Wheeler Ave	Third St	La Verne	0.0	NO
Wheeler Ave	Arrow Hwy	La Verne	0.000	NO
A St	Third St	La Verne	0.0	NO
A St	First St	La Verne	0.0	NO
A St	Arrow Hwy	La Verne	-3.1	NO
D St	Third St	La Verne	0.000	NO
D St	First St	La Verne	0.0	NO
D St	Arrow Hwy	La Verne	0.000	NO
E St	Third St	La Verne	0.000	NO
E St	Second St	La Verne	-0.1	NO
E St	First St	La Verne	-0.1	NO
E St	Arrow Hwy	La Verne	-0.001	NO
White Ave	Third St	La Verne	-0.3	NO
White Ave	Second St	La Verne	-0.5	NO
White Ave	First St	La Verne	-1.0	NO
White Ave	Sierra Way	La Verne	0.0	NO
White Ave	Arrow Hwy	La Verne	-0.001	NO
Fulton Rd	Bonita Ave	Pomona	0.0	NO
Fulton Rd	Arrow Hwy	Pomona	0.0	NO
Garey Ave	Bonita Ave	Pomona	0.000	NO
Garey Ave	Santa Fe St	Pomona	0.0	NO
Garey Ave	Arrow Hwy	Pomona	0.000	NO
Towne Ave	Bonita Ave	Pomona	0.000	NO
Towne Ave	Towne Center Dr	Pomona	0.0	NO
Towne Ave	Arrow Hwy	Pomona	0.000	NO
Indian Hill Blvd	Bonita Ave	Claremont	-0.001	NO

TABLE 3-15.30 *continued*
SUMMARY OF INTERSECTION IMPACTS
COMPARISON BETWEEN BUILD LRT TO MAINTENANCE FACILITY AND NO BUILD

N/S Street	E/W Street	Jurisdiction	Change in V/C or Delay	Significant Impact
Indian Hill Blvd	First St	Claremont	-0.002	NO
Indian Hill Blvd	Santa Fe St	Claremont	-1.1	NO
Indian Hill Blvd	Arrow Hwy	Claremont	-0.001	NO
College Ave	Bonita Ave	Claremont	-0.002	NO
College Ave	First St	Claremont	-0.002	NO
College Ave	Arrow Hwy	Claremont	-0.001	NO
Claremont Blvd	First St	Claremont	-0.001	NO
Mills/Claremont	Arrow Hwy	Claremont	-0.001	NO
Monte Vista Ave	Arrow Route	Montclair	-0.004	NO
Monte Vista Ave	Richton St	Montclair	-0.002	NO
Monte Vista Ave	Arrow Hwy	Montclair	-0.004	NO
Fremont Ave	Arrow Hwy	Montclair	-0.002	NO
Central Ave	Arrow Route	Montclair	0.005	NO
Central Ave	Richton St / W 9th St	Montclair	-0.003	NO
Central Ave	Arrow Hwy	Montclair	-0.004	NO

Source: Parsons Brinckerhoff, 2003.

d. LRT, Double Track Alternatives

Both the transit and traffic operations impacts for this configuration are the same as the LRT, Triple Track configuration discussed in Section 3-15.2.4c.

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. Impacts for this configuration are the same as the LRT, Triple Track configuration discussed in Section 3-15.2.4c.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. Impacts for this configuration are the same as the LRT, Triple Track configuration discussed in Section 3-15.2.4c.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. Impacts for this configuration are the same as the LRT, Triple Track configuration discussed in Section 3-15.2.4c.

Summary of Double Track Impacts for Full Build LRT Alternative

Both the transit and traffic operations impacts for this configuration are the same as the LRT, Triple Track configuration discussed in Section 3-15.2.4c.

Summary of Double Track Impacts for Build LRT Alternative to Maintenance Facility

Both the transit and traffic operations impacts for this configuration are the same as the LRT, Triple Track configuration discussed in Section 3-15.2.4c.

3-15.3 Cumulative Impacts

Cumulative impacts for both transit and traffic operations are the same as the long-term impacts presented in detail previously in Section 3-15.2.4. In addition to the cumulative impacts addressed in this analysis, the on-going growth of the region would be expected to result in cumulative traffic impacts.

3-15.4 Impacts Addressed by Regulatory Compliance

3-15.4.1 Construction Period Impacts

Impacts that would arise from construction of any of the alternatives were identified in Section 3-15.2.3, above. Elimination or reduction of these construction period impacts would occur through two steps, as follows: (1) compliance with local, state or federal regulations or permits that have been developed by agencies to manage construction impacts, to meet legally established environmental impact criteria or thresholds, and/or to ensure that actions occurring under agency approvals or permits are in compliance with laws and policies; or (2) implementation of the proposed alternatives with additional construction period mitigation measures defined in Section 3-15.5.1. Following is a discussion of the construction period impacts for each of the alternatives that would be addressed by the first step, regulatory compliance.

a. No Build Alternative

Phase I – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. No construction is anticipated for the No Build alternative; consequently, there are no construction-period impacts to be addressed by regulatory compliance.

Phase II, Segment 1 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. No construction is anticipated for the No Build alternative; consequently, there are no construction-period impacts to be addressed by regulatory compliance.

Phase II, Segment 2 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. No construction is anticipated for the No Build alternative; consequently, there are no construction-period impacts to be addressed by regulatory compliance.

Summary of Impacts for No Build Alternative Addressed by Regulatory Compliance

No construction is anticipated for the No Build alternative; consequently, there are no construction-period impacts to be addressed by regulatory compliance.

b. Transportation System Management (TSM) Alternative

Phase I – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. No construction is anticipated for the TSM alternative; consequently, there are no construction-period impacts to be addressed by regulatory compliance.

Phase II, Segment 1 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. No construction is anticipated for the TSM alternative; consequently, there are no construction-period impacts to be addressed by regulatory compliance.

Phase II, Segment 2 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. No construction is anticipated for the TSM alternative; consequently, there are no construction-period impacts to be addressed by regulatory compliance.

Summary of Construction-Period Impacts for TSM Alternative Addressed by Regulatory Compliance

No construction is anticipated for the TSM alternative; consequently, there are no construction-period impacts to be addressed by regulatory compliance.

c. LRT, Triple Track Configuration

Construction period impacts can be minimized by complying with local requirements such as providing advance notice to riders when buses are to be re-routed and stops are to be temporarily placed out of service or relocated. In order to comply with local requirements, communities adjacent to the project will be fully informed of all construction activities, potential lane closures and its duration and diversion routes. Other requirements set forth in the County's worksite traffic control plans will also be followed.

Phase I – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. During construction, the Gold Line Phase I will operate under normal conditions. There are no construction-period impacts to be addressed by regulatory compliance.

Phase II, Segment 1 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. As noted earlier compliance with local, state and federal regulations will be adhered to, however, impacts will remain the same as those discussed in Section 3-15.2.3c.

Phase II, Segment 2 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. As noted earlier compliance with local, state and federal regulations will be adhered to, however, impacts will remain the same as those discussed in Section 3-15.2.3c.

Summary of Construction Period Impacts for Full Build Alternative, Triple Track Configuration, Addressed by Regulatory Compliance

Compliance with local, state and federal regulations will be adhered to, however, impacts will remain the same as those discussed in Section 3-15.2.3c.

Summary of Construction Period Impacts for Build LRT Alternative to Maintenance Facility, Triple Track Configuration Addressed by Regulatory Compliance

Compliance with local, state and federal regulations will be adhered to, however, impacts will remain the same as those discussed in Section 3-15.2.3c.

d. LRT, Double Track Alternatives

Construction period impacts can be minimized by complying with local requirements such as providing advance notice to riders when buses are to be re-routed and stops are to be temporarily placed out of service or relocated. In order to comply with local requirements, communities adjacent to the project will be fully informed of all construction activities, potential lane closures and its duration and diversion routes. Other requirements set forth in the County's worksite traffic control plans will also be followed.

Phase I – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. During construction, the Gold Line Phase I will operate under normal conditions. There are no construction-period impacts to be addressed by regulatory compliance.

Phase II, Segment 1 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. As noted earlier compliance with local, state, and federal regulations will be adhered to, however, impacts will remain the same as those discussed in Section 3-15.2.3d.

Phase II, Segment 2 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. As noted earlier compliance with local, state and federal regulations will be adhered to, however, impacts will remain the same as those discussed in Section 3-15.2.3d.

Summary of Construction Period Impacts for Full Build Alternative, Double Track Configurations, Addressed by Regulatory Compliance

Compliance with local, state, and federal regulations will be adhered to; however, impacts will remain the same as those discussed in Section 3-15.2.3d.

Summary of Construction Period Impacts for Build LRT Alternative to Maintenance Facility, Double Track Configurations, Addressed by Regulatory Compliance

Compliance with local, state, and federal regulations will be adhered to; however, impacts will remain the same as those discussed in Section 3-15.2.3d.

3-15.4.2 Long-Term Impacts

Long-term impacts associated with of the alternatives were identified in Section 3-15.2.4, above. Elimination or reduction of these long-term impacts would occur through two steps, as follows: (1) compliance with local, state or federal regulations or permits that have been developed by agencies to manage construction impacts, to meet legally established environmental impact criteria or thresholds, and/or to ensure that actions occurring under agency approvals or permits are in compliance with laws and policies; or (2) implementation of the proposed alternatives with additional mitigation measures defined in Section 3-15.5.2. Following is a discussion of the long-term impacts for each of the alternatives that would be addressed by the first step, regulatory compliance.

a. No Build Alternative

Phase I – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. No construction is anticipated for the No Build alternative; consequently, there are no long-term impacts to be addressed by regulatory compliance.

Phase II, Segment 1 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. No construction is anticipated for the No Build alternative; consequently, there are no long-term impacts to be addressed by regulatory compliance.

Phase II, Segment 2 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. No construction is anticipated for the No Build alternative; consequently, there are no long-term impacts to be addressed by regulatory compliance.

Summary of Long Term Impacts for No Build Alternative Addressed by Regulatory Compliance

No construction is anticipated for the No Build alternative; consequently, there are no long-term impacts to be addressed by regulatory compliance.

b. Transportation System Management (TSM) Alternative

Phase I – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. No construction is anticipated for the TSM alternative; consequently, there are no long-term impacts to be addressed by regulatory compliance.

Phase II, Segment 1 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. No construction is anticipated for the TSM alternative; consequently, there are no long-term impacts to be addressed by regulatory compliance.

Phase II, Segment 2 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. No construction is anticipated for the TSM alternative; consequently, there are no long-term impacts to be addressed by regulatory compliance.

Summary of Long Term Impacts for TSM Alternative Addressed by Regulatory Compliance

No construction is anticipated for the TSM alternative; consequently, there are no long-term impacts to be addressed by regulatory compliance.

c. LRT, Triple Track Configuration

Phase I – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. There are no long-term impacts to be addressed by regulatory compliance.

Phase II, Segment 1 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. Compliance with local, state and federal regulations will be adhered to, however, long-term impacts will remain the same as those discussed in Section 3-15.2.4c.

Phase II, Segment 2 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. Compliance with local, state and federal regulations will be adhered to, however, long-term impacts will remain the same as those discussed in Section 3-15.2.4c.

Summary of Long Term Impacts for Triple Track Configuration Addressed by Regulatory Compliance

Compliance with local, state and federal regulations will be adhered to, however, long-term impacts will remain the same as those discussed in Section 3-15.2.4c.

Summary of Long Term Impacts for Build LRT Alternative to Maintenance Facility, Triple Track Configuration Addressed by Regulatory Compliance

Compliance with local, state and federal regulations will be adhered to, however, long-term impacts will remain the same as those discussed in Section 3-15.2.4c.

d. LRT, Double Track Alternatives

Phase I – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. There are no long-term impacts to be addressed by regulatory compliance.

Phase II, Segment 1 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. Compliance with local, state and federal regulations will be adhered to, however, long-term impacts will remain the same as those discussed in Section 3-15.2.4d.

Phase II, Segment 2 – The Cities Affected and the Results of Regulatory Compliance

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. Compliance with local, state and federal regulations will be adhered to, however, long-term impacts will remain the same as those discussed in Section 3-15.2.4d.

Summary of Long Term Impacts for Full Build Alternative, Double Track Configurations Addressed by Regulatory Compliance

Compliance with local, state, and federal regulations will be adhered to, however, long-term impacts will remain the same as those discussed in Section 3-15.2.4d.

Summary of Long Term Impacts for Build LRT Alternative to Maintenance Facility, Double Track Configuration Addressed by Regulatory Compliance

Compliance with local, state, and federal regulations will be adhered to, however, long-term impacts will remain the same as those discussed in Section 3-15.2.4d.

3-15.5 Potential Mitigation

3-15.5.1 Construction Period Mitigation Measures

Section 3-15.4.1 identified construction period impacts for which compliance with local, state, and federal regulations, permits, or similar types of requirements would eliminate or reduce such impacts. The following sections identify potential mitigation measures that would need to be implemented in order to address any remainder impacts (i.e., impacts that would still exist after regulatory compliance). The combination of regulatory compliance and these construction period mitigation measures would result in the reduction of construction period impacts to levels that would be not adverse under NEPA and less than significant under CEQA.

a. No Build Alternative

The No Build Alternative does not require construction-period mitigation measures because no construction is anticipated.

b. Transportation Systems Management (TSM) Alternative Construction Period Mitigation

The TSM Alternative does not require construction-period mitigation measures because no construction is anticipated.

Phase I – The Cities Affected and Proposed Measures

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. The TSM Alternative does not require construction-period mitigation measures because no construction is anticipated.

Phase II, Segment 1 – The Cities Affected and Proposed Measures

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. The TSM Alternative does not require construction-period mitigation measures because no construction is anticipated.

Phase II, Segment 2 – The Cities Affected and Proposed Measures

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The TSM Alternative does not require construction-period mitigation measures because no construction is anticipated.

c. LRT, Triple Track Configuration Construction Period Mitigation

Transit

Bus lines that would be affected by lane closures due to construction activities would continue to operate where feasible in the remaining traffic lanes. During the night hours when temporary lane closures are anticipated, bus lines would be re-routed to adjacent streets in a manner that minimizes the inconvenience to bus passengers. If a block were closed that includes a bus stop, the bus stop would be temporarily relocated to the portion of the street segment that is still open to bus service. Before any significant re-routing changes are made as result of the construction of the Gold Line Phase II corridor project, fliers will be provided on buses at least two weeks in advance notifying riders of route modifications. In addition, hoods will be placed over bus-stop signs, also notifying riders of what modifications have been made to the bus route.

A community affairs entity will be established to administer a construction impact mitigation program for the benefit of the community. The program will keep the community informed of all construction activities, with special emphasis for activities that affect the public. The program will also create a hotline number for a direct connection to staff familiar with the community and the project. This entity will offer individual consultation for residents, facilities, and businesses for remedies appropriate to the impacts. It will identify community/business needs prior to and during the construction period through the use of surveys and community meetings. In addition, field offices will be opened at particular locations and will contain information regarding recent construction activities.

Traffic Operations

During final design, site and street specific Worksite Traffic Control Plans will be developed in cooperation with the appropriate departments of transportation in each city and with Los Angeles County to accommodate required pedestrian and traffic movements. To the extent practical, traffic lanes will be maintained in both directions, particularly during periods of peak traffic operations. Access to homes and businesses will be maintained throughout the construction period. To the extent feasible lane closures are anticipated to take place during the night hours.

Designated haul routes for trucks will be identified during final design. These routes will be situated to minimize noise, vibration, and other possible impacts. Following completion of the Gold Line Phase II, if slight physical damage to the haul route roads is found, the road will be treated as deemed necessary.

After the implementation of the aforementioned mitigation measures and conducting closures during the night hours, construction period impacts would be reduced to less than adverse/less than significant.

Phase I – The Cities Affected and Proposed Measures

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. During construction of the project, the Gold Line Phase I will continue to operate under normal conditions. Consequently, no construction is anticipated along this segment and no construction-period mitigation measures are required.

Phase II, Segment 1 – The Cities Affected and Proposed Measures

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. Proposed mitigation measures are outlined above.

Phase II, Segment 2 – The Cities Affected and Proposed Measures

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. Proposed mitigation measures are outlined above.

Summary of Construction Period Mitigation Measures for Full Build LRT Alternative, Triple Track Configuration

Proposed mitigation measures are outlined above.

Summary of Construction Period Mitigation Measures for Build LRT Alternative to Maintenance Facility, Triple Track Configuration

Proposed mitigation measures are outlined above.

d. LRT, Double Track Alternatives Construction Period Mitigation

Phase I – The Cities Affected and Proposed Measures

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. During construction of the project, the Gold Line Phase I will continue to operate under normal conditions. Consequently, no construction is anticipated along this segment and no construction-period mitigation measures are required.

Phase II, Segment 1 – The Cities Affected and Proposed Measures

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. Proposed mitigation measures are outlined in Section 3-15.5.1c.

Phase II, Segment 2 – The Cities Affected and Proposed Measures

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. Proposed mitigation measures are outlined in Section 3-15.5.1c.

Summary of Construction Period Mitigation Measures for Full Build LRT Alternative, Double Track Configurations

Proposed mitigation measures are outlined in Section 3-15.5.1c.

Summary of Construction Period Mitigation Measures for Build LRT Alternative to Maintenance Facility, Double Track Configurations

Proposed mitigation measures are outlined in Section 3-15.5.1c.

3-15.5.2 Long-Term Mitigation

Section 3-15.4.2 identified long-term impacts for which compliance with local, state and federal regulations, permits, or similar types of requirements would eliminate or reduce such impacts. The following sections identify potential mitigation measures that would need to be implemented in order to address any remainder impacts (i.e., impacts that would still exist after regulatory compliance). The combination of regulatory compliance and these mitigation measures would result in the reduction of long term impacts to levels that would be not adverse under NEPA and less than significant under CEQA.

a. No Build Alternative

The No Build Alternative does not require long-term mitigation measures in the study corridor because no transportation impacts due to this project is anticipated.

b. Transportation Systems Management (TSM) Alternative

Phase I – The Cities Affected and Proposed Measures

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. The TSM Alternative does not require long-term mitigation measures because there are no substantial transportation impacts resulting from increased bus service.

Phase II, Segment 1 – The Cities Affected and Proposed Measures

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. The TSM Alternative does not require long-term mitigation measures because substantial transportation impacts resulting from increased bus service.

Phase II, Segment 2 – The Cities Affected and Proposed Measures

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The TSM Alternative does not require long-term mitigation measures because substantial transportation impacts resulting from increased bus service.

c. LRT, Triple Track Configuration

The intersections where significant traffic impacts are anticipated were evaluated to determine potential mitigation measures. The following modifications would be considered:

- Modifications to intersection geometrics. This improvement was primarily limited to within the existing pavement width, if feasible.
- Changes to signal operations to improve efficiency.
- Signalization of selected two- and four-way stop-controlled intersections.

Phase I – The Cities Affected and Proposed Measures

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. During construction of the project, the Gold Line Phase I will continue to operate under normal conditions. Consequently, no construction is anticipated along this segment and no long-term mitigation measures are required.

Phase II, Segment 1 – The Cities Affected and Proposed Measures

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. Within this segment, a total of 10 intersections are adversely/significantly impacted. Based upon the mitigation measures considered to be feasible, the following improvements are proposed:

- **Magnolia Avenue and Evergreen Avenue** – Signalization of this intersection is proposed.
- **Myrtle Avenue and Central Avenue (210 WB)** – Re-stripe the westbound approach to provide one left turn lane, one through lane, and one shared right turn lane. Re-stripe the westbound departure leg to provide two 15 feet wide lanes.
- **Myrtle Avenue and Evergreen Avenue (210 EB)** – Re-stripe the eastbound approach to provide one left turn lane, one through lane and one exclusive right turn pocket lane. May need to acquire some right-of-way for approximately 100 to 150 feet in length to accommodate the exclusive right turn pocket.
- **Myrtle Avenue and Duarte Road** – Re-stripe the southbound approach to provide one left turn lane, one through lane and one exclusive right turn pocket lane. May need to acquire some right-of-way for approximately 100 to 150 feet in length to accommodate the exclusive right turn pocket.
- **California Avenue and Duarte Road** – Re-stripe the eastbound approach to provide one left turn lane, one through lane and one shared right turn lane. May need to acquire about 2 feet of right-of-way to accommodate the shared right turn lane. Re-stripe the departure leg to provide two 15-foot wide lanes.
- **Buena Vista Street and Three Ranch Road** – Signalization of this intersection is proposed.
- **Highland Avenue and Central Avenue** – Signalization of this intersection is proposed.
- **Irwindale Avenue and Foothill Blvd** – Re-stripe the eastbound approach to provide one left turn lane, two through lanes, one shared right turn lane, and one exclusive right turn pocket lane. May need to acquire some right-of-way for approximately 100 to 150 feet in length for the exclusive right turn pocket.
- **Irwindale Avenue and EB I-210 Freeway** – Re-stripe the northbound approach to provide two through lanes, one shared right turn lane, and one exclusive right turn pocket lane. May need to acquire some right-of-way for approximately 100 to 150 feet in length for the exclusive right turn pocket.
- **Irwindale Avenue and W First Street** – Re-stripe the southbound approach to provide one left turn lane, three through lanes, and one exclusive right turn lane. May need to acquire some right-of-way on both sides of the intersection to implement this mitigation.

Regarding the 2-foot right-of-way expansions, it is anticipated that there would be less than adverse/less than significant impacts since the areas are so narrow and that fact that structures are typically at least ten feet off of curb lines and thus are not likely to affected.

Phase II, Segment 2 – The Cities Affected and Proposed Measures

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. Within this segment, a total of 23 intersections are adversely/significantly impacted. Based upon the mitigation measures considered to be feasible, the following improvements are proposed:

- **Azusa Avenue and Ninth Street** – Signalization of this intersection is proposed.
- **Dalton Avenue and Foothill Blvd** – Signalization of this intersection is proposed.
- **Soldano Avenue and Foothill Blvd** – Signalization of this intersection is proposed.
- **Grand Avenue and Foothill Blvd** – Convert the second northbound through lane on Grand Avenue to a shared through and right turn lane. Consequently, the northbound approach lane configuration would change from one left, two throughs, and one right (1L, 2T, 1R) to one left, one through, one shared through and right, and one right (1L, 1T, 1TR, 1R).
- **Glendora Avenue and Alosta Avenue** – Re-stripe the eastbound approach to provide one left turn, two through lanes, and one shared right turn lane. May need to acquire about 2 feet of right-of-way for the shared right turn lane. Re-stripe the departure leg to provide three through traffic lanes.
- **Glenwood Avenue and Alosta Avenue** – Signalization of this intersection is proposed.
- **Acacia Avenue and Bonita Avenue** – Signalization of this intersection is proposed.
- **Cataract Avenue and Bonita Avenue** – Signalization of this intersection is proposed.
- **Monte Vista Avenue and Bonita Avenue** – Signalization of this intersection is proposed. In addition, re-stripe the eastbound approach and departure to provide one left turn lane, two through lanes and one shared right turn lane. May need to acquire some right-of-way on the eastbound approach and departure to implement this improvement.
- **A Street and Arrow Highway** – Signalization of this intersection is proposed.
- **White Avenue and Third Street** – Signalization of this intersection is proposed. Re-stripe the northbound and southbound approaches to provide one shared left turn lane and one shared right turn lane. May need to acquire about 2 feet of right-of-way on the northbound and southbound approaches.
- **White Avenue and Second Street** – Signalization of this intersection is proposed. Re-stripe the northbound and southbound approaches to provide one shared left turn lane and one shared right turn lane. May need to acquire about 2 feet of right-of-way on the northbound and southbound approaches.
- **White Avenue and First Street** – Signalization of this intersection is proposed. Re-stripe the northbound approach and departure legs to provide one left turn lane, two through lanes and one right turn lane. In addition, re-stripe the southbound approach and departure to provide one shared right turn land one shared left turn lane. May need to acquire about 2 feet of right-of-way on the northbound and southbound approaches.
- **White Avenue and Arrow Highway** – Re-stripe the northbound approach and departure to provide one left turn lane, two through lanes and an exclusive right turn pocket lane.
- **Fulton Road and Bonita Avenue** – Signalization of this intersection is proposed.
- **Fulton Road and Arrow Highway** – Signalization of this intersection is proposed.

- **Towne Avenue and Towne Center Drive** – Signalization of this intersection is proposed.
- **Towne Avenue and Arrow Highway** – Signalization of this intersection is proposed. Widen curb and re-stripe the northbound approach to provide one left turn lane, two through lanes, and one exclusive right turn lane. May need to acquire some right-of-way for approximately 100 to 150 feet in length to accommodate the exclusive right turn pocket.
- **Indian Hill Blvd and First Street** – Re-stripe the northbound and the southbound approaches to provide one left turn lane, one through lane, and one shared right turn lane in each direction. May need to acquire about 2 feet of right-of-way in the northbound departure leg and southbound approach leg to accommodate a second through lane in each direction of the north leg.
- **Indian Hill Blvd and Santa Fe Street** – Signalization of this intersection is proposed.
- **Monte Vista Avenue and Arrow Highway** – Re-stripe the eastbound approach and departure to provide two left turn lanes, two through lanes and one exclusive right turn lane. May need to acquire some right-of-way on both the approach and departure legs of the intersection.
- **Central Avenue and Arrow Route** – Convert the northbound exclusive right turn lane to a shared through and right turn lane. Re-stripe the northbound departure leg accommodate the third through lane.
- **Central Avenue and Arrow Highway** – Re-stripe the southbound approach and departure to provide one left turn lane, two through lanes, one shared right turn lane and an exclusive right turn pocket lane. May need to acquire some right-of-way on both sides of the intersection.

Regarding the 2-foot right-of-way expansions, it is anticipated that there would be less than adverse/less than significant impacts since the areas are so narrow and that fact that structures are typically at least ten feet off of curb lines and thus are not likely to affected.

Summary of Long Term Mitigation Measures for Full Build LRT Alternative, Triple Track Configuration

Proposed long-term mitigation measures are outlined and discussed in the previous section. These improvements apply to both the Full Build LRT alternative and the Full Build LRT Option D alternative.

Summary of Long Term Mitigation Measures for Build LRT Alternative to Maintenance Facility, Triple Track Configuration

Proposed long-term mitigation measures for the Build LRT Alternative to Maintenance Facility are the same as those previously outlined and described the Phase II Segment 1 section. However, one additional location at Mountain Avenue and Hamilton Road in Azusa requires mitigation. Signalization of this intersection is proposed.

d. LRT, Double Track Alternatives

Phase I – The Cities Affected and Proposed Measures

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. During construction of the project, the Gold Line Phase I will continue to operate under normal conditions. Consequently, no construction is anticipated along this segment and no long-term mitigation measures are required.

Phase II, Segment 1 – The Cities Affected and Proposed Measures

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. The proposed improvements are the same as those outlined and described previously in Section 3-15.3.2c.

Phase II, Segment 2 – The Cities Affected and Proposed Measures

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The proposed improvements are the same as those outlined and described previously in Section 3-15.3.2c.

Summary of Long Term Mitigation Measures for Full Build LRT Alternative, Double Track Configurations

The proposed improvements are the same as those outlined and described previously in Section 3-15.3.2c.

Summary of Long Term Mitigation Measures for Build LRT Alternative to Maintenance Facility, Double Track Configurations

The proposed improvements are the same as those outlined and described previously in Section 3-15.3.2c.

3-15.6 Impact Results with Mitigation

The following sections report the result of complying with regulatory requirements and proposed mitigation measures. The intent of this section is to summarize where identified impacts have been eliminated or reduced to less than adverse/less than significant levels, or whether there may be remainder impacts.

3-15.6.1 Construction Period Impacts

Construction period impacts would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-15.2.6a, and the additional measures to mitigate impacts identified in Section 3-15.3.1. As a result of these two conditions, construction period impacts would be not adverse under NEPA and not significant under CEQA

a. No Build Alternative

Construction impacts for the No Build Alternative would not change from the level of impact initially identified and no mitigation measures would be required or implemented.

b. TSM Alternative

Phase I – The Cities Affected and the Results of Construction Period Mitigation Measures

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. Transportation impacts for the TSM Alternative require no mitigation measures.

Phase II, Segment 1 – The Cities Affected and the Results of Construction Period Mitigation Measures

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. Transportation impacts for the TSM Alternative require no mitigation measures.

Phase II, Segment 2 – The Cities Affected and the Results of Construction Period Mitigation Measures

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. Transportation impacts for the TSM Alternative require no mitigation measures.

c. LRT, Triple Track Configuration

Phase I – The Cities Affected and the Results of Construction Period Mitigation Measures

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. There are no elements of the Triple Track configuration in these cities and thus no transportation impacts. No mitigation measures are required.

Phase II, Segment 1 – The Cities Affected and the Results of Construction Period Mitigation Measures

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. Construction impacts for the LRT Alternatives would be reduced to less than adverse/less than significant by the mitigation measures identified in Section 3-15.5.1c.

Phase II, Segment 2 – The Cities Affected and the Results of Construction Period Mitigation Measures

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. Construction impacts for the LRT Alternatives would be reduced to less than adverse/less than significant by the mitigation measures identified in Section 3-15.5.1c.

Summary of Results of Construction Period Mitigation Measures for Full Build LRT Alternative, Triple Track Configuration

Construction impacts for the Full Build LRT Alternative would be reduced to less than adverse/less than significant by the mitigation measures identified in Section 3-15.5.1c.

Summary of Results of Construction Period Mitigation Measures for Build LRT Alternative to Maintenance Facility, Triple Track Configurations

Construction impacts for the Full Build LRT Alternative would be reduced to less than adverse/less than significant by the mitigation measures identified in Section 3-15.5.1c.

d. LRT, Double Track Alternatives

Phase I – The Cities Affected and the Results of Construction Period Mitigation Measures

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. Construction impacts for the LRT Alternatives would be reduced to less than adverse/less than significant by the mitigation measures identified in Section 3-15.5.1c.

Phase II, Segment 1 – The Cities Affected and the Results of Construction Period Mitigation Measures

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. Construction impacts for the LRT Alternatives would be reduced to less than adverse/less than significant by the mitigation measures identified in Section 3-15.5.1c.

Phase II, Segment 2 – The Cities Affected and the Results of Construction Period Mitigation Measures

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. Construction impacts for the LRT Alternatives would be reduced to less than adverse/less than significant by the mitigation measures identified in Section 3-15.5.1c.

Summary of Results of Construction Period Mitigation Measures for Full Build LRT Alternative, Double Track Configurations

Construction impacts for the Full Build LRT Alternative would be reduced to less than adverse/less than significant by the mitigation measures identified in Section 3-15.5.1c.

Summary of Results of Construction Period Mitigation Measures for Build LRT Alternative to Maintenance Facility, Double Track Configurations

Construction impacts for the Full Build LRT Alternative would be reduced to less than adverse/less than significant by the mitigation measures identified in Section 3-15.5.1c.

3-15.6.2 Long Term Impacts

Long-term impacts would be reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-15.2.6b, and the additional measures to mitigate impacts identified in Section 3-15.3.2. As a result of these two conditions, long-term impacts would be not adverse under NEPA and not significant under CEQA.

a. No Build Alternative

Long-term impacts for the No Build Alternative would not change from the level of impact initially identified since no mitigation measures would be required or implemented.

b. TSM Alternative

Phase I – The Cities Affected and the Results of Long Term Mitigation Measures

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. Long-term impacts would be reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-15.2.6b, and the additional measures to mitigate impacts identified in Section 3-15.3.2. As a result of these two conditions, long-term impacts would be not adverse under NEPA and not significant under CEQA

Phase II, Segment 1 – The Cities Affected and the Results of Long Term Mitigation Measures

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. Long-term impacts for the TSM Alternative would not change from the level of impact initially identified since no mitigation measures would be required or implemented.

Phase II, Segment 2 – The Cities Affected and the Results of Long Term Mitigation Measures

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. Long-term impacts would be reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-15.2.6b, and the additional measures to mitigate impacts identified in Section 3-15.3.2. As a result of these two conditions, long-term impacts would be not adverse under NEPA and not significant under CEQA.

c. LRT, Triple Track Configuration

Phase I – The Cities Affected and the Results of Long Term Mitigation Measures

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. There are no elements of the Triple Track configuration in these cities. Long-term impacts would not change from the level of impact initially identified

Phase II, Segment 1 – The Cities Affected and the Results of Long Term Mitigation Measures

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. The results of the intersection traffic level of service analysis with the mitigation measures are provided in **Table 3-15.31**. There are no residual impacts associated with the proposed project at any of these intersections.

TABLE 3-15.31
FULL BUILD LRT ALTERNATIVE
MITIGATED INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	V/C	LOS	Residual Impact
Magnolia Ave	Evergreen Ave	Monrovia	0.600	A	NO
Myrtle Ave	***Central Ave (210 WB)***	***Monrovia***	***1.125***	***F***	***NO***
Myrtle Ave	***Evergreen Ave (210 EB)***	***Monrovia***	***1.067***	***F***	***NO***
Myrtle Ave	Duarte Rd	Monrovia	0.869	D	NO
California Ave	Duarte Rd	Monrovia	0.679	B	NO
Buena Vista St	Three Ranch Rd	Duarte	0.457	A	NO
Highland Ave	***Central Ave***	***Duarte***	***0.970***	***E***	***NO***
Irwindale Ave	***Foothill Blvd***	***Irwindale***	***2.057***	***F***	***NO***
Irwindale Ave	***EB I-210 Fwy***	***Irwindale***	***1.385***	***F***	***NO***
Irwindale Ave	W First St	Irwindale	0.882	D	NO

Source: Parsons Brinckerhoff, 2003.

Phase II, Segment 2 – The Cities Affected and the Results of Long Term Mitigation Measures

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The results of the intersection traffic level of service analysis with the mitigation measures are provided in **Table 3-15.32**. There are no residual impacts associated with the proposed project at any of these intersections.

TABLE 3-15.32
FULL BUILD LRT ALTERNATIVE
MITIGATED INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	V/C	LOS	Residual Impact
Azusa Ave	Ninth St	Azusa	0.610	B	NO
Dalton Ave	Foothill Blvd	Azusa	0.680	B	NO
Soldano Ave	Foothill Blvd	Azusa	0.580	A	NO
Grand Ave	Foothill Blvd	Glendora	0.893	D	NO
Glendora Ave	***Alosta Ave***	***Glendora***	***0.959***	***E***	***NO***
Glenwood Ave	Alosta Ave	Glendora	0.626	B	NO
Lone Hill Ave	***Auto Center Dr***	***Glendora***	***1.071***	***F***	***YES***
Acacia Ave	Bonita Ave	San Dimas	0.472	A	NO
Cataract Ave	Bonita Ave	San Dimas	0.816	D	NO
Monte Vista Ave	Bonita Ave	San Dimas	0.627	B	NO
A St	Arrow Hwy	La Verne	0.378	A	NO
White Ave	Third St	La Verne	0.740	C	NO
White Ave	Second St	La Verne	0.760	C	NO
White Ave	First St	La Verne	0.760	C	NO
White Ave	***Arrow Hwy***	***La Verne***	***1.026***	***F***	***NO***
Fulton Rd	Bonita Ave	Pomona	0.566	A	NO
Fulton Rd	Arrow Hwy	Pomona	0.397	A	NO
Towne Ave	Towne Center Dr	Pomona	0.521	A	NO
Towne Ave	***Arrow Hwy***	***Pomona***	***1.003***	***F***	***NO***
Indian Hill Blvd	First St	Claremont	0.724	C	NO
Indian Hill Blvd	Santa Fe St	Claremont	0.490	A	NO
Monte Vista Ave	***Arrow Hwy***	***Montclair***	***0.928***	***E***	***NO***
Central Ave	Arrow Route	Montclair	0.864	D	NO
Central Ave	***Arrow Hwy***	***Montclair***	***0.913***	***E***	***NO***

Source: Parsons Brinckerhoff, 2003.

Summary of Results of Long Term Mitigation Measures for Full Build LRT Alternative, Triple Track Configuration

Results of the intersection operating conditions after implementation of the proposed long-term mitigation measures are outlined and discussed in the previous section.

Summary of Results of Long Term Period Mitigation Measures for Build LRT Alternative to Maintenance Facility, Triple Track Configurations

Results of the intersection operating conditions after implementation of the proposed long-term mitigation measures for the Build LRT Alternative to Maintenance Facility vary slightly from those previously

outlined and described in the Phase II Segment 1 section. These results are presented in **Table 3-15.33**. There are no residual impacts associated with the proposed project on any intersections.

TABLE 3-15.33
BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY
MITIGATED INTERSECTION LEVEL OF SERVICE ANALYSIS

N/S Street	E/W Street	Jurisdiction	V/C	LOS	Residual Impacts
Magnolia Ave	Evergreen Ave	Monrovia	0.600	A	NO
Myrtle Ave	***Central Ave (210 WB)***	***Monrovia***	***1.127***	***F***	***NO***
Myrtle Ave	***Evergreen Ave (210 EB)***	***Monrovia***	***1.069***	***F***	***NO***
Myrtle Ave	Duarte Rd	Monrovia	0.871	D	NO
California Ave	Duarte Rd	Monrovia	0.680	B	NO
Mountain Ave	Hamilton Rd	Duarte	0.407	A	NO
Buena Vista St	Three Ranch Rd	Duarte	0.459	A	NO
Highland Ave	***Central Ave***	***Duarte***	***0.970***	***E***	***NO***
Irwindale Ave	***Foothill Blvd***	***Irwindale***	***2.065***	***F***	***NO***
Irwindale Ave	***EB I-210 Fwy***	***Irwindale***	***1.291***	***F***	***NO***
Irwindale Ave	W First St	Irwindale	0.885	F	NO

Source: Parsons Brinckerhoff, 2003.

d. LRT, Double Track Alternatives

Phase I – The Cities Affected and the Results of Long Term Mitigation Measures

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. Long-term impacts for the Full Build LRT Alternative would not change from the level of impact initially identified.

Phase II, Segment 1 – The Cities Affected and the Results of Long Term Mitigation Measures

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. Traffic operations after implementation of the proposed improvements are the same as those outlined and described previously in Section 3-15.4.2c.

Phase II, Segment 2 – The Cities Affected and the Results of Long Term Mitigation Measures

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. Traffic operations after implementation of the proposed improvements are the same as those outlined and described previously in Section 3-15.4.2c.

Summary of Results of Long Term Mitigation Measures for Full Build LRT Alternative, Double Track Configurations

Traffic operations after implementation of the proposed improvements are the same as those outlined and described previously in Section 3-15.4.2c.

Summary of Results of Long Term Mitigation Measures for Build LRT Alternative to Maintenance Facility, Double Track Configurations

Traffic operations after implementation of the proposed improvements are the same as those outlined and described previously in Section 3-15.4.2c.

3-16 UTILITY DISRUPTIONS AND RELOCATIONS

Summary of Impacts

For the No Build and TSM alternatives, no substantial utlility relocations are expected.

For the LRT alternatives. utilities that traverse the rail ROW (i.e., cross at an angle) would generally be protected in place. The specific utilities affected and the type of protection would be determined during Preliminary Engineering. Affected utility providers would be consulted to determine the appropriate type of protection needed. Utilities that run within the ROW under the terms of a franchise agreement would be relocated at the specific utlity's expense

3-16.1 Existing Conditions

The purpose of this section is to assess potential utility impacts within existing and proposed LACMTA right-of-way (ROW) and within the street ROW at grade crossings. For the purpose of discussing utilities, the Gold Line Phase II alignment can be presented as five distinct areas of assessment:

1. The alignment within median of the I-210 Freeway (in Segment 1)
2. The former BNSF Pasadena Subdivision ROW between Pasadena and Montclair (in Segments 1 and 2)
3. Additional public or private land required along the rail ROW (in Segments 1 and 2)
4. The abandoned former Pacific Electric ROW in Claremont and Montclair/Upland (Segment 2 only). This ROW is owned by LACMTA in Los Angeles County and by SANBAG in San Bernardino County.
5. The 34-acre site of the Maintenance and Operations (M&O) facility in the City of Irwindale (Segment 1).

As mentioned, each of the five areas of utility assessment will be discussed regarding: a) impact to the Double Track or Triple Track Configurations, b) party responsible for relocation, if required, and c) the general magnitude of cost to mitigate the impact.

3-16.2 Environmental Impacts

3-16.2.1 Evaluation Methodology

The utility assessment focused on identifying potential impacts to the Double Track or Triple Track Configurations and the party responsible for relocation, if required.

3-16.2.2 Impact Criteria

a. NEPA Impact Criteria

NEPA does not include impact criteria for utility disruptions and relocations. Therefore, CEQA impact criteria will also be used to determine impacts under NEPA.

b. CEQA Impact Criteria

The following significance thresholds relative to utilities are drawn for the CEQA Guidelines:

Would the project:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
- Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?
- Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?
- Adversely affect or interfere with the provision of public utility services?

3-16.2.3 Construction-Period Impacts

a. No-Build Alternative

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. The projects in the No Build Alternative that could affect these cities are completion and service on the Eastside Extension, implementation of increased service on Phase I of the Gold Line LRT, and countywide bus service improvements. Only the Eastside Extension would have construction-period impacts to utilities. These impacts are identified, along with mitigations measures to reduce them to less than adverse under NEPA and less than significant under CEQA, in the Draft Supplemental Environmental Impact Statement/ Draft Subsequent Environmental Impact Report (FTA and LACMTA, 2001). There are no construction elements associated with Gold Line or bus service improvements that would result in utility disruptions or relocations.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. The projects in the No Build Alternative affecting these cities during the Phase II construction period are implementation of increased service on Phase I of the Gold Line LRT and countywide bus service improvements. There are no construction elements associated with these service improvements that would result in utility disruptions or relocations.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The project in the No Build Alternative affecting the cities during the construction period of the proposed Phase II is the Los Angeles county bus service improvements. Even though Montclair and Upland are in San Bernardino County, they are affected by changes in Los Angeles County bus service because that service is linked to the Montclair TransCenter. There are no construction elements associated with this service improvement that would result in utility disruptions or relocations.

b. Transportation System Management (TSM) Alternative

The TSM Alternative includes changes to existing bus routes to provide or improve connecting service to the Gold Line Phase I station at Sierra Madre Villa, and increasing peak period and off-peak period services frequencies to downtown Pasadena (the study corridor's largest employment center) and among the cities and major activity centers within the study area. There are no construction elements associated with these service improvements that would result in utility disruptions or relocations in any of the Phase I or Phase II cities.

c. LRT, Triple Track Configuration

Impacts to utilities cannot be accurately defined since only conceptual-level design is available. In general, the following types of impacts would be expected. Construction of the trackway, stations and other facilities would require relocating, abandoning, or otherwise avoiding some infrastructure elements. These could include relocation of utility poles supporting overhead wires and streetlights; relocation of underground utilities from the track zone, station areas and maintenance facility site; and repair and/or encasement of underground utilities at track crossings.

The impacts of utility work would be localized, occurring generally at or near at-grade street crossings where gas and water lines typically traverse the rail right-of-way at right angles. Other areas of utility construction would be where drainageways cross the rail right-of-way. The magnitude of construction is not expected to be great, and would be similar to that experienced in urban areas when utilities must be repaired. It would be expected that utility relocation work in any particular location would occur over a period of less than one week. The main types of impacts that would be likely to occur would be disruption of traffic as lanes are closed to allow work, and perhaps temporary losses of service as lines are moved or connections changed.

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena, and Pasadena. There are no construction elements associated with the Triple Track Configuration in these cities, and, therefore, no impacts to utilities.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment I are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. Within the median of I-210 (Pasadena and Arcadia), two new LRT tracks would be placed directly over old railroad grade and a parallel service road. The old under drain system would be replaced and the new pipes would be reconnected to existing outlet conduits and structures constructed in the early 1970's as part of the freeway/railway project. Since the old grade will be used throughout, and the LRT loading is significantly less severe than that of the railroad, any existing transverse utilities would continue to be

adequately protected in place. The specific utilities affected and the type of protection would be determined during Preliminary Engineering. Affected utility providers would be consulted to determine the appropriate type of protection needed. Old railroad communication lines within the existing ROW are considered abandoned and would be replaced with LRT communication and signaling systems.

Between the alignment crossing of I-210 near Baldwin Avenue in Arcadia and the proposed Monrovia station, only two tracks are required. From Monrovia eastward, two LRT tracks would generally be placed on a new grade relatively close to the existing or relocated freight track. Since the swath of loading impact for the Triple Track Configuration would be considerably wider that of the existing track, the vast majority of transverse utilities (and significant stretches of parallel utilities) would likely require additional protection. The specific utilities affected and the type of protection would be determined during Preliminary Engineering. Affected utility providers would be consulted to determine the appropriate type of protection needed. All utility (franchise) agreements with the BNSF (and later LACMTA) clearly indicate that the cost of any required relocation would be borne by the utility owner. Old railroad communication and signal lines within the existing LACMTA ROW would be replaced with new LRT communication and signal lines.

In Duarte, the Triple Track Configuration requires acquisition of an approximate 7-foot-wide strip of the northerly portion of Duarte Road between Buena Vista and Highland Avenues (civil stations 336+00 to 372+00 [see maps in Volume III]). Within this strip there is an overhead electrical high voltage transmission and low voltage distribution line owned by the Southern California Edison Company (SCE), as well as street lighting and cable communications. It is assumed that the Construction Authority will voluntarily comply with the City of Duarte's policy requirement that new electrical lines (and relocated lines related to a new project) be placed underground. Complying with this policy would involve, at a minimum, 3,600 feet of buried conduit for each transmission and distribution system, as well as underground cable lines and a new street lighting system.

The proposed Maintenance and Operation Facility in Irwindale would be built on undeveloped land that has been previously used for rock quarry operations. There are no known utilities other than drainage channels or storm drain systems that would be affected. These channels/systems would likely be removed and subsumed into new facilities designed for the M&O center; any demands associated with adjoining properties would be incorporated. It is assumed that the full range of utilities (water, sewer, electrical service, telephone, etc.) would be needed to serve the M&O facility. In general, these utilities would be connected to existing area service lines, in accordance with all necessary federal and state regulatory requirements.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. In these cities, two LRT tracks would generally be placed on a new grade relatively close to the existing or relocated freight track. Since the swath of loading impact for the Triple Track Configuration would be considerably wider that of the existing track, the vast majority of transverse utilities (and significant stretches of parallel utilities) would likely require additional protection. The specific utilities affected and the type of protection would be determined during Preliminary Engineering. Affected utility providers would be consulted to determine the appropriate type of protection needed. All utility (franchise) agreements with the BNSF (and later LACMTA) clearly indicate that the cost of any required relocation would be borne by the utility owner. Old railroad communication and signal lines within the existing ROW would be replaced with new LRT communication and signal lines.

Between Claremont and Montclair, a distance of approximately 3,100 feet, the former Pacific Electric ROW (now owned by LACMTA and SANBAG) would be used for the primary alignment to reach the proposed Montclair/Upland Station on the north side of the Montclair TransCenter. The old freight railroad track was removed several years ago. Since that time several roadway improvements were implemented along First Street and a new crossing constructed at Claremont Boulevard. All utilities within this ROW (including those at roadway crossings) had to obtain a license (franchise) agreement with the former Southern Pacific Transportation Company (SPTC). That agreement is now held by LACMTA and SANBAG. However, the extent of utility protection imposed (if any) is not clear and would be verified during Preliminary Engineering if this particular alignment is selected for further evaluation. Also, the Southern Pacific Valuation map indicates a buried Sprint conduit within this ROW that may be affected.

Summary of Triple Track Impacts for Full Build Alternative

Utilities that traverse the rail ROW (i.e., cross at an angle) would generally be protected in place. The specific utilities affected and the type of protection would be determined during Preliminary Engineering. Affected utility providers would be consulted to determine the appropriate type of protection needed. In Duarte, utility relocations would be required due to the need to acquire about 7 feet from the Duarte Road ROW. Utilities that run within the ROW under the terms of a franchise agreement would be relocated at specific utility's expense.

Summary of Triple Track Impacts for Build LRT Alternative to Maintenance Facility

Utilities that traverse the rail ROW (i.e., cross at an angle) would generally be protected in place. The specific utilities affected and the type of protection would be determined during Preliminary Engineering. Affected utility providers would be consulted to determine the appropriate type of protection needed. In Duarte, utility relocations would be required due to the need to acquire about 7 feet from the Duarte Road ROW. Utilities that run within the ROW under the terms of a franchise agreement would be relocated at specific utility's expense.

d. LRT, Double Track Configurations

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles and South Pasadena. There are no elements of the Double Track Configurations that occur within Los Angeles and South Pasadena. Within Pasadena, the Double Track Configurations would occur within the median of I-210. Impacts in this portion of the ROW would be the same as described for the Triple Track Configuration.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. Two LRT tracks would generally be placed on a new grade relatively close to the existing or relocated BNSF track. Since the swath of loading impact for the Triple Track Configuration would be considerably wider that of the existing track, the vast majority of transverse utilities (and significant stretches of parallel utilities) would likely require additional protection. The specific utilities affected and the type of protection would be determined during Preliminary Engineering. Affected utility providers would be consulted to determine the appropriate type of protection needed. All utility (franchise) agreements with the BNSF (and later LACMTA) clearly indicate that the cost of any required relocation would be borne by the utility owner. The parallel railroad-owned communication and signal lines within the existing LACMTA ROW are old and outdated and would be replaced with a new system, along with the accompanying LRT communication and signal lines.

The Double Track Configurations do not required acquisition of part of Duarte Road or the relocation of utilities associated with the acquisition. The proposed Maintenance and Operations Facility would be the same as under the Tripe Track configuration.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. Impacts would be the same as described under the Triple Track Configuration.

Summary of Double Track Impacts for Full Build LRT Alternative

Utilities that traverse the rail ROW (i.e., cross at an angle) would generally be protected in place. The specific utilities affected and the type of protection would be determined during Preliminary Engineering. Affected utility providers would be consulted to determine the appropriate type of protection needed. Utilities that run within the ROW under the terms of a franchise agreement would be relocated at specific utility's expense.

Summary of Double Track Impacts for Build LRT Alternative to Maintenance Facility

Utilities that traverse the rail ROW (i.e., cross at an angle) would generally be protected in place. The specific utilities affected and the type of protection would be determined during Preliminary Engineering. Affected utility providers would be consulted to determine the appropriate type of protection needed. Utilities that run within the ROW under the terms of a franchise agreement would be relocated at specific utility's expense.

3-16.2.4 Long-Term Impacts

Utility disruptions and relocations due to the project would occur only during the construction phase. There are no elements of any of the alternatives that would be likely to generate substantially increased demands on local utilities in the long term. (The effects of the proposed project on energy demand are addressed in Section 3-7.)

3-16.2.5 Cumulative Impacts

Cumulative impacts to utilities could arise from the ongoing growth of the region. As individual residential and commercial projects are implemented over time, they place incremental demands on utilities. The transportation improvements included in the No Build, TSM, and LRT Alternatives are all included in SCAG's 2025 forecast of regional growth and in the plans of individual cities. Although these transportation projects may influence the location of development or redevelopment, they are not likely to induce additional, unaccounted-for utility demands. (The effects of the proposed project on energy demand are addressed in Section 3-7.)

3-16.2.6 Impacts Addressed by Regulatory Compliance

a. Construction-Period Impacts

There are no federal, state, or local regulatory measures for utility disruptions and relocations during the construction period. It is assumed that all regulatory requirements that are being met by a particular utility (e.g., water quality) would be maintained during the construction process for all alternatives. Mitigation measures related to coordination with utility providers, which would include provisions to ensure any regulatory requirements associated with a functioning infrastructure element are met, are described in Section 3-16.3.

b. Long-Term Impacts

There are no federal, state, or local regulatory measures for utility disruptions and relocations during the operational period for any of the alternatives. Operation of any of the alternatives would not include a need to relocate or disrupt utilities.

3-16.3 Potential Mitigation

3-16.3.1 Construction-Period Mitigation Measures

During Preliminary Engineering, design work would be conducted at a level of specificity to identify the precise locations of utilities to be relocated, the type of protection-in-place needed, the requirements for maintaining operations during construction, etc. It is recognized that utility relocation or protection-in-place must include consultation with utility operators to avoid or minimize the potential for disruptions of service. The Construction Authority, LACMTA, and SANBAG will require that the following measures be imposed during design and construction.

The Construction Authority, LACMTA, and SANBAG, or their agents, will work with utility providers to minimize any potential service interruptions and to conserve resources by:

- Complying with applicable utility polices and strategies as specified in the adopted operational comprehensive plans of the corridor cities and counties of Los Angeles and San Bernardino, including those provisions related to levels of service, conservation strategies, and coordination of service provisions.

- Incorporating County of Los Angeles and California State energy code, building code, fire code, LACMTA Design Criteria and Standards (Volume I through IV) and other application requirements for all design aspects of the system, stations, maintenance facility, and parking areas.

- Developing methods including cathodic protection to reduce the effects of stray currents. Where necessary and possible, install devices to reduce the impact of stray current between the traction power system and the utility facilities, or replaced particularly metallic utility infrastructure with nonmetallic materials.

- Coordinating with affected water utilities and local fire departments to ensure that water use does not compromise flows required for fire protection.

- Locating tracks and other elements such that access to utilities for maintenance and repair can be provided. Where necessary, relocate manholes, pipes, vaults, and other access points.

3-16.3.2 Long-Term Mitigation

As stated in Section 3-16-2.4, no long-term impacts to utilities are anticipated. Accordingly, no long-term mitigation measures are required for any of the alternatives

3-16.4 Impact Results with Mitigation

3-16.4.1 Construction Period

Construction of any of the alternatives would reflect the results of the consultation mitigation measures stated in Section 3-16.3a. Overall, low level of impacts were identified since it is assumed that most utilities traversing the alignment would be protected in place, or relocated at the expense of franchise holders. The low level of impacts, coupled with the consultation mitigation measures to address and resolve agency-specific and location-specific issues, would result in less than adverse impacts under NEPA/less than significant impacts under CEQA.

3-16.4.2 Long Term

No long-term mitigation measures are required. Long-term impacts for all alternatives would be less than adverse under NEPA and less than significant under CEQA.

3-17 VISUAL IMPACTS

Summary of Impacts

The No Build and TSM alternatives would not have substantive visual impacts in the study corridor cities.

For the LRT alternative, Triple Track configuration, within the Phase II, Segment 1 portion of the project visual impacts are anticipated in the cities of Monrovia and Duarte due to the potential removal of the oleander screening hedgerow. This hedgerow extends along Duarte Road east from Myrtle Avenue in Monrovia, through the city of Duarte. In the city of La Verne, it is likely that Deodar cedar tree landscape screening (roughly between Walnut and Park Avenues) would need to be removed. A draft mitigation measure is proposed to replace the hedgerow with landscaping consistent with that provided in Phase I.

For the LRT alternative, Double Track configurations, these removals of hedgerows and trees dp not appear necessary since less land is needed for two tracks.

3-17.1 Existing Conditions

The No Build Alternative includes only one element that would substantially affect the visual environment. The visual impacts of the Eastside LRT Extension are addressed in the environmental document for that project. The other projects in the No Build Alternative, increases in Gold Line Phase I service and improvements in bus service, do not include elements that would substantially affect the visual environment. Bus service improvements in the No Build and TSM Alternatives may involve new or modified bus shelters, but the potential impact of the facilities to the visual environment would be minimal. In addition, no specific locations of new or modified bus shelters have been identified. Accordingly, this section does not address the existing conditions related to bus service improvements.

Gold Line Phase II would utilize existing railroad rights-of-way along a 24-mile corridor within 13 municipalities, including the cities of South Pasadena, Pasadena, Arcadia, Monrovia, Duarte, Azusa, Glendora, La Verne, San Dimas, Pomona, Claremont, Montclair, and Upland for a commuter rail system or potentially a combination of commuter and freight rail service. Due to the fact that the project utilizes existing railroad right-of-way and is not changing the use of the property from its original railroad function the potential for adverse effects to visual resources, overall, is minimal.

3-17.1.1 Pasadena

The proposed LRT project would occur within the existing center right-of-way of I-210 (Foothill Freeway). The existing Sierra Madre Villa station includes the train platform/station and catenary system in the median of I-210 to the west of the station. The proposed extension would be in the center of the freeway to the east of the existing station and will be seen chiefly by motorists on the freeway. Concrete block soundwalls are present on both sides (north and south) and serve to block views across the top of the freeway from the adjoining neighborhoods as well as views from the freeway to the surrounding neighborhood and the distant San Gabriel Mountains (north).

3-17.1.2 Arcadia

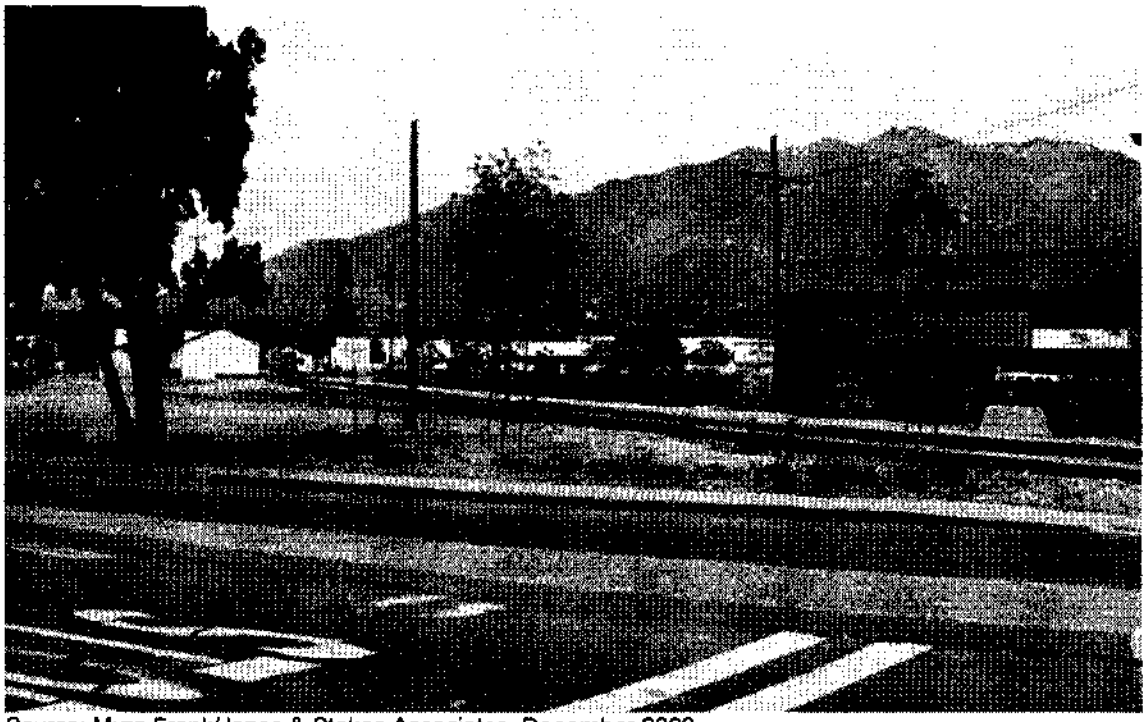
The proposed project would leave the freeway right-of-way in Arcadia, briefly traversing the northern edge of an attractive Post-World War II residential subdivision and Newcastle Park (north of W. Colorado

Boulevard), while gradually transitioning from the elevation at the freeway (elevated alignment) to an at-grade elevation at Santa Anita Avenue. To the west of Newcastle Park, the right-of-way exists to the rear of/and in close proximity to houses. In this particular location, the trains would overlook backyards and passengers could potentially peer inside a small number of houses that directly abut the railroad right-of-way. Along the north and east borders of Newcastle Park the grade of railroad bed rises for the crossing of W. Colorado Boulevard atop an attractive Art Deco-style overpass (**Figure 3-17.1**). At Santa Anita and W. Colorado Boulevard the railroad right-of-way enters Arcadia's old commercial-industrial district, which is developed chiefly with one and two-story, mid-Twentieth and Late Twentieth century buildings of disparate design. Due to its lack of visual coherence, this neighborhood is not of architectural/visual interest. It contains neither documented historic buildings, nor designated/proposed scenic highways or scenic vistas. It is also a local redevelopment area where new mid- and long-term development governed by the City's current urban design guidelines will bring parcel consolidation and demolitions (**Figure 3-17.2**).

FIGURE 3-17.1: ARCADIA, RAILROAD CROSSING, AT W. COLORADO BLVD.

Source: Myra Frank/Jones & Stokes Associates, December 2003.

FIGURE 3-17.2: ARCADIA, PROPOSED STATION SETTING, VIEW W. ACROSS FIRST STREET



Source: Myra Frank/Jones & Stokes Associates, December 2003.

Gold Line Phase II would introduce catenaries (light rail alternatives) approximately 12 feet above track level and new metal security fencing (along the railroad right-of-way) as new visual elements. In addition, to retrofitting existing railroad bridges an aerial station over N. First Street (at Santa Clara Street) is proposed as one of three possible station alternatives under consideration (Option B). This structure would reach 30 feet at its highest point. It should be noted that the City of Arcadia has voiced general concerns that catenary placement and other design features not adversely affect views and vistas. Conformance with local design standards is anticipated however.

3-17.1.3 Monrovia

Project traverses nearly flat terrain in a primarily residential neighborhood as it angles along a southeasterly alignment toward Duarte Road (**Figure 3-17.3**). It enters an industrial/commercial district along Duarte Road west and east of Myrtle Avenue. Residences and commercial buildings are somewhat more buffered from the railroad right-of-way than in Arcadia (i.e., north of Colorado Boulevard). The overwhelming majority of the development adjoining the railroad right-of-way is the product of the recent past. With the exception of the ATSF Railroad Depot other development adjoining the railroad right-of-way is of the recent date and/or is not thought significant in architectural/historical terms. The key visual resources within the APE are the Spanish Colonial Revival Style Monrovia Santa Fe Train depot (which abuts the ATSF Railroad tracks on the north, near the northwest corner of Myrtle Avenue and Duarte Road)(**Figure 3-17.4**); and an oleander hedgerow along the north side of Duarte Road east of Myrtle Avenue. The hedgerow is an important visual resource because it screens the railroad tracks and train traffic from view. This feature extends from Monrovia eastward into the City of Duarte and is likely to removed in the Triple Track LRT Alternative. The most notable visual resource just outside the APE, on the south side of Duarte Road, is the Live Oak Memorial Park cemetery (at California Avenue).

3-17.1.4 Duarte

Project's railroad right-of-way borders a commercial-industrial district along the north side of Duarte Road dating chiefly from the 1960s and later. Across Duarte Road to the south is a combination of commercial, single-family residential uses, and the large campus of the City of Hope. A tall oleander hedgerow approximately 9-10 feet tall extends east from Monrovia through much of Duarte, screening much of the railroad track area from view from the south along Duarte Road (including the City of Hope) (**Figure 3-17.5**). Although oleander is a very common plant material in Southern California the hedgerow is a significant visual resource because of its role in screening the railroad corridor.

3-17.1.5 Irwindale

Project traverses a rolling sparsely developed area that is defined geographically by the San Gabriel River/Flood Control Basin, and its chaparral landscape dotted with river rock. It follows an alignment along the northern border of the Santa Fe Dam Flood Control Basin/Recreation Area and Miller Brewery property (**Figure 3-17.6**). To the west of the Miller Brewery property is the potential LRT maintenance facility/yard site. Santa Fe Dam is a key visual landmark in Irwindale. Adjoining the railroad right-of-way and the proposed station just west of N. Irwindale Avenue is the 210 (Foothill) Freeway, which dominates the proposed station setting visually. On the border of Santa Fe Dam, to the west, is another visually dominant feature in this setting: a large freeway interchange that connects the 210 Freeway and 605 (San Gabriel River) Freeway (**Figure 3-17.7**). The San Gabriel River/Flood Control Basin is not designated or proposed for designation as a scenic corridor but does afford medium-quality views of the San Gabriel Mountains (north).

FIGURE 3-17.3: MONROVIA, RAILROAD RIGHT-OF-WAY, SE FROM FIFTH AVE.

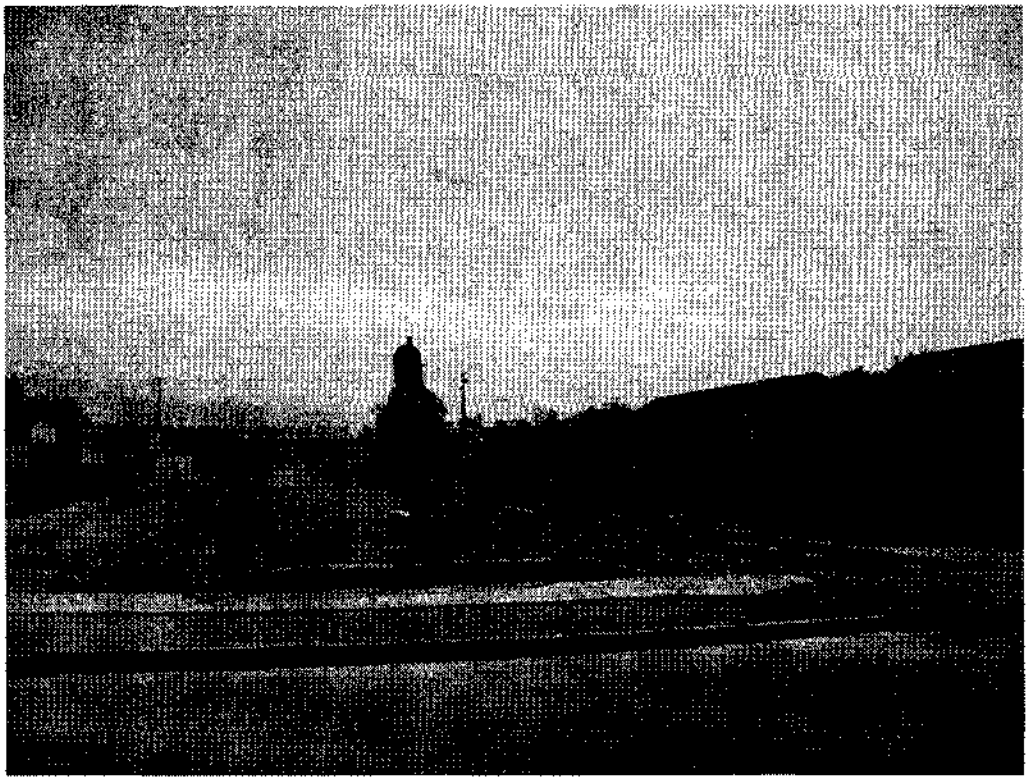
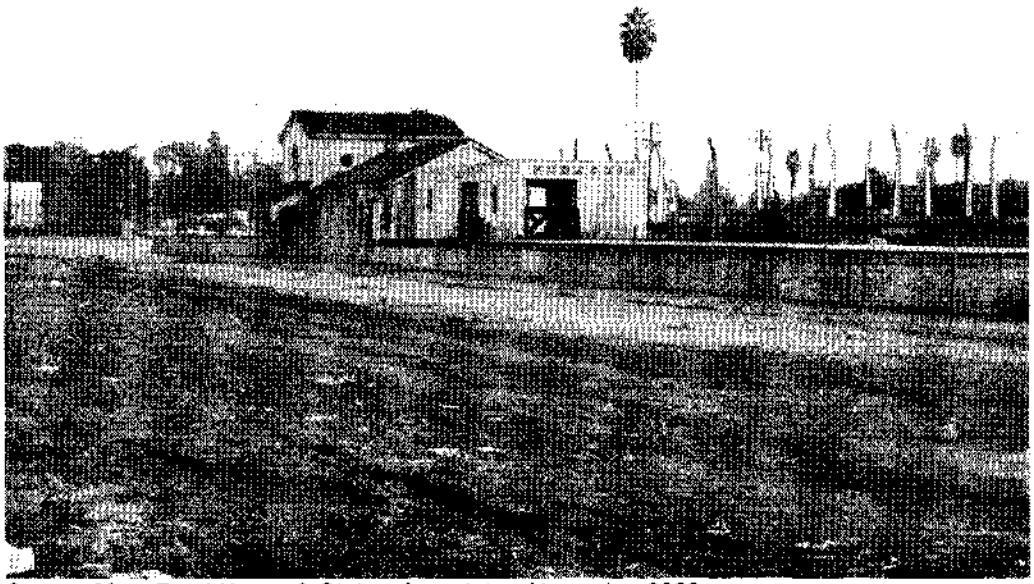


FIGURE 3-17.4: MONROVIA, ATSFRR DEPOT, VIEW E TOWARD MYRTLE AVE.

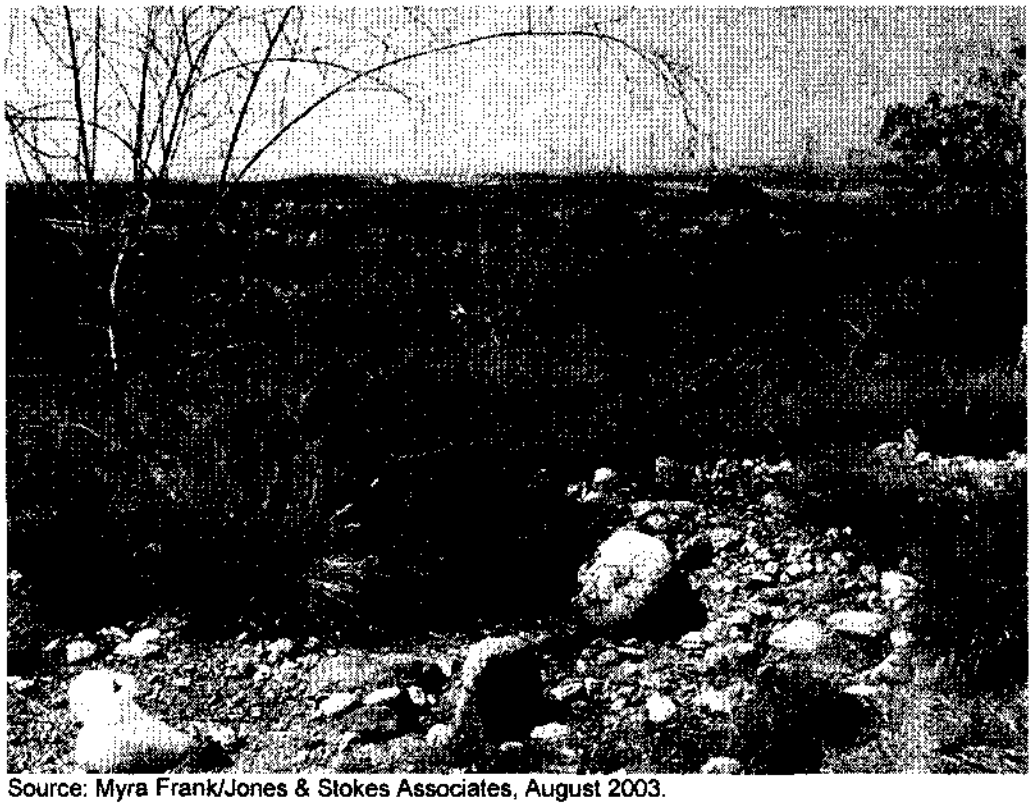


Source: Myra Frank/Jones & Stokes Associates, November 2003.

FIGURE 3-17.5: DUARTE, TYPICAL OLEANDER HEDGEROW, DUARTE ROAD, VIEW NE

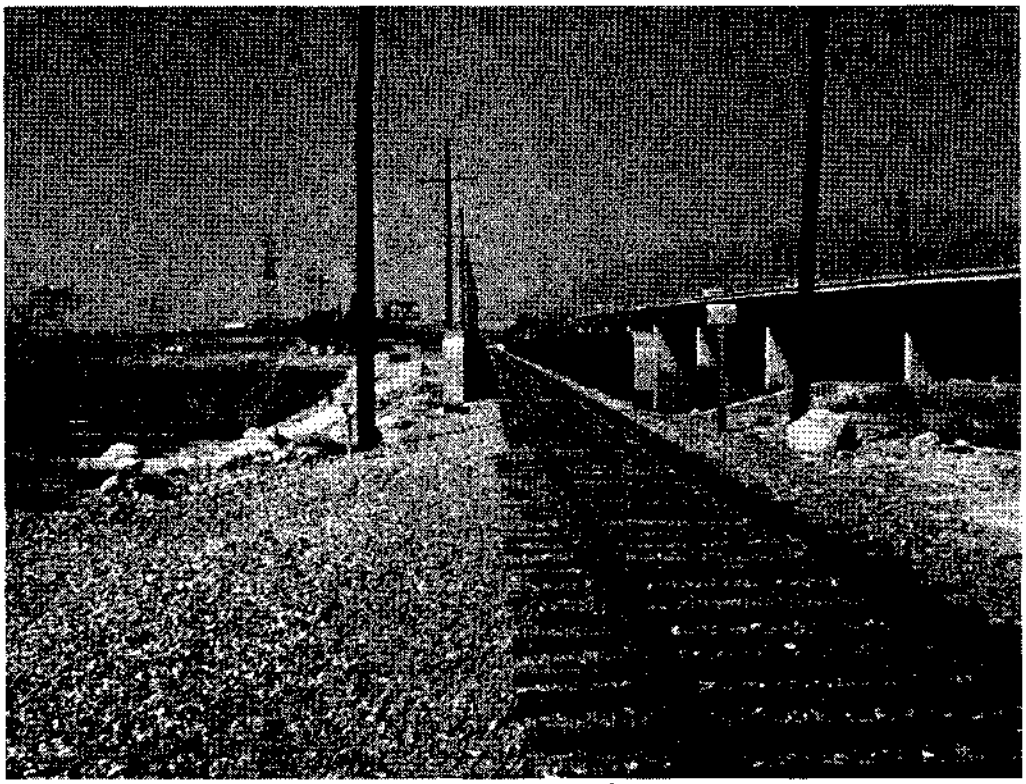
Source: Myra Frank/Jones & Stokes Associates, November 2003.

FIGURE 3-17.6: IRWINDALE, OVERVIEW SAN GABRIEL RIVER BASIN



Source: Myra Frank/Jones & Stokes Associates, August 2003.

FIGURE 3-17.7: IRWINDALE, RAILROAD RIGHT-OF-WAY AND FREEWAY, VIEW W.



Source: Myra Frank/Jones & Stokes Associates, August 2003.

The City of Irwindale has formulated design standards stipulating that all new commercial and industrial development convey a Spanish or Mission Revival design theme. This should inform the architectural program for the design of the station, maintenance facility, and parking facility proposed in Irwindale.

3-17.1.6 Azusa

Project traverses an urbanized setting featuring commercial, industrial, and residential development—including a number of potential historic buildings in Downtown Azusa. In the western portion of the city the railroad right-of-way is fairly wide. Unattractive industrial-commercial development occurs along the south. Azusa Depot (1946) is an attractive Streamlined Modern design, which appears eligible for the California Register of Historical Resources and, therefore, should be considered a visual resource (**Figure 3-17.8**). The preferred Gold Line Station location would be north and just east of the Depot (approximately 180 feet east of N. Azusa Avenue). As with most of the proposed Gold Line corridor views of the San Gabriel Mountains (north) are the primary visual resource in this locale, along with the presence of historic buildings outside the APE in scattered locations nearby (viz., Azusa Civic Center, Azusa Historical Museum building)(**Figure 3-17.9**). In the eastern portion of Azusa and western portion of Glendora is the Monrovia Nursery, which straddles three governmental jurisdictions, including unincorporated Los Angeles County land (**Figure 3-17.10**). The Nursery is a significant agricultural resource but is not a significant visual resource. Conversion of the property to mixed-use medium-density residential-commercial development is proposed. Adjoining it on the south is the Covina Canal, an artifact of the area's agricultural history. Local water district plans call for the near-term undergrounding of the canal, so no visual effect to it from the Gold Line project is anticipated.

FIGURE 3-17.8: AZUSA, ATSF RAILROAD DEPOT, VIEW SW

Source: Myra Frank/Jones & Stokes Associates, December 2003.

FIGURE 3-17.9: AZUSA, VIEW SE FROM RAILROAD RIGHT-OF-WAY AT ALAMEDA

Source: Myra Frank/Jones & Stokes Associates, December 2003.

FIGURE 3-17.10: AZUSA, VIEW E (ADJ. NURSERY) TOWARD AZUSA-CITRUS STATION SITE

Source: Myra Frank/Jones & Stokes Associates, August 2003.

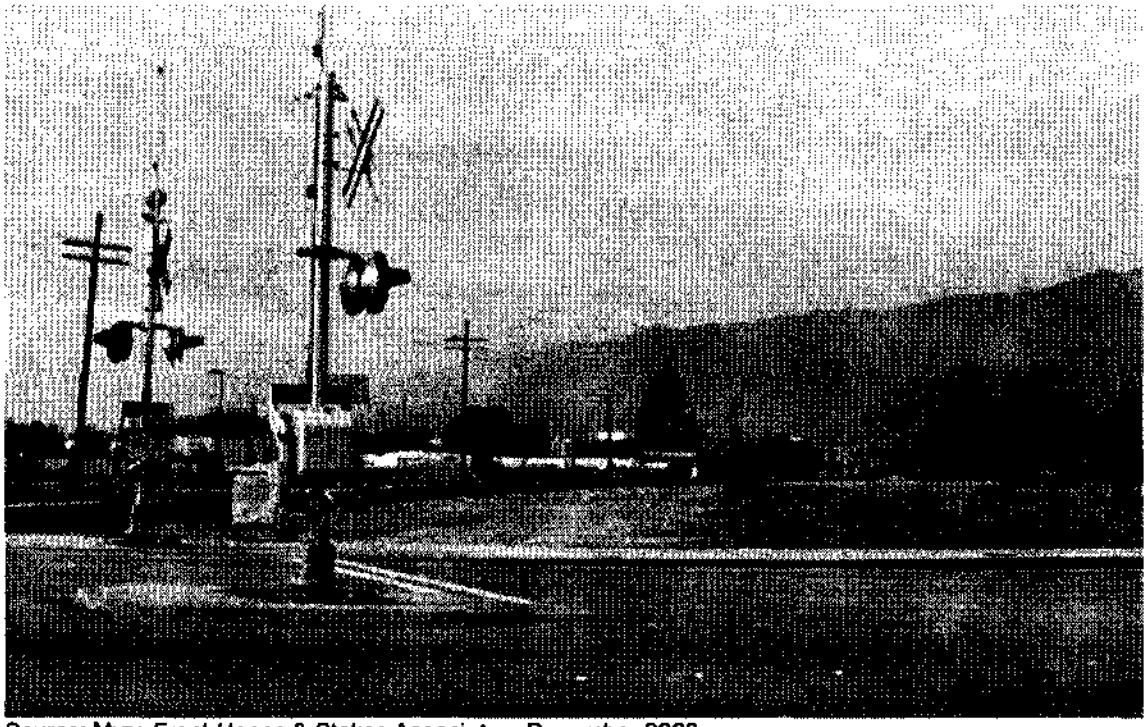
3-17.1.7 Glendora

Adjoining the proposed Azusa-Citrus Station site are nursery and residential and institutional uses. Short-to-medium-term conversion of the nursery property to residential-commercial development is anticipated however, and new grade separated street improvements/overpasses are proposed at Palm Drive and Citrus Avenue. Further east, the project traverses a neighborhood in which community-scaled commercial and residential uses predominate. In the urbanized setting adjacent to the proposed train station at Glendora Avenue, development includes community-scaled retail commercial to the south, and a post office to the north that dates from the recent past (c 1980)(**Figure 3-17.11**). A late nineteenth and early twentieth century residential neighborhood (containing potential historic districts) is located to the east and northeast across Glendora Avenue, and should be considered a visual resource even though located outside the APE (**Figure 3-17.12**). Views of the San Gabriel Mountains (north) and historic buildings in scattered locations are the primary scenic resources in this locale. However, there are no other designated/proposed scenic vistas or other scenic resources in this setting.

3-17.1.8 San Dimas

In the western portion of the city (at Lone Hill Avenue above Gladstone Street) the proposed project right-of-way traverses an urbanized setting marked first by a regional-scaled retail/automobile showroom district and light industrial development, and next, by single-family residential uses—dating overwhelmingly from the recent past. There are stretches of open space in the South Hills area in which native vegetation occurs, creating a sylvan atmosphere (from San Dimas Wash north). The old San Dimas

FIGURE 3-17.11: GLENDORA, SETTING OF PROPOSED STATION, VIEW W. FROM GLENDORA AV.



Source: Myra Frank/Jones & Stokes Associates, December 2003.

FIGURE 3-17.12: GLENDORA, VIEW E ACROSS GLENDORA AVENUE OF NEIGHBORHOOD ADJOINING PROPOSED STATION

Source: Myra Frank/Jones & Stokes Associates, December 2003.

business and residential district, which includes early Twentieth century buildings, is located along Bonita Avenue, between Cataract and San Dimas Avenues. An "Out West/Frontier" design theme has been adopted (simple board-batten, wood-sided, and brick architectural treatments)(**Figure 3-17.13**). The adjoining neighborhood includes an old citrus packinghouse (at Cataract and Bonita Avenues) and Late Victorian and early twentieth century dwellings (outside the APE). Two potential station siting options are under consideration (Triple Track configuration). In Option One, the station would be sited between Cataract Avenue and Acacia Street adjacent to the packinghouse property and catercorner (across Bonita Avenue) from the historic San Dimas Railroad Depot and its cluster of camphor and native oak trees (visual resources)(**Figure 3-17.14**). In Option Two, the station would adjoin the Depot (side-platform configuration). Catenaries, safety fencing, and the platforms themselves would be new visual elements in this setting, which has a chiefly early twentieth century character and medium-high visual quality. However, these new visual elements would not strongly contrast with the setting or bring a dramatic departure, in design terms, from the railroad's historic/on-going function.

3-17.1.9 La Verne

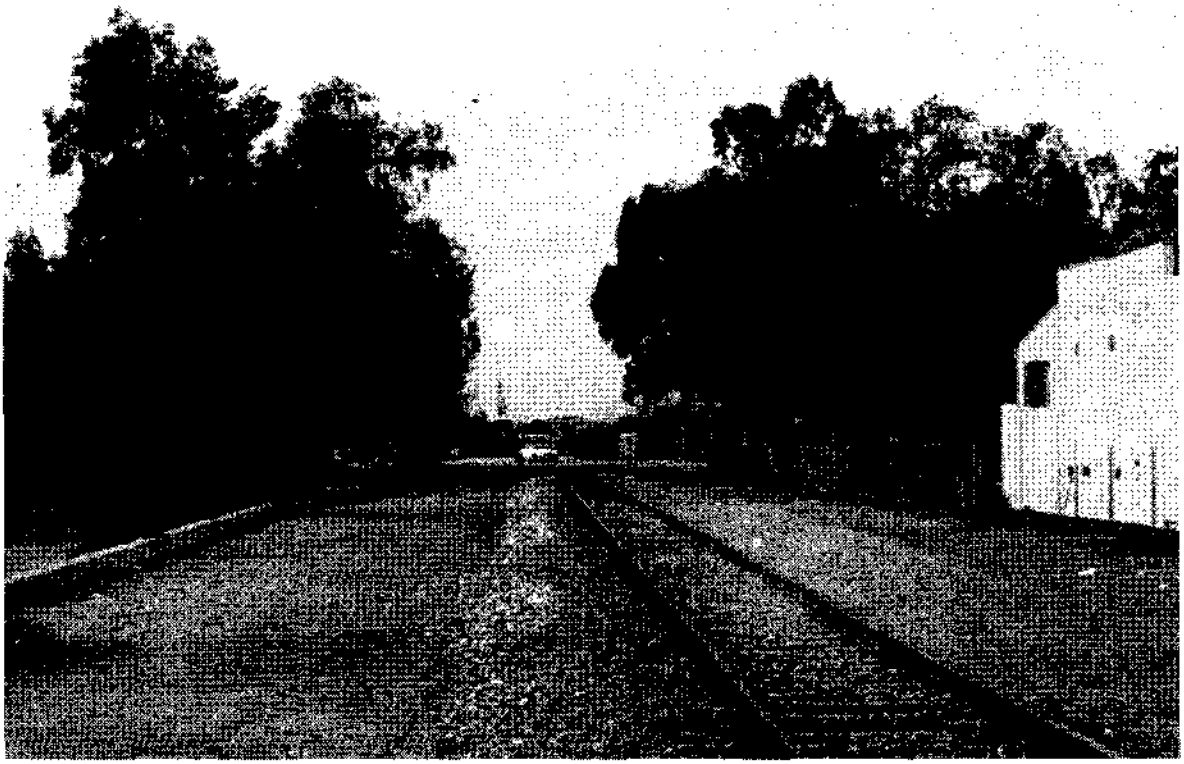
In this urbanized setting, single-family residential and educational institutions are the primary uses west of D Street, including Damien High School and La Verne University. At about D Street, the old La Verne business and residential district adjoins the railroad right-of-way (north). Numerous buildings in this setting—although outside the APE—are locally listed historic resources. The historic district, generally located one block north of the railroad right-of-way, consists chiefly of twentieth century buildings constructed at different time periods. The identifying features that define the historic district are outside the APE and would not be adversely affected by the proposed project, which is potentially proposed at E Street and Arrow Highway—a location that is not visually sensitive (**Figure 3-17.15**). Along the southern border of the railroad right-of-way along Arrow Highway is a non-continuous row of Deodar cedar (*Cedrus deodara*) trees planted to provide visual screening of the existing railroad right-of-way (**Figure 3-17.16**). Certain of the project alternatives (e.g., the Triple-Track Configuration) could potentially require removal of majority of the existing trees both along the narrowest portions of the right-of-way west of the proposed E Street

FIGURE 3-17.13: SAN DIMAS, ATSF DEPOT AND OLD BUSINESS DISTRICT, VIEW SW

Source: Myra Frank/Jones & Stokes Associates, December 2003.

Station site (**Figure 3-17.17**). The City of La Verne "Arrow Corridor Specific Plan" (per the June 2001 update) specifies the Deodar cedar tree and Crepe Myrtle as the Master Plan street trees along the north side of Arrow Highway. The tree row is a significant visual resource because of its role in screening the railroad corridor.

FIGURE 3-17.14: SAN DIMAS, VIEW NW FROM ATSF DEPOT TO LRT STATION SITE

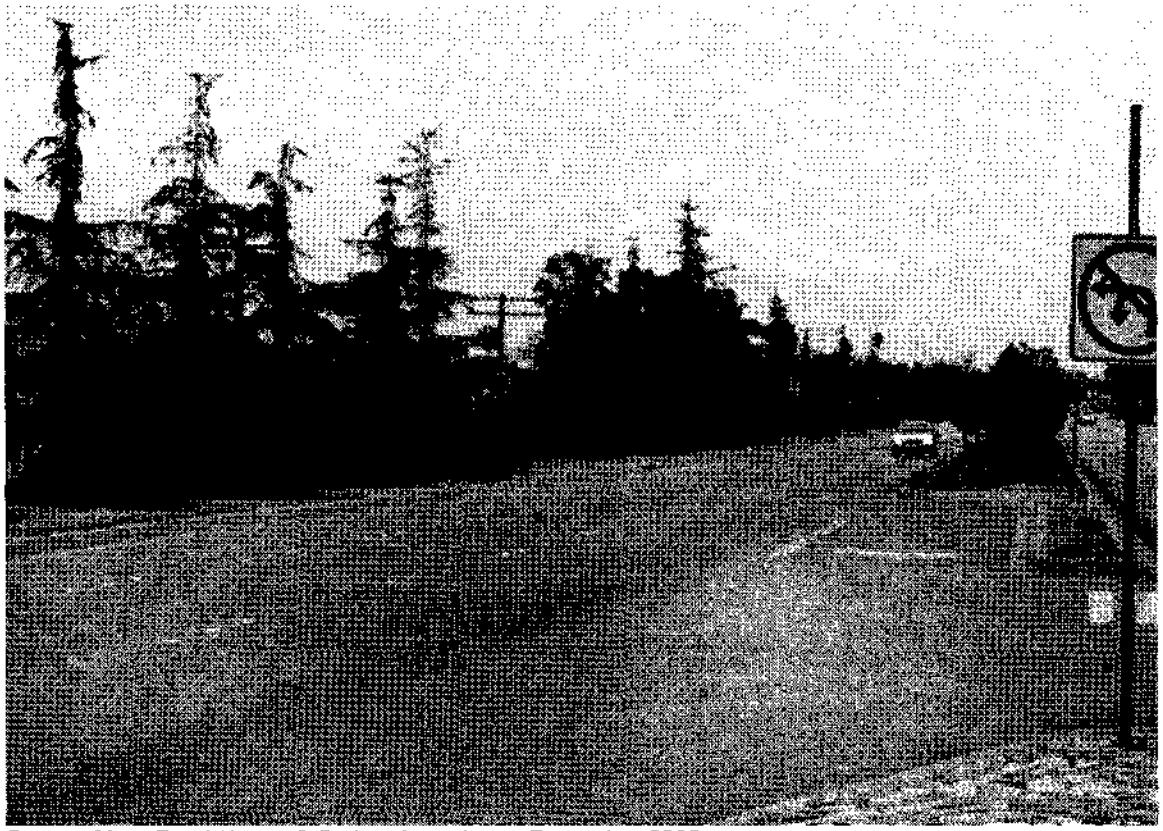


Source: Myra Frank/Jones & Stokes Associates, December 2003.

FIGURE 3-17.15: LA VERNE, VIEW SE FROM E STREET N OF ARROW HIGHWAY

Source: Myra Frank/Jones & Stokes Associates, December 2003.

FIGURE 3-17.16: LA VERNE, ROW OF DEODAR CEDARS, N. SIDE OF ARROW HWY., VIEW E.



Source: Myra Frank/Jones & Stokes Associates, December 2003.

FIGURE 3-17.17: LA VERNE, VIEW E ALONG RAILROAD RIGHT-OF-WAY FROM E STREET

Source: Myra Frank/Jones & Stokes Associates, December 2003.

(NEPA)/significant impact (CEQA) if the larger cedars are not retained when possible to do so and suitable replacement landscape screening is not proposed.

3-17.1.10 Pomona

The proposed alignment for the project traverses an urbanized setting in which single-family residential and neighborhood and community-scale commercial uses predominate (east). In the western portion of the city, at Garey Avenue and continuing west, the right-of-way traverses an industrial park comprised of concrete tilt-up constructed light manufacturing and commercial buildings of recent date (c 1990)(**Figure 3-17.18**). To the north and northeast of the railroad right-of-way are earlier mid-twentieth century industrial facilities on large lots. In most options, the station is proposed approximately 1000 feet west of Garey (adjoining Santa Fe Street) at/or north of the existing Metrolink Train Station (**Figure 3-17.19**). Concrete industrial buildings of recent date and the double-wide expanse of train tracks dominate this setting visually. Typical views north to the San Gabriel Mountains can be glimpsed at this location, however, there are no designated/proposed scenic vistas or other scenic resources in this setting, except the nearby ATSF train depot (1941)(located east, at Garey Avenue). This is the only noteworthy historical/visual resource in this locale, as the other nearby buildings are typical, quite ordinary suburban industrial/commercial development from the recent past. In one of the Triple Track station siting options (Option F) the station would be located 150 feet east of Towne Avenue rather than at Garey Avenue. Industrial and commercial uses predominate adjoining the Towne Avenue station site, with some single-family residential uses occurring to the south. With the exception of medium-value views of the mountains, no scenic resources were identified in this setting. No effects to visual resources, therefore, are expected to result from the Towne Avenue station siting option.

3-17.1.11 Claremont

Land use along the portion of the proposed project right-of-way west of Indian Hill Avenue includes residential and twentieth century industrial structures (under conversion to institutional and commercial

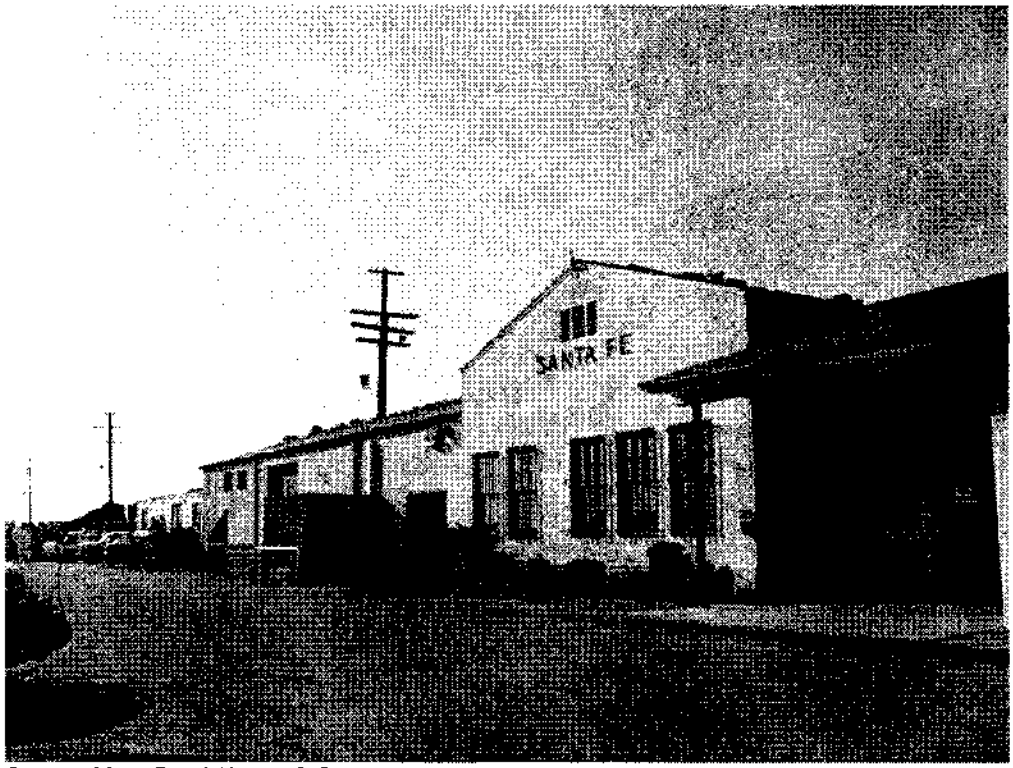
uses). East of Indian Hill Avenue there is a mix of commercial, residential, and institutional buildings–the institutional buildings being chiefly associated with Pomona College. The proposed LRT station occurs in a densely developed setting that includes Claremont Villas, a three-story senior housing facility (south) and a three-story office building (north). Both buildings are products of the recent past however (**Figure 3-17.20**).

Several historic buildings are located in the Claremont Village district in vicinity of the station outside the APE (chiefly across First Street to the north). Across Indian Hill Avenue to the west is a large vacant parcel (site of the proposed three-level parking structure) adjoined to the west by the large two-story College Heights Lemon Packinghouse (532 W. First St.). One of a small number of surviving early twentieth century citrus packing plants along the ATSF/BNSF Railroad corridor, it has been determined eligible for the National Register of Historic Places. Noteworthy among the historic buildings adjoining (east) the station is the National Register-listed old Claremont ATSF Railroad Depot (110 W. First St.)(**Figure 3-17.21**). Although Claremont Village, in general, is an area of high aesthetic quality (viz., architectural quality, abundant mature street trees) there are no designated or proposed scenic highways, view corridors, or scenic vistas in this neighborhood. Because of the trees and dense placement of buildings in Claremont Village there are only fleeting views of the San Gabriel Mountains (north)—an esthetic resource. The project poses a minimal effect to visual resources due in part to the presence of the existing Metrolink improvements at Claremont Station, as well as the intended conformance with local design standards in the architectural/landscape design treatment accorded the proposed parking structure, station. Nor would LRT-related improvements (viz., catenaries, safety fencing) potentially proposed along the SPRR alignment (e.g., Montclair North Station Option) pose an adverse/significant effect to visual resources.

FIGURE 3-17.18: POMONA, RAILROAD RIGHT-OF-WAY, VIEW W. TO METROLINK STATION

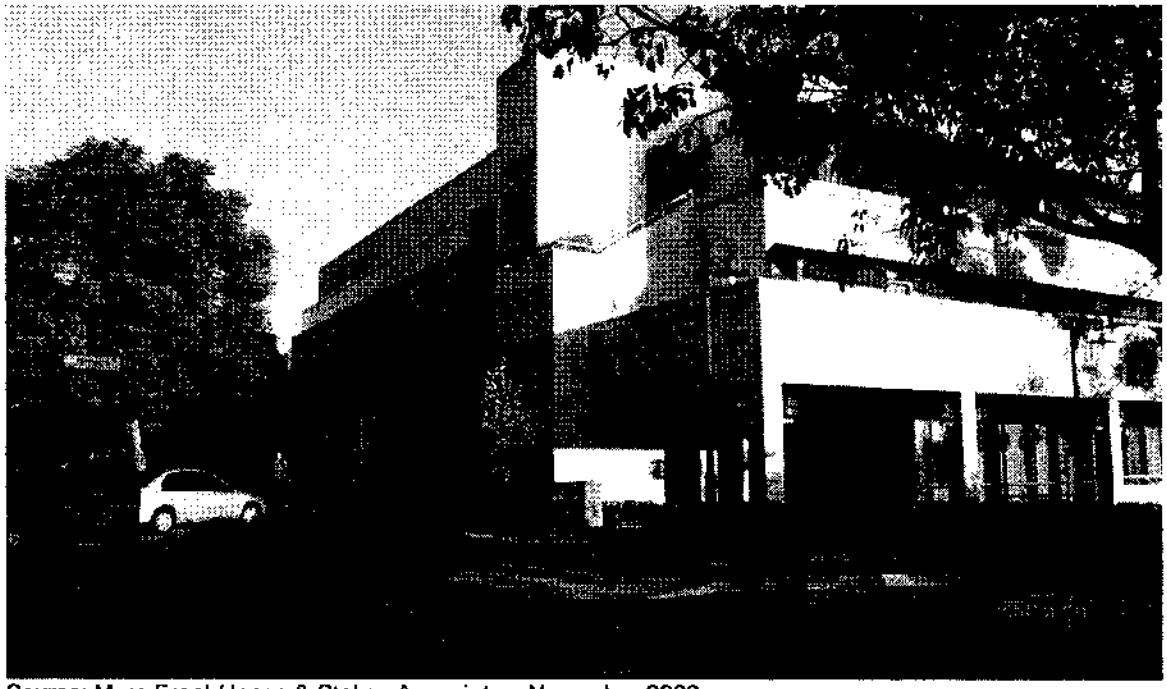
Source: Myra Frank/Jones & Stokes Associates, December 2003.

FIGURE 3-17.19: POMONA, ATSF RAILROAD DEPOT



Source: Myra Frank/Jones & Stokes Associates, August 2003.

FIGURE 3-17.20: CLAREMONT, OFFICE DEVELOPMENT ADJOINING RAILROAD STATION, VIEW E



Source: Myra Frank/Jones & Stokes Associates, November 2003.

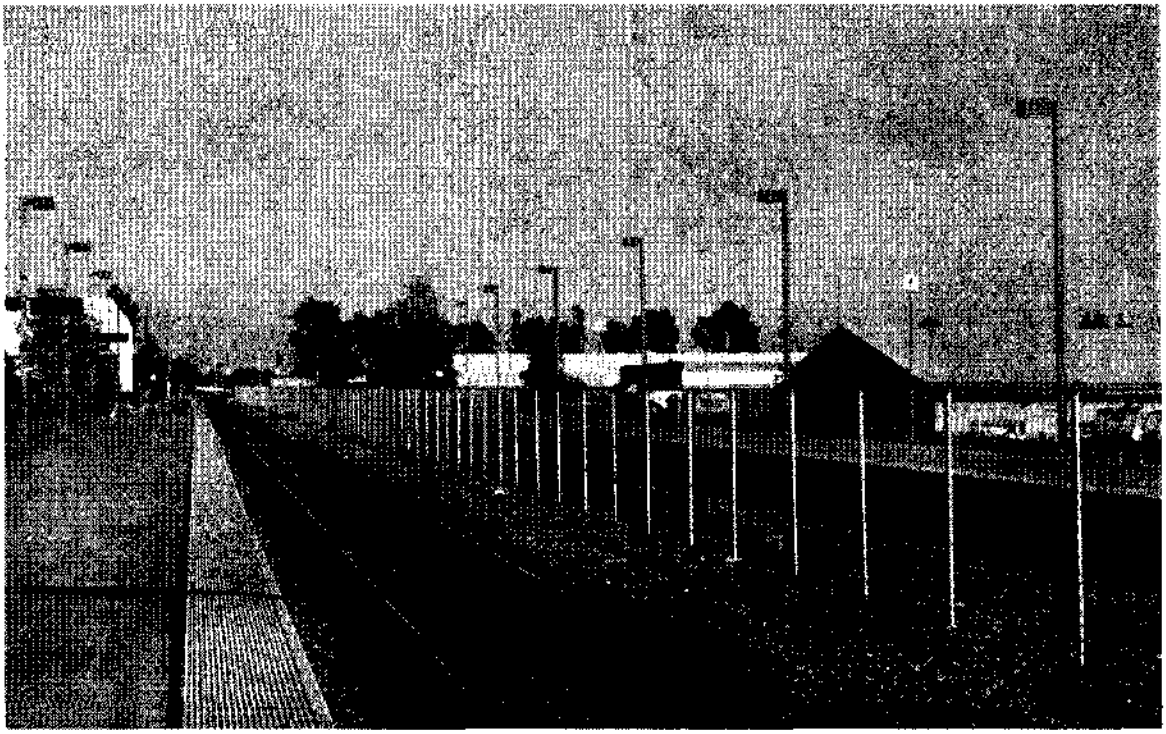
FIGURE 3-17.21: CLAREMONT, ATSF RAILROAD DEPOT

Source: Myra Frank/Jones & Stokes Associates, November 2003.

3-17.1.12 Montclair

The proposed alignment for the project traverses an urban setting developed with a diverse range of uses in which neighborhood- and community-scale retail shopping centers, industrial, rock quarrying/water catchment, and the Montclair Transcenter (multi-modal transit center)(circa 1990) are the chief land uses (**Figure 3-17.22**). The Montclair Transcenter property extends from Monte Vista Avenue (west) to Central Avenue (east, between the ATSF/BNSF Railroad right-of-way and Richton Street, north). It is developed with bus lanes, bus passenger shelters, a large surface parking lot, and a Metrolink train station. To the north is a large expanse of vacant chaparral dotted with river rock. In general, this neighborhood in Montclair is not aesthetically significant. There are no designated/proposed scenic corridors/vistas and no identified historic resources in the vicinity of either the North Station or South Station sites. Almost all the development adjacent to the proposed project rights-of-way dates from the recent past and is unimportant in architectural and landscape terms (**Figure 3-17.23**). Medium-value views of the San Gabriel Mountains (north)—the only aesthetic resource in this setting—would remain unimpaired by the proposed project.

FIGURE 3-17.22: MONTCLAIR TRANSCENTER, VIEW E ALONG RAILROAD RIGHT-OF-WAY

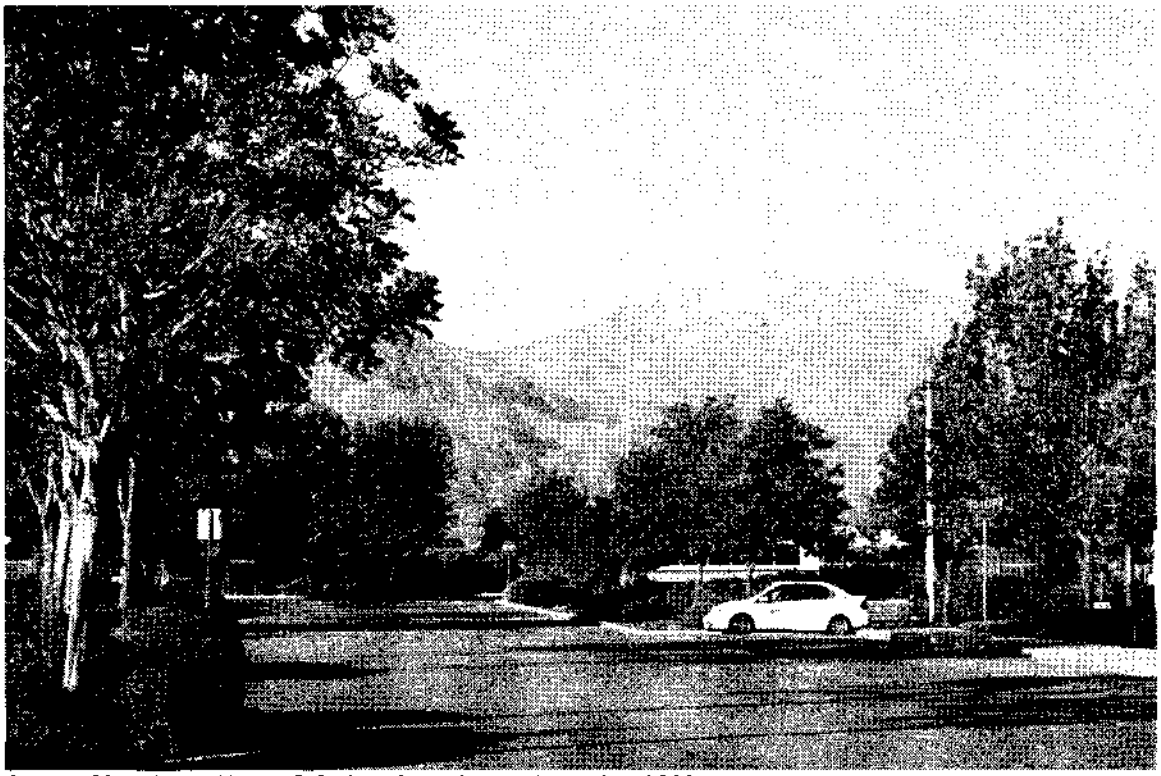


Source: Myra Frank/Jones & Stokes Associates, November 2003.

3-17.1.13 Upland

The potential "North Station" alignment (along the Southern Pacific Railroad right-of-way) for the project traverses a setting characterized almost exclusively industrial, rock quarrying/water catchment uses, as well as the Montclair Transcenter (multi-modal transit center)(circa 1990). This setting is of low visual quality. There are no designated/proposed scenic corridors/vistas, no identified historic resources in the vicinity of the North Station site, and views of the mountains of only medium value. Almost all the development adjacent to the proposed project rights-of-way dates from the recent past and is unimportant in architectural and landscape terms (Figure 3-17.23).

FIGURE 3-17.23: MONTCLAIR TRANSCENTER, VIEW N., "NORTH STATION SITE"



Source: Myra Frank/Jones & Stokes Associates, November 2003.

3-17.2 Environmental Impacts

3-17.2.1 Evaluation Methodology

The visual impact assessment follows the FHWA/CALTRANS guidelines for assessing visual impacts associated with transportation projects as outlined in *Environmental Impact Statement Visual Impact Discussion* (undated) and *Visual Impact Assessment for Highway Projects* (March 1981). The analysis is intended to satisfy the provisions of NEPA and CEQA with reference to visual impacts associated with transportation projects. NEPA states that it is the "continuous responsibility" of federal government "to use all practicable means to assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings." After the adoption of NEPA in 1969, the Council on Environmental Quality published NEPA implementation regulations. These regulations direct that the EIS include discussion of urban quality, historic and cultural resources, and the design of the built environment.

Visual Quality is one of the precepts used to analyze the aesthetic characteristics of a project on the surrounding environment. The FHWA *Visual Impact Assessment for Highway Projects Guidelines* utilize the criteria of vividness, intactness and unity in assessing visual quality. Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive patterns. Intactness is the visual integrity of the landscape and its freedom from encroaching elements. Unity is the visual coherence and compositional harmony of the landscape considered as a whole. Views of high visual quality have several of the following six characteristics:

- topographic relief
- a variety of vegetation
- rich colors
- impressive scenery
- unique natural features
- unique built features.

Viewer Sensitivity ratings were one of the key analytical tools employed in doing a visual assessment for this project. Residential viewers are generally thought to have a high level of sensitivity because of their desire to preserve an attractive environment near their homes, and due to the on-going long-term nature of their views. With the exception of persons driving for pleasure (sightseeing), motorists are thought to have a low level of sensitivity, generally speaking, due to the fact that their attention is directed chiefly on driving. Commercial/industrial occupants are thought to have a low-to-medium level of viewer sensitivity due to the focus on daily business activities and the often intermittent nature of views. Due to the fact that the project will utilize already extant railroad rights-of-way utilized at present and historically for railroad transportation functions, and because the improvements are minor in nature, viewer sensitivity ratings were expected to be low in a majority of the locations along the project alignments. In a small number of instances, when landscape screening is potentially proposed for removal (viz., Monrovia east of Myrtle Avenue, Duarte, La Verne) and due to the close proximity of historic buildings (viz., Monrovia, San Dimas), viewer sensitivity was rated high.

3-17.2.2 Impact Criteria

a. NEPA Impact Criteria

NEPA, and the Commission on Environmental Quality and FHWA Guidelines that were created to implement it, provide only general guidance on how to determine effects to visual resources. An action that would result in the demolition, or other substantial adverse change to aesthetically noteworthy and/or culturally significant resources would be considered an adverse effect under NEPA. After the visual character and quality of the project setting have been assessed the key question under NEPA would be:

- Does the proposed project introduces new visual elements that would strongly contrast or otherwise be incompatible with the character of the area if the area is of high quality, or has a sensitivity rating of medium to high?

Another secondary measure of impact associated with NEPA is the potential level of controversy posed by the proposed change to the visual resource. If the proposed change is likely to be controversial then the project is likely to have an adverse effect.

b. CEQA Impact Criteria

CEQA requires that a determination be made whether an impact is significant or not. The CEQA Checklist provides specific impact criteria under CEQA. In general, an effect to the environment is considered significant if any of the following conditions would result, either singly or in combination with each other from the proposed project:

- Substantially degrades existing visual character within the project setting, or;
- Damages significant visual resources (including trees/landscape features, rock outcroppings, historic buildings, etc.), or;
- Adversely affects a scenic vista or scenic view, or;
- Introduces substantial new shadow effects on sensitive users, or;
- Introduces substantial glare that would affect sensitive users, or;
- Creates substantial artificial light that would adversely affect nighttime views in the area.

3-17.2.3 Phase I

Phase I is that portion of the project within the cities of Los Angeles, South Pasadena and Pasadena that is already in place. No impacts to visual resources within the Phase I portion of the project would result from either the LRT Triple Track or LRT Double Track configuration because no new construction is proposed within the Phase I portion of the project. For this reason, no mitigation is required.

3-17.2.4 Phase II, Segment 1

The cities in Phase II, Segment 1 include Pasadena, Arcadia, Monrovia, Duarte and Irwindale. The LRT Triple Track configuration would include a freight track on the north side of the railroad right-of-way east through Monrovia, Duarte and Irwindale, but this would not continue west into Arcadia or Pasadena. Two tracks for LRT operation would be provided throughout Phase II, Segment 1. LRT stations in Phase II, Segment 1 would include the existing station at Sierra Madre Villa in Pasadena, and new stations in Arcadia, Monrovia, Duarte and Irwindale. Overall, the project has a low potential to adversely affect visual resources because it will occur within existing railroad right-of-way. The proposed project continues past and current railroad use, and brings only minor changes to the design setting. No scenic vistas would be adversely affected. Nor are adverse (significant) shade and shadow effects anticipated.

a. Pasadena

No adverse effects (NEPA)/significant impacts (CEQA) are anticipated as a result of the project, which will occur within the median of I-210 right-of-way, flanked by the east and west vehicle traffic lanes. Because the freeway is framed by continuous tall masonry soundwalls on both the north and south, the project will be seen only by motorists on the freeway and will not be seen by sensitive receptors from typical vantage points within the adjoining neighborhoods.

b. Arcadia

No adverse effects (NEPA)/significant impacts (CEQA) are anticipated as a result of the project. The key visual resource is a 1930's-era Art Deco style railroad bridge over Colorado Boulevard that could potentially qualify as an historic resource. However, the planned retrofit and rehabilitation would not pose an adverse (NEPA)/significant effect (CEQA) if carried out in conformance with the Secretary of the Interior's Standards for Rehabilitation. New visual elements include catenaries, safety fencing, station platforms, and a traction power substation. In Option B, an aerial station would be constructed including an overpass over N. First Street. However, none of the three station siting alternatives under consideration would adversely affect/pose a significant impact to scenic resources. The design setting lacks visual cohesiveness and is of low visual quality due to disparate design treatments. Also, no significant architectural resources exist in this setting. Nor would scenic views/vistas be affected because

there are no noteworthy, designated and/or proposed scenic vistas at this location (e.g., such as views north of the San Gabriel Mountains). No adverse shade and shadow effects are anticipated as a result of the aerial station/overpass alternative (Option B). Although no mitigation is required, project conformance with City design guidelines (viz., station architectural treatments, color selection, traction power substation architectural treatments) is anticipated. Accordingly, no mitigation is required.

c. Monrovia

Only one potentially adverse effect (NEPA)/significant impact (CEQA) is anticipated as a result of the project. A majority of the development adjoining the railroad right-of-way is the product of the recent past and is neither architecturally or historically significant. No designated and/or proposed scenic vistas exist in this setting. One visual resource adjoins the station at Monrovia: the National Register-eligible Spanish Colonial Revival style ATSF Railroad Depot (1925). This resource will be adversely affected by the project-related improvements—including construction of a multiple-level 500-vahicle parking garage (south, across the railroad right-of-way from the existing depot, adjoining the car wash). The design setting lacks visual cohesiveness and is of low visual quality due to disparate design treatments. Due to the spatial separation of the parking structure and the Depot the project would not pose an adverse effect to a historic/visual resource. Although no mitigation is required it is expected that the architectural design treatment accorded the project design features (viz., station architectural treatments, parking structure, traction power substation) will be sympathetic to the Railroad Depot as a visual resource. However, removal of the oleander screening hedge along the north side of Duarte Road (east from Myrtle Avenue), as may occur in the Triple Track Alternative, is potentially an adverse effect (under NEPA)/significant impact (under CEQA) to visual resources if an appropriate replacement landscaping treatment is not developed. Mitigation: Planting a new landscape buffer comparable in design with Gold Line Phase I landscape buffer improvements would mitigate the removal of existing landscaping.

d. Duarte

The open space found at the City of Hope and the oleander screening hedge along Duarte Road (north side) are the primary visual resources in Duarte in proximity to the project. Removal of the oleander screening hedge, as may occur in the Triple Track Alternative, would pose a potentially adverse effect (under NEPA)/significant impact (under CEQA) to a visual resource if an appropriate replacement landscape treatment is not developed. Mitigation: Planting a new landscape buffer comparable in design with the Gold Line Phase I landscape buffer improvements would mitigate to a level of insignificance the effect of removing the existing landscaping.

e. Irwindale

No adverse effect (under NEPA)/significant impact (under CEQA) to visual resources would result from the project within the city of Irwindale. There are no important visual resources in this setting and no scenic vistas (designated and/or proposed). Accordingly, no mitigation is required.

Though not required for mitigation purposes, conformance with City design guidelines is anticipated.

3-17.2.5 Phase II, Segment 2

Phase II, Segment 2 cities include Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The LRT Triple Track and LRT Double Track options would include a freight track on the south side of the railroad right-of-way through these cities. With the exception of

Montclair/Upland, new LRT stations would be constructed in each city. Overall, the project has a low potential to adversely affect visual resources because it will occur within existing railroad right-of-way, continues past and current railroad uses, and brings only minor changes to the design setting. Project impacts would not be adverse (under NEPA)/significant (under CEQA) in the cities of Azusa, Glendora, Pomona, San Dimas, Claremont or Montclair.

a. Azusa

Minor design changes are proposed within the existing rights-of-way (viz., safety fencing, catenaries, traction power substations). Substantial changes to the visual character or visual quality of the project setting will not occur as a result of the project. Therefore project effect/impacts to visual resources would not be adverse (under NEPA)/significant (under CEQA).

b. Glendora

Minor design changes are proposed within the existing rights-of-way (viz., safety fencing, catenaries, traction power substations, development of a new surface parking lot). Substantial changes to the visual character or visual quality of the project setting will not occur as a result of the project. Therefore project effects/impacts to visual resources would not be adverse (under NEPA)/significant (under CEQA).

c. San Dimas

Minor design changes are proposed within the existing rights-of-way (viz., safety fencing, catenaries, traction power substations, possible development of new surface parking facilities). However, these new visual elements would not strongly contrast with the historic buildings found in the station setting, or bring about a dramatic departure, in design terms, from the railroad's on-going function. Therefore, significant changes to the visual character or visual quality of the project setting would not occur as a result of the project, and consequently, project effects/impacts to visual resources would not be adverse (under NEPA)/significant (under CEQA).

d. La Verne

With the possible exception of cedar tree removal along the north curb line of Arrow Highway in the Triple Track Alternative, no other substantial changes to the visual character or visual quality of the project setting are proposed. The trees proposed for removal are not mature ones, however, and if they were replaced with comparable new landscaping, consistent with that provided in Phase I of the Gold Line, the potential adverse effect to visual resources would be mitigated.

e. Pomona

Minor design changes are proposed within the existing rights-of-way (viz., safety fencing, catenaries, traction power substations). Substantial changes to the visual character or visual quality of the project setting will not occur as a result of the project. Therefore project impacts to visual resources would not be adverse (under NEPA)/significant under CEQA). Accordingly, no mitigation is required.

f. Claremont

The Claremont Village portion of this setting east of Indian Hill Avenue possesses high visual quality. However, only minor design changes are proposed within the existing rights-of-way (viz., station architectural treatment, safety fencing, catenaries, traction power substations) adjoining the existing Metrolink train station. The three-level parking structure would be the most intensive design change proposed in Claremont. The structure would be erected west of Indian Hill Avenue (bordering, but outside, Claremont Village) adjoining the Corona-College Heights Lemon Packinghouse—a two-story warehouse of utilitarian design eligible for the National Register. Conformance of the parking garage architectural treatment with City design guidelines is proposed. Overall, when the proposed parking structure and design changes proposed for the station within the rights-of-way are considered together, substantial changes to the visual character or visual quality of the project setting will not occur as a result of the project. Therefore, project impacts to visual resources would not be adverse (under NEPA)/significant (under CEQA), and mitigation would not be required.

g. Montclair

Minor design changes are proposed within the existing rights-of-way (viz., safety fencing catenaries, traction power substations). Substantial changes to the visual character or visual quality of the project setting will not occur as a result of the project, and are proposed within the boundaries of the extant multi-modal transit center (TransCenter). Therefore project impacts to visual resources would not be adverse (under NEPA)/significant (under CEQA). Accordingly, no mitigation is required.

h. Upland

In the "North Station Alternative" minor design changes are proposed within the existing rights-of-way and within the boundaries of the extant multi-modal transit center (TransCenter). Moreover, the setting in Montclair and Upland adjoining the TransCenter is of low visual quality. Therefore project impacts to visual resources would not be adverse (under NEPA)/significant (under CEQA)

3-17.2.6 Construction-Period Impacts

a. No Build Alternative

The No Build Alternative for Gold Line Phase II, in conformance with FTA definitions, represents the baseline case consisting of existing and committed elements of the region's transportation plan, and assumes that no extension beyond Gold Line Phase I would be built in the San Gabriel Valley. The No Build Alternative includes all highway, transit, and new smart street and arterial improvement projects that the region and MTA expect to be in place by the year 2025. Transit projects include bus service and commuter rail improvements, and construction of the Eastside Light Rail Line. Smart street projects potentially include synchronization of traffic signals, on-street parking removal, frontage road and grade separation construction and key intersection street improvements to improve traffic flow. Highway improvements include enhancements of existing roadways as well extensions to certain freeways (viz., Freeway Routes 30/210 and 215/15).

Construction-Period Impacts to visual resources in the No Build Alternative would be extremely limited, and would only potentially occur when demolition and significant new construction are proposed; for example, as part of frontage road/grade separation construction, and freeway extensions. Such impacts might include installation of barricading/fencing, temporary traffic detours, and placement of associated

construction equipment (viz., pile driving and trenching equipment, bulldozers, rollers, cranes, concrete trucks, pumping equipment, flatbed truck, and dump trucks), as well as some limited use of construction land easements. Limited, temporary land easements might also be utilized for staging construction. Such temporary visual impacts are unlikely to be adverse (NEPA)/significant (CEQA).

The more typical projects associated with this alternative, such as re-striping curbing, recalibration of traffic lights, bus service changes, would not result in impacts to visual resources on either a short-term (as in the construction process) or longer-term basis. Construction activities would be governed by all applicable local, and state regulations, as well as general laws for building and safety.

Phase I – The Cities Affected and the Effects

Construction related activities are not expected to affect visual resources in the Phase I cities.

Phase II, Segment 1 – The Cities Affected and the Effects

Effects/impacts to visual resources are not expected to be adverse (NEPA)/significant (CEQA) under the No Build Alternative.

Phase II, Segment 2 – The Cities Affected and the Effects

Effects/impacts to visual resources are not expected to be adverse (NEPA)/significant (CEQA) under the No Build Alternative.

b. Transportation System Management (TSM) Alternative

The Transportation System Management (TSM) Alternative enhances bus service in the Phase II portion of the corridor communities, and more generally within the San Gabriel Valley, by providing or improving connecting service to the Phase I Gold Line station at Sierra Madre Villa, as well as increasing peak period and off-peak period service frequencies to Downtown Pasadena. None of the project elements associated with the improvements to bus service proposed in this alternative are likely to affect visual resources.

Phase I – The Cities Affected and the Effects

None of the project elements associated with the improvements to bus service proposed in this alternative are likely to have an adverse effect (NEPA)/significant impact (CEQA) on visual resources.

Phase II, Segment 1 – The Cities Affected and the Effects

None of the project elements associated with the improvements to bus service proposed in this alternative are likely to have an adverse effect (NEPA)/significant impact (CEQA) on visual resources.

Phase II, Segment 2 – The Cities Affected and the Effects

None of the project elements associated with the improvements to bus service proposed in this alternative are likely to have an adverse effect (NEPA)/significant impact (CEQA) on visual resources.

c. LRT, Triple Track Configuration

The Triple Track has two light rail tracks and one freight rail track for most of the alignment length. Two light rail tracks would continue from the existing Sierra Madre Villa station to the terminus at Montclair. A single track freight rail track would extend from Monrovia, where the western-most freight customer is located, to the eastern border of the city of La Verne, where it would link up with the existing Metrolink track. Existing Metrolink track would have to be relocated within the right-of-way in order to accommodate the adding of the two light rail tracks. Due to the narrowness of the right-of-way the screening landscaping would likely have to be removed in a few of the segments, posing a potential effect to visual resources. The Full Build Alternative would be constructed during an approximate 8-10 year period, occurring simultaneously at several locations along the selected project route. Actual duration of construction activities will be dependent on such variables as final design details, contractor means and methods, and project funding. In all project alternatives, however, construction activities would be governed by all applicable local, state regulations, as well as general laws for building and safety. Working hours could be adjusted to meet special local requirements, and standard methods for controlling traffic impacts, noise, vibration, and dust would be implemented consistent with all applicable laws.

Phase I – The Cities Affected and the Effects

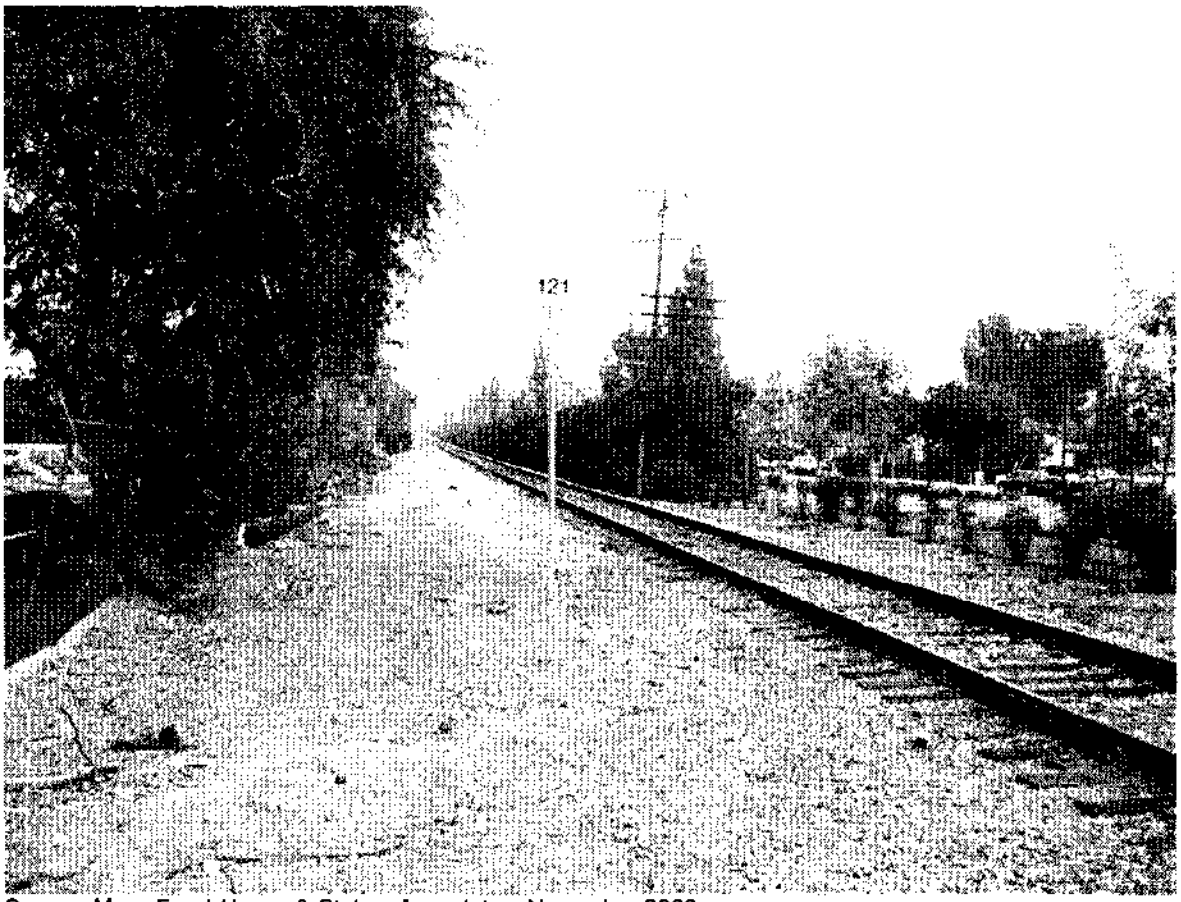
Phase I is that portion of the project within the cities of Los Angeles, South Pasadena and Pasadena that is already in place. No "spill-back" impacts to visual resources within the Phase I portion of the project would result from the LRT Triple Track configuration because no new construction is proposed within the Phase I portion of the project.

Phase II, Segment 1 – The Cities Affected and the Effects

Within the Phase II, Segment 1 portion of the project, construction impacts that would result from the LRT Triple Track Alternative may include limited demolitions of existing structures, taking up of and shifting rail tracks, removal and replacement of ballast, the installation of temporary barricades and scaffolding adjoining bridges/overpasses that are proposed for retrofit or replacement, installation of overhead contact electrification systems and communications/signaling systems, and some excavation adjoining railroad crossings for the installation of roadway improvements (e.g., signal gates). Construction-related activities would cause temporary visual disruptions related chiefly to the placement of barricades, construction security fencing, stock-piled building materials, scaffolding associated with overpass construction, excavation fencing, the laying of track and replacement ballast, and some demolition activities. Construction vehicles would also be present on a short-term basis (viz., pile driving and trenching equipment, bulldozers, rollers, cranes, concrete trucks, pumping equipment, flatbed trucks, dump trucks, and rail-mounted equipment). Accompanying the construction process would be temporary traffic detours, as well as the limited, temporary use of construction land easements to stage construction in places where railroad property staging capacity and/or access is the most constrained.

Additional impacts are anticipated in the cities of Monrovia and Duarte in the Triple Track alternative, due to the potential removal of the oleander screening hedgerow along Duarte Road east from Myrtle Avenue in Monrovia, through the city of Duarte (**Figure 3.17-24**). With the exception of railroad landscape screening removal, which is considered chiefly a longer-term project outcome, no adverse affect (NEPA)/significant impact (CEQA) to visual resources is expected to result.

FIGURE 3-17.24: DUARTE, RAILROAD LANDSCAPE SCREENING, E. AT BUENA VISTA AV.



Source: Myra Frank/Jones & Stokes Associates, November 2003.

Phase II, Segment 2 – The Cities Affected and the Effects

Within the Phase II, Segment 2 portion of the project, construction impacts that would result from the LRT Triple Track Alternative may include limited demolitions of existing structures, taking up of and shifting rail tracks, removal and replacement of ballast, the installation of temporary barricades and scaffolding adjoining bridges/overpasses that are proposed for retrofit or replacement, installation of overhead contact electrification systems and communications/signaling systems, and some excavation adjoining railroad crossings for the installation of roadway improvements (e.g., signal gates). Construction-related activities would cause temporary visual disruptions related chiefly to the placement of barricades, construction security fencing, stock-piled building materials, scaffolding associated with overpass construction, excavation fencing, the laying of track and replacement ballast, and some demolition activities. Construction vehicles would also be present on a short-term basis (viz., pile driving and trenching equipment, bulldozers, rollers, cranes, concrete trucks, pumping equipment, flatbed trucks, dump trucks, and rail-mounted equipment). Accompanying the construction process would be temporary traffic detours, as well as the limited, temporary use of construction land easements to stage construction in places where railroad property staging capacity and/or access is the most constrained.

Additional impacts are anticipated in the cities of the city of La Verne in the Triple Track alternative, due to the potential removal of a majority of the deodar cedar tree landscape screening along Arrow Highway, between roughly Walnut and Park Avenues. With the exception of railroad landscape screening removal, which is considered chiefly a longer-term project outcome, no adverse affect (NEPA)/significant impact (CEQA) to visual resources is expected to result.

Summary of Triple Track Impacts for Full Build Alternative

In the Triple Track Full Build Alternative affects/impacts to visual resources would occur within the cities of Monrovia and Duarte due to the likely removal of the oleander hedgerow that screens the railroad right-of-way (east of Myrtle Avenue through the city of Duarte), and in the city of La Verne due to the likely removal of the Deodar cedar tree landscape screening (roughly between Walnut and Park Avenues).

Summary of Triple Track Impacts for Build LRT Alternative to Maintenance Facility

In the Triple Track Build LRT to Maintenance Facility Alternative affects/impacts to visual resources would occur only within the cities of Monrovia and Duarte due to the likely removal of the oleander hedgerow that screens the railroad right-of-way (east of Myrtle Avenue through the city of Duarte).

d. LRT, Double Track Alternatives

In this alternative the freight interests along the corridor are expected to change to other modes of access. As a consequence, there would be only two (LRT) tracks along the corridor stretching between Sierra Madre Villa Station and the eastern border of the City of La Verne, where the existing Metrolink tracks share the right-of-way. Despite the narrowness of the right-of-way in some locations, it is anticipated that most landscape screening can be retained, including the nearly continuous oleander hedgerow in the cities of Monrovia and Duarte. As a result, no effects to visual resources are anticipated

Phase I – The Cities Affected and the Effects

Phase I is that portion of the project within the cities of Los Angeles, South Pasadena and Pasadena that is already in place. No "spill-back" impacts to visual resources within the Phase 1 portion of the project would result from either the LRT Triple Track or LRT Double Track configuration because no new construction is proposed within the Phase I portion of the project.

Phase II, Segment 1 – The Cities Affected and the Effects

Effects/impacts to visual resources are not expected to be adverse (NEPA)/significant (CEQA) in either the LRT on double tracks with no freight operations or LRT on double tracks with continuing freight service (time-separated) alternatives.

Within the Phase II, Segment 1 portion of the project, construction impacts that would result from the LRT Double Track Alternative may include limited demolitions of existing structures, taking up of and shifting rail tracks, removal and replacement of ballast, the installation of temporary barricades and scaffolding adjoining bridges/overpasses that are proposed for retrofit or replacement, installation of overhead contact electrification systems and communications/signaling systems, and some excavation adjoining railroad crossings for the installation of roadway improvements (e.g., signal gates). Construction-related activities would cause temporary visual disruptions related chiefly to the placement of barricades, construction security fencing, stock-piled building materials, scaffolding associated with overpass construction, excavation fencing, the laying of track and replacement ballast, and some demolition activities. Construction vehicles would also be present on a short-term basis (viz., pile driving and trenching equipment, bulldozers, rollers, cranes, concrete trucks, pumping equipment, flatbed trucks, dump trucks, and rail-mounted equipment). Accompanying the construction process would be temporary traffic detours, as well as the limited, temporary use of construction land easements to stage.

Phase II, Segment 2 – The Cities Affected and the Effects

Effects/impacts to visual resources are expected to be adverse (NEPA)/significant (CEQA) in either the LRT on double tracks with no freight operations or LRT on double tracks with continuing freight service (time-separated) alternatives.

Within the Phase II, Segment 2 portion of the project, construction impacts that would result from the LRT Double Track Alternative may include limited demolitions of existing structures, taking up of and shifting rail tracks, removal and replacement of ballast, the installation of temporary barricades and scaffolding adjoining bridges/overpasses that are proposed for retrofit or replacement, installation of overhead contact electrification systems and communications/signaling systems, and some excavation adjoining railroad crossings for the installation of roadway improvements (e.g., signal gates). Construction-related activities would cause temporary visual disruptions related chiefly to the placement of barricades, construction security fencing, stock-piled building materials, scaffolding associated with overpass construction, excavation fencing, the laying of track and replacement ballast, and some demolition activities. Construction vehicles would also be present on a short-term basis (viz., pile driving and trenching equipment, bulldozers, rollers, cranes, concrete trucks, pumping equipment, flatbed trucks, dump trucks, and rail-mounted equipment). Accompanying the construction process would be temporary traffic detours, as well as the limited, temporary use of construction land easements to stage.

Summary of Double Track Impacts for Full Build LRT Alternative

No adverse effects/significant impacts to visual resources are expected to occur in either the LRT on double tracks with no freight operations or LRT on double tracks with continuing freight service (time-separated) alternatives for Phase I and Phase II, Segments 1 and 2.

Summary of Double Track Impacts for Build LRT Alternative to Maintenance Facility

No adverse effects/significant impacts to visual resources are expected to occur in either the LRT on double tracks with no freight operations or LRT on double tracks with continuing freight service (time-separated) alternatives for Phase I and Phase II, Segment 1.

3-17.2.7 Long-Term Impacts

a. No Build Alternative

Long-term impacts to visual resources are not anticipated.

Phase I – The Cities Affected and the Effects

Phase I cities include Los Angeles, South Pasadena, and Pasadena. No long-term effects to visual resources in Phase I cities are anticipated in the No Build Alternative.

Phase II, Segment 1 – The Cities Affected and the Effects

Phase II, Segment 1 cities include Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. No long-term effects to visual resources in Phase II, Segment 1 cities are anticipated in the No Build Alternative.

Phase II, Segment 2 – The Cities Affected and the Effects

Phase II, Segment 2 cities include Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, and Montclair. No long-term effects to visual resources in Phase II, Segment 1 cities are anticipated in the No Build Alternative.

b. Transportation System Management (TSM) Alternative

Because the Transportation System Management (TSM) Alternative is promulgated on the enhancement of bus service, and minimal significant infrastructure-related construction/demolition would be required, long-term impacts to visual resources are not anticipated in the TSM Alternative.

Phase I – The Cities Affected and the Effects

Phase I cities include Los Angeles, South Pasadena, and Pasadena. None of the anticipated project elements associated with the improvements to bus service proposed in this alternative are likely to affect visual resources.

Phase II, Segment 1 - The Cities Affected and the Effects

Phase II, Segment 1 cities include Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. None of the anticipated project elements associated with the improvements to bus service proposed in this alternative pose long-term adverse/significant effects to visual resources.

Phase II, Segment 2 - The Cities Affected and the Effects

Phase II, Segment 2 cities include Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. None of the anticipated project elements associated with the improvements to bus service proposed in this alternative pose long-term adverse/significant effects visual resources.

c. LRT, Triple Track Configuration

Due to the narrowness of the right-of-way the screening landscaping would likely have to be removed in a few of the segments, posing a potential effect to visual resources without mitigation.

Phase I - The Cities Affected and the Effects

Phase I is that portion of the project within the cities of Los Angeles, South Pasadena and Pasadena that is already in place. No "spill-back" impacts to visual resources within the Phase I portion of the project would result from the LRT Triple Track configuration because no new construction is proposed within the Phase I portion of the project.

Phase II, Segment 1 - The Cities Affected and the Effects

Phase II, Segment 1 cities include Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. Within the Phase II, Segment 1 portion of the project impacts are anticipated in the cities of Monrovia and Duarte in the Triple Track alternative, due to the potential removal of the oleander screening hedgerow. This hedgerow extends along Duarte Road east from Myrtle Avenue in Monrovia, through the city of Duarte. Long-term impacts are not anticipated, however, because replacement landscaping commensurate with Phase I landscape improvements are proposed which will mitigate the short-term landscape removals.

Phase II, Segment 2 - The Cities Affected and the Effects

Phase II, Segment 2 cities include Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. Within the Phase II, Segment 2 portion of the project impacts are anticipated in the city of La Verne in the Triple Track alternative, due to the potential removal of a majority of the railroad right-of-way's Deodar cedar tree landscape screening along Arrow Highway, between roughly Walnut and Park Avenues. Long-term impacts are not anticipates, however, because replacement landscape commensurate with Phase I landscape improvements are proposed which will mitigate the short-term landscape removals.

d. LRT, Double Track Alternatives

Phase I - The Cities Affected and the Effects

No construction is proposed within the Phase I cities, therefore no effects from the project would result.

Phase II, Segment 1 – The Cities Affected and the Effects

Given the project elements, no long-term effects to visual resources are anticipated.

Phase II, Segment 2 – The Cities Affected and the Effects

Given the project elements, no long-term effects to visual resources are anticipated.

Summary of Double Track Impacts for Full Build LRT Alternative

No long-term effects to visual resources are anticipated.

Summary of Double Track Impacts for Build LRT Alternative to Maintenance Facility

No long-term effects to visual resources are anticipated.

3-17.2.8 Cumulative Impacts

Gold Line Phases I and II will not introduce dramatic design changes to the project alignment. Nor does implementation of the project call for smaller incremental design changes over time, which although individually minor, would constitute an adverse effect (NEPA)/significant impact to visual resources (CEQA) when considered together. The project utilizes existing railroad rights-of-way used both historically and at present for railroad-related transportation purposes. New design elements associated with the LRT Alternatives, such as safety fencing, catenaries, traction power substations, and passenger platforms, will be constructed at one time taking into account the local design setting, as well as municipal design standards. Once constructed, significant new design modifications that could adversely affect (NEPA)/significantly impact (CEQA) visual resources, such as demolitions of historic buildings (e.g., railroad depots) are not envisioned. The project's impacts to visual resources result almost entirely from the removal of screening landscaping. However, mitigation is expected to fully address this effect/impact, and no additional spillover effects to visual resources are anticipated.

Long-term effects to visual resources, in the cumulative sense, would not flow from the project. Instead, this threshold would be reached only as a result of a series of major changes to current local government development policy and design/historic preservation policy over time (e.g., policy changes calling for the demolitions of historic buildings, removal of mature landscaping adjoining the project rights-of-way, and densification of development adjoining project alignments in ways that are inconsistent with current policies that protect and enhance scenic views and vistas). The likelihood of such wholesale changes to local development policy occurring is remote.

3-17.2.9 Impacts Addressed by Regulatory Compliance

The framework of mitigation of effects through regulatory compliance is not germane to the visual resources aspect of this particular project. Neither the lead not co-operating governmental agencies, through specific governing statutes, has on-going mandated regulatory compliance jurisdiction concerning visual resources in this matter. The protection of visual resources in the Gold Line project is promulgated through voluntary conformance with FHWA guidelines for assessing visual impacts associated with transportation projects. These provide a methodology for determining whether visual resources exist and whether impacts to those resources are likely to occur as a result of the proposed

project. With mitigation, the proposed project as currently conceived is not expected to result in adverse effects (under NEPA)/significant impacts (under CEQA) to visual resources.

3-17.3 Potential Mitigation

3-17.3.1 Construction Period Mitigation Measures

Construction period impacts would be eliminated or reduced to less than adverse/less than to significant by complying with the local, state and/or federal regulatory requirements and/or permits identified in Section 3-17.2.9, so no additional measures to mitigate impacts are required.

a. No Build Alternative

The No Build Alternative does not require construction-period mitigation measures because compliance with local, state, and/or federal regulatory requirements and/or permits identified in section 3-17.2.9 are expected to mitigate effects to visual resources.

b. Transportation Systems Management (TSM) Alternative Construction Period Mitigation

The Transportation Systems Management (TSM) Alternative does not require construction-period mitigation measures because project elements are unlikely to affect visual resources.

Phase I – The Cities Affected and Proposed Measures

Phase I is that portion of the project within the cities of Los Angeles, South Pasadena and Pasadena that is already in place. No effects to visual resources are anticipated in Phase I cities.

Phase II, Segment 1 – The Cities Affected and Proposed Measures

The Transportation Systems Management (TSM) Alternative does not require construction-period mitigation measures because identified project elements are unlikely to affect visual resources.

Phase II, Segment 2 – The Cities Affected and Proposed Measures

The Transportation Systems Management (TSM) Alternative does not require construction-period mitigation measures because identified project elements are unlikely to affect visual resources.

c. LRT, Triple Track Configuration Construction Period Mitigation

Phase I – The Cities Affected and Proposed Measures

Phase I is that portion of the project within the cities of Los Angeles, South Pasadena and Pasadena that is already in place. No construction period effects in Phase I cities to visual resources are anticipated.

Phase II, Segment 1 – The Cities Affected and Proposed Measures

Adverse effects to visual resources during the construction period are limited to potential screening landscaping removal in the cities of Monrovia and Duarte. The draft mitigation measure is to provide landscaping of available right-of-way in a manner consistent with the landscape treatments used in Phase I of the Gold Line. The adverse visual effects will be mitigated at the conclusion of the construction period. All other construction-related effects to visual resources will be fully mitigated through compliance with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-17.2.9.

Phase II, Segment 2 – The Cities Affected and Proposed Measures

Adverse effects to visual resources during the construction period are limited to potential screening landscaping removal in the city of La Verne. The draft mitigation measure is to provide landscaping of available right-of-way in a manner consistent with the landscape treatments used in Phase I of the Gold Line. The adverse effect will be mitigated at the conclusion of the construction period. All other construction-related effects to visual resources will be fully mitigated through compliance with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-17.2.9.

d. LRT, Double Track Alternatives Construction Period Mitigation

Phase I – The Cities Affected and Proposed Measures

There are no elements of the Double Track Alternative in Los Angeles, South Pasadena or east of the Sierra Madre Village Station in Pasadena. Accordingly, there are no impacts and no mitigation is required.

Phase II, Segment 1 – The Cities Affected and Proposed Measures

Effects to visual resources during the construction period are limited to potential screening landscaping removal in the cities of Monrovia and Duarte. These effects will be mitigated at the conclusion of the construction period. All other construction-related effects to visual resources will be fully mitigated through compliance with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-17.2.9.

Phase II, Segment 2 – The Cities Affected and Proposed Measures

Effects to visual resources during the construction period are limited to potential screening landscaping removal in the city of La Verne. This effect will be mitigated at the conclusion of the construction period. All other construction-related effects to visual resources will be fully mitigated through compliance with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-17.2.9.

3-17.3.2 Long Term Mitigation

a. No Build Alternative

Construction-period actions in the No Build Alternative will be fully mitigated by compliance with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-17.2.9, and

adverse effects to visual resources would not occur. Therefore, additional long-term mitigation measures are not required.

b. Transportation Systems Management (TSM) Alternative

There are no elements of the TSM alternative are expected to create long-term visual impacts, so no mitigation is required.

c. LRT, Triple Track Configuration

Phase I – The Cities Affected and Proposed Measures

Because no construction is proposed within Phase I jurisdictions west of the Sierra Madre Villa LRT Station no effects are anticipated and no mitigation is required.

Phase II, Segment 1 – The Cities Affected and Proposed Measures

No long-term impacts to visual resources are anticipated from Triple Track project components. Long term impacts would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits previously identified in Section 3-17.2.9. As a result, project impacts would be not adverse under NEPA and not significant under CEQA.

Phase II, Segment 2 – The Cities Affected and Proposed Measures

No long-term impacts to visual resources are anticipated from TSM project components. Long term impacts would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits previously identified in Section 3-17.2.9. As a result, project impacts would be not adverse under NEPA and not significant under CEQA, and no long-term mitigation would therefore be required.

Summary of Long Term Mitigation Measures for Full Built LRT Alternative, Triple Track Configuration

Replacement screening landscaping commensurate with anticipated Phase I landscape improvements will mitigate all effects to visual resources.

Summary of Long Term Mitigation Measures for Built LRT Alternative to Maintenance Facility, Triple Track Configuration

Replacement screening landscaping commensurate with anticipated Phase I landscape improvements will mitigate all effects to visual resources.

d. LRT, Double Track Alternatives

Phase I – The Cities Affected and Proposed Measures

Because no construction is proposed within the Phase I jurisdictions no effects are anticipated.

Phase II, Segment 1 – The Cities Affected and Proposed Measures

No long-term impacts to visual resources are anticipated from LRT Double Track Alternatives project components. Long term impacts would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits previously identified in Section 3-17.2.9. As a result, project impacts would be not adverse under NEPA and not significant under CEQA, and no long-term mitigation would therefore be required.

Phase II, Segment 2 – The Cities Affected and Proposed Measures

No long-term impacts to visual resources are anticipated from LRT Double Track Alternatives project components. Long term impacts would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits previously identified in Section 3-17.2.9. As a result, project impacts would be not adverse under NEPA and not significant under CEQA, and no long-term mitigation would therefore be required.

Summary of Long Term Mitigation Measures for Full Built LRT Alternative, Double Track Configurations

No long-term impacts to visual resources are anticipated from Full Built LRT Alternative Double Track Configurations project components. Long term impacts would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits previously identified in Section 3-17.2.9. As a result, project impacts would be not adverse under NEPA and not significant under CEQA, and no long-term mitigation would therefore be required.

Summary of Long Term Mitigation Measures for Built LRT Alternative to Maintenance Facility, Double Track Configurations

Replacement screening landscaping commensurate with anticipated Phase I landscape improvements will mitigate all effects to visual resources.

3-17.4 Impact Results with Mitigation

Impacts resulting from landscape screening removal will be fully mitigated by installing comparable replacement landscaping commensurate with anticipated Phase I landscape improvements.

3-17.4.1 Construction Period

a. No Build Alternative

Construction impacts for the No Build Alternative would not change from the level of impact initially identified since no mitigation measures would be required or implemented.

b. TSM Alternative

Phase I – The Cities Affected and the Results of Construction Period Mitigation Measures

No "spill-back" impacts in Phase I cities are expected to result from the proposed long term TSM measures.

Phase II, Segment 1 – The Cities Affected and the Results of Construction Period Mitigation Measures

Construction period impacts to visual resources would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-17.2.9. No additional measures to mitigate impacts were identified in Section 3-17.3. Thus, construction period impacts would be not adverse under NEPA and not significant under CEQA.

Phase II, Segment 2 – The Cities Affected and the Results of Construction Period Mitigation Measures

Construction period impacts to visual resources would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-17.2.9. No additional measures to mitigate impacts were identified in Section 3-17.3. Thus, construction period impacts would be not adverse under NEPA and not significant under CEQA.

c. LRT, Triple Track Configuration

Phase I – The Cities Affected and the Results of Construction Period Mitigation Measures

No "spill-back" impacts in Phase I cities are anticipated when the proposed Triple Track construction period mitigation measures are factored in.

Phase II, Segment 1 – The Cities Affected and the Results of Construction Period Mitigation Measures

Construction period impacts to visual resources would be eliminated or reduced to less than adverse/less than significant levels by installing comparable replacement landscaping commensurate with anticipated

Phase I landscape improvements, and by complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-17.2.9. As a result, construction period impacts would be not adverse under NEPA and not significant under CEQA.

Phase II, Segment 2 – The Cities Affected and the Results of Construction Period Mitigation Measures

Construction period impacts to visual resources would be eliminated or reduced to less than adverse/less than significant levels by installing comparable replacement landscaping commensurate with anticipated Phase I landscape improvements, and complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-17.2.9. As a result, construction period impacts would be not adverse under NEPA and not significant under CEQA.

Construction period impacts to visual resources would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-17.2.9. As a result, construction period impacts would be not adverse under NEPA and not significant under CEQA.

Summary of Results of Construction Period Mitigation Measures for Full Built LRT Alternative, Triple Track Configuration

When construction period compliance and/or mitigation measures are taken into account for Phase I and Phase II, Segments 1 and 2, construction-related impacts to visual resources would be fully mitigated under NEPA and CEQA.

Summary of Results of Construction Period Mitigation Measures for Built LRT Alternative to Maintenance Facility, Triple Track Configurations

When construction period compliance and/or mitigation measures are taken into account for Phase I and Phase II, Segment 1 only, construction-related impacts to visual resources would be fully mitigated under NEPA and CEQA.

d. LRT, Double Track Alternatives

Phase I – The Cities Affected and the Results of Construction Period Mitigation Measures

No spill-back impacts in Phase I cities are anticipated when the proposed Double Track construction period mitigation measures are factored in.

Phase II, Segment 1 – The Cities Affected and the Results of Construction Period Mitigation Measures

In Phase II, Segment 1 cities, construction period impacts to visual resources would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-17.2.9. As a result, construction period impacts would be not adverse (under NEPA) and not significant (under CEQA).

Phase II, Segment 2 – The Cities Affected and the Results of Construction Period Mitigation Measures

In Phase II, Segment 2 cities, construction period impacts to visual resources would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-17.2.9. As a result, construction period impacts would be not adverse (under NEPA) and not significant (under CEQA).

Summary of Results of Construction Period Mitigation Measures for Full Built LRT Alternative, Double Track Configurations

When construction period compliance and/or mitigation measures are taken into account for the Full Built LRT Alternative, Double Track Configurations, construction-related impacts to visual resources would be fully mitigated under NEPA and CEQA.

Summary of Results of Construction Period Mitigation Measures for Built LRT Alternative to Maintenance Facility, Double Track Configurations

When construction period compliance and/or mitigation measures are taken into account for the Full Built LRT Alternative, Double Track Configurations, construction-related impacts to visual resources would be fully mitigated under NEPA and CEQA.

3-17.4.2 Long Term

a. No Build Alternative

Under this alternative no LRT extension of the Gold Line would occur, and improvements would be limited to bus service improvements, and street and freeway enhancements already under consideration. Because only modest changes to existing infrastructure are contemplated under this alternative adverse effects are not likely to occur. Effects would result if historic resources or significant landscape features were proposed for demolition. Visual resource analysis is expected to accompany each grouping of project components under this alternative to minimize the demolition of visual resources.

b. TSM Alternative

Phase I – The Cities Affected and the Results of Long Term Mitigation Measures

No spill-back impacts in Phase I cities are expected to result from the proposed long term TSM measures.

Phase II, Segment 1 – The Cities Affected and the Results of Long Term Mitigation Measures

Long-term impacts to visual resources are not expected to occur under this alternative.

No long-term impacts to visual resources are anticipated from TSM project components. Long-term impacts would be eliminated or reduced to less than adverse/less than significant levels by complying

with the local, state, and/or federal regulatory requirements and/or permits previously identified in Section 3-17.2.9. As a result, project impacts would be not adverse under NEPA and not significant under CEQA.

Phase II, Segment 2 – The Cities Affected and the Results of Long Term Mitigation Measures

No long-term impacts to visual resources are anticipated from TSM project components. Long term impacts would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits previously identified in Section 3-17.2.9. As a result, project impacts would be not adverse under NEPA and not significant under CEQA.

c. LRT, Triple Track Configuration

Phase I – The Cities Affected and the Results of Long Term Mitigation Measures

No effects to Phase I cities will result from long-term mitigation efforts.

Phase II, Segment 1 – The Cities Affected and the Results of Long Term Mitigation Measures

Long-term impacts to visual resources in the cities of Pasadena, Arcadia, Monrovia, Duarte, and Irwindale would be eliminated or reduced to less than adverse/less than significant levels by complying with the local design requirements as identified in Section 3-17.2, and by installing comparable replacement screening landscaping in Monrovia and Duarte commensurate with anticipated Phase I landscaping improvements. No additional measures to mitigate impacts are needed. As a result, long-term impacts would not be adverse (under NEPA)/not significant (under CEQA).

Phase II, Segment 2 – The Cities Affected and the Results of Long Term Mitigation Measures

Long-term impacts to visual resources in the cities of Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland would be eliminated or reduced to less than adverse/less than significant levels by complying with the local design requirements as identified in Section 3-17.2, and by installing comparable replacement screening landscaping in La Verne commensurate with anticipated Phase I landscaping improvements. As a result, no additional long-term measures to mitigate impacts are required.

Summary of Results of Long Term Mitigation Measures for Full Built LRT Alternative, Triple Track Configuration

Comparable replacement landscaping commensurate with Phase I landscaping improvements along Duarte Road in the cities of Monrovia and Duarte, and along Arrow Highway in the city of La Verne will fully mitigate effects to visual resources.

Summary of Results of Construction Period Mitigation Measures for Built LRT Alternative to Maintenance Facility, Triple Track Configurations

Full compliance with local, state and state, and/or federal regulatory requirements and/or permits governing construction as previously identified will fully mitigate effects to visual resources.

d. LRT, Double Track Alternatives

Phase I – The Cities Affected and the Results of Long Term Mitigation Measures

No long-term mitigation measures are required as no effects to visual resources are anticipated in Phase I cities.

Phase II, Segment 1 – The Cities Affected and the Results of Long Term Mitigation Measures

No long-term mitigation measures are required, as no adverse/significant impacts to visual resources are anticipated in Phase II, Segment 1 cities.

Phase II, Segment 2 – The Cities Affected and the Results of Long Term Mitigation Measures

No long-term mitigation measures are required, as no adverse/significant impacts to visual resources are anticipated in Phase II, Segment 2 cities.

Summary of Results of Long Term Mitigation Measures for Full Built LRT Alternative, Double Track Configurations

No long-term mitigation measures are required, as no adverse/significant impacts to visual resources are anticipated in the Full Built LRT, Double Track Configurations.

Summary of Results of Long Term Mitigation Measures for Built LRT Alternative to Maintenance Facility, Double Track Configurations

No long-term mitigation measures are required, as no adverse/significant impacts to visual resources are anticipated in the Build LRT Alternative to Maintenance Facility, Double Track Configurations.

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3-18 WATER QUALITY

Summary of Impacts

The No Build and TSM alternatives would not have substantial water quality impacts within the study corridor.

The construction-related impacts from the LRT alternatives would primarily be to surface water, specifically in the areas of channels/drainages. Compliance with regulations and best management practices is expected to reduce potential impacts to less than adverse/less than significant levels. Retrofitting of the bridge over the San Gabriel River, or construction of a new, parallel bridge over the river, and the development of the Maintenance and Operations Facility are the elements of the LRT alternatives with the greatest potential for water quality impacts during construction. Compliance with regulations and best management practices is expected to reduce potential impacts to less than adverse/less than significant levels.

Potential long-term impacts from operation of the LRT system are expected to be less than adverse/less than significant since the system, including the Maintenance and Operations Facility, would be operated in compliance with all applicable environmental permits.

3-18.1 Existing Conditions

The study area lies within the eastern portion of Los Angeles County and extends approximately two miles into the western portion of San Bernardino County. The cities within the study area from west to east include Pasadena, Arcadia, Monrovia, Irwindale, Azusa (cities within the Phase II, Segment 1 portion), Glendora, San Dimas, La Verne, Pomona, Claremont, and Montclair (cities within the Phase II, Segment 2 portion). These cities are highly urbanized, with a mix of residential, commercial, and industrial uses. Industrial uses are prevalent along the study area. Limited agricultural areas are located to the north of study area in the City of Azusa.

3-18.1.1 Regional Setting

a. Climate

The climate of the Los Angeles region is Mediterranean with dry/warm summers, and wet/mild winters. The Pacific Ocean influences precipitation throughout the Los Angeles Coastal basin. Rainfall within the basin is normally negligible from spring to late October, but begins to increase during November as the storm track (i.e., the Jet Stream) from the Pacific Ocean begins to shift toward southern California. Approximately 85 percent of the basin's 15-inch annual average rainfall occurs between November and March.

b. Topography

The study area is located along the southern foothills of the San Gabriel Mountains. Slopes in this area have a tendency to become milder as one travels east. Topography includes southwest and southeast trending slopes, ranging from mild slopes (an approximate 40-foot rise to every 0.25-mile), to very mild slopes (an approximate 40-foot to every 0.5-mile) and areas that are nearly flat. The topography of each city within the study area is indicated below in **Table 3-18.1**.

TABLE 3-18.1 STUDY AREA TOPOGRAPHY PER CITY			
Phase/Segment	**City**	**Slope Declination**	**Grade**
Phase II, Segment 1	Pasadena	SE	Mild
	Arcadia	S-SE	Mild
	Monrovia	S-SW	Mild
	Duarte	S and SE	Mild
	Irwindale	SE	Very Mild
Phase II, Segment 2	Azusa	S	Very Mild
	Glendora	SW	Very Mild
	San Dimas	SW	Nearly Flat
	La Verne	S-SW	Nearly Flat
	Pomona	SW	Nearly Flat
	Claremont	SW	Nearly Flat
	Montclair	SW	Nearly Flat
	Upland	SW	Nearly Flat
Source: USGS 7.5-Minute Quad Maps of Mt. Wilson, Azusa, Glendora, San Dimas, & Ontario, California.			

c. Surface Hydrology

Surface hydrology considerations include sediment and contaminant input into local water bodies from runoff. Sediment and contaminant source locations in urban areas include parking lots, streets, rooftops, and landscaped areas. and exposed earth at construction sites. Typical contaminants in urban runoff include hydrocarbons, metals, pesticides, bacteria, nutrients, and trash. Typical construction site related contaminants include fuels, hydraulic fluid, coolant, solvents, paints, etc.). Construction site sediment runoff results from unprotected areas of exposed soil. The study area is located within an area that is comprised of primarily urban land uses consisting of residential, commercial, industrial, and sparse agricultural uses.

Study Area Drainages

The channels/drainages within the study area drain into the Los Angeles River, San Gabriel River, or Santa Ana River. Descriptions of channels/drainages within the study area are shown below in **Table 3-18.2**. All of the channels/drainages included are also shown on United States Geological Survey (USGS) 7.5-minute quadrangle maps as being blue line streams. Blue line streams are characterized by year-round water flow.

Beneficial Uses of Surface Waters

When discussing channels/drainages and groundwater basins (see *d. Groundwater Hydrology*) the Los Angeles Regional Water Quality Control Board (LARWQCB) and Santa Ana Regional Water Quality Control Board (SARWQCB) assign beneficial use designations to each water body. Beneficial use designations that are relevant to the study area are defined below and shown in correlation to their respective channels/drainages in **Table 3-18.3**.

Agricultural Supply (AGR)

Agricultural supply beneficial uses consist of waters for farming, horticulture, or ranching including irrigation, stock watering, or support of vegetation for range grazing.

Cold Freshwater Habitat (COLD)

Cold freshwater habitat beneficial uses consist of waters that support coldwater ecosystems that may include preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.

Fresh Water Replenishment (FRSH)

Fresh water replenishment beneficial uses consist of waters for natural or artificial maintenance of surface water quantity or quality (i.e., salinity).

Groundwater Recharge (GWR)

Groundwater recharge beneficial uses consist of waters for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.

TABLE 3-18.2
CHANNELS AND DRAINAGES IN PROJECT VICINITY

Phase/ Segment	City	Channel/Drainage	Description			
			Concrete Lined	Concrete Sides, Natural Bottom	Under-ground	Bridged
Phase II, Segment 1	Pasadena	None in study area	N/A	N/A	N/A	N/A
	Arcadia	Arcadia Wash	•		•	
		East Branch Arcadia Wash	•		•	
	Monrovia	Santa Anita Wash	•			•
		Unnamed drainage east of Mayflower Avenue	• (small)			•
		Sawpit Wash	•			•
	Duarte/ Irwindale	Unnamed Wash west of San Gabriel River	• (small)		•	
		San Gabriel River		•		•
	Azusa	Unnamed drainage under-crossing Palm Drive	• (small)		•	
Phase II, Segment 2	Glendora	Little Dalton Wash	•		•	
		Big Dalton Wash	•			•
		East Branch Wash	•		•	
	San Dimas	San Dimas Wash	•			•
		Unnamed Wash at Amelia Avenue	–	--	•	
		Walnut Creek	•		•	
	La Verne	Live Oak Wash	•			•
		Marshall Creek	•		•	
		Puddingstone Channel	•		•	
	Pomona	Thompson Creek	•			•
	Claremont	None in study area	N/A	N/A	N/A	N/A
	Montclair	San Antonio Creek Channel	•			•
	Upland	San Antonio Creek Channel	•			•

Notes: Exposed or Underground is only relevant to the portion of the channel or drainage underlying the rail right of way.

N/A Indicates "not applicable".

– Indicates "no data".

Bridged denotes that the rails cross over channels/drainages on structures.

Sources: 1. Los Angeles County Department of Public Works, Hydrologic Report 1993-1994. Los Angeles Co.
2. Observations made during site reconnaissance on 10/31/03 and 11/03/033 by Bill Rice and Veronica Chan, Environmental Planners, Parsons Brinckerhoff Quade & Douglas.

TABLE 3-18.3
BENEFICIAL USES OF STUDY AREA CHANNELS AND DRAINAGES

Phase/ Segment	City	Water-Shed	Channel or Drainage	Beneficial Use													
				AGR	COLD	FRSH	GWR	IND	MUN	POW	PROC	RARE	REC1	REC2	WARM	WET	WILD
Phase II, Segment 1	Pasadena	--	None in study area	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Arcadia	LAR	Arcadia Wash				I		P				P	I	P		P
		LAR	East Branch Arcadia Wash				I		P				P	I	P		P
	Monrovia	LAR	Santa Anita Wash				E		P			E	E	E	E		E
		LAR	Unnamed drainage east of Mayflower Ave.	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		LAR	Sawpit Wash				I		I				I	I	I		E
	Duarte/Irwindale	SGR	Unnamed wash west of San Gabriel River	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		SGR	San Gabriel River	E	E		E	E	E		E		E	E	E		E
Phase II, Segment 2	Azusa	SGR	Unnamed drainage under crossing Palm Dr.	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Glendora	SGR	Little Dalton Wash				I		P				P	I	P		P
		SGR	Big Dalton Wash				I		P				P	I	P		P
		SGR	East Branch Wash	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	San Dimas	SGR	San Dimas Wash				I		P			E	I	I	I		E
		SGR	Unnamed wash at Amelia Ave.	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		SGR	Walnut Creek	I					P				I	I	I	E	E
	La Verne	SGR	Live Oak Wash			I	I		E				I	I	I		E

TABLE 3-18.3
BENEFICIAL USES OF STUDY AREA CHANNELS AND DRAINAGES

Phase/ Segment	City	Water-Shed	Channel or Drainage	Beneficial Use													
				AGR	COLD	FRSH	GWR	IND	MUN	POW	PROC	RARE	REC1	REC2	WARM	WET	WILD
		SGR	Marshall Creek				I		E				I	I	I	E	E
		SGR	Puddingstone Channel				I		E				I	I	I		E
	Pomona	SGR	Thompson Creek				I		P				I	I	I		E
	Claremont	SGR	None in study area	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Montclair	SAR	San Antonio Creek Channel	P/E	P/E		P/E	P/E	P/E	P/E	P/E		P/E	P/E			P/E
	Upland	SAR	San Antonio Creek Channel	P/E	P/E		P/E	P/E	P/E	P/E	P/E		P/E	P/E			P/E

Notes:
P: denotes Potential Beneficial Use
I: denotes Intermittent Beneficial Use
E: denotes Existing Beneficial Use
--: denotes No Information Available
Water features in the Santa Ana River Watershed are not differentiated between existing or potential, but are shown as both.
LAR denotes Los Angeles River Watershed, SGR denotes San Gabriel River Watershed, SAR denotes Upper Santa Ana River Watershed.

Sources: Los Angeles Regional Water Quality Control Board, Regional Water Quality Control Plan, Los Angeles Region, February, 23, 1995.
Santa Ana Regional Water Quality Control Board, Water Quality Control Plan, Santa Ana River Basin, January 24, 1995.

Industrial Service Supply (IND)

Industrial service supply beneficial uses consist of waters for industrial activities that do not depend primarily on water quality including mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.

Municipal and Domestic Supply (MUN)

Municipal and Domestic Supply beneficial uses consist of waters for community, military, or individual water supply systems including drinking water supply.

Hydropower Generation (POW)

Hydropower generation beneficial uses consist of waters used for such uses as hydroelectric power generation.

Industrial Process Supply (PROC)

Industrial Process Supply beneficial uses consist of waters for industrial activities that depend primarily on water quality.

Rare, Threatened, or Endangered Species (RARE)

Rare, threatened, or endangered species beneficial uses consist of waters that support habitats necessary for the survival and successful maintenance of plant or animal species designated under state or federal law as rare, threatened, or endangered.[1]

Water Contact Recreation (REC-1)

Water contact recreation (Category 1) beneficial uses consist of waters for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include swimming, wading, water-skiing, skin and scuba diving, surfing, white-water activities, fishing, or use of natural hot springs.

Non-Contact Water Recreation (REC-2)

Water contact recreation (Category 2) beneficial uses consist of waters for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

[1] Santa Ana Regional Water Quality Control Board 1995

Warm Freshwater Habitat (WARM)

Warm freshwater habitat beneficial uses consist of waters that support warm water ecosystems, including preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Wetland Habitat (WET)

Wetland habitat beneficial uses consist of waters that support wetlands ecosystems, including preservation or enhancement of wetland habitats, vegetation, fish, shellfish, or wildlife, and other unique wetland functions which enhance water quality, such as providing flood and erosion control, stream bank stabilization, and filtration and purification of naturally occurring contaminants.

Wildlife Habitat (WILD)

Wildlife habitat beneficial uses consist of waters that support terrestrial ecosystems, including preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, and invertebrates), or wildlife water and food sources.

Impaired Surface Water Bodies

In addition to listing of beneficial uses for each water body, the State Water Resources Control Board (SWRCB) is required by the *Federal Clean Water Act (CWA), Section 303(d)* to prepare a list of impaired water bodies. According to a listing of impaired water bodies in the *2002 CWA, Section 303(d) List of Water Quality Limited Segment*[2], the San Gabriel River Estuary, Puddingstone Reservoir, and Walnut Creek and Channel all have impairments.

The San Gabriel River Estuary is the terminus for many of the study area channels and drainages. The San Gabriel River Estuary has been listed as impaired for abnormal fish histology. The Puddingstone Reservoir is the terminus of the Puddingstone Channel, Marshall Creek, Live Oak Wash, and Walnut Creek. These are all channels or drainages that under-cross the study area. The Puddingstone Reservoir is listed as impaired for chlordane, DDT, mercury, organic enrichment, low dissolved oxygen, and PCBs. Walnut Creek is listed as impaired for pH and toxicity.

d. Groundwater Hydrology

Groundwater is found in subsurface water-bearing formations. Groundwater basins do not necessarily coincide with surface drainage basins, but are defined by surface features, political boundaries, and/or geological features such as faults, impermeable layers, and natural or artificial divides in the water table surface. The elevation of groundwater varies with the amount of withdrawal and the amount of recharge. Groundwater basins may be recharged naturally through filtrating precipitation, or artificially with imported or reclaimed water. The study area, from west to east, traverses the Raymond, Main San Gabriel, Lower San Gabriel, Upper San Gabriel Canyon, Glendora, and Way Hill groundwater basins and the Chino Sub-Basin of the Upper Santa Ana Valley Groundwater Basin. Groundwater within the Los Angeles River Watershed and San Gabriel River Watershed portions of the study area is maintained by the Raymond Basin Watermaster, Main San Gabriel Basin Watermaster, and Six Basins Watermaster.

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2 http://www.swrcb.ca.gov/tmdl/docs/2002reg4303dlist.pdf. Accessed 11/10/03.

Groundwater within the Santa Ana River Watershed portion of the study area is maintained by the Chino Basin Watermaster. These basins discussed below and are shown in **Table 3-18.4**.

TABLE 3-18.4
STUDY AREA GROUNDWATER

Phase/ Segment	City	Underlying Groundwater Basin	Maintained By	Approximate Depth to Groundwater (in feet)	Beneficial Uses			
					AGR	IND	MUN	PRO
Phase II, Segment 1	Pasadena	Raymond	Raymond Basin Watermaster	260	E	E	E	E
	Arcadia	Main San Gabriel	San Gabriel Basin Watermaster	Between 230 and 320 traveling west to east	E	E	E	E
	Monrovia							
	Duarte							
	Irwindale							
	Azusa	Lower San Gabriel		20	--	--	--	--
Phase II, Segment 2	Glendora	Upper San Gabriel Canyon		260	--	--	--	--
		Glendora		260	E	E	E	E
		Way Hill		100	E	E	E	E
	San Dimas	San Dimas		350	E	E	E	E
	La Verne							
	Pomona	Pomona	Six Basins Watermaster	Between 440 and 480 traveling west to east	E	E	E	E
	Claremont							
	Montclair	Chino Sub-Basin of Upper Santa Ana Valley	Chino Basin Watermaster	Between 510 and 600 traveling west to east	E	E	E	E
	Upland							

E: Indicates Existing Beneficial Usage
--: Indicates no data available
Note: Some cities overlay more than one basin

TABLE 3-18.4
STUDY AREA GROUNDWATER

Sources:

1. For Basin Locations: Los Angeles County Department of Public Works, Hydrologic Report, 1993-1994
2. For Depth to Groundwater (Raymond Basin): Extrapolated from the Los Angeles Department of Water and Power's well measurement data for Raymond Basin Reference well (key well #4057H) found at http://www.ladpw.com/wrd/report/9900/conserv/hydgrph.cfm accessed 1:32 on 10/31/03.
3. For Depth to Groundwater in Main San Gabriel, Lower San Gabriel, Upper San Gabriel Canyon, Glendora, Way Hill and San Dimas Basins: From comparison between grade-level elevations of USGS 7.5-Minute Quad Maps of Mt. Wilson, Azusa, Glendora, San Dimas and Ontario, California and *Main San Gabriel Basin Groundwater Contours Map*, January 2001, Main San Gabriel Basin Watermaster found at http://www.watermaster.org/gisdata/january01.jpg.
4. For Depth to Groundwater in Pomona and Chino Sub-Basins: From comparison between grade-level elevations of USGS 7.5-Minute Quad Maps of San Dimas and Ontario, California and *Optimum Basin Management Program: Chino Basin Watermaster, Figure 2.5 Management Zones and Fall 1997 Groundwater Elevation Contours*, August 1999, Wildermuth Environmental, Inc.
5. For Beneficial Uses: *Water Quality Control Plan, Los Angeles Region*, February 1995, California Regional Water Quality Control Board, Region 8.

Raymond Groundwater Basin

The western end of the study area, from the Sierra Madre Villa Station in Pasadena to approximately one-mile west of the Arcadia Station in Arcadia, lies atop the Raymond Groundwater Basin. The depth to groundwater in this basin is approximately 180 feet below grade.[3] The Metropolitan Water District of Southern California (MWD) was given the authority to store up to 9,000 acre-feet of water in the basin during wet years, and remove up to 3,000 acre-feet per year during times of drought.

Main San Gabriel Groundwater Basin

The portion of the study area, from approximately one mile west of the Arcadia Station in Arcadia to approximately one mile east of the Irwindale Station in Azusa, lies atop the Main San Gabriel Groundwater Basin. The basin is a sediment filled depression that underlies an approximately 167-square mile area under much of the San Gabriel Valley. The depths to groundwater in this basin in the vicinities of the proposed Arcadia, Monrovia, Duarte, and Irwindale Stations are approximately 260, 230, 240 and 320 feet below grade, respectively.

Lower San Gabriel Groundwater Basin

The portion of the study area, from approximately one mile east of the Irwindale Station in Azusa to approximately a half mile east of the Azusa Station in Azusa, lies atop the Lower San Gabriel Groundwater Basin. The depth to groundwater in this basin in the vicinity of the proposed Azusa Alameda Station is approximately 20 feet below grade.

Upper San Gabriel Canyon Groundwater Basin

[3] As extrapolated from the Los Angeles Department of Water and Power's well measurement data for Raymond Basin Reference well (key well #4057H) found at http://www.ladpw.com/wrd/report/9900/conserv/hydgrph.cfm accessed 1:32 on 10/31/03.

The portion of the study area, from approximately a half-mile east of the Azusa Station in Azusa to the approximate vicinity of Barranca Avenue in Glendora, lies atop the Upper San Gabriel Canyon Groundwater Basin. The depth to groundwater in this basin in the vicinity of the proposed Azusa Citrus Station is approximately 260 feet below grade.

Glendora Groundwater Basin

The portion of the study area, from approximately Barranca Avenue in Glendora to the approximate location of the intersection of Alosta Avenue (Route 66) and the existing Metro Rail in Glendora, lies atop the Glendora Groundwater Basin. The depth to groundwater in this basin in the vicinity of the proposed Glendora Station is approximately 260 feet below grade.

Way Hill Groundwater Basin

The portion of the study area, from the approximate location of the intersection of Alosta Avenue (Route 66) and the existing Metro Rail in Glendora to the approximate location of the Interstate-210 over-crossing of the Metro Rail in San Dimas, lies atop the Way Hill Groundwater Basin. The average depth to groundwater in this basin in the vicinity of the existing Metro Rail is approximately 100 feet below grade.

San Dimas Groundwater Basin

The portion of the study area, from the approximate location of the Interstate-210 over-crossing of the Metro Rail in San Dimas to the approximate location of the Puddingstone Channel over-crossing of the Metro Rail in La Verne, lies atop the San Dimas Groundwater Basin. The depth to groundwater in this basin in the vicinity of the proposed San Dimas Station is approximately 350 feet below grade.

Pomona Groundwater Basin

The portion of the study area, from the approximate location of the Puddingstone Channel over-crossing of the Metro Rail in La Verne to the approximate location of the Metro Rail crossing at Indian Hill Boulevard in Claremont, lies atop of the Pomona Groundwater Basin. The depths to groundwater in this basin in the vicinities of the proposed La Verne and Pomona Stations are approximately 440 and 480 feet below grade, respectively. The northeastern portion of the Pomona Groundwater Basin contains high levels of nitrates. A plume of volatile organic compounds is also present in the southern portion of the basin[4].

Chino Sub-Basin of the Upper Santa Ana Valley Groundwater Basin

The portion of the study area, from the approximate location of the Metro Rail crossing at Indian Hill Boulevard in Claremont to the east end of the study area, lies atop the Chino Sub-Basin of the Upper Santa Valley Ana Groundwater Basin. The depths to groundwater in this basin in the vicinities of the proposed Claremont and Montclair Stations are approximately 510 and 600 feet below grade. The

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[4] http://www.waterplan.water.ca.gov/groundwater/basindescript/4-13_San_Gabriel.pdf. Accessed 11/10/03.

groundwater quality in the Chino Sub-Basin is generally very good, with better groundwater quality found in the northern portion of the basin where recharge occurs.[5]

e. Floodplains and Flooding

The study area is primarily urban, which is characterized by a relatively high percentage of impervious surfaces and relative lack of vegetation. When ground surfaces are covered by impervious surfaces, such as pavement, direct absorption of rainfall is prevented and runoff is increased. The relative lack of vegetation also reduces the ability to disperse runoff. These factors cause the hydrologic peak of a runoff event to be increased in magnitude and to occur sooner after rainfall begins. The Federal Emergency Management Agency (FEMA) designates and maps flood zones. The 100-year flood was adopted as the national standard by the Federal Insurance Administration for floodplain management and insurance purposes. Also included in floodplains are floodways.

Floodways are the primary location that conveys flood flows, and are typically channels of a stream, including any adjacent areas. The area between the floodway and the 100-year floodplain boundary is the floodway fringe. Encroachment on floodplains by constructing levees, road embankments, buildings, etc., may reduce flood-carrying capacity and increase flood elevations. According to the guidelines established by the Federal Insurance Administration, an increase in 100-year height in the floodway due to any encroachment may not exceed 1 foot, and hazardous velocities may not be produced in the water body.

FEMA's Flood Insurance Rate Maps (FIRM) include zone designations that indicate the covered area's probability for flood-related hazards. Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no Base Flood Elevations or depths are shown within this zone. Zone designations relevant to the study area include Zones B, C, and X. Zones B, C and X are the flood insurance rate zones that correspond to areas outside the 100-year floodplains, areas of 100-year sheet flow flooding where average depths are less than 1 foot, areas of 100-year stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within these zone.[6] Segments of the study area that are indicated in FIRM maps include the following:

- From Rosemead Boulevard in Pasadena east to Baldwin Avenue in Arcadia is indicated as a Zone C and is shown on FIRM Map # 0650430690B.
- From Palm Avenue in Azusa to Valencia Street in Glendora is indicated as a Zone C and is shown on FIRM Map # 0650430860B.
- From Lone Hill Avenue in Glendora to San Dimas Canyon Road in San Dimas is indicated as a Zone B and is shown on FIRM Map # 0601540001C.
- From the western Claremont City Boundary to the Los Angeles-San Bernardino County Line is indicated as a Zone X, and is shown in FIRM Map # 0601090005A.

No mapped areas within the study area are indicated as being within a Zone A. Additionally, all other areas, other than those indicated above, are not mapped by FEMA in FIRM maps.

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[5] http://www.wild-environment.com/cbwm/Draft_SOB/index.html. Accessed 11/10/03.

[6] FEMA Flood Zone Definitions as found at http://www.fema.gov/fhm/fq_term.shtm#frequt6 Accessed 11/13/03.

3-18.1.2 Regulatory Setting

a. Federal Regulations

Clean Water Act

The federal Clean Water Act (Clean Water Act 33 USC 1251-1376) is the major federal legislation governing water quality. The objective of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's water." Several sections of the Clean Water Act are relevant. Section 101 specifies the objectives of the Clean Water Act that are implemented largely through Title III (Standards and Enforcement) and Section 301 (Prohibitions). The discharge of dredged or fill material into waters of the United States is subject to permitting specified under Title IV (Permits and Licenses) of the Clean Water Act and specifically under Section 404 (Discharges of Dredge or Fill Material) of the act. Section 401 (Certification) specifies additional requirements for permit review at the state level.

Section 303

Under Section 303 of the Clean Water Act, and the Porter-Cologne Water Quality Control Act of 1969, (discussed below), the State of California is required to establish beneficial uses of state waters and adopt water quality standards to protect those beneficial uses. Section 303(d) of the Clean Water Act establishes the Total Maximum Daily Load (TMDL) process to assist in guiding the application of state water quality standards (see discussion of state water quality standards below). TMDL is defined as the maximum quantity of a particular water quality parameter that a waterbody can assimilate without experiencing adverse effects. To identify candidate waterbodies for TMDL analysis, a list of streams with limited water quality is generated. These streams are considered impaired by the presence of certain pollutants and cannot assimilate additional quantities of these pollutants.

Section 401

Section 401 of the Clean Water Act requires that an applicant pursuing a federal permit to conduct any activity that may result in a discharge of a pollutant must obtain a Water Quality Certification (or waiver). This section is implemented by the Los Angeles Regional Water Quality Control Board (LARWQCB) and Santa Ana Regional Water Quality Control Board (SARWQCB), and is discussed in more detail below.

Section 402

Section 402 of the Clean Water Act establishes the National Pollutant Discharge Elimination System (NPDES) permit program to control discharges of pollutants from point sources. The 1987 amendments to the Clean Water Act created a new section devoted to stormwater and nonpoint-source permitting (Section 402[p]). NPDES is the primary federal program that regulates point-source and nonpoint-source discharges to waters of the United States. EPA has granted the State of California the predominant role in administering and enforcing the provisions of the Clean Water Act and NPDES, which are carried out by the State Water Resources Control Board and Regional Water Quality Control Boards. The State Water Resources Control Board issues both general and individual NPDES permits. Construction activities resulting in 1 acre or more of total ground disturbance are required to obtain coverage under the NPDES General Permit for Construction Activities.

To obtain coverage, a Notice of Intent must be filed with the Regional Water Quality Control Board, which administers and enforces the general permit. As part of this process, a stormwater pollution prevention plan must be prepared. The stormwater pollution prevention plan includes pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills), demonstration of compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, a detailed construction timeline, and a best management practices (BMPs [see *b. State Regulations*]) monitoring and maintenance schedule. A Notice of Termination must be filed with the Regional Water Quality Control Board (RWQCB) when construction is completed. Discharges of construction dewatering wastewater to surface waters are governed by the RWQCB's General Waste Discharge Requirements for Discharges to Surface Waters which pose an Insignificant (De Minimus) Threat to Water Quality, Order 98-67 (NPDES CAG998001). The Regional Water Quality Control Board considers construction dewatering wastes to be "de minimus" discharges that pose an insignificant threat to water quality. Under Order 98-67, a discharger must apply to the board for approval to discharge. The order contains limits on the amount of certain substances that may be discharged, including oil and grease, sulfides, residual chlorine, suspended solids, and petroleum hydrocarbons, and requires monitoring to ensure that the terms of the permit are met.

Section 404

Dredge and placement of fill materials in the waters of the United States are regulated by Section 404 of the Clean Water Act, which is administered by the U.S. Army Corps of Engineers (ACOE) with oversight from EPA. Based on its discretionary approval of the Section 404 dredge and fill permit, the U.S. Army Corps of Engineers must also ensure compliance with:

- NEPA, by preparing an environmental assessment or issuing a permit under an existing nationwide permit.
- Section 7 of the federal Endangered Species Act.
- Executive Orders 11988 (Floodplain Management) (see below) and 11990 (Protection of Wetlands).
- Section 106 of the National Historic Preservation Act.

Federal Flood Insurance Program

Congress responded to increasing costs of disaster relief by passing the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. These acts are intended to reduce the need for large publicly funded flood control structures and disaster relief by restricting development on floodplains. FEMA administers the National Flood Insurance Program to provide subsidized flood insurance to communities that comply with FEMA regulations that limit development in floodplains. FEMA issues Flood Insurance Rate Maps for communities participating in the National Flood Insurance Program. These maps delineate flood hazard zones in the community. The locations of FEMA-designated floodplains in the study area have been discussed in the Regional Setting discussion above.

Executive Order 11988

Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. The order generally requires federal agencies constructing, permitting, or funding to avoid incompatible floodplain development, be consistent with the standards and criteria of the National Flood Insurance Program, and restore and preserve the natural and beneficial floodplain values.

b. State Regulations

Porter-Cologne Water Quality Control Act of 1969

The Porter-Cologne Water Quality Control Act established the State Water Resources Control Board and divided the state into nine regional basins, each with a Regional Water Quality Control Board. The State Water Resources Control Board is the primary state agency responsible for protecting the quality of the state's surface and groundwater supplies. The Porter-Cologne Water Quality Control Act authorizes the State Water Resources Control Board to draft state policies regarding water quality in accordance with Section 303 of the Clean Water Act. The act also authorizes the state board to issue Waste Discharge Requirements for projects that would discharge to state waters. In addition, the act requires that the State Water Resources Control Board or the Regional Water Quality Control Board adopt water quality control plans (Basin Plans) for the protection of water quality. A Basin Plan must identify beneficial uses of water to be protected, establish water quality objectives for the reasonable protection of the beneficial uses, and establish a program of implementation for achieving the water quality objectives. Basin Plans also provide the technical basis for determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. Basin Plans are updated and reviewed every three years in accordance with Article 3 of the Porter-Cologne Water Quality Control Act and Section 303(c) of the Clean Water Act.

LARWQB and SARWQCB Basin Plans

Water quality in channels, drainages and groundwater supplies within the region that includes the study area is regulated by the both the LARWQB and the SARWQCB. State policy for water quality control is directed at achieving the highest water quality consistent with the maximum benefit to the people of the state. To develop water quality standards consistent with the uses of a water body, the LARWQCB and SARWQCB attempt to classify historical, present, and future beneficial uses as part of their basin plans. These beneficial uses are defined above in the Regional Setting discussion. An impact on a beneficial use would occur where there is an actual or threatened loss, or reduction of that beneficial use.

Water Quality Objectives

Water Quality Objectives are established in the LARWQCB and SARWQCB basin plans in support of beneficial uses. Water Quality Objectives pertain to chemicals, sediments, color, tastes, odor, radioactivity and floatables in surface waters and groundwaters. Water Quality Objectives for many constituents vary based on the designated beneficial use of the specific water body.

TMDLs

As described above, Section 303(d) of the Clean Water Act requires preparation of TMDL programs for waters identified by the state as impaired. TMDL is a quantitative assessment of a problem that affects water quality, and specifies the allowable load of pollutants from individual sources to ensure compliance with water quality standards. Once the allowable load and existing source loads have been determined, reductions in allowable loads are allocated to individual pollutant sources.

Water Quality Certification

As discussed above, Section 401 of the Clean Water Act provides states with a mechanism to ensure that federally permitted activities meet applicable water quality requirements. Pursuant to Section 401, an

applicant for a federal permit or license to conduct any activity that may result in a discharge into the waters of the United States must apply for water quality certification from the state in which the discharge originates or will originate. In issuing a certification, the state certifies compliance with certain provisions of the Clean Water Act, including water quality standards under Section 303. The certification must include any conditions necessary to meet requirements of the Clean Water Act and any other appropriate requirements of state law. The federal agency cannot grant the permit or license unless the state either issues or waives water quality certification, and the federal agency must include conditions of the state's certification as conditions of the federal permit or license.

The State Water Resources Control Board, through Regional Water Quality Control Boards, is the state agency responsible for water quality certification in California. For a Regional Water Quality Control Board to issue a water quality certification, it must determine that the activity would not violate water quality objectives, that beneficial uses are protected, and that the activity meets the requirements of the state's anti-degradation policy. Water quality certification must address the impacts on water quality resulting from the activity as a whole, including operation of the project, and not merely impacts resulting from the discharge (PUD 1 of Jefferson County *v* Washington Dept. of Ecology [1994] 511 U.S. 700 [114 S.Ct. 1900]). Consequently, in requiring an applicant to comply with water quality standards, a Regional Water Quality Control Board is not limited to enforcement of numerical criteria. A Regional Water Quality Control Board also may impose water quality conditions, including in-stream flow specifications, requiring the applicant to operate the project consistently with designated beneficial uses or as necessary to implement the state's anti-degradation policy.

Streambed Alteration Agreement

A Streambed Alteration Agreement (California Department of Fish and Game [CDFG] Code 1600 *et. seq.*) is required for any work within a creek or stream and its floodplain. Streambed Alteration Agreements may impose conditions to protect water quality during project construction. These requirements are discussed in more detail in Section 4.15, Natural Resources.

Best Management Practices (BMPs)

In 1993 the California Storm Water Quality Task Force introduced the *California Storm Water Best Management Practice Handbook.* This handbook includes storm water-related BMPs for construction and operation. These BMP handbooks are updated periodically to reflect the latest improvements in storm water management technology.

BMPs for construction include:

- Installation of check dams and filter berms to protect drainage ways
- Placing chemical stabilizers, mulch, seed, or sod over exposed soils
- Using geotextiles and gradient terraces to protect slopes
- Using silt fences and temporary diversion dikes to protect construction area perimeters
- Using on-site dust control (watering, covering areas prone to wind dispersion with plastic, etc.)
- Stabilizing construction area entrances (using aggregate or vehicle rinse mechanisms to minimize the amount of soil on-roadways from construction-related trucks)

- Adhering to the appropriate County measures guiding/governing the use of fertilizers, pesticides, and soil amendments.

BMPs for operation include:

- Using absorbent materials for spills
- Substituting toxic chemicals with non-toxic chemicals wherever possible
- Using clarifiers and designated wash areas
- Ensuring proper handling of potential contaminants
- Periodic catch basin/drainage inspection and cleaning
- Stenciling catch basin/drainages "No dumping. Drains to ocean" or equivalent
- Utilizing an efficient irrigation system that minimizes runoff
- Adhering to the appropriate County measures guiding/governing the use of fertilizers and pesticides.

c. Local Regulations

The cities of Pasadena, Arcadia, Monrovia, Duarte, Irwindale, Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, and Montclair all include regulations for surface runoff of contaminants and protection of structures in their respective municipal code documents.

3-18.2 Environmental Impacts

3-18.2.1 Evaluation Methodology

Construction-related potential impacts on water-water quality were ascertained qualitatively, based on standard professional practice. Construction activities with the potential to have an impact on water-water quality include:

- Soil-disturbing activities (e.g., excavation and grading), which can lead to erosion and sedimentation.
- Use of construction-related hazardous materials, which could result in spills that would impact surface waters.
- Excavation in areas of high groundwater, which could result in impacts to groundwater quality or quantity from dewatering activities and direct exposure of groundwater to sediment and other contaminants.
- Construction within a designated flood zone, which could pose a risk to workers.

Operational impacts would result from either ongoing activities of the rail, or the physical impact of project facilities on the landscape, including stations, traction power sub-stations (TPSSs), the maintenance facility, and parking areas. For the proposed LRT alternatives, actions that were considered to potentially lead to an impact include:

- Increases in impervious surfaces as a result of the project, leading to increases in the timing and volume of water runoff.
- Changes or interruptions in the local drainage infrastructure as a result of the proposed project design, potentially leading to localized or regional drainage impacts (e.g., flooding).

- Creation of significant new sources of pollutants (e.g., parking lots, maintenance facilities), leading to new sources of contaminated runoff.
- Location of project facilities below the naturally occurring water table, with potential impacts related to flooding of project facilities and changes in groundwater quality and/or quantity.
- Location of project facilities within a designated floodplain, exposing the project to risks related to flooding, as well as subjecting other areas to impacts resulting from changes in the location and or direction of flood flows.
- Location of project facilities within areas subject to inundation by seiche, tsunami, or mudflow, resulting in potential damage to such facilities.

For each area of impact, the level of impact was compared against the significance criteria given below.

3-18.2.2 Impact Criteria

a. NEPA Impact Criteria

The project would be considered to have an adverse impact if it would:

- Generate a substantial discharge into surface waters that would create pollution, contaminants or other nuisance.
- Create a substantial safety hazard to construction workers.
- Generate a substantial change in the quantity and/or quality of groundwater either by direct additions, withdrawals or puncture of an aquifer.

b. CEQA Impact Criteria

According to Appendix G of the California Environmental Quality Act (CEQA), a significant impact would occur if the project would:

1. Violate any water quality standards or waste discharge requirements.
2. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which the permits have been granted).
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site.
4. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.
5. Create or contribute to runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.
6. Otherwise substantially degrade water quality.
7. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

8. Place within a 100-year flood hazard area structures that would impede or redirect flood flows.
9. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.
10. Inundation by seiche, tsunami, or mudflow.

3-18.2.3 Construction-Period Impacts

a. No Build Alternative

The No Build Alternative represents infrastructure development and programmatic changes to existing transportation services. Infrastructure development under this alternative includes SR 30/I-210 ongoing construction, and construction of the Gold Line Eastside Extension. Transportation services improvements include increasing service on Phase I of the Gold Line and countywide bus service improvements. Considering these activities, construction-period impacts to surface water would be likely to occur only for any construction of sufficient magnitude to change a drainage area, increase surface runoff, or add contaminants to surface waters and/or groundwaters.

Additionally, groundwater and flooding-related impacts may occur depending on the area of construction activity. However, it is assumed that all previously planned and approved projects under the No Build Alternative include provisions that would avoid, greatly limit, and/or mitigate water-water quality impacts.

Phase I – The Affected Cities and the Effects

The cities in Phase I are Los Angles, South Pasadena, and Pasadena. Other than construction of the Eastside LRT Extension, there are no elements of the proposed transit service improvements that would result in water-water quality impacts. The construction period impacts for the Eastside LRT Extension were reported in the Draft Supplemental Environmental Impact Statement/ Draft Subsequent Environmental Impact Report.[7]

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II Segment 1 are Pasadena, Arcadia, Monrovia, Duarte, and Irwindale. The projects in the No Build Alternative affecting these cities during the Phase II construction period are implementation of increased service on Phase I of the Gold Line LRT and countywide bus service improvements. There are no elements of the proposed transit service improvements that would result in water-water quality impacts.

Phase II, Segment 2 – The Cities Affected and the Effects

The cities in Phase II, Segment 2 are Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, Montclair, and Upland. The project in the No Build Alternative affecting the cities during the construction period of the proposed Phase II is the Los Angeles county bus service improvements. Even though Montclair and Upland are in San Bernardino County, they are affected by changes in Los Angeles County bus service because that service is linked to the Montclair TransCenter. There are no elements of the proposed transit service improvements that would result in water-water quality impacts. The proposed

[7] FTA and LACMTA, 2001

extension of I-210 eastward is more than 5 miles east of the eastern end of the Phase II study area. Due to this distance, no effects from the freeway extension are expected within the study corridor.

b. Transportation System Management (TSM) Alternative

The Transportation System Management (TSM) Alternative represents programmatic changes to existing arterial bus service schedules. The planned service improvements would be likely to include upgraded or additional bus stops. Implementation of these proposed bus route changes is not expected to include major construction. Accordingly, no construction-period impacts to surface water or groundwater are anticipated to occur. Additionally, no flood-related impacts are anticipated to occur. Hence, no water-water quality impacts are likely to occur under the TSM Alternative to cities in Phase I, Phase II Segment 1 or Phase II Segment 2.

c. LRT, Triple Track Configuration

The construction-related impacts from the Triple Track Configuration would primarily be to surface water, specifically in the areas of channels/drainages. The city of greatest potential impact is Irwindale because of the amount of construction that would occur with the retrofitting of the bridge over the San Gabriel River and the development of the maintenance facility. However, potential construction-period impacts to the San Gabriel River would be considered temporary and thus less than adverse under NEPA. Construction impacts under CEQA would be potentially significant. The Triple Track Configuration would necessarily be implemented with requirements that are necessary under the permitting process. It is assumed that the project design and construction process will incorporate all appropriate permits from the ACOE, California Department of Fish and Game (CDFG), the Los Angeles County Flood, and/or the LARWQCB and/ or SARWQCB, the Los Angeles County Flood Control District (LACFCD), and the San Bernardino County Flood Control District. These permits include BMPs and other requirements to have been developed to reduce environmental impacts. With the implementation of construction-period permits and BMPs, surface water-water quality impacts in the maintenance facility area would be less than significant. In the other areas of Irwindale, along with all other cities within the study area, potential surface water-water quality impacts are considered less than significant. Permits would be obtained for affected resources in all parts of the alignment as appropriate.

No construction-related impacts to groundwater would occur in the study area from the Triple Track Configuration. This is due to no excavation being conducted below groundwater tables, no anticipated dewatering, and the ability to minimize or prevent contaminants from entering groundwater through BMPs. Groundwater-related BMPs are assumed to include, at a minimum: installing check dams and filter berms to protect drainage ways, and adhering to the appropriate Los Angeles and San Bernardino County measures guiding/governing the use of fertilizers, pesticides and soil amendments. No construction-related impacts would occur with these alternatives and options because the study area is not located within any mapped 100-year flood zones.

Phase I – The Cities Affected and the Effects

The cities in Phase I are Los Angeles, South Pasadena and Pasadena. There are no elements of the Triple Track Configuration in the Phase I cities and thus no impacts to water quality would occur.

Phase II, Segment 1 – The Cities Affected and the Effects

The cities in Phase II, Segment 1 are Pasadena, Arcadia, Monrovia, Duarte and Irwindale. Potential impacts are reported below.

Pasadena and Arcadia

Rail Relocation/Rail Addition Surface Water Impacts

Project-related construction affecting Arcadia would include: the relocation of the existing rail; addition of an adjacent rail; construction of the TPSSs; and activities related to the Arcadia Station and parking facilities. The action of relocating and adding rails to the existing ROW would necessitate minor modifications to the existing grade, such as adding fill to one side of the rail bed. The rail bed between these cities is raised above the adjacent ROW. Topographic slope within this segment of the study area is mild, and would facilitate slower runoff velocities than areas of higher gradient. Prior to project construction, an NPDES permit would be obtained. As part of the compliance with the NPDES permit, the project would implement construction-related BMPs to reduce runoff into local drainages. Considering the mild topography of this segment of the study area, and the implementation of construction BMPs, it is anticipated that the rail relocations and additions would result in less than significant surface level water-water quality impacts.

Channel/Drainage Surface Water Impacts

There are two channels/drainages (Arcadia Wash and East Branch Arcadia Wash) that are designated as blue line streams between these cities. These channels/drainages are underground in the existing ROW. Considering that the washes are underground, and that the project would implement BMPs, it is unlikely that significant amounts of construction-related sediments and/or contaminants would be introduced into local drainages. Hence, less than significant surface level water-water quality impacts would occur.

Station Surface Water Impacts

The Arcadia Station would include the development of parking facilities. Construction activity at the Arcadia Station and construction of the TPSSs would require some site grading. However, it is anticipated that ground disturbance would be minimal. These areas would also be required to implement construction BMPs. Therefore, less than significant surface level water-water quality impacts would occur.

Groundwater Impacts

The Arcadia station would include new parking facility construction. There would be no excavation below groundwater level and no construction dewatering. As a result, no impacts to groundwater are likely to occur.

Flood-Related Impacts

The study area is not located within a FEMA 100-year floodplain. Thus, no construction-related flood hazard impacts are anticipated to occur.

Monrovia

Rail Relocation/Rail Addition Surface Water Impacts

Project-related construction affecting Monrovia would include: the relocation of the existing rail; addition of two adjacent rails; construction of the TPSSs; and activities related to the Duarte Station facility. The action of relocating and adding rails to the existing ROW would necessitate minor modifications to the existing grade, such as adding fill to one side of the rail bed. The existing rail bed between these cities is nearly even with the adjacent ROW topography. Hence, less filling to add rails would be required. As is typical of the area, topographic slope is mild and would facilitate slow runoff velocities. With the implementation of construction-related BMPs, it is anticipated that the rail relocations and additions would result in less than significant surface level water-water quality impacts.

Channel/Drainage Surface Water Impacts

There is one channel/drainage (Sawpit Wash) that is designated as a blue line stream between these cities. This channel/drainage is bridged in the existing ROW. The relocation and addition of tracks atop this bridge could generate minor sedimentation or contamination within the stream below as a result of bridge retrofits. However, with the implementation of BMPs, it is unlikely that significant amounts of construction-related sediments and/or contaminants would be introduced into this channel/drainage. Hence, less than significant surface level water-water quality impacts would occur.

Station Surface Water Impacts

Improvements to the Monrovia station would include the development of a new parking structure and platforms. Construction activity at the stations and construction of the TPSSs would require some site grading. However, it is anticipated that ground disturbance would be minimal. Project-related construction in these areas would also be required to include implementation of the construction BMPs. Considering this, station and TPSS construction would be temporary and would result in less than significant surface level water-water quality impacts.

Groundwater Impacts

Improvements to the Monrovia Station would include the development of a new parking facility. No excavation below groundwater level would be required and no construction dewatering would occur. Therefore, there would be no impacts to groundwater as a result of intrusion or dewatering.

Flood-Related Impacts

The study area is not located within a FEMA 100-year floodplain. Thus, no construction-related flood hazard impacts are anticipated to occur.

Duarte

Station Surface Water Impacts

The Duarte Station would include the development of a new parking structure and platform. Construction activity at the Duarte Station and construction of the TPSSs would require some site grading. However, it is anticipated that ground disturbance would be minimal. Project-related construction in these areas

would also be required to include implementation of the construction BMPs. Considering this, station and TPSS construction would be temporary and would result in less than significant surface level water-water quality impacts.

Groundwater Impacts

Improvements to the Duarte Station would include the development of a new parking facility. No excavation below groundwater level would be required and no construction dewatering would occur. Thus, no impacts to groundwater are likely to occur.

Flood-Related Impacts

The study area is not located within a FEMA 100-year floodplain. Thus, no construction-related flood hazard impacts are anticipated to occur.

Irwindale

Rail Relocation/Rail Addition Surface Water Impacts

Project-related construction between Duarte and Irwindale would include: the relocation of the existing rail; addition of two adjacent rails; construction of the TPSSs; activities related to the Irwindale Station facility; and construction of the Irwindale maintenance facility. The existing rail bed is nearly flat within the ROW between Duarte and the west bank of San Gabriel River. However, the rail bed is raised within the ROW on the east bank of the San Gabriel River. Due to the topography of the ROW east of the San Gabriel River, it is likely that minor cuts and fill would be required to accommodate the additional rails. Furthermore, this area would require grading and filling to construct the rails to access the maintenance facility. Although more rail-related construction activity would take place in this area than in others within the study area, implementation of construction BMPs would reduce the potential surface level water-water quality impacts to less than significant levels.

Channel/Drainage Surface Water Impacts

There are two channels/drainages (an unnamed wash west of the San Gabriel River and the San Gabriel River) that are designated as a blue line streams between these cities. The unnamed wash is underground in the existing ROW. The San Gabriel River is bridged in the existing ROW. The relocation and addition of tracks above the unnamed wash would have the potential for surface water impacts due to the proposed rail locations being near the north opening of its tunnel (the south opening is far enough away from the proposed additional rails). However, with the implementation of the construction BMPs it is anticipated that related impacts would be reduced to less than significant.

With the development of these triple track configurations, retrofits to the San Gabriel River Bridge would be required. These retrofits may require additional structural supports to be placed within the San Gabriel River bed. Impacts related to construction activity within the San Gabriel River would be subject to the measures specified by the ACOE, CDFG, RWQCB and Los Angeles County Flood Control District (LACFCD). Compliance with such mitigation is anticipated to reduce the levels of impact to less than significant with mitigation. Impacts may occur as a result of an accidental release of construction-related contaminants (paints, fuels, hydraulic fluids etc.) during the retrofitting of the bridge platform. Implementation of construction BMPs would reduce the likelihood of this occurring. Considering this, temporary and less than significant (with mitigation) surface level water-water quality impacts would occur.

Station Surface Water Impacts

The Irwindale Station would include the development of a new parking facility and platform. Construction activity at the Irwindale Station and construction of the TPSSs would require some site grading. However, it is anticipated that ground disturbance would be minimal. These areas would also be required to implement the construction BMPs. As a result, station and TPSS construction would be temporary and would result in less than significant surface level water-water quality impacts.

Maintenance Facility Surface Water and Groundwater Impacts

Construction for the development of the maintenance facility in Irwindale would require substantial grading and excavation. The maintenance facility would be developed adjacent to two abandoned gravel quarries. One is located to the north of the proposed maintenance facility, and the other is located to the east of the proposed maintenance facility. The quarry to the north would not collect significant amounts of construction-related surface runoff from the development of the proposed maintenance facility because it is topographically up-gradient. The quarry to the east would not collect significant amounts of construction-related surface runoff from the development of the proposed maintenance facility because it is topographically level with the proposed maintenance facility drainage. Additionally, the surface drainage of the proposed maintenance facility drains past the eastern quarry. There would be little chance of potentially contaminated surface runoff ponding in the adjacent quarry bottoms and infiltrating groundwater (which is approximately 40 feet below grade at the quarry bottoms). Additionally, construction-related BMPs would be implemented to reduce or stop any surface drainage from entering into the nearby San Gabriel River. Thus there would be less than significant construction-related surface water-water quality or groundwater impacts.

Groundwater Impacts

Improvements to the Irwindale Station would include the development of a new parking facility atop existing undeveloped land. No excavation below groundwater level would be required and no construction dewatering would occur. Therefore, there would be no impacts to groundwater as a result of intrusion or dewatering.

Flood-Related Impacts

The study area is not located within a FEMA 100-year floodplain. Thus, no construction-related flood hazard impacts are anticipated to occur.

Azusa

Rail Relocation/Rail Addition Surface Water Impacts

Project-related construction between Irwindale and Azusa would include: the relocation of the existing rail; addition of two adjacent rails; construction of the TPSSs; and activities related to the Azusa Alameda and Azusa Citrus Station facilities. The action of relocating and adding rails to the existing ROW would necessitate modifications to the existing ROW and rail bed grade, such as adding fill to one side of the ROW. The existing rail bed between these cities is level within the adjacent ROW topography. The rail ROW is higher than the surrounding topography in the vicinities of Foothill Boulevard and North Pasadena Avenue. Rail additions in these areas would require fill to widen the ROW. Although filling would be required, the filling of these areas is not anticipated to generate substantial increases in runoff or

add substantial amounts of sediments and contaminants with the implementation of construction BMPs. Additionally, there are no blue line streams in this area. Thus, it is anticipated that the rail relocations and additions would result in less than significant surface level water-water quality impacts.

Channel/Drainage Surface Water Impacts

There is one channel/drainage (an unnamed drainage under-crossing Palm Drive) that is designated as a blue line stream between these cities. This channel/drainage is underground in the existing ROW. The relocation and addition of tracks atop this drainage could generate minor sedimentation or contamination within the stream below as a result of rail relocation and rail bed widening, since the opening of this channel/drainage is within the ROW. However, in channels/drainages with high potential for changes in the stream banks or beds, the project would be required to obtain the appropriate permits from the ACOE, CDFG, and/or LARWQCB/SARWQCB. These agencies specify mitigation that must be incorporated in the project in order to obtain permits. The project would comply with the mitigation specified. Therefore, surface water-water quality impacts to this drainage would be less than significant with mitigation. Additionally, the construction BMPs utilized throughout the project would also be implemented in this location, further reducing impacts.

Station Surface Water Impacts

The Azusa Alameda Station would include the development of a parking structure in an existing paved area. The Azusa Citrus Station would utilize existing parking at the Citrus College location. Both stations would require the development of a platform. Construction activity related to these station platforms and the TPSSs would require some site grading. However, it is anticipated that ground disturbance would be minimal. These areas would also be required to implement the construction BMPs. Thus, station and TPSS construction would be temporary and would result in less than significant surface level water-water quality impacts.

Groundwater Impacts

Improvements to the Azusa Alameda Station would include the development of a new parking structure. No excavation below groundwater level would be required and no construction dewatering would occur. Considering this, no impacts to groundwater are likely to occur.

Flood-Related Impacts

The study area is not located within a FEMA 100-year floodplain. Thus, no construction-related flood hazard impacts are anticipated to occur.

Glendora

Rail Relocation/Rail Addition Surface Water Impacts

Project-related construction affecting Glendora would include: the relocation of the existing rail; addition of two adjacent rails; construction of the TPSSs; and activities related to the Glendora Station facility. The action of relocating and adding rails to the existing ROW is anticipated to not require fill, as the existing rail bed between these cities is level within the adjacent ROW topography. Thus, it is anticipated that the rail relocations and additions would result in less than significant surface level water-water quality impacts.

Channel/Drainage Surface Water Impacts

There is one channel/drainage (Little Dalton Wash) that is designated as a blue line stream between these cities. This channel/drainage is underground in the existing ROW. The relocation and addition of tracks atop this drainage would not have the potential to generate sedimentation or contamination within the stream below because the opening of the channel/drainage is located far out of the rail ROW. Thus, it is anticipated that no surface level water-water quality impacts would occur.

Station Surface Water Impacts

The Glendora Station would include the development of one parking lot in an existing unpaved area, and parking structure atop an existing paved area. The Glendora Station would also require the development of a platform. Construction activity related to these parking facilities, the station platform and the TPSSs would require some site grading. However, is anticipated that ground disturbance would be minimal. Project-related construction in these areas would also be required to include implementation of the construction BMPs. Considering this, the parking facilities, station, and TPSS construction would be temporary and would result in less than significant surface level water-water quality impacts.

Groundwater Impacts

As indicated above, improvements to the Glendora Station would include the development of new parking facilities atop existing paved and unpaved areas. No excavation below groundwater level would be required and no construction dewatering would occur. Therefore, no impacts to groundwater are likely to occur.

Flood-Related Impacts

The study area is not located within a FEMA 100-year floodplain. Thus, no construction-related flood hazard impacts are anticipated to occur.

San Dimas

Rail Relocation/Rail Addition Surface Water Impacts

Project-related construction affecting San Dimas would include: the relocation of the existing rail; addition of two adjacent rails; construction of the TPSSs; and activities related to the San Dimas Station facility. The action of relocating and adding rails to the existing ROW would necessitate modifications to the existing ROW and rail bed grades, such as adding fill to one side of the ROW and rail bed. The existing rail bed between these cities varies between being even within the adjacent ROW topography and being raised above it. Additionally, the ROW would need widening in some areas. Hence, some filling to add adjacent rails would be required. The East Brach Wash exists within the study area, but is far enough outside of the ROW that no impacts would occur to the wash. An unnamed wash exists within the study area, but is underground. Thus no impacts would occur to this wash. With the implementation of construction-related BMPs, it is anticipated that the rail relocations and additions would result in less than significant surface level water-water quality impacts.

Channel/Drainage Surface Water Impacts

There are four channels/drainages (Big Dalton Wash, East Branch, San Dimas Wash and an unnamed wash at Amelia Avenue) that are designated as a blue line streams between these cities. The Big Dalton Wash is bridged in the ROW, the East Branch is underground in the ROW, the San Dimas Wash is bridged in the ROW, and the unnamed channel at Amelia Avenue is assumed to be underground (it is shown on the San Dimas, Calif. 7.5-minute quad sheet [photo-revised 1981], but is not evident on current aerial photographs and was not observed during field reconnaissance). The relocation and addition of track above the East Branch and unnamed drainage at Amelia would likely have little to no construction-related surface water quality impacts due to the East Branch's opening being outside the rail ROW, and the unnamed wash being unobserved in the ROW. The relocation and addition of tracks above the Big Dalton and San Dimas washes would require either widening of the existing bridge structures or additional adjacent bridge structures. In so doing, potential accidental releases of construction-related contaminants (paints, fuels, hydraulic fluids, etc.) could occur within the streambed. Considering this, there is the potential for construction-related surface water quality impacts. However, the proposed project would be required to comply with the measures under the relevant agency permits from ACOE, CDFG, and RWQCB. Additionally, implementation of construction BMPs would reduce the likelihood of this occurring, and the requirement for contractors to utilize only well-maintained equipment would further reduce the likelihood of occurrence. Therefore, only minor and temporary surface level water quality impacts would occur. With implementation of BMPs, impacts to water-water quality will be reduced to a less than significant level.

Station Surface Water Impacts

The San Dimas Station would include the development of one parking facility in an existing unpaved area. The San Dimas Station would also require the development of a platform. Construction activity related to the parking facility, the station platform, and the TPSSs would require some site grading. However, is anticipated that ground disturbance would be minimal. Project-related construction activities in these areas would also be required to include implementation of the construction BMPs. Considering this, the parking facility, station, and TPSS construction would be temporary and would result in less than significant surface level water-water quality impacts.

Groundwater Impacts

As indicated above, improvements to the San Dimas Station would include the development of a new parking facility atop existing undeveloped land. No excavation below groundwater level would be required and no construction dewatering would occur. Thus, no impacts to groundwater are likely to occur.

Flood-Related Impacts

The study area is not located within a FEMA 100-year floodplain. Thus, no construction-related flood hazard impacts are anticipated to occur.

La Verne

Rail Relocation/ Rail Addition Surface Water Impacts

Project-related construction affecting La Verne would include: the relocation of the existing rail; addition of two adjacent rails; construction of the TPSSs; and activities related to the La Verne-Fairplex Station facility. The action of relocating and adding rails to the existing ROW would not necessitate significant changes in the existing rail bed grade or ROW, due to the rail bed being at grade within the ROW and the ROW being in a nearly flat area. Thus, it is likely that no significant surface level water-water quality impacts would occur.

Channel/Drainage Surface Water Impacts

There are four channels/drainages (Walnut Creek, the Puddingstone Channel, Marshall Creek, and Live Oak Creek) that are designated as blue line streams. Walnut Creek, the Puddingstone Channel, and Marshall Creek are underground in the ROW. Hence, they are unlikely to have a significant level of construction-related surface water quality impacts. Live Oak Creek is bridged in the ROW. However, depending on the width required to accommodate the additional tracks, the bridge may require structural retrofitting. In so doing, potential accidental releases of construction-related contaminants (paints, fuels, hydraulic fluids, etc.) could occur within the streambed below. Considering this, there is the potential for construction-related surface water quality impacts. However, the proposed project would be required to comply with the measures under the relevant agency permits from ACOE, CDFG, and RWQCB. Additionally, implementation of construction BMPs would reduce the likelihood of this occurring, and the requirement for contractors to utilize only well-maintained equipment would further reduce the likelihood of occurrence. Therefore, only minor and temporary surface level water quality impacts would occur. With implementation of BMPs, impacts to water-water quality will be reduced to a less than significant level.

Station Surface Water Impacts

The La Verne Station is not anticipated to require the development new parking facilities. Parking would be provided on the grounds of the Fairplex. The La Verne Station would require the construction of a new platform. However, the construction and grading activities related to this facility would be minimal. Considering this, no significant surface level water-water quality impacts are likely to occur.

Groundwater Impacts

Improvements to the La Verne Station would not require excavation below groundwater level, and no construction dewatering would occur. As a result, no impacts to groundwater are likely to occur.

Flood-Related Impacts

The study area is not located within a FEMA 100-year floodplain. Thus, no construction-related flood hazard impacts are anticipated to occur.

Pomona

Rail Relocation/Rail Addition Surface Water Impacts

Project-related construction affecting Pomona would include: the relocation of the existing rail; addition of two adjacent rails; construction of the TPSSs; and activities related to the Pomona Towne and Pomona Garey Station facilities. Similar to the San Dimas to La Verne ROW discussion above, the action of relocating and adding rails to the existing ROW in the La Verne to Pomona portion would not necessitate significant changes in the existing rail bed grade or ROW. This is due to the rail bed being at grade within the ROW and the ROW being in a nearly flat area. Thus, it is likely that no surface level water-water quality impacts would occur.

Channel/Drainage Surface Water Impacts

There is one channel/drainage (Thompson Creek) that is designated as a blue line stream between these cities. Depending on the width required to accommodate the additional tracks, this bridge may require structural retrofitting. In so doing, potential accidental releases of construction-related contaminants (paints, fuels, hydraulic fluids, etc.) could occur within the streambed below. Considering this, there is the potential for construction-related surface water quality impacts. However, the proposed project would be required to comply with the mitigation measures under the relevant agency permits from ACOE, CDFG, and RWQCB. Additionally, implementation of construction BMPs would reduce the likelihood of this occurring. Therefore, only minor and temporary surface level water quality impacts would occur. With implementation of BMPs, impacts to water-water quality will be reduced to a less than significant level.

Station Surface Water Impacts

The Pomona Towne Station would include the development of one parking facility in an existing unpaved area. The Pomona Garey Station would also require the development of one parking facility in an unpaved area. Construction activity related to the development of these parking facilities, the station platforms and the TPSSs would require some site grading. However, is anticipated that ground disturbance would be minimal. These areas would also be required to implement the construction BMPs. Considering this, development of these parking facilities, stations, and TPSS construction would be temporary and would result in less than significant surface level water-water quality impacts.

Groundwater Impacts

As indicated above, improvements to the Pomona Towne Station and Pomona Garey Station would include the development of new parking facilities atop existing undeveloped land. No excavation below groundwater level would be required and no construction dewatering would occur. Thus, no impacts to groundwater are likely to occur.

Flood-Related Impacts

The study area is not located within a FEMA 100-year floodplain. Thus, no construction-related flood hazard impacts are anticipated to occur.

Claremont

Rail Relocation/Rail Addition Surface Water Impacts

Project-related construction affecting Claremont would include: the relocation of the existing rail; addition of two adjacent rails; construction of the TPSSs; and activities related to the Claremont Station and parking facilities. The action of relocating and adding rails to the existing ROW in the Pomona to Claremont portion would not necessitate significant changes in the existing rail bed grade or ROW. This is due to the rail bed being at grade within the ROW and the ROW being in a nearly flat area. Considering this, it is likely that no significant surface level water-water quality impacts would occur.

Channel/Drainage Surface Water Impacts

There are no channels/drainages designated as a blue line streams between these cities. Therefore, only minor and temporary surface level water quality impacts would occur. With implementation of BMPs, impacts to water-water quality will be reduced to a less than significant level.

Station Surface Water Impacts

The Claremont Station could require the conversion of surface parking to a parking structure or development of one parking facility in an unpaved area. Construction activity related to the development of the parking facilities, the station platforms, and the TPSSs would require some site grading. However, is anticipated that ground disturbance would be minimal. These areas would also be required to implement the construction BMPs. Therefore, development of the parking facility, station, and TPSS construction would be temporary and would result in less than significant surface level water-water quality impacts.

Groundwater Impacts

As indicated above, improvements to the Claremont Station could include the conversion of surface parking to a parking structure or development of a new parking facility atop existing undeveloped land. No excavation below groundwater level would be required and no construction dewatering would occur. Thus, no impacts to groundwater are likely to occur.

Flood-Related Impacts

The study area is not located within a FEMA 100-year floodplain. Thus, no construction-related flood hazard impacts are anticipated to occur.

Montclair/Upland

Rail Relocation/Addition Surface Water Impacts

Project-related construction affecting Montclair and Upland would include: the relocation of the existing rail; addition of two adjacent rails; construction of the TPSSs; and activities related to the Montclair Station facility. The action of relocating and adding rails to the existing ROW in the Claremont to Montclair portion would not necessitate significant changes in the existing rail bed grade or ROW. This is due to the rail bed being at grade within the ROW and the ROW being in a nearly flat area. Thus, it is likely that no significant surface level water-water quality impacts would occur.

Channel/Drainage Surface Water Impacts

There is one channel/drainage (the San Antonio Creek) designated as a blue line stream.. The San Antonio Creek is bridged within the ROW. Depending on the width required to accommodate the additional tracks, this bridge may require structural retrofitting. In so doing, potential accidental releases of construction-related contaminants (paints, fuels, hydraulic fluids, etc.) could occur within the streambed below. Considering this, there is the potential for construction-related surface water quality impacts. However, the proposed project would be required to comply with the mitigation measures under the relevant agency permits from ACOE, CDFG, and RWQCB. Additionally, implementation of construction BMPs would reduce the likelihood of this occurring, and the requirement for contractors to utilize only well-maintained equipment would further reduce the likelihood of occurrence. Considering this, only minor and temporary surface level water-water quality impacts would occur. With implementation of BMPs, impacts to water-water quality will be reduced to a less than significant level.

Station Surface Water Impacts

The Montclair Station is not anticipated to require the development new parking facilities. Thus, no significant surface level water-water quality impacts are likely to occur.

Groundwater Impacts

Improvements to the Montclair Station would not require excavation below groundwater level, and no construction dewatering would occur. Therefore, no impacts to groundwater are likely to occur.

Flood-Related Impacts

The study area is not located within a FEMA 100-year floodplain. Thus, no construction-related flood hazard impacts are anticipated to occur.

Summary of Triple Track Impacts for Full Build Alternative

Less than significant surface water-water quality impacts would occur in Phase II, Segments 1 and 2 cities because all construction would include construction BMPs, except for the San Gabriel River bridge area in Irwindale. Impacts in this area would not be reduced to less than significant with only BMPs and would require mitigation. Any potential impacts related to the construction of the maintenance facility would be minor and temporary. No groundwater impacts are likely because there is no anticipated excavation below groundwater surfaces or related dewatering. No flood-related impacts would occur because the area is not within a mapped 100-year floodplain.

Summary of Triple Track Impacts for Build LRT Alternative to the Maintenance Facility

Impacts for the Triple Track Configuration for Phase II, Segment 1 cities would be the same as described for the Full Build Alternative.

d. LRT, Double Track Configurations

Similar to the LRT, Triple Track Configuration, the construction-related impacts are primarily related to surface water, specifically in the areas of channels/drainages. The city of greatest potential impact is

Irwindale because of the amount of construction that would occur with the retrofitting of the San Gabriel River bridge and development of the maintenance facility. Potential impacts related to the retrofitting of the San Gabriel River bridge under the Double Track Configurations are likely to be somewhat less than those under the Triple Track Configuration since the bridge would not need to widened, and would thus have less potential impact. Potential construction-period impacts to the San Gabriel River would be considered temporary and thus less than adverse under NEPA. Construction impacts under CEQA would be potentially significant.

The Double Track Configurations would necessarily be implemented with requirements that are necessary under the permitting process. It is assumed that the project design and construction process will incorporate all appropriate permits from the ACOE, CDFG, LARWQCB and/or SARWQCB, LACFCD, and the San Bernardino County Flood Control District. These permits include BMPs and other requirements to have been developed to reduce environmental impacts. With the implementation of construction-period permits and BMPs, surface water-water quality impacts in the maintenance facility area would be less than significant. In the other areas of Irwindale, along with all other cities within the study area, potential surface water-water quality impacts are considered less than significant. Permits would be obtained for affected resources in all parts of the alignment as appropriate.

Surface water-water quality impacts in the maintenance facility area are considered minor and temporary. In the other areas of Irwindale along with all other cities within the study area, potential surface water-water quality impacts are considered less than significant.

No construction-related impacts to groundwater would occur in the study area because to no excavation would be conducted below groundwater tables, no dewatering is anticipated and the ability to minimize or prevent contaminants from entering groundwater through BMPs.

No construction-related impacts would occur with these alternatives and options because the study area is not located within any mapped 100-year flood zones.

Phase I – The Cities Affected and the Effects

Phase I includes the cities of Los Angeles, South Pasadena, and Pasadena. There are no elements of the Double Track Configurations in or that would have an effect to Los Angeles, South Pasadena, or Pasadena east of the Sierra Madre Villa Station.

Phase II, Segment 1 – The Cities Affected and the Effects

Water quality impacts for the Double Track Configurations would be the same as described for the Triple Track Configuration.

Summary of Double Track Impacts for Full Build Alternative

Less than significant surface water-water quality impacts would occur in the Phase II, Segments 1 and 2 cities because all construction would include construction BMPs, except for the San Gabriel River bridge area in Irwindale. Impacts in this area would not be reduced to less than significant with only BMPs and would require mitigation. Any potential impacts related to the construction of the maintenance facility would be minor and temporary. No groundwater impacts are likely because there is no anticipated excavation below groundwater surfaces or related dewatering. No flood-related impacts would occur because the area is not within a mapped 100-year floodplain.

Summary of Double Track Impacts for Build LRT Alternative to the Maintenance Facility

Impacts for the Double Track Configurations for Phase II, Segment 1 cities would be the same as described for the Full Build Alternative.

3-18.2.4 Long-Term Impacts

a. No Build Alternative

The No Build Alternative represents infrastructure development and programmatic changes to existing transportation services. There are no elements of the projects included in the No Build Alternative that would create long- term impacts to water quality to any of the cities in Phases I and II, Segment 1 or Phase II, Segment 2.

b. Transportation System Management (TSM) Alternative

The Transportation System Management (TSM) Alternative represents programmatic changes to existing arterial bus service schedules. As such, no operation-period impacts to surface water or groundwater are anticipated to occur. Additionally, no flood-related impacts are anticipated to occur. There are no long-term impacts to any of the cities in Phase I, Phase II, segment 1 or Phase II Segment 2 from the TSM Alternative.

c. LRT, Triple Track Configuration

Under the LRT, Triple Track Configuration, there would be no rail travel-related operational disruptions of existing storm drainage facilities is anticipated to occur. Less than significant impacts are anticipated to occur with the operation of the maintenance facility. No groundwater impacts and no flood-related impacts are anticipated to occur.

Any under-crossing or bridge retrofits in a water body would have to be constructed and permitted according to the provisions of ACOE, CDFG, RWQCB, and LACFCD, including implementation of BMPs and mitigation measures. Considering this, there would be no operational disruption of existing storm drainage facilities. Hence, no surface water-water quality impacts would occur.

Potential operational surface water impacts could result from accidental spills or leaks along the rail ROW. However, considering the fact that the project trains are for the transport of passengers, it is unlikely that significant amounts of contaminants would be aboard and available to be spilled or leaked. The project trains would be required to have scheduled maintenance, thus further reducing the potential for spills and/or leaks that would enter local drainages. Additionally, since freight operations already exist, and will continue under the Triple Track Configuration, the freight operations will continue to use the existing contaminant control measures. Hence, it is likely that less than adverse/ less than significant surface water-water quality impacts would occur.

Operation of the Maintenance Facility in Irwindale would be subject to the operational BMPs discussed in Section 3-1.1.2.b, Regulatory Setting. The use of clarifiers, designated wash and repair areas, and industrial hygiene practices under the BMPs would reduce the operational impacts to surface waters in the Irwindale maintenance facility area to less than significant levels.

The development of the station platforms, new parking facilities (in existing unpaved areas), and the Irwindale maintenance facility would introduce new impervious surfaces that would have the potential to increase runoff and inundate the existing local drainage network. However, based on their structural footprints and distribution throughout the study area, it is unlikely that these structures would contribute substantial amounts of runoff to the existing drainage network, thus less than significant surface level water-water quality impacts would occur.

Groundwater Impacts

The development of the station platforms, new parking facilities (in existing unpaved areas), and the Irwindale maintenance facility would introduce new impervious surfaces that would have the potential to reduce groundwater recharge in their respective areas. However, based on the size of their structural footprints and distribution of these facilities along the study area, it is unlikely that substantial reductions in groundwater recharge would occur. Hence, less than significant water-water quality impacts would occur. The depths to groundwater throughout the study area (with exception of Azusa) are more than 100 feet below grade. Considering this, the operational industrial hygiene practices, and BMPs to be implemented, less than significant water-water quality impacts would occur.

Flood-Related Impacts

None of the proposed structures would be located within a 100-year floodplain. Hence, no flood-related impacts would occur.

Summary of Triple Track Impacts for Full Build Alternative

The Triple Track Configuration under the Full Build Alternative would represent an increase in land area covered, and, therefore, would be more susceptible to potential spills or leaks from the project operation. However, as mentioned above, the industrial hygiene practices and BMPs that would occur as part of operations would reduce potential surface and groundwater impacts to less than significant levels. No flood-related impacts would occur.

Summary of Triple Track Impacts for Build LRT Alternative to Maintenance Facility

The potential operational impacts related to the Triple Track Configuration under the Build LRT to Maintenance Facility Alternative would be the same as those indicated above under the Full Build Alternative, with the exception that none would occur in areas east of the Irwindale maintenance facility.

d. LRT, Double Track Configurations

The Double Track Configurations would include one less track, yet would still include the same station, station parking, and TPSS facilities as well as the maintenance facility as described for the Triple Track Configuration. Operational surface water-water quality impacts would result from the same sources as indicated under the LRT, Triple Track Configuration discussion. Similarly, no groundwater impacts and no flood-related impacts are anticipated to occur.

Summary of Double Track Impacts for Full Build Alternative

All of the potential impacts under the Double Track Configurations would be from the same sources as those discussed under the Triple Track Configuration, but would be less, due to the smaller amount of area covered by two rails instead of three.

Summary of Double Track Impacts for Build LRT Alternative to Maintenance Facility

All of the potential impacts under the Double Track Configurations would be from the same sources as those discussed under the Triple Track Configuration, but would be less, due to the smaller amount of area covered by two rails instead of three.

3-18.2.5 Cumulative Impacts

Cumulative impacts to water quality could arise from the ongoing growth of the region. As individual residential and commercial projects are implemented over time, they place incremental demands on water resources. The transportation improvements included in the No Build, TSM and LRT Alternatives are all included in SCAG's 2025 forecast of regional growth and in the plans of individual cities. Although these transportation projects may influence the location of development or redevelopment, they are not likely to induce additional, unaccounted-for demands.

3-18.2.6 Impacts Addressed by Regulatory Compliance

See Section 3-18.1.2, Regulatory Setting for more information about the specific federal, state, and local regulatory requirements regarding water-water quality.

a. Construction Period Impacts

Impacts that would arise from construction of any of the alternatives were identified in Section 3-18.2.3. Elimination or reduction of these construction period impacts would occur through two steps, as follows: (1) compliance with local, state or federal regulations or permits that have been developed by agencies to manage construction impacts, to meet legally established environmental impact criteria or thresholds, and/or to ensure that actions occurring under agency approvals or permits are in compliance with laws and policies. (2) Implementation of the proposed alternatives with additional construction period mitigation measures defined in Section 3-18.3.1. Following is a discussion of the construction period impacts for each of the alternatives that would be addressed by the first step, regulatory compliance.

For all alternatives, it is assumed that design and construction would incorporate all appropriate permits from the ACOE, CDFG, LARWQCB and/or SARWQCB, and LACFCD. Additional, more detailed design work, which would occur during Preliminary Engineering, is necessary to determine the exact types and conditions of permits and other regulatory compliance matters However, based on the intent of these permits to reduce environmental impacts to levels required by their authorizing legislation or implementing regulations, it is assumed that construction period impacts for all alternatives would be less than adverse under NEPA and less than significant under NEPA.

It should be noted that although FTA, the Construction Authority, LACTMA, and SANBAG are not subject to local ordinances, to the extent feasible local permits would be obtained to help assimilate proposed improvements into the communities in which they would occur.

b. Long-Term Impacts

Long-term impacts associated with of the alternatives were identified in Section 3-18.2.4. Elimination or reduction of these long-term impacts would occur through two steps, as follows: (1) compliance with local, state or federal regulations or permits that have been developed by agencies to manage construction impacts, to meet legally established environmental impact criteria or thresholds, and/or to ensure that actions occurring under agency approvals or permits are in compliance with laws and policies. (2) implementation of the proposed alternatives with additional mitigation measures defined in Section 3-18.3.2.

No long-term impacts that would be adverse under NEPA or significant under CEQA were identified in Section 3-18.2.4. It is assumed that proposed transportation improvements in all of the alternatives would be operated in compliance with industrial hygiene requirements and BMPs.

3-18.3 Potential Mitigation

Section 3-18.2.6a identified construction period impacts for which compliance with local, state, and federal regulations, permits, or similar types of requirements would eliminate or reduce such impacts. The following sections identify potential mitigation measures that would need to be implemented in order to address any remainder impacts (i.e., impacts that would still exist after regulatory compliance). The combination of regulatory compliance and these construction period mitigation measures would result in the reduction of construction period impacts to levels that would be not adverse under NEPA and less than significant under CEQA.

3-18.3.1 No Build Alternative

There are no elements of the No Build Alternative that would require mitigation measures beyond those already identified for the Eastside LRT Extension. These measures apply only within Phase I, in Los Angeles.

3-18.3.2 Transportation System Management (TSM) Alternative

There are no elements of the TSM Alternative that would require mitigation measures.

3-18.3.3 LRT, Triple Track Configuration

a. Phase I

There are no elements of the Triple Track Configuration in Phase I cities.

b. Phase II, Segment 1

All Cities

The following proposed mitigation measures would apply in all cities in Phase II, Segment 1:

W-WQ 1 The proposed project will result in the disturbance of five or more acres of land. Prior to the issuance of preliminary or precise grading permits, the project proponent shall provide the City Engineers of the affected cities with evidence that a Notice of Intent (NOI) has been filed with the SWRCB. Such evidence shall consist of a copy of the NOI stamped by the SWRCB or the RWQCB, or a letter from either agency stating that the NOI has been filed.

W-WQ 2 Prior to the commencement of soil disturbing activities, the project proponent shall submit for approval to the SWRCB, a NOI to be covered under the Storm Water Permit. Additionally, the project proponent shall prepare a Storm Water Pollution Prevention Plan (SWPPP) which will: 1) require implementation of BMPs so as to prevent a net increase in sediment load in storm water discharges relative to the preconstruction levels; 2) prohibit discharges of storm water or non-storm water at levels which would cause or contribute to an exceedance of any applicable water quality standard contained in the relevant basin plans; 3) discuss in detail the BMPS to be used for project-related control of the sediment and erosion, non-sediment pollutants, and potential pollutants in non-storm water discharges; 4) describe post-construction BMPs for the project; 5) explain the monitoring and maintenance program for the project's BMPs; 6) require reporting violations to the Regional Board; and 7) list the parties responsible for SWPPP implementation and BMP maintenance both during and after construction. Upon acceptance of the NOI by the SWRCB, the project proponent shall implement the SWPPP and will modify the SWPPP as directed by the Storm Water Permit.

W-WQ 3 The project proponent shall develop a Water Quality Management Plan (WQMP) and shall submit the WQMP for review to each respective city within the study area. The cities shall approve the WQMP prior to the issuance of precise grading permits for project facility development. The WQMP shall: 1) describe the routine and special post-construction BMPs to be used, including both structural and non-structural measures; 2) describe responsibility for the initial implementation and long-term maintenance of the BMPs; 3) provide narrative with the graphic materials as necessary to specify the locations of the structural BMPs; and certify that the project proponent will strive to have the WQMP carried out by any future successors of the project facilities.

W-WQ 4 Should the project contribute to offsite drainage deficiencies, the project proponent shall participate on a fair-share basis in the construction of improvements necessary, as determined by the cities affected by the project, to address these deficiencies in conjunction with the approval of the first final map for the project.

W-WQ 5 Prior to construction, coordination with ACOE, CDFG, and the appropriate RWQCB shall be sought to determine the requirements for their respective permits for any blue-line streams affected by project construction.

c. Phase II, Segment 2

The same mitigation measures as described for Segment 1 cities would apply.

Summary of Construction-Period Mitigation Measures for the Full Build LRT Alternative, Triple Track Configuration

The construction mitigation under the Full Build LRT Alternative, Triple Track Configuration is based on establishing project controls through formalized processes, agreements and permits that would minimize any surface water, groundwater or flood-related impacts to less than significant levels.

Summary of Construction-Period Mitigation Measures for the Build LRT to Maintenance Facility Alternative, Triple Track Configuration

The construction mitigation under the Full Build LRT Alternative, Triple Track Configuration is based on establishing project controls through formalized processes, agreements and permits that would minimize any surface water, groundwater or flood-related impacts to less than significant levels.

d. LRT, Double Track Configurations

There are no elements of the Double Track Configurations that affect Los Angeles, South Pasadena, or the area of Pasadena east of the Sierra Madre Villa Station. Impacts for the Double Track Configurations in Phase II cities is the same as described for the Triple Track Configuration, and the same mitigation measures would be needed.

3-18.3.4 Long Term Mitigation

None of the alternatives would require long-term mitigation, except for the Maintenance and Operating Facility that is part of the LRT Alternatives. Two measures to avoid or reduce potential impacts during operation are proposed.

W-WQ 6 A General Industrial Storm Water Permit will be required for the Irwindale maintenance facility. The SWPPP for this permit will contain or identify pollutant sources, source controls, material inventory, preventive maintenance program, spill prevention and response program, employee training, facility inspections, record keeping and elimination of non-storm water discharges. The SWPPPs will be developed in coordination with the RWQCB.

W-WQ 7 In the event of surface water contamination during the operation of the proposed corridor, appropriate emergency procedures would be followed to ensure a minimum of damage to surface water resources. An emergency response plan will be developed and approved prior to operation of the proposed project. This plan will include information on the nature of materials likely to be transported along the corridor, the types of remedial actions required in the event of a spill of such materials and an emergency notification and evacuation plan, if required. The plan will be developed in cooperation with adjoining jurisdictions and appropriate state agencies.

3-18.4 Impact Results with Mitigation

The following sections report the result of complying with regulatory requirements and proposed mitigation measures. The intent of this section is to summarize where identified impacts have been eliminated or reduced to less than adverse/less than significant levels, or whether there may be remainder impacts.

3-18.4.1 Construction Period

a. No Build Alternative

Other than the construction-period mitigation measure identified in the environmental document for the Eastside Extension, there are no elements of the No Build Alternative that require mitigation in cities in Phases I or II.

b. TSM Alternative

There are no elements of the TSM Alternative that would result in construction period impacts that would be adverse under NEPA and significant under CEQA.

c. LRT, Triple Track Configuration

Phase I – The Cities Affected and the Results of Construction Period Mitigation Measures

There are no elements of the Triple Track Configuration in Phase I cities.

Phase II – The Cities Affected and the Results of Construction Period Mitigation Measures

Construction period impacts in all Phase II cities would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-18.2.6.a, and the additional measures to mitigate impacts identified in Section 3-18.3.1.c. As a result of these two conditions, construction period impacts would be not adverse under NEPA and not significant under CEQA.

Summary of Results of Construction Period Mitigation Measures for Full Built LRT Alternative, Triple Track Configuration

Construction period impacts would be eliminated or reduced to less than adverse/less than significant levels.

Summary of Results of Construction Period Mitigation Measures for Built LRT Alternative to Maintenance Facility, Triple Track Configuration

Construction period impacts would be eliminated or reduced to less than adverse/less than significant levels.

d. LRT, Double Track Configurations

Phase I

There are no elements of the Double Track configurations in Los Angeles, South Pasadena, or in Pasadena east of the Sierra Madre Villa Station, so there would be no construction period impacts in those cities.

Phase II

Construction period impacts of the Double Track Configurations would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-18.2.6.a, and the additional measures to mitigate impacts identified in Section 3-18.3.1.d. As a result of these two conditions, construction period impacts would be not adverse under NEPA and not significant under CEQA.

3-18.4.2 Long Term

a. No Build Alternative

Long-term impacts for the No Build Alternative would not change from the level of impact initially identified since no mitigation measures would be required or implemented.

b. TSM Alternative

Long-term impacts in all cities would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-18.2.6.b, and no additional measures to mitigate impacts were identified in Section 3-18.3.2.b. As a result of these two conditions, construction period impacts would be not adverse under NEPA and not significant under CEQA.

c. LRT, Triple Track Configuration

Long-term impacts in all Phase II cities would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-18.2.6.b, and no additional measures to mitigate impacts were identified in Section 3-18.3.2.c. As a result of these two conditions, construction period impacts would be not adverse under NEPA and not significant under CEQA.

Summary of Results of Long Term Mitigation Measures for Full Built LRT Alternative, Triple Track Configuration

Long-term impacts would be eliminated or reduced to less than adverse/less than significant levels.

Summary of Results of Construction Period Mitigation Measures for Built LRT Alternative to Maintenance Facility, Triple Track Configuration

Long-term impacts would be eliminated or reduced to less than adverse/less than significant levels.

d. LRT, Double Track Configurations

Long-term impacts in all Phase II cities would be eliminated or reduced to less than adverse/less than significant levels by complying with the local, state, and/or federal regulatory requirements and/or permits identified in Section 3-18.2.6.b, and no additional measures to mitigate impacts were identified in Section 3-18.3.2.d. As a result of these two conditions, construction period impacts would be not adverse under NEPA and not significant under CEQA.

Summary of Results of Long Term Mitigation Measures for Full Built LRT Alternative, Double Track Configurations

Long-term impacts would be eliminated or reduced to less than adverse/less than significant levels.

Summary of Results of Long Term Mitigation Measures for Built LRT Alternative to Maintenance Facility, Double Track Configurations

Long-term impacts would be eliminated or reduced to less than adverse/less than significant levels.

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Chapter 4
Other Impact Considerations

CHAPTER 4 - OTHER IMPACT CONSIDERATIONS

For the sections in this chapter that are required under both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), both NEPA and CEQA language is employed in the discussion of impacts.

In the sections in this chapter that are required only by NEPA, and not by CEQA, solely the NEPA term "adverse" (and not the CEQA term "significant") is used to describe impacts.

In the sections in this chapter that are required only by CEQA, and not by NEPA, solely the CEQA term "significant" (and not the NEPA term "adverse") is used to describe impacts.

4-1 INDIRECT/SECONDARY IMPACTS

This section is required by both NEPA and CEQA.

Construction and operation of the proposed project would involve both direct effects (i.e., those generated by the proposed project onto the immediate vicinity) and indirect (secondary) effects. Indirect effects may include those impacts that are induced by a proposed project, but which tend to occur at some distance from and/or time after the project (e.g., the effects of transportation development on long-term population growth). Indirect effects may also include those impacts that occur as a result of interrelationships between different resource systems in the environment (e.g., the effects of water pollution on sensitive biological resources).

The Council on Environmental Quality (CEQ) regulations governing the implementation of NEPA (40 CFR 1508.8) define indirect effects as those that are:

> *"...caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems."*

Indirect effects cannot always be clearly and immediately discerned, or precisely measured under standard environmental impact assessment methodologies. Additionally, very little formal guidance on analyzing indirect effects has been developed by governmental agencies. The analysis that follows considers the potential indirect effects, if any, which would result from construction and operation of the proposed project.

4-1.1 Acquisitions and Displacements

The proposed project would not have any indirect effects related to acquisitions and displacements.

The potential effects of the proposed project related to acquisitions and displacements would be considered direct effects, since they would be limited to the immediate vicinity and time frame, and they would not affect other resource systems. These effects are described in Section 3-1.

4-1.2 Air Quality

During construction, the potential effects of the proposed project related to air quality would be considered direct effects, since they would be limited to the immediate vicinity and time frame, and they would not affect other resource systems. For the long-term, air quality impacts would also be considered direct effects, since the proposed transit improvements would change to mix of vehicles traveling in the region, with the primary effect being a shift from single-occupant vehicles (SOV) to transit. The forecasted change in vehicle miles traveled by vehicle type is included in the air quality analysis in Section 3-2.

There is a potential for indirect effects (benefits) to air quality to the extent that the project supports transit-oriented development or other land use location decisions that would result in new or increased development near stations that encourage the use of transit. To the extent that such development reduces SOV tripmaking, there would be a corresponding reduction in VMT and improvement in air quality.

4-1.3 Biological Resources

The proposed project should not have any indirect effects related to biological resources. The only major biological resources present are at the proposed Maintenance and Operations Facility site. The biological analysis indicated only a low potential for indirect effects to vegetation during construction, which would not be adverse under NEPA or significant under CEQA. No indirect impacts to wildlife were identified.

The potential effects of the proposed project related to biological resources would be considered direct effects, if they were to occur, since they would be limited to the immediate vicinity and time frame, and they would not affect other resource systems. These effects are described in Section 3-3.

4-1.4 Community Facilities and Services

The proposed project would not have any indirect effects related to community facilities and services. The forecasted ridership on the LRT system is based upon SCAG's regional population forecasts for 2030, which are slated for adoption in April 2004. Each city is aware of the forecast and plans its community facilities and services accordingly. The cities' general and specific plans also reflect the proposed LRT service.

The potential effects of the proposed project related to community services and facilities would be considered direct effects, since they would be limited to the immediate vicinity and time frame, and they would not affect other resource systems. No direct impacts to community services or facilities were identified in Section 3-4.

4-1.5 Cultural Resources

The proposed project would have beneficial indirect effects related to cultural resources since the project has provided an impetus for reuse of historic rail depots in Monrovia, Azusa, and San Dimas. Future patrons would also enjoy increased opportunities to visit and/or utilize historic resources in the cities along the proposed alignment.

The potential effects of the proposed project related to cultural resources would be considered direct effects, since they would be limited to the immediate vicinity and time frame, and they would not affect other resource systems. No adverse direct effects to cultural resources are expected as a result of the

proposed project. Other, related projects are being undertaken by the individual cities, which do affect cultural resources. These are described in Section 3-5.

4-1.6 Energy

The proposed project could have indirect effects related to energy to the extent that the project supports transit-oriented development or other land use location decisions that would result in new or increased development near stations that encourage the use of transit. To the extent that such development reduces SOV tripmaking, there would be a corresponding reduction in VMT and less demand for energy.

The potential effects of the proposed project related to energy demand would be considered direct effects, resulting primarily from the future operations of the LRT system. These effects are described in Section 3-6.

4-1.7 Geology/Seismic Hazards

The proposed project would not have any indirect effects related to geology and seismic hazards.

The potential effects of the proposed project related to geology and seismic hazards would be considered direct effects. The analysis in Section 3-8 revealed there were no potential impacts that not be resolved through the design process.

4-1.8 Hazardous Materials

The proposed project would not have any indirect effects related to hazardous materials since it is assumed that all operations would be in conformity with federal and state regulations that are specifically formulated to avoid hazards from the transportation, handling, use and disposal of materials during operation of the LRT system.

The potential effects of the proposed project related to hazardous materials would be considered direct effects. These effects could occur during the construction phase at sites (identified in Section 3-9 as containing hazardous materials) that are acquired for the proposed project, or that are affected by the construction process. These direct impacts would not be considered to be adverse under NEPA or significant under CEQA since the project would have to be implemented in accordance with measures required under regulatory permits. These effects are described in Section 3-9.

4-1.9 Land Use and Planning

The proposed project could have indirect effects related to land use and planning to the extent that the project influences transit-oriented development or other land-use location decisions. The draft regional land use and population forecasts through 2030 include the proposed LRT service. Each city is aware of the forecast. The cities' general and specific plans also reflect the proposed LRT service.

The site-specific potential effects of the proposed project related to land use and planning, such as the station and parking areas, would be considered direct effects, and are described in Section 3-10. Proposed LRT system elements are consistent with the cities' planning and zoning.

4-1.10 Noise and Vibration

The proposed project would not have any indirect effects related to noise and vibration. Direct impacts could occur where proposed LRT service would occur in conjunction with existing noise and vibration from freight and commuter rail operations on portions of the proposed alignment. The noise and vibration analysis considered these potential direct effects, and is reported in Section 3-11.

4-1.11 Railroad Operations

The proposed project would not have any direct or indirect effects related to railroad operations under the Triple Track configuration, since freight operations would continue as they do now. Under the Double Track configurations, there would be changes in railroad operations that would include direct and indirect effects. Under the Double Track option to constrain freight operations to the hours when LRT would not be operating, freight delivery and receipt would be constrained to hours generally between 2 AM and 4 AM. This option would include the direct effect of this constrained delivery, as well as potential indirect effects on the operation of individual businesses that could affect their long time viability.

The Double Track configuration with freight service supplanted to trucks would include direct and indirect effects. In addition to the change in how materials are delivered and shipped, there are also potential indirect effects on the operation of individual businesses that could affect their long time viability. See Section 3-12.

4-1.12 Safety and Security

The proposed project would not have any indirect effects related to safety and security. The incremental increase and on-going demand for safety and security services associated with operations of the transit system would be considered direct effects. These effects are described in Section 3-13.

4-1.13 Population, Housing, and Employment

The proposed project could have direct and indirect effects related to the location of population, housing and employment to the extent that the project influences transit-oriented development, land use location decisions, or where people choose to live. The regional forecasts through 2030 include the proposed LRT service, and incorporate that service in the population, housing and employment matrix. The cities' general and specific plans, which recognize population, housing and employment, also reflect the proposed LRT service.

The potential effects of the proposed project related to population, housing, and employment are described in Section 3-14.

4-1.14 Traffic and Transportation

The proposed project could have indirect effects related to traffic and transportation to the extent that future growth is further influenced by transit. The forecasted increase in traffic that would occur as a result of the regional growth forecast through 2025 (i.e., background, non-project-generated) growth has been included in the traffic analysis. There is a potential for indirect effects (benefits) to regional traffic to the extent that the project supports transit-oriented development or other land use location decisions that would result in new or increased development near stations that encourage the use of transit. To the

extent that such development reduces SOV tripmaking, there would be a corresponding reduction in VMT.

The potential effects of the proposed project related to traffic and transportation that would be considered direct effects would arise from changes in local traffic bound to and from LRT stations and changes in traffic using freeways and arterials to move through the study corridor. These effects are described in Section 3-15.

4-1.15 Utilities

The proposed project could have indirect effects related to utilities to the extent that the project influences transit-oriented development, land use location decisions, or where people choose to live. Overall, the future demand for utilities is driven by the regional growth forecast. The cities' general and specific plans that address utility needs reflect the regional forecast and proposed LRT service.

The potential effects of the proposed project related to utilities that would be considered direct effects, would occur during the construction phase. The needs for and effects of utility relocations are described in Section 3-16.

4-1.16 Visual Quality/Aesthetics

The proposed project could have indirect effects related to visual quality/aesthetics to the extent that LRT stations may influence how individual cities choose to control visual imagery within their boundaries.

The potential effects of the proposed project related to visual quality/aesthetics that could be considered direct effects, in comparison to existing conditions, are described in Section 3-17.

4-1.17 Water Quality and Hydrology

The proposed project could have indirect effects related to water quality/hydrology to the extent that the project influences transit-oriented development, land use location decisions, or where people choose to live. The potential effects of the proposed project related to water quality/hydrology that would be considered direct effects are associated with either the construction process or operation of the system. Direct impacts would be governed, and reduced and maintained to less than adverse under NEPA and less than significant levels under CEQA, by compliance with federal and state permits during construction and operation. These issues are described in Section 3-18.

4-2 CUMULATIVE IMPACTS SUMMARY

This section is required by both NEPA and CEQA.

Construction and operation of the proposed project would involve the direct and indirect effects of the proposed project as well as the cumulative effects of the proposed project combined with other related past, present, and reasonably foreseeable future actions.

For purposes of analyzing the potential cumulative effects of the proposed project, the definitions of "cumulative impact" under both NEPA and CEQA have been followed. The CEQ regulations governing the implementation of NEPA (40 CFR 1508.7) define a cumulative impact as:

> *"the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."*

The State CEQA Guidelines (14 Cal. Code of Regs. sec. 15355) define cumulative impacts as:

> *". . . two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.*
>
> *(a) The individual effects may be changes resulting from a single project or a number of separate projects.*
>
> *(b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."*

The analysis of the cumulative effects of the proposed project also incorporates the suggestions in the CEQ's handbook entitled "Considering Cumulative Effects Under the National Environmental Policy Act" (January 1997), which is intended as an informational document rather than formal agency guidance.

Based on the CEQ and State CEQA Guidelines discussion of cumulative effects, the following principles can be applied to the assessment of cumulative effects of the proposed project:

- Cumulative effects typically are caused by the aggregate effects of past, present, and reasonably foreseeable actions. These are the effects (past, present, and future) of the proposed action on a given resource and the effects (past, present, and future), if any, caused by all other related actions that affect the same resource.
- When other related actions are likely to affect a resource that is also affected by the proposed action, it does not matter who (public or private entity) has taken the related action(s).
- The scope of cumulative effects analyses can usually be limited to reasonable geographic boundaries and time periods. These boundaries should extend only so far as the point at which a resource is no longer substantially affected or where the effects are so speculative as to no longer be truly meaningful.
- Cumulative effects can include the effects (past, present, and future) on a given resource caused by similar types of actions (e.g., air emissions from several individual highway projects) and/or the effects (past, present, and future) on a given resource caused by different types of actions (e.g., air emissions from a highway project, a solid waste incinerator, and a mining facility).

The analysis that follows considers the potential cumulative effects, if any, that would result from construction and operation of the proposed project combined with construction and operation of other related projects.

4-2.1 Related Projects

As described more fully in Appendix H, several related projects have been identified in the vicinity of the proposed project. These include such major projects as the proposed redevelopment of the Monrovia

Nursery site in Azusa, and numerous smaller-scale developments and infrastructure projects are in various stages of planning, approval and implementation.

4-2.2 Impacts

4-2.2.1 Acquisitions and Displacements

The proposed Monrovia Nursery redevelopment, and most other projects on the Related Projects list, does not include property acquisitions that would require displacements of residents. Where business displacements may be necessary for development or redevelopment, the subject business properties are being acquired and/or relocated by private sector action. Therefore, it is not anticipated that there would be a cumulative adverse effect under NEPA (significant impact under CEQA) from displacements that could result from the proposed developments in the area. Any additional redevelopment of vacant parcels that may result from other projects in the area would also be subject to the planning process of individual cities. The cities' approval processes include compliance with CEQA, thereby addressing any potential adverse effects related to property acquisitions and displacements.

4-2.2.2 Air Quality

The proposed LRT system would contribute to regional compliance directly as a result of change in vehicle miles traveled (VMT) for trip-making across the corridor, and indirectly to the extent that transit oriented development would occur around proposed stations and further reduce VMT. Combined with other proposed transportation improvements in the region, there is a potential for cumulative positive benefits.

4-2.2.3 Biological Resources

There is little potential for cumulative biological impacts given the lack of habitat in the study area. The primary cumulative impact on biological resources is habitat fragmentation, resulting in the loss of native habitat. Habitat fragmentation by urbanization creates isolated "islands" of wildlife habitat and negatively affects wildlife movement corridors that connect water, food, and cover sources. As fragmentation continues, connectivity between habitats and populations they support are lost. However, the proposed project's contribution to cumulative habitat fragmentation impacts would be minor. The majority of the project occurs in already developed urban areas. The habitat that would be lost in the City of Irwindale is marginal. Additionally, the San Gabriel River wildlife movement corridor would not be affected by the proposed project.

4-2.2.4 Community Facilities and Services

The No-Build and TSM Alternatives would not affect community facilities or services and therefore would not contribute to any significant cumulative impacts.

The LRT Double Track and Triple Track alternatives would potentially contribute to cumulative public service impacts, and are discussed together below. The study area for the public services cumulative impacts analysis consists of the service areas for the police and fire stations that serve areas surrounding the proposed alignment. The study area also includes schools, parks, hospitals, and government centers located within 0.25 miles of the proposed alignment that could experience increases in population due to project construction and cumulative development.

a. Police

The Los Angeles County Sheriff's Department (LASD) would patrol Gold Line Facilities. The respective city police departments would provide additional services when needed and requested by LASD. Proposed Related Projects include construction of residential units, commercial, office, public, medical, and retail space. New construction would likely increase the residential and employee populations in the project study area, which would place additional demand on local police departments. Because LACMTA maintains its own security, the Gold Line Project is not expected to contribute to cumulative impacts to police services or cumulative increases in demand for police services. Therefore, the proposed project would not have an adverse (under NEPA)/significant (under CEQA) cumulative impact on police services.

b. Fire

As discussed earlier, the proposed Gold Line Project is not expected to increase demand for fire protection services because such demand is primarily attributable to increased commercial and residential development rather than transit projects. Increases in the residential and employee populations in the area are expected as a result of the development component of the related projects, and as a consequence, demand for fire protection services in the area would increase. However, because the proposed Gold Line Project would not by itself increase fire protection demands, it would not contribute to cumulative impacts to fire protection services or cumulative increases in demand for fire protection services. Therefore, the proposed project would not contribute to potentially adverse (under NEPA)/significant (under CEQA) cumulative impacts.

c. Schools

Related projects in the project vicinity would include an increase in residential units, and multiple commercial/industrial/office developments. New residential development would directly increase enrollment in local schools. Student enrollment could also be indirectly affected by increases in employment due to new non-residential development. The amount of residential and commercial/industrial development proposed in the area could be substantial, and it is possible that schools that are currently overcrowded could be adversely affected by increased enrollment and new or expanded facilities would be required. Several schools have been proposed in the project vicinity, which would help accommodate some of the demand. Because the Gold Line Project is a transit project that would not increase the amount of residential units in the project area, it would not increase local school enrollment and therefore would not contribute to adverse (under NEPA)/significant (under CEQA) cumulative impacts to schools.

d. Parks

Increases in residential and employee populations due to the proposed project and related projects could place additional demands on park services in the area. If additional park facilities were required to maintain existing service levels, significant cumulative impacts could occur. However, because the proposed project would not affect demand for parks it would not result in or substantially contribute to an adverse (under NEPA)/significant (under CEQA) cumulative impact on parks.

e. Government Centers

Increases in residential and employee populations due to the proposed project and related projects would not place additional demands on government facilities in the project vicinity because the demand for

service at government centers (i.e. city hall) is not derived from the population immediately surrounding the facilities. Each of the facilities is designed to accommodate the needs of the City as a whole. Therefore, the proposed project and related projects are not expected to result in adverse (under NEPA)/significant (under CEQA) cumulative impacts on government facilities.

f. Hospitals

Increases in residential and employee populations due to the related projects could place additional demands on hospital services in the area. City of Hope National Medical Center is a specialty hospital that selects its patients, and would not be affected by increased population. If additional hospital facilities were required to maintain existing service levels at the other two hospitals, significant cumulative impacts could occur. However, because the proposed project would not affect demand for hospitals it would not result in or substantially contribute to an adverse (under NEPA)/significant (under CEQA) cumulative impact on hospitals.

4-2.2.5 Cultural Resources

Mitigation measures undertaken during construction will address impacts/effects to cultural or paleontological resources as required by law. Thus, there will be no cumulative impacts/effects to cultural or paleontological resources for either the Triple Track or the Double Track Alternatives. Related projects by local sponsors for historic depot rehabilitation for transit purposes would have a positive cumulative impact on cultural resources.

4-2.2.6 Energy

The LRT Build Alternatives, in coordination with other regional public transportation improvements, would help to reduce dependency on single-occupant vehicles (SOVs). This would in turn reduce fossil fuel energy consumption and improve roadway congestion. Construction of the LRT Build Alternatives in combination with other construction projects occurring within the same period and within the region may result in a short-term increase in energy consumption. This would be a temporary effect and given the available and planned energy resources within the region and state, no significant impact is anticipated. Some of the materials needed to construct the project may not be manufactured within the region or state and would, therefore, not result in the use of local or statewide energy resources.

4-2.2.7 Geology/Seismic Hazards

There should be no cumulative significant/adverse geologic or seismic impacts. It is assumed that proper design of any project in the area in accordance with engineering standards would mitigate the impacts of strong ground shaking, liquefaction potential, and earthquake induced subsidence.

4-2.2.8 Hazardous Materials

Construction of either alternative would not affect hazard material locations other than those specifically identified in this section. Potential impacts associated with the proposed project would not combine with other potentially hazardous conditions to result in a cumulative impact, since each individual project would be implemented to include provisions for remediation to less than significant levels of any encountered contaminants.

4-2.2.9 Land Use and Planning

Cumulative land use impacts would consist of changes in development patterns related to the No-Build, TSM, Full Build, and Build LRT to Maintenance Facility Alternatives. Either of the LRT alternatives may induce the redevelopment of under-utilized parcels or result in transit-oriented development in the vicinity of LRT stations. Conversely, cumulative impacts of the No-Build and TSM alternatives may entail continued reliance on automobile-oriented development and the inability to achieve redevelopment goals. These impacts would be less than significant however, because existing local plans and zoning already guide development in station areas.

Taking into consideration the past, present, and reasonably foreseeable future development projects in the study area, it would be unlikely that the proposed project and those other projects would result in adverse cumulative impacts. First, any other related projects would be held to the same regional and local land use plans and policies as the proposed project, thereby ensuring consistency with those land use regulations. Second, no other related projects have been identified that would conflict with either the proposed project or the existing and planned land use and development pattern in the study area. Finally, the other related projects in the study area, in conjunction with the proposed project, are unlikely to cumulatively induce additional land development beyond that which is already planned. Many other considerations, such as land use regulations and market conditions, would have to be present for development to occur. As a result, no adverse (under NEPA)/significant (under CEQA) impacts are anticipated.

4-2.2.10 Noise and Vibration

Metrolink commuter rail service on the San Bernadino Line is part of the existing noise and vibration environment in the area between La Verne and Montclair. Under No-Build and TSM options, Metrolink operations would continue to provide service as needed and there would be no cumulative impacts associated with the proposed project. Metrolink service does not extend to the east of Pomona in the Phase II Segment 2 study corridor, or into the Phase II Segment 1 study corridor. Under the Full Build Alternative, the areas with the greatest potential for cumulative noise and vibration impacts associated with the Phase II Extension would occur in the cities of La Verne, Pomona, Claremont, and Montclair in Segment 2, where the proposed LRT would overlap with existing Metrolink and freight services. Relocation of tracks within the right-of-way could slightly increase the noise exposure and vibration levels experienced by adjacent land use. The slight change in noise and vibration levels resulting from minor track shifts would be insignificant with respect to existing conditions. Where LRT- generated noise levels (which also account for existing Metrolink and freight noise) would exceed impact thresholds, mitigations measures such as noise barriers or sound insulation would reduce impacts to less than the FTA noise impact threshold. In locations where proposed LRT service overlaps with existing Metrolink commuter rail or freight operations, locations where noise mitigations is applied for LRT impacts would be concurrently receiving mitigation for noise associated with existing commuter rail or freight rail operations. When added to the proposed LRT operations, the potential cumulative impacts would not change from those projected as long-term impacts.

4-2.2.11 Railroad Operations

For the Triple Track configuration, cumulative impacts to rail operations and service levels from implementation of the proposed project and related projects are not expected to occur since freight service would continue as it does now.

For the Double Track configurations with freight operations, the current means of freight operations could be negatively affected since freight service would be constrained to nighttime hours when LRT vehicles would not be in service (approximately 2 AM to 4 AM).

4-2.2.12 Safety and Security

There are potential cumulative impacts for the No-Build, TSM, Full Build, and Build LRT Alternative to Maintenance Facility, since each of these alternatives would place an incremental increase in demand on safety and security programs. The LRT build alternatives would have the highest incremental change, since they would add 12 new stations to the system, as well as a Maintenance and Operations Facility. Potential cumulative impacts would be nearly identical for the Triple Track or Double Track configurations.

4-2.2.13 Socioeconomics

a. No-Build Alternative

Cumulative impacts could potentially occur from implementation of the No-Build Alternative, which includes extension of I-210 in San Bernardino County, construction and service on the Eastside LRT Extension, implementation of increased service on Phase I of the Gold Line LRT, and countywide bus service improvements. The projects included in the No-Build Alternative are spread across cities in Los Angeles and San Bernardino counties, and would be implemented in a series of construction contracts over the coming decade. Since the projects are so widespread, cumulative impacts, either from construction or operation of the No-Build Alternative projects would not be likely to occur to a particular city or neighborhood. Other projects that may occur during the No-Build construction period are listed in Appendix G, Related Projects. These projects range from redevelopment of individual parcels to redevelopment of the Monrovia Nursery properties in Azusa and Glendora. Large-scale projects have a higher potential to contribute to cumulative socioeconomic impacts. A cursory review of the related projects (many of which are defined only at the conceptual level) does not reveal a combination of such projects with No-Build projects that appear likely to create substantial cumulative impacts.

b. TSM Alternative

The TSM Alternative includes changes in bus service in the Phase II study area. These changes are intended to increase the effectiveness of existing bus service and do not include adding new routes. Adjustments to bus service would not be likely to contribute to cumulative socioeconomic impacts, either from a regional perspective or within an individual city or neighborhood.

c. LRT Alternatives

The types of potential for cumulative socioeconomic impacts would be the same for either the Triple Track or Double Track configurations since the ridership forecast for both configurations is virtually identical. The total potential for cumulative impacts would be greater for the Full Build Alternative (Segments 1 and 2) than the Build Alternative to Maintenance Facility (Segment 1 only) because of the additional stations in Segment 2.

Cumulative impacts would be mostly likely to arise from the combination of additional transit ridership and redevelopment around stations, which could include changes in land use. In general, land use changes in station areas associated with LRT service have already been accounted for by individual cities'

planning efforts. This planning typically calls for increased residential densities or commercial activity within walking distances of stations. These increases in density or activity would be consistent with the overall socioeconomic profile of the individual cities; no substantive changes would occur as the result of LRT service. The City of Upland has the greatest amount of forecasted change in its socioeconomic profile, arising from planned development to the north and east of the proposed Montclair and Upland LRT stations. These changes arise from current planning and approval activities that recognize, but are not dependent on, proposed LRT service.

4-2.2.14 Traffic and Transportation

Cumulative traffic impacts could occur if construction of the various projects in the study area were to overlap. The potential for cumulative construction-period impacts in the study area would be reduced by implementation of each of the projects under the auspices of a Traffic Management Program (TMP). Each project would have a TMP to organize how detours, lane closures, construction routes, etc., would occur during that project's construction phase. LADOT would participate in developing and approving each plan, and be responsible for overall consideration of the individual plans.

The long-term potential for cumulative impacts could arise from on-going traffic growth associated with regional growth. The proposed LRT alternatives would contribute a small incremental reduction in overall traffic growth.

4-2.2.15 Utilities

Cumulative impacts to utilities could arise from the ongoing growth of the region. As individual residential and commercial projects are implemented over time, they place incremental demands on utilities. The transportation improvements included in the No-Build Alternative are all included in SCAG's 2025 forecast of regional growth and in the plans of individual cities. The proposed LRT service is included in SCAG's 2030 forecasts of regional growth, which are slated for adoption in April 2004. Although these transportation projects may influence the location of development or redevelopment, they are not likely to induce additional, unaccounted-for utility demands. Temporary, short-term service disruptions would occur during construction. No cumulative long-term service interruptions or additional relocations and service extensions would occur during operation of the related projects.

4-2.2.16 Visual Quality/Aesthetics

When past, present and reasonably foreseeable future projects in the study area are taken into account it is unlikely that the proposed project would result in adverse (under NEPA)/significant (under CEQA) cumulative impacts.

Gold Line Phases I and II will not introduce dramatic design changes to the project alignment. Nor does implementation of the project call for smaller incremental design changes over time, which although minor individually, would constitute an adverse effect (NEPA)/significant impact to visual resources (CEQA) when considered together. The project utilizes existing railroad rights-of-way used both historically and at present for railroad-related transportation purposes. New design elements associated with the LRT Alternatives, such as safety fencing, catenaries, traction power substations, and passenger platforms, will be constructed at one time taking into account the local design setting, as well as municipal design standards. Once constructed, significant new design modifications that could adversely affect (NEPA)/significantly impact (CEQA) visual resources, such as demolitions of historic buildings (e.g., railroad depots) are not envisioned. The project's impacts to visual resources result almost entirely

from the removal of screening landscaping. However, mitigation is expected to fully address this effect/impact, and no additional spillover effects to visual resources are anticipated.

Long-term effects to visual resources, in the cumulative sense, would not flow from the project. Instead, this threshold would be reached only as a result of a series of major changes to current local government development policy and design/historic preservation policy over time calling for demolitions of historic buildings, removal of mature landscaping adjoining the project rights-of-way, and densification of development adjoining project alignments inconsistent with current policies of protecting and enhancing scenic views and vistas. The likelihood of such wholesale changes to local development policy occurring is remote.

4-2.2.17 Water Quality and Hydrology

Cumulative impacts to water quality could arise from the ongoing growth of the region. As individual residential and commercial projects are implemented over time, they place incremental demands on water resources. The transportation improvements included in the No-Build Alternative are all included in SCAG's 2025 forecast of regional growth and in the plans of individual cities. The proposed LRT service is included in SCAG's 2030 forecast of regional growth, which is slated for adoption in April 2004. Although these transportation projects may influence the location of development or redevelopment, they are not likely to induce additional, unaccounted-for demands.

4-3 UNAVOIDABLE ADVERSE IMPACTS AFTER MITIGATION

This section is required by both NEPA and CEQA.

Based on the levels of information available when the DEIS/DEIR was prepared, construction of the proposed project should result in no unavoidable adverse effects under NEPA, when the effects of regulatory compliance, best management practices and proposed mitigation measures are factored. Impacts, regulatory compliance, best management and mitigation measures are described in the respective sections of Chapter 3. Construction would result in one unavoidable significant impact under CEQA, an exceedance on NOx impact thresholds established by the South Coast Air Quality Management District.

Based on the levels of information available when the DEIS/DEIR was prepared, operation of the proposed project should result in no unavoidable adverse effects under NEPA (unavoidable significant impacts under CEQA) to environmental resources, with the application of regulatory compliance, facility operating permits, and best management practices. No need for mitigation measures for the operational period has been identified.

The proposed Double Track configuration with time-constrained operation would result in adverse impacts to freight rail operations between Monrovia and La Verne. This operational configuration would have freight and light rail vehicles sharing the same tracks along the right-of-way, but freight operations would occur during a time-separated window from when LRT services would be occurring. LRT operations are assumed to begin at approximately 4 AM and end at about 2 AM; freight operations would typically be restricted to the hours when LRT vehicles are not in operation.

For CEQA, to the extent that residual impacts may occur, and those impacts may be potentially significant, notice is provided that a Statement of Overriding Considerations may be necessary in order to comply with the requirements of the California Environmental Quality Act.

4-4 RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND MAINTENANCE OF LONG-TERM PRODUCTIVITY

This section is required by NEPA only.

Construction and operation of the proposed project would maintain and enhance the productivity and general quality of life in Southern California through attainment of the following objectives identified in the project's Purpose and Need Statement:

- Provide a high-capacity improvement that responds to problems associated with the corridor's only freeway.
- Provide transportation improvements that respond to transit issues identified in the corridor.
- Provide transportation improvements that respond to problems associated with the corridor's arterial network.
- Provide transportation improvements that respond to issues associated with population and employment conditions and forecasts.
- Provide transportation improvements that respond to environmental goals for the region and corridor.

The benefits of improving the reliability and efficiency of the local and regional transportation system would be realized in the near term and would likely increase over the long term as the need for transportation infrastructure increases.

In addition to the near- and long-term productivity benefits and improved quality of life derived from the proposed project, certain short-term uses of the environment would occur during construction of the proposed project. These short-term uses of the environment would include temporary, localized traffic obstructions, air emissions, noise, vibration, and light and glare that typically occur in the vicinity of construction activities. Beneficial short-term effects of the proposed project would be related to new construction employment and purchases of construction materials, supplies and services.

4-5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

This section is required by both NEPA and CEQA.

Construction and operation of the proposed project would involve certain commitments of resources. In some instances, the resource committed would be recovered after a short period of time. Often, however, resources would be irreversibly or irretrievably committed to the proposed project because they would be permanently consumed or they would be dedicated to a particular use for an essentially limitless period of time.

The proposed project would involve the commitment of a range of natural, physical, human, and fiscal resources. For example, the land used for the project would continue the existing commitment of land in

the area for transportation purposes. To the extent that this commitment would be for long-range use, it would be an irreversible commitment. In the event, however, that a greater need would arise for the land in the future, or that the corridor was no longer needed, the land could conceivably be converted to some other use. Currently, there is no reason to expect that such a need for conversion would ever be necessary or desirable.

The proposed project would also require that various other resources be irreversibly or irretrievably committed. Non-renewable fossil fuel resources would be necessary to power construction equipment, electrical devices, vehicles, and buses. Considerable amounts of other types of resources would also be expended, including iron, steel, wood, sand, stone, aggregate, and cement construction materials. Additionally, large amounts of labor and natural resources would have to be committed to the fabrication and preparation of these construction materials. This commitment of resources would be considered irretrievable, except for the possible recycling of raw materials in the unlikely event that the corridor were ever dismantled. These resources are generally not in short supply and their use would not have an adverse effect on their continued availability. Given the commitment of these resources well into the foreseeable future, however, their use should be considered irreversible and irretrievable.

A substantial one-time expenditure of local, state, and federal financial resources would also be necessary to construct the proposed project. This expense would be offset by the direct and indirect benefits to the local and regional economy from new construction employment, purchases of construction materials and services, and long-term economic development opportunities resulting from an enhanced transportation system.

The commitment of resources to construct and operate the proposed project is based on the belief that residents, employees and visitors would benefit from the improved efficiency, accessibility, safety, and environmental quality of the transportation system in Southern California. These benefits are anticipated to substantially outweigh any irreversible or irretrievable commitments of resources.

4-6 GROWTH INDUCEMENT

This section is required by CEQA only.

As documented in the responses to the checklist below, the proposed project is not expected to cause any substantial growth within the vicinity of the project area or in the region.

- *Will the project attract more residential development or new population into the community or planning area?* No. The proposed LRT service and ridership forecasts are reflective of SCAG projections of population, households, and employment in the region through 2030, which also include the proposed LRT service. Thus, the project would not be expected to directly or indirectly attract more residential development or population beyond that which is already contemplated in the applicable planning forecasts.

- *Will the project encourage the development of more acreage of employment generating land uses in the area (such as commercial, industrial, or office)?* No. Overall, SCAG projections of population, households, and employment in the region through 2030 include the proposed LRT service. Additionally, the corridor cities' general or specific area plans recognize and account for the proposed LRT service.

- *Will the project lead to the increase of roadway, sewer, water supply, or drainage capacity?* No. The project would involve no substantial modifications to any of the aforementioned facilities.

- *Will the project encourage the rezoning or reclassification of lands from agriculture, open space, or low density residential to a more intensive land use?* No. The corridor cities' general or specific area plans recognize and account for the proposed LRT service. Proposed station areas are located primarily in existing commercial areas in each city. The proposed Azusa Citrus station is located adjacent to Monrovia Nursery, an agricultural use. However, that property is already subject to a planned conversion to mixed use development, with the proposed stations included in the plan.

- *Is the project not in conformance with the growth-related policies, goals, or objectives of the local general plan or the area growth management plan? Or, is it in conflict with implementation measures contained in the area's growth management plan?* No. As discussed in Section 3-10, the project would be consistent with the applicable local and regional plans.

- *Will the project lead to the intensification of development densities or accelerate the schedule for development?* No. The proposed LRT has been recognized in the corridor cities' general or specific area plans for over a decade. Densification that may occur has thus been already accounted for.

- *Will the project measurably and significantly decrease home to work commuter travel times to and from the project area (i.e., more than 10 percent overall reduction or five minutes or more in commute time savings)?* Yes. However, since this change in travel time is accounted for in SCAG's regional forecasts of population and housing, there would not be a growth inducement.

- *Is the project directly related to the generation of cumulative effects?* No. The proposed LRT service and ridership forecasts are reflective of SCAG projections of population, households, and employment in the region through 2030, which also include the proposed LRT service. Thus, the project would not be expected to directly or indirectly attract more residential development or population beyond that which is already contemplated in the applicable planning forecasts.

4-7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

An environmentally superior alternative needs to be identified under CEQA. Although the No-Build and TSM Alternatives would involve fewer local environmental impacts, they would not provide the desired levels of mobility and accessibility and reliability for the corridor communities, nor would they contribute as substantially to regional air quality conformity as the LRT Alternatives.

The Full Build LRT Alternative is the environmentally superior alternative which addresses corridor transportation needs because it provides the greatest relief to east-west corridor traffic, enhances corridor and regional air quality, and supports the development/redevelopment of local employment and residential nodes that would further help reduce east-west and regional traffic. The alternative would serve 13 cities. There are no remainder adverse effects under NEPA or remainder significant impacts under CEQA when considered in light of (1) the necessary environmental permits that would be obtained for construction and operation, (2) use of typical Best Management Practices during construction and, (3) mitigation measures identified in this document.

The Build LRT Alternative to Maintenance Facility provides many of the same benefits, but to a lesser degree because it is serves only six cites.

Chapter 5
Financial Analysis

CHAPTER 5 - FINANCIAL ANALYSIS

5-1 FINANCIAL ANALYSIS

The cost of a transportation investment falls into two categories: capital costs, and operating and maintenance (O&M) costs. Capital costs are the start-up costs for the project, including the costs of guideway construction, vehicles, and any system facilities necessary before the project can begin operation. Operating and maintenance costs are the costs associated with the regular running of a new transportation facility. Costs such as labor, vehicle maintenance, and overall facility maintenance all fall into this category.

This section discusses both types of costs, presents the proposed capital financing plan, and then analyzes the Los Angeles to Pasadena Metro Blue Line Construction Authority (Construction Authority) ability to afford the build alternatives.

5-1.1 Capital Cost Estimates for Build Alternatives

This section summarizes the capital cost estimates for the Transportation System Management (TSM) Alternative, the Full Build LRT Alternative, and the Build LRT Alternative to the Maintenance Facility. The capital cost estimates for the "optional" track configurations (2-track and 3-track) are needed to demonstrate the cost differential of maintaining "freight" service along the alignment. The "optional" track configurations do not affect the operating and maintenance costs of each Build Alternative. Optional configurations are presented for each build alternative below. The No Build Alternative does not have any associated capital costs for comparative purposes as they are considered in the overall financial capability of the Construction Authority along with the other alternatives under consideration. The capital cost methodology and capital cost estimates are found in the following two Construction Authority documents: *Construction Cost Methodology* (December 15, 2003, revised January 2004) and *Conceptual Engineering Cost Estimate* (December 19, 2003, revised January 2004) prepared by Korve Engineering and Parsons Brinckerhoff Quade & Douglas.

5-1.1.1 LRT Build Alternatives

The capital cost estimates were prepared with all costs expressed in 2003 dollars. Cost estimates are developed by identifying quantities on conceptual drawings and applying standardized rates as defined in the Construction Cost Methodology, the Conceptual Engineering Cost Estimate, the alternatives definitions, and the Engineering Plans and Drawings presented in Volume III. The alignment plans, typical cross sections, and station concepts are included in Volume III. In addition, capital costs for both additional buses (for the TSM Alternatives and additional for the Build Alternatives) and the LRT vehicles as well as an estimate for the maintenance and operations facility has been included.

The total capital cost includes allowances for an insurance program, master agreements with agencies, professional services, testing and pre-revenue service, environmental mitigation, and artwork. Additionally, contingency has been included for construction (such as guideway, systems, facilities, and stations) and Right-of-Way (ROW).

Table 5-1 presents the total capital costs (in millions of dollars) for the TSM Alternative and the two Build Alternatives with a 3-track configuration and a 2-track configuration in 2003 dollars. The major differences between the build alternatives are the length of each alternative. The Full Build LRT

Alternative is 23.9 miles long and the Build LRT Alternative to the Maintenance Facility is 8.7 miles. Both alternatives include the full cost of the Maintenance and Operations (M&O) Facility. The cost for the Full Build LRT Alternative is between $36.8 million and $42.5 million per mile, depending on the configuration. **Tables 5-2 through 5-6** present the detailed capital cost estimates for each of the build alternatives showing the unit costs by cost component in 2003 dollars and the quantities.

TABLE 5-1
CAPITAL COST ESTIMATES (2003 $)

Cost Category	2003 Dollars in Millions					
	Transportation System Management (TSM) Alternative	Full Build LRT Alternative with 3-Track Configuration (1)	Full Build LRT Alternative with 2-Track Configuration (1)	Build LRT Alternative to Maintenance Facility with 3-Track Configuration (1)	Build LRT Alternative to Maintenance Facility with 2-Track Configuration (1)	M & O Facility Total
Guideway	$0.0	$269.2	$208.4	$119.9	$96.4	$0.0
M&O Facility	$9.4	$120.8	$120.8	$120.8	$120.8	$120.8
Systems	$0.0	$157.0	$124.1	$53.6	$48.1	$1.3
Stations	$19.8	$57.8	$58.4	$24.2	$24.8	$0.0
Subtotal - Construction	*$29.2*	*$604.8*	*$511.7*	*$318.5*	*$290.1*	*$122.1*
Vehicles	$27.0	$67.1	$67.1	$19.3	$19.3	$0.0
Special Conditions	$1.9	$58.5	$49.3	$30.6	$27.8	$11.9
Right-of-Way	$0.0	$51.3	$51.3	$29.1	$29.1	$22.6
Professional Services	$5.0	$159.2	$134.0	$83.0	$75.4	$32.4
Contingencies	$1.7	$75.3	$67.0	$44.7	$42.1	$19.6
Total Cost	**$64.8**	**$1,016.2**	**$880.4**	**$525.2**	**$483.8**	**$208.6**

Source: Korve Engineering and Parsons Brinckerhoff, 2004. (1) M&O Facility Cost is Included

5-1.2 Maintenance and Operations Facility

In Chapter 2 the proposed Maintenance and Operations Facility (M&O) is described. The capital cost estimate is presented in Table 5-1 and has a total estimated capital cost of approximately $208.6 million in 2003 dollars. The proposed M&O has been designed to handle the future needs of the total Gold Line from East Los Angeles to Montclair or approximately 44 miles of LRT operations. The sections on project finance discuss the appropriate allocation of these costs to the Gold Line Phase II project. Based on the proposed operating plan for Phase II approximately 60 percent of the M&O Facility cost would be

allocated to the LACMTA for provision of service on the Gold Line Phase I and Eastside Extension projects.

TABLE 5-2
CAPITAL COST ESTIMATE, FULL BUILD LRT ALTERNATIVE WITH 3-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
1	GUIDEWAY				
	Retained Fill (2-Tracks)	RF	3,938	1,370	$5,395
	Major Retaining Wall (6' to 15' High)	LF	1,080	20,348	$21,976
	At-Grade Guideway - Railroad Grade (2-Tracks)	RF	285	40,883	$11,652
	At-Grade Guideway - Railroad Grade (1-Track)	TF	143	71,847	$10,274
	At-Grade Guideway - New Grade (2-Tracks)	RF	385	5,260	$2,025
	At-Grade Guideway - New Grade (1-Track)	TF	193	157,197	$30,339
	Track Underdrain System (Up to Three Tracks)	RF	25	90,947	$2,274
	Open Track - Single Track	RF	208	85,350	$17,753
	Open Track - Double Track	RF	416	121,479	$50,535
	Pocket Track (300 Feet)	Ea	450,000	2	$900
	Direct Fixation – Double Track	RF	675	1,346	$909
	Upgrade BNSF Track	TF	55	0	0
	Shift-Over BNSF Track	TF	20	0	0
	No 8 Single Turnout	Ea	113,000	4	$452
	No 8 Single Crossover	Ea	180,500	0	0
	No 8 Double Crossover	Ea	392,000	9	$3,528
	No 10 Single Turnout	Ea	120,000	9	$1,080
	No 10 Single Crossover	Ea	192,500	2	$385
	No 10 Double Crossover	Ea	416,000	2	$832
	No 15 Single Turnout	Ea	150,000	1	$150
	No 15 Single Crossover	Ea	240,625	0	0
	Crossing Diamond (14 Deg 30 Min Angle)	Ea	122,400	6	$734
	Concrete Grade Crossing Panels	TF	400	13,010	$5,204
	Ductbanks - At-Grade	RF	60	122,034	$7,322
	Ductbanks – Aerial	RF	36	3,245	$117
	Fiver Optic Cables between Stations	RF	50	96,389	$4,819
	Utility Relocation - Light (Includes utility work at grade crossings, small RCB culverts, etc.)	RF	113	111,830	$12,637
	Renovate Existing Bridge (Minor Work)	RF	1,400	340	$476
	Renovate Existing Bridge (Major Work)	RF	2,800	444	$1,243
	1-Track Precast Concrete Girder	RF	4,500	64	$288
	1-Track CIP Through Girder	RF	4,600	0	0
	1-Track CIP Through Girder (Long Span)	RF	12,200	358	$4,368
	2-Track Precast Concrete Girder	RF	8,000	426	$3,408
	2-Track Precast Concrete Girder (Long Span)	RF	12,100	952	$11,519
	2-Track CIP Through Girder	RF	8,200	0	0
	2-Track CIP Through Girder (Long Span)	RF	15,500	700	$10,850
	2-Track Deck Beam	RF	11,900	0	0

TABLE 5-2 *continued (page 2 of 4)*
CAPITAL COST ESTIMATE, FULL BUILD LRT ALTERNATIVE WITH 3-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
	3-Track Precast Concrete Girder	RF	12,000	70	$840
	3-Track Deck Beam	RF	14,700	99	$1,455
	Tie-Backs, Wall panels, Concrete Footings @ Caltrans Underpasses	LF Each Side	4,400	500	$2,200
	Caltrans Type 60GE Barrier	LF	100	2,300	$230
	6-Foot High AREMA Crash Wall	LF	300	0	0
	12-Foot High AREMA Crash Wall	LF	400	832	$333
	Contaminated Soils	CY	270	1,000	$270
	Subtotal				$228,772
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$40,307
	1 Guideway Total Hard Construction Cost				**$269,168**
2	MAINTENANCE & OPERATIONS FACILITY (YARDS AND SHOPS)				
	Maintenance Facility (Major service facility for Eastside, Phase I and Phase II LRT projects)	Ea	105,000,000	1	$105,000
	Maintenance Equipment (Included in above)				0
	Subtotal				$105,000
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$15,750
	2 Maintenance & Operations Facility Total Hard Construction Cost				**$120,750**
3	SYSTEMS/OTHER				
	Civil/Roadway - 4-Lane (Cost for roadway improvements at stations and grade crossings)	LF	416	8,959	$3,727
	Crossing Gate Assembly (Four quadrant gates)	Ea	200,000	50	$10,000
	Pedestrian Automatic Gates	Ea	35,000	47	$1,645
	Pre-Signal Installation (At existing signalized intersections next to grade crossings)	Per Inter	98,000	10	$980
	Traction Power: 2-Tracks (including Feeders, OCS poles)	RF	300	125,549	$37,665
	TPSS	Ea	1,200,000	19	$22,800
	Operations Control Center (Tie into existing MTA system - Lump Sum upgrade)	RF	42	125,549	$5,273
	LRT Communications (PA, CCTV, VMS, SCADA)	Each Station	250,000	12	$3,000
	LRT Signaling (Wayside)	RF	238	125,549	$29,881
	Systems and Communications (Metrolink)	TF	203	76,650	$15,560
	Automatic Railroad Interlocking Unit	Ea	1,500,000	3	$4,500
	Ticket Vending Machines	Each Platform	318,375	15	$4,776
	Ticket Validating Machines (Assume two per	Each	16,000	15	$240

TABLE 5-2 *continued (page 3 of 4)*
CAPITAL COST ESTIMATE, FULL BUILD LRT ALTERNATIVE WITH 3-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
	each platform)	Platform			
	Subtotal				$140,046
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$16,959
	3 Systems/Other Total Hard Construction Cost				**$157,005**
4	STATIONS				
	LRT Center Platform At-Grade (3-Cars)	Each	1,500,000	9	$13,500
	LRT Side Platforms At-Grade (3-Cars)	Each	2,000,000	3	$6,000
	Artwork	Each Station	75,000	12	$900
	Park & Ride Facility (At-Grade)	Each Stall	2,813	1,867	$5,252
	Multi-Story Parking Garage	Each Stall	10,000	1,779	$17,790
	Metrolink Station with Side Platforms (complete, but parking not included)	Each	3,000,000	1	$3,000
	Pedestrian Underpass (Metrolink)	Each	1,700,000	1	$1,700
	Subtotal				$48,142
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$9,628
	4 Stations Total Hard Construction Cost				**$57,770**
	Subtotal Hard Construction Cost (without design allowances				$521,959
	TOTAL HARD CONSTRUCTION COST				**$604,693**
5	VEHICLES				
	LRT Vehicles (Including 10% Spare Parts)	Ea	3,200,000	19	$60,800
	Standard Bus (Including 10% Spare Parts)	Ea	450,000	11	$6,325
	TOTAL				**$67,125**
6	SPECIAL CONDITIONS				
	Master Agreements with Cities and Utility Owners (1% of Sub-Total Hard Construction Cost)	N/A	N/A		$5,220
	Environmental Mitigation (0.75% of Sub-Total Hard Construction Cost)	N/A	N/A		$3,915
	Traffic Control Mitigation (4% of Sub-Total Hard Construction Cost)	N/A	N/A		$20,878
	Project Insurance (4% of Sub-Total Hard Construction Cost)	N/A	N/A		$20,878
	Start-Up Testing and Pre-Revenue Service (1% of Sub-Total Construction Cost)	N/A	N/A		$7.639
	TOTAL				**$58,530**

TABLE 5-2 *continued (page 4 of 4)*
CAPITAL COST ESTIMATE, FULL BUILD LRT ALTERNATIVE WITH 3-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
7	RIGHT-OF-WAY				
	Maintenance and Operations Facility	SF	15	1,503,544	$22,553
	Traction Power Sub-Station	SF	100	52,995	$5,300
	Park and Ride at Stations	Ea Stall	10,875	2,159	$23,479
	TOTAL				**$51,332**
	TOTAL CONSTRUCTION/PROCUREMENT				**$781,680**
8	PROFESSIONAL SERVICES				
	MIS / EIS Cost (2% of Sub-Total Hard Construction Cost)	N/A	N/A		$10,439
	Preliminary Engineering Cost (3.5% of Sub-Total Hard Construction Cost)	N/A	N/A		$18,269
	Final Design Cost (7% of Sub-Total Hard Construction Cost)	N/A	N/A		$36,537
	Design Services During Construction Cost (3% of Sub-Total Hard Construction Cost)	N/A	N/A		$15,659
	Agency Cost (7% of Sub-Total Hard Construction Cost)	N/A	N/A		$36,537
	Construction Management Cost (8% of Sub-Total Hard Construction Cost)	N/A	N/A		$41,757
	TOTAL				**$159,198**
9	PROJECT CONTINGENCY				
	Construction Contingency (10% of Sub-Total Hard Construction Cost)	N/A	N/A		$52,196
	Right-of-Way Contingency (40%)	Per Purchase			$20,533
	Provisions for Disputes Board ($40,000 per Segment)	Each Segment	40,000	10	$400
	TOTAL				**$73,129**
	Bus Maintenance Facility Allowance		200,000	11	$2,200
	TOTAL PROJECT COST				**$1,016,206**

Source: Korve Engineering and Parsons Brinckerhoff, 2004

TABLE 5-3
CAPITAL COST ESTIMATE, FULL BUILD LRT ALTERNATIVE WITH 2-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
1	GUIDEWAY				
	Retained Fill (2-Tracks)	RF	3,938	1,370	$5,395
	Major Retaining Wall (6' to 15' High)	LF	1,080	6,018	$6,499
	At-Grade Guideway - Railroad Grade (2-Tracks)	RF	285	39,362	$11,218
	At-Grade Guideway - Railroad Grade (1-Track)	TF	143	73,547	$10,517
	At-Grade Guideway - New Grade (2-Tracks)	RF	385	5,260	$2,025
	At-Grade Guideway - New Grade (1-Track)	TF	193	80,547	$15,546
	Track Underdrain System (Up to Three Tracks)	RF	25	88,057	$2,201
	Open Track - Single Track	RF	208	9,000	$1,872
	Open Track - Double Track	RF	416	121,731	$50,640
	Pocket Track (300 Feet)	Ea	450,000	2	$900
	Direct Fixation - Double Track	RF	675	1,094	$738
	Upgrade BNSF Track	TF	55	0	0
	Shift-Over BNSF Track	TF	20	0	0
	No 8 Single Turnout	Ea	113,000	0	0
	No 8 Single Crossover	Ea	180,500	0	0
	No 8 Double Crossover	Ea	392,000	9	$3,528
	No 10 Single Turnout	Ea	120,000	3	$360
	No 10 Single Crossover	Ea	192,500	2	$385
	No 10 Double Crossover	Ea	416,000	2	$832
	No 15 Single Turnout	Ea	150,000	1	$150
	No 15 Single Crossover	Ea	240,625	0	0
	Crossing Diamond (14 Deg 30 Min Angle)	Ea	122,400	2	$245
	Concrete Grade Crossing Panels	TF	400	10,340	$4,136
	Ductbanks - At-Grade	RF	60	121,054	$7,263
	Ductbanks – Aerial	RF	36	2,299	$83
	Fiver Optic Cables between Stations	RF	50	122,309	$6,115
	Utility Relocation - Light (Includes utility work at grade crossings, small RCB culverts, etc.)	RF	113	111,830	$12,637
	Renovate Existing Bridge (Minor Work)	RF	1,400	1,518	$2,125
	Renovate Existing Bridge (Major Work)	RF	2,800	584	$1,635
	1-Track Precast Concrete Girder	RF	4,500	300	$1,350
	1-Track CIP Through Girder	RF	4,600	140	$644
	1-Track CIP Through Girder (Long Span)	RF	12,200	1,310	$15,982
	2-Track Precast Concrete Girder	RF	8,000	260	$2,080
	2-Track Precast Concrete Girder (Long Span)	RF	12,100	560	$6,776
	2-Track CIP Through Girder	RF	8,200	0	0
	2-Track CIP Through Girder (Long Span)	RF	15,500	0	0
	2-Track Deck Beam	RF	11,900	99	$1,178
	3-Track Precast Concrete Girder	RF	12,000	0	0
	3-Track Deck Beam	RF	14,700	0	0

TABLE 5-3 *continued (page 2 of 4)*
CAPITAL COST ESTIMATE, FULL BUILD LRT ALTERNATIVE WITH 2-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
	Tie-Backs, Wall panels, Concrete Footings @ Caltrans Underpasses	LF Each Side	4,400	0	0
	Caltrans Type 60GE Barrier	LF	100	1,482	$148
	6-Foot High AREMA Crash Wall	LF	300	0	0
	12-Foot High AREMA Crash Wall	LF	400	0	0
	Contaminated Soils	CY	270	1,000	$270
	Subtotal				$175,475
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$32,950
	1 Guideway Total Hard Construction Cost				**$208,426**
2	MAINTENANCE & OPERATIONS FACILITY (YARDS AND SHOPS)				
	Maintenance Facility (Major service facility for Eastside, Phase I and Phase II LRT projects)	Ea	105,000,000	1	$105,000
	Maintenance Equipment (Included in above)				0
	Subtotal				$105,000
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$15,750
	2 Maintenance & Operations Facility Total Hard Construction Cost				**$120,750**
3	SYSTEMS/OTHER				
	Civil/Roadway - 4-Lane (Cost for roadway improvements at stations and grade crossings)	LF	416	8,476	$3,526
	Crossing Gate Assembly (Four quadrant gates)	Ea	200,000	49	$9,800
	Pedestrian Automatic Gates	Ea	35,000	48	$1,680
	Pre-Signal Installation (At existing signalized intersections next to grade crossings)	Per Inter	98,000	10	$980
	Traction Power: 2-Tracks (incl. Feeders, OCS poles)	RF	300	105,253	$31,576
	TPSS	Ea	1,200,000	15	$18,000
	Operations Control Center (Tie into existing MTA system - Lump Sum upgrade)	RF	42	125,549	$5,273
	LRT Communications (PA, CCTV, VMS, SCADA)	Each Station	250,000	12	$3,000
	LRT Signaling (Wayside)	RF	238	124,549	$29,643
	Systems and Communications (Metrolink)	TF	203	6,600	$1,340
	Automatic Railroad Interlocking Unit	Ea	1,500,000	0	0
	Ticket Vending Machines	Each Platform	318,375	16	$5,094
	Ticket Validating Machines (Assume two per each platform)	Each Platform	16,000	16	$256
	Subtotal				$110,167

TABLE 5-3 *continued (page 3 of 4)*
CAPITAL COST ESTIMATE, FULL BUILD LRT ALTERNATIVE WITH 2-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$13,950
	3 Systems/Other Total Hard Construction Cost				**$124,117**
4	STATIONS				
	LRT Center Platform At-Grade (3-Cars)	Each	1,500,000	8	$12,000
	LRT Side Platforms At-Grade (3-Cars)	Each	2,000,000	4	$8,000
	Artwork	Each Station	75,000	12	$900
	Park & Ride Facility (At-Grade)	Each Stall	2,813	1,867	$5,252
	Multi-Story Parking Garage	Each Stall	10,000	1,779	$17,790
	Metrolink Station with Side Platforms (complete, but parking not included)	Each	3,000,000	1	$3,000
	Pedestrian Underpass (Metrolink)	Each	1,700,000	1	$1,700
	Subtotal				$48,642
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$9,728
	4 Stations Total Hard Construction Cost				**$58,370**
	Subtotal Hard Construction Cost				$439,285
	TOTAL HARD CONSTRUCTION COST				**$511,663**
5	VEHICLES				
	LRT Vehicles (Including 10% Spare Parts)	Ea	3,200,000	19	$60,800
	Standard Bus (Including 10% Spare Parts)	Ea	450,000	11	$6,325
	TOTAL				**$67,125**
6	SPECIAL CONDITIONS				
	Master Agreements with Cities and Utility Owners (1% of Sub-Total Hard Construction Cost)	N/A	N/A		$4,393
	Environmental Mitigation (0.75% of Sub-Total Hard Construction Cost)	N/A	N/A		$3,295
	Traffic Control Mitigation (4% of Sub-Total Hard Construction Cost)	N/A	N/A		$17,571
	Project Insurance (4% of Sub-Total Hard Construction Cost)	N/A	N/A		$17,571
	Start-Up Testing and Pre-Revenue Service (1% of Sub-Total Construction Cost)	N/A	N/A		$6,456
	TOTAL				**$49,287**
7	RIGHT-OF-WAY				
	Maintenance and Operations Facility	SF	15	1,503,544	$22,553

TABLE 5-3 *continued (page 4 of 4)*
CAPITAL COST ESTIMATE, FULL BUILD LRT ALTERNATIVE WITH 2-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
	Traction Power Sub-Station	SF	100	52,220	$5,222
	Park and Ride at Stations	Ea Stall	10,875	2,159	$23,479
	TOTAL				**$51,254**
	TOTAL CONSTRUCTION/PROCUREMENT				**$679,329**
8	PROFESSIONAL SERVICES				
	MIS / EIS Cost (2% of Sub-Total Hard Construction Cost)	N/A	N/A		$8,786
	Preliminary Engineering Cost (3.5% of Sub-Total Hard Construction Cost)	N/A	N/A		$15,375
	Final Design Cost (7% of Sub-Total Hard Construction Cost)	N/A	N/A		$30,750
	Design Services During Construction Cost 3% of Sub-Total Hard Construction Cost)	N/A	N/A		$13,179
	Agency Cost (7% of Sub-Total Hard Construction Cost)	N/A	N/A		$30,750
	Construction Management Cost (8% of Sub-Total Hard Construction Cost)	N/A	N/A		$35,143
	TOTAL				**$133,982**
9	PROJECT CONTINGENCY				
	Construction Contingency (10% of Sub-Total Hard Construction Cost)	N/A	N/A		$43,928
	Right-of-Way Contingency (40%)	Per Purchase			$20,502
	Provisions for Disputes Board ($40,000 per Segment)	Each Segment	40,000	10	$400
	TOTAL				**$64,830**
	Bus Maintenance Facility Allowance		200,000		$2,200
	TOTAL PROJECT COST				**$880,341**

Source: Korve Engineering and Parsons Brinckerhoff, 2004

TABLE 5-4
CAPITAL COST ESTIMATE, BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY WITH 3-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
1	GUIDEWAY				
	Retained Fill (2-Tracks)	RF	3,938	0	0
	Major Retaining Wall (6' to 15' High)	LF	1,080	16,348	$17,656
	At-Grade Guideway - Railroad Grade (2-Tracks)	RF	285	37,153	$10,589
	At-Grade Guideway - Railroad Grade (1-Track)	TF	143	6,218	$889
	At-Grade Guideway - New Grade (2-Tracks)	RF	385	0	0
	At-Grade Guideway - New Grade (1-Track)	TF	193	30,468	$5,880
	Track Underdrain System (Up to Three Tracks)	RF	25	39,817	$995
	Open Track - Single Track	RF	208	24,250	$5,044
	Open Track - Double Track	RF	416	45,239	$18,819
	Pocket Track (300 Feet)	Ea	450,000	1	$450
	Direct Fixation – Double Track	RF	675	560	$378
	Upgrade BNSF Track	TF	55	0	0
	Shift-Over BNSF Track	TF	20	0	0
	No 8 Single Turnout	Ea	113,000	0	0
	No 8 Single Crossover	Ea	180,500	0	0
	No 8 Double Crossover	Ea	392,000	3	$1,176
	No 10 Single Turnout	Ea	120,000	5	$600
	No 10 Single Crossover	Ea	192,500	2	$385
	No 10 Double Crossover	Ea	416,000	1	$416
	No 15 Single Turnout	Ea	150,000	1	$150
	No 15 Single Crossover	Ea	240,625	0	0
	Crossing Diamond (14 Deg 30 Min Angle)	Ea	122,400	2	$245
	Concrete Grade Crossing Panels	TF	400	2,530	$1,012
	Ductbanks - At-Grade	RF	60	44,695	$2,682
	Ductbanks – Aerial	RF	36	2,124	$76
	Fiver Optic Cables between Stations	RF	50	45,739	$2,287
	Utility Relocation - Light (Includes utility work at grade crossings, small RCB culverts, etc.)	RF	113	33,100	$3,740
	Renovate Existing Bridge (Minor Work)	RF	1,400	340	$476
	Renovate Existing Bridge (Major Work)	RF	2,800	444	$1,243
	1-Track Precast Concrete Girder	RF	4,500	64	$288
	1-Track CIP Through Girder	RF	4,600	0	0
	1-Track CIP Through Girder (Long Span)	RF	12,200	358	$4,368
	2-Track Precast Concrete Girder	RF	8,000	70	$560
	2-Track Precast Concrete Girder (Long Span)	RF	12,100	560	$6,776
	2-Track CIP Through Girder	RF	8,200	0	0
	2-Track CIP Through Girder (Long Span)	RF	15,500	700	$10,850
	2-Track Deck Beam	RF	11,900	0	0
	3-Track Precast Concrete Girder	RF	12,000	70	$840
	3-Track Deck Beam	RF	14,700	0	0

TABLE 5-4 *continued (page 2 of 4)*
CAPITAL COST ESTIMATE, BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY WITH 3-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
	Tie-Backs, Wall panels, Concrete Footings @ Caltrans Underpasses	LF Each Side	4,400	0	0
	Caltrans Type 60GE Barrier	LF	100	0	0
	6-Foot High AREMA Crash Wall	LF	300	0	0
	12-Foot High AREMA Crash Wall	LF	400	132	$53
	Contaminated Soils	CY	270	500	$135
	Subtotal				$99,059
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$20,889
	1 Guideway Total Hard Construction Cost				**$119,948**
2	MAINTENANCE & OPERATIONS FACILITY (YARDS AND SHOPS)				
	Maintenance Facility (Major service facility for Eastside, Phase I and Phase II LRT projects)	Ea	105,000,000	1	$105,000
	Maintenance Equipment (Included in above)				0
	Subtotal				$105,000
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$15,750
	2 Maintenance & Operations Facility Total Hard Construction Cost				**$120,750**
3	SYSTEMS/OTHER				
	Civil/Roadway - 4-Lane (Cost for roadway improvements at stations and grade crossings)	LF	416	1,871	$778
	Crossing Gate Assembly (Four quadrant gates)	Ea	200,000	11	$2,200
	Pedestrian Automatic Gates	Ea	35,000	10	$350
	Pre-Signal Installation (At existing signalized intersections next to grade crossings)	Per Inter	98,000	5	$490
	Traction Power: 2-Tracks (incl Feeders, OCS poles)	RF	300	46,819	$14,046
	TPSS	Ea	1,200,000	7	$8,400
	Operations Control Center (Tie into existing MTA system - Lump Sum upgrade)	RF	42	46,819	$1,966
	LRT Communications (PA, CCTV, VMS, SCADA)	Each Station	250,000	4	$1,000
	LRT Signaling (Wayside)	RF	238	46,819	$11,143
	Systems and Communications (Metrolink)	TF	203	23,850	$4,842
	Automatic Railroad Interlocking Unit	Ea	1,500,000	1	$1,500
	Ticket Vending Machines	Each Platform	318,375	4	$1,274
	Ticket Validating Machines (Assume two per each platform)	Each Platform	16,000	4	$64
	Subtotal				$48,052

TABLE 5-4 *continued (page 3 of 4)*
CAPITAL COST ESTIMATE, BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY WITH 3-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$5,512
	3 Systems/Other Total Hard Construction Cost				**$53,564**
4	STATIONS				
	LRT Center Platform At-Grade (3-Cars)	Each	1,500,000	4	$6,000
	LRT Side Platforms At-Grade (3-Cars)	Each	2,000,000	0	0
	Artwork	Each Station	75,000	4	$300
	Park & Ride Facility (At-Grade)	Each Stall	2,813	507	$1,426
	Multi-Story Parking Garage	Each Stall	10,000	1,245	$12,450
	Metrolink Station with Side Platforms (complete, but parking not included)	Each	3,000,000	0	0
	Pedestrian Underpass (Metrolink)	Each	1,700,000	0	0
	Subtotal				$20,176
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$4,035
	4 Stations Total Hard Construction Cost				**$24,211**
	Subtotal Hard Construction Cost				$272,287
	TOTAL HARD CONSTRUCTION COST				**$318,474**
5	VEHICLES				
	LRT Vehicles (Including 10% Spare Parts)	Ea	3,200,000	1	$3,200
	Standard Bus (Including 10% Spare Parts)	Ea	450,000	28	$16,100
	TOTAL				**$19,300**
6	SPECIAL CONDITIONS				
	Master Agreements with Cities and Utility Owners (1% of Sub-Total Hard Construction Cost)	N/A	N/A		$2,723
	Environmental Mitigation (0.75% of Sub-Total Hard Construction Cost)	N/A	N/A		$2,042
	Traffic Control Mitigation (4% of Sub-Total Hard Construction Cost)	N/A	N/A		$10,891
	Project Insurance (4% of Sub-Total Hard Construction Cost)	N/A	N/A		$10,891
	Start-Up Testing and Pre-Revenue Service (1% of Sub-Total Construction Cost)	N/A	N/A		$4,015
	TOTAL				**$30,563**
7	RIGHT-OF-WAY				
	Maintenance and Operations Facility	SF	15	1,503,544	$22,553

TABLE 5-4 *continued (page 4 of 4)*
CAPITAL COST ESTIMATE, BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY WITH 3-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
	Traction Power Sub-Station	SF	100	7,975	$798
	Park and Ride at Stations	Ea Stall	10,875	532	$5,786
	TOTAL				**$29,136**
	TOTAL CONSTRUCTION/PROCUREMENT				**$397,473**
8	PROFESSIONAL SERVICES				
	MIS / EIS Cost (2% of Sub-Total Hard Construction Cost)	N/A	N/A		$5,446
	Preliminary Engineering Cost (3.5% of Sub-Total Hard Construction Cost)	N/A	N/A		$9,530
	Final Design Cost (7% of Sub-Total Hard Construction Cost)	N/A	N/A		$19,060
	Design Services During Construction Cost 3% of Sub-Total Hard Construction Cost)	N/A	N/A		$8,169
	Agency Cost (7% of Sub-Total Hard Construction Cost)	N/A	N/A		$19.060
	Construction Management Cost (8% of Sub-Total Hard Construction Cost)	N/A	N/A		$21,783
	TOTAL				**$83,048**
9	PROJECT CONTINGENCY				
	Construction Contingency (10% of Sub-Total Hard Construction Cost)	N/A	N/A		$27,229
	Right-of-Way Contingency (40%)	Per Purchase			$11,654
	Provisions for Disputes Board ($40,000 per Segment)	Each Segment	40,000	5	$200
	TOTAL				**$39,083**
	Bus Maintenance Facility Allowance		200,000	28	$5,600
	TOTAL PROJECT COST				**$525,204**

Source: Korve Engineering and Parsons Brinckerhoff, 2004

TABLE 5-5
CAPITAL COST ESTIMATE, BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY WITH 2-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
1	GUIDEWAY				
	Retained Fill (2-Tracks)	RF	3,938	0	0
	Major Retaining Wall (6' to 15' High)	LF	1,080	6,018	$6,499
	At-Grade Guideway - Railroad Grade (2-Tracks)	RF	285	35,458	$10,106
	At-Grade Guideway - Railroad Grade (1-Track)	TF	143	7,918	$1,132
	At-Grade Guideway - New Grade (2-Tracks)	RF	385	0	0
	At-Grade Guideway - New Grade (1-Track)	TF	193	14,418	$2,783
	Track Underdrain System (Up to Three Tracks)	RF	25	33,417	$835
	Open Track - Single Track	RF	208	6,500	$1,352
	Open Track - Double Track	RF	416	45,239	$18,819
	Pocket Track (300 Feet)	Ea	450,000	1	$450
	Direct Fixation – Double Track	RF	675	560	$378
	Upgrade BNSF Track	TF	55	0	0
	Shift-Over BNSF Track	TF	20	0	0
	No 8 Single Turnout	Ea	113,000	0	0
	No 8 Single Crossover	Ea	180,500	0	0
	No 8 Double Crossover	Ea	392,000	3	$1,176
	No 10 Single Turnout	Ea	120,000	5	$600
	No 10 Single Crossover	Ea	192,500	2	$385
	No 10 Double Crossover	Ea	416,000	1	$416
	No 15 Single Turnout	Ea	150,000	1	$150
	No 15 Single Crossover	Ea	240,625	0	0
	Crossing Diamond (14 Deg 30 Min Angle)	Ea	122,400	0	0
	Concrete Grade Crossing Panels	TF	400	2,020	$808
	Ductbanks - At-Grade	RF	60	44,865	$2,692
	Ductbanks – Aerial	RF	36	1,414	$51
	Fiver Optic Cables between Stations	RF	50	45,739	$2,287
	Utility Relocation - Light (Includes utility work at grade crossings, small RCB culverts, etc.)	RF	113	32,100	$3,627
	Renovate Existing Bridge (Minor Work)	RF	1,400	1,100	$1,540
	Renovate Existing Bridge (Major Work)	RF	2,800	444	$1,243
	1-Track Precast Concrete Girder	RF	4,500	134	$603
	1-Track CIP Through Girder	RF	4,600	0	0
	1-Track CIP Through Girder (Long Span)	RF	12,200	1,058	$12,908
	2-Track Precast Concrete Girder	RF	8,000	70	$560
	2-Track Precast Concrete Girder (Long Span)	RF	12,100	560	$6,776
	2-Track CIP Through Girder	RF	8,200	0	0
	2-Track CIP Through Girder (Long Span)	RF	15,500	0	0
	2-Track Deck Beam	RF	11,900	0	0
	3-Track Precast Concrete Girder	RF	12,000	0	0
	3-Track Deck Beam	RF	14,700	0	0

TABLE 5-5 *continued (page 2 of 4)*
CAPITAL COST ESTIMATE, BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY WITH 2-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
	Tie-Backs, Wall panels, Concrete Footings @ Caltrans Underpasses	LF Each Side	4,400	0	0
	Caltrans Type 60GE Barrier	LF	100	100	$10
	6-Foot High AREMA Crash Wall	LF	300	0	0
	12-Foot High AREMA Crash Wall	LF	400	72	$29
	Contaminated Soils	CY	270	500	$135
	Subtotal				$78,350
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$18,082
	1 Guideway Total Hard Construction Cost				**$96,432**
2	MAINTENANCE & OPERATIONS FACILITY (YARDS AND SHOPS)				
	Maintenance Facility (Major service facility for Eastside, Phase I and Phase II LRT projects)	Ea	105,000,000	1	$105,000
	Maintenance Equipment (Included in above)				0
	Subtotal				$105,000
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$15,750
	2 Maintenance & Operations Facility Total Hard Construction Cost				**$120,750**
3	SYSTEMS/OTHER				
	Civil/Roadway - 4-Lane (Cost for roadway improvements at stations and grade crossings)	LF	416	1,871	$778
	Crossing Gate Assembly (Four quadrant gates)	Ea	200,000	10	$2,000
	Pedestrian Automatic Gates	Ea	35,000	11	$385
	Pre-Signal Installation (At existing signalized intersections next to grade crossings)	Per Inter	98,000	5	$490
	Traction Power: 2-Tracks (incl Feeders, OCS poles)	RF	300	46,819	$14,046
	TPSS	Ea	1,200,000	7	$8,400
	Operations Control Center (Tie into existing MTA system - Lump Sum upgrade)	RF	42	46,819	$1,966
	LRT Communications (PA, CCTV, VMS, SCADA)	Each Station	250,000	4	$1,000
	LRT Signaling (Wayside)	RF	238	46,819	$11,143
	Systems and Communications (Metrolink)	TF	203	6,000	$1,218
	Automatic Railroad Interlocking Unit	Ea	1,500,000	0	0
	Ticket Vending Machines	Each Platform	318,375	5	$1,592
	Ticket Validating Machines (Assume two per each platform)	Each Platform	16,000	5	$80
	Subtotal				$43,098

TABLE 5-5 *continued (page 3 of 4)*
CAPITAL COST ESTIMATE, BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY WITH 2-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$5,025
	3 Systems/Other Total Hard Construction Cost				**$48,123**
4	STATIONS				
	LRT Center Platform At-Grade (3-Cars)	Each	1,500,000	3	$4,500
	LRT Side Platforms At-Grade (3-Cars)	Each	2,000,000	1	$2,000
	Artwork	Each Station	75,000	4	$300
	Park & Ride Facility (At-Grade)	Each Stall	2,813	507	$1,426
	Multi-Story Parking Garage	Each Stall	10,000	1,245	$12,450
	Metrolink Station with Side Platforms (complete, but parking not included)	Each	3,000,000	0	0
	Pedestrian Underpass (Metrolink)	Each	1,700,000	0	0
	Subtotal				$20,676
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$4,135
	4 Stations Total Hard Construction Cost				**$24,811**
	Subtotal Hard Construction Cost				$247,125
	TOTAL HARD CONSTRUCTION COST				**$290,117**
5	VEHICLES				
	LRT Vehicles (Including 10% Spare Parts)	Ea	3,200,000	1	$3,200
	Standard Bus (Including 10% Spare Parts)	Ea	450,000	28	$16,100
	TOTAL				**$19,300**
6	SPECIAL CONDITIONS				
	Master Agreements with Cities and Utility Owners (1% of Sub-Total Hard Construction Cost)	N/A	N/A		$2,471
	Environmental Mitigation (0.75% of Sub-Total Hard Construction Cost)	N/A	N/A		$1,853
	Traffic Control Mitigation (4% of Sub-Total Hard Construction Cost)	N/A	N/A		$9,885
	Project Insurance (4% of Sub-Total Hard Construction Cost)	N/A	N/A		$9,885
	Start-Up Testing and Pre-Revenue Service (1% of Sub-Total Construction Cost)	N/A	N/A		$3,655
	TOTAL				**$27,750**
7	RIGHT-OF-WAY				
	Maintenance and Operations Facility	SF	15	1,503,544	$22,553

TABLE 5-5 *continued (page 4 of 4)*
CAPITAL COST ESTIMATE, BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY WITH 2-TRACK CONFIGURATION, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
	Traction Power Sub-Station	SF	100	7,200	$720
	Park and Ride at Stations	Ea Stall	10,875	532	$5,786
	TOTAL				**$29,059**
	TOTAL CONSTRUCTION/PROCUREMENT				**$366,225**
8	PROFESSIONAL SERVICES				
	MIS / EIS Cost (2% of Sub-Total Hard Construction Cost)	N/A	N/A		$4,942
	Preliminary Engineering Cost (3.5% of Sub-Total Hard Construction Cost)	N/A	N/A		$8,649
	Final Design Cost (7% of Sub-Total Hard Construction Cost)	N/A	N/A		$17,299
	Design Services During Construction Cost 3% of Sub-Total Hard Construction Cost)	N/A	N/A		$7,414
	Agency Cost (7% of Sub-Total Hard Construction Cost)	N/A	N/A		$17,299
	Construction Management Cost (8% of Sub-Total Hard Construction Cost)	N/A	N/A		$19,770
	TOTAL				**$75,373**
9	PROJECT CONTINGENCY				
	Construction Contingency (10% of Sub-Total Hard Construction Cost)	N/A	N/A		$24,712
	Right-of-Way Contingency (40%)	Per Purchase			$11,623
	Provisions for Disputes Board ($40,000 per Segment)	Each Segment	40,000	5	$200
	TOTAL				**$36,536**
	Bus Maintenance Facility Allowance		200,000	28	$5,600
	TOTAL PROJECT COST				**$483,734**

Source: Korve Engineering and Parsons Brinckerhoff, 2004

TABLE 5-6

CAPITAL COST ESTIMATE, MAINTENANCE & OPERATIONS FACILITY, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
1	GUIDEWAY				
	Retained Fill (2-Tracks)	RF	3,938	0	0
	Major Retaining Wall (6' to 15' High)	LF	1,080	0	0
	At-Grade Guideway - Railroad Grade (2-Tracks)	RF	285	0	0
	At-Grade Guideway - Railroad Grade (1-Track)	TF	143	0	0
	At-Grade Guideway - New Grade (2-Tracks)	RF	385	0	0
	At-Grade Guideway - New Grade (1-Track)	TF	193	0	0
	Track Underdrain System (Up to Three Tracks)	RF	25	0	0
	Open Track - Single Track	RF	208	0	0
	Open Track - Double Track	RF	416	0	0
	Pocket Track (300 Feet)	Ea	450,000	0	0
	Direct Fixation – Double Track	RF	675	0	0
	Upgrade BNSF Track	TF	55	0	0
	Shift-Over BNSF Track	TF	20	0	0
	No 8 Single Turnout	Ea	113,000	0	0
	No 8 Single Crossover	Ea	180,500	0	0
	No 8 Double Crossover	Ea	392,000	0	0
	No 10 Single Turnout	Ea	120,000	0	0
	No 10 Single Crossover	Ea	192,500	0	0
	No 10 Double Crossover	Ea	416,000	0	0
	No 15 Single Turnout	Ea	150,000	0	0
	No 15 Single Crossover	Ea	240,625	0	0
	Crossing Diamond (14 Deg 30 Min Angle)	Ea	122,400	0	0
	Concrete Grade Crossing Panels	TF	400	0	0
	Ductbanks - At-Grade	RF	60	0	0
	Ductbanks – Aerial	RF	36	0	0
	Fiver Optic Cables between Stations	RF	50	0	0
	Utility Relocation - Light (Includes utility work at grade crossings, small RCB culverts, etc.)	RF	113	0	0
	Renovate Existing Bridge (Minor Work)	RF	1,400	0	0
	Renovate Existing Bridge (Major Work)	RF	2,800	0	0
	1-Track Precast Concrete Girder	RF	4,500	0	0
	1-Track CIP Through Girder	RF	4,600	0	0
	1-Track CIP Through Girder (Long Span)	RF	12,200	0	0
	2-Track Precast Concrete Girder	RF	8,000	0	0
	2-Track Precast Concrete Girder (Long Span)	RF	12,100	0	0
	2-Track CIP Through Girder	RF	8,200	0	0
	2-Track CIP Through Girder (Long Span)	RF	15,500	0	0
	2-Track Deck Beam	RF	11,900	0	0
	3-Track Precast Concrete Girder	RF	12,000	0	0
	3-Track Deck Beam	RF	14,700	0	0
	Tie-Backs, Wall panels, Concrete Footings @	LF Each	4,400	0	0

TABLE 5-6 *continued (page 2 of 4)*

CAPITAL COST ESTIMATE, MAINTENANCE & OPERATIONS FACILITY, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
	Caltrans Underpasses	Side			
	Caltrans Type 60GE Barrier	LF	100	0	0
	6-Foot High AREMA Crash Wall	LF	300	0	0
	12-Foot High AREMA Crash Wall	LF	400	0	0
	Contaminated Soils	CY	270	0	0
	Subtotal				0
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		0
	1 Guideway Total Hard Construction Cost				**0**
2	MAINTENANCE & OPERATIONS FACILITY (YARDS AND SHOPS)				
	Maintenance Facility (Major service facility for Eastside, Phase I and Phase II LRT projects)	Ea	105,000,000	1	$105,000
	Maintenance Equipment (Included in above)				0
	Subtotal				$105,000
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		$15,750
	2 Maintenance & Operations Facility Total Hard Construction Cost				**$120,750**
3	SYSTEMS/OTHER				
	Civil/Roadway - 4-Lane (Cost for roadway improvements at stations and grade crossings)	LF	416	0	0
	Crossing Gate Assembly (Four quadrant gates)	Ea	200,000	0	0
	Pedestrian Automatic Gates	Ea	35,000	0	0
	Pre-Signal Installation (At existing signalized intersections next to grade crossings)	Per Inter	98,000	0	0
	Traction Power: 2-Tracks (incl Feeders, OCS poles)	RF	300	0	0
	TPSS	Ea	1,200,000	1	$1,200
	Operations Control Center (Tie into existing MTA system - Lump Sum upgrade)	RF	42	0	0
	LRT Communications (PA, CCTV, VMS, SCADA)	Each Station	250,000	0	0
	LRT Signaling (Wayside)	RF	238	0	0
	Systems and Communications (Metrolink)	TF	203	0	0
	Automatic Railroad Interlocking Unit	Ea	1,500,000	0	0
	Ticket Vending Machines	Each Platform	318,375	0	0
	Ticket Validating Machines (Assume two per each platform)	Each Platform	16,000	0	0
	Subtotal				$1,200
	Design Allowance (Varying percent of Hard	N/A	N/A		$120

TABLE 5-6 *continued (page 3 of 4)*

CAPITAL COST ESTIMATE, MAINTENANCE & OPERATIONS FACILITY, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
	Construction Cost)				
	3 Systems/Other Total Hard Construction Cost				**$1,320**
4	STATIONS				
	LRT Center Platform At-Grade (3-Cars)	Each	1,500,000	0	0
	LRT Side Platforms At-Grade (3-Cars)	Each	2,000,000	0	0
	Artwork	Each Station	75,000	0	0
	Park & Ride Facility (At-Grade)	Each Stall	2,813	0	0
	Multi-Story Parking Garage	Each Stall	10,000	0	0
	Metrolink Station with Side Platforms (complete, but parking not included)	Each	3,000,000	0	0
	Pedestrian Underpass (Metrolink)	Each	1,700,000	0	0
	Subtotal				0
	Design Allowance (Varying percent of Hard Construction Cost)	N/A	N/A		0
	4 Stations Total Hard Construction Cost				**0**
	Subtotal Hard Construction Cost				$106,200
	TOTAL HARD CONSTRUCTION COST				**$122,070**
5	VEHICLES				
	LRT Vehicles (Including 10% Spare Parts)	Ea	3,200,000	0	0
	Standard Bus (Including 10% Spare Parts)	Ea	450,000	0	0
	TOTAL				**$0**
6	SPECIAL CONDITIONS				
	Master Agreements with Cities and Utility Owners (1% of Sub-Total Hard Construction Cost)	N/A	N/A		$1,062
	Environmental Mitigation (0.75% of Sub-Total Hard Construction Cost)	N/A	N/A		$797
	Traffic Control Mitigation (4% of Sub-Total Hard Construction Cost)	N/A	N/A		$4,248
	Project Insurance (4% of Sub-Total Hard Construction Cost)	N/A	N/A		$4,248
	Start-Up Testing and Pre-Revenue Service (1% of Sub-Total Construction Cost)	N/A	N/A		$1,545
	TOTAL				**$11,899**
7	RIGHT-OF-WAY				
	Maintenance and Operations Facility	SF	15	1,503,544	$22,553
	Traction Power Sub-Station	SF	100	0	0

TABLE 5-6 *continued (page 4 of 4)*

CAPITAL COST ESTIMATE, MAINTENANCE & OPERATIONS FACILITY, 2003 DOLLARS

REF.	DESCRIPTION	UNIT	Unit Cost (2003 Dollars)	Quantity	Cost ($ 1,000)
	Park and Ride at Stations	Ea Stall	10,875	0	0
	TOTAL				**$22,553**
	TOTAL CONSTRUCTION/PROCUREMENT				**$156,522**
8	PROFESSIONAL SERVICES				
	MIS / EIS Cost (2% of Sub-Total Hard Construction Cost)	N/A	N/A		$2,124
	Preliminary Engineering Cost (3.5% of Sub-Total Hard Construction Cost)	N/A	N/A		$3,717
	Final Design Cost (7% of Sub-Total Hard Construction Cost)	N/A	N/A		$7,434
	Design Services During Construction Cost 3% of Sub-Total Hard Construction Cost)	N/A	N/A		$3,186
	Agency Cost (7% of Sub-Total Hard Construction Cost)	N/A	N/A		$7,434
	Construction Management Cost (8% of Sub-Total Hard Construction Cost)	N/A	N/A		$8,496
	TOTAL				**$32,391**
9	PROJECT CONTINGENCY				
	Construction Contingency (10% of Sub-Total Hard Construction Cost)	N/A	N/A		$10,620
	Right-of-Way Contingency (40%)	Per Purchase			$9,021
	Provisions for Disputes Board ($40,000 per Segment)	Each Segment	40,000	0	0
	TOTAL				**$19,641**
	TOTAL PROJECT COST				**$208,555**

Source: Korve Engineering and Parsons Brinckerhoff, 2004

5-1.2 Operating and Maintenance Cost Estimates

This section summarizes the Operating and Maintenance (O&M) cost estimate for the TSM and the LRT Build Alternatives. The O&M costs were determined using the LACMTA's and Foothill Transit's O&M cost model. The cost model was developed to estimate O&M costs for LACMTA's Bus and Gold Line operating modes as well Foothill Transit's bus operating mode. The Gold Line Phase II LRT proposed operating plan and the operating and maintenance cost estimates in 2003 dollars are found in the following two Construction Authority documents: *LRT Operating Plan and LRT Operating Statistics* (November 24, 2003) and *Operating and Maintenance Cost Estimates* (December 10, 2003, revised January 2004) prepared by Manuel Padron & Associates and Parsons Brinckerhoff Quade & Douglas.

For the LACMTA services, the O&M costs have been determined using the LACMTA's O&M cost model, as calibrated to LACMTA's fiscal year (FY) 2000-01 Adopted Budget. This cost model was developed to estimate O&M costs for LACMTA's separate operating modes for bus and urban rail transit (Blue/Gold Line, Green Line, and Red Line), as well as for support department costs related to operations. The LACMTA O&M cost model estimates staffing requirements, labor costs, and non-labor expenses by transit mode and department within each mode. Overhead costs are allocated to the transit modes based on the allocations made for LACMTA's Adopted Budget. The model uses operating characteristics (e.g., peak vehicles, number of stations, passengers) to determine future costs. As future operating plans change (e.g., new rail lines are constructed), costs change accordingly.

The model meets Federal Transit Administration (FTA) guidelines for estimating operating costs. These guidelines specify that:

- Costs are computed by estimating labor and materials needed to provide a given level of service, and then unit costs are applied to the estimated future labor and material cost items;
- Costs are calculated based on operating characteristics for each mode (e.g., Blue/Gold Line train hours), rather than for all modes combined (e.g., systemwide passengers);
- Each reported labor and non-labor expense is calculated separately, which ensures that equations are mutually exclusive and cover all operating costs; and
- Most cost items are variable, meaning that cost estimates will change with projected changes in service.

The model calculates costs separately for each labor and non-labor item in LACMTA's FY 2001 budget. The driving variables used in the O&M cost model are presented in **Table 5-7**.

TABLE 5-7
OPERATING & MAINTENANCE (O&M) COST MODEL VARIABLES

Input Statistic	MTA Bus	Rail Modes
Annual Boardings (Unlinked Passengers)	X	X
Peak Vehicles	X	X
Active Fleet Vehicles	X	X
Operating Divisions	X	X
Annual Revenue Bus/Car Miles	X	X
Annual Revenue Bus/Train Hours	X	X
Contract/BDOF Service Hours	X	
Route Miles		X
Elevated Stations	X	X
At-Grade Stations	X	X
Subway Stations	X	X
Total Stations		X

Source: Manuel Padron & Associates and Parsons Brinckerhoff, 2004

The LACMTA O&M cost model calculates costs for the entire MTA system of bus and urban rail transit services. Therefore, O&M costs associated with introducing the Gold Line extension alternatives are calculated as incremental O&M costs compared with the No Build or TSM alternatives.

For Foothill Transit bus services a separate model was developed. This model is based on Foothill Transit's average unit costs for the following key operating cost indicators: revenue buses used in the peak period, revenue bus-miles, and revenue bus-hours. The Foothill Transit O&M cost model is calibrated to 2001 actual costs and operating statistics (peak buses, bus-miles and bus-hours). The peak buses, bus-miles, and bus-hours generated for the 2025 alternatives are multiplied by Foothill Transit average unit costs to derive the cost of service for each alternative in 2001 dollars.

Since costs for both LACMTA and Foothill Transit are calculated in 2001 dollars, an escalation factor of 1.063 was used to provide costs in 2003 dollars. This escalation factor is based on a 2.9 percent growth rate in FY2002 and 3.3 percent growth rate for FY2003, based on the urban Consumer Price Index (CPI-U) for the Los Angeles area. This escalation factor matches the assumptions made by LACMTA in its most recent New Starts submittals to the FTA.

Table 5-8 presents the annual O&M costs for each alternative in 2003 dollars based on the proposed operations in year 2025. The table also shows the incremental O&M costs for each alternative compared to the No Build and TSM alternatives.

TABLE 5-8
OPERATING & MAINTENANCE COST ESTIMATES (2003 $)

Provider and Mode	2003 Dollars in Millions			
	No Build	Transportation System Management (TSM) Alternative	Full Build LRT Alternative	Build LRT Alternative to Maintenance Facility
Blue/Gold LRT Lines	$116.16	$116.17	$142.66	$126.02
LACMTA Bus	$906.48	$906.86	$906.93	$906.89
Foothill Transit Bus	$78.97	$88.35	$83.79	$86.57
Total O&M Costs	$1,101.61	$1,111.38	$1,133.38	$1,119.48
Increment to No Build	NA	$9.77	$31.77	$17.87
Increment to TSM	NA	NA	$22.00	$8.10

Source: Manuel Padron & Associates and Parsons Brinckerhoff, 2004

5-1.3 The Project Finance Plan

This section summarizes the capital and operating financial plans for the alternatives. As the comparatively low capital cost of the Transportation Systems Management (TSM) Alternative could be integrated into and funded as part of the MTA background bus system, the analysis focuses on the conceptual financial plans for the Full Build LRT Alternative and the Build LRT Alternative to the

Maintenance Facility. A description is provided of the proposed revenue sources, commitment of these sources, and schedule of annual outlays planned.

Section 5-1.3.1 describes the proposed uses and sources of funding for the capital and O&M costs of the build alternatives. Section 5-1.3.2 presents the proposed flow of costs and revenues over the 2003 to 2025 period.

5-1.3.1 Proposed Uses and Sources of Funding

This section describes the proposed uses and sources of funding for the capital and O&M of the build alternatives. To provide a better understanding of the actual funds that would need to be expended and of the relative effects of inflation on costs and revenues, the financial analysis is presented in year-of-expenditure (YOE) dollars. YOE dollar values are computed by multiplying base year dollar values by the compounded escalation factor for the relevant year for the relevant cost factor. For example, in YOE dollars, $1.00 in 2003 is equivalent to $1.03 in 2004, using an inflation rate of 3.0 percent.

The escalation factors used to compute convert $2003 capital cost estimates to costs in YOE dollars costs are were derived from forecasts of the Consumer Price Index (CPI) prepared in August 2003 by the UCLA Anderson School of Business Forecast Report for Los Angeles County. Construction cost changes are obtained from cost indices of the Engineering News Record for the Los Angeles Region, September 2003. The CPI forecast was then adjusted to estimate The Construction Cost Index (CCI) values for the project time horizon is and were calculated as approximately 75 percent of the CPI. This adjustment is based on the cost relationship between changes in consumer prices and construction costs within the Los Angeles region as published by Engineering News Record for the Los Angeles Region, September 2003. Over the 2003 – 2025 period, the annual CPI is projected to average approximately 2.51 percent, and range from a low of 2.36 percent in 2025 to a high of 2.75 percent in 2019. Over the same period, the annual CCI is projected to average approximately 1.88 percent, and range from a low of 1.77 percent in 2025 to a high of 2.06 in 2019. This is consistent with MTA's financial forecasting process.

a. Overview of Proposed Uses of Funds

Table 5-9 summarizes the capital costs of the two build alternatives in 2003 constant dollars and in year-of-expenditure (YOE) dollars. The costs summarized are comprised of the total capital costs, including allowances for professional services and project contingencies, prior expenditures on right of way, as well as interest costs incurred on bridge loans provided or secured by the Construction Authority in anticipation of receipt of FTA New Start funds. As shown in the table, over the FY 2003-2025 period, the capital cost of the Full Build LRT Alternative is $1,016.2 million in 2003 dollars and $1,182.2 million in YOE dollars. The capital cost of the Build LRT Alternative to the Maintenance Facility is $525.2 million in 2003 dollars and $582.9 million in YOE dollars. Including prior expenditures on right-of-way and interest costs incurred on the bridge loan, the total project capital costs in YOE dollars are $1,330.7 million and $636.8 million for the Full Build LRT Alternative and the Build LRT Alternative to the Maintenance Facility respectively. These are total project costs that include both the LA County and San Bernardino shares.

TABLE 5-9
CAPITAL COST OF THE BUILD LRT ALTERNATIVES
IN 2003 DOLLARS AND IN YEAR OF EXPENDITURE DOLLARS, MILLIONS

Cost Category	Full Build LRT Alternative with 3-Track Configuration		Build LRT Alternative to Maintenance Facility with 3-Track Configuration	
	2003 Dollars in Millions	YOE Dollars in Millions	2003 Dollars in Millions	YOE Dollars in Millions
Guideway	$269.2	$313.1	$119.9	$131.4
M&O Facility	$120.8	$132.4	$120.8	$132.4
Systems	$157.0	$184.7	$53.6	$58.7
Stations	$57.8	$67.3	$24.2	$26.6
Subtotal - Construction	*$604.8*	*$697.5*	*$318.5*	*$349.1*
Vehicles	$67.1	$82.2	$19.3	$21.9
Special Conditions	$58.5	$67.5	$30.6	$33.5
Right-of-Way	$51.3	$56.8	$29.1	$30.8
Professional Services	$159.2	$190.6	$83.0	$91.7
Contingencies	$75.3	$87.6	$44.7	$55.9
Total Capital Cost	**$1,016.2**	**$1,182.2**	**$525.2**	**$582.9**
Interest Cost	$0.0	$41.5	$0.0	$21.8
Prior Expenditure for Right-of-Way	$87.8	$107.0	$29.0	$32.1
TOTAL PROJECT COST	**$1,016.2**	**$1,330.7**	**$525.2**	**$636.8**

Source: Korve Engineering and Parsons Brinckerhoff, 2004

Table 5-10 summarizes the proposed uses and sources of funds for the capital and operations and maintenance of the build alternatives over the 2003 – 2025 period. Including both capital and O&M costs, the total cost of the Full Build LRT Alternative is $1,815.8 million (YOE $), of which $1,330.7 million is for capital and $485.1 million is for O&M. Included in the capital cost are $107.0 million in prior expenditure for the acquisition of the railroad ROW and $41.5 million in interest costs incurred on the bridge loan.

Including both capital and O&M costs, the total cost of the Build LRT Alternative to the Maintenance Facility is $940.3 million (YOE $), of which $636.8 million is for capital and $303.5 million is for O&M over the initial fifteen year period of operations. Included in the capital cost are $32.1 million in prior expenditures for the acquisition of the railroad ROW and $21.8 million in interest costs incurred on the bridge loan. These are included in the total project cost for each alternative.

The capital costs would be shared by two county level jurisdictions, each with a separate funding plan. For this reason, the cash flows distinguish between the costs and revenues for each count. The Los Angeles County share is approximately 95.0 percent of the capital costs of the Full Build LRT Alternative and approximately 98.0 percent of the capital costs of the Build LRT Alternative to the Maintenance Facility. Of the $1,330.7 million in capital cost for the Full Build LRT Alternative, $1,264.2 million is the Los Angeles County share and $66.5 million is the San Bernardino County share. Of the $636.8

million in capital cost of the Build LRT Alternative to the Maintenance Facility, $625.2 is the Los Angeles County share and $11.6 million is the San Bernardino County share.

Table 5-10 also summarizes the incremental O&M costs of the Build alternatives over the No Build Alternative over the 2010 – 2025 period in which the LRT project would be in operation. Of the $485.1 million in O&M costs for the Full Build LRT Alternative, $402.8 million (83 percent) are for LRT service, $72.5 million (15 percent) are bus service provided by Foothill Transit, and $9.8 million (2 percent) are for MTA bus service. Of the $303.5 million in O&M costs for the Build LRT Alternative to the Maintenance Facility, $167.2 million (55.1 percent) are for LRT service, $129.5 million (42.7 percent) are bus service provided by Foothill Transit, and $6.8 million (2.2 percent) are for MTA bus service.

TABLE 5-10
PROPOSED SOURCES AND USES OF FUNDING
FISCAL YEAR 2003-2025
(IN YEAR OF EXPENDITURE DOLLARS, MILLIONS)

	Full Build LRT Alternative	Build LRT Alternative to Maintenance Facility
USES OF FUNDS		
LA County Capital Costs		
Construction and Procurement	$857.7	$426.6
Professional Services	$180.1	$89.9
Project Contingency	$80.3	$54.8
Total Project Capital Cost	***$1,120.8***	***$571.3***
Prior Expenditure for Right-of-Way	$101.9	$32.1
Interest Cost	$41.5	$21.8
Subtotal, LA County Capital Costs	***$1,264.2***	***$625.2***
SB County Capital Costs		
Construction and Procurement	$46.2	$8.7
Professional Services	$10.5	$1.8
Project Contingency	$4.6	$1.1
Total Project Capital Cost	***$61.4***	***$11.6***
Prior Expenditure for Right-of-Way	$5.1	
Interest Cost		
Subtotal, SB County Capital Costs	***$66.5***	***$11.6***
TOTAL CAPITAL COSTS	***$1,330.7***	***$636.8***
SOURCES OF CAPITAL FUNDS		
LA County Capital Funding Sources		
Federal		
FTA Section 5309 New Starts	$581.1	$296.5
FTA Section 5309 Bus and Bus Related Intermodal	$20.0	$10.0
FHWA TCSP	$2.9	$2.9
CMAQ	$10.0	$10.0
State		
State Funds (Proposition 192 Seismic Bond)	$11.5	$11.5
Local		

TABLE 5-10 *continued (page 2 of 2)*
PROPOSED SOURCES AND USES OF FUNDING
FISCAL YEAR 2003-2025
(IN YEAR OF EXPENDITURE DOLLARS, MILLIONS)

	Full Build LRT Alternative	Build LRT Alternative to Maintenance Facility
Countywide Sales Tax Funds	$484.8	$242.2
Corridor Cities Contribution	$52.0	$20.0
Prior Expenditure for Right-of-Way	$101.9	$32.1
Subtotal, LA County Capital Sources	$1,264.2	625.2
Surplus (Deficit) before Bridge Loan		
Gross Bridge Loan Proceeds	$128.1	$139.0
Bridge Loan Principal Payment	-$128.1	-$139.0
Interest (5%)	-$41.5	-$21.8
SB County Capital Funding Sources		
Federal		
FTA Section 5309 New Starts	$30.7	$5.8
Local		
SANBAG Local	$30.7	$5.8
Prior Expenditure for Right-of-Way	$5.1	
Subtotal, SB County Capital Sources	***$66.5***	***$11.6***
TOTAL CAPITAL FUNDING SOURCES	***$1,330.7***	***$636.8***
O&M COSTS AND REVENUES		
O&M COSTS		
LRT	$402.8	$167.2
MTA Bus	$9.8	$6.8
Foothill Transit	$72.5	$129.5
Total O&M Costs	***$485.1***	***$303.5***
SOURCES OF O&M FUNDS		
LRT Farebox Revenues	$112.8	$46.8
Bus Farebox Revenues	$323.0	$38.2
MTA Local Funds	$349.3	$218.5
TOAL O&M Sources	***$485.1***	***$303.5***

Notes:

Includes MTA's 60% Share of the Maintenance Facility Capital Cost ($125.1 Million) and Prior MTA and SANBAG Local Expenditures for Right-of-way

"Special Conditions" includes environmental mitigation, master cooperative agreements, project insurance, start-up and testing costs

"Professional Services" includes engineering, construction management, agency costs

Source: Sharon Greene & Associates, 2004

b. Overview of Proposed Sources of Funds

This section focuses on the proposed sources of funding for the Build Alternatives over the 2003–2025 period. Capital funding sources are described first, followed by a description of O&M funding sources.

Capital Funding Sources

Table 5-11 and **Figure 5-1** illustrate the variety of revenue sources proposed to fund the capital costs of the Build alternatives. These sources consist of:

Federal Sources:

- FTA Section 5309 New Starts
- FTA Section 5309 Bus and Bus Related Intermodal
- FHWA Congestion Mitigation and Air Quality (CMAQ)
- FHWA Transportation and Community and Systems Preservation Program (TCSP)

State Sources:

- State Funds (Proposition 192 Seismic Bond)

Local Sources:

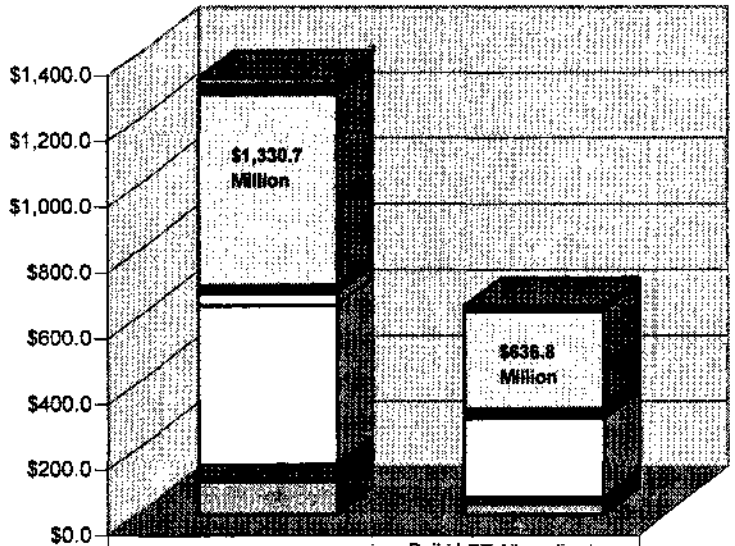
- Corridor Cities Contributions
- Countywide Sales Tax Funds
- Prior Expenditure for Right-of-Way

TABLE 5-11
PROPOSED CAPITAL REVENUE SOURCES
(IN YEAR OF EXPENDITURE DOLLARS, MILLIONS)

	FULL BUILD LRT ALTERNATIVE		BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY	
	YOE Dollars, Millions	Percent of Total	YOE Dollars, Millions	Percent of Total
LOS ANGELES COUNTY				
CAPITAL COSTS				
Project Capital Cost	$1,120.8		$571.3	
Prior Expenditure for Right-of-Way	$101.9		$32.1	
Interest Cost	$41.5		$21.8	
Total Project Capital Cost	**$1,264.2**		**$625.2**	
CAPITAL REVENUES				
Federal		**48.6%**		**51.1%**
5309 New Starts	$581.1	46.0%	$296.5	47.4%
5309 Bus and Bus Related Intermodal	$20.0	1.6%	$10.0	1.6%
FHWA TCSP	$2.9	0.2%	$2.9	0.5%
CMAQ	$10.0	0.8%	$10.0	1.6%
State		**0.9%**		**1.8%**
Bridge Fund Balance (existing $)	$11.5	0.9%	$11.5	1.8%
Local		**50.5%**		**47.1%**
Countywide Sales Tax Funds	$484.8	38.3%	$242.2	38.7%
Corridor Cities Contribution	$52.0	4.1%	$20.0	3.2%
Prior Expenditure for Right-of-Way	$101.9	8.1%	$32.1	5.2%
TOTAL CAPITAL SOURCES	**$1,264.2**	**100.0%**	**$625.2**	**100.0%**
SAN BERNARDINO COUNTY				
CAPITAL COSTS				
Project Capital Cost	$61.4		$11.6	
Prior Expenditure for Right-of-Way	$5.1			
Interest Cost				
Total Capital Cost	**$66.5**		**$11.6**	
CAPITAL REVENUES				
Federal				
5309 New Starts	$30.7	46.2%	$5.8	50.0%
Local				
SANBAG Local	$30.7	46.2%	$5.8	50.0%
Prior Expenditure for Right-of-Way	$5.1	7.6%		
TOTAL CAPITAL SOURCES	**$66.5**	**100.0%**	**$11.6**	**100.0%**

Note: Includes MTA's 60 percent share of the Maintenance Facility capital cost ($125.1 million) and prior MTA and SANBAG local expenditures for right of way.

Source: Sharon Greene & Associates, 2004



	Full Build LRT Alternative	Build LRT Alternative to Maintenance Facility
5309 Bus and Bus Related Intermodal	$20.0	$10.0
5309 New Starts (San Bernardino County)	$30.7	$5.8
5309 New Starts (LA County)	$581.1	$296.5
FHWA TCSP	$2.9	$2.9
CMAQ	$10.0	$10.0
State (Proposition 192 Seismic Bond)	$11.5	$11.5
SANBAG Local	$35.8	$5.8
Countywide Sales Tax Funds	$484.8	$242.2
Corridor Cities Contribution	$52.0	$20.0
Prior Local Expenditure for Right of Way	$101.8	$32.1

Source: Sharon Greene & Associates, 2004

FIGURE 5-1: SUMMARY OF CAPITAL RESOURCES IN YEAR-OF-EXPENDITURE DOLLARS

Of the sources proposed for the LA County share, federal sources comprise 48.6 percent of the capital revenues proposed for the Full Build LRT Alternative and 51.1 percent of the revenues for the Build LRT Alternative to the Maintenance Facility. The predominant federal source is FTA Section 5309 New Starts funding, which comprises 46.0 percent and 47.4 percent of the capital revenues for the Full Build LRT Alternative and Build LRT Alternative to the Maintenance Facility respectively. State sources contribute between 1 and 2 percent of total revenues. Local sources comprise 50.5 percent and 47.1 percent of the revenues for the two Build alternatives respectively. The predominant local source is countywide sales tax funds.

Of the sources proposed for the San Bernardino County share, federal sources comprise 46.2 percent of the capital revenues for the Full LRT Build Alternative and 50.0 percent of the revenues for the Build LRT Alternative to the Maintenance Facility. All federal funding for the San Bernardino share is proposed to be derived from FTA New Starts funds. The balance of funding is proposed to be provided from local sources.

Each of the proposed capital funding sources is described briefly in the sections following.

❑ Federal Sources for Capital

Federal sources proposed for capital consist of FTA Section 5309 New Start funds, FTA Section 5309 Bus and Bus Related Intermodal funds, FHWA Congestion Mitigation and Air Quality (CMAQ) program, and FHWA Transportation and Community and Systems Preservation Program (TCSP).

FTA Section 5309 New Start Funds

Under this program, FTA provides federal discretionary funding for proposed fixed guideway New Starts and extensions. New Starts funds represent 46.0 percent of the funding for the Full Build LRT Alternative and 47.4 percent of the Build LRT Alternative to the Maintenance Facility, or $611.8 million and $302.3 million for the alternatives respectively. The Construction Authority will coordinate with San Bernardino Associated Governments in securing New Starts funding for the Gold Line Extension.

For the portion of the alternatives allocated to LA County, this source is proposed to provide 46.0 percent of the capital funding for the Full Build LRT Alternative and 47.4 percent for the Build LRT Alternative to the Maintenance Facility. The total level of FTA New Starts proposed for the LA County share is $581.1 million for the Full Build LRT Alternative and $296.5 for the Build LRT Alternative to the Maintenance Facility. Of these totals, $4.0 million in FTA New Starts funding was authorized in the 2004 Federal Budget. An additional $30.7 million and $5.8 million in FTA New Starts funding is proposed for the San Bernardino County share, representing 46.2 percent and 50.0 percent of the capital funding for the San Bernardino County portions of these alternatives. The Section 5309 shares for these build alternatives, total and by county, are below the 50% maximum share objective for New Starts Program contributions.

Over the 2004 – 2009 period, the annual level of New Starts funds proposed for the Gold Line Extension does not to exceed $30 million. Higher levels of New Starts funding are proposed for the Gold Line Extension beginning in 2010. This annual limitation on the level of FTA New Starts funds to be received will require that the Construction Authority provide or secure annual bridge loans that would be repaid with FTA New Starts funds received after completion of construction. Higher levels of New Starts funding are projected to be available for the Gold Line Extension beginning in 2010 (See **Table 5-12**). This higher level of New Starts funding eliminates the need for any further bridge loan financing of the project implementation schedule.

FTA Section 5309 Bus and Bus Related Intermodal Funds

Under this program, FTA provides federal discretionary funding for bus and bus related capital projects, including construction or rehabilitation of facilities and acquisition of vehicles. FTA Section 5309 Bus funds are proposed to fund intermodal transfer facilities, transportation centers, shelters, and related uses along the Gold Line Extension. A total of $20 million in FTA Section 5309 Bus funding is proposed for the Full Build LRT Alternative, with $10 million proposed for the Build LRT Alternative to the Maintenance Facility.

FHWA CMAQ Funds

A total of $10 million in CMAQ funding is proposed for both build alternatives. These funds would be received in 2008.

FHWA TCSP Funds

The Metro Gold Line Construction Authority was awarded $2.9 million in funding through the Transportation and Community and Systems Preservation Program. These funds are expected to be available for expenditure in 2005. These funds have been authorized to San Gabriel Valley Council of Governments as the local transportation funding organization and the COG has agreed to assign these funds to the project in their capital program.

TABLE 5-12
ANNUAL DRAWDOWN LEVELS OF NEW STARTS FUNDING PROPOSED OVER THE 2004-2016 PERIOD (IN YEAR OF EXPENDITURE DOLLARS, MILLIONS)

Fiscal Year	FULL BUILD LRT ALTERNATIVE		BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY	
	LOS ANGELES COUNTY	SAN BERNARDINO COUNTY	LOS ANGELES COUNTY	SAN BERNARDINO COUNTY
2005	$4.0		$4.0	
2006	$27.3	$1.0	$27.1	$1.0
2007	$30.0	$1.1	$30.0	$1.1
2008	$30.0	$1.8	$30.0	$1.8
2009	$30.0	$1.1	$30.0	$1.1
2010	$36.6	$0.7	$36.5	$0.7
2011	$75.0	$3.1	$60.4	
2012	$89.0	$4.7	$78.5	
2013	$70.0	$8.7		
2014	$70.0	$5.1		
2015	$70.0	$3.3		
2016	$49.2			
Total	**$581.1**	**$30.7**	**$296.5**	**$5.8**

Note: Revenues not rounded
Source: Sharon Greene & Associates, 2004

❑ State Sources for Capital

The Metro Gold Line Construction Authority received State funds through the Proposition 192 Seismic Retrofit and Replacement Bond program. These funds will be expended on the Extension beginning in 2003. A total of $11.5 million in such funding is proposed in both LRT build alternatives.

❑ Local Sources for Capital

Local sources are projected to provide $638.7 million and $294.3 million for the LA portions of the Full Build LRT Alternative and the Build LRT Alternative to the Maintenance Facility respectively, representing 50.5 percent and 47.1 percent of proposed capital revenues. Local funding is also proposed to fund the San Bernardino County portion of the alternatives. Local funds are proposed to provide $35.8 million (53.8 percent) of capital funding for the San Bernardino County portion of the Full Build LRT Alternative and $5.8 million (50.0 percent) for the Build LRT Alternative to the Maintenance Facility.

The sources of LA County funding consist of contributions from the Corridor cities, revenues from countywide sales taxes, and credit for prior local expenditure made to acquire the railroad right of way. In addition, the Construction Authority would provide or secure bridge financing, which would be repaid with future receipt of FTA New Starts funds. Local funding for the San Bernardino County share would be provided through the proposed extension of the Measure I county sales tax program to be considered by county voters in November 2004.

Corridor Cities Contribution

The local jurisdictions along the Gold Line Phase II corridor have indicated their commitment to assist in funding the capital cost of the project. Approximately 4.1 and 3.2 percent of capital revenues are proposed to be derived from the corridor cities, with $52.0 million for the Full Build LRT Alternative and $20.0 million proposed for the Build LRT Alternative to the Maintenance Facility.

Local jurisdictions could potentially use a variety of funding sources for their contributions. Among these are Proposition A 25 Percent Local Return sales tax funds, Proposition C 20 Percent Local Return sales tax funds, local gas tax subventions, tax increment financing revenues from redevelopment, and joint development revenue sources.

Countywide Sales Tax Funds

Currently, the MTA relies on three existing sales tax-based revenue sources: Proposition A, Proposition C, and Transportation Development Act (TDA). Propositions A and C are each projected to generate $565.8 million in 2004 and $596.5 million in 2005, with TDA forecasted to generate $288.1 million in 2004 and $303.8 million in 2005. The MTA receives, programs, and allocates these funds and audits their usage. In addition, enabling legislation was passed in 2003 authorizing the MTA to place an interim sales tax on the ballot. As described below, portions of these sources could be used to fund the LA County share of the Gold Line Phase II. San Bernardino County Measure I sales tax funds are proposed for use in funding the San Bernardino County share of the alternatives.

Proposition A is a half-cent sales tax for public transit approved by Los Angeles County voters in 1980. Of the revenues generated annually, 25 percent are distributed back to the cities and county of LA on a per capita basis; 35 percent are used for rail development in LA County as specified on the Proposition A Rail Corridor Map and for rail operations; and 40 percent are set-aside by MTA for discretionary programs related to bus capital and operations. As a designated Proposition A Corridor, the Gold Line Extension is eligible to receive Proposition A rail development funds.

Proposition C is a half-cent sales tax for public transportation purposes approved by the voters in 1990. Of the revenues generated, 5 percent is for rail and bus security; 10 percent is for commuter rail and transit centers; 25 percent is for transit-related improvements to streets and highways; 20 percent is for local return for transit use; and 40 percent is for discretionary programs to improve and expand rail and bus transit services. The MTA Reform and Accountability Act was approved by the voters in 1998 permitting the expenditure of Proposition C funds for transit improvements to rail rights of way.

TDA authorizes the use of ¼ of 1 percent of the state sales tax for transportation purposes. The MTA allocates TDA funds to municipal transit operators based on established criteria and formulas. Before allocation, 1 percent of TDA funds are set-aside for MTA administrative costs and ¾ percent for transportation planning and programming by Southern California Association of Governments. Of the remaining funds, up to 2 percent are for bicycle and pedestrian facilities; up to 93 percent are allocated to

municipal operators for transit capital and operations; and up to 4.8 percent are for transit and paratransit services provided under contract.

Pending resolution of the State budget deficit, transportation agencies across California have been affected by the State's interim actions of deferring transportation funding allocations and borrowing of funds from the State Transportation Improvement Program. As a possible method to keep existing and proposed capital projects and programs within Los Angeles County moving forward, Senator Murray proposed legislation authorizing an interim 0.5 percent transactions and use tax (sales tax) for transportation. The bill, SB 314, was passed by the Legislature and signed by the Governor in October 2003.

SB 314 authorizes the MTA to impose a 0.5 percent sales tax for 6 ½ years or less, to fund specified transportation-related purposes designated as capital projects or capital programs. The bill conditions the imposition of the tax upon voter approval as otherwise required by law. The bill requires the MTA to prepare an expenditure plan prior to submitting the ordinance to voters, describing the projects and programs, their cost, and funding sources.

Based on the capital plan contained in SB 314, the Metro Gold Line (Pasadena to Irwindale) Light Rail Transit Extension would receive "... the sum of three hundred twenty-eight million dollars ($328,000,000). This project shall be completed by 2012, and shall be the second priority for federal funding received for the capital projects specified" in the legislation.

County sales tax funds are also proposed for use in San Bernardino County. Approved by county voters in 1989, San Bernardino County's Measure I is a half-cent sales tax authorized for a 20-year period to fund a defined multimodal transportation expenditure program. In advance of the 2009 sunset year, the extension of the Measure I program will be considered by county voters in November 2004.

Prior Expenditure for Right-of-Way

In 1992, the MTA and SANBAG purchased the Pasadena Subdivision railroad right-of-way within their jurisdictions. The acquisition was 100 percent funded with MTA Proposition A sales tax funds, SANBAG Measure I sales tax funds, and State Proposition 116 Rail Bonds funds, with no federal funding used. In YOE dollars, the escalated cost of the right of way is $107.0 million for the Full Build LRT Alternative and $32.1 million for the Build LRT Alternative to the Maintenance Facility.

The proposed capital financial plan calls for this prior expenditure of funds to be credited as part of the non-federal match for the Gold Line Extension project.

Bridge Financing

For purposes of the capital financial plan, bridge financing is needed to address cash flow issues resulting from the anticipated availability of FTA Section 5309 New Starts funding. As Corridor costs will be incurred before all of the required funds are available, the Construction Authority is assumed to provide or secure some form of bridge financing such as Commercial Paper. Debt issuance is anticipated in 2007 through 2010, and interest rates are conservatively assumed to be 5 percent, consistent with MTA assumptions. The short-term loans total $128.1 million and $139.0 million for the Full Build LRT Alternative and the Build LRT Alternative to the Maintenance Facility respectively. The loans would be fully repaid in 2011 and 2012 with FTA Section 5309 New Starts funding received after completion of construction. Interest expense for repayment of the bridge loan is eligible for federal New Starts funding and has been incorporated into the project capital cash flows.

Revenue Sources for Operations and Maintenance

Table 5-13 summarizes the costs and the revenue sources proposed to fund the incremental O&M costs associated with the build alternatives. As shown in the table, a total of $485.1 million and $303.5 million in incremental O&M costs are projected over the FY 2010-2025 period for the Full Build LRT Alternative and the Build LRT Alternative to the Maintenance Facility respectively. These costs consist of three components: LRT, incremental MTA bus service, and incremental Foothill Transit bus service.

Approximately 83.0 percent of the incremental O&M costs of the Full Build LRT Alternative are attributable to the extension of the Gold Line LRT service. With its reduced miles of LRT service and greater reliance on Foothill Transit buses, the Build LRT Alternative to the Maintenance Facility has O&M costs that are divided between LRT (55.1 percent) and Foothill Transit bus (42.7 percent).

TABLE 5-13
PROPOSED OPERATIONS AND MAINTENANCE
FUNDING FISCAL YEARS 2003-2025
(IN YEAR OF EXPENDITURE DOLLARS, MILLIONS)

	Full Build LRT Alternative		Build LRT Alternative to Maintenance Facility	
	Cost	Percent	Cost	Percent
O&M COSTS & REVENUES				
O&M COSTS				
LRT	$402.8	83.0%	$167.2	55.1%
MTA Bus	$9.8	2.0%	$6.8	2.2%
Foothill Transit	$72.5	14.9%	$129.5	42.7%
Total O&M Costs	***$485.1***	***100.0%***	***$202.5***	***100.0%***
SOURCES OF O&M FUNDS				
LRT Farebox Revenues	$112.8	23.3%	$46.8	15.4%
Bus Farebox Revenue	$23.0	4.7%	$38.2	12.6%
MTA Local Funds	$349.3	72.0%	$218.5	72.0%
Total O&M Sources	***$485.1***	***100.0%***	***$303.5***	***100.0%***

Source: Sharon Greene & Associates, 2004

Incremental O&M costs are projected to grow annually over the 2010-2025 period. **Table 5-14** summarizes the increases in O&M costs at key intervals in 2003 dollars and in YOE dollars. In constant 2003 dollars, the annual O&M costs of the Full Build LRT Alternative are projected to be $4.2 million in 2010, increase to $19.6 million per year in 2015, and to $31.8 million in 2025. In constant 2003 dollars, the annual O&M costs of the Build LRT Alternative to the Maintenance Facility are projected to be $6.5 million in 2010, increase to $10.9 million per year in 2015, and to $17.9 million in 2025.

Funding for the O&M costs of the Build Alternatives is proposed to be derived from three sources. These sources are Gold Line Phase II LRT fare revenues, MTA and Foothill Transit bus fare revenues, and MTA Operating Support.

Fare Revenues

Fares comprise an average of 27.5 percent of MTA bus operations revenues, 26.2 percent for municipal operators, and 23.4 percent for MTA rail operations revenues under the "Long Range Transportation Plan Financial Forecasting Model, February 7, 2003", based on current fare revenue assumptions. Fare recovery is assumed to adjust in FY 2004 and thereafter-reflecting changes in fare media types. Fare recovery adjustments are based on the CPI rate, opening of new projects and transit corridors, and fare media projections (cash, monthly pass usage increase or decrease, and universal fare card). Within the O&M financial plan, fare revenues are projected to reach 28 percent of O&M costs.

TABLE 5-14
INCREMENTAL OPERATIONS AND MAINTENANCE COSTS OVER NO BUILD IN FY 2010, FY 2015, FY2025 (IN YEAR OF EXPENDITURE DOLLARS, MILLIONS)

Fiscal Year	Full Build LRT Alternative		Build LRT Alternative to Maintenance Center	
	2003 $	Year of Expenditure $	2003 $	Year of Expenditure $
FY 2010				
LRT	$3.0	$3.6	$2.9	$3.5
MTA Bus	$0.4	$0.5	$0.2	$0.2
Foothill Transit	$0.8	$1.0	$3.4	$4.1
Total	***$4.2***	***$5.0***	***$6.5***	***$7.8***
FY 2015				
LRT	$16.3	$22.2	$6.1	$8.3
MTA Bus	$0.4	$0.5	$0.2	$0.3
Foothill Transit	$2.9	$4.0	$4.6	$6.2
Total	***$19.6***	***$26.7***	***$10.9***	***$14.9***
FY 2025				
LRT	$26.5	$46.4	$9.9	$17.3
MTA Bus	$0.4	$0.8	$0.4	$0.7
Foothill Transit	$4.8	$8.4	$7.6	$13.3
Total	***$31.8***	***$55.6***	***$17.9***	***$31.3***

Source: Sharon Greene & Associates, 2004

Over the 2010-2025 period, for the Full Build LRT Alternative, LRT fare revenues are projected to fund a total of $112.8 million, and fund 23.3 percent of total O&M costs. Bus fare revenues are projected to total $23.0 million, and fund 4.7 percent of total O&M costs. The 72.0 percent balance of O&M revenues is proposed to be derived from MTA local funds.

With respect to the Build LRT Alternative to the Maintenance Facility, LRT fare revenues are projected to fund a total of $46.8 million, and fund 15.4 percent of total O&M costs. Bus fare revenues are projected to total $38.2 million, and fund 12.6 percent of total O&M costs. The 72.0 percent balance of O&M revenues is proposed to be derived from MTA local funds.

MTA Operating Support

Over the 2010-2025 period, MTA operating support is proposed to fund a total of $349.3 million (72 percent) of total O&M costs. In 2003 constant dollars, this is equivalent to approximately $22.9 million and $12.9 million per year in 2025 for the Full Build LRT Alternative and the Build LRT Alternative to the Maintenance Facility respectively. This level of operating support would be funded as part of the funding MTA currently provides for operation of public transportation services, totaling in the billions of dollars.

MTA operations and maintenance support is provided from a variety of revenue sources. Key sources of operating funds are described below.

Reliance on Sales Tax Based Revenues

The MTA relies on the three sales tax-based revenue sources described earlier: Proposition A, Proposition C, and Transportation Development Act (TDA). Propositions A and C sales tax revenues account for 29.2% of the total MTA bus operations and 52.4% of MTA rail operations over the financial plan period. Based on the MTA Long Range Financial Model updated in August 2003, the specific uses of the sales tax based revenues are as follows:

Proposition A Half-Cent Sales Tax. MTA rail operations are funded in part by the Proposition A 35% rail program. MTA bus operations are funded in part by the Proposition A 40% discretionary program. Approximately 31% of the available Proposition A revenues fund MTA bus and rail operations through the financial forecasting model period of 2025.

Proposition C Half-Cent Sales Tax. The Proposition C 40% Discretionary program funds a portion of the MTA bus and rail operations along with the Proposition C 5% security funds. These Proposition C funds contribute approximately 13% of the total MTA bus operations funding and approximately 15% of rail operations funding through 2025.

Transportation Development Act. A statewide quarter-percent sales tax is provided to counties for transportation purposes under the Transportation Development Act (TDA). Under Article 4 of the Act, funds can be used for transit operations or capital purposes. Currently, approximately $265 million is generated annually for Article 4 purposes. TDA funds about 29.6% of MTA bus operations.

Congestion Mitigation and Air Quality Improvement Program

CMAQ funds can be used for the first three years of operating expenses of new or expansion transit service, such as the Gold Line LRT project. A total of approximately $169 million is planned for use on the operations of all new rail transit corridors from FY 2004 to FY 2025.

Section 5307

Under TEA-21, FTA grant recipients may use Section 5307 formula funds to pay for preventive maintenance costs. MTA is using these flexible funds for eligible bus and rail preventive maintenance costs in the operating budget. Approximately 9.2% of the MTA bus operations costs are funded with this source through 2025.

Other Revenues

MTA has historically pursued one-time revenues from a variety of sources, such as the sale of surplus assets, lapsed funds from other programs, and fund balance transfers. Specific one-time revenues, such as anticipated lease-leaseback arrangements and the liquidation of reserve funds that are no longer required, are also included.

5-1.3.2 Proposed Flow of Costs and Revenues from 2003-2025

Pro forma, year-by-year cash flow analyses were conducted to assess the overall adequacy of revenues to cover the proposed capital and operations and maintenance costs associated with the Full Build LRT Alternative and the Build LRT Alternative to the Maintenance Facility. **Table 5-15** and **Table 5-16** contain the cash flow analyses of the two alternatives respectively.

The cash flow models used in the financial assessment define the magnitude, timing, and type of expenditure for which revenues may be required. The cash flow models consist of four basic components: Operating Costs, Capital Costs, Operating Revenues, and Capital Revenues, each of which has sub-components. With respect to the capital and operating revenues, consideration was given to the types of costs eligible to receive particular sources of funding as well as potential legal restrictions and/or matching requirements associated with each revenue source.

Figures 5-2 through 5-4 illustrate the flow of costs proposed over the 2003–2025 period. Figures 5-2 and 5-3 indicate the annual cost drawdowns for the Full Build LRT Alternative and the Build LRT Alternative to the Maintenance Facility respectively. As shown in the figures, peak expenditures are proposed to occur in 2008, 2009, and 2013 for the Full Build LRT Alternative and in 2008 and 2009 for the Build LRT Alternative to the Maintenance Facility.

Figure 5-4 illustrates the annual build-up of O&M costs over the period. As shown in the figure, over the 2009–2014 period, O&M costs are projected to be relatively similar for both build alternatives. With the extension of revenue service to Montclair under the Full Build LRT Alternative, O&M costs increase approximately 80 percent in comparison to the Build LRT Alternative to the Maintenance Facility.

TABLE 5-15
FULL BUILD LRT ALTERNATIVE (TRIPLE TRACK)
ESCALATED CAPITAL COSTS CASHFLOW- IN MILLIONS OF YEAR OF EXPENDITURE DOLLARS
OPERATING DATES: NOVEMBER 2009 TO IRWINDALE, APRIL 2014 TO MONTCLAIR

USES OF FUNDS	Pre-2003	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	Total	Percent of Total
Escalation Rate			2.09%	2.18%	2.16%	1.97%	1.91%	2.04%	1.99%	2.11%	2.16%	2.26%	2.16%	2.12%												
Factor		1.00	1.0209	1.043	1.066	1.087	1.107	1.130	1.152	1.177	1.202	1.229	1.256	1.282												
LOS ANGELES COUNTY USES AND SOURCES																										
CAPITAL COSTS AND REVENUES																										
Construction & Procurement																										
Guideways		0.0	0.0	0.0	0.0	25.8	48.3	31.3	26.0	29.4	34.3	59.4	33.9												292.4	26
Yard and Shop		0.0	0.0	0.0	0.0	29.2	58.2	46.2	8.8	0.0	0.0	0.0	0.0												126.6	11
Systems		0.0	0.0	0.0	0.0	11.5	21.4	17.0	8.7	17.1	28.6	43.9	26.2												174.6	16
Stations		0.0	0.0	0.0	0.0	5.2	10.6	8.9	2.8	5.0	15.2	15.4	7.9												65.0	6
Vehicles		0.0	0.0	0.0	0.0	0.0	0.0	8.5	13.9	0.0	27.9	17.6	14.8												82.2	7
Special Conditions		0.0	0.0	0.0	0.0	9.4	13.1	8.3	5.8	4.5	7.6	12.3	6.3												63.6	6
Right-of-way (including prior expenditures)		0.0	0.0	0.0	26.1	3.5	0.0	12.2	12.4	0.0	0.0	0.0	0.0												54.3	5
Subtotal Construction and Procurement		**0.0**	**0.0**	**0.0**	**26.1**	**81.6**	**143.7**	**131.1**	**68.8**	**51.0**	**113.6**	**147.6**	**94.1**	**0.0**	**0.0**										**857.7**	**77**
Professional Service		2.2	3.8	11.4	13.5	15.8	26.2	26.1	20.3	12.3	13.6	13.9	14.2	4.7											180.1	16
Project Contingencies		0.0	0.0	0.0	5.0	7.8	13.5	12.8	12.6	5.1	8.0	9.7	8.7												83.0	7
Total Project Capital Cost	***0.0***	**3.2**	**3.8**	**11.4**	**44.6**	**105.2**	**183.5**	**169.8**	**101.7**	**69.4**	**135.4**	**171.2**	**117.0**	**4.7**	**0.0**										**1,120.8**	**100**
Interest Cost		0.0	0.0	0.0	0.0	1.7	3.4	5.1	6.4	5.6	5.6	5.6	5.6	2.5											41.5	
Prior Expenditures for Right-of-Way	101.9																								101.9	
TOTAL CAPITAL COST	**101.9**	**3.2**	**3.8**	**11.4**	**44.6**	**106.9**	**186.9**	**174.9**	**108.1**	**75.0**	**141.0**	**176.8**	**122.6**	**7.2**											**1,264.2**	
SOURCES OF CAPITAL FUNDS																										
Prior Local Expenditures for right-of-way	101.9																								101.9	8
Corridor Cities Contribution					3.0	5.5	7.5	8.0	2.8		5.5	10.5	8.7												51.6	4
State Funds (Proposition 192 Seismic Bond)		3.2	3.8	4.5																					11.5	1
CMAQ							10.0																		10.0	1
FHWA TCSP				2.9																					2.9	0
5309 New Starts				4.0	27.3	30.0	39.0	30.0	38.5	75.0	69.0	70.0	70.0	70.0	49.2										581.1	46
5309 Bus and Bus Related						5.0	5.0			5.0	5.0														20.0	2
Countywide Sales Tax					13.5	22.0	100.7	103.2	41.6	11.1	41.5	96.3	43.9												494.5	39
TOTAL CAPITAL SOURCES	**101.9**	**3.2**	**3.8**	**11.4**	**44.6**	**73.2**	**163.2**	**141.2**	**81.0**	**91.1**	**141.0**	**176.8**	**122.6**	**70.0**	**49.2**										**1,264.2**	**100**
Surplus (Deficit) before Bridge Loan	0.0	0.0	0.0	0.0	0.0	-32.9	-30.3	-28.6	-20.7	21.7	5.6	5.6	5.6	65.3	49.2											
Gross Bridge Loan Proceeds						33.7	33.7	33.7	27.1	0.0	0.0														128.1	
Bridge Loan Principal Payment										-16.1				-82.6	-49.2										-128.1	
Bridge Loan Principal Balance	0.0	0.0	0.0	0.0	0.0	33.7	67.4	101.0	128.1	112.0	112.0	112.0	112.0	29.2	0.0											
Interest (5%)	0.0	0.0	0.0	0.0	0.0	-1.7	-3.4	-5.1	-6.4	-5.6	-5.6	-5.6	-5.6	-2.5	0.0										-41.5	
Net Surplus (Deficit) after Bridge Loan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0										0.0	
O&M COSTS & REVENUES																										
O&M COSTS																										
LRT									3.6	5.5	6.1	6.8	11.1	23.2	24.2	26.3	26.5	30.5	33.2	35.6	38.2	40.9	43.6	46.4	402.8	33
MTA Bus									0.5	0.5	0.9	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.8	0.8	9.5	1

TABLE 5-15 *continued (page 2 of 3)*
FULL BUILD LRT ALTERNATIVE (TRIPLE TRACK)
ESCALATED CAPITAL COSTS CASHFLOW- IN MILLIONS OF YEAR OF EXPENDITURE DOLLARS
OPERATING DATES: NOVEMBER 2009 TO IRWINDALE, APRIL 2014 TO MONTCLAIR

USES OF FUNDS	Pre-2003	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	Total	Percent of Total
Escalation Rate			2.09%	2.13%	2.15%	1.97%	1.91%	2.04%	1.99%	2.11%	2.16%	2.09%	2.16%	2.12%												
Factor		1.00	1.0209	1.043	1.066	1.087	1.107	1.130	1.152	1.177	1.202	1.229	1.256	1.282												
Foothill Transit Bus									1.0	1.0	1.0	1.0	1.8	4.0	4.3	4.7	5.1	5.5	6.0	6.4	6.9	7.4	7.9	8.4	72.5	15
Total O&M Costs									***5.0***	***7.0***	***7.6***	***8.3***	***13.4***	***26.7***	***29.1***	***31.6***	***34.2***	***36.9***	***39.8***	***42.8***	***45.8***	***49.0***	***52.3***	***55.6***	***485.1***	***100***
SOURCES OF O&M FUNDS																										
LRT Farebox Revenues									1.0	1.5	1.7	1.9	3.1	6.2	6.6	7.4	8.0	8.6	9.3	10.0	10.7	11.4	12.2	13.0	110.6	23
Bus Farebox Revenues									0.4	0.4	0.4	0.4	0.6	1.3	1.4	1.5	1.6	1.7	1.9	2.0	2.1	2.3	2.4	2.6	23.0	5
MTA Local Funds									3.6	5.0	5.5	6.0	9.6	19.3	21.0	22.7	24.6	26.6	28.7	30.9	33.0	35.3	37.6	40.1	349.3	72
TOTAL O&M SOURCES	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.0**	**7.0**	**7.6**	**8.3**	**13.4**	**26.7**	**29.1**	**31.6**	**34.2**	**36.9**	**39.8**	**42.8**	**45.8**	**49.0**	**52.3**	**55.6**	**485.1**	**100**
SAN BERNARDINO COUNTY USES AND SOURCES																										
CAPITAL COSTS AND REVENUES																										
Construction and Procurement																										
Guideways		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	4.0	8.3	4.2	2.2											20.7	34
Yard and Shop		0.0	0.0	0.0	0.8	1.3	2.7	1.4	0.7	0.0	0.0	0.0	0.0	0.0											6.7	11
Systems		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.9	4.0	2.0	1.0											10.1	16
Stations		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.9	0.5	0.2											2.3	4
Vehicles		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																0.0	0
Special Conditions		0.0	0.0	0.0	0.1	0.1	0.3	0.1	0.1	0.3	0.6	1.3	0.7	0.3											3.9	6
Right-of-Way		0.0	0.0	0.0	0.9	0.3	0.0	0.0	0.0	1.0	0.3														2.5	4
Subtotal Construction and Procurement	**0.0**	**0.0**	**0.0**	**0.0**	**1.6**	**1.8**	**3.0**	**1.6**	**0.8**	**4.5**	**7.4**	**14.5**	**7.4**	**3.8**											**46.2**	**75**
Professional Service		0.0	0.0	0.0	0.3	0.4	0.4	0.4	0.4	1.7	1.7	1.7	1.8	1.8											10.5	17
Project Contingencies		0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.3	0.0	0.3	1.0	1.1	1.1											4.6	8
Total Project Capital Cost	**0.0**	**0.0**	**0.0**	**0.0**	**2.0**	**2.2**	**3.7**	**2.3**	**1.5**	**6.1**	**9.5**	**17.3**	**10.2**	**6.7**											**61.4**	**100**
Interest Cost																										
Prior Expenditures for Right of Way	5.1																								5.1	
TOTAL CAPITAL COST	**5.1**	**0.0**	**0.0**	**0.0**	**2.0**	**2.2**	**3.7**	**2.3**	**1.5**	**6.1**	**9.5**	**17.3**	**10.2**	**6.7**											**66.5**	
SOURCES OF CAPITAL FUNDS																										
SANBAG Local	5.1	0.0	0.0	0.0	1.0	1.1	1.8	1.1	0.7	3.1	4.7	8.7	5.1	3.3											35.8	54
5309 New Starts		0.0	0.0	0.0	1.0	1.1	1.8	1.1	0.7	3.1	4.7	8.7	5.1	3.3											30.7	46
TOTAL CAPITAL SOURCES	**5.1**	**0.0**	**0.0**	**0.0**	**2.0**	**2.2**	**3.7**	**2.3**	**1.5**	**6.1**	**9.5**	**17.3**	**10.2**	**6.7**											**66.5**	
Net Surplus (Deficit)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0											0.0	

Notes:
1. Includes MTA's 60% Share of the Maintenance Facility Capital Cost ($125.13 Million) and Prior MTA and SANBAG Local Expenditures for Right of Way ($101.9 Million MTA and $5.9 Million SANBAG).
2. "Special Conditions" includes environmental mitigation, master cooperative agreements, project insurance, start-up, and testing costs.
3. "Professional Services" includes Engineering, Construction Management, and Agency Costs.

Source: Sharon Greene & Associates, 2004

TABLE 5-16
BUILD ALTERNATIVE TO MAINTENANCE FACILITY (TRIPLE TRACK)
ESCALATED CAPITAL COSTS CASHFLOW- IN MILLIONS OF YEAR OF EXPENDITURE DOLLARS
REVENUE OPERATING DATE: NOVEMBER 2009

USES OF FUNDS	Pre-2003	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	Total	Percent of Total
LOS ANGELES COUNTY USES AND SOURCES																										
CAPITAL COSTS AND REVENUES																										
Construction and Procurement																										
Guideways		0.0	0.0	0.0	0.0	25.8	48.2	31.2	26.9																131.4	23
Yard and Shop		0.0	0.0	0.0	0.0	29.2	50.2	46.2	0.0																125.6	22
Systems		0.0	0.0	0.0	0.0	11.5	21.4	17.6	8.7																58.6	10
Stations		0.0	0.0	0.0	0.0	5.2	10.2	8.0	2.8																26.6	5
Vehicles		0.0	0.0	0.0	0.0	0.0	0.0	8.0	13.9																21.9	4
Special Conditions		0.0	0.0	0.0	0.0	6.4	13.1	8.3	5.0																32.9	6
Right-of-way (including prior expenditures)		0.0	0.0	0.0	26.1	3.5	0.0	0.0	0.0																29.6	5
Subtotal Construction and Procurement		**0.0**	**0.0**	**0.0**	**26.1**	**81.6**	**143.7**	**118.8**	**56.4**	**0.0**															**426.6**	**75**
Professional Service		3.2	3.8	11.4	13.5	15.8	16.4	15.9	9.9																89.9	16
Project Contingencies		0.0	0.0	0.0	5.0	7.8	13.5	12.0	12.0	4.5															54.8	10
Total Project Capital Cost	**0.0**	**3.2**	**3.8**	**11.4**	**44.6**	**105.2**	**173.6**	**146.7**	**78.3**	**4.5**															**571.3**	**100**
Interest Cost		0.0	0.0	0.0	0.0	1.9	2.6	5.5	7.0	3.9															21.0	
Prior Expenditures for Right of Way	32.1																								32.1	
TOTAL CAPITAL COST	**32.1**	**3.2**	**3.8**	**11.4**	**44.6**	**107.0**	**177.2**	**152.2**	**85.3**	**8.4**															**625.2**	
SOURCES OF CAPITAL FUNDS																										
Prior Local Expenditures for Right of Way	32.1																								32.1	5
Corridor Cities Contribution					3.8	5.2	7.5	3.5																	20.0	3
State Funds (Proposition 192 Seismic Bond)		3.2	3.8	4.5																					11.5	2
CMAQ							10.0																		10.0	2
FHWA TCSP				2.9																					2.9	0
5309 New Starts				4.0	27.1	30.0	30.0	30.0	36.5	60.4	78.5														296.5	47
5309 Bus and Bus Related						5.0	5.0																		10	2
Countywide Sales Tax					13.7	30.4	38.3	82.2	19.9	8.5															242.2	39
TOTAL CAPITAL SOURCES	**32.1**	**3.2**	**3.8**	**11.4**	**44.6**	**70.6**	**140.8**	**115.8**	**55.4**	**69.9**	**78.5**														**625.2**	**100**
Surplus (Deficit) before Bridge Loan						-36.6	-32.8	-30.9	-22.9	61.4	78.5															
Gross Bridge Loan Proceeds						36.4	36.4	36.4	29.9																139.0	
Bridge Loan Principal Payment										-60.5	-78.5														-139.0	
Bridge Loan Principal Balance						36.4	72.8	109.1	139.0	78.5																
Interest (5%)						-1.8	-3.6	-5.5	-7.0	-3.9	0.0														-21.8	
Net Surplus (Deficit) after Bridge Loan																										
O&M COSTS & REVENUES																										
O&M COSTS																										
LRT									3.5	5.4	6.1	6.8	7.5	8.3	9.1	9.8	10.6	11.5	12.4	13.3	14.2	15.2	16.2	17.3	167.2	56
MTA Bus									0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7	6.8	2
Foothill Transit Bus									4.1	4.4	4.9	5.3	5.7	6.2	6.8	7.4	8.0	8.7	9.4	10.1	10.9	11.7	12.5	13.3	129.5	43
Total O&M Costs									7.8	10.1	11.2	12.4	13.6	14.9	16.2	17.6	1943.1	20.7	22.3	24.0	25.7	27.5	29.4	31.2	303.6	100
SOURCES OF O&M FUNDS																										
LRT Farebox Revenues									1.0	1.5	1.7	1.9	2.1	2.3	2.5	2.7	3.0	3.2	3.5	3.7	4.0	4.3	4.5	4.8	46.8	15
Bus Farebox Revenues									1.2	1.3	1.4	1.6	1.7	1.9	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.7	3.9	38.2	13
MTA Local Funds									5.6	7.3	8.1	8.9	9.8	10.7	11.7	12.7	13.7	14.9	16.0	17.3	18.5	19.8	21.3	22.5	218.5	72

TABLE 5-16 *continued (page 2 of 2)*
BUILD ALTERNATIVE TO MAINTENANCE FACILITY (TRIPLE TRACK)
ESCALATED CAPITAL COSTS CASHFLOW- IN MILLIONS OF YEAR OF EXPENDITURE DOLLARS
REVENUE OPERATING DATE: NOVEMBER 2009

USES OF FUNDS	Pre-2003	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	Total	Percent of Total
TOTAL O&M SOURCES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8	10.1	11.2	12.4	13.6	14.9	16.2	17.6	19.1	20.7	22.3	24.0	25.7	27.5	29.4	31.3	303.5	100
SAN BERNARDINO COUNTY USES AND SOURCES																										
CAPITAL COSTS AND REVENUES																										
Construction and Procurement																										
Guideways																									0.0	0
Yard and Shop					0.6	1.3	2.7	1.4	0.7																6.7	58
Systems																									0.1	1
Stations																									0.0	0
Vehicles																									0.0	0
Special Conditions					0.1	0.1	0.3	0.1	0.1																0.7	6
Right-of-Way					0.9	0.3																			1.2	10
Subtotal Construction and Procurement	**0.0**	**0.0**	**0.0**	**0.0**	**1.6**	**1.8**	**3.0**	**1.6**	**0.8**																**8.7**	**75**
Professional Service					0.3	0.4	0.4	0.4	0.4																1.8	16
Project Contingencies						0.1	0.3	0.3	0.3																1.1	10
Total Project Capital Cost					2.0	2.2	3.7	2.3	1.5																11.6	100
Interest Cost																										
TOTAL CAPITAL COST	**0.0**	**0.0**	**0.0**	**0.0**	**2.0**	**2.2**	**3.7**	**2.3**	**1.5**																**11.6**	
Prior Expenditures for Right-of-Way																										
SOURCES OF CAPITAL FUNDS																									5.8	
SANBAG Local					1.0	1.1	1.8	1.1	0.7																	
5309 New Starts					1.0	1.1	1.8	1.1	0.7																5.8	
TOTAL CAPITAL SOURCES	**0.0**	**0.0**	**0.0**	**0.0**	**2.0**	**2.2**	**3.7**	**2.3**	**1.5**																**11.6**	
Net Surplus (Deficit)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																	

Notes:
1. **Includes MTA's 60% Share of the Maintenance Facility Capital Cost ($125.13 Million) and Prior MTA Expenditure for Right-of-Way ($32.1 Million).**
2. **"Special Conditions" includes environmental mitigation, master cooperative agreements, project insurance, start-up, and testing costs.**
3. **"Professional Services" includes engineering, construction management, and agency costs**

Source: Sharon Greene & Associates, 2004

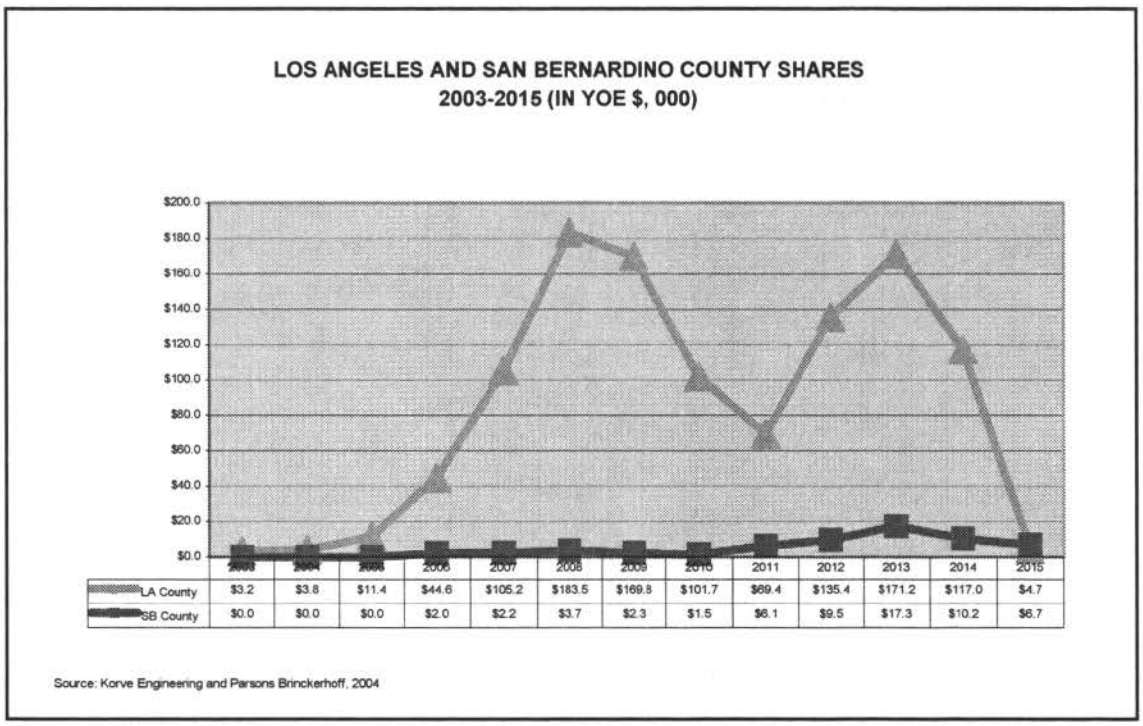


FIGURE 5-2: FULL BUILD LRT ALTERNATIVE SUMMARY OF CAPITAL COSTS BY YEAR

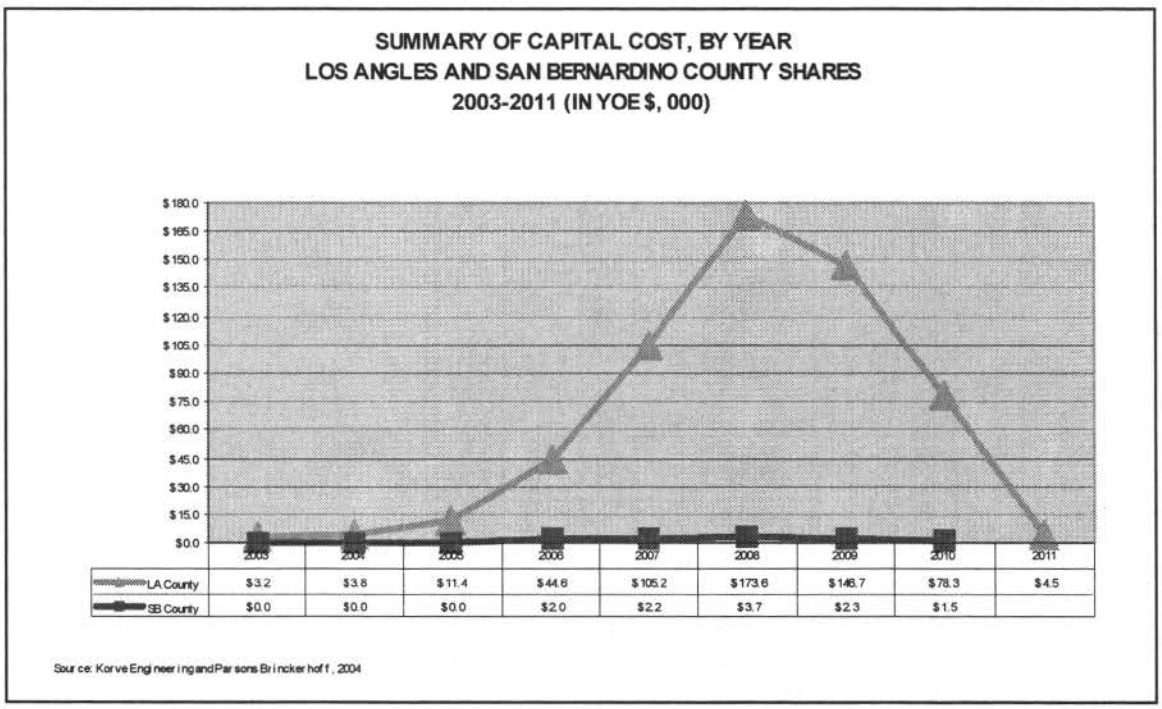


FIGURE 5-3: BUILD LRT ALTERNATIVE TO MAINTENANCE FACILITY SUMMARY OF CAPITAL COSTS BY YEAR

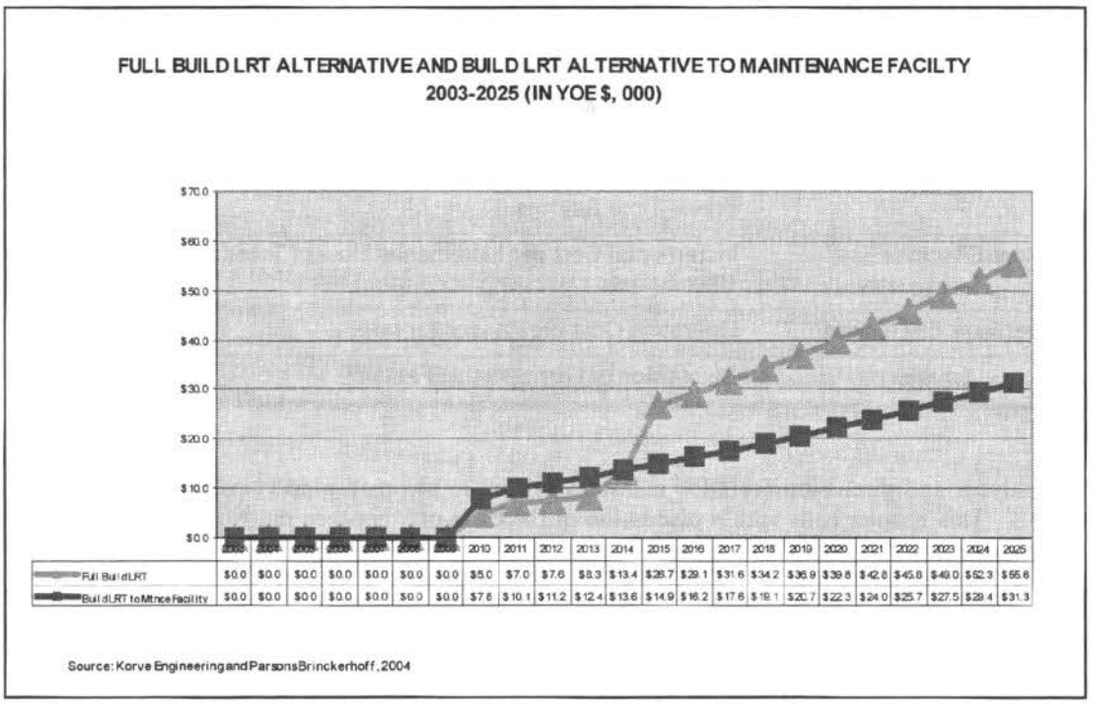


FIGURE 5-4: SUMMARY OF O&M COSTS BY YEAR

5-1.4 Financial Capability to Build and Operate

The 22-year cash flows indicate the timing and magnitude of the proposed funding resources required to implement and operate the build alternatives. As shown in the cash flows, federal and non-federal capital revenues are proposed to construct the build alternatives and initiate revenue service in the 2010 timeframe for service to the Maintenance Facility and in the 2014 timeframe for full operation.

5-2 COMPARATIVE ANALYSIS OF ALTERNATIVES

This section provides a variety of measures to evaluate and compare the Full Build LRT Alternative and the Build LRT Alternative to the Maintenance Facility to the TSM and No Build alternatives. These measures are consistent with the FTA guidelines for assessing and evaluating major investments. **Table 5-17** summarizes the categories and measures included in this section.

Financial Analysis and Comparison of Alternatives

"transportation system user benefits or travel time benefits in annual hours" for the proposed alternatives. FTA's change reflects their decision that the cost per hour of transportation system user benefits is a preferable measure for cost-effectiveness (as compared to the former measure of cost per new transit trip), as it (1) captures the benefits which accrue to all transit system users (including existing transit riders); (2) better reflects the underlying reason for ridership increases – improvements in travel time; (3) incorporates and considers the nature of the service being provided by the proposed project (for example, the measure distinguishes the benefits of long vs. short trips); and (4) does not penalize those agencies which are already providing a high level of transit service in a corridor for which a major capital investment is proposed.

FTA's cost-effectiveness criterion is measured by the incremental cost per hour of transportation system user benefit in the forecast year for the build alternatives compared to the No Build and TSM alternatives. This measure is based on the annualized total capital investment and annual operating and maintenance (O&M) costs divided by the annual hours of transportation system user benefits.

To calculate the change in capital cost, project costs, discussed in Section 5-1.1.1, were aggregated according to their assumed useful life and annualized accordingly, using FTA annualization factors shown in **Table 5-18.**

TABLE 5-18
LIFE CYCLE ASSUMPTIONS

Project Element	Useful Life	Annualization Factor
Right-of-way	100 years	0.070
Structures, trackwork, signals, electrification	30 years	0.081
Light rail vehicles	25 years	0.086
Buses	12 years	0.126

Source: Technical Guidance for Section 5309 New Starts Criteria, FTA, June 2003

Annual O&M costs were calculated using the approach described in Section 5-1.1.2. The change in the hours of transportation system user benefits for the forecast year 2025 was determined using the MTA travel forecasting model and described in Section 5-2.1.3.

Table 5-19 presents the 2025 annualized cost and benefit values and the resulting cost-effectiveness for the build alternatives compared to the No Build and TSM alternatives.

TABLE 5-19
COST-EFFECTIVENESS --- INCREMENTAL COST PER HOUR OF TRANSPORTATION SYSTEM USER BENEFIT

Factor	Alternatives					
	No Build	TSM Alternative	Full Build LRT Alternative with 3-Tracks	Full Build LRT Alternative with 2-Tracks	Build LRT Alternative to Maintenance Facility with 3-Tracks	Build LRT Alternative to Maintenance Facility with 2-Tracks
Annualized capital cost (million $)	$0.0	$6.46	$72.18	$61.18	$32.91	$29.55
Total systemwide annual O&M cost (million $)	$1,101.61	$1,111.38	$1,133.38	$1,133.38	$1,119.47	$1,119.47
Total annualized cost in forecast year (2025) (million $)	$1,101.61	$1,117.84	$1,205.56	$1,194.56	$1,152.38	$1,149.02
Incremental annualized cost compared to No Build (million $)	N/A.	$16.23	$103.95	$92.95	$50.77	$47.41
Incremental annualized cost compared to TSM (million $)	N/A.	N/A.	$87.72	$76.72	$34.54	$31.18
Annual hours of user benefit compared to No Build (million)	NA	0.98	3.93	3.93	2.09	2.09
Annual hours of user benefit compared to TSM (million)	N/A.	N/A.	3.09	3.09	1.13	1.13
Cost – effectiveness to No Build	N/A	**$16.56**	**$26.45**	**$23.65**	**$24.29**	**$22.68**
Cost – effectiveness to TSM	N/A	N/A	**$28.39**	**$24.82**	**$30.56**	**$27.59**

Source: Parsons Brinckerhoff, 2004

5-2.3 Operating Efficiency

The FTA uses a single measure of the operating efficiencies criterion, which is the change in operating cost per passenger mile for the entire regional transit system. The basic calculation involves dividing the system annual operating and maintenance cost for the transit service by the system annual passenger-miles projected for the year 2025. Calculation of the O&M costs is discussed under Section 5-1.1.2. System annual passenger miles are produced from the MTA travel forecasting model for each alternative for the forecast year of 2025. The No Build Alternative has an operating cost per passenger mile of approximately $0.362. All of the alternatives have approximately the same operating cost per passenger with the Full Build LRT Alternative being slightly lower than the No Build and TSM alternatives.

5-2.4 Equity Considerations

Equity considerations generally fall into three interrelated classes: (1) the extent to which the transportation investments improve transportation service to various population segments (i.e., the extent to which transit improvements benefit the transit dependent); (2) the distribution of project costs across the population through the funding mechanisms used for the local construction and operation; and (3) the incidence of significant environmental impacts. In addition, Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that federal agencies consider and address disproportionately high adverse environmental effects of proposed federal projects on the health and environment of minority and low-income populations to the greatest extent practicable by law. Section 3-14.2.8 (Environmental Justice) of this document discusses the equity and environmental consideration for the study corridor and the alternatives under consideration. Section 8 (Public Outreach) of this document discusses the extensive outreach program to all groups that have been part of the planning process.

The No Build and TSM alternatives would not offer the study area residents and businesses the enhanced mobility, regional connectivity, and accessibility provided by the Full Build LRT Alternative and the Build LRT Alternative to the Maintenance Facility as stated in the goals and objectives and the statement of purpose and need.

The Full Build LRT Alternative and the Build LRT Alternative to the Maintenance Facility provide many benefits related to equity, accessibility to opportunities, mobility improvements, economic revitalization, employment opportunities, federal, state, and local funds for construction, and additional funds for the operating and maintenance cost of the LRT and expanded bus services.

For instance, both build alternatives provide increased accessibility for corridor residents to the major regional employment center in Pasadena, and via Phase I of the Gold Line to employment in central Los Angeles. The build alternatives also provide connection among the activity centers in the corridor cities. These activity centers, described in Chapter 3, Section 3-14 (Socio-economics), also include such major employers and community assets as hospitals and universities.

Planning by corridor cities indicate their interest and commitment to economic development/ redevelopment in the vicinity of proposed LRT stations. The build alternatives provide an impetus to support planned growth in each of the cities on an equitable basis: the level of service for each city is the same.

Table 5-20 summarizes the significant transportation characteristics related to the alternatives.

TABLE 5- 20
SUMMARY OF SIGNIFICANT TRANSPORTATION CHARACTERISTICS

Factor	Alternatives					
	No Build	TSM Alternative	Full Build LRT Alternative with 3-Tracks	Full Build LRT Alternative with 2-Tracks	Build LRT Alternative to Maintenance Facility with 3-Tracks	Build LRT Alternative to Maintenance Facility with 2-Tracks
Capital Cost (million $)	$0.0	$64.8	$1,016.2	$880.4	$525.2	$483.8
Annual O&M Cost compared to No Build (million $)	N/A.	$9.77	$31.77	$31.77	$17.86	$17.86
Annual Hours of Transit User Benefit compared to No Build (million)	NA	0.98	3.93	3.93	2.09	2.09
Daily New Transit Trips compared to No Build	N/A.	3,100	18,100	18,100	8,600	8,600
Annual New Transit Trips compared to No Build (millions)	N/A.	0.99	5.79	5.79	2.75	2.75
Annual New Transit Passenger Miles compared to No Build (millions)	N/A.	7.09	79.03	79.03	18.35	18.35

Source: Parsons Brinckerhoff, 2004

5-2.5 Trade-Offs Between Alternatives

The trade-offs between the No Build and TSM alternatives and the Full Build LRT Alternative and the Build LRT Alternative to the Maintenance Facility alternatives are that the No Build and TSM alternatives would involve fewer environmental impacts, but would not provide an enhanced level of mobility and accessibility to the ethnically diverse and minority communities along the corridor. The Full Build LRT Alternative and the Build LRT Alternative to the Maintenance Facility alternatives would, on the hand, provide improved access to a broader range of employment, shopping, educational, and cultural opportunities, consistent with the goals and objectives discussed above and in Chapter 1. The longer Full Build LRT Alternative would provide the most benefits as it provides LRT service to all the communities along the corridor.

The financial trade-offs between the Full Build LRT Alternative and the Build LRT Alternative to the Maintenance Facility alternatives and the No Build and TSM alternatives are directly related to the ability

of the region and the local communities in concert with the federal and state governments to adequately fund the construction and operation of the build alternatives as discussed in Sections 5-1.3 and 5-1.4.

From a mobility standpoint the Full Build LRT Alternative provides the greatest improvements to mobility for the residents and businesses along the corridor and is the most effective in satisfying the goals and objectives for the corridor.

CHAPTER 6 - AGENCY COORDINATION

6-1 FEDERAL AGENCIES

The proposed project was presented to responsible federal agencies with jurisdiction over and or interest in the proposed project through the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) during the scoping process. The text of the Scoping report can be found in Chapter 8, Public Outreach. The full scoping report, *Gold Line Phase II Extension Pasadena to Montclair Scoping Report, September 5, 2003*, is available upon request.

The NEPA Scoping period for the proposed projected commenced on July 2, 2003, with FTA's signing of the Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS). The NOI was published in the Federal Register on July 9, 2003 (FR 41749, Vol. 67, No. 118.). The NEPA Scoping period closed on August 1, 2003.

The NOI announced the FTA's intent to prepare an EIS in accordance with NEPA. This provided formal notice of the opportunity to comment in writing and/or at the public scoping meetings. The NOI also included information on the project background, study area, potential alternatives, probable effects to be studied, FTA procedures, relevant scoping meeting information, and contact information.

Fourteen Federal agencies and seven Members of Congress received a Notice of Preparation (NOP) and Initial Study Checklist via the scoping process for the CEQA process. Please see Chapter 8, Public Outreach for a description of the scoping process.

Two meetings were held with the Federal Transit Administration in the fall 2003 during the DEIS/DEIR process. These meetings were attended by representatives from FTA, the Construction Authority, and the consultant team. The purpose of the meetings was to discuss the project and schedule, as well as any other potential issues.

6-2 STATE RESOURCE AGENCIES

The proposed regionally significant transportation project was presented to twenty-four responsible and trustee State agencies; transportation agencies within a 10-mile radius; and other interested parties through the CEQA scoping process. The scoping process was initiated by posting the NOP and Initial Study Checklist with the State of California, Office of Planning and Research, State Clearinghouse on June 27, 2003, and the Los Angeles County Clerk on June 28, 2003.

The NOP announced the Authority's intent to prepare an EIR pursuant to CEQA. Like the NOI, it provided formal notice of the opportunity to comment in writing and/or at the public scoping meetings and commenced the CEQA scoping period. The NOP advised California agencies of their obligation to comment on the proposed project within 30 days. The NOP also included information on the proposed project, alternatives, and anticipated effects (based on an environmental screening of alternatives included in the Planning Alternatives Analysis), as well as scoping meeting and contact information. The CEQA Scoping period closed on August 1, 2003.

Consultation and coordination with the California Air Resources Board and the Public Utilities Commission have been initiated. A letter was sent to the Native American Heritage Commission on October 10, 2003, requesting the contact information for tribal representatives who may have an interest

in the proposed project. The Native American Commission responded with the information requested and the Native Americans were placed on the Scoping Mailing list, thus receiving Notices of Preparation and Initial Study Checklists.

6-3 SECTION 106 CONSULTATION

Compliance with Section 106 of the Historic Preservation Act, as amended is documented in Section 3.5, Cultural Resources. The following is a summary of the Section 106 consultation process.

The Section 106 regulations require that a federal agency evaluate all properties within the area of Potential Effect (APE) and identify historic properties by gathering information from consulting parties, applying the National Register Criteria, and seeking concurrence from the SHPO or Indian tribe, as appropriate. During the preparation of this EIS, FTA identified the following consulting parties for historic properties within the APE:

- California State Historic Preservation Office – Dr. Knox Mellon
- Gabrielino Cahuilla Lusieno - Samuel H. Dunlap
- Beverly Salazar Folkes
- Ti'At Society – Cindi Alvitre
- Island Gabrielino Group – John Jeffredo
- John Valenzuela
- Gabrieleno/Tongva Indians of California – Robert F. Dorame, Chairperson
- Gabrieleno/Tongva Tribal Council – Anthony Morales, Chairperson
- Gabrieleno/Tongva - Craig Torres
- Coastal Gabrieleno Diguero - Jim Velasques
- Alfred L. Valenzuela.

FTA sent a letter to the California SHPO on September 16, 2003, initiating Section 106 consultation. Notice of Preparation (NOP) letters were sent to the listed Native American groups and individuals on July 30, 2003.

In addition, five Scoping meetings (four for the general public and one for public agencies) were held in an open house format with information stations and illustrated display boards. The meetings were staffed by members representing the Authority and the project consultant team, all of whom were well versed about the proposed project and potential environmental impacts. In addition to answering questions at the meeting, staff invited attendees to submit their comments in writing. Comment forms were provided at each Scoping meeting. Chinese and Spanish interpreters were present at the meeting for non-English speaking members of the public. Public Scoping Meetings were held in the cities of San Dimas, Claremont, South Pasadena, and Arcadia during the weeks of July 14 and 21, 2003. A meeting for public agencies was held on July 22, 2003 at the Authority Offices in South Pasadena. Letters were sent to other potentially interested parties on November 7, 2003, including the following:

- AIA Los Angeles
- Arcadia Historical Society

- Azusa Historical Society
- California Historical Society
- California Preservation Foundation
- California State Railroad Museum
- Chinese Historical Society
- Claremont Heritage, Inc.
- City of Arcadia Development Services Department
- City of Azusa Community Development Department
- City of Claremont Planning Department
- City of Duarte Community Development Department
- City of Glendora Planning Department
- City of Irwindale Planning Department
- City of La Verne
- City of Los Angeles Community Redevelopment Agency
- City of Los Angeles Cultural Heritage Commission
- City of Los Angeles Planning Department
- City of Monrovia Community Development Department
- City of Montclair Community Development Department
- City of Pomona Planning Department
- City of San Dimas
- Cooper Museum/Chaffey Communities Cultural Center
- Duarte Historical Society, Museum & Friends of the Duarte Library
- Glendora Community Conservancy
- Glendora Historical Society
- Historical Society of Pomona Valley
- Historical Society of Southern California
- La Verne Heritage Foundation
- Lomita Railroad Museum
- Los Angeles City Historical Society
- Los Angeles Conservancy
- Los Angeles County Historic Landmarks and Records Commission
- Los Angeles Forum for Architecture and Urban Design
- Los Angeles Railroad Heritage Foundation

- Monrovia Historical Society
- Monrovia Old House Preservation Group
- Pacific Railroad Society
- Pasadena Heritage
- Pomona Heritage
- Rivers and Mountains Conservancy
- San Bernardino Railroad Historical Society
- San Dimas Historical Society
- San Dimas Pacific Railroad Museum
- Sierra Club, Los Angeles Chapter
- Sierra Madre Historical Society
- Society of Architectural Historians, Southern California Chapter
- Southern Pacific Historical & Technical Society
- Train Riders Association of Southern California
- Train Web, Inc.
- The Transit Coalition
- The Transportation and Land Use Collaborative of Southern California
- Travel Town Transportation Museum
- Wheel Clicks.

Response letters were received from the cities of Monrovia, Irwindale, Azusa, and Glendora, and from the San Gabriel Rivers and Mountains Conservancy. These letters are summarized below, and are included in the Draft Historic Property Survey and Effects Report.

> City of Monrovia: The City of Monrovia has been awarded grants for the rehabilitation of the Monrovia Depot at 1709 Myrtle Avenue, and has hired a consultant to complete an historical background survey as part of the Section 106 requirements. All work on the depot will follow the Secretary of the Interior's Standards for Rehabilitation. (The Monrovia Depot was previously determined eligible for the National Register. See APE Map No. 2.)]
>
> Irwindale: The City of Irwindale reviewed property files and researched pertinent documents, such as the City's General Plan, and found no evidence that there are any sites that contain or represent any significant archeological, architectural, or historical resources within the APE.
>
> City of Azusa: The City of Azusa mentioned that there are two properties on the City's List of Potential Historic Landmarks within the project APE boundaries: the historic Santa Fe Depot at 129 East Santa Fe Avenue, and a historic citrus packing house at 836-840 North Soldano Avenue. Both properties are on the City's list of Potential Historic Landmarks as being significant because they are associated with events that have made a significant contribution to the broad patterns of local and regional history and the cultural heritage of

California. (The Azusa Santa Fe Railroad Depot was previously determined eligible for the National Register. The citrus packing house does not appear to meet National Register Criteria. See APE Map No. 6.)

City of Glendora: The City of Glendora mentioned that there may be one property on Vista Bonita Avenue that may qualify as a historic resource under the California Register and National Register within the boundaries of the APE. (APE Map No. 8.)

The Rivers and Mountains Conservancy attached a list of historical resources catalogued in December 2002 that are located within its jurisdiction. (Two of these are within the APE: the Monrovia Santa Fe Depot in Monrovia [APE Map No. 2.] and the Atchison Topeka and Santa Fe Railroad Station in Claremont [APE Map No. 17.])

As of January 30, 2004, no other written responses were received from the parties listed above.

6-4 REGIONAL/LOCAL AGENCIES

Agency consultation and participation has been ongoing throughout the life of the project. Weekly Project Development Team (PDT) meetings were held at the Construction Authority's offices in South Pasadena from the beginning of the EIS/EIR, and these meetings are scheduled to continue throughout the life of the proposed project. The PDT meetings were among the Construction Authority, LACTMA, and the project consultant team, with occasional attendance by other agencies.

Stakeholder briefings have taken place during the life of this project. The purpose of the stakeholder briefings is to ensure that local elected officials, agencies, and bureaus remain up to date on the study's progress. Information presented included discussing the existing corridor transportation problems, potential solutions, and anticipated environmental impacts. Information was also presented at policy and technical committee meetings. At each meeting, attendees were presented with opportunities to identify issues, raise concerns, and seek clarifications, which have been incorporated into this document. The following agencies and organizations were consulted during the preparation of the Draft Environmental Impact Statement /Draft Environmental Impact Report:

- Southern California Association of Governments (SCAG)
- San Bernardino Associated Governments (SANBAG)
- San Gabriel Valley Council of Governments (SGVCOG)
- County of Los Angeles, County Supervisor, Office of Gloria Molina
- Los Angeles County Metropolitan Transportation Authority
- Southern California Regional Rail Authority (Metrolink)
- Foothill Transit
- Pomona Valley Transit Authority
- Azusa Pacific University
- Citrus College
- Claremont University Consortium
- Fairplex

- Los Angeles County Arboretum
- Azusa Unified School District
- Duarte Unified School District
- Monrovia Unified School District
- City of South Pasadena
- City of Pasadena
- City of Arcadia
- City of Monrovia
- City of Duarte
- City of Irwindale
- City of Azusa
- City of Glendora
- City of San Dimas
- City of La Verne
- City of Pomona
- City of Claremont
- City of Montclair
- City of Upland.

Three cycles of meetings with the individual cities occurred following Scoping. The first round of meetings included a detailed project briefing including the four alternatives under consideration, collection and discussion of planning and traffic data that had been requested prior to the meeting, discussion of public and city issues raised during and subsequent to Scoping, identification of potential station and parking locations, discussion of public outreach needs, and review of the project schedule.

The second round of meetings reviewed the results of early conceptual engineering, and focused on proposed station layouts, parking locations and forecasted parking demand.

The third round of meetings included copies of the projects' purpose and need statement, alternatives descriptions, and conceptual engineering drawings. A preview of environmental impacts, such as probable locations of soundwalls and traffic impacts, was presented, along with potential mitigation. The third round also included review of the overall schedule and identification of potential public hearing dates and formats.

In addition to the city staff briefings, the Construction Authority Board and the Gold Line Phase II Joint Powers Authority Board received periodic reports on the progress of technical studies, conceptual engineering, and environmental documentation.

CHAPTER 7 - SECTION 4(F) EVALUATION

This chapter provides an evaluation of the proposed LRT alternatives relative to Section 4(f) of the Department of Transportation Act of 1966.

7-1 REGULATIONS

Section 4(f) of the Department of Transportation Act of 1966 (49 USC 303), declares that "[i]t is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Section 4(f) specifies that "[t]he Secretary [of Transportation] may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge or site) only if:

- there is no prudent and feasible alternative to using that land; and
- the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use."

Section 4(f) further requires consultation with the Department of Interior and, as appropriate, the involved offices of the Department of Agriculture and the Department of Housing and Urban Development, and relevant state and local officials, in developing transportation projects and programs that use lands protected by Section 4(f).

7-2 DEFINITION OF USE UNDER SECTION 4(F)

As defined in 23 CFR 771.135(p), the "use" of a protected Section 4(f) resource occurs when:

- land is permanently incorporated into a transportation facility through partial or full acquisition (i.e., "direct use");
- there is a temporary occupancy of land that is adverse in terms of the preservationist purposes of Section 4(f) (i.e., "temporary use"); or
- there is no permanent incorporation of land, but the proximity of a transportation facility results in impacts so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired (i.e., "constructive use").

7-2.1 Direct Use

A direct use of a Section 4(f) resource takes place when property is permanently incorporated into a proposed transportation project. This may occur as a result of partial or full acquisition of a fee simple interest, permanent easements, or temporary easements that exceed regulatory limits noted below (see also 23 CFR 771.135(p)(7)).

7-2.2 Temporary Use

A temporary use of a Section 4(f) resource occurs when there is a temporary occupancy of property that is considered adverse in terms of the preservationist purposes of the Section 4(f) statute. The FHWA regulations detail the conditions under which a temporary occupancy of property does not constitute a use of a Section 4(f) resource. The following requirements must be satisfied: (1) the occupancy must be of temporary duration (i.e., shorter than the period of construction) and not involve a change in ownership of the property; (2) the scope of work must be minor, with only minimal changes to the protected resource; (3) there are no permanent adverse physical effects on the protected resource, nor will there be temporary or permanent interference with activities or purpose of the resource; (4) the property being used must be fully restored to a condition that is at least as good as that which existed prior to the proposed project; and (5) there must be documented agreement of the appropriate officials having jurisdiction over the resource regarding the foregoing requirements.

7-2.3 Constructive Use

A constructive use of a Section 4(f) resource happens when a transportation project does not permanently incorporate land from the resource, but the proximity of the project results in impacts (e.g., noise, vibration, visual, access, and/or ecological impacts) so severe that the protected activities, features, or attributes that qualify the resource for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only if the protected activities, features, or attributes of the resource are substantially diminished. This determination is made through: (1) identification of the current activities, features, or attributes of the Section 4(f) resource that may be sensitive to proximity impacts; (2) analysis of the potential proximity impacts on the resource; and (3) consultation with the appropriate officials having jurisdiction over the resource.

7-3 ARCHEOLOGICAL RESOURCES

The archeological resources analysis for the study area included by a record search and field reconnaissance of areas along the rail right-of-way to identify historic properties that are listed in the National Register of Historic Places (NRHP), or that would be eligible for listing. One recorded site, in San Dimas, lies adjacent to and under the proposed rail alignments.

7-4 HISTORIC RESOURCES

The cultural resources analysis for the study area included by a record search and field reconnaissance of areas along the rail ROW to identify historic properties that are listed in the National Register of Historic Places (NRHP), or that would be eligible for listing. This analysis indicated the following properties are along the proposed project ROW and could potentially be affected by the project:

- Two individual properties within the boundary of a property previously listed in the National Register (Stuart Company Plant and Office Building, in Pasadena, and Atchison Topeka & Santa Fe Railroad Station, in Claremont);
- Two properties previously determined eligible for the National Register;
- Seven properties determined eligible for the National Register as a result of the Metro Gold Line Phase II Pasadena to Montclair Section 106 identification effort;

- One hundred-eleven properties with buildings or structures constructed in or before 1954 that do not meet National Register criteria because either they do not retain integrity from their period of significance, or are not associated with an important historic context; and
- The remaining properties in the APE are improved with buildings constructed in or after 1955 that are not eligible for the National Register because they possess no known association with an important historic context that would override the National Register's 50-year age criterion consideration.

7-5 PARKS

There are 28 parks located along the proposed ROW that could potentially be affected by the project as shown in the following table.

TABLE 7.1
PARKS

Parks	Distance	Sources of Impact	Potential Construction Impact
Eaton Wash Park	0.25 mile	noise, air quality	Not Adverse/Not Significant
The Arboretum of Los Angeles County	Adjacent	noise, air quality, visual	Not Adverse/Not Significant
Forest Park	Adjacent	noise, air quality, visual	Not Adverse/Not Significant
Newcastle Park	Adjacent	noise, air quality, visual	Not Adverse/Not Significant
Arcadia County Park	0.25 mile	noise, air quality	Not Adverse/Not Significant
Eisenhower Park	0.25 mile	noise, air quality	Not Adverse/Not Significant
Bonita Park	Adjacent	noise, air quality, visual	Not Adverse/Not Significant
Aloysia Moore Park	Adjacent	noise, air quality, visual	Not Adverse/Not Significant
Duarte Sports Park	0.25 mile	noise, air quality	Not Adverse/Not Significant
Northview Park	0.25 mile	noise, air quality	Not Adverse/Not Significant
Otis Gordon Sports Park	0.25 mile	noise, air quality	Not Adverse/Not Significant
Santa Fe Dam Recreation Area	Adjacent	noise, air quality, visual	Not Adverse/Not Significant
Veterans Freedom Park	Adjacent	noise, air quality, visual	Not Adverse/Not Significant
Sandburg Middle School Park	0.2 mile	noise, air quality	Not Adverse/Not Significant
Big Tree Park	0.25 mile	noise, air quality	Not Adverse/Not Significant
South Hills Park	0.25 mile	noise, air quality	Not Adverse/Not Significant
Centennial Heritage Park	0.15 mile	noise, air quality	Not Adverse/Not Significant
Louie Pompei Sports Park	0.1 mile	noise, air quality	Not Adverse/Not Significant
Rhoads Park	Adjacent	noise, air quality, visual	Not Adverse/Not Significant
Pioneer Park	0.1 mile	noise, air quality	Not Adverse/Not Significant
Civic Center Park	0.15 mile	noise, air quality	Not Adverse/Not Significant
Wheeler Avenue Park	Adjacent	noise, air quality, visual	Not Adverse/Not Significant
Kuns Park	0.25 mile	noise, air quality	Not Adverse/Not Significant

TABLE 7.1 *continued*
PARKS

Parks	Distance	Sources of Impact	Potential Construction Impact
Challenger Park	0.1 mile	noise, air quality	Not Adverse/Not Significant
Palomares Park	Adjacent	noise, air quality, visual	Not Adverse/Not Significant
Shelton Park	0.25 mile	noise, air quality	Not Adverse/Not Significant
College Park	Adjacent	noise, air quality, visual	Not Adverse/Not Significant
El Barrio Park	0.1 mile	noise, air quality	Not Adverse/Not Significant

Source: Myra L. Frank & Associates, 2003

7-6 TRAILS

There are no existing trails located along the proposed right-of-way that could potentially be affected by the project. There are pending proposals to develop trails within the right-of-way between the cities of La Verne and Upland. The proposals were initiated when LACMTA perceived the rail right-of-way to be underutilized.

7-7 PROPOSED FINDING

The proposed project does not require the acquisition of any Section 4(f) protected properties, so there would be no direct use of such properties.

Construction of any proposed LRT Alternative would occur within existing rail right-of-way, or on now-vacant parcels or occupied parcels that would need to be acquired for project purposes. Construction activities are not expected to require the utilization of, or have substantial adverse impacts on any Section 4(f) protected properties. Construction activities that occur adjacent to historic, park and wildlife resources are expected to be of short duration and to be conducted in accordance with permit conditions that are designed to protect the environment, thus limiting potential impacts during construction. Accordingly, no Section 4(f)-qualified temporary impacts are expected.

Impacts generated by any LRT Alternative that have the potential to create constructive use impacts to protected resources would be air quality, noise, or traffic. All of the protected resources are currently subject to effects from these impact categories under current conditions. The current effects arise from the proximity of the resources to an active rail line and their location in an urban environment. The incremental increases in impacts that could occur from implementation of any LRT Alternative was identified in Chapter 3 and were reported to be not adverse. Thus, none of the LRT Alternatives would create constructive use of Section 4(f)-protected resources.

Chapter 8
Public Outreach

CHAPTER 8 - PUBLIC OUTREACH

8-1 PUBLIC OUTREACH DURING ALTERNATIVES ANALYSIS

This chapter describes the public outreach efforts during the Alternative Analysis and the EIS/EIR Scoping process. The Alternatives Analysis and its outreach were conducted by the Los Angeles to Pasadena Metro Blue Line Construction Authority (the Construction Authority) in cooperation with the San Gabriel Valley Council of Governments (SGVCOG) and corridor cities. The EIS/EIR public outreach efforts were conducted by the Construction Authority, the San Bernardino Associated Governments (SANBAG), and the Federal Transit Administration (FTA), in cooperation with the SGVCOG and each of the corridor cities.

The Alternatives Analysis process (PAA) was initiated in the fall of 2001 and concluded in June 2002. The AA study was conducted and technical documents prepared to support a decision on a Locally Preferred Alternative (LPA-AA) to meet transit needs in the San Gabriel Valley.

The focus of the public outreach effort during the AA study process was to work with each of the cities to help them develop and implement a city-specific work plan to reach the community members. Each of the cities developed a strategy for garnering input for consideration into the Alternatives Analysis process. The purpose of the outreach effort in each city was to exchange ideas and share project information. Issues that were brought forward by the public, city staff, and elected officials were helpful in identifying sensitive problems for study consideration.

Some common elements in developing the individual city strategies included:

- council briefings
- station area workshops
- community meetings/open houses
- stakeholder meetings
- collateral materials.

More than 60 public meetings were held throughout the corridor. Concerns raised at these meetings focused on the potential for noise impacts, introduction of a new visual element with the light rail transit overhead wire, and traffic delays at grade crossings.
A Study Steering Committee was formed by the SGVCOG and the Authority to oversee the planning and city participation in the study. Made up of a single delegate and alternate from each of 11 corridor cities in Los Angeles County, plus representatives from the Council of Governments and the Construction Authority, the committee met once a month to monitor the progress of the study, to review technical reports, and achieve consensus on the results of the AA.

The Steering Committee also provided a critical outreach function in conveying updated project information to the individual city councils and constituents. This critical connection will allow for a smooth decision making process to occur in the final selection and adoption of the LPA-AA.

Following adoption of the LPA-AA by the SGVCOG and corridor cities at the end of the AA process, project proponents initiated the federal and state environmental documentation processes, which began with Scoping.

8-2 SCOPING

Five Scoping meetings in four different cities along the Phase I and Phase II study corridor comprised much of the public interaction during the Scoping period. However, the entirety of public outreach efforts and all receipt of comments are part of the Scoping process, which is summarized in this section. The full Scoping report, *Gold Line Phase II Extension Pasadena to Montclair Scoping Report, September 5, 2003*, is available upon request.

The length of the study corridor both provided and required opportunities to conduct extended community outreach. Since there would be stations in each corridor city, coordination between the public, cities, businesses, and agencies has been extensive. The economically and ethnically diverse project area compelled the project team to utilize a multimedia approach to ensure that communities were aware of the project study and were provide opportunities to provide input for the environmental impact analyses. Outreach extensive mailings, newspaper advertisements, as well as staff participation during neighborhood and business association meetings, briefings for elected officials, and posting project information and meeting dates on the Construction Authority's website. To distribute information about the environmental process and to invite attendance at upcoming meetings the project website, postal mail announcements, multi-lingual newspaper advertisements, postings at the Los Angeles Clerk, and the San Bernardino County Clerk's Office, postings on the California State Clearinghouse website, and the Federal Register were utilized.

A stakeholder database was developed by researching the Los Angeles County Assessor records, San Bernardino County Assessor's office, and the United States post office mail routes for residents, property owners, and business owners along the study corridor. In addition, the database of interested parties from Gold Line Phase I was incorporated, as well as names provided during consultation with elected officials who represented the area. The database was updated after each meeting, presentation, and briefing to include those participants who left their name, mailing, and email address contact information with the project team.

All five Scoping meetings were publicized at the same time, giving the public a choice regarding which meeting to attend. In total, approximately 23,000 postcards, and 414 Notice of Preparation and Notice of Intents were sent to residents and business owners along the study corridor, as well as to interested parties, responsible agencies and elected officials.

Project information has been posted on the authority's website, www.metrogoldline.org. It includes project information such as completed reports, meeting information, and a way to contact the Construction Authority to comment on the project. The website has been updated as new information is available. All comments submitted have been responded to either directly, fulfilling the request, or has been considered in the environmental process.

At public meetings, handouts were available in Spanish and English. Additionally, Spanish- and Mandarin Chinese-speaking team members were available for facilitating community participation.

The five Scoping meetings (four for the general public and one for agencies) were held in an open house format with information stations and illustrated display boards. The meetings were staffed by members representing the Construction Authority and the project consultant team, all of whom were well versed

about the proposed project and potential environmental impacts. In addition to answering questions at the meeting, staff invited attendees to submit their comments in writing. Comment forms were provided at each Scoping meeting. Chinese and Spanish interpreters were present at the meeting for non-English speaking members of the public. Project fact sheets were also provided in English and Spanish.

Scoping Meetings were held in the following cities during the weeks of July 14 and 21, 2003. **Table 8.1** shows the location, attendance, and number of comments received during each meeting.

TABLE 8.1
SCOPING MEETING SUMMARY

Date/Time	Meeting Location	Attendance	No. of Comment Forms Received	Target Audience
July 15, 2003, 5–8 p.m.	San Dimas	46	17	General Public
July 16, 2003 5–8 p.m.	Claremont	38	16	General Public
July 17, 2003 5–8 p.m.	South Pasadena	47	29	General Public
July 21, 2003 5–8 p.m.	Arcadia	72	18	General Public
July 22, 2003 2–5 p.m.	Authority Offices, South Pasadena	14	1	Meeting for Public Agencies
Total		**217**	**81**	

Note: An additional 43 comment letters were received by mail or e-mail.
Source: Myra L. Frank, 2003.

8-3 CITY COORDINATION MEETINGS

In addition to the public agency Scoping meeting, additional meetings were held with each of the thirteen corridor cities, a total of three times per city. The thirty-six meetings, which occurred between September 2003 and January 2004, were meant to identify specific concerns of each city. The concerns centered around the effects to residents and business, station and parking locations, and other environmental impacts that are discussed in Chapter 3 of this document. For a full discussion of this effort, please see Chapter 6 – Agency Coordination.

The results of the meetings have been incorporated into the environmental impact analysis process.

8-4 COMMUNITY MEETINGS

Outreach to the community included participation during neighborhood and business association meetings, briefing elected officials, and developing a community-friendly website. To distribute information about upcoming meetings, the project website, electronic and postal mail announcements, and multi-lingual newspaper advertisements were utilized. In addition, meetings with key individual parties along the alignment were briefed about the project.

The following meetings were held with the following public and interested parties.

- Scoping Meetings, see Section 8-2 above
- Corridor Cities Technical Meetings, see Chapter 6
- Public/Semi-public Agency Briefings, see Chapter 6
- Meetings with other interested parties:
  - Azusa Downtown Business Association
  - Burlington Northern Santa Fe Railway Company
  - City of Hope National Medical Center
  - Fiesta Floats
  - Hillcrest
  - Miller Brewing Company
  - Santa Anita Racetrack
  - Wal-mart (Monrovia).

8-5 PUBLIC COMMENT PROCESS

8-5.1. Scoping Notices

The NEPA Scoping period for the proposed projected commenced on July 2, 2003, with FTA's signing of the Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS). The NOI was published in the Federal Register on July 9, 2003 (FR 41749, Vol. 67, No. 118.). The NEPA Scoping period closed on August 1, 2003. A copy of the NOI is provided in **Figure 8-1.**

A Notice of Preparation (NOP) for an Environmental Impact Report (EIR) was sent by the Authority to the State Clearinghouse and to a project-specific mailing list on June 26, 2003. It was posted at the Los Angeles and San Bernardino County Clerks' Offices on June 27, 2003. The NOP announced the Authority's intent to prepare an EIR pursuant to CEQA. A copy of the NOP is provided in **Figure 8-2.**

8-5.2. Scoping Comments

Public comments were gathered and recorded through a variety of means throughout the entire Scoping process. They will continue to be accepted and reviewed through the length of the proposed project. These include: contact information (including phone numbers) provided in ads, handouts, and the website; public comment forms provided at the Scoping meeting; and submission via fax, mail and email.

Comments received during Scoping do not require a response or even specific acknowledgement in an environmental document. A summary of the comments received during Scoping, and location in the DEIS/DEIR in which discussion of the issues raised can be found is shown in **Table 8.2**. Some comments were outside the scope of the environmental impact analysis and are thus not addressed. Copies of Scoping comments (comment cards, emails, and letters) are found in the Scoping Report, (as mentioned above in section 8-2) which is available upon request.

FIGURE 8.1: FEDERAL NOTICE OF INTENT

10–0, Route 286 South, PO Box 429, Indiana, Pennsylvania 15701, (724) 357–2852.

SUPPLEMENTARY INFORMATION: Social, cultural and natural analyses have indicated that there will be no significant impacts associated with this project. An Environmental Assessment will be prepared.

(Catalog of Federal Domestic Assistance Program Number 20.205, Highway Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program.)

Dated: July 2, 2003.

David C. Lawton,

FHWA Assistant Division Administrator, Harrisburg, PA.

[FR Doc. 03–17354 Filed 7–8–03; 8:45 am]

BILLING CODE 4910–22–M

DEPARTMENT OF TRANSPORTATION

Federal Transit Administration

Environmental Impact Statement on a Light Rail Transit Extension From Sierra Madre Villa Station in Pasadena to Montclair in Metropolitan Los Angeles, CA

AGENCY: Federal Transit Administration, DOT.

ACTION: Notice of intent to prepare an environmental impact statement.

SUMMARY: The Federal Transit Administration (FTA) and the Los Angeles to Pasadena Metro Blue Line Construction Authority (referred to hereafter as the Gold Line Construction Authority) intend to prepare an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) for transit improvements between Pasadena and Montclair in Los Angeles and San Bernardino counties in California. The EIS will be prepared as a joint EIS and Environmental Impact Report (EIR) to satisfy the requirements of both NEPA and the California Environmental Quality Act (CEQA).

The purpose of this notice is to notify interested individuals, organizations, and business entities, affected Native American Tribes, and Federal, State, and local governmental agencies of the intent to prepare an EIS/EIR and to invite participation in the study. At present, four alternatives are proposed for evaluation in the EIS/EIR. These alternatives were developed during a Planning Alternatives Analysis undertaken by the Gold Line Construction Authority and the San Gabriel Valley Council of Governments (SGVCOG) in 2001–2002. In addition, reasonable alternatives identified through the scoping process will be evaluated in the EIS/EIR.

Scoping will be accomplished through correspondence and discussions with interested persons, organizations, and Federal, State, and local agencies, and through public and agency meetings. FTA intends to invite the SGVCOG, the San Bernardino Associated Governments (SANBAG), the Los Angeles County Metropolitan Transportation Authority (LACMTA), and the Federal Railroad Administration to be cooperating agencies in preparing the NEPA documents.

DATES: *Comment Due Date:* Written comments on the scope of the EIS/EIR, including the alternatives and impacts to be considered, must be received no later that August 1, 2003. Written comments should be sent to the Gold Line Construction Authority at the address given below in **ADDRESSES.**

Scoping Meeting Dates: Four public open-house scoping meetings will be held from 5 p.m. to 8 p.m. on July 15, 16, 17, and 21, 2003 at locations given below in **ADDRESSES.** An interagency scoping meeting will also be held on July 22, 2003, from 2 p.m. to 5 p.m. at the Gold Line Construction Authority offices, 625 Fair Oaks Avenue, Suite 200, South Pasadena, CA 91030

ADDRESSES: Written comments should be sent to Susan Hodor, Gold Line Construction Authority, 625 Fair Oaks Avenue, Suite 200, South Pasadena, California 91030; phone: (626) 403–5500; fax: (626) 799–8599. Information on the project may be obtained from the Gold Line Construction Authority by faxing a request to Susan Hodor at (626) 799–8599 or by e-mail at *shodor@metrogoldline.org* or by visiting the project Web site at *http://www.metrogoldline.org.*

The public open-house scoping meetings will be held at the following four locations. Identical information about the proposed project will be provided at each of the meetings and interested parties may participate at any of the meetings. There will be no formal presentation at the open-house scooping meetings; members of the public are invited to attend at any time between 5 p.m. and 8 p.m. on these dates:

July 15, 2003: City Hall, City of San Dimas, 245 E. Bonita Ave., San Dimas, CA 91773.

July 16, 2003: City Hall, City of Claremont, 207 Harvard Ave., Claremont, CA 91711.

July 17, 2003: Public Library—Community Room, City of South Pasadena, 1115 El Centro Street, South Pasadena, CA 91030.

July 21, 2003: City Hall, City of Arcadia, 240 W. Huntington Drive, Arcadia, CA 91007.

All meeting locations are accessible to people with disabilities. Any individual with a disability who requires special assistance, such as a sign language interpreter or a translator, should contact Susan Hodor at (626) 403–5500 at least 48 hours in advance of the meeting so that arrangements can be made.

FOR FURTHER INFORMATION CONTACT: Mr. Ervin Poka, Team Leader, or Mr. Ray Tellis, Program Specialist, FTA/FHWA Metropolitan Office, 888 S. Figueroa St. (Suite 1850), Los Angeles, California 90017; phone: (213) 202–3950; fax: (213) 202–3961.

SUPPLEMENTARY INFORMATION:

I. Description of Study Area and Scope

The purpose of the proposed action is to improve east-west mobility across the 24-mile long corridor in the San Gabriel Valley, to relieve congestion on existing transportation facilities, to increase connections to work and educational destinations within the San Gabriel Valley and the Los Angeles region, to support economic revitalization in each city along the corridor, and to contribute to the preservation and enhancement of the natural environment. The corridor includes the cities: Pasadena, Arcadia, Monrovia, Duarte, Irwindale, Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, and Montclair; and the counties: Los Angeles and San Bernardino.

II. Alternatives

The alternatives proposed for evaluation in the EIS/EIR were developed during a Planning Alternatives Analysis that began in September 2001 and continued through June 2002. The Planning Alternatives Analysis can be reviewed on the project Web site: *http://www.metrogoldline.org.* The Planning Alternatives Analysis looked at transportation conditions and possible solutions for improving mobility across the 24-mile long corridor from Pasadena to Claremont. Seven alternatives were examined in this study and screened down to a Locally Preferred Alternative (LPA) selected by the Gold Line Construction Authority and the San Gabriel Valley Council of Governments (SGVCOG). The LPA is a continuation of the light rail transit (LRT) technology from the existing Sierra Madre Villa LRT station in Pasadena to the Claremont Transit Center. The Sierra Madre Villa LRT

station is the eastern terminus of the "Phase I area", in which LRT service was implemented from Los Angeles, through South Pasadena, to Pasadena. A further extension to the City of Montclair was subsequently added to the scope of the EIS/EIR.

The EIS/EIR will evaluate a No-Action alternative, a Transportation System Management/Transportation Demand Management (TSM/TDM) alternative, the LRT LPA to Montclair, and a shorter LRT alternative from the existing Sierra Madre Villa station to the City of Irwindale. Alternative locations for a LRT maintenance and storage facility will also be evaluated. The LRT alternatives would use the former BNSF railroad right-of-way now owned by the Gold Line Construction Authority and the San Bernardino Associated Governments (SANBAG). There are still a few freight movements that occur on the railroad line. The EIS/EIR will examine operating scenarios to determine whether time-separated joint-use can occur or whether freight operations must be supplanted. The No-Action Alternative is the continuation of existing bus service policies in the study area. Under the No-Action Alternative, increases in service would track with increases in demand due to population or employment growth in the area, in accordance with current transit service policies. The TSM/TDM Alternative consists of low-cost mobility improvements that attempt to serve the project purpose and need without building a transit guideway. The TSM/TDM alternative will be developed by the Gold Line Construction Authority in consultation with FTA to serve as the New Starts baseline for comparing the LPA to other projects nationwide competing for New Starts funding. Any additional alternatives that emerge during the scoping of the EIS/EIR, especially alternatives that reduce costs or impacts while providing comparable transportation benefit, will also be considered.

III. Probable Effects

The Planning Alternatives Analysis included a screening process to identify potential environmental impacts. This screening indicated the areas of probable effects of the project would be air quality, cultural resources, land use, noise and vibration, and traffic. Most impacts appear likely to occur in the vicinity of proposed stations and at the maintenance yard sites. Noise impacts, however, are possible along the entire corridor because of numerous at-grade crossings that would require the sounding of warning horns and the actuation of grade-crossing warning devices as LRT vehicles move through the intersection. The full range of environmental topics will be evaluated in the EIS/EIR. The EIS/EIR will also evaluate whether the proposed LRT extension would generate environmental impacts in the Phase I area (Los Angeles, South Pasadena, and Pasadena).

IV. FTA Procedures

In accordance with FTA policy, all federal laws, regulations and executive orders affecting project development, including but not limited to the regulations of the Council on Environmental Quality and FTA implementing NEPA (40 CFR parts 1500–1508 and 23 CFR part 771), the conformity requirements of the Clean Air Act, section 404 of the Clean Water Act, Executive Orders 11988, 11990 and 12898 regarding floodplains, wetlands, and environmental justice, respectively, the National Historic Preservation Act, the Endangered Species Act, and section 4(f) of the Department of Transportation Act, will be addressed to the maximum extent practicable during the NEPA process.

The Draft EIS/EIR for the Gold Line Light Rail Extension from the Sierra Madre Villa Station in Pasadena to Montclair will be based on conceptual engineering of the alternatives, including stations, maintenance and storage facilities, and alignment options. Station designs, maintenance and storage facility layouts, and alignment options as well as operational elements, will be refined to minimize and mitigate any adverse impacts.

After its publication, the Draft EIS/EIR will be available for public review and comment, and one or more public hearings will be held. The actions taken in response to the comments on the Draft EIS/EIR will be presented in the Final EIS/EIR, which will be based on preliminary engineering of the LPA and other surviving alternatives.

Issued on: July 2, 2003.

Leslie T. Rogers,

Regional Administrator.

[FR Doc. 03–17366 Filed 7–8–03; 8:45 am]

BILLING CODE 4910–57–P

MARITIME ADMINISTRATION

[Docket Number: MARAD 2003–15559]

Requested Administrative Waiver of the Coastwise Trade Laws

AGENCY: Maritime Administration, Department of Transportation.

ACTION: Invitation for public comments on a requested administrative waiver of the Coastwise Trade Laws for the vessel CHIMERA.

SUMMARY: As authorized by Pub. L. 105–383 and Pub. L. 107–295, the Secretary of Transportation, as represented by the Maritime Administration (MARAD), is authorized to grant waivers of the U.S.-build requirement of the coastwise laws under certain circumstances. A request for such a waiver has been received by MARAD. The vessel, and a brief description of the proposed service, is listed below. The complete application is given in DOT docket 2003–15559 at *http://dms.dot.gov*. Interested parties may comment on the effect this action may have on U.S. vessel builders or businesses in the U.S. that use U.S.-flag vessels. If MARAD determines, in accordance with Pub. L. 105–383 and MARAD's regulations at 46 CFR part 388 (68 FR 23084; April 30, 2003), that the issuance of the waiver will have an unduly adverse effect on a U.S.-vessel builder or a business that uses U.S.-flag vessels in that business, a waiver will not be granted. Comments should refer to the docket number of this notice and the vessel name in order for MARAD to properly consider the comments. Comments should also state the commenter's interest in the waiver application, and address the waiver criteria given in § 388.4 of MARAD's regulations at 46 CFR Part 388.

DATES: Submit comments on or before August 8, 2003.

ADDRESSES: Comments should refer to docket number MARAD–2003 15559. Written comments may be submitted by hand or by mail to the Docket Clerk, U.S. DOT Dockets, Room PL–401, Department of Transportation, 400 7th St., SW., Washington, DC 20590–0001. You may also send comments electronically via the Internet at *http://dmses.dot.gov/submit/*. All comments will become part of this docket and will be available for inspection and copying at the above address between 10 a.m. and 5 p.m., E.T., Monday through Friday, except federal holidays. An electronic version of this document and all documents entered into this docket is available on the World Wide Web at *http://dms.dot.gov*.

FOR FURTHER INFORMATION CONTACT: Michael Hokana, U.S. Department of Transportation, Maritime Administration, MAR–830 Room 7201, 400 Seventh Street, SW., Washington, DC 20590. Telephone 202–366–0760.

SUPPLEMENTARY INFORMATION: As described by the applicant the intended service of the vessel CHIMERA is:

Intended Use: "Uninspected power vessel, six passengers or less for hire."

FIGURE 8.2: STATE NOTICE OF PREPARATION

Notice of Preparation

To: Distribution List

From: Los Angeles to Pasadena Metro Blue Line Construction Authority
625 Fair Oaks Avenue, Suite 200
South Pasadena, CA 91030

Subject: **Notice of Preparation of an Environmental Impact Report**

Lead Agency: Los Angeles to Pasadena Metro Blue Line Construction Authority

Contact Person: Susan Hodor

Street Address: 625 Fair Oaks Avenue, Suite 200

City/State/Zip: South Pasadena, CA 91030

The Construction Authority will be the lead agency for preparation of an Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act (CEQA) for proposed transit improvements from the existing Sierra Madre Villa Station in Pasadena to Montclair, California, in Los Angeles and San Bernardino Counties. The EIR will be prepared in cooperation with the San Gabriel Valley Council of Governments (SGVCOG), the San Bernardino Associated Governments (SANBAG), the Los Angeles County Metropolitan Transportation Authority (LACMTA), the Federal Railroad Administration (FRA), and the Federal Transit Administration (FTA). A joint document (EIS/EIR) will be prepared to satisfy both National Environmental Policy Act (NEPA) and CEQA requirements. The FTA will be the federal lead agency.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study ☐ is, ☒ is not, attached. An expanded NOP and a summary table of environmental impacts identified in an earlier stage of planning are attached.

Due to the time limits mandated by State Law, your response must be sent at the earliest possible date but ***not later than 30 days*** after receipt of this notice.

Please send your response to Susan Hodor at the address shown above.
We will need the name for a contact person in your agency.

Project Title: GOLD LINE PHASE II EXTENSION (PASADENA TO MONTCLAIR) DRAFT ENVIRONMENTAL IMPACT REPORT/DRAFT ENVIRONMENTAL IMPACT STATEMENT

Project Locations: The corridor includes the cities of Pasadena, Arcadia, Monrovia, Duarte, Irwindale, Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, and Montclair (City (nearest)); Los Angeles and San Bernardino (County)

Project Description: The EIS/EIR will evaluate the impacts of a continuation of the light rail transit (LRT) technology from the existing Sierra Madre Villa LRT station in Pasadena to Montclair. The EIS/EIR will also evaluate a No-Action alternative, and a TSM/TDM alternative, and a shorter LRT alternative from the existing Sierra Madre Villa station to the City of Irwindale. Alternative locations for an LRT maintenance and storage facility will also be evaluated. The LRT alternatives would use former BNSF railroad right-of-way, known as the Pasadena Subdivision, which is now owned by the Gold Line Construction Authority and SANBAG. There are still a few freight movements that occur on the railroad line. The EIS/EIR will examine operating scenarios to determine whether joint-use can occur or whether freight operations will be supplanted. The No-Action Alternative is the continuation of existing bus service policies in the study area. Under the No-Action Alternative, increases in service would track with increases in demand due to population or employment growth in the area, in accordance with current transit service policies. The TSM/TDM Alternative consists of low-cost mobility improvements that attempt to serve the project purpose and need without building a transit guideway. The TSM/TDM alternative will be developed by the Gold Line Construction Authority in consultation with FTA to serve as the New Starts baseline for comparing the LPA to other projects nationwide competing for New Starts funding. Any additional alternatives that emerge during the scoping of the EIS/EIR, especially alternatives that reduce costs or impacts while providing comparable transportation benefit, will also be considered.

Date: June 27, 2003

Signature

Richard D. Thorpe
Title: Chief Executive Officer

Telephone: (626) 799-0080

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
1	7/15/2003	Monique Clemmer	Noise, privacy	Wants a wall.	Noise & Vibration Analysis Section 3.11, Safety and Security Section 3.13
2	7/15/2003	Lyn Frazier	Noise, safety, property values, community impact, vibration	Concerned.	Noise and Vibration Analysis Section 3.11, Community Facilities and Services Section 3.4, Safety and Security section 3.13.
3	7/15/2003	Gil Gonzalez	Transportation centers, car concerns	Wants transportation centers in remote areas to keep cars out of downtown.	Land Use and Planning Section 3.10
4	7/15/2003	Gil Gonzalez	Visual	Make poles look like trees.	Visual Impacts Section 3.17
5	7/15/2003	Mike Hillman	Art Program, expediting process	Are a percentage of the funds being set aside for the art program? Who will choose designs? Wants to expedite process.	Not in scope of EIS/EIR; Chapter 5
6	7/15/2003	Michael Hillman	Landscaping	How heavily will medians be landscaped? Wants to be on mailing list.	Visual Impacts Section 3.17
7	7/15/2003	Janet Iliff	Noise, Lights, Design	Light/noise could affect individuals as trains use bridge at night. Wonders if bridge will be widened. Concerned about construction noise. Believes second Glendora station should be near Kohls.	Visual Impacts Section 3.17, Alternatives Chapter 2
8	7/15/2003	Mark R. Johnston	Different Alignment	Wants to turn route to go to Pomona Transit Center, Downtown Pomona. Extending line to Montclair or farther is too long.	Alternatives Chapter 2
9	7/15/2003	Jill Jones	Positive, General comment	Appreciates information and looks forward to completion of the project.	Support noted
10	7/15/2003	John Macri	Noise	Concerned about "horn" noise at crossing at San Dimas Canyon Rd.	Noise and Vibration Analysis Section 3.11
11	7/15/2003	Judy Miller	Landscaping	Would like to see "woodland" landscaping.	Not appropriate to rail right-of-way
12	7/15/2003	Judy Miller	Parking	Adequate parking is essential.	Land Use and Planning Section 3.10
13	7/15/2003	Jim Nizolek	Noise	Whistle blowing is unnecessary; standard traffic signal lights and other safeguards should be used instead.	Noise and Vibration Analysis Section 3.11

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 2 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
14	7/15/2003	Krishna Patel	Traffic, station development, visual, drainage	Concerns include increased traffic at Bonita Ave./Cataract Ave., public involvement in intermodal station development, existing Spur line at Bonita/Cataract, negative aesthetics, and drainage impacts.	Traffic and Transportation Analysis Section 3.15, Visual Impacts Section 3.17, Water and Water Quality Impacts Section 3-18, Land Use and Planning Section 3.10.
15	7/15/2003	Jeff Templeman	Aesthetics, road crossings, noise, parking	Impacts related to aesthetics of lines and poles, road crossing at Bonita/Cataract, noise, parking.	Visual Impacts Section 3.17, Noise and Vibration Analysis Section 3.11, Safety and Security Section 3.13. Traffic and Transportation Analysis Section 3.15
16	7/15/2003	Catherine Thornton	Traffic, road crossings	Concerned about increase in traffic; suggests using bridges, etc. to minimize traffic on streets.	Traffic and Transportation Analysis Section 3.15, Safety and Security Section 3.13.
17	7/14/2003	Foothill Village Homeowners Association	Noise, safety of youth, Maintenance	Concerned about noise from trains, horns, and bells; concerned for safety of youth going to Sanburg Middle School, maintenance of right-of-way.	Noise and Vibration Analysis Section 3.11, Safety and Security Section 3.13
18	7/16/2003	Spoku (?) Acheampone	Positive General comment	Supports the project.	Support noted
19	7/16/2003	Robert Chang	Visual, noise	Visual impacts of overpasses, noise impacts of construction and trains, impacts on communities due to evening/night trains.	Visual Impacts Section 3.17, Noise and Vibration Analysis Section 3.11
20	7/17/2003	Jeffrey Davidson	Design	Consider using the old Pacific Electric ROW, not Metrolink, from Claremont to Montclair.	Alternatives Chapter 2
21	7/16/2003	Christopher Denes	General comment	Wants prompt completion of project.	Support noted
22	7/16/2003	Clem Hamilton	Parking, stations, endangered species	Wants sufficient parking for local tourism for Claremont. Inefficient if Gold Line stations are different from Metrolink stations. Wants to be vigilant with study of endangered species.	Biological Resources Section 3.13, and Land Use and Planning Section 3.10.
23	7/16/2003	Andrea Harrington	Bicycles	Wants bicycles to be allowed at all times, without a permit.	MTA operational issue, not within scope of DEIS/DEIR
24	7/17/2003	Gus Hyland	Noise	Comments that there is no need for so much noise, especially when gates are down.	Noise and Vibration Analysis Section 3.11
25	7/13/2003	Cecil A. Karstensen	Parking	Consider large parking facilities for each station.	Traffic and Transportation Analysis Section 3.15

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 3 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
26	7/16/2003	Cecil A. Karstensen	Design	Use the old Pacific Electric ROW between Claremont and Montclair.	Alternatives Chapter 2
27	7/16/2003	Victoria Koenig	Design, Marketing	Wants pedestrian access from transit center south to Arrow Highway and the Montclair Plaza. Interested in allowing use of company name for marketing in support of Gold Line.	Land Use and Planning Section 3.10.
28	7/16/2003	Margot MacDonald	Study of Phase I, parking	Use study of Phase I to see if Phase II would actually be used; provide a parking structure for Claremont station and local businesses.	Land Use and Planning Section 3.10.
29	7/16/2003	Anthony Madrin	Noise	Sound wall needed; reduce number of horns used as a warning, especially during early/late hours.	Noise and Vibration Analysis Section 3.11
30	7/16/2003	Ross R. Moore, Jr.	Stations, alignment, extra connecting lines	Have station at Baldwin Ave. & I-210 serving Santa Anita Fashion Mall, race track, arboretum with pedestrian bridge; have Duarte station DIRECTLY serve City of Hope Medical Center; have West San Dimas Station and Maintenance Facility near Auto Center Dr. & Gladstone Ave. to serve shopping complexes and take advantage of cheap land; use old Pacific Electric ROW from Claremont to Montclair; eventually have a connecting line from Gold Line along I-605 to Long Beach; have connecting line between Union Station and Washington St. Blue Line Station.	Alternatives Chapter 2
31	7/16/2003	William R. Mussatto	Bicycles, station sites	Station siting needs more detail regarding how tracks will be laid out in depot area; concerned about way to handle bicycles on train for last mile.	Land Use and Planning Section 3.10.
32	7/16/2003	E. Pugino	Positive General Comment	Wishes it would be opened sooner than 2009.	Chapter 5
33	7/16/2003	Alan Robinson	Positive General comment	Wants it built.	Support noted
34	7/16/2003	Michael Viera, Citrus College	Positive General Comment	Supports project; if a resolution from Citrus College Board of Trustees is needed, contact him.	Chapter 6, Agency Coordination.
35	7/16/2003	Anne McLaughlin	Noise	Support project, but considers horns a problem.	Noise and Vibration Analysis Section 3.11, Safety and Security Section 3.12.

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 4 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
36	7/17/2003	Elliott Caine	Noise	Noise is a major problem that needs to be solved.	Noise and Vibration Analysis Section 3.11, Safety and Security Section 3.12.
37	7/17/2003	Jesusa B. Castico	Noise, facility, night schedule	Horns, bells are a major problem affecting sleep; maybe use strobe lights instead. At facility between Meridian and Mission, rethink horns and bells at small intersections; train schedule at night.	Noise and Vibration Analysis Section 3.11
38	7/17/2003	Jesusa B. Castico	Natural habitats	Habitats of birds or animals are disrupted.	Biological Resources Section 3.3
39	7/17/2003	William E. Coleman, Jr.	Design, sharing ROW, maintenance facility, station locations	Wants grade separation at Santa Anita Ave., Arcadia ONLY; support sharing ROW with freight trains, but on separate tracks Irwindale East to end; each city should be consulted about station locations; should a branch go to Santa Anita Racetrack? New maintenance facility should be built near San Gabriel River in Irwindale.	Alternatives Chapter 2
40	7/17/2003	Jeffrey Davidson	Train horns	Put train horns on crossings rather than on trains.	Noise and Vibration Analysis Section 3.11
41	7/17/2003	Paul Gedigian	Request	Would like to make a presentation of an alternate to at-grade design.	Alternatives Chapter 2
42	7/17/2003	William G. Gunther	Positive General comment	Supports project fully.	Alternatives Chapter 2.
43	7/17/2003	Lynne Heffley	Stations	Feels strongly about having the stations as near as possible to various destinations with main public interest.	Alternatives Chapter 2.
44	7/17/2003	Harold Leacock	Stations	At Arcadia Station, need connection to Race Track and shopping center; Going to Montclair is good; wants stations that are at or near places of interest.	Alternatives Chapter 2.
45	7/17/2003	Marshall Lew	Metrolink concern	Believes Metrolink ridership would decline if Gold Line goes to Montclair.	Traffic and Transportation Section 3-15
46	7/17/2003	Marshall Lew	Alignment	Run line South to I-210/SR 57 Diamond Bar, could also serve Cal Poly Pomona.	Alternatives Chapter 2.
47	7/17/2003	Charles Mountain	General comment, question	Supports the project; will there be one day passes on all rail and bus trips?	Support noted; not in scope of EIS/EIR

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 5 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
48	7/17/2003	Judith B. Mussotto	Freight, parking	Concerned about moving freight to the street, parking concern in Claremont; how will ticket price compare to Metrolink?	Alternatives Chapter 2, Land Use and Planning Section 3.10.
49	7/17/2003	Tom Nelson	Noise	Horns and bells are a problem; sound walls would not help much. Grading should be done when funds allow; perhaps grease wheels to avoid squealing.	Noise and Vibration Analysis Section 3.11
50	7/17/2003	Joanne Nuckols	Noise	Noise is a huge problem and new technology should be used in Phase II to avoid these problems.	Noise and Vibration Analysis Section 3.11
51	7/17/2003	Joanne Nuckols	Gates	Are there different types of gates?	Safety and Security Section 3.13
52	7/17/2003	Richard A. Rosilh (?)	Parking, Stations	Please include parking structures at stations; include bus feeder lines into stations	Alternatives Chapter 2, Land Use and Planning Section 3.10.
53	7/17/2003	Geri Silveira	Noise, power lines, La Verne station, aesthetics	Concerned about noise; there should be no above ground wires; La Verne Station is not downtown.	Noise and Vibration Analysis Section 3.11,Utility Disruptions and Relocations Section 3.16, Visual Impacts Section 3.17, Land Use and Planning Section 3.10.
54	7/17/2003	Betty Sue Smith	Noise, senior citizens	Bells are a huge problem; senior citizens don't have enough time to get across the street.	Noise and Vibration Analysis Section 3.11, Safety and Security Section 3.13, Traffic and Transportation Analysis Section 3.15.
55	7/17/2003	Craig F. Thompson	Connector line	Should be a connector line on Alameda Street between the Gold Line and Blue Line.	Alternatives Chapter 2
56	7/17/2003	Craig F. Thompson	Design	New alignment needs grade separation at many locations; URGENT need for a bridge over Santa Anita Ave. in Arcadia; areas where the track runs across the top of a "hump" can be easily grade separated.	Alternatives Chapter 2
57	7/17/2003	Craig F. Thompson	Power for the Trains	Substations are not powerful enough for three-car trains, may need a change for eastern extension.	Alternatives Chapter 2

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 6 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
58	7/17/2003	John Ulloth	Less Parking, No Grade Separation, Bikeway, redistribute project costs, technology sharing	Don't build more giant parking lots; avoid underground and aerial, don't waste money; go to the county line ASAP; tear out roads instead of grade separating; include a bikeway where ROW width allows; externalize unnecessary costs (most sound walls and landscaping don't move people); buy out NIMBYs; put more funds from roadways into public transit; consider crossing gates from both sides of wide roadways, current gates don't look like they'll last; use technology sharing among all of the MTA rail lines; maintain a public office (like the one used for Gold Line I), which is superior to MTA's "general lack of outreach;" externalize costs of stations to the communities.	Land Use and Planning Section 3.10, Chapter 5 Financial Analysis and Comparison of Alternatives.
59	7/16/2003	Charles Woolf	Information Sharing	Should have closer coordination between the construction authority and the cities' street departments.	Chapter 6 Agency Coordination.
60	7/17/2003	Raymond Lu	New Station at Montebello	Wants the Gold Line to go to Montebello Station for easy transfer to Metrolink.	Alternatives Chapter 2
61	7/17/2003	William D. Zuke	Noise, ADA compliance	People with disabilities or handicaps need to be included; consider access for power wheelchairs; bell system is too noisy.	Noise and Vibration Analysis Section 3.11, Safety and Security 3.13.
62	7/17/2003	William D. Zuke	Safety	Train is distracting to driver when driving on freeway; need safe routes from parking and streets for wheelchair users.	Safety and Security 3.13.
63	7/17/2003	N/A	General Comment	Wants Metro Silver Line Via Exposition Blvd. to Santa Monica; Metro White Line or Purple Line to Canoga Park/West Hills.	Alternatives Chapter 2
64	7/17/2003	N/A	Noise, speed	Noise impacts have not been resolved; speed of trains will kill people; don't build.	Noise and Vibration Analysis Section 3.11, Safety and Security 3.13.

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 7 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
65	7/18/2003	Daniel Walker, Co-Chair Sierra Club Transportation Committee (Los Angeles Chapter)	Support, Bikeway, study improved Metrolink Service, add Ontario Airport, safety/grade separation, cost, eliminate freight, governance, parking, TOD	Supports the project. Try to add bikeway along as much of the ROW as possible; study improved/ more frequent Metrolink service from Montclair to Claremont to Pomona to LA Union Station; widen scope or add separately to include Ontario Airport via the Gold Line or Metrolink; early on, define potential intersections that may be close to residential areas or busy street at-grade crossings and provide possible grade separation improvements and rough cost estimates; define where single track operation may be feasible and provide cost savings estimate and later cost to upgrade to full double track operation; define continuing freight operations, alternatives, and cost to eliminate freight completely from the ROW; Phase III - how would JPA / governance change if/when extended to Montclair (San Bernardino county)?; adequate parking planned for each station?; bus interface to new stations, potential new local buses within some cities to quick link to Gold Line; possibilities for TOD / Joint development near planned stations; is there sufficient ROW width for current Pomona to Claremont to Montclair double tracking project plus double track Gold Line Light Rail for easy platform-to-platform transfer; location of maintenance yard?; potential route for downtown LA connector to link Gold Line directly to Blue/Green (and Expo) LRT lines.	Alternatives Chapter 2, Safety and Security 3.13, Land Use and Planning Section 3.10, Financial Analysis and Comparison of Alternatives Chapter 5, Agency Coordination, Chapter 6.
66	7/21/2003	Diane Barlow	Noise, visual, vibrations, safety	Concerned that noise, vibrations, view of the electric lines would be detrimental to the building she owns; concerned the train will crash into her building.	Noise and Vibration Analysis Section 3.11, Visual Impacts Section 3.17, Safety and Security section 3.13.
67	7/21/2003	Louise R. Bigley	Visual	Electric lines and poles affect the view from downtown Pasadena; expected an underground power source.	Visual Impacts Section 3.17,

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 8 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
68	7/21/2003	Emily Cao	Tracks close to houses	Tracks too close to houses on California Street; could be dangerous for residents.	Safety and Security section 3.13.
69	7/21/2003	B. Costanza, Arcadia Chamber of Commerce	Safety, Aesthetics	Concerned about the lack of gates along Gold Line Route in South Pasadena; likes the stations and art.	Visual Impacts Section 3.17, Safety and Security Section 3.13.
70	7/21/2003	Robert L. Davis	Alignment Changes, Traffic, Historic	Build through Azusa instead of Irwindale if needed; wants rail to go through Monrovia; Monrovia corn silo could move to Irwindale or El Monte, Miller could be served by ex-Pacific Electric (now Metrolink) branch; comment on public's concern about traffic obstruction: rarely sees trains in S. Pasadena even though he wants to see them.	Alternatives Chapter 2, Traffic and Transportation Analysis Section 3.15,Cultural Resources Section 3.5
71	7/21/2003	Dorothy Fleck	New Station	Wants consideration for a station in La Verne to serve the Fairplex and Cal Poly Pomona.	Alternatives Chapter 2
72	7/21/2003	Paul Greenwood	Expedition of project	EIS needs to address accelerated implementation at those parts of Phase II that have funding in place and/or for which ROW exists.	Chapter 5
73	7/21/2003	Dirk Hudson	Positive General comment	Supports the project.	Support noted
74	7/21/2003	M.J. Humphrey	Map on Metrogoldline.org	Would like a more detailed map of Phase II on metrogoldline.org website.	Completed by Construction Authority
75	7/21/2003	Elisabeth L. Karsana	Schedule, property values	Time between trains is too close, especially at 2 a.m.; will property values go down because the trains are going so close to homes? Will MTA compensate the difference if house values go down?	Alternatives Chapter 2
76	7/21/2003	Raub Mathias	Arcadia Station Location	Doesn't think Arcadia needs or wants the Gold Line; the only place where a station should be considered is in the parking lot between the mall and the racetrack.	Alternatives Chapter 2
77	7/21/2003	Jim McKellar	Positive General comment	Glad that Phase I is ahead of schedule and would like to see Phase II open as soon as possible.	Chapter 5
78	7/21/2003	Helen Morales	Information request, noise	Interested in information regarding environmental studies and noise in the area; would like a sound wall.	Noise and Vibration Analysis Section 3.11

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 9 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
79	7/21/2003	Charles Mountain	Bus	Suggests that buses show "Gold Line Connection" on sign after route number and destination.	Not in scope of EIS/EIR
80	7/21/2003	Cipoiano Pineda	ROW Acquisitions	How many tracks or how much square footage would be used between Monrovia and Second Ave in Arcadia? What options do the property owners along the tracks have?	Acquisitions and Displacements, Section 3.1
81	7/21/2003	Buzz Spellman	Positive General comments	Well designed displays and knowledgeable consultants.	Support noted
82	7/21/2003	Matt Walleck	Sound wall - Unrelated to project	What is the status of a sound wall being made near San Luis Rey Rd. and I-210?	Not in scope of EIS/EIR
83	7/21/2003	Homer Wilcox	Parking, Operation Comment	Make sure there is parking at both Monrovia and Duarte stations; bays for electric cars to park and charge (conductive charging preferred) would be nice.	Land Use and Planning Section 3.10.
84	7/21/2003	Betty Willis	Noise	Please consider noise along freeway section.	Noise and Vibration Analysis Section 3.11
85	7/21/2003	Alexander Zajac	Positive General comment	Supports the project.	Support noted
86	7/21/2003	N/A	Design/Construction Process, safety and security, freeway barriers, traffic	Design contract should be separate from construction contract; inspection should be by a different independent contractor; security should be provided for Park and Ride; freeway barriers should be reconstructed to be higher and safe for stronger impact; on Santa Anita, 1st, 2nd must be under crossing or tunnel; what happens to traffic if there is a derailment?	Safety and Security Section 3.13, Traffic and Transportation Analysis Section 3.15
87	7/22/2003	Linda Wright, CalTrans District 7	Caltrans concerns	Consult with Caltrans early in the process concerning potential impacts on state facilities.	Community Services Section 3.4, Agency Coordination Chapter 6.
88	7/17/2003	Michael Hudson, City of Montclair	Support, identify alignment in Montclair ASAP	Montclair Transcenter is an ideal terminus with ample parking. Identify alignment in Montclair to facilitate impact discussion quickly - former PE ROW makes sense - lists positives and negatives of this.	Alternatives Chapter 2, Agency Coordination Chapter 6.
89	7/25/2003	Robert L. Hoherd	General comment, elevated tracks	Supports project, appreciates the information provided to him, would like to see the track above Santa Anita Blvd. and 1st Ave. elevated.	Alternatives Chapter 2

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 10 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
90	7/28/2003	Mary Dougherty	Graded crossings, construction costs vs. dispersed costs over the life of the system	Dispersed costs: installation of crossing gates and signals; police and staff to educate public; writing of local ordinances to regulate grade crossings; enforcement of regulations and ordinances; maintenance and repair of crossing gates and signals; disruption of sleep and lifestyle of those living in proximity to the bells and horns; delays of emergency services, commercial traffic, and everyday errands caused by at-grade crossings; lost time caused by slower transportation through the region for all riders on the Gold Line; need for train operator rather than computer-controlled operation; human injuries and property damage caused by accidents that will predictably happen; damage to train cars, tracks, and other equipment from accidents; further delays for all, and indirect costs from accidents; other foreseeable costs; costs of litigation and settlements/judgments as a result of grade-level crossings; costs of separating grade-level crossings after construction has been completed and trains are operational.	Chapter 2 Alternatives, Community Facilities and Services Section 3.4, Noise and Vibration Analysis Section 3.11, Safety and Security Section 3.13, Financial Analysis and Comparison of Alternatives Chapter 5.
91	7/20/2003	Dennis Awad	Duarte Station	Duarte station should be at the corner of Duarte Rd. & Mountain, across from the Walmart & Home Depot.	Alternatives Chapter 2
92	7/14/2003	Gregory Mantila	Ontario Airport	Lengthen the line to Ontario Airport if it goes to Montclair; may help decrease congestion at LAX. Don't make the mistake of the Red Line and Green Line, which both stop short of Burbank Airport and LAX respectively.	Alternatives Chapter 2
93	7/15/2003	Robert H. Olander II	Poles, Cataract Ave. and Bonita Ave. crossing, stations, housing, funding	Make gate crossing at Cataract Ave. and Bonita Ave. to be no more than 2 minutes; conceal or modify poles; each city should be allowed to personalize its stations; state should not make each city have a mandatory housing component in the development zones; build Phase II completely or wait until all funding is approved.	Land Use and Planning Section 3.10, Traffic and Transportation Analysis Section 3.15, Visual Impacts Section 3.17, Financial Analysis and Comparison of Alternatives Chapter 5.

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 11 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
94	7/15/2003	Barbara Dreibus	Start of construction, vibrations, noise	When will construction start? Concerned about noise and vibration of the trains.	Alternatives Chapter 2, Noise and Vibration Analysis Section 3.11, Financial Analysis and Comparison of Alternatives Chapter 5.
95	7/2/2003	Stephen Buswell, IGR/CEQA Branch Chief, Caltrans District 7	Traffic	Includes a list of items for traffic analysis, including assumptions and methods for modeling, consistency of modeling with other forecasts, volumes for existing and future conditions, discussion of mitigation measures, and specification of developer's share of the cost.	Traffic and Transportation Analysis Section 3.15
96	7/3/2003	Jack Fry, Anaheim Fiber Operations, Sprint	Construction impacts on Sprint's fiber optic lines along RR ROW in San Dimas	Very concerned about impact on fiber optic infrastructure; requires 2-foot by 5-foot separation from any new structures, as well as compensation for all activities related to this project.	Utility Disruptions and Relocations Section 3.16
97	7/9/2003	Duncan Robb, MTA Real Estate	Ownership of ROW	Clarifies ownership of ROW between Claremont and Arcadia; owned by Pasadena Blue Line Construction Authority. Responds to question from Lynne Goldsmith (MTA Bikeway Modal Lead) who was concerned about a Class 1 bikeway designed on the ROW between San Dimas and Claremont.	Acquisitions and Displacements, Section 3.1
98	7/11/2003	Jennifer Harriger, MWD	Request for Documents	Would like a copy of the CEQA Initial Study/Environmental Checklist and the Environmental Impacts Screening Report.	Provided
99	7/15/2003	Ruth Frazen, County Sanitation Districts of Los Angeles County	Utilities	Project could affect Districts' trunk sewers that are located under or parallel to the proposed project alignment. In order to issue a detailed response, they will need project plans and specifications that incorporate Districts' sewer information.	Utility Disruptions and Relocations Section 3.16
100	7/17/2003	Gil Gonzalez	Visual	Requests a photo of the concept for the station near Azusa City Hall.	Visual Impacts Section 3.17

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 12 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
101	7/17/2003	Christopher Veirs, City of Claremont	Noise	Requests information on maximum sounds levels (dB max rating) to consider when reviewing another residential project being built north of the Gold Line ROW in Claremont.	Noise and Vibration Analysis Section 3.11
102	7/17/2003	Mark Smith	Alignment Location	Thinks that a location in Pomona would be better than one in Irwindale.	Alternatives Chapter 2
103	7/23/2003	Gary Iverson, Office Chief, Caltrans District 7	Historic, Traffic, Hazardous Materials, Seismic Design Criteria	Bridges should be included in APE and evaluated for historic significance; traffic should address freeway impacts; Traffic Management Plan (TMP) should be developed; hazardous materials study should address presence of lead; any proposed bridges will need to conform to Caltrans design and seismic requirements.	Cultural Resources Section 3.5, Traffic and Transportation Analysis Section 3.15, Hazardous Materials Section 3.19, Geologic-Seismic Impacts Section 3.8
104	7/24/2003	City of San Dimas	Aesthetics, Traffic	Light Rail equipment (particularly overhead wiring and poles) has potential to create negative aesthetic impacts, especially in Frontier Village. Requests evaluation of feasibility of a grade separation at Bonita/Cataract; traffic mitigation and visual impact plan should be developed. Relocation of existing spur line at Bonita/Cataract should be analyzed. Project mitigation should consider expansion of bus, bicycle, pedestrian and auto access.	Visual Impacts Section 3.17, Traffic and Transportation Analysis Section 3.15
105	7/21/2003	Delaine Shane, MWD	Utilities	Notes potential impacts to Middle Feeder, Orange County Feeder, Yorba Linda Feeder, and Upper Feeder pipelines, as well as to the La Verne Pipeline and the Weymouth Filtration Plant. Requests consideration of these facilities in all environmental documents and emphasizes need for continued access to these facilities. Also concerned about impacts of parking lots, structures, train stations, and other facilities on their facilities. Enclosed a copy of "Guidelines for Developments in the Area of Facilities, Fee Properties, and/or Easements of The Metropolitan Water District of Southern California."	Utility Disruptions and Relocations Section 3.16

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 13 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
106	7/24/2003	John Poindexter, City of Pasadena	Public Agency Coordination, Construction Impacts, Traffic, East Pasadena Station	Requests that the EIS/EIR clearly state what approvals or actions will be required from various public agencies and governments along the route. Requests a construction staging plan for all construction impacts, including those to public parking lots. Also requests traffic analysis describe all mobility corridors that could be affected and the impact of bus traffic on East Pasadena. Also requests consideration of construction impacts on East Pasadena Station, which will be in operation. Finally, parking impacts on Pasadena if the project isn't extended should be addressed.	Alternatives Chapter 2, Traffic and Transportation Analysis Section 3.15, Agency Coordination Chapter 6
107	7/24/2003	Morgan Wehtje, CA Dept. of Fish and Game	Biology, Permitting, Water Resources	Requests assessment of flora and fauna adjacent to project area; discussion of direct, indirect, and cumulative impacts on biological resources; full evaluation of alternatives, including mitigation measures. Also requests a CESA permit if there is potential for "take" of endangered plants or animals. Opposes elimination of watercourses or wetlands. Suggests a pre-project or early consultation meeting.	Biological Resources section 3.3, Water and Water Quality Section 3.18
108	7/28/2003	Naresh Varma, Chief, San Bernardino County Dept. of Public Works	Traffic	Requests that a Traffic Impact Analysis (TIA) report per Congestion Management Program (CMP) be prepared.	Traffic and Transportation Analysis Section 3.15
109	7/17/2003	Nova Blazej, EPA		No comments; just requests three copies of document be sent to the San Francisco office when filed with Washington, DC office.	Added to mailing list

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 14 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
110	7/31/2003	John Ulloth	Alignment; Traffic, Noise, Shade	Suggests building the Gold Line out to Upland, as well as including a stop at the Ontario Airport. Also suggests studying using DMU operations, prioritizing access of all non-automotive modes at proposed rail lines, considering retaining freight potential on the railroad, and studying how the rail development might assist adjacent cities with historic goals. Also suggests putting more trees in parking to increase shade and putting in noise barriers to reduce noise.	Noise and Vibration Analysis Section 3.11, Alternatives Chapter 2, Traffic and Transportation Analysis Section 3.15, Visual Impacts Section 3.17.
111	7/30/2003	James Noyes, Los Angeles County Dept. of Public Works	Trash, Utilities, Geotechnical issues	Cites Los Angeles County Building Code sections pertaining to landfills/trash, proximity to oil/gas wells, and hazardous waste management. Requests that the EIR address the geotechnical and seismic issues identified in the NOP/IS. Also requests coordination with MTA for unincorporated areas. Concerned about potential traffic and light intrusion impacts and will review the documents upon completion. Requests investigation of watershed management opportunities.	Utility Disruptions and Relocations Section 3.16, Geologic-Seismic Impacts Section 3.8,
112	7/31/2003	Sean Joyce, City of South Pasadena	Scope of Project, Aesthetics, Cultural Resources, Noise/Vibration, Socio-Economics, Public Services/ Facilities, LRT & Traffic Operations, Corridor Transportation Patterns/Impacts	Concerned that scope of project needs to include potential impacts on South Pasadena, including: aesthetic impacts resulting from potential construction of additional facilities in South Pasadena; impacts of additional LRT traffic on historic resources, noise, demand for further redevelopment, headways and emergency response times, and cumulative impacts.	Alternatives Chapter 2, Visual Impacts Section 3.17, Noise and Vibration Analysis Section 3.11, Socio-Economics Section 3.14, Community Facilities and Services Section 3.4,Traffic and Transportation Analysis Section 3.15
113	7/31/2003	City of Baldwin Park	Traffic	Concerned that regional transportation services (such as Foothill Transit) may reduce their service levels in response to Gold Line service being available. Also, they're concerned that there may be increased traffic impacts on north-south arterials through Baldwin Park from commuters going up to the Gold Line.	Traffic and Transportation Analysis Section 3.15

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 15 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
114	7/31/2003	Paul Samuras, City of Pomona	Parking, Traffic	Concerned about parking, vehicular, and pedestrian circulation impacts at the proposed Garey station.	Traffic and Transportation Analysis Section 3.15
115	8/1/2003	Reuben Arceo, City of Irwindale	Facilities, Circulation, Socio-Economic, Land Use, Aesthetics, Traffic	Reserves the right to not approve siting of any maintenance facilities in Irwindale. Requests that the EIS/EIR consider grade separation issue from Miller plant to Irwindale Ave. Requests analysis and recommendations regarding transportation planning, land use, and development. Notes that city design guidelines call for Spanish/Mission architecture. Requests analysis of traffic along Irwindale Ave. from Foothill to Arrow Hwy.	Community Facilities and Services Section 3.4, Land Use and Planning Section 3.10, Socio-Economic Section 3.14 , Visual Impacts Section 3.17, Traffic and Transportation Analysis Section 3.15,
116	7/22/2003	James Nizolek	Noise	Concerned about negative noise impacts from horns on Glendora residents; recommends eliminating horns in favor of more lights.	Noise and Vibration Analysis Section 3.11
117	7/30/2003	Harlan Jeche, Glendale Office, DTSC	Hazardous	Requests that the EIR identify whether any uses in the project area could result in hazardous wastes/substances, identify any potentially contaminated sites, and provide suggested remediation. Notes that if there is any soil contamination, construction must stop and the EIR should indicate how remediation would proceed.	Hazardous Materials Section 3.9
118	7/31/2003	Elisabeth Karsana, et al (Arcadia Residents)	Noise, Vibration, Safety, Operation, Property Values	Concerned about noise and vibration during construction and operation; safety and possibility of derailment; hours of operation and frequency of use; impact on property values.	Noise and Vibration Analysis Section 3.11, Safety and Security Section 3.13, Acquisitions and Displacements, Section 3.1, Land Use and Planning Section 3.10
119	7/29/2003	Miles Rosedale, Monrovia Growers	Noise, Traffic	Although the Monrovia Growers property may be developed into residential dwellings, a school, parks, and trails, the EIR should also evaluate the noise, traffic, and circulation impacts on the existing use as a nursery.	Noise and Vibration Analysis Section 3.11, Traffic and Transportation Analysis Section 3.15

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 16 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
120	8/1/2003	William Kelly, City of Arcadia	Aesthetics, Traffic, Land Use, Public Safety, Noise, Hazardous Materials, Construction/ Phasing	Concerned about: aesthetic impact of bridges, wiring and poles; traffic impacts, including grade separations at Santa Anita Avenue, and at-grade crossings; impact of rail station on traffic; land use of station, including parking and changing land uses in the vicinity of the station; safety impacts, including the potential for increased crime and access for public safety vehicles; noise from construction, trains, and traction power sites; construction vibration; presence of hazardous materials; construction impacts, including staging areas, public safety access, adequate review time, and impacts on parks.	Visual Impacts Section 3.17, Traffic and Transportation Analysis Section 3.15, Land Use and Planning Section 3.10, Hazardous Materials Section 3.9, Noise and Vibration Analysis Section 3.11, Safety and Security Section 3.13, Agency Coordination Chapter 6.
121	8/1/2003	Stephen Fox, MTA	Facilities, Traffic	Requests analysis of the MOS to Irwindale. Notes requirement to prepare a Traffic Impact Analysis (TIA) and lists the required components.	Traffic and Transportation Analysis Section 3.15
122	7/30/2003	Jeffrey Smith, SCAG	Regional Significance	The project is regionally significant and directly relates to SCAG's RCPG and RTP. Therefore, SCAG expects the DEIR to cite appropriate SCAG policies and address the manner in which the Project is consistent with applicable core policies.	Socio-Economics Section 3.14
123	8/5/2003	Belinda Faustinos, San Gabriel & Lower Los Angeles Rivers & Mountains Conservancy	Parks & Recreation	Encourages close consultation with the RMC to minimize impacts on recreation, open space, and habitat/wildlife.	Community Facilities and Services Section 3.4

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 17 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
124	7/30/2003	Katherine Perez, Transportation & Land Use Collaborative of Southern California	Outreach, Noise/Vibration, Storm Drains, Water Quality, Safety	Criticized the public outreach effort for being unfocused and conducted in a passive manner; notes that materials didn't seem available in other languages and that there weren't enough public meetings. Encourages coordination with grass-roots organizations. Recommends that the EIR evaluate a full range of options to reduce bell and horn noise. Also recommends that design of facilities incorporate elements to reduce runoff. The EIR's water quality analysis should include a full review of options for surface water and groundwater. The EIR should also include analysis of safety concerns, taking into consideration other light rail systems.	Public Outreach Chapter 8, Noise and Vibration Analysis Section 3.11, Water and Water Quality Section 3.18, Safety and Security Section 3.13
125	8/25/2003	Douglas Bernash, City of Monrovia	Pedestrian/train interaction, interaction of light/heavy rail, noise	Requests that the team address: pedestrian interaction with light rail vehicles at stations, the mixing or separation of light rail and heavy rail operations within a limited right-of-way, noise impacts in areas where tracks are elevated above single/multi-family residences, potential use of landscape buffers in conjunction with appropriate safety fencing along the right-of-way.	Alternatives Chapter 2, Traffic and Transportation Analysis Section 3.15
126	8/25/2003	Michael Robertson, California Public Utilities Commission	PUC approval required, PUC is a responsible agency under CEQA	PUC approval required to construct new, or modify existing, rail crossings. A Safety Certification Plan shall be submitted to the Commission staff for review and approval by the Commission prior to preliminary engineering. PUC is a responsible agency for this project.	Agency coordination Chapter 6.
127	8/20/2003	Dave Robeck	New stop at Ontario Airport	Suggests that Ontario Airport would be a good stop for Gold Line. Lists reasons.	Alternatives Chapter 2.

TABLE 8-2: SCOPING COMMENT SUMMARY AND LOCATIONS IN DEIS/DEIR WHERE ISSUES ARE ADDRESSED *continued (page 18 of 18)*

No.	Date	Name or Agency	Topic	Comment	Location of Issue Discussion in DEIS/DEIR
128	8/1/2003	Arlene Andrew, City of La Verne	Noise, Traffic, Parking, Aesthetic, Safety, Economics, Station Location	Concerned about noise impacts late at night and early in the morning, traffic impacts created by the ROW separating businesses and residents from emergency vehicles, aesthetics impacts - overhead poles and wiring, economic concerns - modest budget for new station and TOD on existing small businesses. La Verne has not yet selected a station; unlikely to be at location on D Street. EIR should not make this assumption.	Noise and Vibration Analysis Section 3.11, Safety and Security Section 3.13, Traffic and Transportation Analysis Section 3.15

8-5.3. Comments on this DEIS/DEIR

FTA and the Construction Authority issued Notices of Availability (NOA) and set a 45-day circulation period for agencies and the public to review this DEIS/DEIR and to submit comments. The circulation period is May 7 through June 21, 2004.

Public comments on the Draft EIS/EIR will be sought at a series of public hearings and other means identified in the NOA. Each of the Phase I and Phase II corridor cities has been invited to co-host a public hearing. The format of information presentation and of solicitation and recording of comments varies among the cities. Some cities have opted for open-house formats, where information is presented throughout a meeting and comments can be submitted in writing or dictated to a court reporter at any time; others desire formal presentations and formal public hearings as part of commission or council meetings; or combinations of these two basic approaches. The Gold Line Joint Powers Authority also will hold a Public Hearing.

The NOA provides a list of all means and addresses at which comments can be submitted: These include:

- Written comments to the FTA.
- Written comment to the Construction Authority postal addresses (i.e., 625 Fair Oaks, Suite 200, South Pasadena, CA, 91030)
- E-mail comments to the Construction Authority website: eircomments@metrogoldline.org
- Written comments by fax (626-799-888599)
- Written comments at any public hearing or meeting,
- Dictated comments at any public hearing or meeting.

All comments submitted at the Public Hearings, or by other written means during the circulation period, will be considered by FTA and the Construction Authority. Substantive comments will be responded to in the Final EIS/EIR, which is anticipated to be released in mid-2005.

Public Hearings are scheduled as shown in the **Table 8-3**:

TABLE 8-3: GOLD LINE PHASE II DEIS/DEIR PUBLIC HEARING SCHEDULE

Date	Location	Time/Format
Wed., May 19	Claremont Council Chambers 225 Second St., Claremont	5-7 pm - Open House 7:00 pm - Presentation & Public Hearing with Traffic & Transportation Commission
Thur., May 20	Teen and Family Center 241 W. Dawson Ave., Glendora	5:30-6:30 pm - Open House 6:30 pm - Presentation & Public Hearing. Town Hall format with City Council and Transportation Commission
Wed., May 26	Duarte Community Center 1600 Huntington Dr., Duarte	6:00 pm – Open House
Tues., June 1	Ramona Hall Community Center 4580 N. Figueroa St., Los Angeles	5:30 – 7:30 – Open House & Public Hearing
Thur., June 3	Monrovia Community Center 119 W. Palm, Monrovia	6-8 pm – Open House
Mon., June 7	Montclair Council Chambers 5111 Benito St., Montclair	5-7 pm - Open House 7:00 pm - Presentation & Public Hearing
Tues., June 8	San Dimas Council Chambers 245 E Bonita Ave., San Dimas	5:30 pm- Open House 7:00 pm - Presentation & Public Hearing
Wed., June 9	La Verne Council Chambers 3660 D St., La Verne	5:30-6:30 pm - Open House 6:30 pm - Presentation & Public Hearing with Planning Commission
Wed., June 9	Due to seismic refit, city hall will be closed. Call 626-744-4009 for location	5:15-6:15 pm - Open House 6:15 pm - Public Hearing with Planning Commission
Thur., June 10	South Pasadena Council Chambers 1424 Mission St., So. Pasadena	6:30-7:30 pm - Open House 7:30 pm - Presentation & Public Hearing
Mon., June 14	Ganesha Park Community Center 1575 N. White Ave., Pomona	6-8:30 pm - Open House
Mon., June 14	Arcadia Council Chambers 240 Huntington Dr., Arcadia	7:00 pm - Presentation & Public Hearing
Tues., June 15	Irwindale Council Chambers 5050 N. Irwindale, Irwindale	5-6 pm - Open House 6:00 pm - Presentation & Public Hearing
Wed., June 16	Azusa Council Chambers 213 E. Foothill Blvd., Azusa	6:30 pm - Open House 7:30 pm - Presentation & Public Hearing with Planning Commission
Thurs. June 17	Duarte Community Center 1600 Huntington Dr., Duarte	4:30 pm Presentation & Public Hearing with San Gabriel Valley Council of Governments Joint Powers Authority

8-6 DISTRIBUTION AND NOTICING OF THE AVAILBILITY OF DEIS/DEIR

8-6.1. Document Distribution

Copies of the DEIS/DEIR were distributed to the following agencies, persons and organizations during the week of April 26-30, 2004:

Federal Agencies

Amtrak, Washington DC
Federal Aviation Administration Western Pacific Region, Los Angeles
Federal Railroad Administration, Washington DC
Federal Transit Administration, Washington DC
Federal Transit Administration Region 9, San Francisco
FTA/FHWA Los Angeles Metro Office, Los Angeles
U.S. Army Corps of Engineers, Los Angeles
U.S. Department of Agriculture, Forest Service,,, Arcadia CA
U.S. Department of Interior, Washington DC
U.S. Dept. of Agriculture - Natural Resources Conservation Services, Lancaster CA
U.S. Dept. of Housing & Urban Development, Los Angeles
U.S. Environmental Protection Agency, Washington DC
U.S. Fish & Wildlife Service, Carlsbad CA
U.S. Surface Transportation Board, Washington DC.

State Agencies
State of California, Dept of Transportation District 7, Los Angeles
State of California, Dept of Transportation District 8, San Bernardino CA

County and Regional Agencies
South Coast Air Quality Management District, Diamond Bar CA
Southern California Regional Rail Authority, Los Angeles
Southern California Association of Governments, Los Angeles
San Bernardino Association of Governments, San Bernardino CA
San Gabriel Valley Association of Governments, Pasadena CA
L A County Metropolitan Transit Authority, Los Angeles
Omnitrans, San Bernardino CA
Foothill Transit Service, West Covina CA

Railroads Companies
BNSF, San Bernardino CA

Local Governments and City Libraries
City of Arcadia
City of Azusa
City of Claremont
City of Duarte
City of Glendora

City of Irwindale
City of La Verne
City of Los Angeles
City of Monrovia
City of Montclair
City of Pasadena
City of Pomona
City of San Dimas
City of South Pasadena
City of Upland.

8-6.2. Notices of Availability

The following agencies, organizations and persons were sent Notices of Availability during the week of April 26-30, 2004.

State Agencies

California Department of Conservation, Office of Government and Environmental Relations
California Department of Fish and Game
California Department of Housing and Community Development
California Department of Parks and Recreation, Environmental Design, Planning Acquisitions and Local Services
California Department of Toxic Substances Control
California Department of Water Resources, Division of Planning and Local Assistance
California Energy Commission
California Environmental Protection Agency
California Environmental Protection, Air Resources Board
California High Speed Rail Authority
California Highway Patrol
California Lands Commission, Environmental Planning and Management
California Public Utilities Commission
California Regional Water Quality Control Board, Los Angeles Region
California Regional Water Quality Control Board, Santa Ana River Region
California Transportation Commission
Native American Heritage Commission
Rivers and Mountains Conservancy
State Historic Preservation Office
State of California, Department of Transportation (Headquarters)

Agencies:

County of Inyo, Administrative Officer
County of Kern, Clerk of the Board
County of Kern, Transportation Development Engineer
County of Los Angeles, Fire Prevention Division
County of Riverside, County Executive Officer
County of San Bernardino, Environmental Management
County of San Bernardino, Flood Control Planning
County of San Bernardino, Public Works Department
County of San Bernardino, Public Works Department, Traffic
County of San Bernardino, Public Works Department, Planning

County of San Bernardino, Public Works Department, Transportation Design
County of Ventura, Clerk of the Board
County of Ventura, Transportation Planning
Inyo Mono Transit
Los Angeles City/County Native American Indian Commission
Los Angeles County Department of Public Works, Director of Facilities, Airports
Los Angeles County Department of Public Works, Flood Control Planning
Los Angeles County Department of Public Works, Transportation Planning
Los Angeles County Department of Regional Planning County of Los Angeles, Pasadena Glen Community Services District
Los Angeles County Sheriff Department
Los Angeles County, Department of Parks and Recreation
Los Angeles World Airports
Orange County Transportation Authority
Riverside County Transportation Commission
Riverside Transit Authority, Transportation and Land Management Agency
San Bernardino Transportation Commission
Sanitation Districts of Los Angeles County
Ventura County Board of Supervisors, Clerk of the Board Division
Ventura County Transportation Commission.

Individuals And Organizations:

CBG Trademark LLC, Joel C. Bryant,
City of Claremont, Craig L. Bradshaw
City of La Verne, Arlene B. Andrew, AICP
Dorothy Fleck
California State University at Pomona, Dr. Tomas Morales
Sierra Club, Los Angeles Chapter, Daniel Walker
RJ Sarasua
Helen Morales
Alexander Zajac
Highland Oaks Home Association, Jim McKellar
Jackie Glover
Raymond Fleck
Louise Bigley
Steven M. Rogers
Margie Hernandez
Xido Ling
Philip Young
City of Pasadena, Eric Shen
Bert & Bo Sawyer
Ralph I. Roth
Yueh-Shen Failing
Gail Nash
Ling Xue
John Jay Ulloth
Murray Roth
Paul Greenwood
Charles Mountain
Doug Failing
Mary Dougherty
Robert Canto
Dirk & Sharon Hudson

Jon & Lomita Benken
ACE, Paul Hubler
GLT, Laura Anla
Onyx Architects, Dale Brown
USDA Forest Service, Sonja Bergdahl
New Life International, Leonard Karsana
Arcadia Chamber of Commerce, Beth Costanza
Nancy Fu
City of Arcadia, Don Penman
Betty Willis
S. Issa
M. Humphrey
Joel Humphrey
Travis Dixon
Volcan, Rick Hofmans
Catalina Pineda
Northeast Observer, Margaret Arnold
Kim Chan
Hugh K. Myers
Homer Wilcox
Buzz Spellman
Robert L. Davis
City of Monrovia, Steve Sizemore
Diane Barlow
Keno Baca
Robert Powell
Charles Coyer

Henry Boradbrut
Peter Lill
Elisabeth Karsana
Bob Herdly
City of Duarte, Jason Golding
Don Schuil

Dorothy Fleck
Sean Skehean
City of Irwindale, Camille Diaz
Raub & Susan Mathas
Matt Walleok
Aicanoo & Gladys Silva
SCRRA/Metrolink, Deadra Knox
Bob Hoherd
Mike Tkach
Hans Faber
South Pasadena City Council, Blue Line Construction Authority David Margrave
Foothill Village, Joyce Gruman
Gil Gonzalez
Roland Sammelman
City of Azusa, Dick Stanford
Richard Klingbail
Citrus College, Mike Hillman
Monique Clemmer
Denise Bertone
San Dimas, Krishna Patel
City Council, Jeff Templeman
Nancy Floyd
Al Leigi
Judy Miller
Shanin Behdin
Brad R
William Emerson
Cobrar Rosse
Gold Line Committee Member, Robert H. Olander II
Baldwin Park, Kara Bonton
Ron Ketcham
Thomas Thornton
Gary Kift
Mark R. Johnston
City of Azusa, Larry Onaga
Foothill Village HOA, Marilyn Nixon
Cindy Bierman
City of San Dimas, Shari Garwack
John Marci
David Oosterhof
Jill Jones
Jim Nizolek
Foothill Christian Cente, Bernice Lowell
Catherine Thornton
Foothill Village, Helen Baerd
City of San Dimas, Mark McAvoy
Mullin Consulting, Victoria IB Hernandez
Janet & Ion Iliff
Jacquelin Macri
Lyn Frozier
J. Stipanuh
Judith B. Musatto -*continues*
Robert Chang
Arlene Andrew

Cecil A. Karstensen
Sharon L. Caldwell
Jerry L. Voorhis
Andrea Harrington
Bob Tener
Citrus College, Micahel Viera

William R. Musatto
Union Pacific RR, Dan Caldwell
City of Pomona, David Nelson
Margot McDonald
Victun Koenig
Kim Denes
Chris Denes
City of Claremont, Planning Division, Chris Veirs
Karen Rosenthal
Montclair Council, Bill Raul
Fairplex, Dwight Richards
Geri Silveira
Ross R. Moore, Jr.
Al Liege
City of Montclair, Mike Hudson
Beanica & Dan McCarthy
Steve Schulz
Jeluce Lince
Jeff Davidson
Alan Robinson
Gpoku Acheampong
Jess Johannsen
Anthony Madrid
Anne McLoughlin
Rancho Santa Ana Botanic Garden, Clem Hamilton
T. Willard Hunter
Phyllis Frazer
Jim Cavener
E. Piraino
Charles Woolf
J. Miller
Albert Colon
Transportation & Land Use Collaborative, Katherine Perez
City of South Pasadena, Karen Heit
Zack Electronics Inc., Dennis J. Awad
Golden Oaks, Betty Smith
Lynne Heffley
Charles & Nancy Mountain
Joanne Nuckols
Dale Hanover
Robert Nowiaki
Alice Harris
Friends 4 Expo Transit, Gerald J. Pass
Dominique Heffley
Mount Washington Association, Gold Line Committee, Paul Ahrens
Nancy Sole
Pacific Railroad Society, Richard Finley
Citizens for Better Mobility, Craig F. Thompson
Jesusa B. Castilo
Raymond Lu
Elliott Caine
Lorraine Baldwin
Marshall Lew
John Stallkamp

Richard Rosich
Abbott Labratories, Eddie L. Thomas
ERHA, John Heller
PRS, William E. Coleman
Larry McGrail

Honk Friczo
City of South Pasadena, Mike Ten
Mac Teverbaugh
Ellen Fusco
Gary Gutt
Frank Sele
Paul Gedigian
California Democratic Party, William D. Zuke
Citizens for Better Mobility, Harold Leacock
Tom Nelson
William G. Gunther
SDGG, William Clery
LAUSD, Terrence Butcher
Pat Mangione
State of California, Dept of Transportation District 7, Stephen J. Buswell, IGR/CEQA Prog. Mgr
Sprint, Brea Fiber Operations, Jack Fry
Metropolitan Transit Authority, Duncan Robb
Gil Gonzalez
Metropolitan Water District of Southern California, Jennifer Harriger
County Sanitation Districts of Los Angeles County, Ruth Frazen
City of Claremont, Christopher Veirs\Mark Smith
State of California, Dept of Transportation District 7, Gary Iverson
City of San Dimas
Metropolitan Water District of Southern California, Delaine Shane
City of Pasadena, John R. Poindexter
California Department of Fish and Game, Morgan Wehtje
County of San Bernardino, Naresh Varma, Chief
U.S. EPA Region 9 Headquarters, Office of Planning and Public Affairs, Nova Blazej
John Ulloth
Los Angeles County Department of Public Works, James Noyes
City of South Pasadena, Sean Joyce
City of Baldwin Park, Dayle Keller
City of Pomona, Paul Samaras
City of Irwindale, Reuben Arceo
James Nizolek
California Department of Toxic Substances Control, Harlan R. Jeche
Elisabeth Karsana
Monrovia Growers, Miles Rosedale
City of Arcadia, William Kelly
L A County Metropolitan Transit Authority, Stephen Fox
Southern California Association of Governments, Jeffrey Smith
Rivers and Mountains Conservancy, Belinda Faustinos
Transportation and Land Use Collaborative of Southern California, Katherine Perez
Ti'At Society, Cindi Alvitre
Island Gabrielino Group, John Jeffredo *Continues-*
John Valenzuela
Gabrielino Tongva Indians of California Tribal Council, Robert F. Dorame
Gabrieleno/Tongva Tribal Council, Anthony Morales,

Samuel H. Dunlap
Residents for a Better Alhambra
Southern California Gas Company, Director of Planning & Engineering
James Leong
Cerrell Associates, Matt Gallagher

Dick Stanford
Yolanda Chavez
NO BLAG, Karen Cutts
Willis
Jerry Malkowski
John V. Ryan
O'Brien Kreitzberg
Judy Johnson
B. Szabo Inc.
Alan K. Weeks
Beatrice Siev
Algird Leiga
Richard, Watson & Gershon, Steven Dorsey & Mike Estrada
Paul Ahrens
David Margrave
Michael A. Cacciotti
Brown, Winfield & Canzoneri, Ken Brown
South Pasadena Review, Bill Glazier
Lewis & Company, Michael Lewis
Gilchrist & Rutter, Amy Freilich
LA Mayor's Office of Minority Business Opportunity Committee, Tina Ton
Padilla & Associates, Melanie Holquin
Carter & Burgess, Inc., Joe Siebold/Sheila Given
Los Angeles Times, Kurt Streeter
Robinson & Pearman, Robert Pearman
Rail Passenger Assoc. of CA, Richard Silver
Schafer Communications, Emma Schafer
Bayne and Associates, Bill Bayne
Gannett Fleming, Sarah Lal
D'Leon Consulting Engineers, Domingo F. Leon, P.E.
James Washington, Jr.
NO BLAG, Karen Cutts
South Pasadena Review Bill Glazier
Mary E. Dougherty
R.L. Hoherd
Esther Monreal
Octavio Chaidez
Lourdes Palacios
Dennis J. Awad
David Oosterhof
Robert Sarasua
Consuelo Martinez
Nereen Guirguis
Gerald Delker
Steve Edwards
Sam Sammelman
Jim Nizolek
Stanton & Estelle Smith
Steve Slaky
George Stamp
Karl Felcher
James & Marilyn Nixon
Marshall Mouw

Mary Kay Watson
Roy Schall
Marianne Delia
Richard Marvin
Tina & Laura Gregoire
Michelle Godfrey
Bruce Danielson

Jolie Elman
Idella Cloutman
Mark Miller
Peter Lin
Ella Graffins
Jeff Morton
Phil Currie
Jane Singleton
Rick Mc Alpin
City of La Verne, LD Johnson
City of La Verne, Don Kendrick
City of La Verne, Hal G. Fredricks
Inland Valley Times, Paul Anderson
Pomona Fairplex, Jack Moriarty
University of La Verne, Brian Worley
Benjamin Sandoval
Doug Kregill
John & Eula Gibson
Betty Kalowski
Ron Padilla
Geri Silveria
Craig Walters
Bert Sawyer
Jackie Fehrenbach
Alameda Corridor-East Construction Authority, Sharon Neely
SGV Economic Partnership, Frank Marquez
SGVCOG, Nicholas Conway
AARP, Tom Porter
Boeing Satellite Systems, Inc., Daniel Walker
Latin Business Association, Edgar Mejia
Automobile Club of Southern California, Carol Thorpe
Fannie Mae Foundation Western Region, Vera de Vera
Labor Community Strategies Center, Eric Mann
Weingart Foundation, Fred Ali
Department of Justice Community Relations Service, Ron Wakabayashi
Southern California Transportation Advocates, Pat Moser
Citrus Valley Association of Realtors, Bill Rush
Asian Pacific Policy & Planning Council, Executive Director
Communities for a Better Environment, Executive Director
Action Now, Executive Director
Asian Pacific Planning Council, Executive Director
Barrio Planners, Inc., Executive Director
Black Women's Forum, Executive Director
California Environmental Projects, Executive Director
California Public Interest Research Group, Executive Director, *Continues-*

Center for Law in the Public Interest, Executive Director
Charro, Executive Director
Coalition to Bridge the Gap, Executive Director
Committee to Bridge the Gap, Executive Director
Community Coalition for Change, Executive Director
Community Coalition of Los Angeles, Executive Director
Concerned Citizens of South Central LA, Executive Director
Diverse Strategies For Organizing, Executive Director
El Sereno Organizing Committee, Executive Director
Friends of the San Gabriel River, Executive Director
Inquilinos Unidos, Executive Director
Korean Immigrant Workers Advocates, Executive Director
Livable Places, Executive Director
Los Angeles Alliance for a New Economy,
Madres del Este de Los Angeles Santa Isabel

Mexico Information Project,
Continues-
Morgner Technology Management, Carolos E. Morgner
Mothers of East Los Angeles, Executive Director
National Health Law Program, Executive Director
Natural Resources Defense Fund, Executive Director
North East Trees, Executive Director
Philippine Action Group for the Environment, Executive Director
Residents for a Better Alhambra, Tom Meehar
Soledad Enrichment Action, Executive Director
Trust for Public Land, Executive Director
Union Y Fuerzas, Executive Director
San Manuel Band Of Serrano Mission Indians, Executive Director
Citrus Community College District, Louis E. Zellers,
City of Hope National Medical and Research Center, Director of Facilities Maintenance & Operations
Azusa-Pacific University, Director of Facilities Maintenance & Operations
Claremont Colleges Consortium, Tim Morrison
Miller Brewing Company, Director of Facilities Maintenance & Operations
Los Angeles Botanical Gardens, Peter Atkins
Santa Anita Park, Director of Facilities Maintenance & Operations
Methodist Hospital of Southern California, Director of Facilities Maintenance & Operations
Santa Teresita Hospital, Director of Facilities Maintenance & Operations
Rainbird Sprinklers, Director of Facilities Maintenance & Operations
Monrovia Nursery, Director of Facilities Maintenance & Operations
Foothill Presbyterian Memorial Hospital Director of Facilities Maintenance & Operations
East Valley Hospital, Director of Facilities Maintenance & Operations
University of La Verne, Director of Facilities Maintenance & Operations
Los Angeles County Fairplex, Director of Facilities Maintenance & Operations

Western University of Health Sciences, Director of Facilities Maintenance & Operations
Los Angeles County Metropolitan Transportation Authority, Lynne Goldsmith
Los Angeles County Metropolitan Transportation Authority, Lori Huddleston
Southern California Regional Rail Authority, Naresh Patel
City of San Dimas, Joe Yacca
City of Claremont, Chris Veirs
City of La Verne, Arlene Andersn
La Opinion, Mr. José Ignacio Lozano
LA Times, Mr. John P. Puerner
Pasadena Star News, Editor
Chinese Free Daily News, Editor
San Gabriel Valley Tribune, Editor
San Bernardino Sun News, Steve Lambert
Inland Valley Daily Bulletin, Editor

The Transit Coalition, Bart Reed
Sierra Club, Los Angeles Chapter, Executive Director
Los Angeles County Bicycle Coalition, Ron Milam
Samuel H. Dunlap
Beverly Salazar Folkes
Ti'At Society, Cindi Alvitre
Island Gabrielino Group, John Jeffredo
John Valenzuela
Gabrielino Tongva Indians of California Tribal Council, Robert F. Dorame, Chairperson
Gabrieleno/Tongva Tribal Council, Anthony Morales
Craig Torres
Coastal Gabrieleno Digueno, Jim Velasques
Gabrielino/Tongva Tribal Council, Alfred L. Valenzuela
Concerned Citizens of South Central LA
Gabrielino Band of Mission Indians of CA, Susan Frank

8-6.3. Public Notices

Public Notices were published in the *Los Angeles Times* and the *San Gabriel Valley News* on Friday, April 30. The notices stated:

- the availability of the DEIS/DEIR for review and comment
- the 45-day comment period
- the dates, locations and times of public hearings
- the locations of where copies of the DEIS/DEIR were available for review
- the means available for submitting comments.

A Notice of Completion (a CEQA requirement) were submitted by the Construction Auhtority to the State Clearinghouse in Sacramento on April 27,2004, along with a printed copy and 15 electronic copies of the DEIS/DEIR. NOC included a list of the distribution of copies of the DEIS/DEIR, a list of persons, agencies and organizations receiving written Notices of Availability, and a copy of the Construction Authority's Notice of Availability. Copies of the NOC were filed with the County Clerks of Los Angeles and San Bernardino Counties on April 27,2004.

A Notice of Availability was published by the FTA in the *Federal Register* on May 7, 2004.

Chapter 9
List Of Preparers

CHAPTER 9-LIST OF PREPARERS

9-1 FEDERAL TRANSIT ADMINISTRATION

A. Joseph Ossi, Headquarters, Washington, D.C.

Ray Sukys, Region 9, San Francisco, CA

Ervin Poka, Metropolitan Office, Los Angeles, CA

9-2 LOS ANGELES TO PASADENA METRO BLUE LINE CONSTRUCTION AUTHORITY

Habib Balian, Chief Executive Officer

9-3 PARSONS BRINCKERHOFF QUADE & DOUGLAS

(Project Management, Air Quality, Transportation, Traffic, Engineering, Cost Estimating, Modeling, Public Outreach, GIS, Energy, Water Quality, Hydrology, Station Planning)

Tom Jenkins, P.E., Vice President, Principal Professional Associate, Project Manager

M.S. Civil Engineering. 40 years experience in project management, transportation planning and engineering, and environmental studies.

Stephanie (Tesse) Roberts, P.E., Deputy Project Manager

M. Urban Planning. 4 years experience in project management, transportation planning and engineering, and environmental studies.

Sam Mayman, P.E., Engineering Manager

M.S. Electrical Engineering. 31 years experience in transit design and project management.

Jamal Al-Mashat, P.E., Senior Supervising Engineer

B.S. Civil Engineering – Structural. 18 years experience in transit and roadway design, and alignment engineering.

Al Amador, Senior Supervising Estimator

B.S. Architectural Engineering. 43 years experience in civil, structural and architectural engineering and estimating.

G. B. Arrington, Senior Professional Associate, Senior Supervising Planner

M.S. Town Planning. 29 years experience in transit and land use linkages, transit-oriented development, livable communities, and project management.

Thomas J. Brittnacher, GIS Analyst

M.A. Urban Planning—Transportation. 9 years experience in GIS, spatial analysis, transportation planning, and cartography.

Kim Chan, Planner

M.C.P. Urban Planning/M.S. Transportation Engineering. 3 years experience in transportation planning and engineering.

Veronica Chan, Environmental Planner

B.A. Environmental Analysis and Design. 1 year experience in environmental planning.

Mitali Gupta, Transportation Planner

M. City and Regional Planning. 2 years experience in transportation planning.

Ben H. Hudson, AICP, Senior Planner

M.A. City Planning. 9 years experience in urban planning.

Annie Katata, Senior Designer

M. Architecture. 15 years experience in designing mixed-use complexes, museums, urban designs, and LRT stations.

Aziz A. Kohan, AIA, Professional Associate, Supervising Architect

M. Architecture. 38 years experience in architectural design and planning of transportation and commercial facilities.

Risa Leshowitz, Transportation Planner

M. Urban and Regional Planning. 3 years experience in community development and transportation planning.

Kathryn Lim, AIA, NCARB, Senior Supervising Architect

M. Architecture. 23 years experience in urban design and transit architecture.

Alice Lovegrove, Senior Environmental Engineer

M.S. Environmental and Waste Management. 15 years experience in air quality engineering.

Dawn McKinstry, Senior Professional Associate, Senior Supervising Planner

B.S. Urban Planning. 22 years experience in travel forecasting and transportation planning.

Karen Murphy, Assistant Planner

B.S. Physical Geography. 1 year experience in geographic information systems, environmental planning, and project management.

Farid S. Naguib, T. E., Senior Supervising Transportation Engineer

M.S. Civil Engineering. 18 years experience in traffic engineering and transportation planning.

Ana W. Nogueira, AICP, Planner

M.A. City Planning. 8 years experience in urban planning, architecture, and environmental planning.

William T. Rice II, Environmental Planner

MA Geography - Environmental Science. 10 years experience in environmental field science and environmental/urban planning.

Susan A. Robbins, AICP, Senior Project Manager/Senior Supervising Planner

M.S. Urban Planning. 27 years experience in environmental analysis, transportation, and urban planning.

Derek Ross, Environmental Planner

B.A. Environmental Analysis and Design. 4 years experience in environmental planning, permitting, and project management.

Nicole Stoy, Assistant Transportation Planner

A.S. Computer Information Systems. 13 years experience in transportation planning and system modeling.

Edward Tadross, Environmental Planner / Noise and Air Quality Specialist

B.A. Earth Sciences & B.A. Environmental Studies. 5 years experience in environmental planning.

George U. Vail, Senior GIS Analyst

M.S. Environmental Science & Policy. 10 years experience in GIS, environmental, transportation, and planning.

Steven Wolf, Senior Air Quality Specialist

B.S. Mathematics. 15 years experience in transportation related air quality studies.

Dan Yavorsky, Senior Professional Associate, Senior Supervising Engineer

M.S. Civil Engineering. 40 years experience in structural engineering, transit system design, engineering planning, and design production supervision.

9-4 MYRA L. FRANK/JONES & STOKES

(Overall Environmental Documentation, Acquisitions and Displacements, Community Facilities and Services, Cultural Resources, Executive Orders, Land Use and Planning, Safety and Security, Socio-Economics, Visual Impacts, GIS)

J. Steven Brooks, AICP, Project Director, Principal

B. Environmental Design. 30 years experience in preparation of a wide range of both CEQA and NEPA documents for large-scale multidisciplinary projects.

Richard Starzak, Principal, Senior Architectural Historian

M.A. Architecture: History, Criticism & Analysis. 24 years experience specializing in the identification of architectural/historical resources and related impacts analysis to ensure compliance with Sections

4(f)/106 and CEQA. He is a qualified Architectural Historian according to the Secretary of the Interior's Standards.

Linda Weston, Associate Principal, Document Management

Sc.B. Engineering and Applied Science—Environmental Engineering Applications. 16 years experience as an editor and document manager.

Alma Carlisle, Architectural Historian, Cultural Resources

B. Architecture. 22 years experience in cultural resources, historic preservation, and architecture, including historic surveys and determinations of eligibility and nominations to the National Register of Historic Places. She is a qualified Architectural Historian according to the Secretary of the Interior's Standards.

Carrie Chasteen, Architectural Historian, Cultural Resources

M.S. Historic Preservation. 1 year experience performing architectural and historic resource inventory and evaluation work.

Carson Anderson, Project Manager, Architectural Historian, Visual Impacts

M.A. Architectural History and Preservation Studies. 20 years experience in urban planning performing design review, community planning, environmental review, and architectural and historic resource inventory and evaluation work.

David Greenwood, Lead Architectural Historian, Cultural Resources

B.A. Architecture. 3 years experience with historic surveys, preparation of historic property inventory forms, archival research, HABS/HAER documentation, and fieldwork.

Geoff Starsiak, Lead GIS Specialist

B.A. Geography—Environmental Studies. 2 years experience in geo-spatial data preparation, manipulation of data for use in transportation demand modeling, geocoding for GIS, aerial photography evaluation, and thematic map preparation.

Gwynneth Doyle, Environmental Planner, Public Outreach, Agency Coordination, Project Coordination

B.A. Urban Studies and Planning. 4 years experience in preparing NEPA and CEQA documents, including field surveys, land use, population and housing analyses, cumulative impacts analysis, community outreach, and public meetings.

Jack Ottaway, Project Manager, Other Considerations

J.D. (Candidate) Environmental Law. 13 years experience in NEPA and CEQA environmental impact assessment, including land use; zoning; socio-economics; population, employment, and housing; acquisitions and displacements; Section 4(f); and environmental justice issues for transportation and infrastructure projects.

Jennifer Hales, Environmental Planner, Acquisitions and Displacements, Community Facilities and Services

B.S. Public Policy Management & Planning. 2 years experience with preparation of technical reports and environmental impact document sections, including public utilities, cultural resources, parks and recreation, population and housing, land use, and environmental justice.

Jessica Feldman, Architectural Historian, Cultural Resources

M.A. Historic Preservation Planning. 7 years experience in cultural resources, including historic and archaeological surveys, determination of eligibility and nominations to the National Register of Historic Places, preparation of historic property inventory forms, archival research, HABS/HAER documentation, and fieldwork. She is a qualified Architectural Historian according to the Secretary of the Interior's Standards.

John English, Architectural Historian

Lecturer and published article author on modern architecture. 6 years experience in cultural resources with a focus on Post World War II and Modern architecture, including historic surveys, determinations of eligibility, CEQA analyses and mitigation options, archival research, HABS/HAER documentation, and preparation of historic property inventory forms.

Katy Lain, Historic Researcher

Ph.D. (Candidate) American Culture Studies. 11 years experience as a writer and researcher, including library, microfiche, and Internet research.

Sarah Bartlett, Environmental Planner, Land Use and Planning

M. City Planning. 2 years experience as a geohydrologist and now prepares environmental documents, makes revisions on documents, and performs NEPA and CEQA analyses.

Steven Esselman, Environmental Planner; Document Management, Safety and Security, Executive Summary, List of Preparers, Bibliography, Agencies, Persons, and Organizations

M.A. Biogeography. 2 years experience as a field biologist and now prepares environmental documents, makes revisions on documents, and performs NEPA and CEQA analyses.

Susie Steed, Environmental Planner, GIS Specialist

B.A. Geography. 1 year experience in map preparation and preparation of technical reports and environmental impact document sections, including public utilities, geology and soils, hazardous materials, and hydrology.

9-5 TECHNICAL SPECIALTIES

Applied Earthworks (Archeology, Paleontology)

Mark Robinson, R.P.A.

M.S. Anthropology. 14 years experience in research, field investigations and impact analysis for archeological resources.

Chambers Group, Inc. (Biological Resources)

Erik Bray, Wildlife Biologist

B.S. Wildlife Management and Biology. 7 years experience in field research, resource management, and environmental document preparation.

David Carr, Staff Wildlife Biologist, GIS Technician

B.S. Zoology. 6 years experience in field research and resource management, and environmental document preparation.

Kent Hughes, Senior Botanist, Restoration Ecologist, Wildlife Biologist

B.S. Botany. 18 years experience in identifying, analyzing, and restoring native plant communities in Southern California.

Ken McDonald, Botanist, Restoration Ecologist

B.S. Botany, B.S. Environmental Biology. 4 years experience in fieldwork and preparing environmental documents.

Kevin Martin, Assistant Director of Terrestrial Biology

M.S. Agricultural Economics/Water Policy. 16 years experience in field research, resource management, and project management.

Lindsay Messett, Associate Wildlife Biologist

B.S. Ecology and Systematic Biology. 4 years experience in field research and environmental document preparation.

Jesus Olmos, Staff Environmental Analyst

B.A. Environmental Analysis. 4.5 years experience in NEPA and CEQA analysis and environmental document preparation.

Anne Surdzial, Senior Environmental Analyst

B.S. Environmental Science. 13 years experience in environmental document preparation.

Stacie Tennant, Field Group Manager, Wildlife Biologist

B.S. Environmental Biology. 8 years experience in field research, environmental document preparation, and project management.

Harris, Miller, Miller, & Hanson, Inc. (Noise and Vibration)

Lance Meister, Senior Consultant, Noise and Vibration

B.S. Civil Engineering. 8 years experience in rail-related noise and vibration projects.

Jason Ross, Senior Consultant, Noise and Vibration

B.S. Mechanical Engineering. 5 years experience in data acquisition, data analysis, reporting and project management of environmental noise and vibration studies.

Korve Engineering (Rail Design and Operations, Utility Relocations)

Peter P. Zimmermann, Senior Project Manager – Transportation

32 years experience in highway and rail transit projects, responsible for overall LRT geometric alignment and Maintenance and Operations facility layout.

Joaquin Siques, Transportation Engineer

5 years experience in traffic engineering and grade crossing planning, responsible for grade separation analysis and crossing safety.

Daniel Shieh, Project Engineer

12 years experience with highway and freeway design; provided roadway support at grade crossings.

Ali Banava, Associate Engineer

3 years experience in rail and roadway design, responsible for alignment support.

Ferdian Kusuma, Associate Engineer

3 years experience in rail and roadway design, responsible for alignment support.

Jason Ardery, Junior Civil Engineer

1.5 years experience in rail and roadway design, responsible for alignment support.

Joe Pontejos, CADD Designer

21 years experience on civil and traffic projects, responsible for graphic support.

Leighton Consulting, Inc. (Phase I Environmental Site Assessment and Geotechnical/Seismic Hazard Evaluation)

Kriss Lutton, RG, REA II, Principal, Geotechnical/Seismic

B.S. Geology. 16 years experience in hydrogeologic, geologic, geochemical, and hazardous waste investigations.

Djan Chandra, PE, GE, Associate Principal, Geotechnical/Seismic

M.S. Civil Engineering. 15 years experience in geotechnical and seismic hazard evaluations.

Kristin Stout, REA I, Project Manager, Geotechnical/Seismic

B.A. Liberal Arts. 8 years experience in preliminary environmental site assessments, remedial investigations, and site closures.

Robert Lemmer, RG, CEG, CHG, Project Geologist, Geotechnical/Seismic

M.S. Geology. 13 years experience in hydrogeologic, geologic, and seismic hazard evaluations.

Manuel Padron & Associates (Operations Planning, Operations & Maintenance Cost Estimating)

Manuel Padron, President

M.S. City & Regional Planning. 40 years experience in transit operations, planning and engineering.

Richard Stanger, Senior Associate

M.S. Transportation Engineering, & M.A. City Planning. 30 years experience in transit operations, planning and engineering.

Susan Rosales, Senior Associate

M.A. Urban Planning. 16 years experience in transit operations and planning.

Dennis Markham, Senior Associate

M.B.A. Economics-Business. Nearly 20 years experience in transportation financial planning analysis.

Sharon Greene & Associates (Financial)

Sharon Greene, President/Principal, Financial Analysis

M. Urban Planning. 26 years experience in transport economics, grants management, transportation systems planning and evaluation, infrastructure finance, rail systems planning and development.

Ian Jones, Senior Associate, Financial Analysis

M. Urban Planning. 3 years experience in regional and municipal planning, transportation systems planning and evaluation.

Chapter 10
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CHAPTER 10 - BIBLIOGRAPHY AND OTHER REFERENCES

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CHAPTER 11 - AGENCIES, PERSONS, AND OTHER ORGANIZATIONS CONSULTED

11-1 PHASE II TECHNICAL MEETINGS

City of Arcadia

Don Penman, Assistant City Manager

Donna Butler, Community Development Senior Director

Martha Eros, Transportation Services Officer

Pete Kinnahan, Economic Development Administrator

Phil Wray, City Engineer

City of Azusa

Rick Cole, City Manager

Robert Person, Assistant City Manager

Roy Bruckner, Director of Community Development

Larry Onaga, Assistant Director of Community Development

Nassar Abbaszabeh, Assistant Director of Public Works

Julie Gutierrez, Deputy City Manager

City of Claremont

Jim Lewis, Assistant to the City Manager / Project Manager

Lisa Prasse, City Planner

Craig Bradshaw, City Engineer

Brian Desatnik, Redevelopment Project Manager

City of Duarte

Silvia Hurtado, City Planner

Ed Cox, Director of Community Development

Steve Esbenshade, Engineering Division Manager

Jason Golding, Associate Planner

City of Glendora

Culver Heaton, Deputy Manager

Richard Cantwell, Public Works Director

Stan Wong, Planning Director

Chad Veinot, Civil Engineering Technician, Traffic

Debbie Humphrey-Swab, Civil Engineering Associate

Brad Miller, Deputy Public Works Director

David Chantarangsu, City Planner

Dianne Walter, Senior Planner

City of Irwindale

Camille Diaz, Assistant City Manager

Kwok Tam, City Engineer

Reuben Arceo, Planning Director

Vicente Mas, Planning Associate

Jose Loera, Assistant Engineer

City Of La Verne

Hal Fredrickson, Community Development Director

Bob Russi, Assistant to the City Manager

Arlene Andrew, Senior Planner

City of Monrovia

Donald Hopper, City Manager

Scott Ochoa, Assistant City Manager

David Fike, Director of Public Works

Alice Griselle, Community Development Director

Douglas Benash, City Engineer

Steve Sizemore, Planning Manager

Roger Johnson, Chief of Police

David Cruz, Battalion Chief/Fire Marshall

Sam DiGiovanna, Fire Chief

City of Montclair

Marilyn Staats, Director of Redevelopment / Public Works

Rob Clark, Director of Community Services

Mike Hudson, Public Works

Steve Lustro, City Planner

City of Pasadena

Robert Avila, Planning

John Poindexter, Planning Division Manager

Bahman Janka, Transportation Administrator

City of Pomona

Lillian Myers, Deputy City Manager

Chris Vogt, Public Works Director/City Engineer

David Nelson, Public Works Senior Civil Engineer

Ahmad Ansari, Assistant City Engineer

Bob Gutierrez, Assistant City Manager

Rick Gomez, Community Development Director

City of San Dimas

Blaine Michaelis, City Manager

Krishna Patel, Director of Public Works

Ken Duran, Assistant City Manager

Larry Stevens, Community Development Director

City of South Pasadena

Sean Joyce, City Manager

Karen Heit, Transportation Manager

Albert Carbon, Public Works Director

City of Upland

Jeffrey Bloom, Community Development Director

Foothill Transit

Doran Barnes, Executive Director

Kevin McDonald, Deputy Executive Director

Rahul Kumar, Planning Manager

Fairplex

Dwight Richards, VP Operations

Jack Moriarty, Facilities Development Manager

Southern California Regional Rail Authority

Steve Lance, Director of Development Communications

11-2 CULTURAL RESOURCES CONTACTS

The following organizations were contacted regarding historic properties in the study area.

- AIA Los Angeles
- Arcadia Historical Society
- Azusa Historical Society
- California Historical Society
- California Preservation Foundation
- California State Railroad Museum
- Chinese Historical Society
- Claremont Heritage, Inc.
- City of Arcadia Development Services Department
- City of Azusa Community Development Department
- City of Claremont Planning Department
- City of Duarte Community Development Department
- City of Glendora Planning Department
- City of Irwindale Planning Department
- City of La Verne
- City of Los Angeles Community Redevelopment Agency
- City of Los Angeles Cultural Heritage Commission
- City of Los Angeles Planning Department
- City of Monrovia Community Development Department
- City of Montclair Community Development Department
- City of Pomona Planning Department

- City of San Dimas
- Cooper Museum/Chaffey Communities Cultural Center
- Duarte Historical Society, Museum & Friends of the Duarte Library
- Glendora Community Conservancy
- Glendora Historical Society
- Historical Society of Pomona Valley
- Historical Society of Southern California
- La Verne Heritage Foundation
- Lomita Railroad Museum
- Los Angeles City Historical Society
- Los Angeles Conservancy
- Los Angeles County Historic Landmarks and Records Commission
- Los Angeles Forum for Architecture and Urban Design
- Los Angeles Railroad Heritage Foundation
- Monrovia Historical Society
- Monrovia Old House Preservation Group
- Pacific Railroad Society
- Pasadena Heritage
- Pomona Heritage
- Rivers and Mountains Conservancy
- San Bernardino Railroad Historical Society
- San Dimas Historical Society
- San Dimas Pacific Railroad Museum
- Sierra Club, Los Angeles Chapter
- Sierra Madre Historical Society

- Society of Architectural Historians, Southern California Chapter
- Southern Pacific Historical & Technical Society
- Train Riders Association of Southern California
- Train Web, Inc.
- The Transit Coalition
- The Transportation and Land Use Collaborative of Southern California
- Travel Town Transportation Museum
- Wheel Clicks.

The following sources were contacted regard archeological resources in area:

- The National Register of Historic Places, National Register Information System
- California Register of Historical Resources
- California Office of Historic Preservation Historical Resources Inventory System
- California Historical Landmarks
- City of Claremont Historic-Cultural Monuments
- California Points of Historical Interest.