

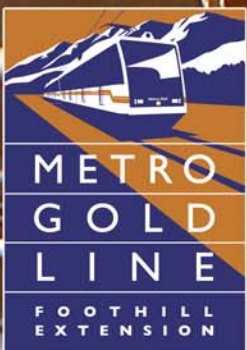
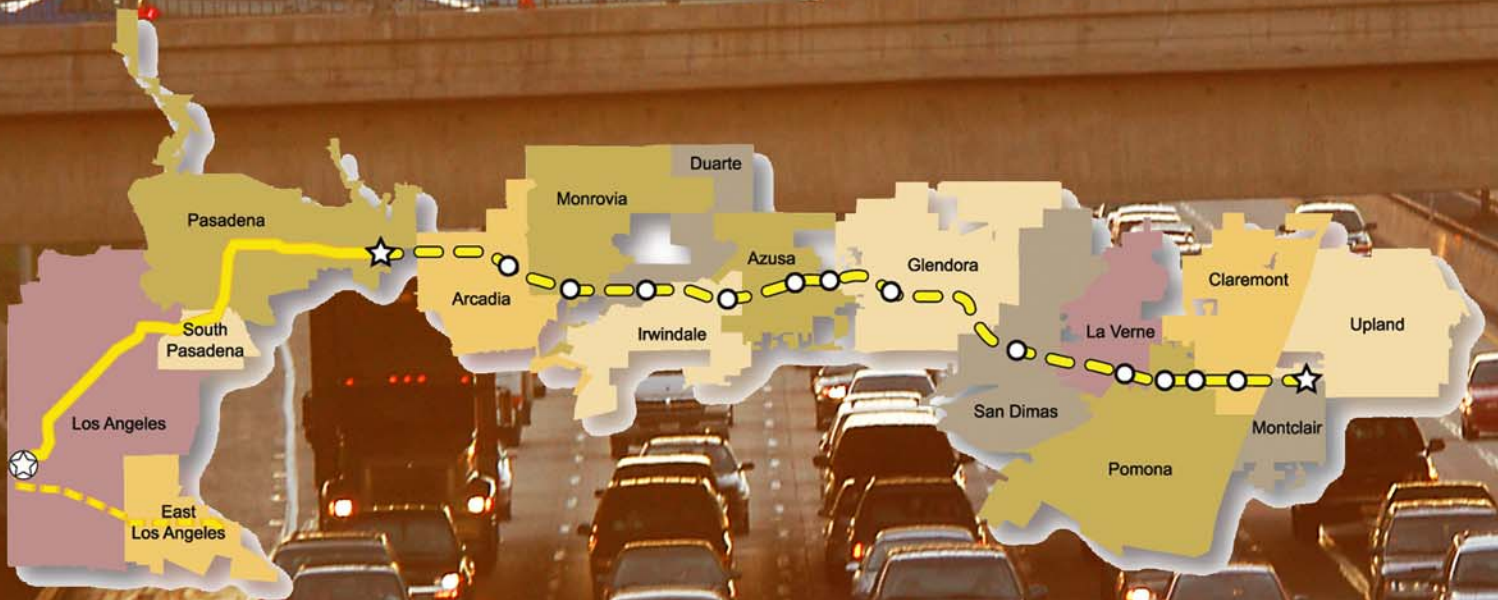
Gold Line Phase II

Pasadena to Montclair - Foothill Extension

Final Environmental Impact Report

(SCH No. 200361157)
February 2007

Volume 1: Executive Summary



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**GOLD LINE FOOTHILL EXTENSION
PASADENA TO MONTCLAIR
FINAL ENVIRONMENTAL IMPACT REPORT
(SCH No. 200361157)**

Los Angeles and San Bernardino Counties, California

Prepared by:

Los Angeles to Pasadena Metro Blue Line Construction Authority/
Metro Gold Line Foothill Extension Construction Authority

In cooperation with:

Federal Transit Administration
Federal Railroad Administration
San Bernardino Associated Governments
Los Angeles County Metropolitan Transportation Authority
Cities of Los Angeles, South Pasadena, Pasadena, Arcadia, Monrovia, Duarte,
Irwindale, Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont and Montclair

February 2007

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Readers' Guidance:

This Executive Summary reflects modifications to the proposed project that occurred subsequent to issuance of the Draft EIR/EIS in April 2004. Changes are shown in ~~strikeout~~ and underline format so that the reader can compare updated information to that shown in the draft environmental document.

The Metro Gold Line Foothill Extension Construction Authority Board of Directors will consider certification of the Final EIR for the Gold Line Phase II Extension (Pasadena to Montclair), adoption of a Mitigation Monitoring and Reporting Plan, and approval as a project the "Build LRT to Azusa Alternative" (also described as Segment 1 – Pasadena to Azusa) of the overall corridor addressed in the Final EIR (SCH200361157). These CEQA actions will allow the Authority to begin implementation of the project as funds become available. The Board will meet on February 28, 2007, at 7:00 p.m. at the City of Arcadia Council Chambers, 240 West Huntington Drive, Arcadia, CA.

Please note that although the Final EIR is being issued in order to take actions under the California Environmental Quality Act, the document also includes discussions of impacts under the National Environmental Policy Act (NEPA). The Construction Authority has chosen to retain these NEPA discussions for the readers of and commenters on the draft environmental document.

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EXECUTIVE SUMMARY

Modifications to the Draft EIS/EIR are shown in strike out and underline, along with a vertical line in the margin.

This summary describes and summarizes the transportation impacts, environmental impacts, and costs for the proposed Gold Line ~~Phase II~~ Foothill Extension project being considered in Los Angeles and San Bernardino counties in California. The document evaluates a No-Build Alternative and two light-rail transit (LRT) alternatives. The Full Build (Pasadena to Montclair) Alternative would extend approximately 24 miles, from Pasadena to Montclair, and would have 12 stations. The Full Build Alternative would also include construction of a 24-acre Maintenance and Operations (M&O) facility in the City of Irwindale. The Build LRT to Azusa Alternative would extend approximately 11.4 miles, from Pasadena to the eastern boundary of Azusa, and would have 6 stations (this Alternative would not include construction of the M&O facility). Station locations, including optional sites, were identified in consultation with the cities in which they would be built.

Changes Since the Draft EIS/EIR

Subsequent to the release of the Draft EIS/EIR in April 2004, the Gold Line Phase II project has undergone several updates:

Name Change: To avoid confusion expressed about the terminology used in the Draft EIS/EIR (e.g., Phase I; Phase II, Segments 1 and 2), the proposed project is referred to in the Final EIS/EIR as the Gold Line Foothill Extension.

Selection of a Locally Preferred Alternative and Updated Project Definition: Following the release of the Draft EIS/EIR, the public comment period, and input from the cities along the alignment, the Construction Authority Board approved a Locally Preferred Alternative (LPA) in August 2004. This LPA included the Triple Track Alternative (2 LRT and 1 freight track) that was defined and evaluated in the Draft EIS/EIR, a station in each city, and the location of the Maintenance and Operations Facility. Segment 1 was changed to extend eastward to Azusa. A Project Definition Report (PDR) was prepared to define refined station and parking lot locations, grade crossings and two rail grade separations, and traction power substation locations. The Final EIS/EIR and engineering work that support the Final EIS/EIR are based on the project as identified in the Final PDR (March 2005), with the following modifications. Following the PDR, the Construction Authority Board approved a Revised LPA in June 2005. Between March and August 2005, station options in Arcadia and Claremont were added.

Changes in the Discussions: To make the Final EIS/EIR more reader-friendly, the following format and text changes have been made:

Discussion of a Transportation Systems Management (TSM) Alternative has been deleted since the LPA decision in August 2004 eliminated it as a potential preferred alternative.

Discussions of the LRT Alternatives have eliminated the breakout of the two track configurations used in the Draft EIS/EIR (Double Track and Triple Track). The Final EIS/EIR reports the impacts of a modified triple track configuration (2 LRT tracks and 1 freight track with two rail grade separations) but focuses on the phasing/geographic boundaries included in the LPA decisions.

Two LRT alternatives in the Final EIS/EIR are discussed under the general heading “Build Alternatives,” and are defined as:

1. Full Build (Pasadena to Montclair) Alternative: This alternative would extend LRT service from the existing Sierra Madre Villa Station in Pasadena through the cities of Arcadia, Monrovia, Duarte, Irwindale, Azusa, Glendora, San Dimas, La Verne, Pomona, and Claremont, terminating in Montclair. The cities from Pasadena to Azusa are also referred to in the Final EIS/EIR as Segment 1. The cities from Glendora to Montclair are also referred to in the Final EIS/EIR as Segment 2. Key changes from the Draft EIS/EIR are the inclusion of Azusa in Segment 1, the elimination of the Pacific Electric right-of-way option between Claremont and Montclair, the inclusion of a 24-acre Maintenance and Operations facility in Irwindale (the site is smaller than in the Draft EIS/EIR), and the addition of two rail grade separations. Note that the Maintenance and Operations Facility is located in Segment 1 but is part of the Full Build Alternative. In other words, it would not be constructed as an element of the Build LRT to Azusa Alternative (described below). The length of the alternative is approximately 24 miles. One station (and parking) would be located in each city, except for Azusa, which would have two. There are two options for the station locations in Arcadia and Claremont. Segment 1 would include 2 LRT tracks throughout and 1 freight track between the Miller Brewing Company in Irwindale and the eastern boundary of Azusa. The freight track that now exists west of Miller Brewing, which serves a single customer in Monrovia, would be removed from service following relocation of that customer by the City of Monrovia. Segment 2 would include two LRT tracks throughout and 1 freight track between the eastern boundary of Azusa and Claremont. In Claremont, the single freight track joins up with the double Metrolink tracks (which are also used for freight movement) and continues through to Montclair (and beyond). This alternative also includes two railroad grade separations (in Azusa and in Pomona) so that LRT tracks would pass above the at-grade freight track. These allow the LRT and freight services to operate independently (thus eliminating the time-constrained double track option discussed in the Draft EIS/EIR). Implementation of the alternative would include relocation of the existing freight track within the rail right-of-way, but there would be no changes in the service provided to customers. The alternative includes 8 new traction power substations in Segment 2, as well as the 8 in Segment 1.
2. Build LRT to Azusa Alternative: This alternative (also referred to as Segment 1) would extend LRT service from the existing Sierra Madre Villa Station in Pasadena through the cities of Arcadia, Monrovia, Duarte, Irwindale, and to the eastern boundary of Azusa. (The main change from the Draft EIS/EIR is the inclusion of the City of Azusa.) The length of the alternative is approximately 11 miles. One station (and parking facility) would be located in each city, except for Azusa, which would have two. There are two options for the station location in Arcadia. Segment 1 would include two LRT tracks throughout and 1 freight track between the Miller Brewing Company in Irwindale and the eastern boundary of Azusa. The freight track that now exists west of Miller Brewing, which serves a single customer in Monrovia, would be removed from service following relocation of that customer by the City of Monrovia. This alternative also includes the railroad grade separation in Azusa so that LRT tracks would pass above the at-grade freight track. This allows the LRT and freight services to operate independently (thus eliminating the time-constrained double track option discussed in the Draft EIS/EIR). Implementation of the alternative would include relocation of the existing freight track within the rail right-of-way, but there would be no changes in the service provided to customers. The alternative also includes 8 new traction power substations.

As in the Draft EIS/EIR, impact forecasts use 2025 conditions, except for traffic impacts, which reflects a 2025 forecast based on the recently adopted 2004 SCAG Regional Transportation Plan.

ES-1 BACKGROUND

As implementation of Phase I of the Gold Line LRT from Los Angeles to Pasadena began, attention was focused on the potential use of the remainder of the former Pasadena Subdivision railroad right-of-way to extend service eastward from Pasadena. The Los Angeles to Pasadena Metro Blue Line Construction Authority (now the Metro Gold Line Foothill Extension Construction Authority) and the San Gabriel Valley Council of Governments, with the participation of cities along the rail right-of-way, initiated an Alternatives Analysis study. Conducted during 2002, the Alternatives Analysis process essentially was a screening process where a full range of alternatives was narrowed down during three levels of screening to arrive, ultimately, at a locally preferred alternative (referred to herein as LPA-AA) as the basis for further, more detailed study. That local mode and alignment preference, extending the LRT mode eastward from its terminus in Pasadena along the existing rail right-of-way (earlier owned by the Los Angeles County Metropolitan Transportation Authority [LACMTA] and now by the Construction Authority), also recognized the need for further evaluation of ways to address freight movements. More detailed information on the AA process is included in Chapter 2.

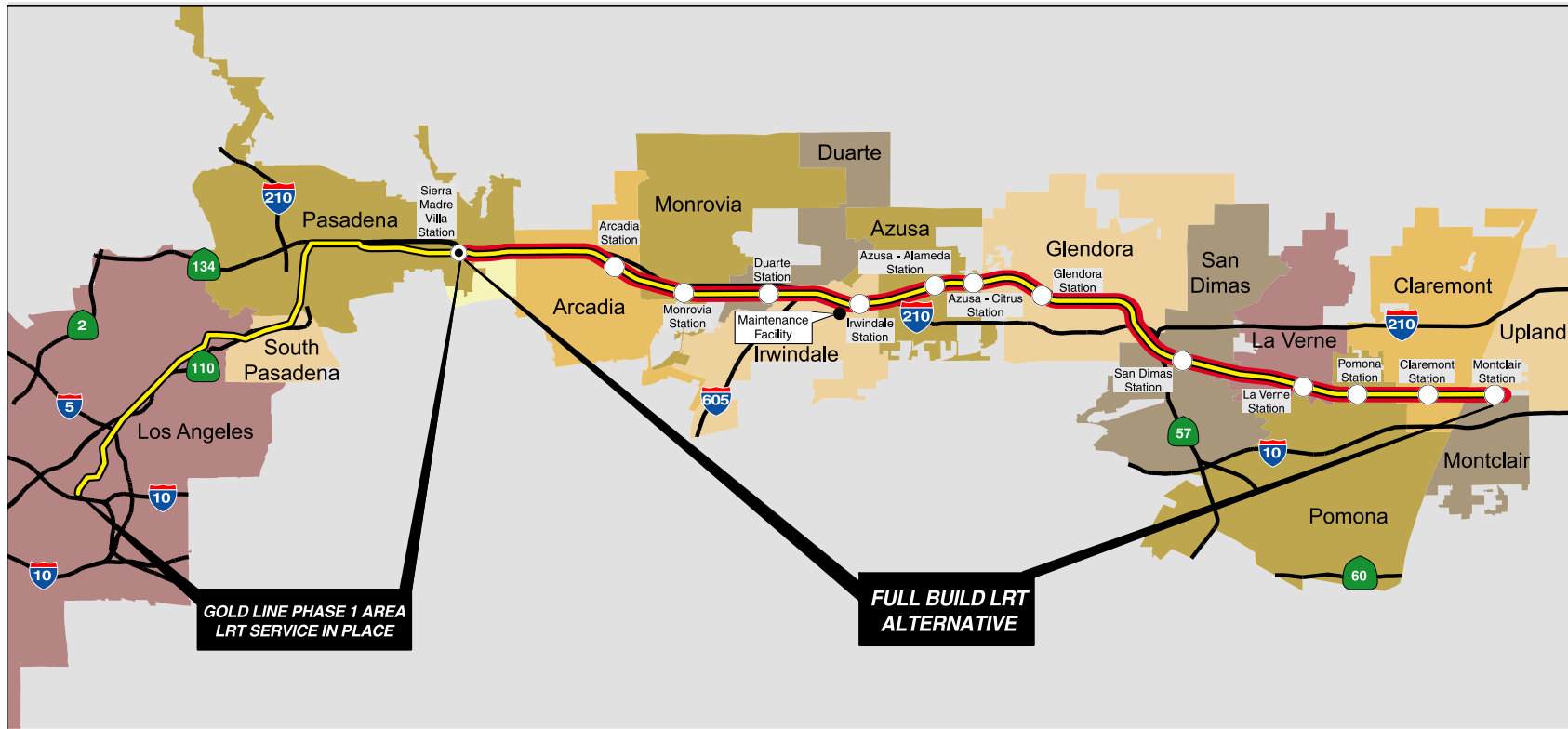
The LPA-AA was used as the basis for potential LRT alternatives as presented in the federal and state scoping process that was initiated by the Federal Transit Administration (FTA) and the Construction Authority in July 2003.

ES-2 STUDY AREA AND STUDY CORRIDOR

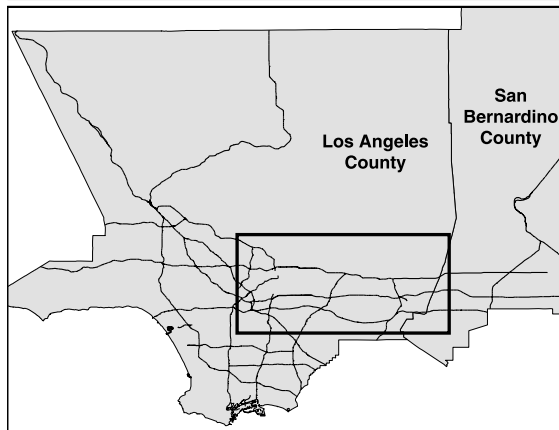
A general study area was defined that encompasses 13 adjoining cities that lie along I-210 and a railroad right-of-way, between Pasadena on the west and Montclair on the east. The study area includes the cities of Pasadena, Arcadia, Monrovia, Duarte, Irwindale, Azusa, Glendora, San Dimas, La Verne, Pomona, and Claremont in Los Angeles County. In San Bernardino County, it includes the cities of Montclair and Upland.

For the purposes of environmental analysis, a study corridor was defined within the broader study area. **Figure ES-1** shows the study area and study corridor.

The study corridor was defined to be 1,000 feet in width, along either side of the rail alignment. This 2,000-foot width was selected because most potential environmental impacts that would be generated by the proposed LRT service would occur within this band. The 2,000-foot band is the area of potential impact (API) for all environmental assessment topics except traffic and cultural resources. For traffic, the API was determined on a case-by-case basis in consultation with corridor cities to reflect traffic patterns of the cities around proposed stations. For cultural resources, the Area of Potential Effect (APE) was defined by FTA, with concurrence of the State Historic Preservation Officer, to meet the needs for assessing impacts in accordance with Section 106 of the National Historic Preservation Act. The APE



Sources: U.S. Census TIGER Data, 2000; Jones & Stokes Associates, 2004.



Legend

- Existing Station
- Proposed Station
- Full Build LRT Alternative
- 2000 Foot Study Corridor

Figure ES-1: Gold Line Phase II Study Area and Study Corridor

was defined to be the proposed railroad alignment and one parcel beyond sites to be used for stations or parking. This definition included the caveat that the APE could be refined to account for project elements that would not be known until later in the design development process, such as noise barriers.

For convenience and to reflect geographic limits of the two LRT alternatives, the ~~Phase II~~ Foothill Extension study corridor was divided into two segments. Segment 1 includes Pasadena east of the Sierra Madre Villa station and the cities of Arcadia, Monrovia, Duarte, Irwindale, and Azusa. Segment 2 includes the cities of ~~Azusa~~, Glendora, San Dimas, La Verne, Pomona, Claremont, and Montclair.

ES-3 PURPOSE AND NEED

ES-3.1 Summary of Purpose and Need

The proposed Gold Line ~~Foothill Phase II~~ Foothill Extension project would provide:

- *a high-capacity improvement that responds to problems associated with the corridor's only freeway,*
- *transportation improvements that respond to transit issues identified in the corridor,*
- *transportation improvements that respond to problems associated with the corridor's arterial network,*
- *transportation improvements that respond to issues associated with population and employment conditions and forecasts, and*
- *transportation improvements that respond to environmental goals of the region and corridor.*

ES-3.2 Development of Purpose and Need

The purpose of the proposed Gold Line ~~Phase II~~ Foothill Extension project would be to address the transportation problems and deficiencies, as well as the environmental problems and issues, identified in the discussions below. Proposed transportation solutions (either Transportation System Management/Transportation Demand Management [TSM/TDM] or rail alternatives) must address the following five basic needs:

1. Provide a high-capacity improvement that responds to problems associated with the corridor's only freeway:
 - *Highway capacity in the study corridor is not sufficient to accommodate current and forecasted peak-hour demands.*
 - *Substantial congestion exists during peak periods and will increase over time.*
 - *Travel times on freeways are currently substantial and will increase over time.*
 - *There are no alternative highway routes to provide relief.*
2. Provide transportation improvements that respond to transit issues identified in the corridor:
 - *Commuter rail service is available only in the eastern quarter of the study corridor and is linked only to downtown Los Angeles.*
 - *Transit service between the end points of the study corridor is limited to three bus routes.*

- *The available bus routes do not connect all of the downtowns in the study corridor.*
 - *The available routes do not serve several major activity centers in the corridors.*
 - *Bus service is subject to traffic congestion and incidents, resulting in some trips being of unpredictable durations.*
3. Provide transportation improvements that respond to problems associated with the corridor's arterial network:
- *East–west arterials that potentially provide alternative routes to I-210 are discontinuous.*
 - *Travel times on arterials are slow and subject to congestion and incidents that affect their viability as alternate routes across the study area.*
4. Provide transportation improvements that respond to issues associated with population and employment conditions and forecasts:
- *Access between areas of current and forecasted population and locations of current and forecasted employment must utilize transportation facilities that are currently at or over capacity during peak periods.*
 - *Existing transit services connect only some of the activity centers in the corridor.*
 - *Existing transit service between activity centers is infrequent, even during peak hours.*
 - *The corridor is expected to grow substantially in population and employment through 2025, and such growth would place ever-increasing demands on the transportation infrastructure.*
 - *Communities recognize and have undertaken planning to accommodate forecasted growth; many community plans call for transit improvements to help manage that growth.*
5. Provide transportation improvements that respond to environmental goals for the region and corridor:
- *Transportation improvements must support achievement of the region's air quality plan.*
 - *Transportation improvements should avoid or minimize impacts to natural and manmade environments.*

ES-3.2.1 Highway Considerations

Southern California suffers from a long-term disparity between population growth and increases in transportation capacity. The Southern California Association of Governments (SCAG) in its adopted 2001 Long Range Transportation Plan (2001 RTP) and in its ~~Draft~~ 2004 Long Range Transportation Plan (2004 RTP), adopted after the Draft EIS/EIR was prepared, notes that population more than doubled between 1960 and 2000, yet freeway miles increased by less than 30 percent. Accompanying this disparity are increases in vehicle miles traveled each year, reflecting the longer distances that persons travel between place of residence and place of work.

Congestion levels continue to grow on the region's freeway network. A review of Census 2000 data indicates that the average travel time to work in much of the study corridor is between 26 and 35 minutes (State of the Region 2002, SCAG).

Mobility tracking of the Los Angeles area by the Texas Transportation Institute (TTI) for the past two decades consistently ranks the metropolitan area as having the highest amount of annual travel delay in

the country. Data beginning in 1982 show that more than 50 percent of the annual delay is categorized as recurring delay, which is attributed to system deficiencies and use at levels in excess of design capacity, as opposed to delays caused by incidents. The cost of congestion was estimated at over \$1,000 per person annually.

As part of the project's initial analysis, efforts were made to determine the existing congestion levels within the study corridor. This analysis revealed that more than 50 percent of all freeway lanes (on I-210) west of Irwindale Avenue operate at Level of Service (LOS) F or worse. East of Irwindale Avenue the percentage drops to 41 percent.

Mobility is also affected by the fact that there are no other freeways that serve the study corridor. There are no plans for substantial increases in I-210 capacity due to the substantial impacts that would occur to adjoining communities if freeways were widened. Among the impacts from widening would be numerous residential and commercial property acquisitions, loss of revenue to local communities from commercial properties that lie adjacent to the freeway, and substantial construction-period impacts. Modest increases in capacity can be expected from the addition of High-Occupancy Vehicle (HOV) connections, higher HOV occupancy requirements (i.e., a change from 2+ to 3+), or from operational improvements such as Intelligent Transportation Systems (ITS) projects.

Highway Congestion Problems:

- *Highway capacity in the study corridor is not sufficient to accommodate current and forecasted peak-hour demands.*
- *Substantial congestion exists during peak periods and will increase over time.*
- *Travel times on freeways are currently substantial and will increase over time.*
- *There are no alternative highway routes to provide relief.*

ES-3.2.2 Transit Considerations

The Los Angeles County Metropolitan Transportation Authority (LACMTA), Foothill Transit, Omnitrans, and some local communities provide transit service in the study area. The primary orientation of transit service is east–west and occurs mostly along major thoroughfares. Public transportation needs in the study corridor are fulfilled by a combination of traditional transit service (fixed-route bus service with scheduled stops), non-traditional transit service (special shuttle systems and demand-responsive services), and rail service (commuter and inter-city rail). Generally, the cities in the corridor contract with Foothill Transit to fulfill the subregional transportation needs of their citizens. Access Services provides specialized transit service in much of the corridor. A review of the transit routes in the study corridor indicates that the main transit demand is for east–west travel, which is the same as the travel demand on I-210 and arterial streets.

Commuter rail service is available from the eastern part of the study corridor to downtown Los Angeles. There are Metrolink commuter rail stations in Pomona, Claremont, and Montclair; there are no commuter rail stations in the communities west of Pomona. The scheduled weekday travel time from Montclair (the most easterly station in the study corridor) to downtown Los Angeles is approximately 55 minutes; from Pomona the scheduled travel time is approximately 47 minutes. By way of comparison, the scheduled travel time for express bus service from Montclair to downtown Los Angeles is approximately 126 minutes.

Transit Problems:

- *Commuter rail service is available only in the eastern quarter of the study corridor and is linked only to downtown Los Angeles.*
- *Transit service between the end points of the study corridor is limited to three bus routes.*
- *The available bus routes do not connect all of the downtowns in the study corridor.*
- *The available routes do not serve several major activity centers in the corridors.*
- *Bus service is subject to traffic congestion and incidents, resulting in some trips being of unpredictable durations.*

ES-3.2.3 Arterial Considerations

The study corridor includes an extensive network of arterial streets, which generally form a grid pattern. This grid offers some opportunities for travel that are alternatives to the use of I-210. However, despite the presence of very long east–west arterials such as Foothill Boulevard or Arrow Highway, these east–west arterials are not continuous. The longest segments of the major east–west arterials cross a few communities before a break occurs, usually requiring trip-makers to drive about a mile north or south to connect to another long segment. As a result, there are no street arterials, or linked arterials, that create an uninterrupted route across the study corridor. This discontinuity affects automobile and truck movements, as well as transit service, and tends to push those drivers who need to make longer trips onto I-210.

Posted travel speeds on arterials in the study area are generally 35 mph. However, actual travel speed through the corridor is greatly influenced by frequently occurring intersections and congestion at intersections. Travel data gathered in fall 2003 for 117 intersections near proposed LRT stations indicate that 13 percent of them functioned as a LOS with substantial amounts of delay (LOS D, E, or F) in the morning period, with congestion increasing to 16 of the 117 intersections in the afternoon period. Data were not gathered for all roadways on which transit occurs, but the conditions identified are consistent with field observations.

Arterial Network Problems:

- *East–west arterials that have the potential to provide alternative routes to I-210 are discontinuous.*
- *Travel times on arterials are slow and subject to congestion and incidents that affect their viability as alternate routes across the study area.*

ES-3.2.4 Population & Employment Considerations

Among the indicators of demand for transportation improvements are the population and employment characteristics of a corridor. The ~~Phase II~~ Foothill Extension study area has continually increased in population over time and is forecasted to have substantial growth (over 22 percent) through 2025. In addition to population growth, the corridor has had a strong increase in employment over time, with a forecast of robust increases in employment (over 24 percent) throughout the corridor. Note that the Draft EIS/EIR used 2025 forecasts from the 2001 RTP, and those forecasts are also used in the Final EIS/EIR. The 2004 RTP, adopted subsequent to the Draft EIS/EIR, includes forecasts to 2030. There are not substantial differences in the population and employment forecasts for the study corridor for the two forecast years.

Population and Employment Issues:

- *Access between areas of current and forecasted population and locations of current and forecasted employment must utilize transportation facilities that are currently at or over capacity during peak periods.*
- *The corridor is expected to grow substantially in population and employment through-2025, and such growth would place ever-increasing demands on the transportation infrastructure.*
- *Communities recognize and have undertaken planning to accommodate forecasted growth; many community plans call for transit improvements to help manage that growth.*

ES-3.2.5 Environmental Considerations

The Los Angeles metropolitan area has the unfortunate distinction of having some of the most serious air quality problems in the nation. SCAG's adopted 2004 ~~Draft~~ RTP reports that during the 1990s, the region achieved consistent improvements in the number of days exceeding federal or state standards for ozone and carbon monoxide. The region exceeded the federal one-hour standard for ozone during 40 days in 2000 compared to 130 days in 1990. However, in 2002, the number of days exceeding the federal one-hour standard for ozone increased to 49 days from 36 days in 2001. The number of days for health advisory also increased from 15 to 18 days between 2001 and 2002. SCAG reports that available data for 2003 indicated that it would be worse than in 2002.

The strategy for addressing the region's air quality concerns includes transportation improvements that provide increased mobility while simultaneously reducing air emissions. Accordingly, the proposed Gold Line Foothill ~~Phase II~~ Foothill Extension project is ~~being~~ was incorporated into the 2030 Long Range Transportation Plan (2004 ~~Draft~~ RTP) and into the near-term Regional Transportation Improvement Plan.

Environmental Issues:

- *Transportation improvements must support achievement of the region's air quality plan.*
- *Transportation improvements should avoid or minimize impacts to natural and manmade environments.*

ES-3.2.6 Previous Analysis

During initial corridor planning undertaken in 2001 by the Los Angeles to Pasadena Metro Blue Line Construction Authority (Construction Authority) and the San Gabriel Valley Council of Governments, representatives of local governments established goals and objectives for transportation improvements in the study corridor. These goals and objectives are shown in **Table ES-1**.

TABLE ES-1		
GOALS AND OBJECTIVES		
Category	Goal	Objective
Land Use & City Vision	To locate stations that facilitate cities' visions for land use and development around transit stations and adjoining activity centers	Cities and transit providers to jointly select station locations that maximize transit use and further cities' plans for transit-oriented development (infrastructure, parking, development, redevelopment, etc.)

TABLE ES-1 GOALS AND OBJECTIVES		
Category	Goal	Objective
	To create a system that creates/adds identity and attractiveness to San Gabriel Valley cities	To provide highly visible stations that represent the cities' senses of place
		To respect community architectural and urban design standards
		To provide safe access for pedestrians and bicycles
		To enhances community identity
		To take advantage of the high visibility of the corridor to promote transit use
Transit Usefulness	To complement other existing transit in the corridor and optimize previous investments	To provide efficient intra-corridor service not currently met by Metrolink, Foothill Transit or the Pasadena Gold Line Phase I
	To reduce auto dependency	To make good use of the right-of-way already purchased
		To create a system with the capability to carry at least 25 percent as many people as are carried in all I-210 travel during the day and offer a level of service capable of attracting this percent of travel
		To provide good connections to Metrolink, Foothill Transit, and the Pasadena Gold Line Phase I at Sierra Madre Villa Avenue
	To improve mobility and provide connectivity to regional and local transit systems	To implement a project within a reasonable period of time
Cost-Effectiveness	To develop a cost-effective transit system	To incur capital costs of less than the cost of increasing the capacity of I-210 by 25%
		To be capable of being operated and maintained at or better than the average cost of other rapid transit systems in Los Angeles County
Environmental	To improve air quality and preserve and protect the natural and manmade environment	To avoid potential impacts by utilizing existing, disturbed right-of-way
		To avoid property acquisitions to the extent possible
		To work jointly with the cities to identify potential impacts and feasible mitigation measures in order to minimize impacts
		To reduce, not add to, tailpipe emissions

TABLE ES-1 GOALS AND OBJECTIVES		
Category	Goal	Objective
Study Process	To work collaboratively with local cities throughout the Alternatives Analysis process	To ensure that the desires, policies, and concerns of corridor cities and citizens are considered in the LPA process
		To develop a public participation program in collaboration with corridor cities
		To listen to the community and explain how we have responded to comments as the study progressed
Source: Gold Line Phase II Extension, Pasadena to Claremont Alternatives Analysis, Final Draft Report. May 22, 2002; Los Angeles to Pasadena Metro Blue Line Construction Authority.		

An Alternatives Analysis was conducted between September 2001 and June 2002 by the Construction Authority and the San Gabriel Valley Council of Governments (SGVCOG). The Alternatives Analysis looked at transportation conditions and possible solutions for improving mobility across the corridor from Pasadena to Claremont. Seven alternatives were examined in this study and screened down to a Locally Preferred Alternative (LPA-AA) selected by the Construction Authority and the SGVCOG in 2002. The LPA-AA is a continuation of the LRT technology from the existing Sierra Madre Villa LRT station in Pasadena to the Claremont Transit Center.

Issues from Previous Planning:

- *Alternative transportation modes have been previously assessed. Rail modes were shown to be more effective in dealing with corridor transportation problems than either highway improvements or bus-based improvements.*
- *Cities in the study corridor have expressed their support for extending LRT service along an available right-of-way, as opposed to commuter rail service.*

ES-4 PROJECT DEVELOPMENT STATUS

ES-4.1 Development of Alternatives

A number of alternatives were initially evaluated during the planning portion of the Alternatives Analysis of this study (*Gold Line Phase II Extension Pasadena to Claremont Alternatives Analysis, Final Draft Report*, dated January 9, 2003). This analysis looked at a wide range of alignment and technology options aimed at serving the corridor transportation needs. These included a No-Build Alternative a Transportation System Management (TSM) Alternative, as well as various modal alternatives: bus rapid transit (BRT), LRT, commuter rail (CR), HOV lanes, and guideway-based alternatives. This range of potential alternatives was identified using the 1993 EIR produced for this alignment as a guide, as well as input from the public.

These alternatives encompassed a variety of options, including differing technologies, alignments, and operations. Technologies looked at in the initial analysis included enhanced bus service, BRT, LRT, CR, diesel multiple units, HOV facilities, and fixed-guideway facilities. The alignment alternatives included the existing railroad right-of-way, the I-210 freeway, and local major arterials. Operations alternatives varied by mode starting with five-minute headways.

Once the list of potential alternatives was developed, alternatives were screened for flaws that would prevent their implementation or seriously limit their ability to service the needs of the study corridor. Screening criteria were created and applied to the twenty-five potential alternatives. An alternative was eliminated in this first round of screening if it:

- was estimated not to be cost-effective,
- posed significant environmental disadvantages,
- offered no advantages over less-costly technologies,
- would not be likely to meet projected travel demand,
- would not be likely to reduce travel times,
- would be more costly to construct and/or operate than TSM alternatives, and/or
- would not meet or would conflict with goals and objectives established for the corridor Alternatives Analysis.

During the second round of screening, alternatives were analyzed using a number of different factors, including engineering or environmental “fatal flaws,” potential to service existing land uses, transit-oriented development potential, implementation time, and financial capacity.

As a result of the second-round screening analysis and input from the Technical Advisory Committee, which had been established for the Alternatives Analysis process, the list of 25 alternatives was reduced to seven. These seven alternatives were analyzed using criteria developed for the proposed project and identified in the Alternatives Analysis report. Utilizing the findings of the report, the Technical Advisory Committee identified the Locally Preferred Alternative (LPA-AA) in June 2003 as Alternative 4, double-track LRT with either a separate freight track or with no freight (see Chapter 2, Alternatives, for further detail). Part of the LPA decision was to invest funds in the existing rail corridor for transit purposes, as opposed to investing in highway or arterial-based improvements or creating a new rail corridor.

Expanding I-210 to accommodate bus or HOV lanes would entail widening the freeway right-of-way, elevating a busway above the freeway, or running buses on the shoulders or in the HOV lanes. This alignment was not considered for further analysis for the following reasons:

- high costs associated with widening the freeway,
- inability to implement transit by the goal service date of 2008 due to extensive widening and construction,
- significant impacts to the natural and manmade environment,
- inconsistency with the goal of locating stations that facilitate corridor cities’ vision for land use and development around transit stations and adjoining activity centers within cities’ downtowns, and
- community resistance to further construction on I-210, which has been ongoing for a number of years. Communities along the corridor are resistant to additional right-of-way and construction impacts.

BRT and Rapid Bus alternatives were examined that utilized local major arterials, dedicated local streets, or a combination of freeway and local streets. These alignments were examined and eliminated due to disadvantages that included:

- no reduction in travel times,
- high costs associated with widening local streets,
- significant impacts to environmental and community resources associated with widening streets, and/or
- impacts to residential neighborhoods along local streets during construction and, potentially, during operation.

The existing rail alignment was deemed the most promising for development of transit service for the following reasons:

- A limited amount of land acquisition would be necessary to support rail service along the existing right-of-way (ROW).
- Implementing service would maximize the previous investment made by LACMTA in purchasing the ROW.
- Rail service would be consistent with the goals of locating stations that facilitate many corridor cities' vision for land use and development around transit stations and adjoining activity centers.
- Rail service on the existing ROW would require a shorter construction time than a new ROW.
- Use of a pre-existing ROW that included current train movements would generate fewer and less-significant impacts on existing natural and manmade environments than a new ROW.

ES-4.2 Alternatives Evaluated

The LPA-AA was the basis for the development of the alternatives assessed in this document. Three basic alternatives are reviewed in this document: (1) the No-Build Alternative, (2) the Full Build (Pasadena to Montclair) Alternative, and (3) the Build LRT to Azusa Alternative.

The No-Build Alternative includes all highway and transit projects and operations that the region and LACMTA expect to be in place in 2025 (the future analysis year for this EIS/EIR). The No-Build Alternative would not require construction of ancillary facilities other than those included in the projects comprising the alternative. The No-Build Alternative is LACMTA's Long Range Transportation Plan 2025 (LRTP 2025) Constrained Alternative (Package G). This alternative/package includes a balance of vehicle and transit improvements, including an expanded bus network. Projects within LRTP 2025 that are relevant to the corridor are stated below.

- *Transit Projects* include countywide (Los Angeles and San Bernardino counties) bus service improvements; commuter rail (Metrolink) improvements; Gold Line Phase I LRT service, with planned headways of 5 minutes peak, 10 minutes off-peak (currently operating at 10 minutes peak and 12 minutes off-peak); and the construction of the Eastside LRT extension, with service headways of 5 minutes peak, 10 minutes off-peak.
- *Freeway improvements* include projects on freeways such as the extension of freeway Route 30/I-210 from Foothill Boulevard to I-15 (now completed) and the continuing extension of I-15 to I-215 in the future.
- *Smart street projects* include improvements such as synchronized traffic signals, on-street parking removal, frontage road and grade separation construction, and key intersection improvements to improve traffic flow.
- *Arterial improvement projects* include improvements to existing roadways.

The two build alternatives utilize the existing Construction Authority and SANBAG rights of way through the San Gabriel Valley for LRT service eastward from the Sierra Madre Villa in Pasadena (the current terminus of Gold Line Phase I). The major difference between the two alternatives is their length and terminus: the Full Build (Pasadena to Montclair) Alternative (**Figure ES-2**) extends 24 miles east to the city of Montclair in San Bernardino County, while the Build LRT to Azusa Alternative (**Figure ES-3**) extends only from the Sierra Madre Villa station to the eastern boundary of the City of Azusa, a distance of approximately 11 miles. Additionally, the Full Build Alternative would include a 24-acre Maintenance and Operations facility in the City of Irwindale.

The **Full Build (Pasadena to Montclair) Alternative** encompasses Segments 1 and 2 of ~~Phase II~~ the Foothill Extension and extends the current Gold Line LRT system from Sierra Madre Villa station to the Montclair TransCenter (approximately 24 miles). The Montclair TransCenter is located in Montclair, and borders the city of Upland. Segment 1 of the Full Build Alternative lies between the current Sierra Madre Villa station and the eastern boundary of Azusa, about 11.4 miles in length. Segment 2 of ~~Phase II~~ the Foothill Extension continues east from Azusa and terminates at the Montclair TransCenter. The same LRT technology and the same types of system components would be used as will be found in the existing Phase I segment from Los Angeles to Pasadena and in the ~~soon-to-be-built~~ Eastside Extension that is under construction. The Eastside Extension will run from Union Station to Beverly/Atlantic in East Los Angeles.

The Full Build (Pasadena to Montclair) Alternative would include 12 new stations, with at least one in each of the cities along the corridor. ~~Potential~~ Station locations, including options in Arcadia and Claremont, have been defined in consultation with the corridor cities. Parking facilities would be provided at each new station.

The location of the Maintenance and Operations facility is proposed to be on now-vacant property west and south of the Miller Brewing facility. Additional information on stations, parking, and the Maintenance and Operations facility is provided below. Sixteen traction power substations (TPSSs) (eight in Segment 1 and eight in Segment 2) would be constructed along the route in order to provide electrical power to the line. Where possible, TPSS sites are located near a station. TPSS sites would be located within existing rail ROW or within properties to be acquired for stations or parking.

The Full Build Alternative would include two LRT tracks throughout, and one freight track between the eastern boundary of Azusa and Claremont. In Claremont, the single freight track would then join up with the double Metrolink tracks and continue through to Montclair and beyond. The Full Build Alternative also includes two railroad grade separations (one in Azusa and one in Pomona), so that the LRT tracks would pass above the at-grade freight track, thus allowing the LRT and freight services to operate independently and avoid time delays for either service.

Figures ES-4 through ES-25 show the entire alignment overlaid on aerial photographs, from Pasadena to Montclair.

The **Build LRT to Azusa Alternative** would connect the existing Sierra Madre Villa station to the City of Azusa (approximately 11 miles). The same LRT technology and the same types of system components would be used as will be found in the existing Phase I segment from Los Angeles to Pasadena and in the soon-to-be-built Eastside Extension. The Build LRT to Azusa Alternative would include six LRT stations, one each in the cities of Arcadia, Monrovia, Duarte, and Irwindale, and two in the City of Azusa. The proposed stations would be the same as described under the Full Build (Pasadena to Montclair) Alternative. Parking facilities would be provided at each new station and in the same locations as identified for the Full Build (Pasadena to Montclair) Alternative.

The Build LRT to Azusa Alternative would include two LRT tracks throughout, and one freight track between the Miller Brewing Company in Irwindale and the eastern boundary of Azusa (the freight tracks continue eastward, beyond the boundary of the alternative).

The Build LRT to Azusa Alternative would not include construction of the Maintenance and Operations facility, even though it is geographically located within Segment 1. The Full Build Alternative includes the railroad grade separation in Azusa, so that the LRT tracks would pass above the at-grade freight track, thus allowing the LRT and freight services to operate independently and avoid time delays for either service. Eight TPSS facilities would be constructed along the route in order to provide electrical power to the line.

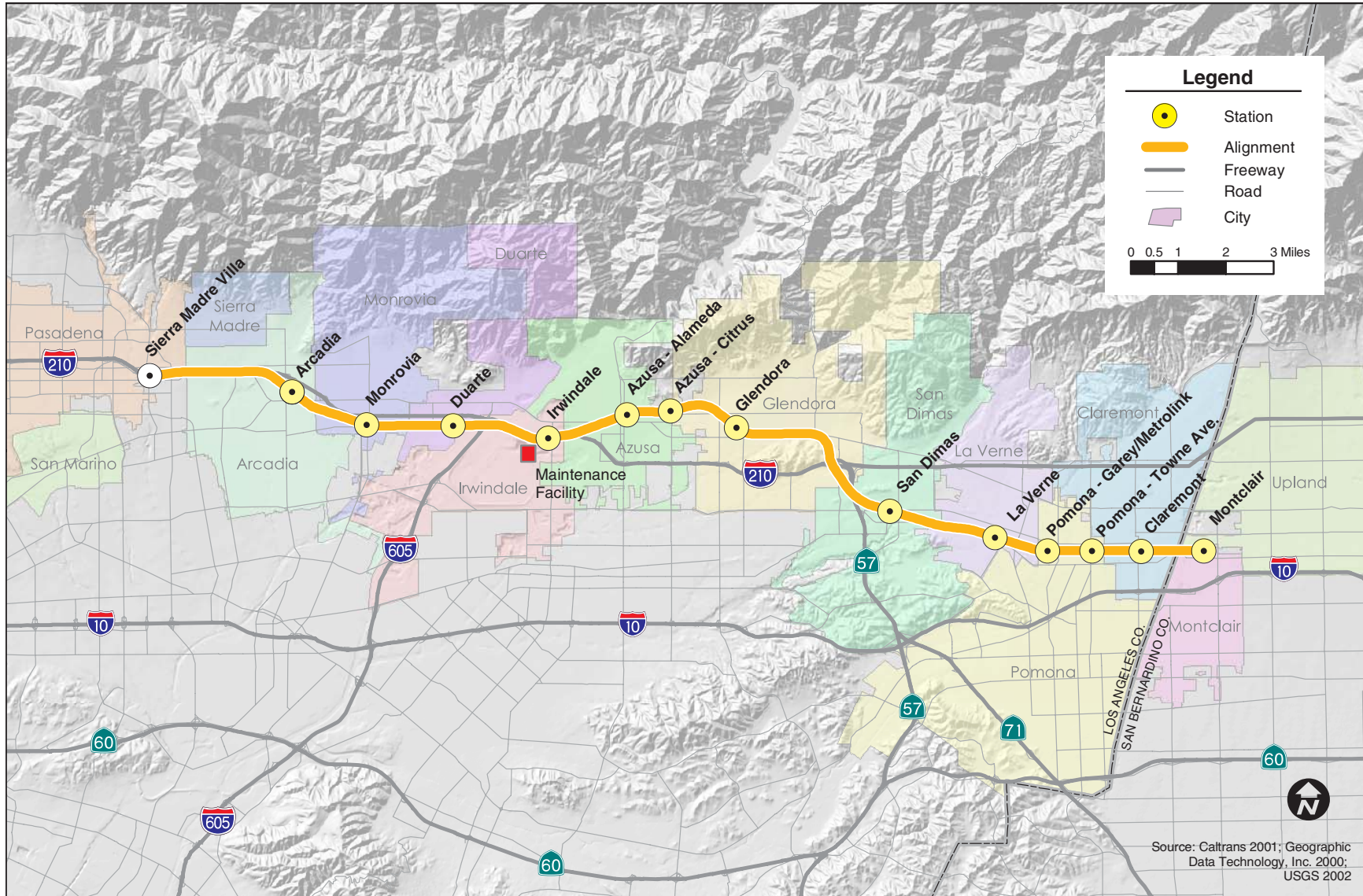
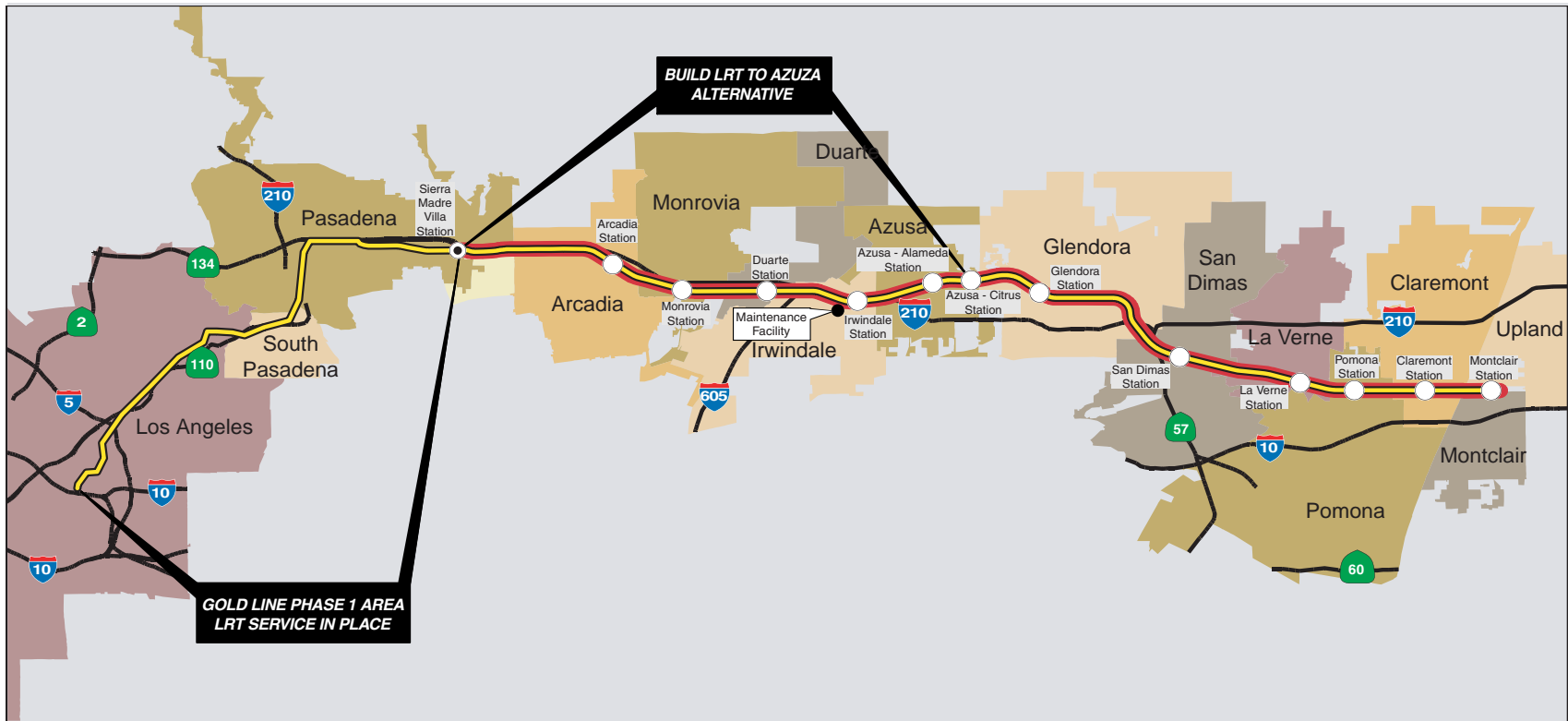
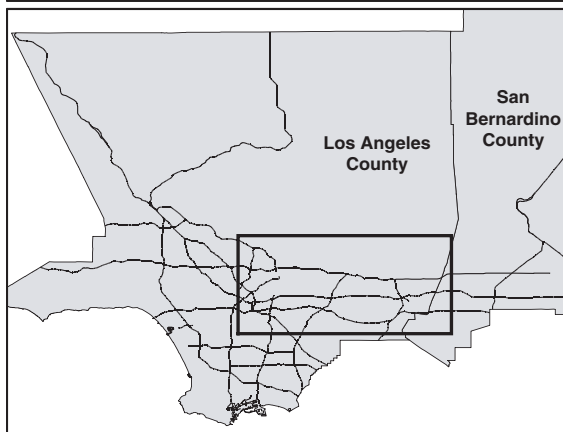


Figure ES-2: Full Build LRT Alternative Alignment



Sources: U.S. Census TIGER Data, 2000; Jones & Stokes Associates, 2004.



Legend

- Existing Station
- Proposed Station
- Full Build LRT Alternative
- 2000 Foot Study Corridor

Figure ES-3: Build LRT Alternative to Maintenance Facility

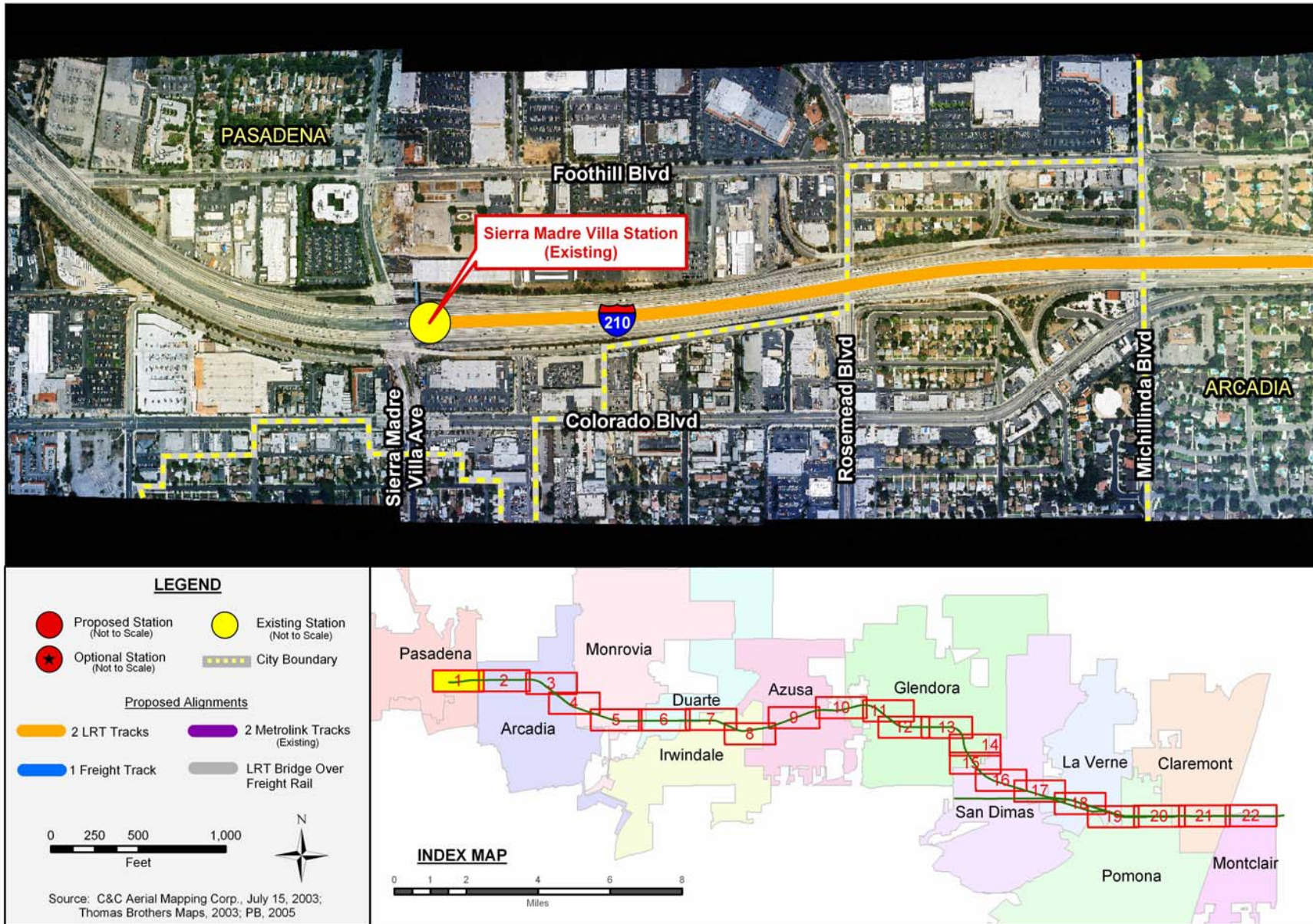


Figure ES-4: Full Build LRT Alternative (1 of 22)



Figure ES-5: Full Build LRT Alternative (2 of 22)



Figure ES-6: Full Build LRT Alternative (3 of 22)

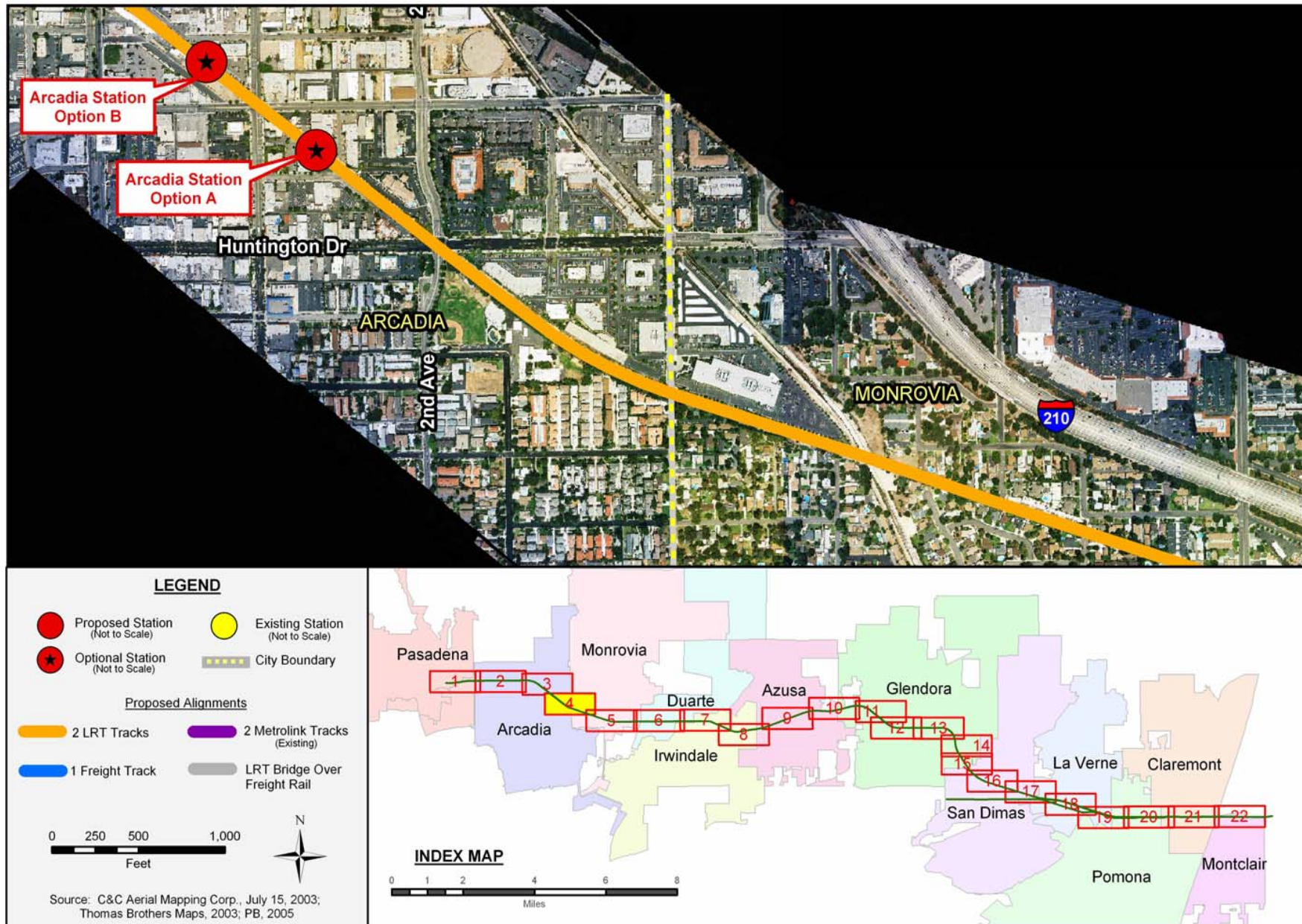


Figure ES-7: Full Build LRT Alternative (4 of 22)

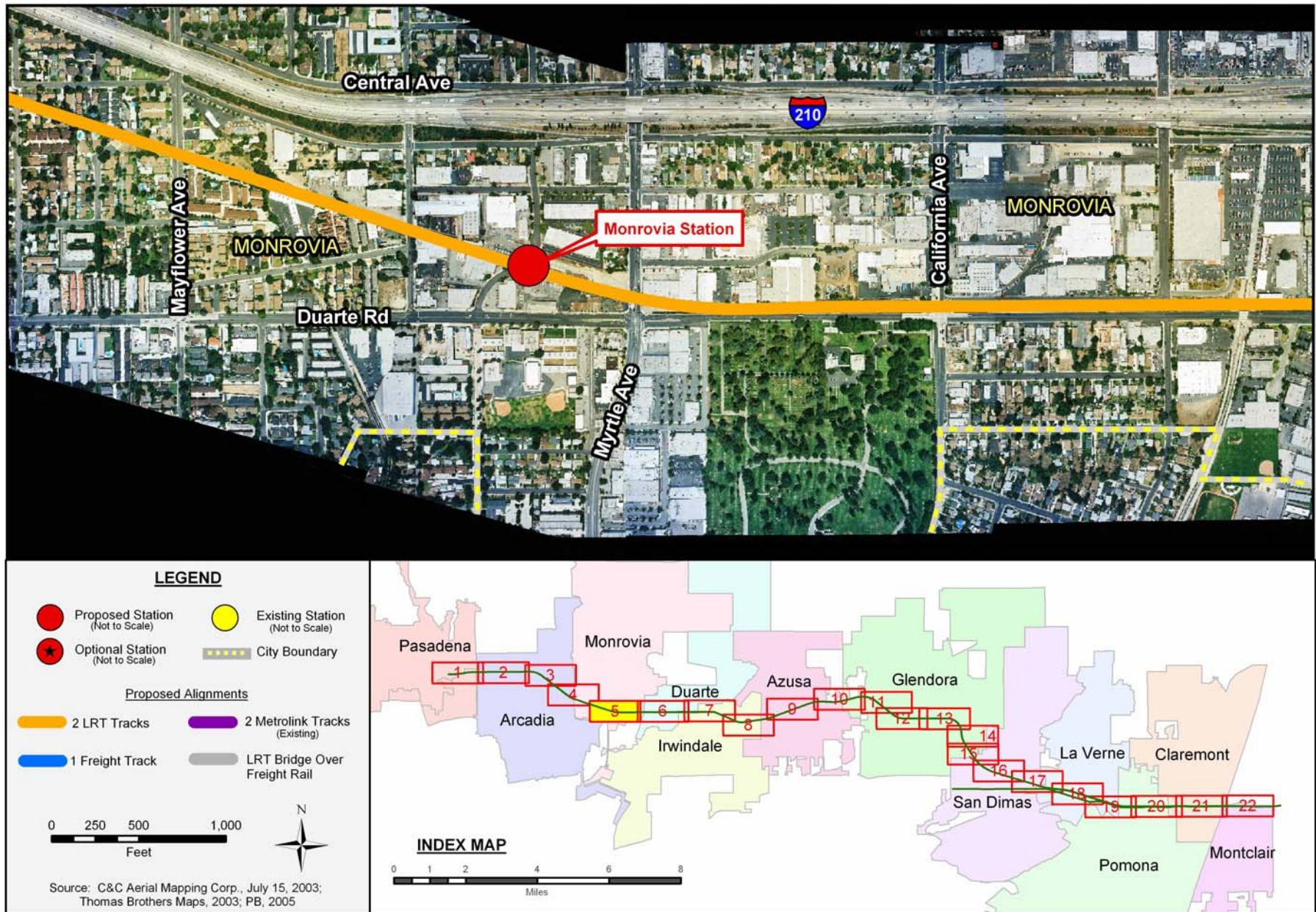


Figure ES-8: Full Build LRT Alternative (5 of 22)



Figure ES-9: Full Build LRT Alternative (6 of 22)

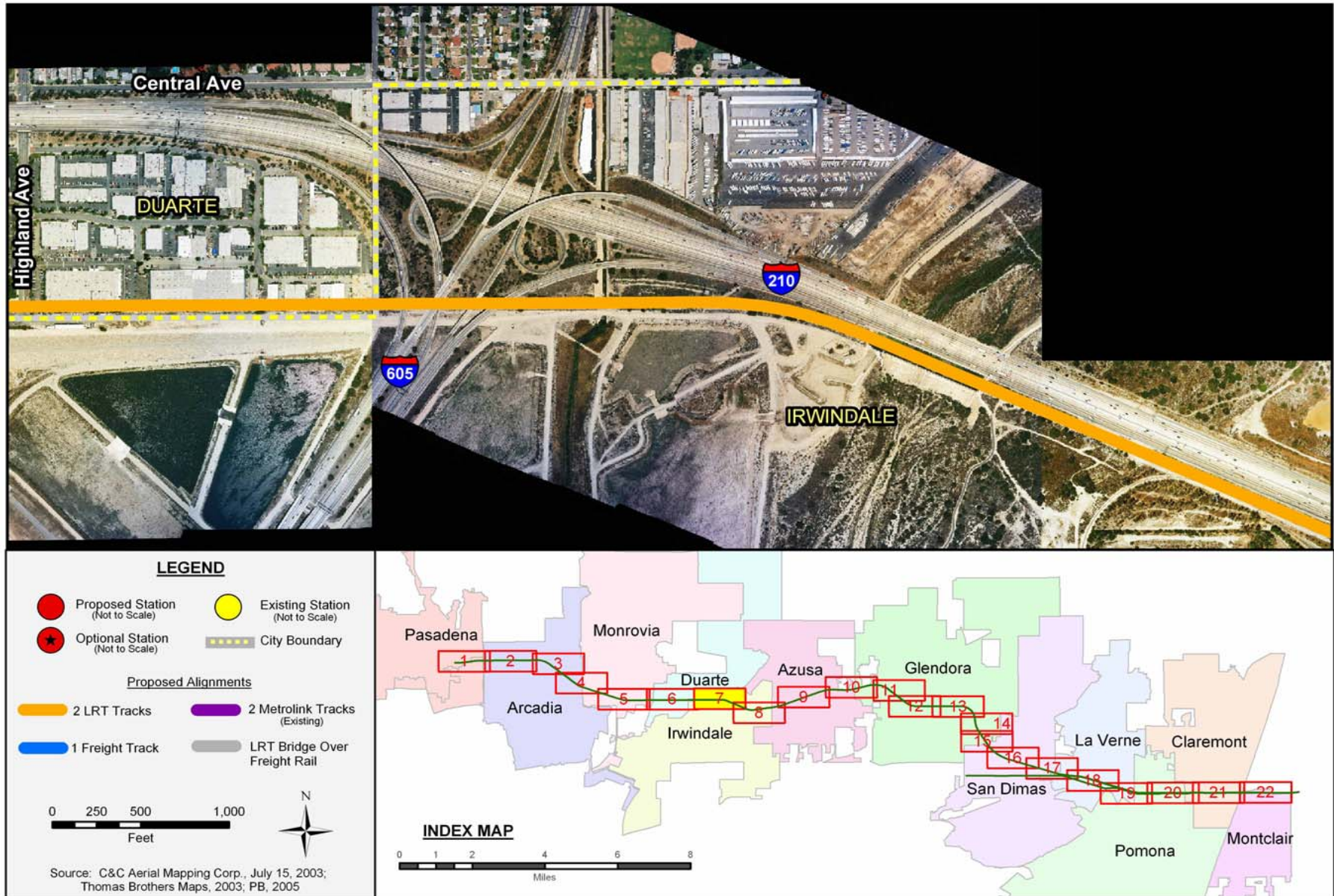


Figure ES-10: Full Build LRT Alternative (7 of 22)

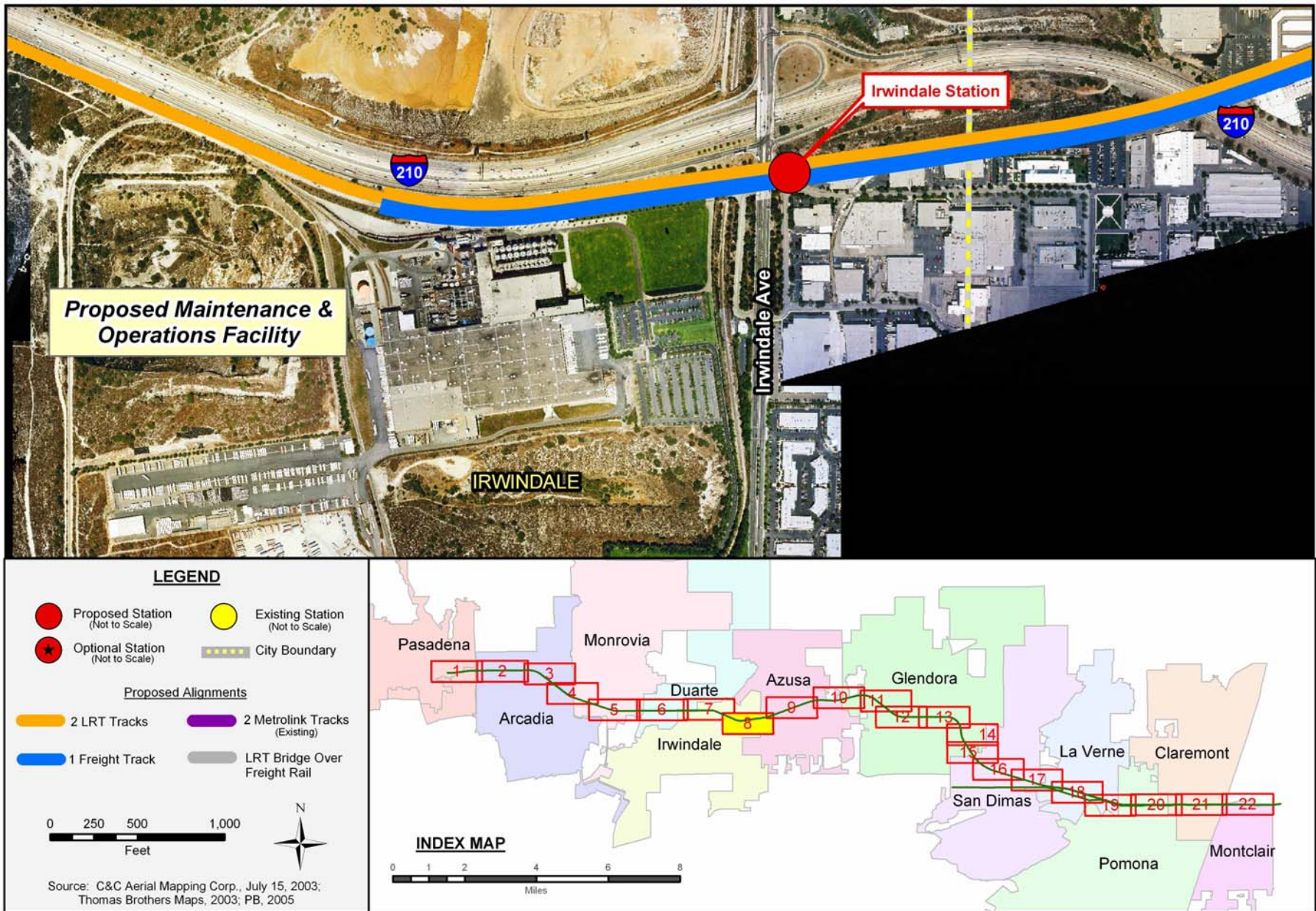


Figure ES-11: Full Build LRT Alternative (8 of 22)

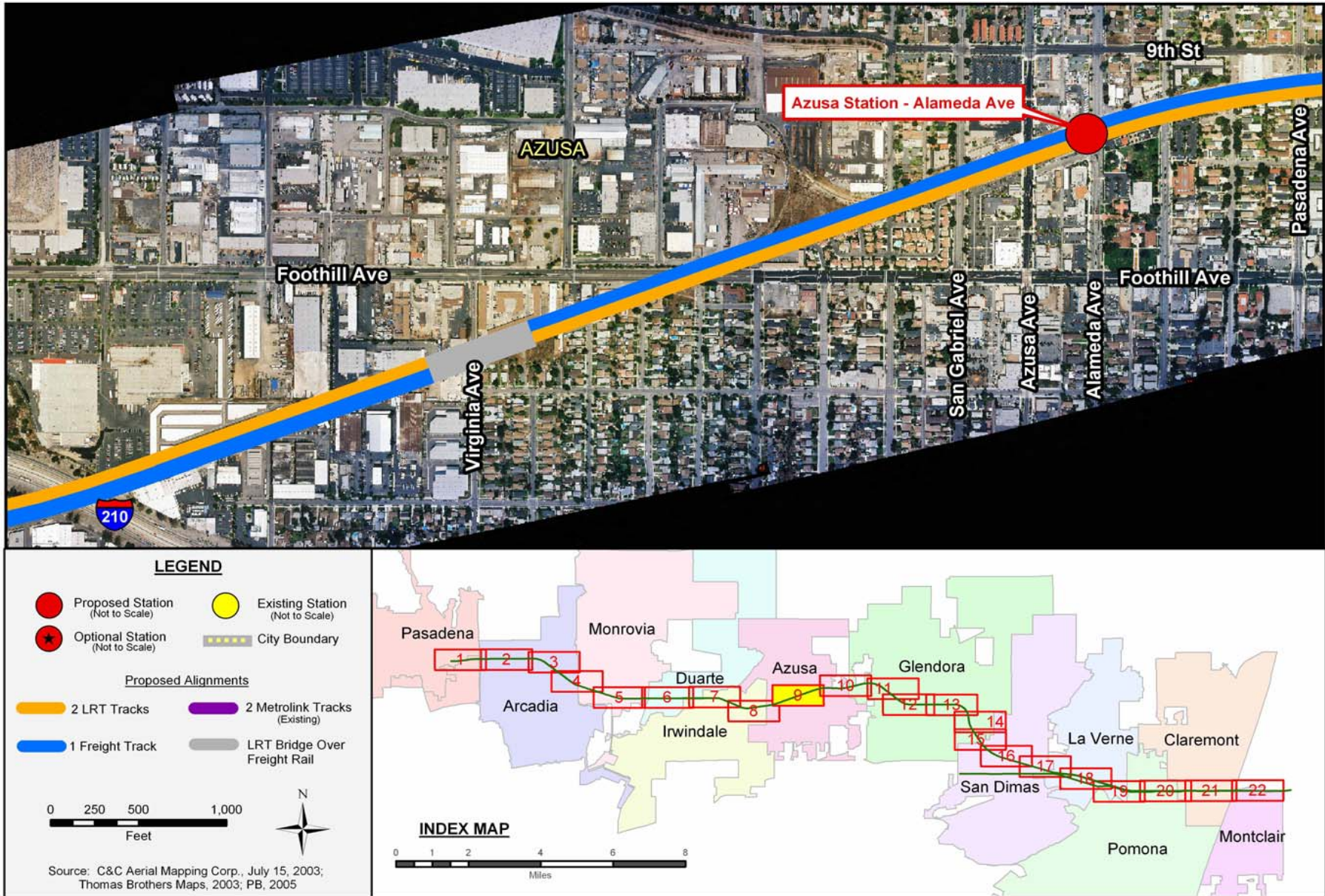


Figure ES-12: Full Build LRT Alternative (9 of 22)

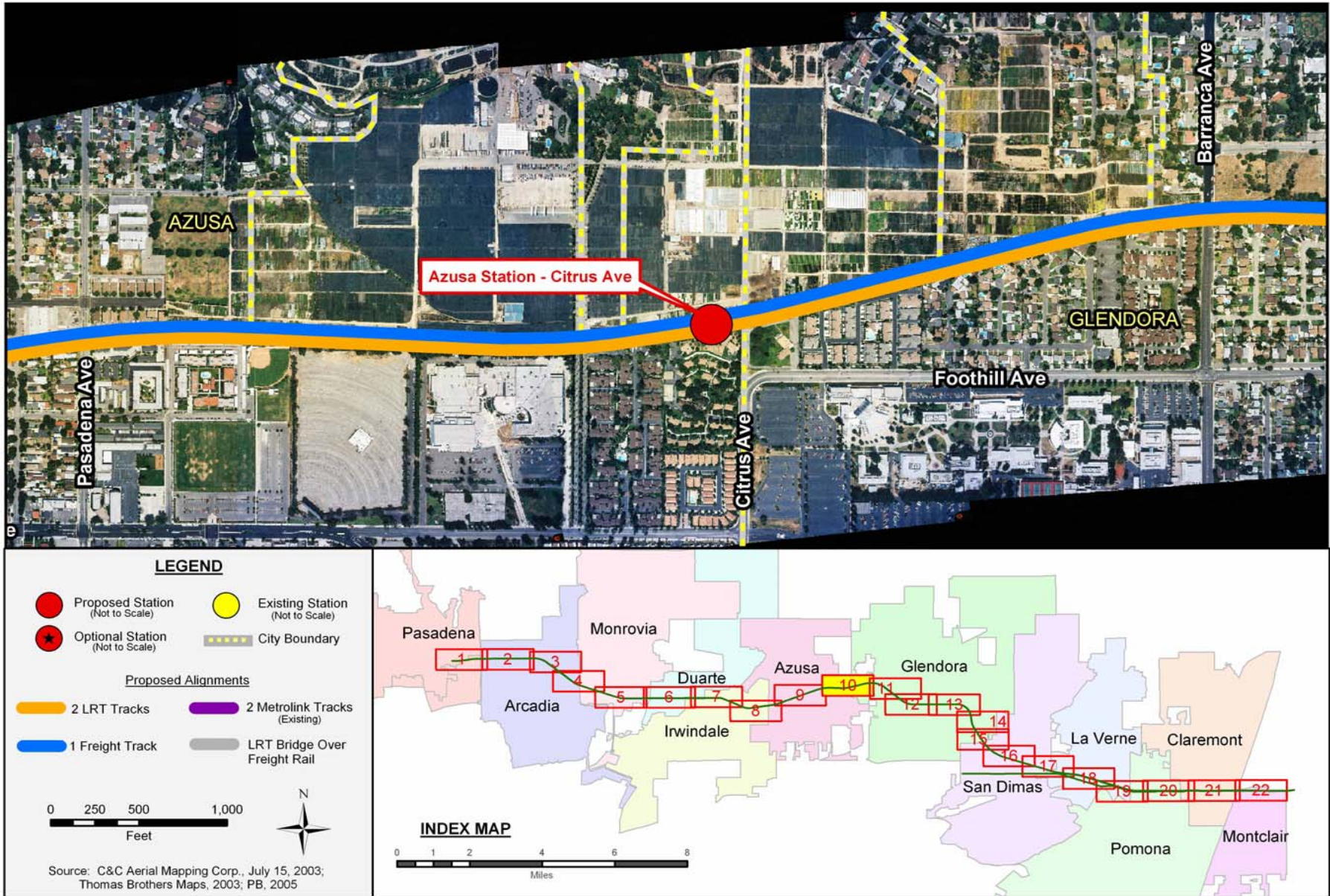


Figure ES-13: Full Build LRT Alternative (10 of 22)

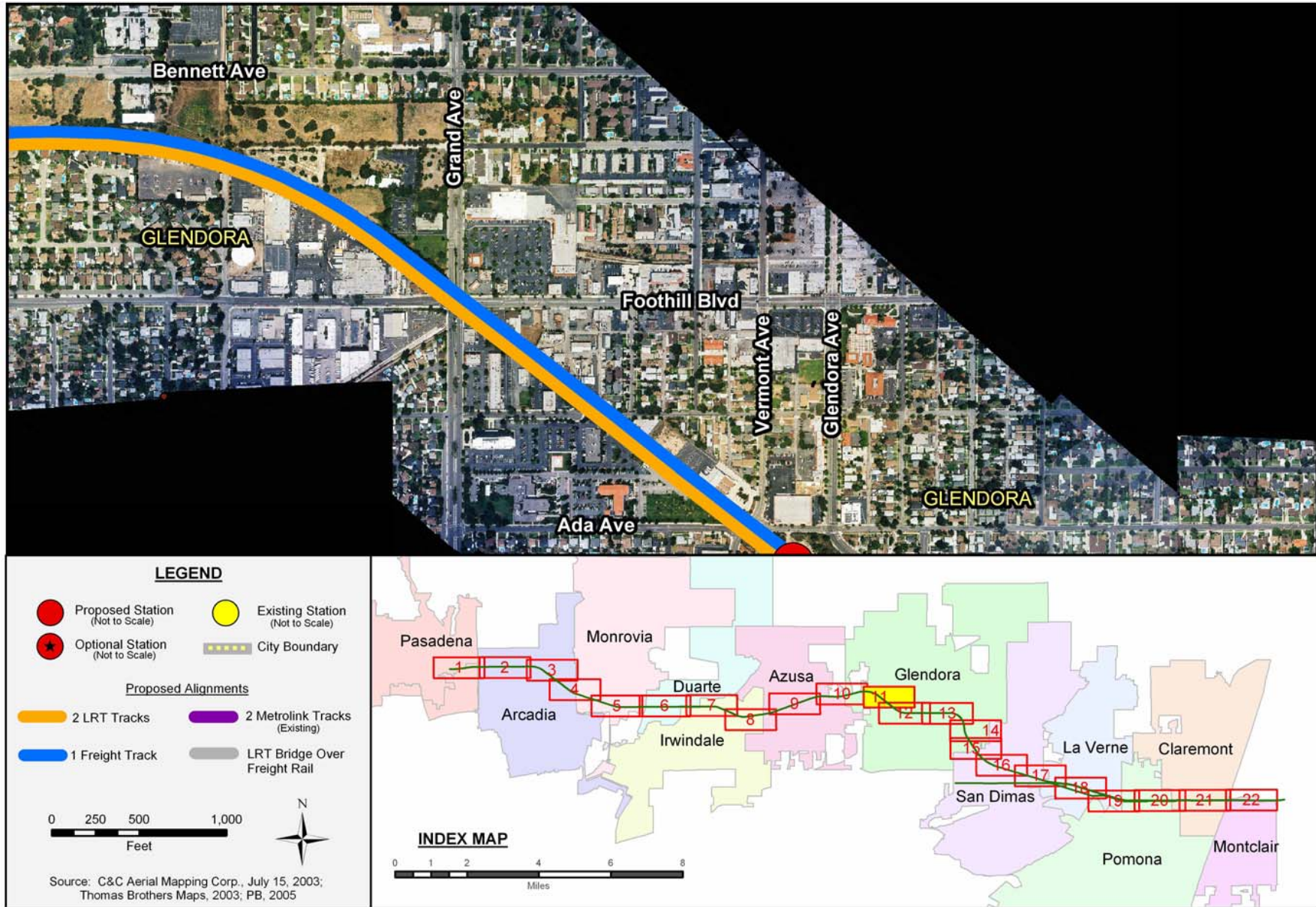


Figure ES-14: Full Build LRT Alternative (11 of 22)

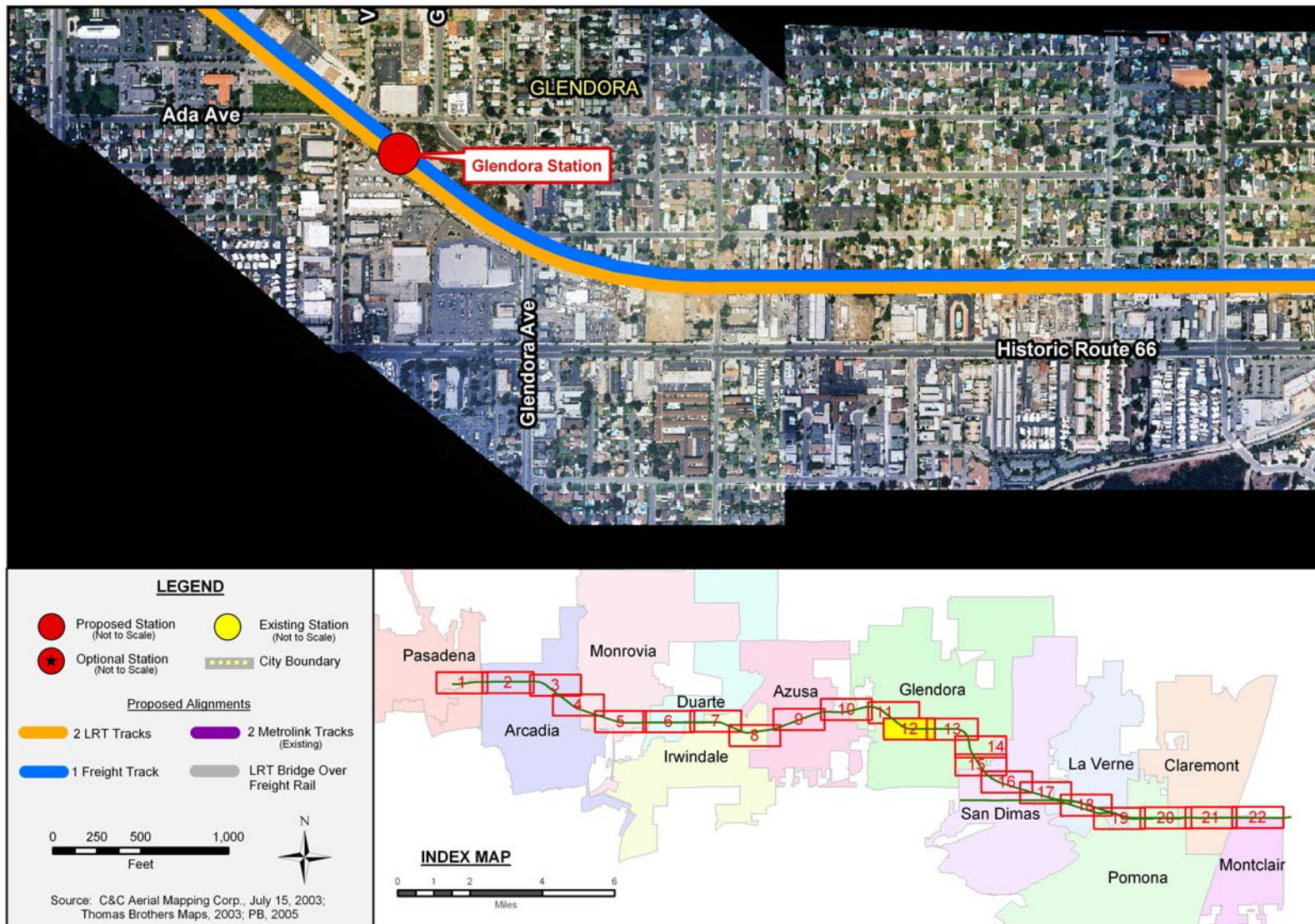


Figure ES-15: Full Build Alternative (12 of 22)

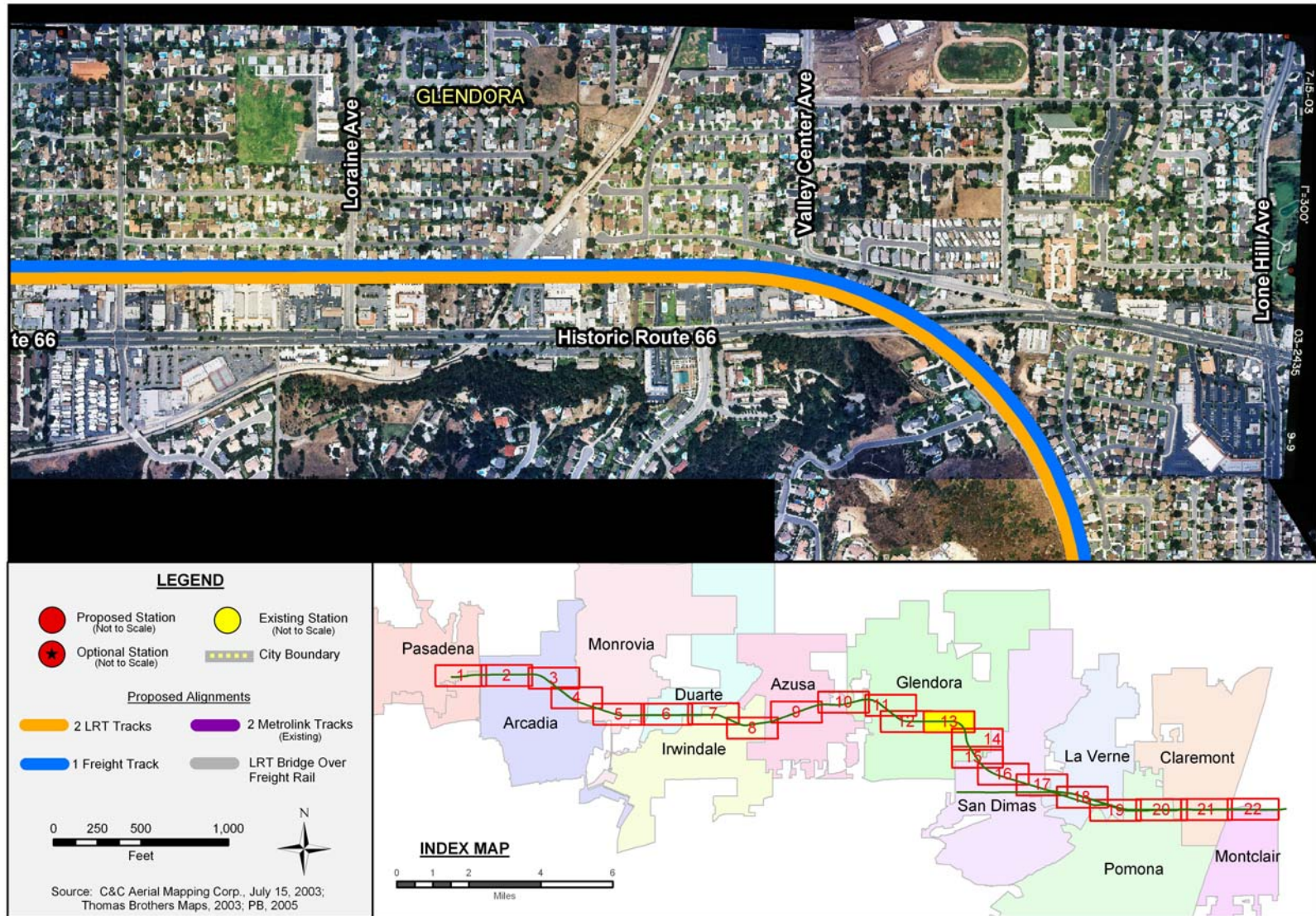


Figure ES-16: Full Build Alternative (13 of 22)

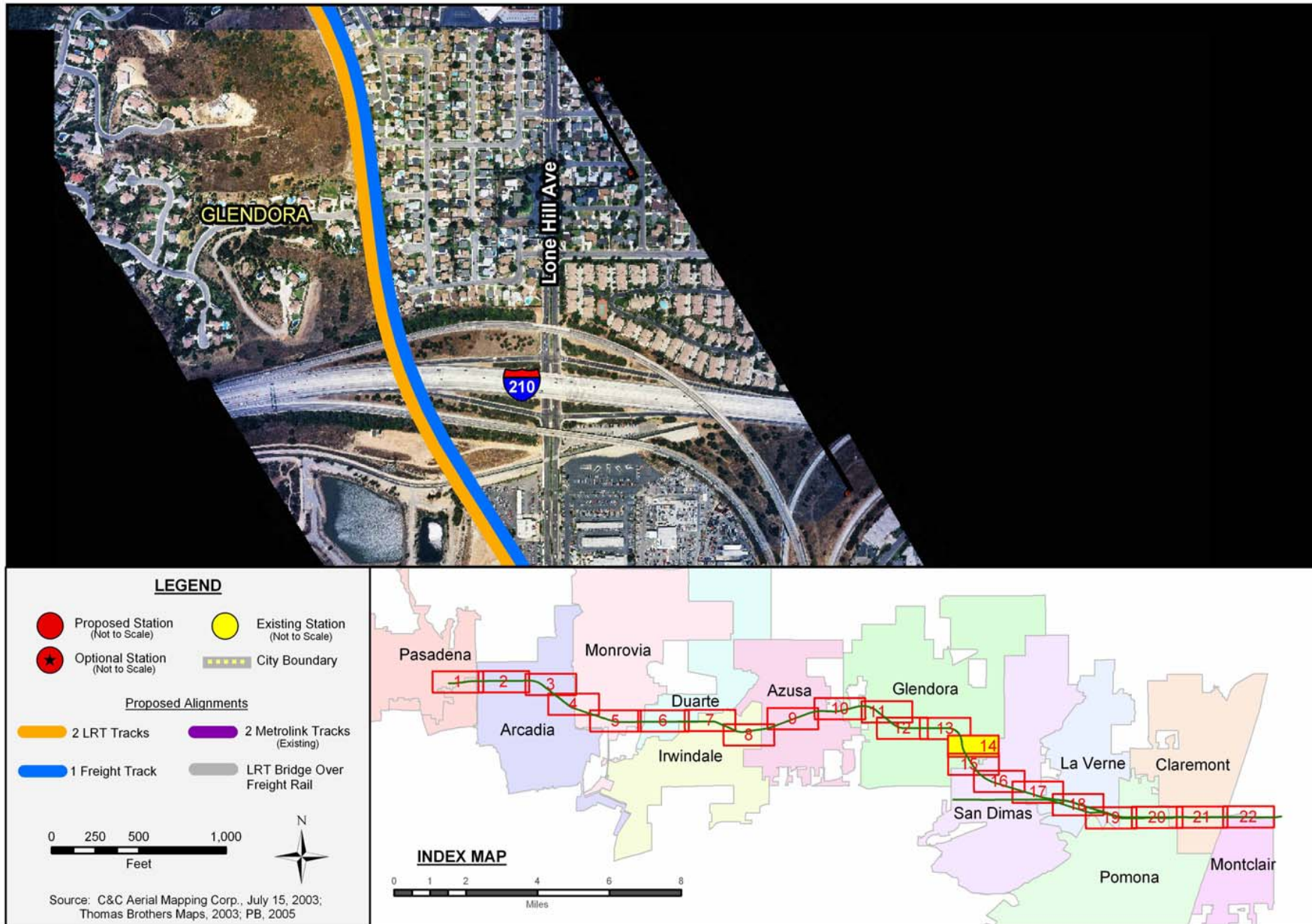


Figure ES-17: Full Build LRT Alternative (14 of 22)

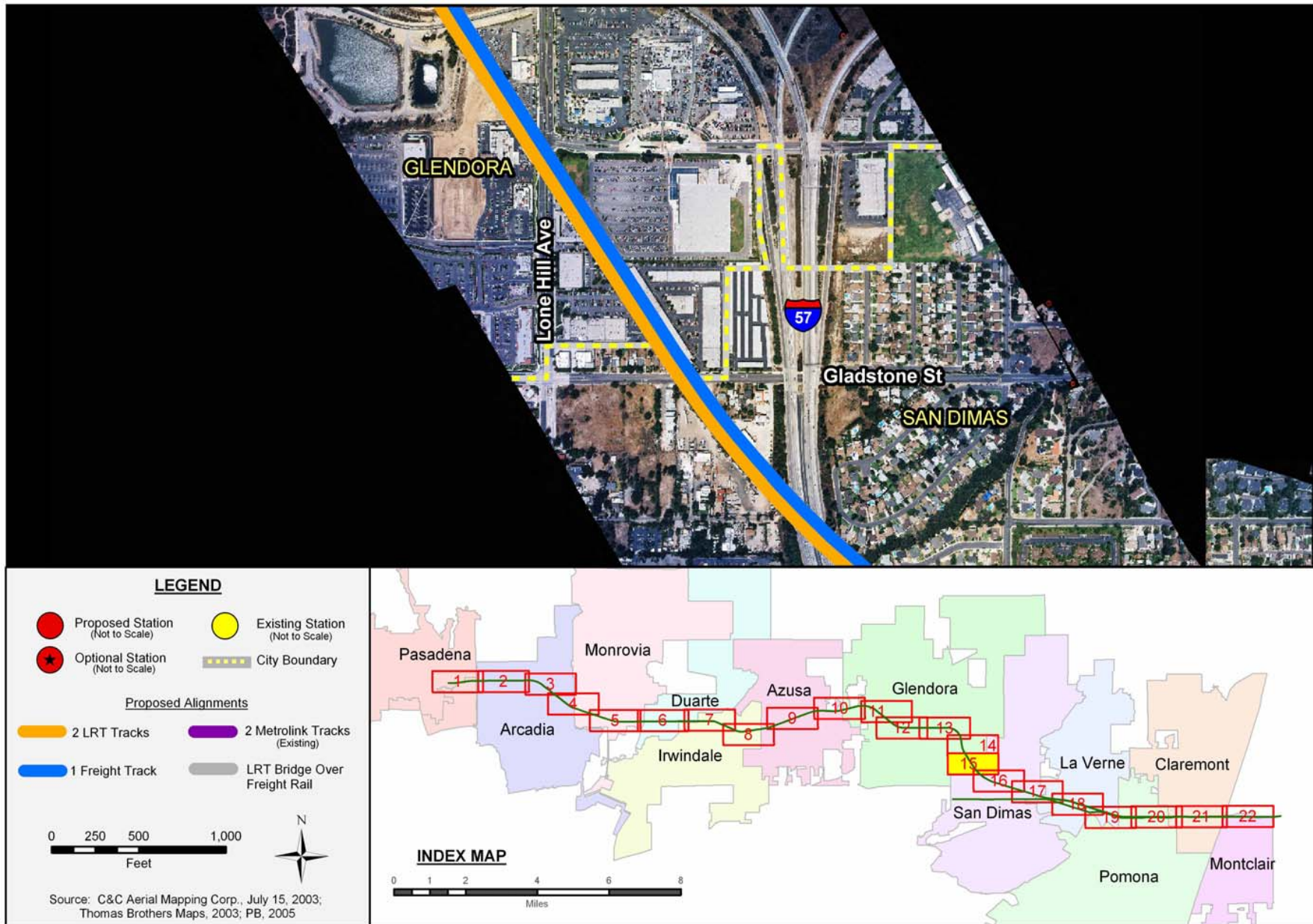


Figure ES-18: Full Build LRT Alternative (15 of 22)

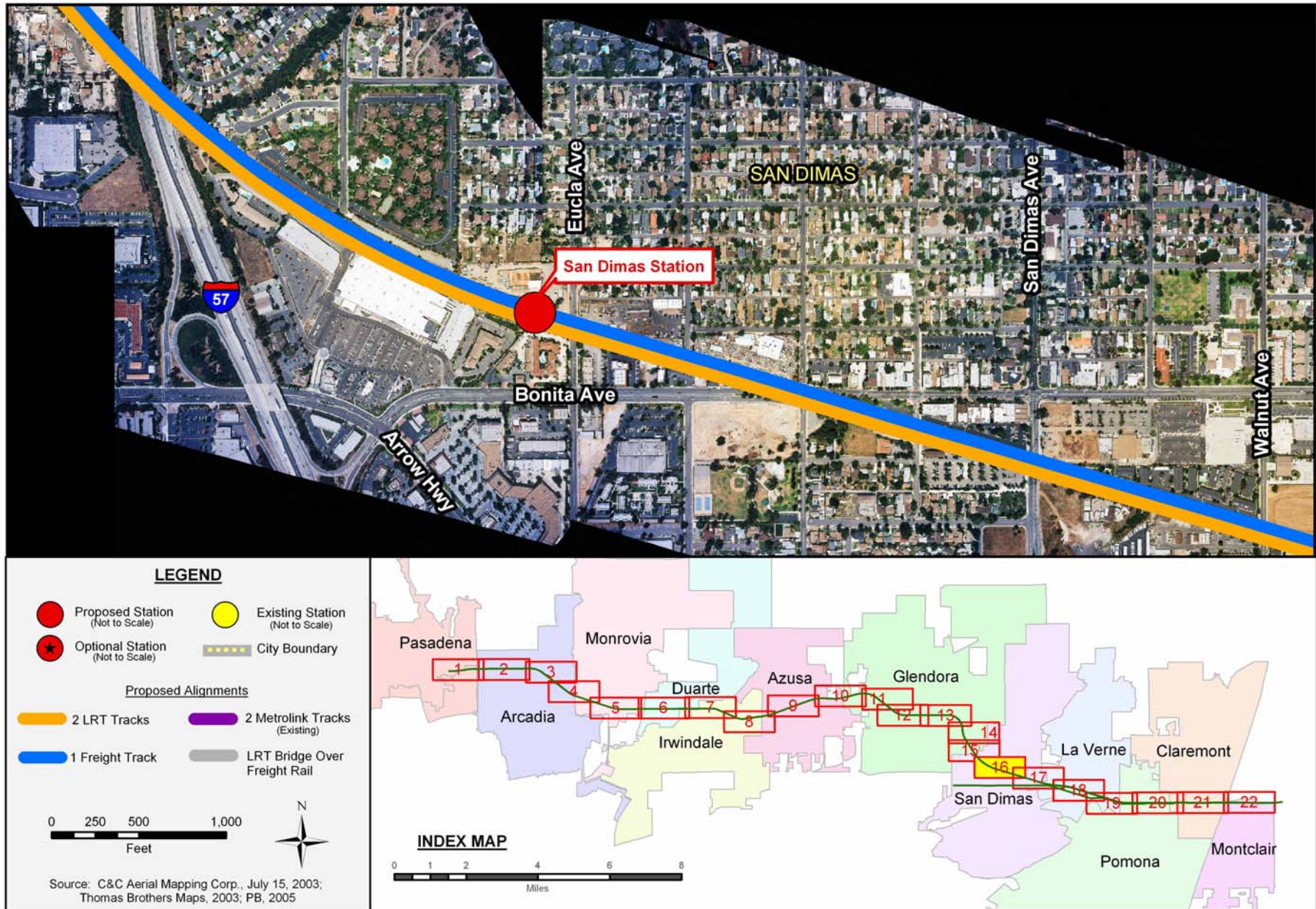


Figure ES-19: Full Build LRT Alternative (16 of 22)

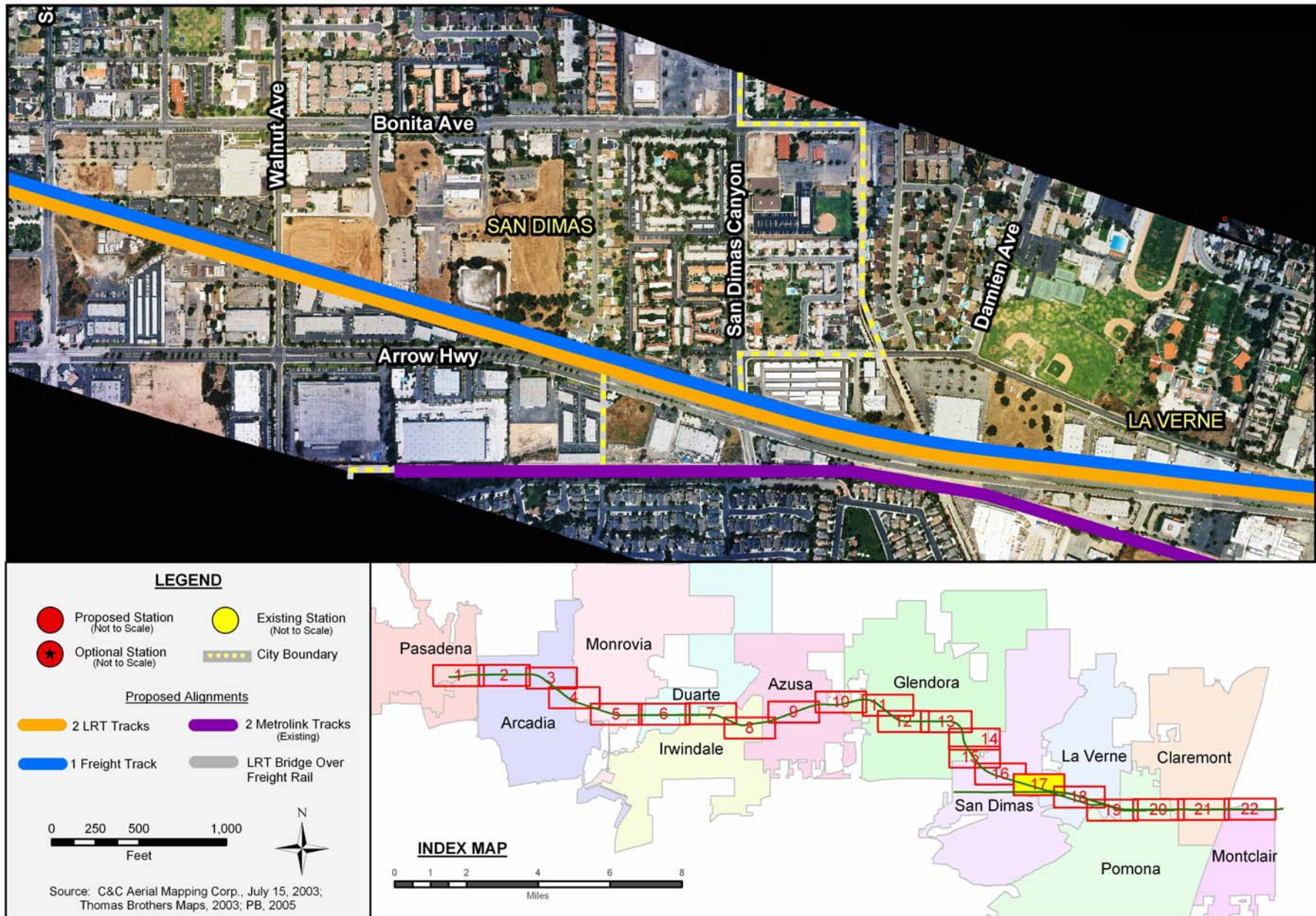


Figure ES-20: Full Build LRT Alternative (17 of 22)

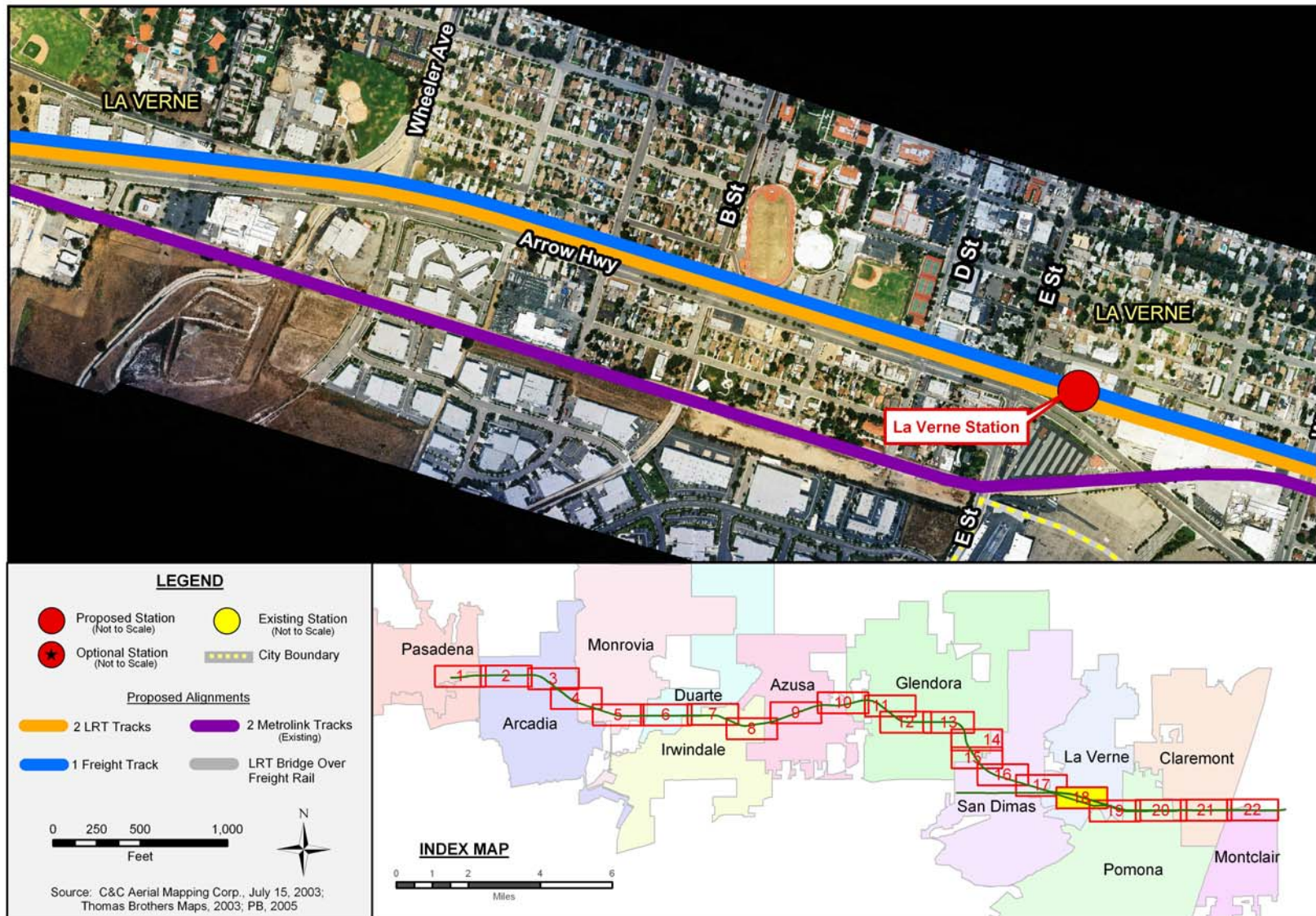


Figure ES-21: Full Build Alternative (18 of 22)

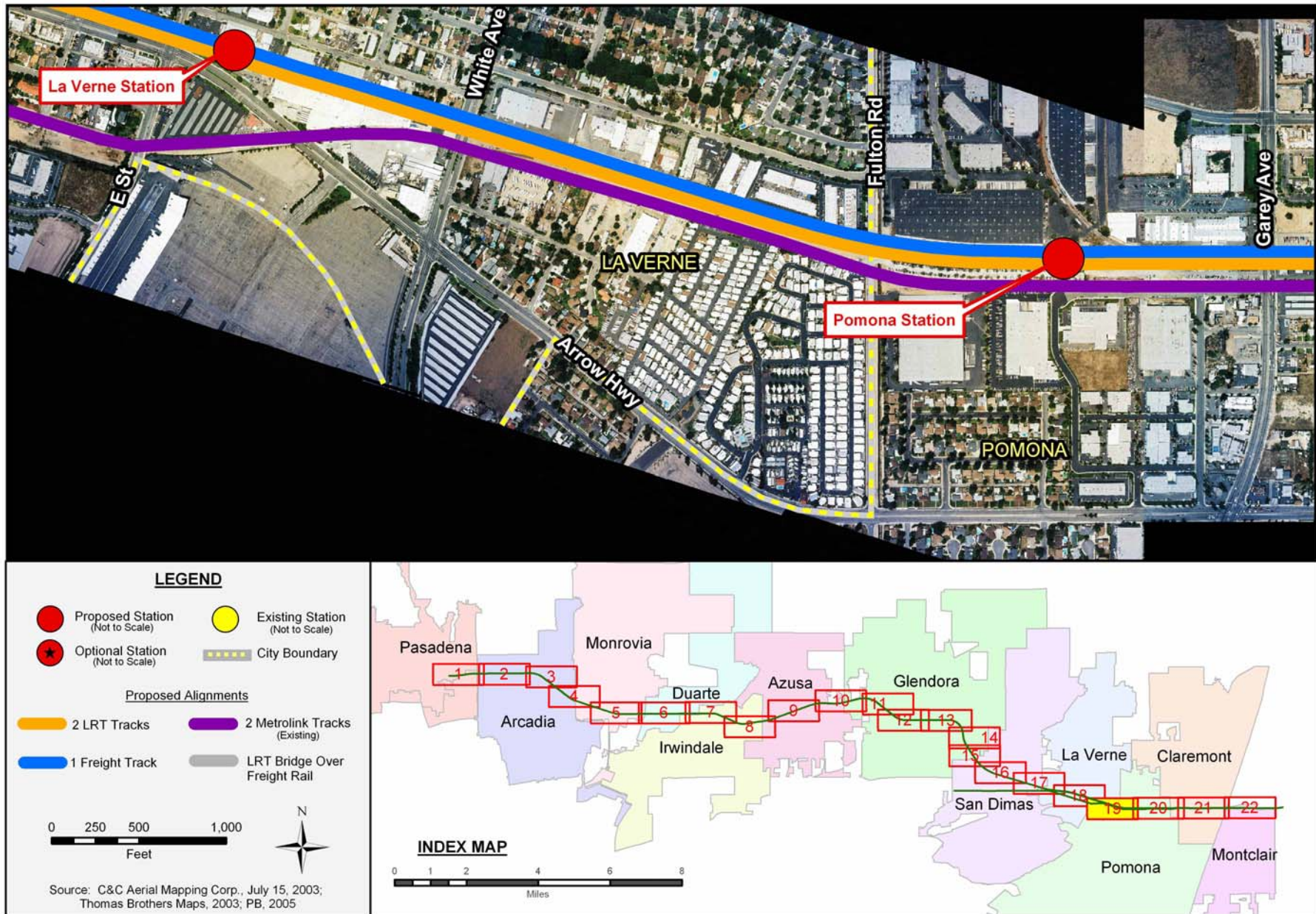


Figure ES-22: Full Build LRT Alternative (19 of 22)

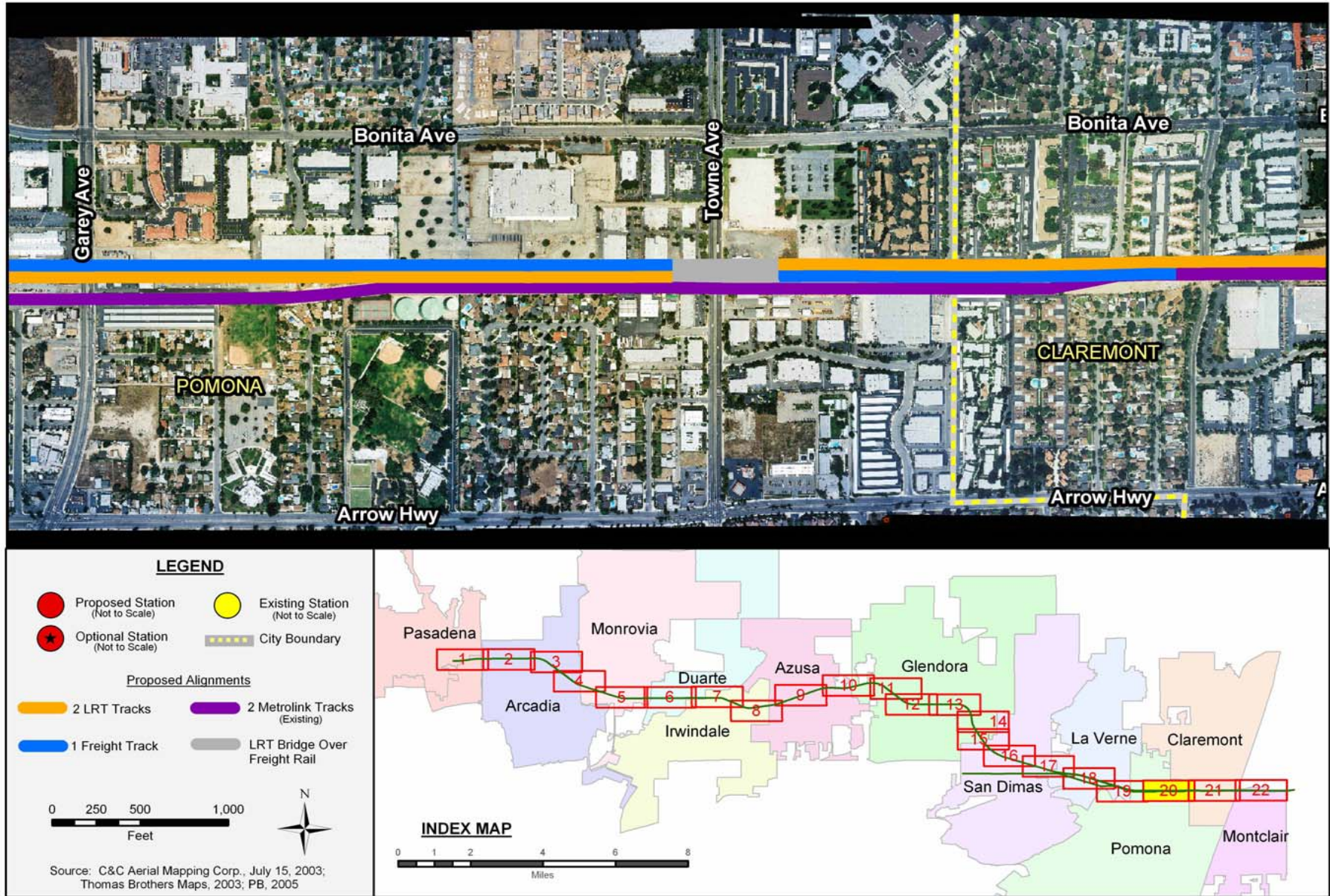


Figure ES-23: Full Build LRT Alternative (20 of 22)

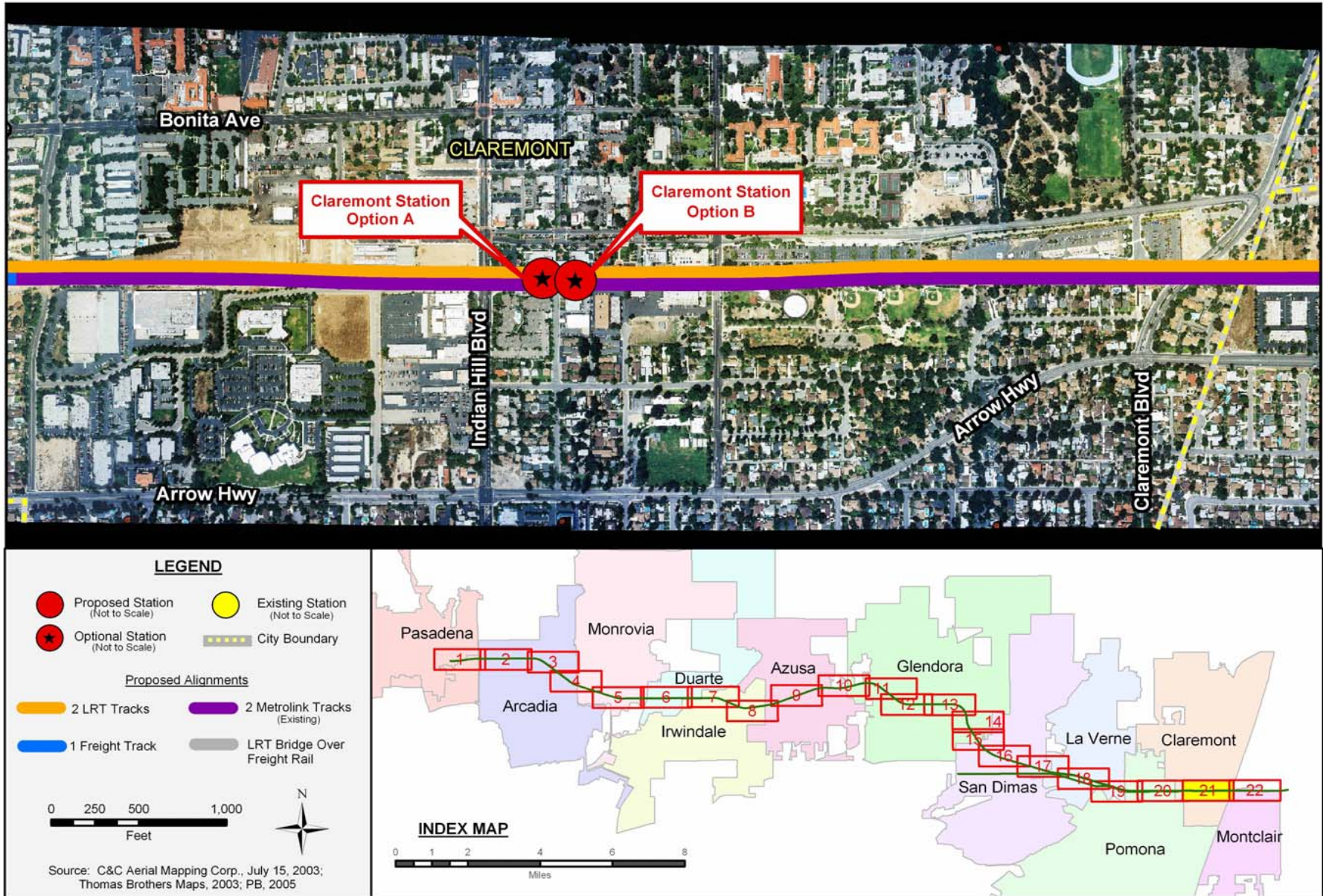


Figure ES-24: Full Build LRT Alternative (21 of 22)

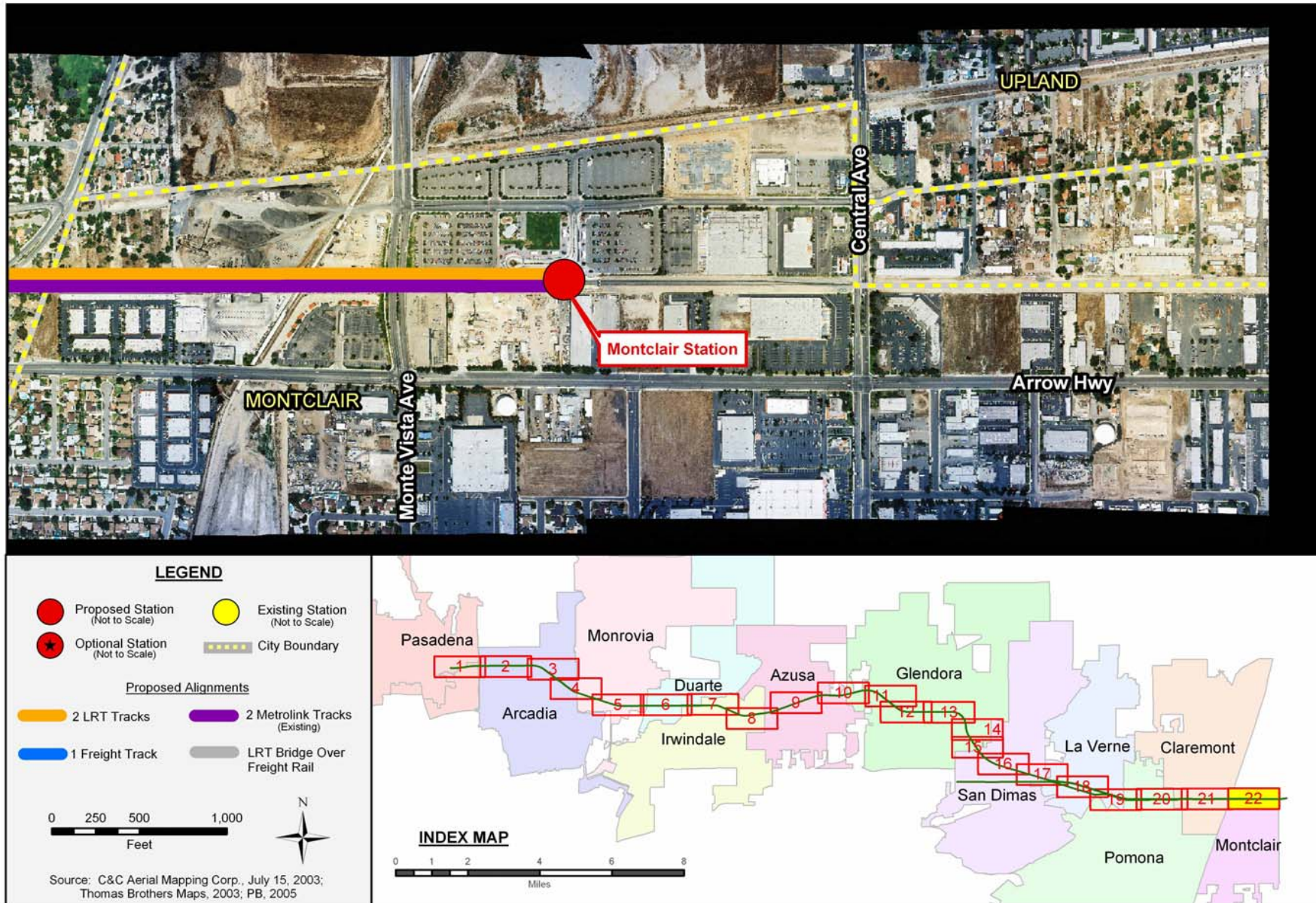


Figure ES-25: Full Build LRT Alternative (22 of 22)

ES-4.2.1 Stations

Locations for ~~proposed~~ LRT stations and parking were developed in consultation with corridor cities. **Figures ES-26 through ES-29** illustrate typical configurations of center platform and side platform stations.

Reflective of the past use of this rail corridor for passenger service, existing historic depots in the cities of Monrovia, Azusa, ~~San Dimas~~, and Claremont were selected as the locations for LRT service. Locations of previous depots in Arcadia and Glendora were also selected. All of these stations would contain one or two platforms, 270 feet in length, to accommodate LRT trains with up to three cars. Platforms would be approximately ~~44~~ 12 feet wide for side-platform stations and ~~48~~ 16 feet wide for center-platform stations. The conceptual design for the proposed stations in ~~Phase II~~ the Foothill Extension is based on the LRT stations created for Gold Line Phase I.

Station platforms would be ~~either at grade or elevated above grade~~ platforms would be and designed to accommodate high-floor LRT vehicles, with the platform level approximately 3 feet-3 inches above the level of the tracks. Grade changes between the platform and the surrounding land would be addressed with ramps, sloped walks, and stairs that meet ADA requirements. ~~Aerial stations would be located approximately 30 feet above grade, and would require elevators, escalators, and other access equipment to meet ADA requirements and MTA design criteria.~~

Stations would be configured with center platforms or side platforms. Center-platform stations have a single platform located between the tracks and would serve trains traveling in both directions. Passengers would access the stations by using a crosswalk and a sloping walkway between the LRT tracks. ~~for street level stations, and stairs and elevators (and possibly escalators) at elevated stations.~~ Side-platform stations have separate platforms for each track to serve trains traveling in opposite directions. Passenger access to the at-grade platforms would be at one or both ends, connecting to existing or new sidewalks, ~~or along the outside of the platform.~~

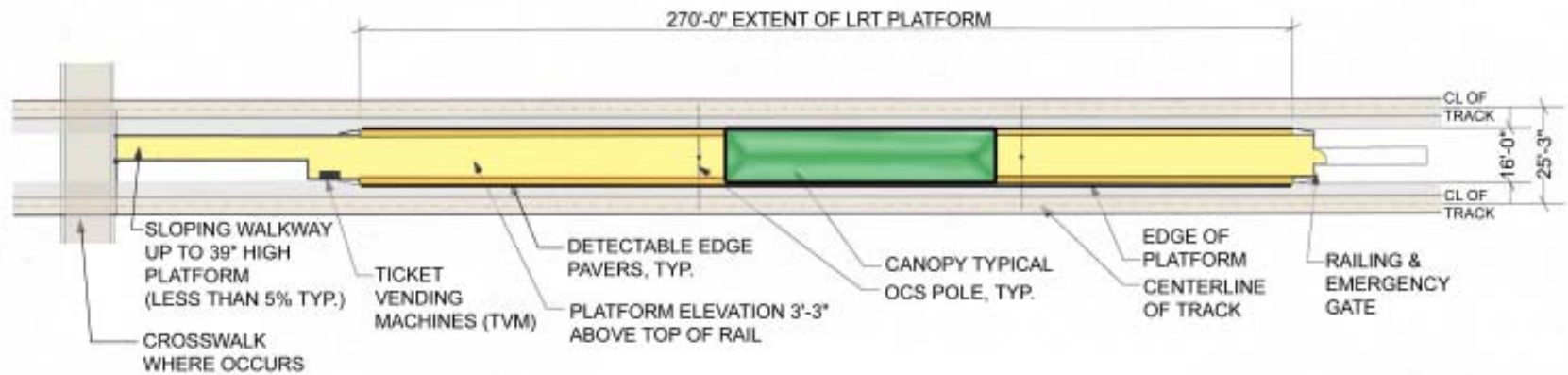
~~For elevated stations, passengers traveling from one platform to the other would need to take the stairs or elevators (or escalators, if provided) to another level and then back to the platform level once they had crossed. For at grade stations, passengers would need to go down the ramp from the platform to a designated crosswalk, cross the tracks, and then go back up the ramp or stairs to the other platform. During the conceptual design of the alignment, center platform stations were looked at first. If the site characteristics (such as a narrow right of way entering or exiting the site) ruled out a center platform, then a side platform station was designed.~~

LACMTA design guidelines state that stations are to be at least 180 feet from the nearest street in order to allow for safe emergency stopping of LRT vehicles shy of the roadway. In some locations, waivers may need to be obtained for non-conforming station locations due to existing street configurations. Consistent design and equipment layout would be used throughout the system, as initiated in the Phase I construction, for the convenience of transit passengers and to control capital, operations, and maintenance costs. Signage, maps, fixtures, furnishings, lighting, and communication equipment would have consistent design throughout the system. However, opportunities would be provided during later stages of project development for stations to have individual and community identities through creative design of other station components, such as roof canopies, guardrails, floor finishes, station furniture, plaza and entrance areas, artwork, vertical finishes, and related items. Station Design and Art Review Committees (SDAR) were created by the Construction Authority for each City in conjunction with City staff. During the spring of 2005, the committees selected a station design artist and identified design themes for each station. The final design of stations would result from a combination of LACMTA-standard system components and design enhancements provided by individual cities. An area for fare collection and

transit information posting would be provided on the platforms, similar to the existing LRT systems in Los Angeles County.

Parking at each station would be necessary to accommodate patrons using the LRT service. Parking facilities would be provided at each station based on the results of travel demand modeling. It is currently estimated that more than ~~7,000~~ 8,000 parking spaces would be required at the 12 stations along the alignment. It should be noted that the demand for parking has been established from the transportation modeling process for ~~2010~~ 2009 and for 2025. Although proposed locations for parking have been developed based on the 2025 demand forecast, it is assumed that staged implementation of parking is likely to occur. Staged implementation would enable existing or new surface lots to serve initial ridership, with parking structures being created over time as ridership increases. For the purpose of environmental analysis, the impacts of 2025 parking demand (i.e., the likely worst-case scenario) have been assessed. Parking demand for each station is included in the descriptions below. It is also assumed that parking at any of the stations might be provided as part of transit-oriented development that may be implemented by the individual cities.

Each city along the alignment has been provided the opportunity to locate a station within its borders. Based on numerous meetings with each city, ~~preliminary~~ station layouts and parking locations have been identified and analyzed. The proposed station and parking sites in each city are described below.



Prototypical Center Platform Concept



Prototypical Station Elevation and Cross Section

Figure ES-26: Typical Station Layout: Center Platform

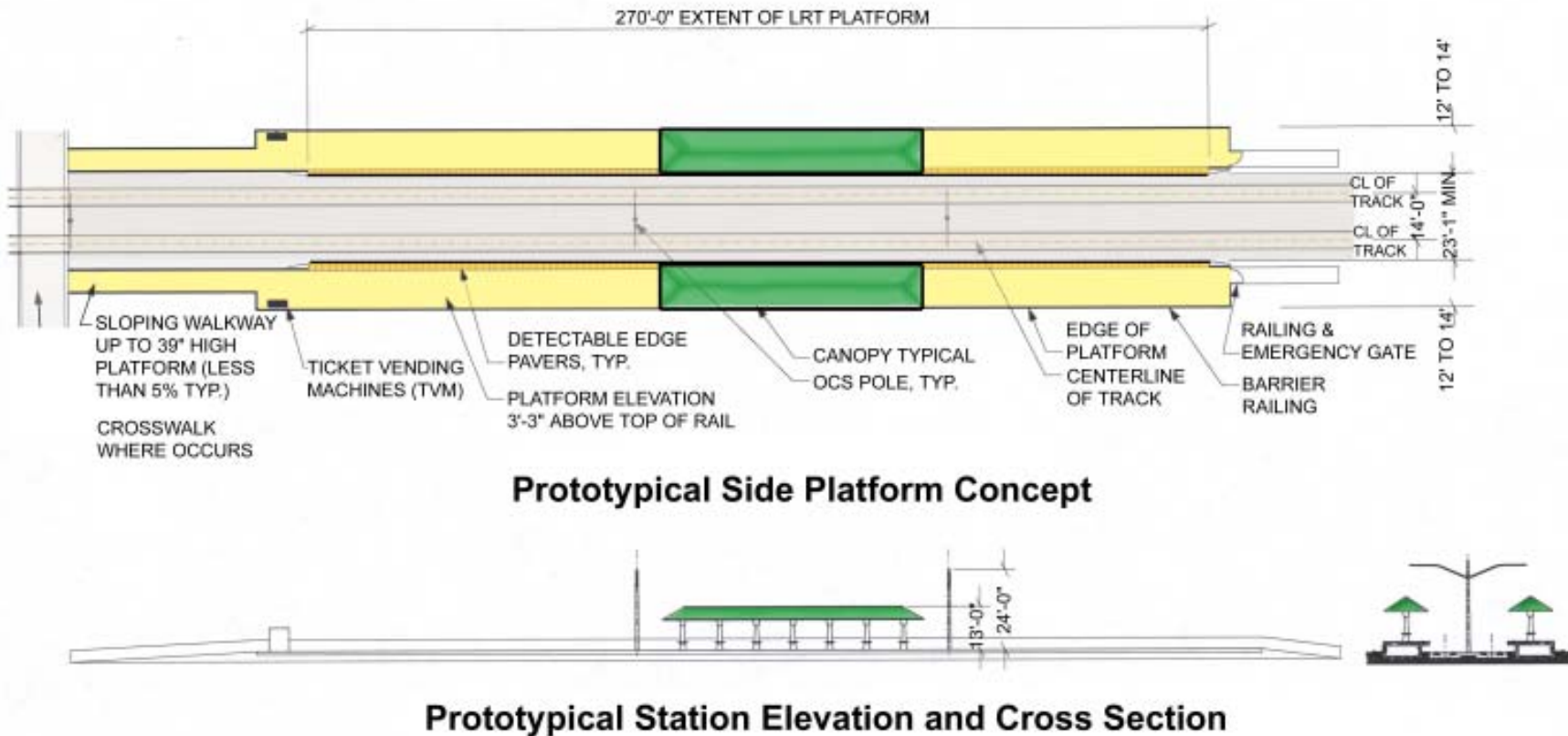
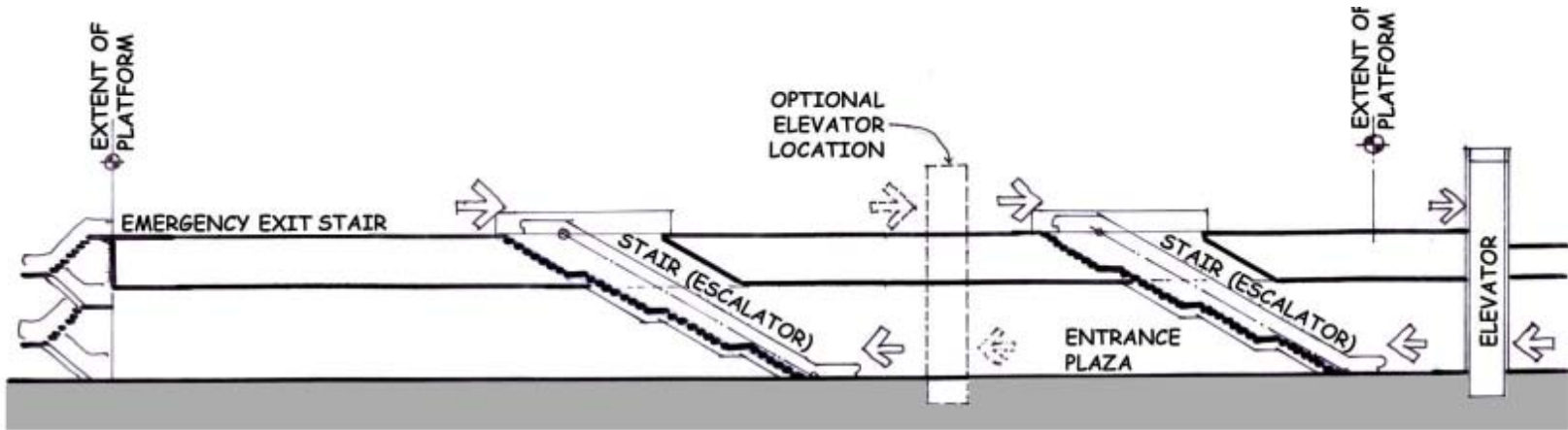
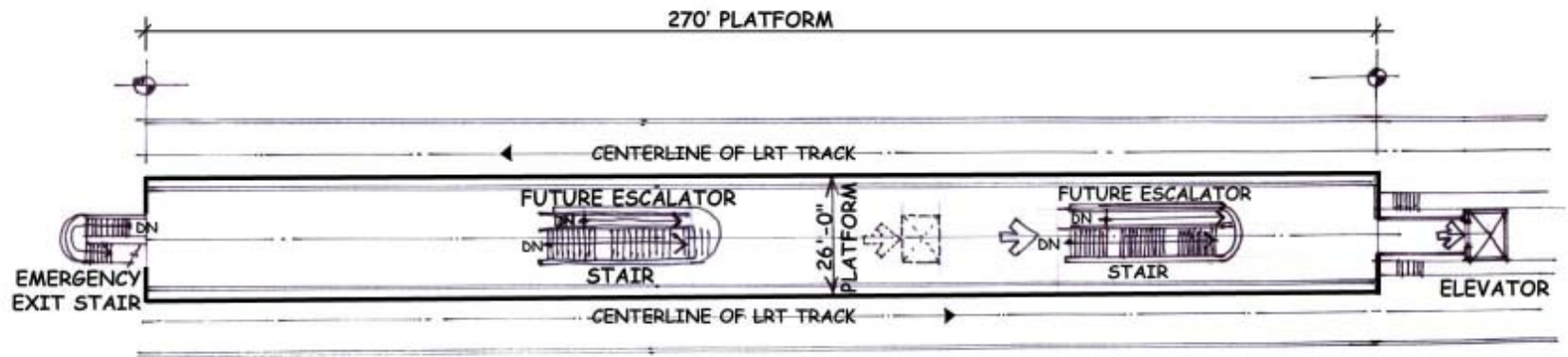


Figure ES-27: Typical Station Layout: Side Platform



TYPICAL AERIAL PLATFORM LONGITUDINAL SECTION



TYPICAL AERIAL PLATFORM PLAN

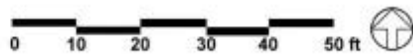


Figure ES-28: Typical Station Layout: Aerial Station

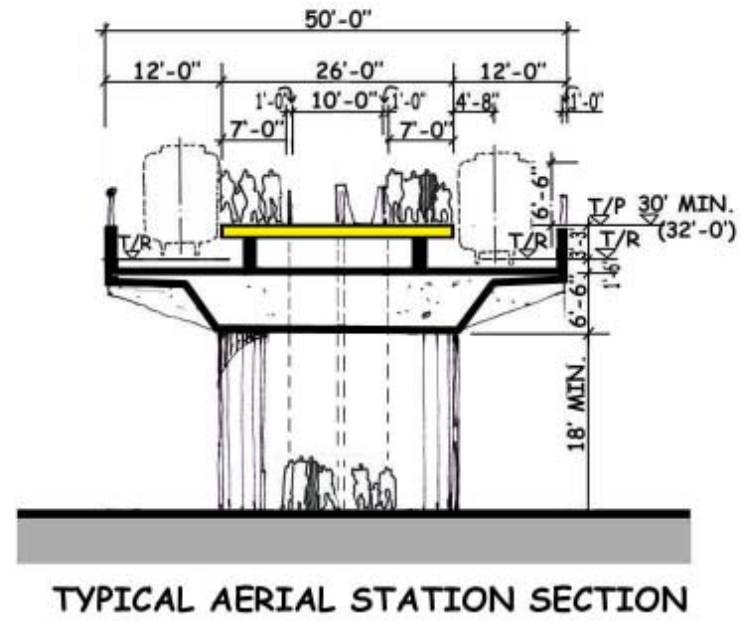


Figure ES-29: Typical Station Section: Aerial Station

□ Arcadia

The City of Arcadia has two potential station sites, both located near the stated their preference for a station site southeast of the diagonal crossing of the intersection of North First Avenue and East Santa Clara Avenue (see **Figure ES-30**).

The City of Arcadia also requested a grade separation at Santa Anita Avenue (to be built at City expense), which would require the station to be located southeast of the North First Avenue and East Santa Clara Avenue intersection. The location east of North First Avenue is necessary in order to provide sufficient distance between Santa Anita and North First Avenue for the LRT to be at-grade when crossing North First Avenue. If the Santa Anita Avenue crossing remains at-grade, the station would remain southeast of the North First Avenue and East Santa Clara Avenue intersection.

The LRT platforms would be located southeast of the North First Avenue and East Santa Clara Street intersection. Due to narrowing of the railroad right-of-way, this option would have offset side platforms, and access would be provided from the north at the aforementioned intersection. This location would be implemented for either at-grade operation of the LRT line across Santa Anita Avenue, or for a grade separation of the LRT line above Santa Anita Avenue, which is at the request of the City of Arcadia.

The City of Arcadia requested that an alternative platform location northwest of the diagonal crossing of the intersection of North First Avenue and East Santa Clara Avenue also be considered. This station location would have a center platform. This option would require that the crossing at Santa Anita Avenue be at-grade (see **Figure ES-31**).

Parking for both options would utilize rail right-of-way along Front Street, as well as requiring acquisition of commercial property northwest of the Front Street and East Santa Clara Avenue intersection. The parking structure would include approximately 300 spaces (on opening day) on two levels and the property could incorporate a transit/passenger drop-off and a pedestrian plaza as well.

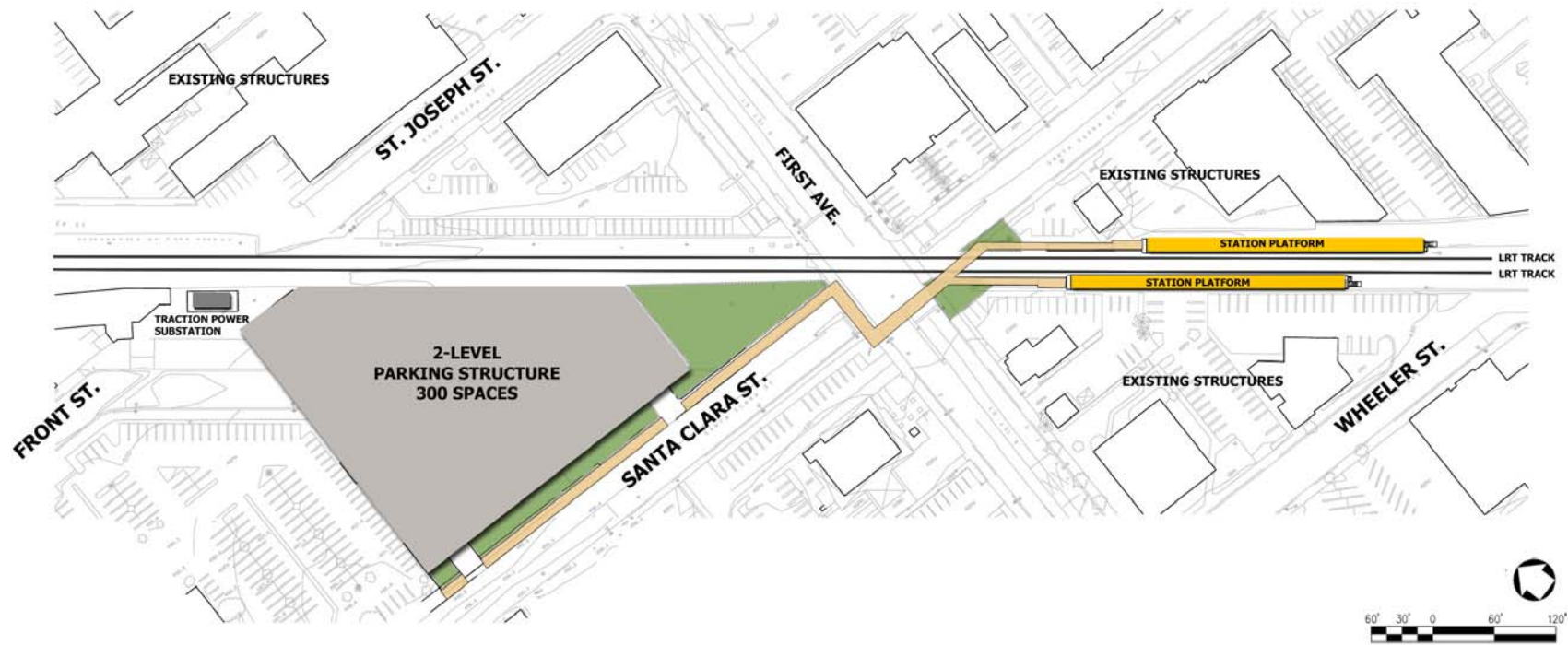


Figure ES-30: Site Plan: City of Arcadia Station, Option A

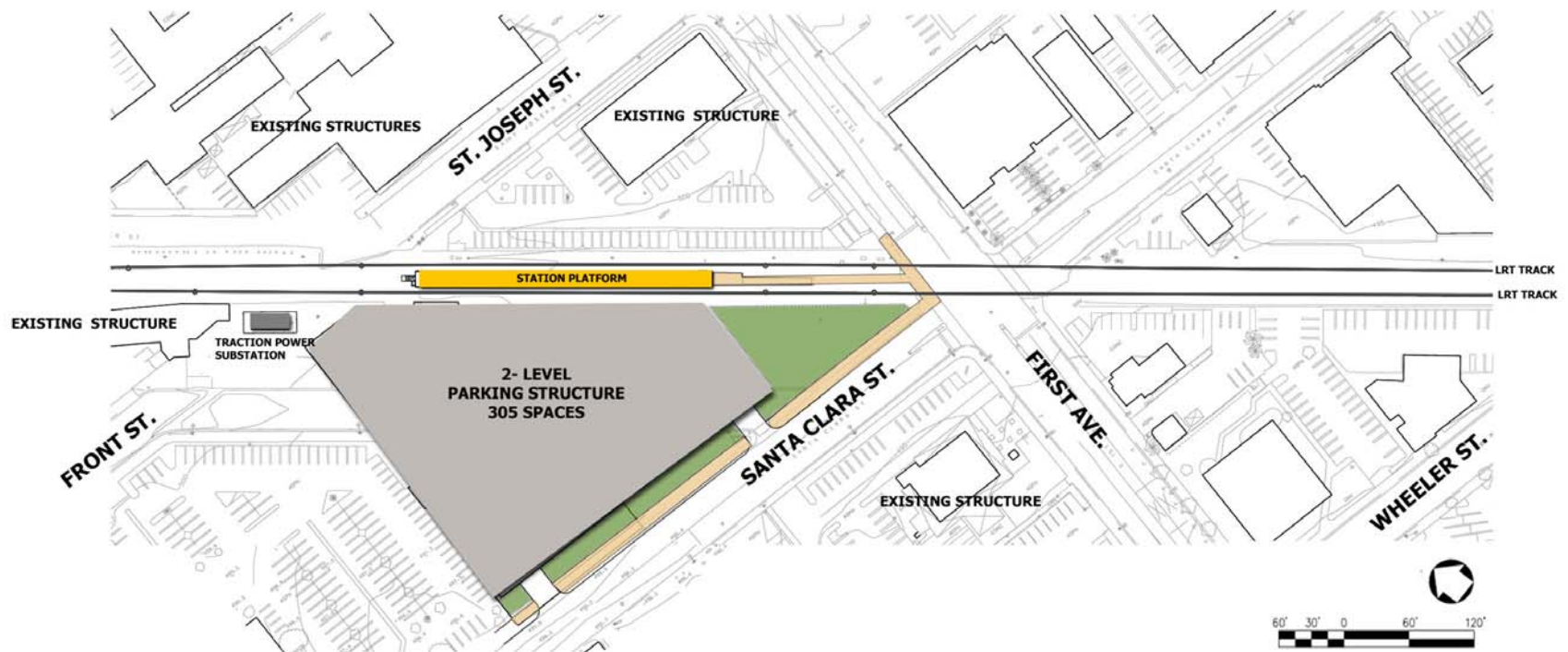


Figure ES-31: Site Plan: City of Arcadia Station, Option B

□ Monrovia

The City of Monrovia has a historic Santa Fe depot located on Myrtle Avenue just south of West Pomona Avenue. The City is in the process of restoring the depot and creating a new transit center, including a surface parking lot of ~~205~~ approximately 200 spaces. Foothill Transit will provide bus service to the transit center in addition to the proposed Gold Line LRT station.

The station would be located just west of the historic depot, adjacent to and connected to the new transit center. The station would be a side-platform station, with access from the east end of the platforms (see **Figure ES-32**). Approximately 350 parking spaces are estimated to be required on opening day; 600 parking spaces would be required at the Monrovia station in 2025. Parking demand associated with LRT service would be accommodated by the new transit center lot and ~~proposed parking structure on the south side of the alignment~~ within the proposed mixed-use development that the City of Monrovia Redevelopment Agency is planning for this area. ~~Creation of the parking structure would require the acquisition and demolition of commercial structures to the southwest of the station.~~

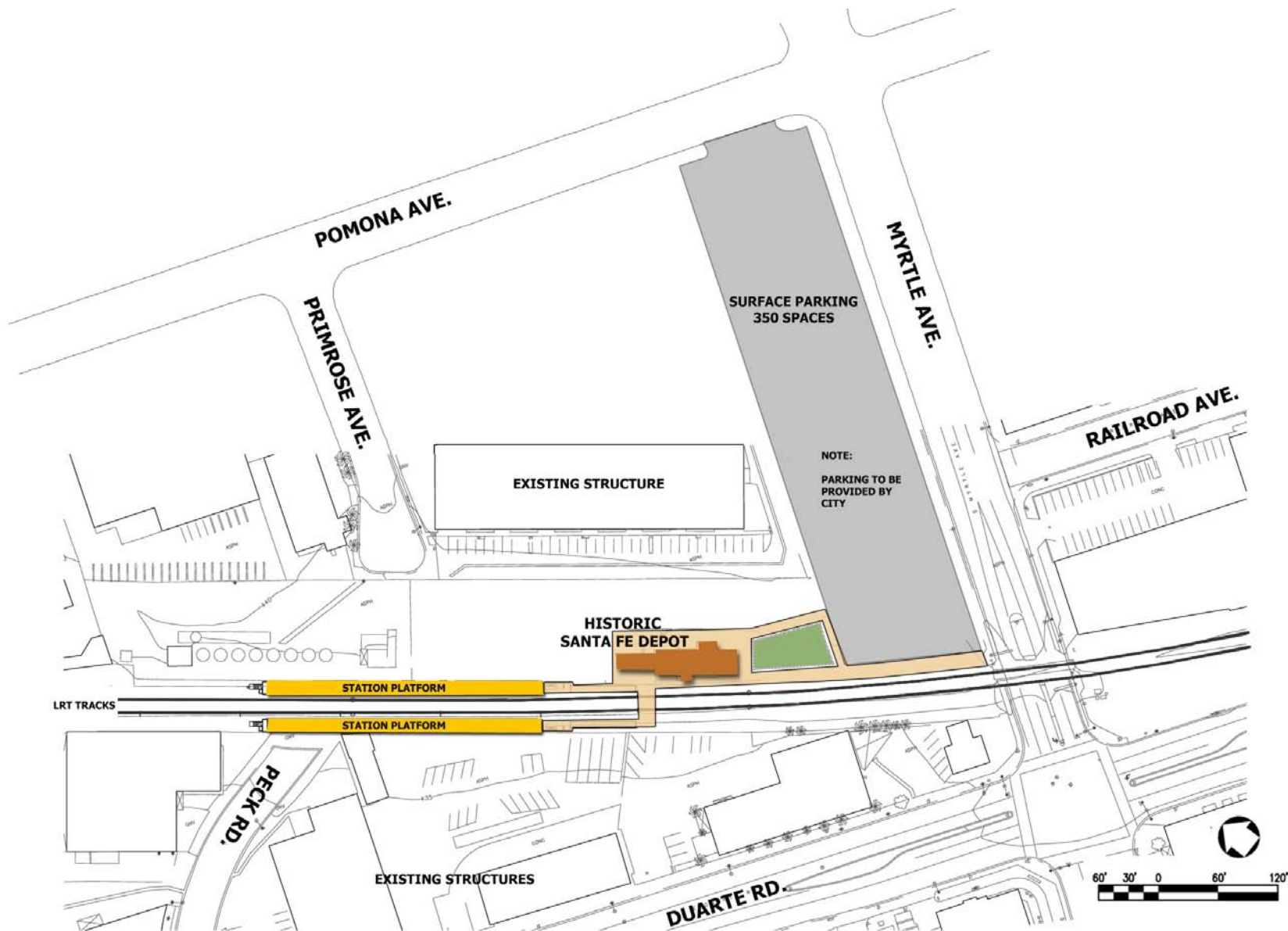


Figure ES-32: Site Plan: City of Monrovia Station

□ Duarte

The City of Duarte station would be sited ~~near the City of Hope Medical Center~~ just north of Duarte Road, approximately 500 feet west of Highland Avenue. A center platform station is proposed for this location with entry from both ends of the platform. The Duarte station requires 125 parking spaces on opening day and 250 parking spaces by 2025. Approximately 125 parking spaces are proposed to be accommodated in a surface parking lot located north of the proposed station with vehicular access via Business Center Drive. A 500-foot pedestrian walkway would connect the parking with the station (see **Figure ES-33**)

~~The City of Hope is an internationally recognized hospital and is a major destination in Duarte. The rail right of way is at its narrowest at this point (just under 50 feet in width). , and, thus, the station site would require expansion into the parking lane of Duarte Road if the Triple Track Configuration were implemented. For the Double Track Configurations, expansion in the parking lane would not be necessary. Parking is currently not allowed along this stretch of Duarte Road, as per the City of Duarte. due to the narrow right of way. The estimated 250 parking spaces that are forecasted to be required by 2025 are proposed to be accommodated in a parking structure located on City of Hope property. The proposed structure would be located on a current surface parking area, and would be jointly utilized by transit patrons and City of Hope visitors and staff.~~

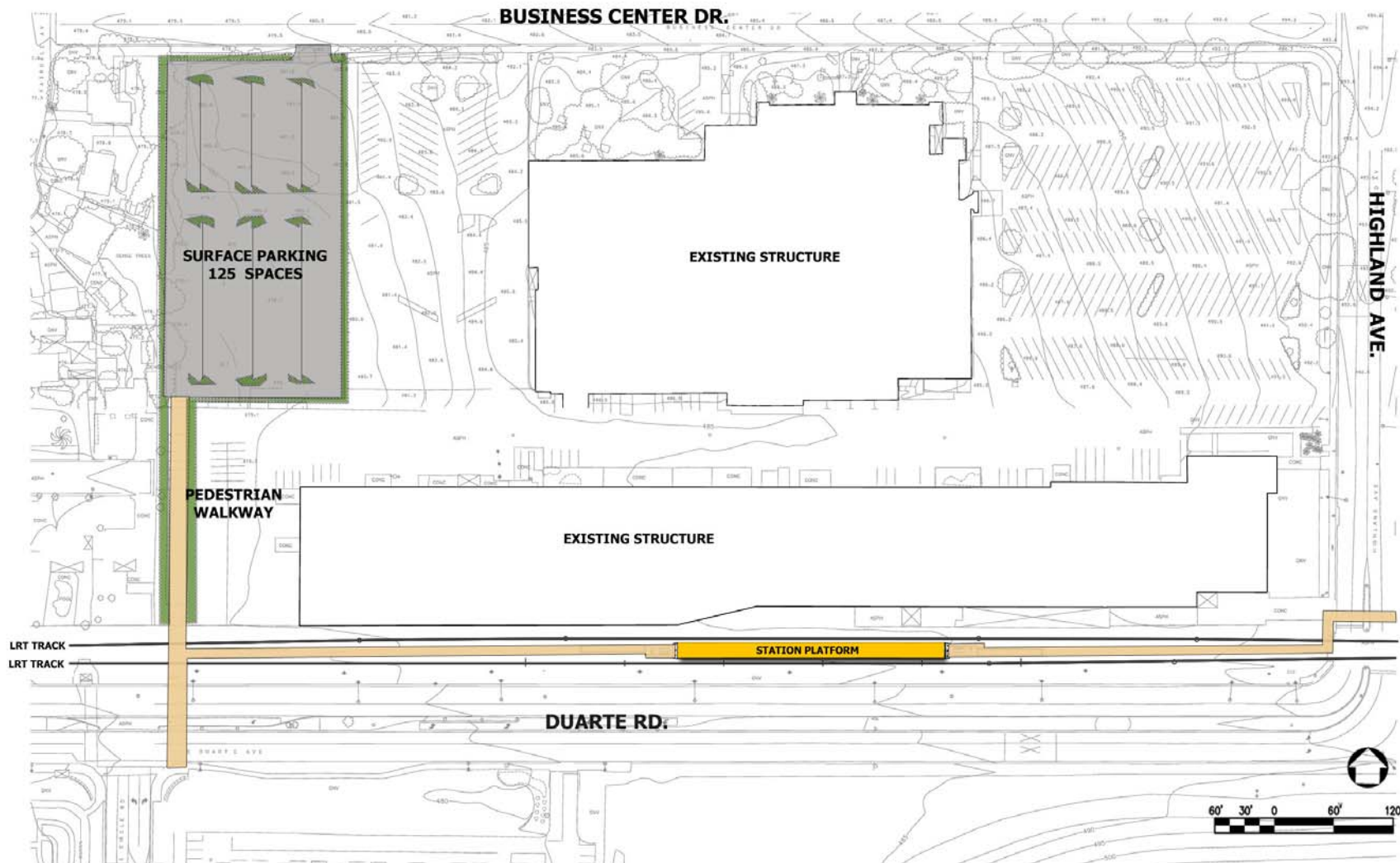


Figure ES-33: Site Plan: City of Duarte Station

□ Irwindale

The station platform for the City of Irwindale would be located east of the Irwindale Avenue overpass. A side platform station is proposed in this location due to constraints of the Irwindale Avenue overpass support columns and the adjacent freight tracks (both mainline and sidings). Access to the platforms would be via both the eastern and western ends.

Approximately 700 parking spaces would be required by 2025, with approximately half (350 parking spaces) required on opening day. Parking is proposed to be located in the “South Kincaid Pit,” north of the platforms between the alignment and the I-210 freeway. Vehicular access for the station would be provided via Irwindale Boulevard and Adelante Street, which connect to a frontage road. The frontage road would be realigned to accommodate a vehicular tunnel that would pass under the rail right-of-way to access the surface parking on the north side of the alignment. (See **Figure ES-34**)

~~The station location for the City of Irwindale would be located adjacent to the Miller Brewing facility, west of Irwindale Boulevard. Vehicular access for the station would be provided via Irwindale Boulevard and a frontage road called Montoya Road. Approximately 700 parking spaces would be required by 2025. These parking spaces would be provided in a parking structure, to be located on a vacant site south of the station.~~

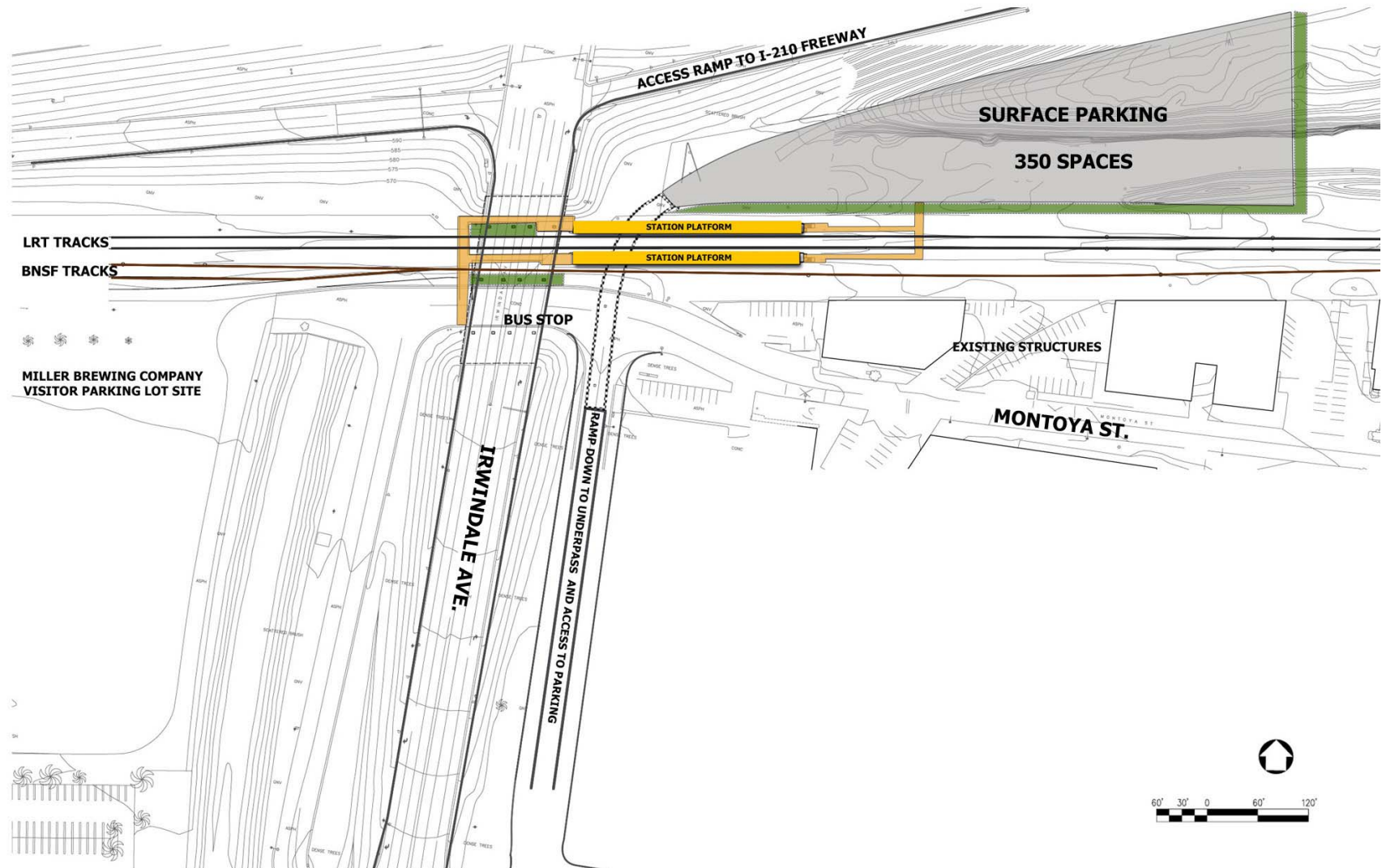


Figure ES-34: Site Plan: City of Irwindale Station

□ Azusa

The City of Azusa would have two stations: one located in the downtown center near the historic Santa Fe depot and one located at the ~~proposed Monrovia Nursery~~ Rosedale development (see **Figures ES-35 and ES-36**).

The downtown station would be located at North Alameda Avenue, which would be closed across the rail right-of-way. This location takes advantage of the existing historic Santa Fe depot that is located just east of North Alameda Avenue, as well as the adjacent City Hall and downtown businesses. This station would have a side platform and would be accessed via the western end of the platform. The downtown Azusa station would need approximately 400 parking spaces in 2025, half of which would be required on opening day. Parking is proposed within the rail right-of-way and ~~in a parking structure on a surface lot~~ that would be built on the block bounded by North Alameda Avenue, 9th Street, and North ~~Dalton~~ Azusa Avenue (see **Figure ES-35**). Creation of the parking ~~structure~~ facility would require the acquisition and demolition of commercial structures. The City has expressed interest in combining the parking with a mixed-use development on this site. That potential mixed-use development is not part of the proposed Foothill Extension project and would be subject to a separate EIR prepared by the City.

The Azusa/Citrus Avenue station site at ~~Monrovia Nursery~~ the Rosedale development would be part of a transit-oriented mixed-use development just west of Citrus Avenue and north of the rail right-of-way. Located between Palm Drive and the future Citrus Avenue extension, the LRT station would have a center platform with access from the east end of the platform. Approximately 200 parking spaces are required on opening day at the Citrus station, and 350 parking spaces will be required by 2025. Construction Authority would purchase a one-acre parcel for parking near the proposed station location to accommodate a two-level parking structure containing approximately 200 parking spaces. A transit plaza is also proposed adjacent to the station and parking. (See **Figure ES-36**) ~~This location would have side platforms (due to the close proximity of the future grade-separated crossing at Citrus Avenue (part of the Monrovia Nursery redevelopment project). The developer would incorporate approximately 350 parking spaces into the transit center design.~~



Figure ES-35: Site Plan: City of Azusa, Alameda Avenue Station

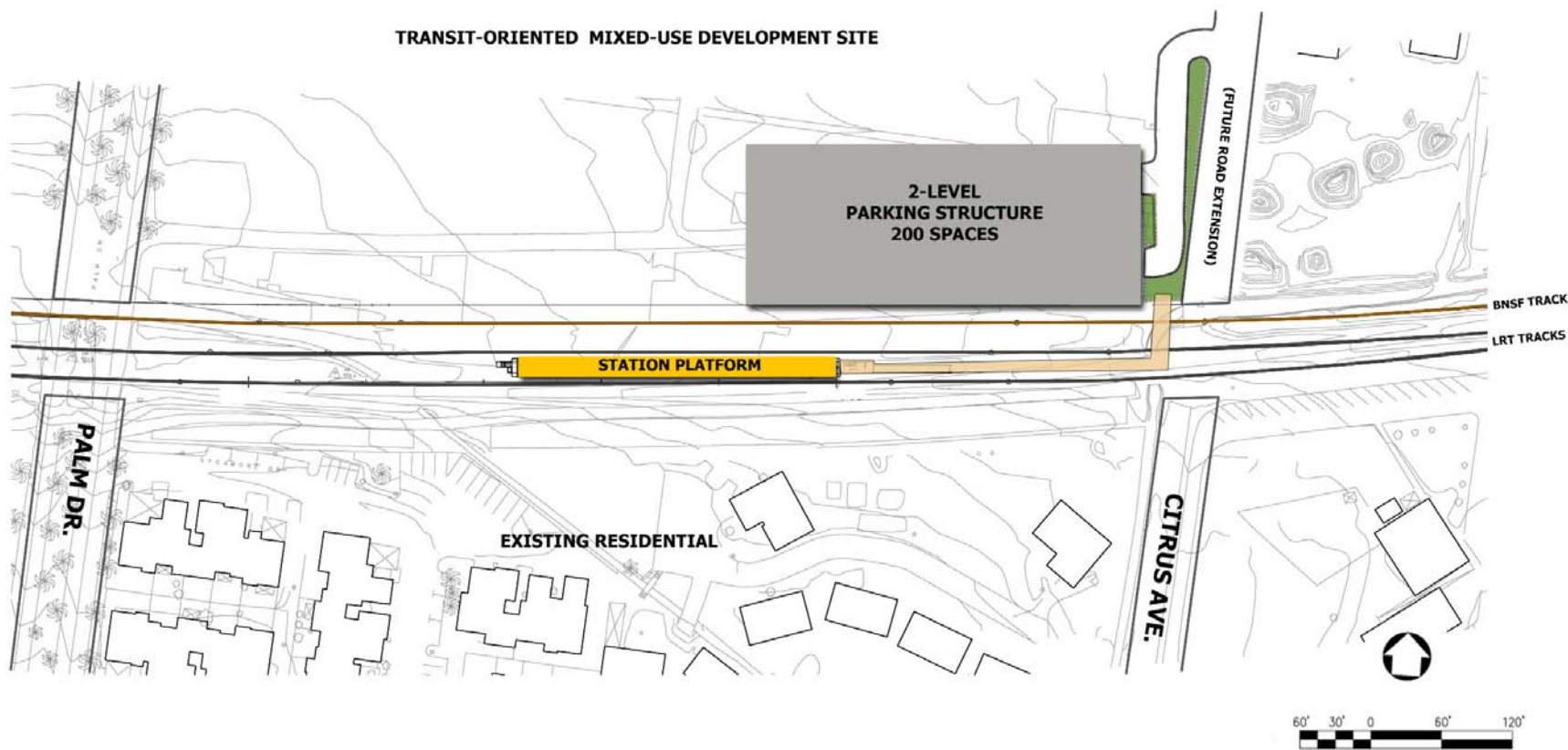


Figure ES-36: Site Plan: City of Azusa, Citrus Avenue Station

❑ Glendora

The City of Glendora station would be sited on a parcel located between Glendora Avenue on the east and northeast, East Ada Street on the north, and Vermont Avenue on the west. A center platform station would be located near Vermont Avenue. Access would be provided from both ends of the platform to allow entry from both the street and the parking area (see Figure ES-37).

Surface parking would be provided on the remainder of the Construction Authority-owned property. site. Approximately 400 parking spaces would be required in 2025 at this location; 200 spaces would be required on opening day. There is room for additional parking on the south side of the alignment, which could be used for future parking needs. Currently, the City and the Construction Authority are considering proposals for joint development on this parcel. Should joint development occur, parking for the opening day would be provided as a part of the project.

~~Access would be 180 feet from the curb as required by the California Public Utilities Commission in the Double Track Configurations. For the Triple Track Configuration, shown in Figure 2-56, side platforms (as shown in Figure 2-43) would be required.~~

~~Parking is also proposed to be provided on a parcel located north of the rail right of way and Vermont Avenue. Creation of the parking structure would require the acquisition and demolition of commercial buildings.~~

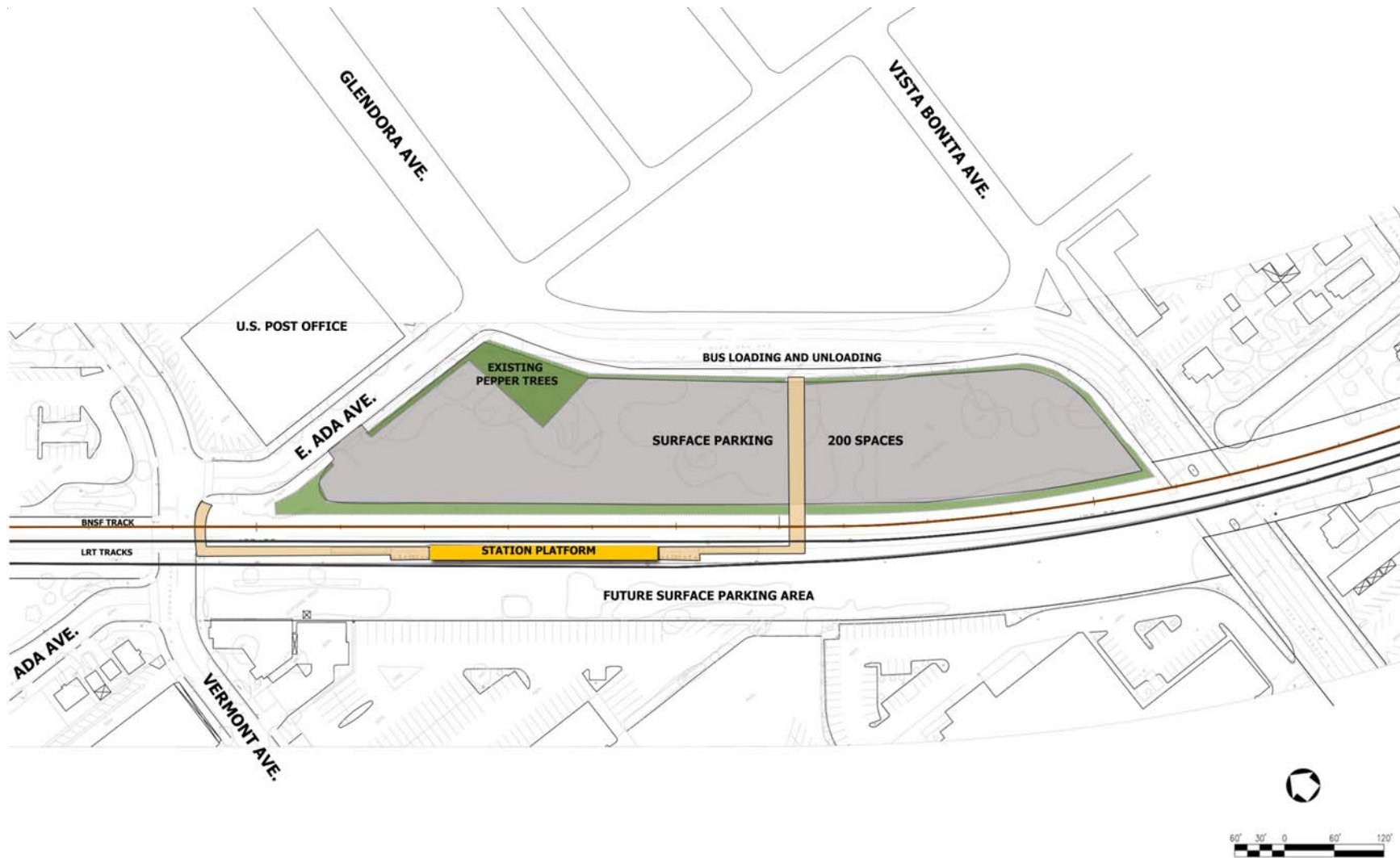


Figure ES-37: Site Plan: City of Glendora Station

□ San Dimas

The Foothill Extension station in the City of San Dimas would be located west of Eucla Avenue and North of Bonita Avenue. Access to this center platform station would be at the eastern end, directly adjacent to Eucla Avenue (see Figure ES- 38).

Approximately 460 parking spaces are required for opening day, and 750 parking spaces would be needed at the San Dimas station in 2025. Parking would be provided in a three-level structure located west of Eucla Avenue and north of the Authority alignment. A bus transfer area would also be located in this area. Construction of the station parking facility would require the acquisition and demolition of commercial buildings.

~~Two station site options have been identified for the City of San Dimas. The station siting choice is complicated by a rail alignment that crosses two major arterials on the diagonal in the center of town. For the double track alternative, the station would be located near the historic Santa Fe Depot on the south side of Bonita Avenue, east of Cataract Avenue. The side platforms at this location would need to be offset in order to accommodate the 180 foot distance requirement at intersections. The station would be accessed via both the northern and southern ends of the side platforms. For the triple track alternative, the station would be located north of Bonita Avenue and west of Cataract Avenue. Access to this station would be via the southern end of a center platform. Refer to Figure ES 41 for the double track alternative and Figure ES 42 for the triple track alternative.~~

~~Approximately 750 parking spaces would be needed at the San Dimas station in 2030. Three parking options have been identified. For the LRT station at the historic depot, some parking demand could be met at the existing park and ride lot, which is located nearby, east of Monte Vista Avenue. Three other locations were identified by the city as possible locations for parking. Surface parking could be provided at one of these, a location west of Cataract and north of Bonita. This site includes the historic La Verne Orange Association Building, which would remain on the site. Two locations for parking structures were identified. The first of these is located west of Acacia Avenue, at its intersection with First Street. The second is located west of Eucla Avenue, at its intersection with Second Street. Either of the parking structure locations would require the acquisition and demolition of commercial buildings.~~

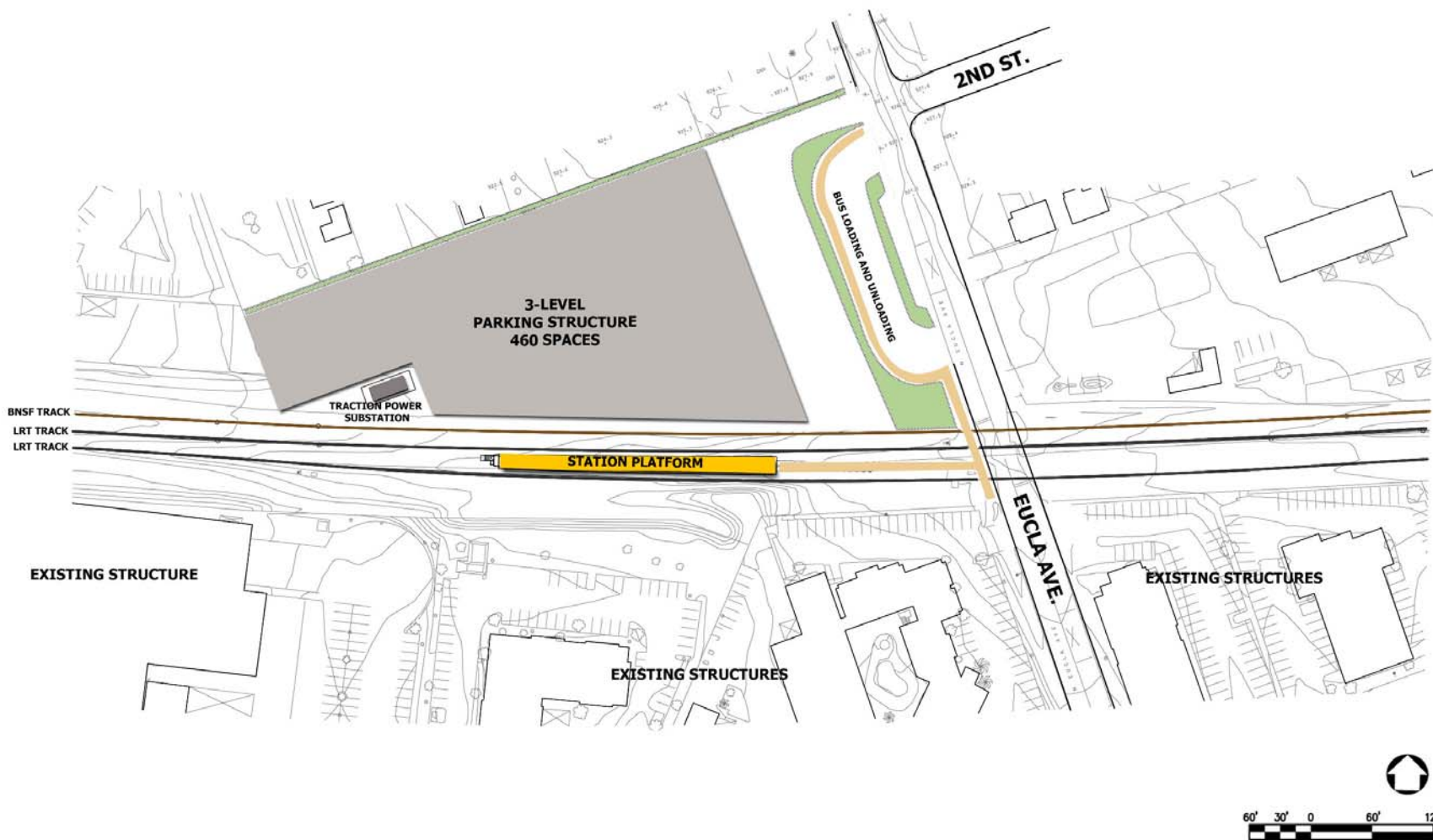


Figure ES-38: Site Plan: City of San Dimas Station

□ La Verne

The station for the City of La Verne would be located east of E Street, just north of Arrow Highway. This location would have a center platform. Pedestrian access to the platform would be from the west end, adjacent to E Street (see Figure ES-39).

The La Verne station requires 300 parking spaces on opening day, and 600 parking spaces by 2025. The Fairplex has agreed to provide 600 parking spaces on opening day for use by Foothill Extension patrons. This parking would be located approximately 1,200 feet away from the station on Fairplex property. Access to the station would be via a 5-minute walk along Arrow Highway to E Street to access the station.

In addition, there are several options for the station site.

~~Option C, a double track alternative, and Option E, a triple track alternative, would be located west of D Street, adjacent to the University of La Verne campus, just north of Arrow Highway. This location would have a center platform, as illustrated in Figure ES-44.~~

~~Option D, a double track alternative, and Option F, a triple track alternative, would be located adjacent to a potential multimodal transfer facility that would be built on the triangle of land south of the rail ROW, between E Street and White Street, and bordered on the southwest by Arrow Highway and on the southeast by the Metrolink right of way. This location would have a center platform for LRT operations (please refer to Figure ES-45). This facility is tentatively planned to contain a light rail station, a Metrolink station, a bus transfer facility, patron parking, and kiss n ride access. Currently, the city of La Verne, the city of Pomona, the Fairplex, Foothill Transit, Metrolink, and the Gold Line Authority are in discussions regarding the potential for such a regional transit facility.~~

~~Parking for all station options is planned to occur on the grounds of the nearby Fairplex. An estimated 800 spaces would be needed by 2030.~~

~~If the multimodal facility were built (Options D and F), instead of following the current Metrolink ROW and turning southwest at White Street, the Metrolink tracks would continue west along a shared Gold Line alignment parallel to and north of Arrow Highway until approximately San Dimas Canyon Road. At this point Metrolink tracks would cross over Arrow Highway and reunite with the Metrolink ROW on the south side of Arrow Highway. Additional parking, beyond that identified for LRT stations below, may be required by Metrolink and Foothill Transit according to their planning requirements. Funding issues and partnering agreements would be worked out separately between the various groups involved.~~

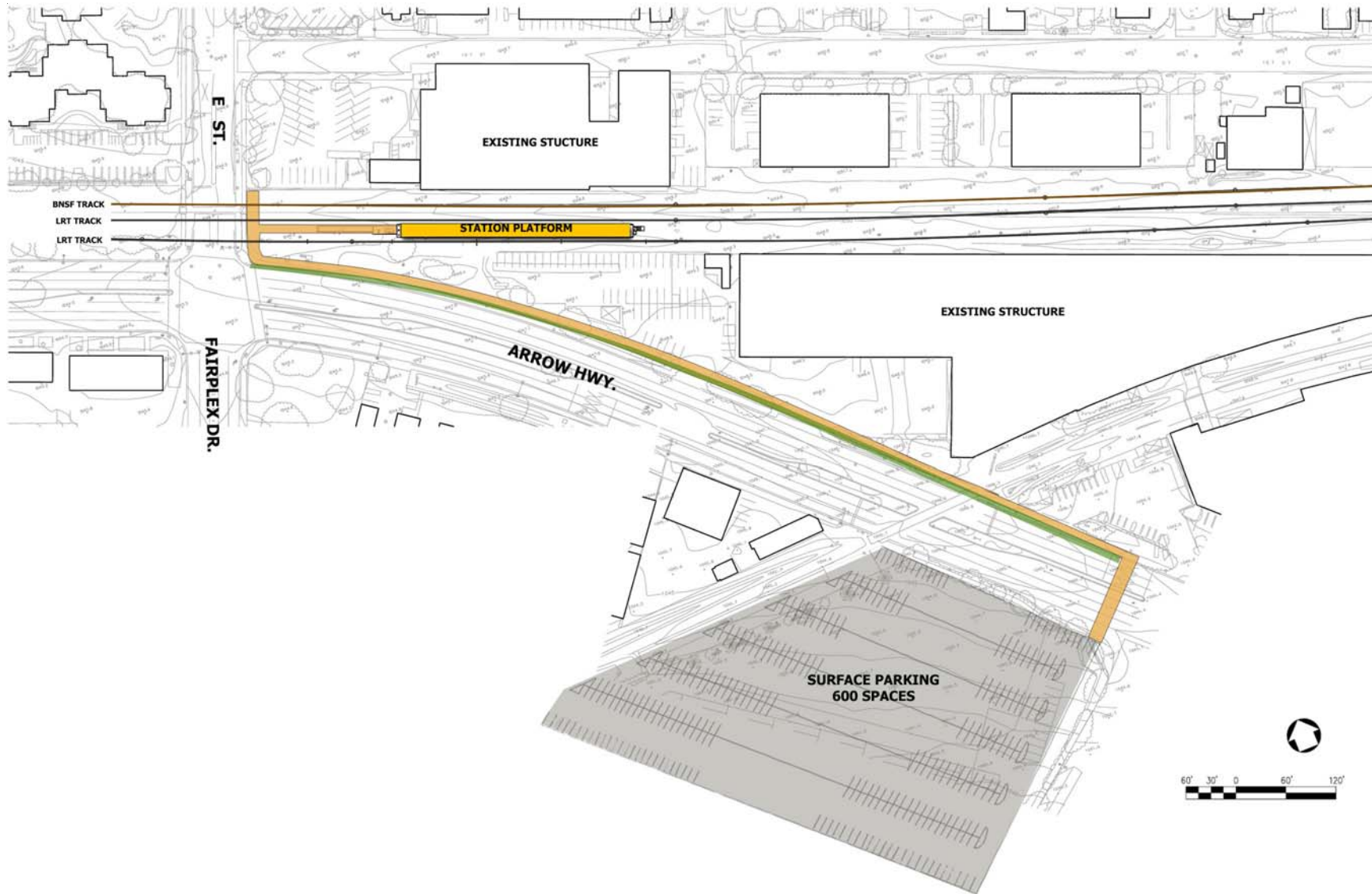


Figure ES-39: Site Plan: City of La Verne Station

□ Pomona

The San Bernardino Metrolink line stops in Pomona at a passenger station located west of Garey Avenue and accessible via West Santa Fe Street. The proposed LRT station (see **Figure ES-40**) site is located adjacent north of the existing Metrolink facility. This location would have a center platform.

Approximately ~~800~~ 530 parking spaces would be required at the Pomona station on opening day; 800 spaces would be needed by 2025. Current Metrolink surface parking is fairly limited, and at capacity. A nearby vacant lot located north of the alignment is proposed for a parking structure. Vehicular access to the parking structure would be from Bonita Avenue. Pedestrian access from the parking area to the platform would be via a pedestrian walkway and bridge over the freight tracks – a layout designed to allow freight trains to continue using the area for shunting cars while also allowing unrestricted access from the parking facility to the station area. Metrolink is has double tracks in this area, so there would be a total of more than four-five tracks in this area (one freight track on the north, as well as several switching tracks, two LRT tracks, and two Metrolink tracks on the south/freight).

~~The City of Pomona has two options for station sites. Approximately 800 parking spaces would be required at the Pomona station in 2030 (please refer to Figures ES 46 and ES 47).~~

~~Currently, the San Bernardino Metrolink line stops in Pomona at a passenger station located west of Garey Avenue and accessible via West Santa Fe Street. One proposed LRT station site is located adjacent to the existing Metrolink facility (see Figure ES 46). This location would have a center platform, as illustrated in Figure ES 24. Current surface parking is fairly limited and at capacity. A nearby vacant lot located north of the alignment is proposed for a parking structure. Access to the parking structure would be off of Bonita Avenue.~~

~~The second option for a station in Pomona (Options D and F) is located to the east of Towne Avenue. This station alternative would be part of a package of stations with the La Verne Fairplex station (Options D and F). This location would have a center platform. To the north of the alignment and east of Towne Avenue is a vacant industrial site, which is identified as a potential location for surface parking (please refer to Figure ES 47).~~

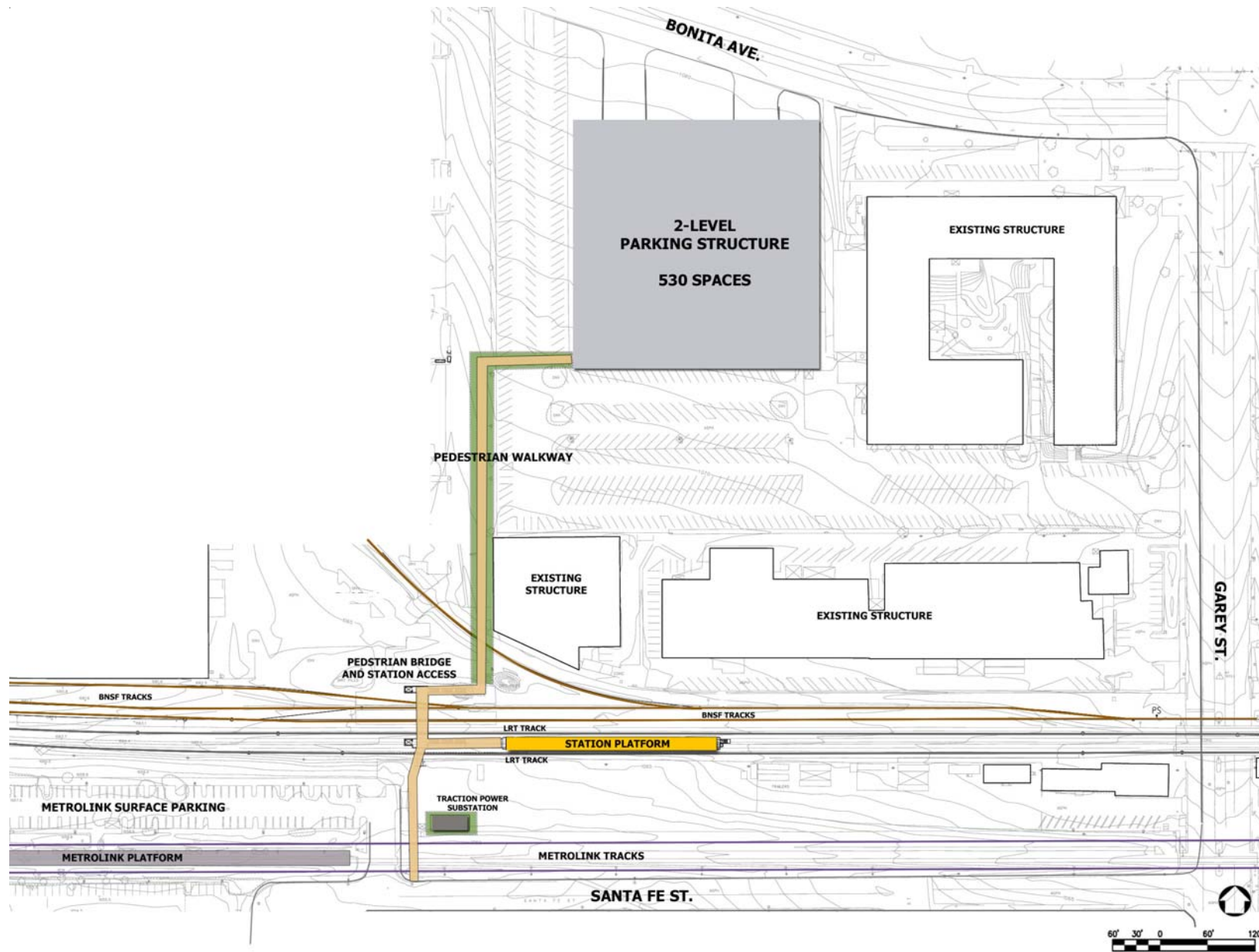


Figure ES-40: Site Plan: City of Pomona Station

❑ Claremont

Claremont has a thriving transit center focused on its historic restored Santa Fe depot, located north of the tracks to the east of Indian Hill Boulevard. There are two options for the platform location.

Option A is proposed to be located just north of the west end of the existing Metrolink station, with easy access between the two systems. The center platform station would be accessed via the east. Within the rail right of way, there would be two LRT tracks and two Metrolink/freight track, with two new side Metrolink platforms. (See **Figure ES-41**) Due to the narrow right-of-way between Indian Hill Boulevard and College Avenue, property must be acquired on the south side of the right-of-way between approximately Bucknell Avenue and east of College Avenue.

The Option B LRT station location would to be located east of College Avenue, south of the proposed parking structure. The station would be accessed via the east. This side platform station would require slightly less property acquisition through the existing station area. There would be two LRT tracks and two Metrolink/freight track, with two new side Metrolink platforms. (See **Figure ES-42**)

The Claremont station would require approximately 700 parking spaces for LRT patrons in 2025; about 300 parking spaces would be needed opening day. On opening day, parking would be provided in a 5-level structure to be built on the existing Metrolink surface parking lot. The parking structure could accommodate approximately 700 parking spaces. There would be a total of 400 parking spaces for Metrolink patrons (to replace the existing surface parking lot) and 300 parking spaces for Foothill Extension patrons.

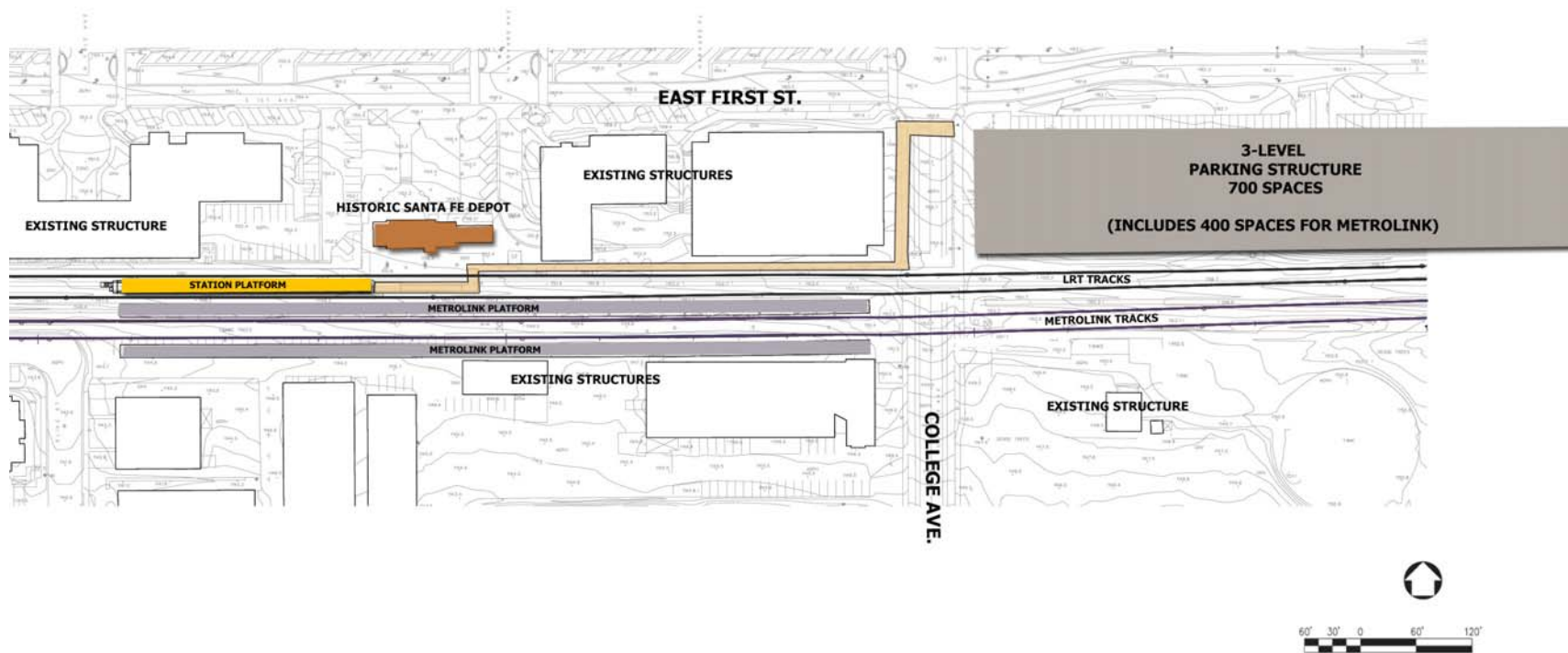


Figure ES-41: Site Plan: City of Claremont Station, Option A
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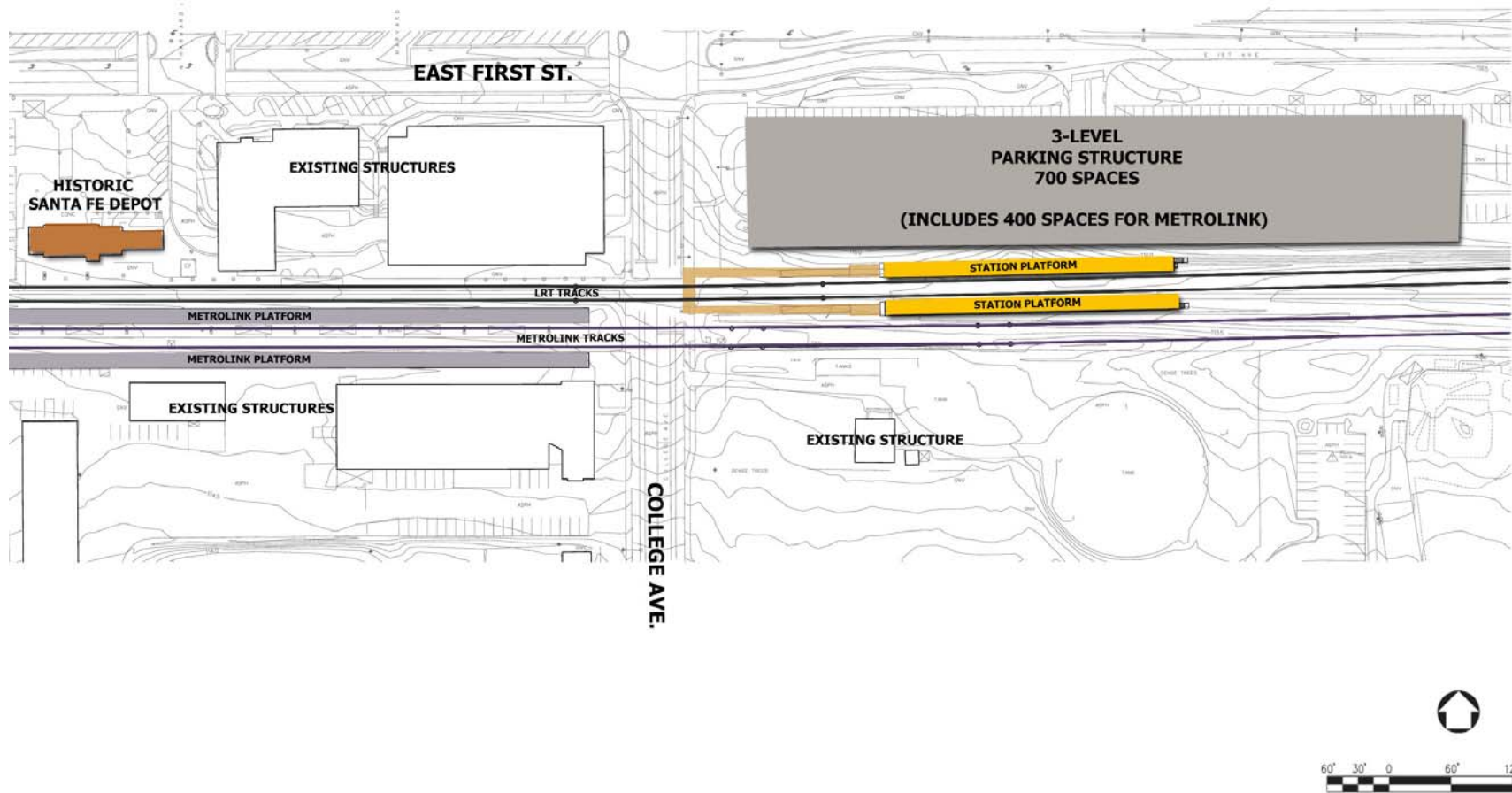


Figure ES-42: Site Plan: City of Claremont Station, Option B

❑ Montclair

The terminus station in the City of Montclair (which would also serve the City of Upland) is located at the Montclair TransCenter. The Montclair TransCenter provides a transfer location between Metrolink, Omnitrans and Foothill Transit, and contains ample parking for all current and planned operations. The LRT service would require approximately 800 parking spaces in 2025. This demand can be accommodated within the existing TransCenter parking.

The City of Montclair has a specific plan process underway for the TransCenter and the adjoining neighborhood directly south of the site. The focus of the specific plan is increased connectivity between the TransCenter and the Montclair Mall, which is located about two blocks south of the rail right-of-way. The station would be located on the ~~north~~ south side of the TransCenter. This location would have a center platform ~~(as shown on Figure 2-42)~~ and access would be provided from the ~~western~~ eastern end of the platform. The existing Metrolink station and future pedestrian tunnel would not be affected by the construction of the Foothill Extension, and coordination has ensured that the pedestrian tunnel would merely have to be extended, not relocated, with the construction of the LRT platform. Refer to **Figure ES-43**.

~~There are two potential station locations for the terminus station in the City of Montclair in San Bernardino County. Currently, the Montclair TransCenter houses transfer operations between Metrolink and Foothill Transit and contains ample parking for all current and planned operations. The LRT service would require approximately 800 parking spaces in 2030. This demand can be accommodated within the existing TransCenter parking.~~

~~The City of Montclair has a specific plan process under way for the TransCenter and the adjoining neighborhood directly south of the site. The focus of the specific plan is to increase connectivity between the TransCenter and Montclair Mall, which is located about two blocks south of the rail ROW. The station would be located on the north side of the TransCenter. This location would have a center platform, and access would be provided from the western end of the platform. In order to reach the north side of the TransCenter, the LRT alignment would turn northward to the east of the Claremont station and transition into an abandoned rail ROW that is owned by the San Bernardino Associated Governments (SANBAG). This ROW is typically referred to as the Union Pacific ROW or the Pacific Electric ROW (please refer to Figure ES-49).~~

~~The City of Upland, located directly to the north of the TransCenter, has a number of housing and commercial developments in the planning stages for the land adjacent to the north side of the TransCenter. The city limits of Upland and Montclair is the center line of the Pacific Electric ROW.~~

~~Option G would locate the LRT station on the south side of the TransCenter, just west of the existing Metrolink station. This location would have side platforms and access from the eastern end of the LRT platforms. The existing Metrolink station would need to be relocated to the south side of the rail ROW in order for the LRT tracks to be placed on the north side of the ROW. The southern LRT platform would be located immediately next to a relocated Metrolink side platform (please refer to Figure ES-50).~~

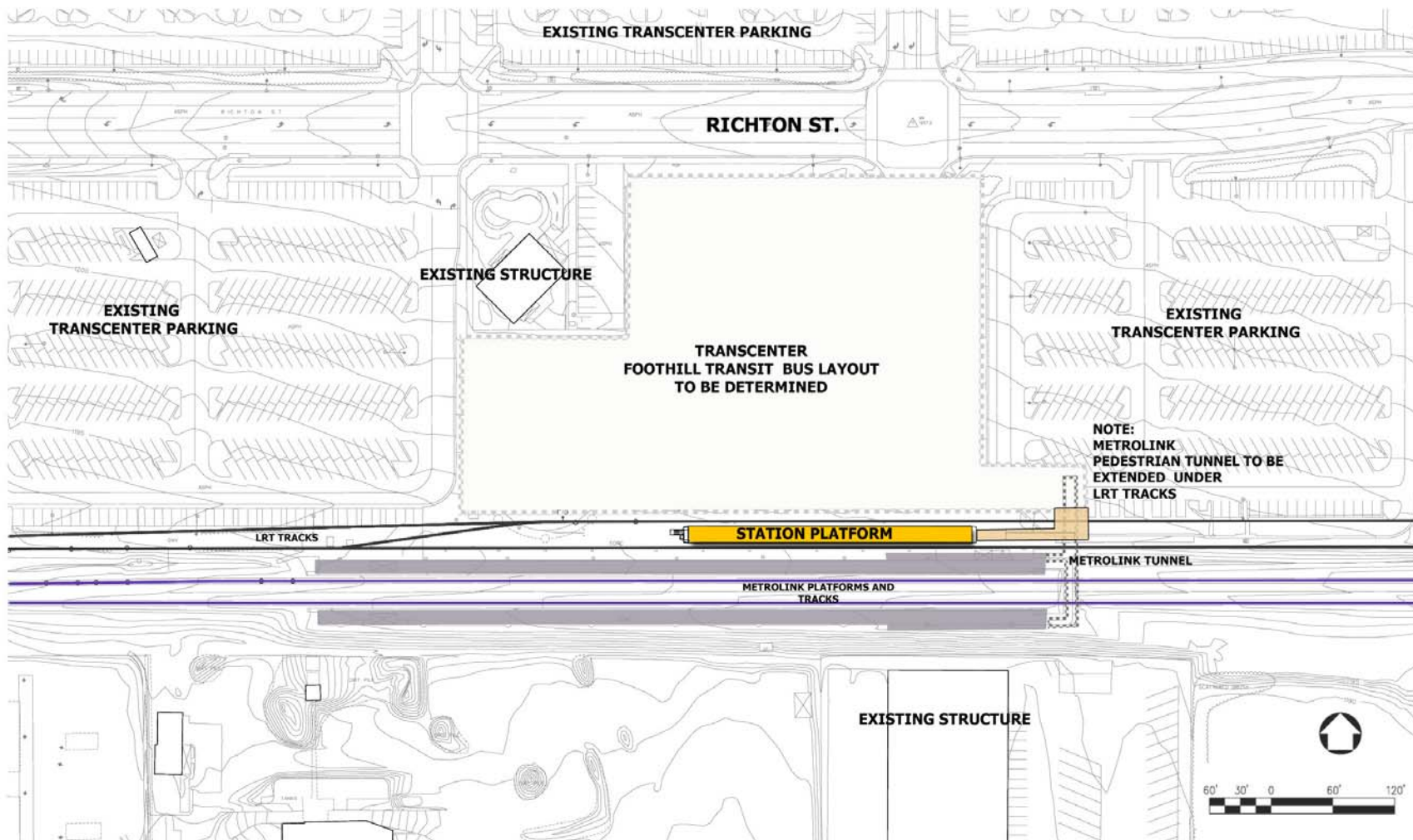


Figure ES-43: Site Plan: City of Montclair Station

❑ Maintenance and Operations Facility

A 24-acre Maintenance and Operation facility would be included in the Full Build Alternative but would not be constructed as a component of the Build LRT to Azusa Alternative. The yard and facility would be constructed to meet the requirements for the Foothill Extension, with the capability to be expanded for future LACMTA Metro requirements (Gold Line Phase I and Eastside Extension). The proposed site in Irwindale would be conveniently located at about the midpoint of this combined route. Vehicular access to accommodate delivery of goods and supplies is very close to the I-210/Irwindale Avenue interchange. The proposed facility would include:

- A storage yard with two storage tracks to accommodate approximately up to 20 light-rail vehicles (LRVs). Future expansion would add as many as seven additional tracks to the yard and would accommodate a total of over 80 LRVs.
- A 70,000-square-foot, three-level Maintenance and Shop Facility that includes administrative offices and a yard control center. This facility will be used for daily servicing, preventive maintenance, running repairs, heavy repairs, blowdown, wheel truing, parts storage and material control, component troubleshooting and repair, maintenance administration, and employee welfare and support areas. An approximately 4,500 square-foot Car Wash building and 5,550 square-foot Blow Down building would also be constructed.
- Future expansion could include an approximately 3,900-square-foot body shop and a 6,000 square-foot Maintenance of Way building to house equipment and spare parts for replacement and repair of the right-of-way.
- A Traction Power Substation (TPSS) for the yard and shop.

Figure ES-44 shows the conceptual layout of the M&O facility.



Figure ES-44: Maintenance and Operations Facility

ES-5 ENVIRONMENTAL PROCESS

ES-5.1 Overview

The FTA and the Construction Authority initiated the environmental process in June 2003. A joint National Environmental Policy Act (NEPA)/California Environmental Quality Act (CEQA) document, an Environmental Impact Statement/Environmental Impact Report (EIS/EIR), has been prepared for the proposed project.

Scoping began in the summer of 2003 and is described in detail in the following subsection. Scoping included activities to help define the range of alternatives being assessed in the Draft EIS/EIR. Conceptual-level engineering was performed in order to help define alternatives to the degree necessary to identify and assess the level of environmental impacts that would be generated by alternatives. The Draft EIS/EIR was released for public and agency review in May 2004. The 45-day circulation period was May 7 to June 21, 2004.

After receiving and considering public comment on the Draft EIS/EIR (see Section ES-11.3), as well as input from the cities along the alignment, the Construction Authority Board approved a Locally Preferred Alternative (LPA) in August 2004. This LPA included the Triple Track Alternative (two LRT and one freight track) that was defined and evaluated in the Draft EIS/EIR, a station in each city, and the location of the Maintenance and Operations facility. Segment 1 was changed to extend eastward to Azusa instead of terminating in Irwindale. A Project Definition Report (PDR) was prepared to define refined station and parking lot locations, grade crossings and grade separation locations, and traction power substation locations. Following the PDR, the Authority Board Approved a Revised LPA in June 2005. Between March and August 2005, station options in Arcadia and Claremont were added. The LPA described and analyzed in this Final EIS/EIR reflects the most current refinements to the proposed Foothill Extension.

This Final EIS/EIR evaluates a No-Build Alternative and two light-rail transit (LRT) alternatives. The Full Build (Pasadena to Montclair) Alternative would extend approximately 24 miles, from Pasadena to Montclair, and would have 12 stations. The Build LRT to Azusa Alternative would extend approximately 11 miles, from Pasadena to the eastern boundary of Azusa, and would have 6 stations. Station locations, including optional sites, were identified in consultation with the cities in which they would be built.

The environmental impacts associated with the refined alternatives, as well as responses to comments on the Draft EIS/EIR are reported in this Final EIS/EIR. Upon approval of the Final EIS/EIR, a refined alternative can be advanced to the final design stage, and subsequently to construction and operation.

ES-5.2 Scoping

The FTA was the lead agency for the evaluation of environmental impacts under the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4321, et seq.). The NEPA Scoping period commenced on July 2, 2003, with FTA's issuance of the Notice of Intent (NOI). The NOI to prepare this EIS 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 and 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, relevant Scoping meeting information, and contact information.

The Construction Authority prepared an EIR for the proposed project to address the requirements of CEQA (California Public Resources Code, Section 21000, et. seq.). The Construction Authority mailed

the Notice of Preparation (NOP) for an EIR on June 26, 2003, to the State Clearinghouse and to a project-specific mailing list. It was posted at the Los Angeles and San Bernardino County Clerks' offices on June 27, 2003. The NOP announced the Construction Authority's intent to prepare an EIR pursuant to the 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 also advised California agencies of their obligation to comment on the proposed project within 30 days. The CEQA Scoping period closed on August 1, 2003. The NOP also included information on the proposed project, alternatives, anticipated effects, Scoping meeting information, and contact information. The NOP included a preview of anticipated project impacts via a CEQA Initial Study (IS) Checklist.

The NOP was distributed to agencies and organizations along the study corridor with jurisdiction or interest in the proposed project via a trackable delivery system (UPS, Second-Day Air) on June 26, 2003. This distribution date ensured receipt of the NOP by July 30, 2003. An additional 95 NOP packages were mailed June 30 and July 27.

NOP packages were sent to:

- 11 federal agencies
- 18 state agencies
- 13 county agencies
- 7 utility providers
- 14 school districts
- 16 corridor cities (including nearby South Pasadena, Bradbury, and Los Angeles)
- 35 elected officials
- 73 organizations and individuals that might have an interest in the project, including non-profit groups, Native American organizations, transit advocates, major activity centers and employers along the alignment
- 94 people who attended meetings during the Alternatives Analysis process.

In total, 404 NOP packages were distributed. The complete list, including addresses, is available upon request. Postcards notifying residents of Scoping meetings were sent to approximately 23,000 residents, elected officials, government officials, and interested parties along both the Phase I (Los Angeles to Pasadena) Gold Line alignment and in the ~~Phase II~~ Foothill Extension study area.

Two copies of the NOP packages were placed in 16 different public libraries in the Phase I and ~~Phase II~~ the Foothill Extension segments. Transmittal letters sent with the NOP instructed libraries to place the documents in an area that would be readily accessible to the public. Due to varying operating hours of the libraries, notices were delivered between June 30 and July 3, 2003.

Six newspaper notices were placed announcing the scoping meetings. All notices included the information about the scoping meetings, a project map, and contact information. The newspapers were chosen for their circulation and audience. Four newspapers of general circulation, the *Los Angeles Times*, the *Pasadena-Star News*, the *San Gabriel Valley Tribune*, and the *Inland Valley Daily Bulletin*, contained notices that were published on July 3, July 2, July 2, and July 7, 2003 respectively. Other newspapers were used to reach the two main minority population groups in the study area. The *Chinese Daily News* serves the cultural Chinese population and Chinatown, while *La Opinion* is circulated to the Latino

audience of greater Los Angeles. The Scoping notice was published in the minority language papers on July 3, 2003.

Notice of the public Scoping meetings was provided by:

- posting the NOI in the Federal Register
- filing the NOP with the State Clearinghouse and Los Angeles and San Bernardino County Clerks
- mailing the NOP to responsible and trustee public agencies
- mailing the NOP to organizations and individuals known or assumed to be interested in the proposed project
- mailing the NOP, or Scoping Notice, to residents, businesses, and institutions in the study area
- publishing notices of the Scoping meetings in newspapers of general circulation
- publishing notices of the Scoping meeting in non-English newspapers.

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. Members representing FTA, the Construction Authority, and the project consultant team staffed the meetings. These meetings were held on July 15, July 16, July 17, and July 21, 2003 in San Dimas, Claremont, South Pasadena, and Arcadia for the general public, respectively. The meeting for the public agencies occurred on July 22 at the Construction Authority offices in South Pasadena. At the public Scoping meetings, Chinese and Spanish interpreters were present for non-English-speaking members of the public. Project fact sheets were also provided in English and Spanish. All comments received were catalogued and forwarded to technical specialists to consider in their work. Responses to NOI/NOP comments are not required under NEPA or CEQA. A table of comments received and the locations in this document in which the issues raised are addressed is included in Chapter 8, Public Outreach.

ES-5.3 Comments on the Draft EIS/EIR

FTA and the Construction Authority issued Notices of Availability (NOA) and set a 45-day circulation period for agencies and the public to review the Draft EIS/EIR and to submit comments. The circulation period was May 7 through June 21, 2004.

Public comments on the Draft EIS/EIR were sought at a series of public hearings and other means identified in the NOA. Each of the Phase I and Foothill Extension corridor cities was invited to co-host a public hearing. The format of information presentation and of solicitation and recording of comments varied among the cities. Some cities opted for open-house formats, where information was presented throughout a meeting and comments were submitted in writing or dictated to a court reporter at any time; others conducted 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 held a Public Hearing.

The NOA provided a list of all means and addresses at which comments could be submitted: These include:

- Written comments to the FTA.
- Written comment to the Construction Authority postal addresses (i.e., at the time, 625 Fair Oaks, Suite 200, South Pasadena, CA, 91030)

- E-mail comments to the Construction Authority website: eircomments@metrogoldline.org
- Written comments by fax (626-799-8599)
- 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, were considered by FTA and the Construction Authority. Substantive comments are responded to in Chapter 13 of this Final EIS/EIR.

ES-5.4 Next Steps

~~The next step in the environmental process is the issuance of the DEIS/DEIR for public review and comment. Comments will be accepted at public hearing and by other means listed in the NOA (see Section ES 11.3).~~

~~After receiving and considering public comment on the DEIS/DEIR (see Section ES 11.3), the Construction Authority will select a Locally Preferred Alternative (LPA) and seek approval from FTA to enter Preliminary Engineering (PE).~~

The next step in the NEPA environmental process is the issuance of the Final EIS/EIR, including the provision of notice of availability to all agencies, organizations and persons who submitted comments. The FTA will subsequently prepare and issue a Record of Decision (ROD). The ROD will state any environmental mitigations or other constraints under which the project may proceed.

The next step in the CEQA environmental process is the issuance of the Final EIS/EIR, including the provision of notice of availability to all agencies, organizations and persons who submitted comments and notification of the date on which the Construction Authority Board will consider approval of the proposed project. The process includes the following steps:

1. Certification of the Final EIS/EIR [that all substantive environmental issues have been considered and appropriately evaluated];
2. Approval of the project, including required mitigation measures and other conditions, which would include:

Findings,

Statement of Overriding Considerations for impacts that were shown in the Final EIS/EIR to have impacts that remains significant (under CEQA impact thresholds) even after mitigation is factored in.

Mitigation and Monitoring Reporting Plan.

3. Filing a Notice of Determination with the County Clerks of Los Angeles and San Bernardino Counties and the State Clearinghouse.

ES-6 OVERVIEW OF ENVIRONMENTAL IMPACTS

Table ES-2 summarizes the environmental topics that were found to be less than adverse under NEPA/less than significant under CEQA, the topics where potentially adverse/significant impacts were found that would require mitigation measures, and potentially adverse/significant impacts after mitigation.

TABLE ES-2 OVERVIEW OF IMPACTS		
Effect/Impact Rating NEPA/CEQA	Topics	Comment
No Adverse Effects/No Significant Impacts or Less Than Adverse/ Less than Significant	Acquisitions, Air Quality (<u>long term</u>), Community Facilities, Energy, Executive Orders, <u>Freight Operations</u> , Geologic/Seismic, Historic Resources, Land Use, Safety & Security, Socioeconomics , Utility Disruptions , Visual Impacts , Water Quality	Where potential impacts were identified, compliance <u>with regulations</u> , required agency permits and best management practices reduce potential impacts below thresholds of significance
Potentially Adverse/Potentially Significant	Archeological, Biological, Hazardous Materials, Noise & Vibration, <u>Socioeconomics</u> , Traffic, <u>Utility Disruptions</u> ; <u>Visual Impacts</u> ; <u>Water Quality</u>	Mitigation measures <u>implemented</u> during construction in addition to permits and best management practices to reduce impacts below thresholds of significance
Potential Remainder Impacts After Mitigation	Freight Rail Operations Construction period Air Quality , Noise	For double-track configuration with time-constrained delivery <u>1. Short-term PM₁₀ and NO_x emissions and dust nuisance impacts generated by construction activities could remain significant after mitigation.</u> <u>2. After mitigation, residual noise levels above impact criteria at 61 locations (second story of 56 residences).</u>

As can be seen in the table, of the 18 topics addressed in the Final EIS/EIR ~~Draft EIS/EIR~~ the proposed alternatives would result in limited effects/impacts to the environment:

- ~~13~~ 10 topics would be less than adverse/less than significant and require no mitigation.
- ~~5~~ 9 topics would require mitigation measures. Of these:

- 3 7 are limited to the construction period, and would be reduced by typical and well-documented means (archeology, biology, hazardous materials, socioeconomics, traffic, utility disruptions, water quality).
- 2 4 types of potential long-term impacts would also be reduced by typical and well-documented means (biology, noise, traffic, visual).
- 2 topics (~~freight operations~~ construction period air quality, and noise) would have a remainder significant impact.

Table ES-3 and Table ES-4 in the Draft EIS/EIR Executive Summary compared potential impacts for the No Build, TSM and two rail configurations for each of the LRT Alternatives. With the selection of a Locally Preferred Alternative and subsequent refinements, that comparative table is no longer valid.

A new Table ES-3 shows, for each of the Build Alternatives analyzed in the Final EIS/EIR:

- initial level of effect/impact under NEPA and CEQA,
- impact reductions addressed by regulatory compliance and/or permits,
- ~~possible~~ whether mitigation measures are needed (these are described in section ES-8),
- and the resulting level of NEPA effect/CEQA impact after regulatory compliance and mitigation measures are considered. Where impacts remain that are significant under CEQA, the Construction Authority would need to consider adopting a Statement of Overriding Considerations in approving the project.

For impacts that are assessed under NEPA, the level of impact is expressed in terms of whether it is not adverse, potentially adverse, or adverse. NEPA assessments often do not have specific impact criteria, and documents typically do not specify whether impacts are significant. CEQA, on the other hand, requires that a determination of significance be made. Accordingly, for impacts assessed under CEQA the level of impact is expressed in terms of whether it is not significant (i.e., has no impact), has less than significant impact, potentially significant impacts, or significant impacts, when compared to specific criteria of significance.

The summary of impacts for the Build Alternatives by city is shown in Section ES-7.

TABLES ES-3				
SUMMARY OF LONG TERM EFFECTS/IMPACTS FOR BUILD ALTERNATIVES				
Environmental Topic	Initial Effect/Impact Determination	Impacts Reduced by Regulatory Requirements//Permits?	Specific Mitigation Measures Needed?	Remainder Impacts?
Acquisitions and Displacements	Adverse/Significant	Yes – Uniform Relocation and Real Property Acquisition Act	No	No
Air Quality	Not adverse/ Significant	Yes – AQMD Rule 403	Yes- See ES-8.1	Yes
Biological Resources	Adverse/Significant	Yes – local tree protection ordinances	Yes- See ES-8.1	No
Community Facilities and Services	Not Adverse/ Less than significant	N/A	No	No
Cultural Resources	Not adverse/Less than significant per SHPO consultation	N/A	No	No
Energy	Not adverse/ Less than significant	Yes – local, state, and federal regulations pertaining to recycling of materials and reducing energy	No	No
Executive Orders	Adverse/NA	Yes – Executive Orders 12898 and 13045	No	No
Geologic-Seismic	Adverse/Significant	Yes – state and federal seismic and building code requirements	No	No
Hazardous Materials	Adverse/Significant	Yes – local, state, and federal hazardous materials regulations	No	No
Land Use	Not Adverse/ Less than Significant	NA	No	No
Noise and Vibration	Adverse/Significant	Yes – local noise regulations	Yes- See ES-8.1 and ES-8.2	Yes
Railroad Operations	No effect/No impact	NA	NA	NA
Safety and Security	Adverse/Significant	Yes - OSHA, CALOSHA, CPUC, and LACMTA policies and practices.	No	No
Socioeconomics	Not adverse/ Potentially significant	Yes – access requirements; Uniform Property and Real Property Acquisition Act	Yes- See ES-8.1	No
Traffic and	Adverse/Significant	Yes – local, state, and	Yes- See ES-8.1	No

TABLES ES-3				
SUMMARY OF LONG TERM EFFECTS/IMPACTS FOR BUILD ALTERNATIVES				
Environmental Topic	Initial Effect/Impact Determination	Impacts Reduced by Regulatory Requirements/Permits?	Specific Mitigation Measures Needed?	Remainder Impacts?
Transportation		federal regulations and permits to manage construction activities and construction traffic	and ES-8.2	
Utility Disruptions	Not Adverse/ Less than Significant	NA	Yes- See ES-8.1	No
Visual Impacts	Adverse/Significant	Yes – Construction Authority policy to consult with local jurisdictions regarding design of transit facilities	Yes- See E-8.1	No
Water Quality	Not Adverse/Less than significant	Yes – ACOE, CDFG, LARWQCB and/or SARWQCB, and LACFCD permit requirements	Yes- See ES-8.1	No

ES-7 SUMMARY OF IMPACTS BY CITY

Impacts are presented only for the Build Alternatives. The summary reporting of impact has been reformatted in the Draft EIS/EIR. The listing of potential mitigation measures has been eliminated from this discussion and only key strikeouts are shown. Detailed mitigation measures developed as a result of the engineering and analysis subsequent to the Draft EIS/EIR are reported in section ES-8.

ES-7.1 City of Pasadena

ES-7.1.1 Construction Period

There were no adverse/significant impacts identified for the issues of Acquisitions and Displacements, ~~Air Quality~~, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Executive Orders, Hazardous Materials, Land Use and Planning, Noise and Vibration, Safety and Security, Socioeconomics, ~~Traffic and Transportation~~, Utility Disruptions and Relocations, Visual Impacts, and Water Quality. Construction period Air Quality could have a remainder significant impact even after mitigation measures are implemented. See section ES-8.1 for mitigation measures.

ES-7.1.2 Operational Period

There are no adverse/significant impacts identified for Acquisitions and Displacements, Air Quality, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Geologic-Seismic, Hazardous Materials, Land Use and Planning, Railroad Operations, Socioeconomics, Traffic and Transportation, Utility Disruptions and Relocations, and Visual Impacts.

Potentially adverse/significant impacts were identified for Safety and Security, ~~Traffic and Transportation~~, and Water Quality, each of which can be mitigated to less than adverse/less than significant by regulatory compliance and use of Best Management Practices (BMPs) during operations. See section ES-8.2 for mitigation measures.

ES-7.2 City of Arcadia

ES-7.2.1 Construction Period

There were no adverse effects/significant impacts identified for Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Land Use and Planning, Railroad Operations, Socioeconomics, Utility Disruptions and Relocations, Visual Impacts, and Water Quality.

Potentially adverse/significant impacts were identified for Acquisitions and Displacements, Air Quality, Hazardous Materials, Noise and Vibration, Safety and Security, and Traffic and Transportation, each of which can be mitigated to less than adverse/less than significant by regulatory compliance and use of BMPs during construction. Construction period Air Quality could have a remainder significant impact even after mitigation measures are implemented. See section ES-8.1 for mitigation measures.

ES-7.2.2 Operational Period

There are no adverse effects/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Geologic-Seismic, Hazardous Materials, Land Use and Planning, Railroad Operations, Socioeconomics, and Visual Impacts.

Adverse effects/significant impacts are identified Air Quality, Noise and Vibration, Traffic and Transportation, Utility Disruptions and Relocations, and Water Quality, Utility Disruptions and Relocations, and Water Quality. See section ES-8.1 and ES-8.2 for mitigation measures.

ES-7.3 City of Monrovia

ES-7.3.1 Construction Period

There were no adverse/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Land Use and Planning, Railroad Operations, Socioeconomics, Traffic and Transportation, Utility Disruptions and Relocations, and Water Quality.

Potentially adverse/significant impacts were identified for ~~Acquisitions and Displacements~~, Air Quality, Hazardous Materials, Noise and Vibration, Safety and Security, and Visual Impacts, each of which can be mitigated to less than adverse/less than significant by mitigation measures. Construction period Air Quality could have a remainder significant impact even after mitigation measures are implemented. See section ES-8.1 for mitigation measures.

ES-7.3.2 Operational Period

There are no adverse/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Geologic-Seismic, Hazardous Materials, Land Use and Planning, Railroad Operations, Socioeconomics, and Visual Impacts.

Potentially adverse/significant impacts were identified Air Quality, Noise and Vibration, Traffic and Transportation, Utility Disruptions and Relocations, and Water Quality, Utility Disruptions and Relocations, and Water Quality, each of which can be mitigated to less than adverse/less than significant by regulatory compliance and use of BMPs during operations. See section ES-8.1 and ES-8.2 for mitigation measures.

ES-7.4 City of Duarte

ES-7.4.1 Construction Period

There were no adverse/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Land Use and Planning, Railroad Operations, Socioeconomics, Traffic and Transportation, Utility Disruptions and Relocations, and Water/Water Quality.

Potentially adverse/significant impacts were identified for Air Quality, Hazardous Materials, Noise and Vibration, Safety and Security, and Visual Impacts, each of which can be mitigated to less than adverse/less than significant mitigation measures. Construction period Air Quality could have a remainder significant impact even after mitigation measures are implemented. See section ES-8.1 for mitigation measures.

ES-7.4.2 Operational Period

There are no adverse/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Geologic-Seismic, Hazardous Materials, Land Use and Planning, Railroad Operations, Socioeconomics, and Visual Impacts.

Potentially adverse/significant impacts were identified for Air Quality, Noise and Vibration, Traffic and Transportation, Utility Disruptions and Relocations, and Water Quality, each of which can be mitigated to less than adverse/less than significant by regulatory compliance and use of BMPs during operations. Additional draft mitigation measures to reduce impact levels are summarized below. See section ES- 8.1 and ES-8.2 for mitigation measures.

ES-7.5 City of Irwindale

ES-7.5.1 Construction Period

There were no adverse/significant impacts identified for Community Facilities and Services, Cultural Resources, Energy, Land Use and Planning, Noise and Vibration, Socioeconomics, Railroad Operations, Traffic and Transportation, Utility Disruptions and Relocations, and Visual Impacts.

Potentially adverse/significant impacts were identified for Acquisitions and Displacements, Air Quality, Biological Resources, Hazardous Materials, Safety and Security, and Water Quality, each of which can be mitigated to less than adverse/less than significant by mitigation measures. Construction period Air Quality could have a remainder significant impact even after mitigation measures are implemented. See section ES-8.1 for mitigation measures.

ES-7.5.2 Operational Period

There are no adverse/significant impacts identified for Acquisitions and Displacements, Community Facilities and Services, Cultural Resources, Energy, Geologic-Seismic, Hazardous Materials, Land Use and Planning, Railroad Operations, Socioeconomics, and Visual Impacts.

Potentially adverse/significant impacts were identified for Air Quality, Biological Resources, Noise and Vibration, Traffic and Transportation, Utility Disruptions and Relocations, and Water Quality, each of which can be mitigated to less than adverse/less than significant by regulatory compliance and use of BMPs during operations. See section ES-8.2 for mitigation measures.

ES-7.6 City of Azusa

ES-7.6.1 Construction Period

There were no adverse/significant impacts identified for Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Land Use and Planning, Railroad Operations, Socioeconomics, Traffic and Transportation, Utility Disruptions and Relocations, and Visual Impacts.

Potentially adverse/significant impacts were identified for Acquisitions and Displacements, Air Quality, Hazardous Materials, Noise and Vibration, Safety and Security, and Water/Water Quality, each of which can be mitigated to less than adverse/less than significant by mitigation measures. Construction period Air Quality could have a remainder significant impact even after mitigation measures are implemented. See section ES-8.1 for mitigation measures.

ES-7.6.2 Operational Period

There are no adverse/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Geologic-Seismic, Hazardous Materials, Land Use and Planning, Railroad Operations, Socioeconomics, and Visual Impacts.

Potentially adverse/significant impacts were identified for Air Quality, Noise and Vibration, Traffic and Transportation, Utility Disruptions and Relocations, and Water Quality, each of which can be mitigated to less than adverse/less than significant by regulatory compliance and use of BMPs during operations. See section ES-8.2 for mitigation measures.

ES-7.7 City of Glendora

ES-7.7.1 Construction Period

There were no adverse/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Land Use and Planning, Railroad Operations, Socioeconomics, Utility Disruptions and Relocations, Visual Impacts, and Water/Water Quality.

Potentially adverse/significant impacts were identified for Air Quality, Hazardous Materials, Noise and Vibration, Safety and Security, and Traffic and Transportation, each of which can be mitigated to less than adverse/less than significant by mitigation measures. Construction period Air Quality could have a remainder significant impact even after mitigation measures are implemented. See section ES-8.1 for mitigation measures.

ES-7.7.2 Operational Period

There are no adverse/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Geologic-Seismic, Hazardous Materials, Land Use and Planning, Railroad Operations, Socioeconomics, and Visual Impacts.

Potentially adverse/significant impacts were identified Air Quality, Noise and Vibration, Traffic and Transportation, Utility Disruptions and Relocations, and Water Quality, each of which can be mitigated to less than adverse/less than significant by regulatory compliance and use of BMPs during operations. See section ES-8.2 for mitigation measures.

ES-7.8 City of San Dimas

ES-7.8.1 Construction Period

There were no adverse/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Land Use and Planning, Railroad Operations, Socioeconomics, Utility Disruptions and Relocations, Visual Impacts, and Water/Water Quality.

Potentially adverse/significant impacts were identified for Air Quality, Hazardous Materials, Noise and Vibration, Safety and Security, and Traffic and Transportation, each of which can be mitigated to less than adverse/less than significant by the following draft mitigation measures: Construction period Air Quality could have a remainder significant impact even after mitigation measures are implemented. See section ES-8.1 for mitigation measures.

ES-7.8.2 Operational Period

There are no adverse/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Geologic-Seismic, Hazardous Materials, Land Use and Planning, Railroad Operations, Socioeconomics, and Visual Impacts.

Potentially adverse/significant impacts were identified Air Quality, Noise and Vibration, Traffic and Transportation, Utility Disruptions and Relocations, and Water Quality, each of which can be mitigated to less than adverse/less than significant by regulatory compliance and use of BMPs during operations. See section ES-8.2 for mitigation measures.

ES-7.9 City of La Verne

ES-7.9.1 Construction Period

There were no adverse/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Land Use and Planning, Railroad Operations, Socioeconomics, Traffic and Transportation, Utility Disruptions and Relocations, Visual Impacts, and Water/Water Quality.

Potentially adverse/significant impacts were identified for Air Quality, Hazardous Materials, Noise and Vibration, and Safety and Security, each of which can be mitigated to less than adverse/less than significant by the following draft mitigation measures. Construction period Air Quality could have a remainder significant impact even after mitigation measures are implemented. See section ES-8.1 for mitigation measures.

ES-7.9.2 Operational Period

There are no adverse/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Geologic-Seismic, Hazardous Materials, Land Use and Planning, Railroad Operations, Socioeconomics, and Visual Impacts.

Potentially adverse/significant impacts were identified for Air Quality, Noise and Vibration, Traffic and Transportation, Utility Disruptions and Relocations, and Water Quality, each of which can be mitigated to less than adverse/less than significant by regulatory compliance and use of BMPs during operations. See section ES-8.2 for mitigation measures.

ES-7.10 City of Pomona

ES-7.10.1 Construction Period

There were no adverse/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Land Use and Planning, Railroad Operations, Socioeconomics, Traffic and Transportation Utility Disruptions and Relocations, Visual Impacts, and Water/Water Quality.

Potentially adverse/significant impacts were identified for Air Quality, Hazardous Materials, Noise and Vibration, and Safety and Security, each of which can be mitigated to less than adverse/less than significant by the following draft mitigation measures: Construction period Air Quality could have a remainder significant impact even after mitigation measures are implemented. See section ES-8.1 for mitigation measures.

ES-7.10.2 Operational Period

There are no adverse/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Geologic-Seismic, Hazardous Materials, Land Use and Planning, and Railroad Operations, Socioeconomics, and Visual Impacts.

Potentially adverse/significant impacts were identified for Air Quality, Noise and Vibration, and Traffic and Transportation, Utility Disruptions and Relocations, and Water Quality, each of which can be mitigated to less than adverse/less than significant by regulatory compliance and use of BMPs during operations. See section ES-8.1 and 8.2 for mitigation measures.

ES-7.11 City of Claremont

ES-7.11.1 Construction Period

There were no adverse/significant impacts identified for Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Land Use and Planning, Railroad Operations, Socioeconomics, and Traffic and Transportation, Utility Disruptions and Relocations, Visual Impacts, and Water/Water Quality.

Potentially adverse/significant impacts were identified Acquisitions and Displacements, Air Quality, Hazardous Materials, Noise and Vibration, and Safety and Security, each of which can be mitigated to less than adverse/less than significant by the following drat mitigation measures Construction period Air Quality could have a remainder significant impact even after mitigation measures are implemented. See section ES-8.1 for mitigation measures.

ES-7.11.2 Operational Period

There are no adverse/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Geologic-Seismic, Hazardous Materials, Land Use and Planning, and Railroad Operations, Socioeconomics, and Visual Impacts.

Potentially adverse/significant impacts were identified for Air Quality, Noise and Vibration, and Traffic and Transportation, Utility Disruptions and Relocations, and Water Quality, each of which can be mitigated to less than adverse/less than significant by regulatory compliance and use of BMPs during operations. See section ES-8.1 and 8.2 for mitigation measures.

ES-7.12 City of Montclair

ES-7.12.1 Construction Period

There were no adverse/significant impacts identified Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Land Use and Planning, Railroad Operations, Socioeconomics, Traffic and Transportation, Utility Disruptions and Relocations, Visual Impacts, and Water/Water Quality.

Potentially adverse/significant impacts were identified for Air Quality, Hazardous Materials, Noise and Vibration, and Safety and Security, each of which can be mitigated to less than adverse/less than significant by the following draft mitigation measure. Construction period Air Quality could have a remainder significant impact even after mitigation measures are implemented. See section ES-8.1 for mitigation measures.

ES-7.12.2 Operational Period

There are no adverse/significant impacts identified for Acquisitions and Displacements, Biological Resources, Community Facilities and Services, Cultural Resources, Energy, Geologic-Seismic, Hazardous Materials, Land Use and Planning, Railroad Operations, Socioeconomics, and Visual Impacts.

Potentially adverse/significant impacts were identified for Air Quality, Noise and Vibration, and Traffic and Transportation, Utility Disruptions and Relocations, and Water Quality, each of which can be mitigated to less than adverse/less than significant by regulatory compliance and use of BMPs during operations. See section ES-8.2 for mitigation measures.

ES-8 MITIGATION

ES-8.1 Construction Period Mitigation Measures To Be Applied In All Cities

Air Quality:

Construction period Air Quality could have a remainder significant impact even after mitigation measures are implemented.

The construction contract for the selected alternative will require specific stipulations that the contractor must follow to meet criteria included in LACMTA's Systems Design Criteria and Standards, Volumes I through IV, to minimize adverse affects during construction. Best Management Practices (BMP) to control fugitive dust emissions in accordance with SCAQMD Rule 403 will also be required. In addition to these regulatory requirements, the following construction-phase air quality mitigation measures will also apply:

- A-1 All land clearing/earth-moving activity areas shall be watered to control dust as necessary to remain visibly moist during active operations.
- A-2 All construction roads internal to the construction site that have a traffic volume of more than 50 daily trips by construction equipment, or 150 total daily trips for all vehicles, shall be surfaced with base material or decomposed granite.

- A-3 Streets shall be swept as needed during construction, but not more frequently than hourly, if visible soil material has been carried onto adjacent public paved roads.
- A-4 Construction equipment shall be visually inspected prior to leaving the site and loose dirt shall be washed off with wheel washers as necessary.
- A-5 Water three times daily or non-toxic soil stabilizers shall be applied, according to manufacturers' specifications, as needed to reduce off-site transport of fugitive dust from all unpaved staging areas and unpaved road surfaces.
- A-6 Traffic speeds on all unpaved roads shall not exceed 15 mph.
- A-7 All equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.
- A-8 General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues would have their engines turned off when not in use, to reduce vehicle emissions. Construction emissions should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.
- A-9 Establish an on-site construction equipment staging area and construction worker parking lots, located on either paved surfaces or unpaved surfaces subject to soil stabilization.
- A-10 Use electricity from power poles, rather than temporary diesel or gasoline powered generators if or where feasible.
- A-11 Use on-site mobile equipment powered by alternative fuel sources (i.e., methanol, natural gas, propane or butane) as feasible.
- A-12 Develop a construction traffic management plan that includes, but is not limited to: (1) consolidating truck deliveries; (2) providing a rideshare or shuttle service for construction workers; and (3) providing dedicated turn lanes for movement of construction trucks and equipment on-and off-site.

Biology:

The following preventative mitigation measures will reduce potential biological impacts during construction:

- B-1 Construction limits shall be fenced or flagged prior to issuance of any construction permits to avoid disturbance to preserved areas. Disturbance to the vegetation outside of the project scope shall be avoided.

Consistent with the preventative measure described under regulatory compliance with regard to the Migratory Bird Treaty Act, the following two measures are re-stated.

- B-2 Vegetation clearing and tree removal activities shall be conducted during the non-breeding season (September 1 through February 14) to limit impacts to nesting birds.

B-3 In the event that vegetation clearing is necessary during the raptor breeding season (February 15 through August 31), a qualified biologist shall conduct a preconstruction survey to identify the locations of raptors within the areas that will be affected by the clearing. If the biologist finds an active nest within or adjacent to the areas requiring clearing, the biologist shall delineate a 500-foot-wide buffer zone around the nest. This zone shall be marked with flagging, and construction or clearing shall not be conducted within this buffer zone until the biologist determines that the nest is no longer active. If a 500-foot-wide buffer zone is not possible, noise barriers must be utilized. In addition, a qualified biologist shall be present at all preconstruction and pregrade meetings and will be onsite during all vegetation/tree removal and subsequent removal. The biological monitor shall be hired and trained prior to construction to monitor construction activities at the proposed project site where sensitive resources for protection and preservation have been identified.

Consistent with the regulatory requirements to prepare a Storm Water Pollution Prevention Plan as a condition of obtain permits from the Los Angeles Regional Water Quality Control Board and Santa Ana Regional Water Quality Control Board, the following two measures also provide habitat protection:

B-4 Any equipment operated within or adjacent to a drainage (i.e., storm drain) shall be checked and maintained daily to prevent leaks of materials that, if introduced to water, could be detrimental to plant and wildlife species. Cement/concrete, asphalt, paint, petroleum products, or other substances that could be hazardous, resulting from project-related activities, shall be prevented from entering the soil or waters. Any of these materials placed in an area that may result in the material entering the drainage shall be removed and disposed of at an appropriate site.

B-5 Prior to completion of project activities each day, all trash and debris related to the project will be removed from the site to avoid attracting wildlife to the work site.

Cultural Resources:

CR-1 If buried cultural resources are uncovered during construction, all work shall be halted in the vicinity of the archaeological discovery until a qualified archaeologist can visit the site of discovery and assess the significance of the archaeological resource.

In the event of an accidental discovery of any human remains in a location other than a dedicated cemetery, the steps and procedures specified in Health and Safety Code 7050.5, CEQA 15064.5(e), and the Public Resources Code 5097.98 shall be implemented.

If buried cultural resources appear to be eligible for the National Register of Historic Places, Section 106 consultation shall be initiated with the State Historic Preservation Officer. If required, a Memorandum of Agreement will be developed.

Provisions for the disposition of recovered prehistoric artifacts shall be made in consultation with culturally affiliated Native Americans.

CR-2 If paleontological materials are encountered, a qualified paleontologist will monitor all remaining excavation work that would extend 10 feet in depth, or more into the ground. The monitor shall be empowered to temporarily halt or divert excavation equipment to allow removal of abundant or large specimens. Monitoring may be reduced if the potentially fossiliferous units, previously described, are not found to be present or, if present, are

determined by qualified paleontologic personnel to have a low potential to contain fossil resources.

Recovered specimens shall be prepared to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates.

Recovered specimens shall be curated into a professional, accredited scientific institution with permanent retrievable storage.

A report of findings, with an appended itemized inventory of specimens, shall be prepared. The report and inventory would signify completion of the program to mitigate impacts to paleontologic resources.

To ensure that the impacts of new parking structures to historic districts are minimized, the Construction Authority will impose the following condition to the Design-Build contracts.

CR-3 Parking structures that are built within or adjacent to historic districts will be designed in a manner that is sympathetic to the characteristics of the historic district and consistent with the Secretary of the Interiors' Standards for the Treatment of Historic Properties.

Noise and Vibration:

On March 17, 2005, the Metro Gold Line Construction Authority Board adopted a policy that project construction conform to the noise requirements in each city in Segment 1 and Segment 2. These requirements generally limit construction activities to daytime hours and certain days of the week (e.g., construction is often precluded on Sundays and National holidays without a variance from the local jurisdiction). Some local noise requirements may also include equipment or property line noise limits.

Limiting construction activities to weekday daytime hours (generally from 7 AM to 6 PM), and employing typical measures for minimizing noise during construction, combined with the following measures, would mitigate all construction noise impacts:

In addition to the noise reduction that would result from voluntary regulatory compliance, the following measure shall be implemented:

N-1 The Construction Authority shall develop specific residential property line noise limits to be included in the construction specifications for this project and require that contractors perform noise monitoring during construction to verify compliance with the limits.

N-2 The Construction Authority shall implement a complaint resolution procedure, including a contact person and telephone number, to rapidly resolve any construction noise problems.

Hazardous Materials

During Preliminary Engineering, site-specific investigations for properties to be used for the project will be completed to assess the presence or absence of hazardous materials, its severity, and the control measure that is appropriate under applicable federal and state regulations.:

HZ-1 All soil believed to be contaminated would be sampled and analyzed in accordance with Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846 or California required SW-846 sampling protocols.

Elimination or reduction of 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 alternative with additional construction period mitigation measures. The project will be implemented in accordance with all federal and state requirements and permits during the construction process, as well as Best Management Practices.

Based on the information gathered to date, the following regulatory compliance requirements will be implemented:

HZ-2 When final construction plans are prepared showing the lateral and vertical extent of the soil to be disturbed during construction, a soil mitigation plan will be prepared. The plan will establish soil reuse criteria, establish a sampling plan for stockpiled materials, describe the disposition of materials that do not satisfy the reuse criteria, and specify criteria for imported materials.

HZ-3 Any soil that is removed from the site that contains soluble concentrations of metals in excess of the STLC is considered a California-hazardous waste and will be handled and disposed of in accordance with California regulations.

HZ-4 If groundwater is expected to be encountered during construction activities, testing of the groundwater will be performed in order to characterize the groundwater where dewatering is required.

HZ-5 All hazardous materials, drums, trash, debris will be removed and disposed of in accordance with regulatory guidelines.

HZ-6 A health and safety plan will be developed for persons with the potential for exposure to the constituents of concern identified in this report.

HZ-7 When ground disturbing activities begin, contractors shall be responsible for general observations of sites to identify to the Construction Authority of potential contamination such as, but not limited to, the presence of underground facilities, buried debris, waste drums, tanks, staining soil or odorous soils. Should such materials be encountered, further investigation and analysis will be conducted

HZ-8 Depending upon the amount of affected material encountered, the concentrations of hazardous constituents, and the type of hazardous constituents encountered during construction activities, the following measures would typically apply:

- Removal and Disposal—identify, remove, and haul and dispose of materials in the appropriate, licensed Class I, II, or III disposal facility.
- Recycling—treat and/or recycle materials at regulated recycling facilities
- Reuse of uncontaminated or treated materials on project lands.

HZ-9 Operations involving the segregation, handling, transportation, and disposal of contaminated soil, hazardous substances, solid waste, USTs, oil and gas wells, and other environmentally

related issues encountered during earthwork operations must comply with federal and state regulations.

HZ-10 Excavated soil will be sampled for the purpose of classifying material and determining disposal requirements. If excavated soil is suspected or known found to be contaminated, the contractor will conduct the following:

- Segregate and stockpile the material on visqueen
- Spray the stockpile with water or a South Coast Air Quality Management District (SCAQMD) approved vapor suppressant and cover the stockpile with visqueen to prevent exposure to soil
- Provide qualified and trained personnel and personal protective equipment to perform operations including, but not limited to excavation, segregation, stockpiling, loading, and hauling that require the disturbance of hazardous substances including, but not limited to excavation, segregation, stockpiling, loading, and hauling.

Socioeconomics:

No mitigation measures are required under NEPA. 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 will be implemented, as well as an overall Traffic Management Plan.

S-1 Schedules for street closures shall be developed in consultation with each corridor city.

S-2 Advance notices shall be posted on city streets indicating when access will be closed or limited.

S-3 Signs indicating access routes, alternate access points, and that affected business are open shall be posted.

S-4 Newspaper notices shall be placed indicating street and access closures.

S-5 The Construction Authority website shall include information on planned street and access closures.

Traffic and Transportation:

After the implementation of the following mitigation measures and conducting closures during the night hours, construction period impacts would be reduced to less than adverse/less than significant.

Transit Measures

T-1 Bus lines that would be affected by lane closures due to construction activities shall continue to operate where feasible in the remaining traffic lanes. During the night hours when temporary lane closures are anticipated, bus lines shall be re-routed to adjacent streets in a manner that minimizes the inconvenience to bus passengers. If a block is closed that includes a bus stop, the bus stop shall 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 Foothill Extension corridor project, fliers shall be provided on buses at least two weeks

in advance notifying riders of route modifications. In addition, hoods shall be placed over bus-stop signs, also notifying riders of what modifications have been made to the bus route.

T-2 A construction impact mitigation program shall be developed in consultation with corridor cities and transit agencies. The objective of the program shall be to keep the community and agencies informed of all construction activities, with special emphasis for activities that affect public transit and public access. The program shall also create a hotline number for a direct connection to staff familiar with the community and the project. This program shall offer individual consultation for residents, facilities, and businesses for remedies appropriate to the impacts. It shall also identify community/business needs prior to and during the construction period through the use of surveys and community meetings. In addition, field offices may be opened at particular locations and to contain information regarding recent construction activities.

Traffic Operations Measures

T-3 During Final Design, site and street specific Worksite Traffic Control Plans shall 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 shall be maintained in both directions, particularly during periods of peak traffic operations. Access to homes and businesses shall be maintained throughout the construction period. To the extent feasible lane closures shall take place during the night hours.

T-4 Designated haul routes for trucks shall be identified during final design. These routes shall be situated to minimize noise, vibration, and other possible impacts. Following completion of the Gold Line Foothill Extension, if slight physical damage to the haul route roads is found, the roads shall be treated as deemed necessary.

Utilities:

The following measures will be imposed during design and construction. The Construction Authority, LACMTA, and SANBAG, or their agents, shall work with utility providers to minimize any potential service interruptions and shall conserve resources by:

U-1 Complying with applicable utility policies 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.

U-2 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.

U-3 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.

U-4 Coordinating with affected water utilities and local fire departments to ensure that water use does not compromise flows required for fire protection.

U-5 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.

Visual:

The following measures will be implemented to offset the loss of large areas of landscape plantings along the rail right of way:

V-1 Landscaping of the rail right of way will be provided in available right-of-way in a manner consistent with the landscape treatments used in Phase I of the Gold Line. These treatments will consist of hardscape and/or landscape treatments that can be physically accommodated within available right of way, plant materials that are indigenous or adaptable to the Southern California environment, and plant materials that can survive with limited maintenance and without introducing safety concerns. All hardscape and landscape treatments must avoid current or future encroachment into the safety enveloped required for operation of an LRT system.

V-2 In Claremont, the Construction Authority will provide replacement on a one to one basis for each tree removed. Replacement trees will be container grown specimens of native species, at least 36" boxed in size, to be planted at locations to be selected by the City of Claremont. Once planted, the trees will be maintained by the Construction Authority for a period of one-year. At the end of one year, a certified arborist will warrant that the trees are in good health, and if so determined, will be transferred to the City for their ongoing maintenance.

Water Quality:

The following-measures would reduce impacts to less than significant.

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.

W-WQ 6 During Final Design, a Standard Urban Stormwater Mitigation Plan (SUSMP) will be prepared.

ES-8.2 Long Term Mitigation Measures Applicable in All Cities

ES-8.2.1 Noise and Vibration

The following measures would apply in all cities in the Foothill Extension corridor (except for Pasadena and Upland, neither of which were shown to have noise or vibration impacts)

a. Noise Impact Mitigation

N-3 The Construction Authority shall employ noise reduction strategies to further reduce noise abatement achieved through voluntary regulatory compliance. The Authority shall erect noise barriers, employ building sound insulation, and modify at-grade audible warning devices and operations (subject to CPUC approval). Final design, locations, and extent of implementation of each of these noise-reducing strategies shall be determined during Final Design of the project such that the FTA noise abatement criteria is most effectively achieved.

The noise reduction measures listed in mitigation measure N-3 are described in greater detail below. Preliminary locations and dimensions of soundwalls are presented along with candidate sites for building insulation. The mitigation implementation process that will follow in the Final Design phase is also discussed.

- **Noise Barriers** - This is a common approach to reducing noise impacts from surface transportation sources. The primary requirements for an effective noise barrier are that (1) the barrier must be high enough and long enough to break the line-of-sight between the sound source and the receiver, (2) the barrier must be of an impervious material with a minimum surface density of 4 lb/sq. ft., and (3) the barrier must not have any gaps or holes between the panels or at the bottom. Because numerous materials meet these requirements, the selection of materials for noise barriers is usually dictated by aesthetics, durability, cost, and maintenance considerations. Depending on the proximity of the barrier to the tracks and on the track elevation, transit system noise barriers typically range in height from between four

and eight feet above the top-of-rail. Tables ES-4 and ES-5 indicate the approximate noise barrier locations, lengths, and side of track for Segment 1 and Segment 2, respectively. (The locations of noise barriers are shown on Figures 3-11.9 through 3-11.24 in the Final EIS/EIR.)

- **Building Sound Insulation** - Sound insulation of residences and institutional buildings to improve the outdoor-to-indoor noise reduction has been widely applied around airports and has seen limited application for transit projects. Although this approach has no effect on noise in exterior areas, it may be the best choice for sites where noise barriers are not feasible or desirable, and for buildings where indoor sensitivity is of most concern. Substantial improvements in building sound insulation (on the order of 5 to 10 dBA) can often be achieved by adding an extra layer of glazing to the windows, by sealing any holes in exterior surfaces that act as sound leaks, and by providing forced ventilation and air-conditioning so that windows do not need to be opened. Tables ES-6 and ES-7 indicate areas for sound insulation for Segment 1 and Segment 2, respectively. (The locations of sound insulation are shown on Figures 3-11.9 through 3-11.24 in the Final EIS/EIR)
- **Modifications to At-grade Warning Devices and Operations** - Subject to approval on a case-by-case basis by the CPUC, warning devices or their operation may be modified to reduce noise levels and community annoyance in the vicinity of at-grade crossings. Modifications to the audible devices include installing shrouds on the crossing bells and using the lower sound level on-vehicle audible device. For example, a simple half-round piece of 16-gauge stainless steel attached to the back of a crossing bell can substantially reduce the amount of noise that is radiated into the community while maintaining industry standard noise levels at pedestrian locations. Also, switching from the 85-dBA horn to the 75-dBA quacker would provide a noticeable reduction in LRV noise levels near the grade crossings.

The mitigation implementation process

The FTA states that in implementing noise impact criteria, severe impacts should be mitigated unless there are no practical means to do so. At the moderate impact level, more discretion should be used, and other project-specific factors should be included in the consideration of mitigation. These other factors can include the predicted increase over existing noise levels, the types and number of noise-sensitive land uses affected, existing outdoor-to-indoor sound insulation, and the cost-effectiveness of mitigating noise to more acceptable levels.

Impacts predictions and mitigation are based on September 2005 engineering level designs that are subject to further design refinement. During Final Design, data that affects the impact predictions may change, such as the precise locations and grade of rails, switch locations, and the placement of grade crossing warning devices. Accordingly, it is important to note that the mitigation measures listed will be subject to refinement. For instance, the height of a proposed soundwall may change as a result of design refinements.

Based on the results of the noise assessment, mitigation measures have been identified. The primary mitigation measure would be the construction of sound barrier walls to shield areas where impact is predicted. Tables ES-4 and -ES-5 indicate the approximate noise barrier locations, lengths, and side of track for Segment 1 and Segment 2, respectively. Because sound walls must stop at intersections, the effectiveness of the walls is limited near grade crossings due to noise “leaks” around the ends of the walls. In addition, it may not be feasible or cost-effective to protect some second floors of noise-sensitive receptors with a sound barrier wall. Therefore, sound insulation would be applied to specific locations.

Tables ES-6 and ES-7 indicate areas for sound insulation for Segment 1 and Segment 2, respectively. The latter would be needed near at-grade intersections where a break in soundwalls would have to occur, and for second story windows. Note that implementation of sound insulation requires permission of property owners to allow access to the interior of their properties for noise measurements and construction.

A number of residential areas on the corridor have existing noise barriers/privacy walls. The noise impact analysis did not assume that the existing walls along the corridor would provide any noise reduction. The existing barriers were not included because it is not possible to assess the effectiveness of any barriers/privacy walls without more detailed plan and profile mapping of the corridor and individual site visits and surveys. In addition, many of the walls may not be effective as noise barriers due to construction, height, or any gaps that are present. During the final design of the project, the effectiveness of the existing barriers/privacy walls will be assessed and incorporated into final mitigation measures. It may be determined that a number of the existing barriers are effective for mitigation, or that some may only need to be repaired or raised slightly to provide the appropriate level of noise reduction. Thus, the final implementation of noise wall mitigation listed in Tables ES-4 and ES-5 could range from new noise barriers to slight modifications of existing walls to no action needed to provide adequate noise reduction.

TABLE ES-4 SOUND BARRIER LOCATIONS AND DIMENSIONS – SEGMENT 1 CITIES						
City	Wall No.	Dir. ¹	Engineering Station**		Length, ft.	Height, ft. ²
			Start	Stop		
Arcadia	1	EB	956+50	966+00	950	4
Arcadia	2	EB	1011+50	1023+00	1,150	4
Arcadia	3	WB	966+75	974+00	725	4
Arcadia	4	WB	1000+50	1004+50	400	4
Total: Arcadia					3,225	
Monrovia	1	EB	1023+00	1034+50	1,150	4
Monrovia	2	EB	1036+00	1040+00	400	4
Monrovia	3	EB	1040+00	1048+00	800	8
Monrovia	4	EB	1048+00	1051+50	350	4
Monrovia	5	EB	1051+50	1057+00	550	6
Monrovia	6	EB	1058+00	1063+25	525	8
Monrovia	7	EB	1065+75	1069+25	350	6
Monrovia	8	WB	1035+00	1037+00	200	4

TABLE ES-4 SOUND BARRIER LOCATIONS AND DIMENSIONS – SEGMENT 1 CITIES						
City	Wall No.	Dir. ¹	Engineering Station**		Length, ft.	Height, ft. ²
			Start	Stop		
Monrovia	9	WB	1037+00	1042+50	550	4
Monrovia	10	WB	1042+50	1047+50	500	6
Monrovia	11	WB	1047+50	1053+50	600	6
Monrovia	12	WB	1053+50	1056+75	325	6
Total: Monrovia					6,425	
Duarte	1	EB	1129+50	1133+00	350	6
Duarte	3	WB	1141+00	1146+00	500	6
Duarte	4	WB	1155+75	1176+75	2,100	6
Total: Duarte					2,950	
Azusa	1	EB	1345+00	1353+00	800	4
Azusa	2	EB	1357+50	1363+50	600	6
Azusa	3	EB	1363+50	1369+00	550	6
Azusa	4	EB	1386+00	1389+50	350	6
Azusa	5	EB	1390+25	1399+50	925	6
Azusa	6	WB	1365+75	1369+50	375	6
Azusa	7	WB	1390+75	1395+25	450	6
Total: Azusa					4,050	
TOTAL: SEGMENT 1					16,650	
¹ EB = towards Montclair; WB = towards Pasadena ² Heights are listed as above top-of-rail. ** Engineering stations are shown in the Plan and Profile Drawings in Volume 4. Source: ATS Consulting, LLC, 2005.						

TABLE ES-5 SOUND BARRIER LOCATIONS AND DIMENSIONS – SEGMENT 2 CITIES						
City	Wall No.	Dir. ¹	Engineering Station**		Length, ft.	Height, ft. ²
			Start	Stop		
Glendora	1	EB	1430+50	1438+00	750	6
Glendora	2	EB	1438+00	1454+25	1,625	6
Glendora	3	EB	1455+00	1463+50	850	6
Glendora	4	WB	1493+00	1496+50	350	6
Glendora	5	EB	1503+00	1504+75	175	6
Glendora	6	WB	1518+00	1528+50	1,050	8
Glendora	7	EB	1524+50	1528+25	375	6
Glendora	8	WB	1529+00	1550+50	2,150	8
Glendora	9	EB	1537+00	1539+00	200	6
Glendora	10	EB	1541+25	1543+00	175	6
Glendora	11	WB	1551+00	1557+00	600	8
Glendora	12	WB	1557+50	1570+00	1,250	8
Glendora	13	WB	1571+00	1579+50	850	8
Glendora	14	WB	1583+50	1593+00	950	8
Glendora	15	WB	1593+00	1602+00	900	4
Glendora	16	EB	1586+50	1589+00	250	6
Glendora	17	EB	1603+50	1611+50	800	6
Glendora	18	WB	1611+00	1617+00	600	16
Glendora	19	WB	1617+00	1632+00	1,500	14
Glendora	20	EB	1663+50	1665+25	175	6
Total: Glendora					15,575	
San Dimas	1	WB	1667+00	1670+00	300	6
San Dimas	2	WB	1678+50	1684+00	550	4
San Dimas	3	EB	1683+00	1689+00	600	4
Total: San Dimas					1,450	
La Verne	1	WB	1815+25	1827+00	1,175	6
La Verne	2	WB	1827+75	1833+50	575	6
Total: La Verne					1,750	
Pomona	--	--	--	--	--	--
Claremont	1	WB	1975+00	1979+25	425	6
Claremont	2	EB	2005+50	2009+50	400	6
Claremont	3	EB	2033+00	2044+00	1,100	6
Claremont	4	WB	2046+25	2049+50	325	6
Claremont	5	EB	2046+00	2049+00	300	6
Total: Claremont					2,550	
Montclair	--	--	--	--	--	--
TOTAL: SEGMENT 2					21,325	

¹ EB = towards Montclair; WB = towards Pasadena

² Heights are listed as above top-of-rail.

TABLE ES-5 SOUND BARRIER LOCATIONS AND DIMENSIONS – SEGMENT 2 CITIES						
City	Wall No.	Dir. ¹	Engineering Station**		Length, ft.	Height, ft. ²
			Start	Stop		
** Engineering stations are shown in the Plan and Profile Drawings in Volume 4. Source: ATS Consulting, LLC, 2005.						

TABLE ES-6 LOCATIONS FOR RESIDENTIAL SOUND INSULATIONS – SEGMENT 1 CITIES				
City	Direction ¹	Group No. ²	Engineering Station**	# of Residences
Grade Crossings ³				
Monrovia	EB	8	1056+50	1
Monrovia	EB	9	1058+00	4
Monrovia	WB	5	1056+50	1
Monrovia	WB	6	1058+50	1
Azusa	EB	8	1369+00	1
Azusa	EB	11	1390+00	1
Azusa	EB	12	1391+00	2
Azusa	WB	5	1391+00	1
Total: Grade Crossings				12
Second Stories ⁴				
Monrovia	EB	3	1043+00	11
Monrovia	EB	11	1067+00	4
Monrovia	WB	2	877+00	12
Azusa	EB	7	1363+00	5
Total: Second Stories				32
TOTAL-SEGMENT 1				44
¹ Near track direction: EB = towards Montclair; WB = towards Pasadena ² Refer to the maps in the Noise and Vibration Technical Report in the Appendices for locations of the receiver groups. ³ Refers to individual residences. ⁴ Include all residences with second stories within grouping. ** Engineering stations are shown in the Plan and Profile Drawings in Volume 4. Source: ATS Consulting, LLC, 2005.				

TABLE ES-7 LOCATIONS FOR RESIDENTIAL SOUND INSULATIONS – SEGMENT 2 CITIES				
City	Direction ¹	Group No. ²	Engineering Station**	# of Residences
Grade Crossings ³				
Glendora	EB	3	1454+00	1
Glendora	EB	4	1455+50	1
Glendora	WB	5	1528+00	1
Glendora	WB	6	1529+50	1
Glendora	WB	8	1550+00	1
Glendora	WB	11	1558+00	1
Glendora	WB	14	1571+00	1
Claremont	WB	2	1979+00	2
Total: Grade Crossings				9
Second Stories ⁴				
Glendora	WB	9	1553+00	4
Glendora	WB	10	1555+50	4
Glendora	EB	1	1434+00	12
Glendora	EB	5	1461+00	7
Total: Second Stories				27
TOTAL-SEGMENT 2				36
<p>Notes:</p> <p>¹ Near track direction: EB = towards Montclair; WB = towards Pasadena</p> <p>² Refer to the maps in the Noise and Vibration Technical Report in the Appendices for locations of the receiver groups</p> <p>³ Refers to individual residences</p> <p>⁴ Include all residences with second stories within group</p> <p>** Engineering stations are shown in the Plan and Profile Drawings in Volume 4.</p> <p>Source: ATS Consulting, LLC, 2005.</p>				

b. Vibration Impact Mitigation

N-4 The Construction Authority shall employ vibration reduction strategies to further reduce vibration abatement achieved through voluntary regulatory compliance. The Authority shall employ strategies such as ballast mats, shredded tire or recycled rubber chip underlay, relocation of crossovers, and special trackwork. Final design, locations, and extent of implementation of each of these vibration-reducing strategies shall be determined during Final Design of the project such that FTA criteria is most effectively achieved.

- The vibration reduction measures listed in mitigation measure N-4 are described in greater detail below. Preliminary locations for vibration mitigation are presented along with the mitigation implementation process that will follow in the Final Design phase.
 - **Ballast Mats** - A ballast mat consists of a pad made of rubber or rubber-like material placed on an asphalt or concrete base with the normal ballast, ties and rail on top. The reduction in ground-borne vibration provided by a ballast mat is strongly dependent on the frequency content of the vibration and design and support of the mat.
 - **Shredded Tire or Recycled Rubber Chip Underlay** - A 12-inch-thick resilient layer of shredded tires or recycled rubber chips placed beneath the sub-ballast layer of standard open ballast and tie track could be incorporated into the track design. This mitigation method would provide results similar to ballast mats, and would also be strongly dependent on the frequency content of the vibration. This approach has not been tested and is not currently being used on any operational light rail transit system. Both Denver Regional Transit and Santa Clara Valley Transportation Authority are constructing new lines where shredded tire underlay is being used for vibration mitigation.
 - **Relocation of Crossovers or Special Trackwork** - Because the impacts of wheels over rail gaps at track crossover locations increases vibration by about 10 VdB, crossovers are a major source of vibration impact when they are located in sensitive areas. If crossovers cannot be relocated away from residential areas, another approach is to use spring-rail or moveable point frogs in place of standard rigid frogs at turnouts. These devices allow the flangeway gap to remain closed in the main traffic direction for revenue service trains.

Vibration impacts that exceed FTA criteria are considered to be significant and warrant mitigation, if reasonable and feasible. Tables ES-8 and ES-9 indicate the civil stations along the corridor where mitigation would be implemented to reduce the vibration levels, for Segment 1 and Segment 2, respectively. At a minimum, mitigation would require the installation of ballast mat, shredded tire, or other resilient track support system. The final determination for the exact type of mitigation to be implemented will be made during final design phase of the project. Further studies during Final Design, which could include site-specific vibration to verify model assumption and building response, may also determine that vibration mitigation is not needed in some areas. Specifically, incorporating more detailed information regarding the LRV, track design, and building response may result in predicted levels below 72 VdB at locations where impacts are currently predicted.

TABLE ES-8				
VIBRATION MITIGATION LOCATIONS – SEGMENT 1 CITIES				
<u>City</u>	<u>Engineering Station**</u>		<u>Length</u>	<u>Residual Impacts</u>
	<u>Start</u>	<u>End</u>		
<u>Pasadena</u>	==	==	==	==
<u>Arcadia</u>	<u>957+00</u>	<u>966+00</u>	<u>900</u>	<u>0</u>
<u>Arcadia</u>	<u>967+00</u>	<u>971+00</u>	<u>400</u>	<u>0</u>
<u>Arcadia</u>	<u>1017+00</u>	<u>1022+50</u>	<u>550</u>	<u>0</u>
Total: Arcadia			<u>1,850</u>	<u>0</u>
<u>Monrovia</u>	<u>1022+50</u>	<u>1034+00</u>	<u>1,150</u>	<u>0</u>
<u>Monrovia</u>	<u>1035+50</u>	<u>1057+00</u>	<u>2,150</u>	<u>11</u>
<u>Monrovia</u>	<u>1058+00</u>	<u>1062+50</u>	<u>450</u>	<u>17</u>
<u>Monrovia</u>	<u>1065+50</u>	<u>1069+25</u>	<u>375</u>	<u>8</u>
Total: Monrovia			<u>4,125</u>	<u>36</u>
<u>Irwindale</u>	==	==	==	==
<u>Azusa</u>	<u>1345+00</u>	<u>1352+50</u>	<u>750</u>	<u>0</u>
<u>Azusa</u>	<u>1357+50</u>	<u>1368+50</u>	<u>1,100</u>	<u>25</u>
<u>Azusa</u>	<u>1387+50</u>	<u>1390+00</u>	<u>250</u>	<u>0</u>
<u>Azusa</u>	<u>1390+50</u>	<u>1395+25</u>	<u>475</u>	<u>0</u>
Total: Azusa			<u>2,575</u>	<u>25</u>
TOTAL: SEGMENT 1			<u>8,550</u>	<u>61</u>
Note: It is assumed that mitigation will be placed under both the near and far tracks.				
** Engineering stations are shown in the Plan and Profile Drawings in Volume 4.				
Source: ATS Consulting, LLC, 2005.				

TABLE ES-9				
VIBRATION MITIGATION LOCATIONS – SEGMENT 2 CITIES				
<u>City</u>	<u>Engineering Station**</u>		<u>Length</u>	<u>Residual Impacts</u>
	<u>Start</u>	<u>End</u>		
<u>Glendora</u>	<u>1431+00</u>	<u>1454+00</u>	<u>2,300</u>	<u>0</u>
<u>Glendora</u>	<u>1455+00</u>	<u>1463+50</u>	<u>850</u>	<u>7</u>
<u>Glendora</u>	<u>1519+75</u>	<u>1536+50</u>	<u>1,675</u>	<u>0</u>
<u>Glendora</u>	<u>1663+00</u>	<u>1665+25</u>	<u>225</u>	<u>0</u>
Total: Glendora			<u>5,050</u>	<u>7</u>
<u>San Dimas</u>	<u>1681+00</u>	<u>1688+50</u>	<u>750</u>	<u>0</u>
<u>La Verne</u>	==	==	==	==

TABLE ES-9
VIBRATION MITIGATION LOCATIONS – SEGMENT 2 CITIES

<u>City</u>	<u>Engineering Station**</u>		<u>Length</u>	<u>Residual Impacts</u>
	<u>Start</u>	<u>End</u>		
<u>Pomona</u>	--	--	--	--
<u>Claremont</u>	1974+00	1979+25	525	0
<u>Claremont</u>	1986+50	1997+50	1,100	20
<u>Claremont</u>	2046+00	2050+00	400	0
Total: Claremont			2,025	20
<u>Montclair</u>	--	--	--	--
TOTAL: SEGMENT 2			7,825	27

Note: It is assumed that mitigation will be placed under both the near and far tracks.

** Engineering stations are shown in the Plan and Profile Drawings in Volume 4.

Source: ATS Consulting, LLC, 2005.

c. Traffic and Transportation:

T-5 System-Wide Operational Improvements

A number of intersections will be signalized as part of the mitigation measures. System-wide operational improvements will be made on intersections in progression. The following arterials will be set up for system-wide coordination and synchronization.

Myrtle Avenue – Monrovia

Duarte Road – Monrovia and Duarte

Route 66 – Glendora

Bonita Avenue – San Dimas

Arrow Highway – San Dimas and La Verne

White Avenue – La Verne

T-6 Segment 1 Improvements

Within Segment 1, a total of 13 intersections are adversely/significantly impacted. Based upon mitigation measures considered to be feasible, the following improvements would be made, subject to concurrence of each city:

Arcadia

Santa Anita Avenue and Colorado Boulevard – Add a second left turn lane to the southbound approach on Santa Anita Avenue. This will provide two exclusive left turn lanes, two through lanes and one exclusive right turn lane. Adequate right of way is available to accommodate the mitigation.

Santa Anita Avenue and Santa Clara Street – Reconfigure the eastbound approach on Santa Clara Street to provide two exclusive left turn lanes and one shared through/right turn lane. In addition, convert the east/west signal operation from a split phase to a protected left turn phase. This mitigation can be accommodated within the existing right of way.

Monrovia

Myrtle Avenue and Evergreen Avenue (210 EB) – Add a new exclusive left turn lane to the southbound approach by removing the north leg median barrier and re-striping the southbound approach to provide two exclusive left turn lanes and two through lanes. Adequate right of way is available to accommodate mitigation.

Myrtle Avenue and Duarte Road – Add a new exclusive right turn lane to the southbound approach by removing the north leg median barrier and re-striping the southbound approach to provide one exclusive left turn lane, two through lanes, and one exclusive right turn lane. Adequate right of way is available to accommodate mitigations.

Myrtle Avenue and Pomona Avenue – Signalize.

Duarte

Highland Avenue and Central Avenue – Signalize.

Highland Avenue and Business Center Drive – Signalize.

Irwindale

Irwindale Avenue and Foothill Boulevard – Provide an overlap right turn signal phase accompanied by a right turn arrow indication for the eastbound approach on Foothill Boulevard. This right turn overlap phase would operate during the northbound signal phase.

Irwindale Avenue and I-210 Eastbound Ramps – Add a new exclusive left turn lane to the southbound approach by re-striping and utilizing the area available adjacent to the curb to provide two exclusive left turn lanes and two through lanes. Adequate right of way is available to accommodate mitigations.

Irwindale Avenue and Montoya Street – Signalize.

Irwindale Avenue and W First Street – Add a new southbound through lane by re-striping the southbound approach to provide one exclusive left turn lane, three through lanes, and one exclusive right turn lane. Re-stripe the departure leg to provide three through traffic lanes. Adequate right of way is available to accommodate mitigations.

Irwindale Avenue and Gladstone Street – Reconfigure the eastbound approach to convert the exclusive left turn lane to a shared left turn/through lane. Also, convert the eastbound shared right turn/through lane to an exclusive right turn lane. These will provide one shared left turn/through lane, one through lane, and one exclusive right turn lane on the eastbound approach. Within the existing right of way, realign the departure leg to match the shift in through lanes.

Azusa

Azusa Avenue and Ninth Street – Signalize of this intersection is proposed

T-6 Segment 2 Improvements

Within Segment 2, a total of 14 intersections are adversely/significantly impacted. Based upon the mitigation measures considered to be feasible, the following improvements would be made, subject to concurrence of each city:

Glendora

Grand Avenue and Foothill Boulevard – Convert the westbound through lane to a shared left through lane to provide one exclusive left turn lane, one shared left turn/through lane, and one shared right turn/through lane. In addition, convert the east/west signal phasing to a split phase operation. The mitigation can be accommodated within existing right of way.

Glendora Avenue and West Route 66 – Provide an overlap right turn signal phase accompanied by a right turn arrow indication for the northbound approach on Glendora Avenue. This right turn overlap phase would operate during the westbound protected left turn signal phase.

Glenwood Avenue and West Route 66 – Signalize.

San Dimas

SR-57 NB Ramps/Bonita Avenue and Arrow Highway – Re-stripe the eastbound approach to provide one exclusive left turn lane, one through lane, one shared right turn/through lane, and one exclusive right turn lane. No re-striping of the departure leg is required. Adequate right of way is available to accommodate the mitigation.

Acacia Street and Bonita Avenue – Signalize.

Monte Vista Avenue and Bonita Avenue – Signalize.

La Verne

A Street and Arrow Highway – Signalize.

White Avenue and Second Street – Signalize. In addition, stripe the northbound and southbound approaches to provide one shared left turn/through lane and one shared right turn/through lane for each approach. Re-stripe the departure legs to provide two through lanes. Adequate right of way is available to accommodate mitigation.

White Avenue and First Street – Signalize .In addition, re-stripe the northbound approach to provide one exclusive left turn lane, two through lanes and one exclusive right turn lane. Re-stripe the departure leg to provide two through lanes. Adequate right of way is available to accommodate mitigation.

White Avenue and Arrow Highway – Re-stripe the northbound approach, within the existing right of way to provide one exclusive left turn lane, two through lanes, and one exclusive right turn lane.

Pomona

Fulton Road and Bonita Avenue – Signalize.

Towne Avenue and Town Center Drive – Signalize.

Montclair

Monte Vista Avenue and Arrow Highway – Add a new exclusive right turn lane to the eastbound approach. Re-stripe the eastbound approach to provide two exclusive left turn lanes, two through lanes, and one exclusive right turn lane. Adequate right of way is available to accommodate mitigations.

Central Avenue and Arrow Highway - Add a new southbound through lane by removing the median barrier on the north and south legs. Re-stripe the southbound approach to provide one exclusive left turn lane, three through lanes and one exclusive right turn lane. Adequate right of way is available to accommodate mitigation.

ES-9 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. O&M 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 Construction Authority's ability to afford the Build Alternatives.

ES-9.1 Capital Cost Estimates for Build Alternatives

This section summarizes the capital cost estimates for the Full Build (Pasadena to Montclair) Alternative and the Build LRT to Azusa Alternative. 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 based on the estimates and methodology prepared as part of the Advanced Conceptual Engineering activities conducted as part of the Final EIS/EIR technical activities. Detailed estimates prepared by Kal Krishnan Consulting Services and Parsons Brinckerhoff Quade & Douglas are available from the Construction Authority (Advanced Conceptual Engineering Cost Estimate, September 2005).

The capital cost estimates were prepared with all costs expressed in 2005 dollars. Cost estimates are developed by identifying quantities on conceptual drawings and applying standardized rates as defined in the Construction Cost Methodology, the Advanced Conceptual Engineering Cost Estimate, the alternatives definitions, and the Engineering Plans and Drawings. The alignment plans, typical cross sections, and station concepts are included in Volume 4. In addition, capital costs for both additional buses (for the build alternatives) and LRT vehicles, as well as an estimate for the maintenance and operations facility, have 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.

Table ES-10 presents the total capital costs (in millions of dollars) for the two Build Alternatives in 2005 dollars. The major differences between the build alternatives are the length of each alternative. The Full Build (Pasadena to Montclair) Alternative is 23.9 miles long and the Build LRT to Azusa Alternative is 11.4 miles. The Maintenance and Operations (M&O) Facility is only included in the Full Build (Pasadena to Montclair) Alternative.

TABLE ES-10			
CAPITAL COST ESTIMATES (2005 \$)			
Cost Category	2005 Dollars in Millions		
	Full Build (Pasadena to Montclair) Alternative ⁽¹⁾	Build LRT to Azusa Alternative	LRT M&O Facility Total
Guideway	\$133.0	\$64.0	\$0.0
Stations	\$55.9	\$22.7	\$0.0
LRT M&O Facility/Bus Support Facilities	\$59.9	\$6.7	\$57.3
Special Conditions	\$216.1	\$90.2	\$0.0
Systems	\$154.9	\$72.2	\$0.0
<i>Subtotal – Construction</i>	<i>\$619.8</i>	<i>\$255.8</i>	<i>\$57.3</i>
Right-of-Way	\$86.3	\$32.9	\$26.2
Vehicles	\$38.6	\$12.8	\$0.0
Professional Services	\$206.7	\$88.3	\$16.5
Unallocated Contingencies	\$24.9	\$12.5	\$2.3
Total Cost	\$976.3	\$402.3	\$102.3
Source: Kal Krishnan Consulting Services and Parsons Brinckerhoff, 2005.			
⁽¹⁾ M&O facility cost is included.			

ES-9.2 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 ES-11** and has a total estimated capital cost of approximately \$102.3 million in 2005 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.

ES-9.3 Operating and Maintenance Costs

- This section summarizes the Operating and Maintenance (O&M) cost estimate for the LRT Build Alternatives. The LRT O&M costs were determined using a resource cost build-up

model based on the current LACMTA operating costs and the incremental bus costs for Foothill Transit and LACMTA services to be provided were based on the latest O&M costs for those agencies. The LRT cost model is described in the Operations and Maintenance Cost Estimates (September 2005) report prepared by the Construction Authority. The Gold Line Foothill Extension LRT proposed operating plan and the operating and maintenance cost estimates are estimated in 2005 dollars. The LRT O&M costs have assumed that the to build alternatives are extensions of an existing service (Gold Line Phase I) and takes advantage of the existing infrastructure and staffing structure already in place.

Table ES-11 presents the annual O&M costs for each alternative in 2005 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 Alternative.

TABLE ES-11			
OPERATING & MAINTENANCE COST ESTIMATES (2005 \$)			
Provider and Mode	2005 Dollars in Millions		
	No Build	Full Build (Pasadena to Montclair) Alternative	Build LRT to Azusa Alternative
LACMTA LRT Gold Line	\$45.692	\$61.820	\$53.038
LACMTA Bus	\$1,044.356	\$1,044.831	\$1,044.782
Foothill Transit Bus	\$82.922	\$88.032	\$90.972
Total O&M Costs	\$1,172.970	\$1,194.683	\$1,188.792
Increment to No Build	NA	\$21.713	\$15.822

Source: Construction Authority and Parsons Brinckerhoff, 2005.

ES-9.4 The Project Finance Plan

This section summarizes the capital and operating financial plans for the alternatives. The analysis focuses on the conceptual financial plans for the Full Build (Pasadena to Montclair) Alternative and the Build LRT to Azusa Alternative. A description is provided of the proposed revenue sources, commitment of these sources, and schedule of annual outlays planned.

Section ES-9.4.1 describes the proposed uses and sources of funding for the capital and O&M costs of the build alternatives. Section ES-9.4.2 presents the proposed flow of costs and revenues over the pre-2004 to 2030 period.

ES-9.4.1 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 2005 is equivalent to \$1.03 in 2006, using an inflation rate of 3.0 percent.

The escalation factors used to convert capital cost estimates in 2005 dollars to costs in YOE dollars costs were derived from forecasts of the Consumer Price Index (CPI) prepared in August 2004 by the UCLA Anderson School of Business Forecast Report for Los Angeles County. Over the 2005 – 2025 period, the annual CPI is projected to average approximately 2.65 percent, and range from a low of 2.33 percent in 2009 to a high of 3.03 percent in 2016. This is consistent with LACMTA’s financial forecasting process.

The escalation factors used to convert capital cost estimates in 2005 dollars to costs in YOE dollars costs were derived from forecasts of the Consumer Price Index (CPI) prepared in August 2004 by the UCLA Anderson School of Business Forecast Report for Los Angeles County. Over the 2005 – 2025 period, the annual CPI is projected to average approximately 2.65 percent, and range from a low of 2.33 percent in 2009 to a high of 3.03 percent in 2016. This is consistent with LACMTA’s financial forecasting process.

a. Overview of Proposed Uses of Funds

Table ES-12 summarizes the capital costs of the two build alternatives in 2005 constant dollars and in YOE dollars. The costs summarized are comprised of the total capital costs, including allowances for professional services and project contingencies and prior State/local expenditures on right of way and on the Metro Gold Line Phase I (Los Angeles to Sierra Madre Villa). As shown in the table, excluding prior expenditures, over the pre-2004 to 2025 period, the capital cost of the Full Build (Pasadena to Montclair) Alternative is \$976.3 million in 2005 dollars and \$1,120.1 million in YOE dollars. The capital cost of the Build LRT to Azusa Alternative is \$402.3 million in 2005 dollars and \$436.0 million in YOE dollars. Including prior State/local expenditures on right-of-way and the Metro Gold Line Phase I, the total project capital costs in YOE dollars are \$1,948.1 million and \$794.0 million for the Full Build (Pasadena to Montclair) Alternative and the Build LRT to Azusa Alternative respectively. These are total project costs that include both the LA County and San Bernardino shares.

TABLE ES-12 CAPITAL COST OF THE BUILD LRT ALTERNATIVES IN 2005 DOLLARS AND IN YEAR OF EXPENDITURE DOLLARS, MILLIONS				
Cost Category	Full Build (Pasadena to Montclair) Alternative		Build LRT to Azusa Alternative	
	2005 Dollars in Millions	YOE Dollars in Millions	2005 Dollars in Millions	YOE Dollars in Millions
Guideway and Track Elements	\$133.0	\$152.1	\$64.0	\$69.4
Stations	\$55.9	\$65.1	\$22.7	\$24.9
Support Facilities	\$59.9	\$72.8	\$6.7	\$7.9
Sitework and Special Conditions	\$216.0	\$248.6	\$90.2	\$97.8
Systems	\$154.9	\$177.4	\$72.2	\$78.3
Right-of-Way, Land, Existing Improvements	\$86.3	\$95.8	\$32.9	\$34.2
Vehicles	\$38.6	\$46.6	\$12.8	\$15.2
Professional Services	\$206.8	\$232.9	\$88.3	\$94.6
Unallocated Contingency	\$24.9	\$28.7	\$12.5	\$13.7
Total Capital Cost	\$976.3	\$1,120.1	\$402.3	\$436.0
Interest Cost	\$0.0	\$0.0	\$0	\$0
Prior State/Local Expenditure for Right-of-Way (Ph I and II)	\$97.1	\$97.1	\$73.0	\$73.0

TABLE ES-12 CAPITAL COST OF THE BUILD LRT ALTERNATIVES IN 2005 DOLLARS AND IN YEAR OF EXPENDITURE DOLLARS, MILLIONS				
Cost Category	Full Build (Pasadena to Montclair) Alternative		Build LRT to Azusa Alternative	
	2005 Dollars in Millions	YOE Dollars in Millions	2005 Dollars in Millions	YOE Dollars in Millions
Prior State/Local Expenditure for Phase I Metro Gold Line to SMV	\$731.0	\$731.0	\$285.0 (part only)	\$285.0 (part only)
Total Prior Local/State Expenditure	\$828.1	\$828.1	\$358.0	\$358.0
TOTAL PROJECT COST	\$1,804.4	\$1,948.1	\$760.3	\$794.03
Source: Parsons Brinckerhoff, 2005.				

Table ES-13 summarizes the proposed uses and sources of funds for the capital and operations and maintenance of the build alternatives over the pre-2004 – 2025 period. For the Full Build (Pasadena to Montclair) Alternative, the total cost for capital, prior State/local expenditures, and O&M is \$2,372.5 million (YOE \$). Of this total, \$1,120.1 million is for capital, \$828.1 is for prior State/local expenditures, and \$424.4 million is for O&M over the initial 16 years of operation. Included in the prior State/local expenditures are \$97.1 million for the acquisition of the railroad ROW to Montclair and \$731.0 million for the Metro Gold Line Phase I.

TABLE ES-13 PROPOSED SOURCES AND USES OF FUNDING FISCAL YEAR PRE-2004 - 2025 (IN YEAR OF EXPENDITURE DOLLARS, MILLIONS)		
	Full Build (Pasadena to Montclair) Alternative	Build LRT to Azusa Alternative
USES OF FUNDS		
LA County Costs		
Project Capital Costs	\$1,069.8	\$436.0
Interest Cost	\$0.0	\$0.0
Total Project Capital Cost	\$1,069.8	\$436.0
<i>Prior Expenditure for Right-of-Way</i>	<i>\$96.0</i>	<i>\$73.0</i>
<i>Phase I Metro Gold Line (LA to Sierra Madre Villa)</i>	<i>\$731.0</i>	<i>\$285.0</i>
Subtotal, LA County Capital Costs	\$1,896.8	\$794.0
SB County Costs		
Project Capital Costs	\$50.2	\$0.0
Interest Cost	\$0.0	\$0.0
Total Project Capital Cost	\$50.3	\$0.0

TABLE ES-13 PROPOSED SOURCES AND USES OF FUNDING FISCAL YEAR PRE-2004 - 2025 (IN YEAR OF EXPENDITURE DOLLARS, MILLIONS)		
	Full Build (Pasadena to Montclair) Alternative	Build LRT to Azusa Alternative
Prior Expenditure for Right-of-Way	\$1.1	
Subtotal, SB County Capital Costs	\$51.3	\$0.0
TOTAL CAPITAL COSTS	\$1,948.1	\$794.0
SOURCES OF CAPITAL FUNDS		
LA County Capital Funding Sources		
Federal		
FTA Section 5309 New Starts	\$948.4	\$397.0
FTA Section 5309 Bus and Bus Related Intermodal	\$12.5	\$12.5
FHWA TCSP	\$2.9	\$1.5
State		
State Funds (Proposition 192 Seismic Bond)	\$13.9	\$13.9
Regional/Local		
Carryover from Phase I	\$4.0	\$4.0
Southern California Association of Governments	\$1.0	\$0.5
Interest	\$2.0	\$1.6
Corridor Cities Contribution	\$11.0	\$5.0
State/Regional/Local Sources	\$74.1	\$0.0
Subtotal, LA County Capital Sources	\$1,069.8	\$436.0
<i>Prior State/Local Expenditure for Right of Way</i>	<i>\$96.0</i>	<i>\$73.0</i>
<i>Phase I Metro Gold Line (LA to Sierra Madre Villa)</i>	<i>\$731.0</i>	<i>\$285.0</i>
Total, LA County Capital Sources and Prior State/Local Expenditures	\$1,896.8	\$794.0
SB County Capital Funding Sources		
Federal		
FTA Section 5309 New Starts	\$25.6	\$0.0
Local		
SANBAG Local	\$24.6	\$0.0

**TABLE ES-13
PROPOSED SOURCES AND USES OF FUNDING
FISCAL YEAR PRE-2004 - 2025
(IN YEAR OF EXPENDITURE DOLLARS, MILLIONS)**

	Full Build (Pasadena to Montclair) Alternative	Build LRT to Azusa Alternative
Subtotal, SB County Capital Sources	\$50.2	\$0.0
Prior State/Local Expenditure for Right of Way	\$1.1	\$0.0
Total, SB County Capital Sources and Prior State/Local Expenditures	\$51.3	\$0.0
TOTAL CAPITAL FUNDING SOURCES	\$1,948.1	\$794.0
O&M COSTS AND REVENUES		
O&M COSTS		
LRT	\$303.0	\$159.7
LACMTA Bus	\$10.4	\$9.3
Foothill Transit	\$111.0	\$174.8
Total O&M Costs	\$424.4	\$343.8
SOURCES OF O&M FUNDS		
LRT Farebox Revenues	\$63.1	\$32.9
Bus Farebox Revenues	\$32.4	\$49.1
LACMTA Local Funds	\$328.9	\$261.8
TOAL O&M Sources	\$424.4	\$343.8
Notes:		
<ol style="list-style-type: none"> 1. The prior State/local expenditure on Right of Way reflects actual expenditure in 1992 and is in 1992 dollars. Per comments received from FTA, the Authority has not inflated this number to 2005 dollars. However, the Authority reserves the right to escalate this figure to 2005 dollars if it is found later to be acceptable to FTA. The ROW costs shown for the Full Build and Build LRT to Azusa alternatives reflect costs from downtown Los Angeles to Montclair and Azusa respectively. 2. The prior State/local expenditure on the Metro Gold Line Phase I reflects the total actual cost for the Full Build Alternative and a share of the total for the Build LRT to Azusa Alternative. 3. Capital costs for the Full Build Alternative include 10 rail cars, 11 buses, and a new maintenance facility. 4. Capital costs for the Build LRT to Azusa Alternative include 28 buses. 5. San Bernardino Associated Governments (SANBAG) has committed up to \$35.0 million in local funds. 		
Source: Sharon Greene & Associates, 2005.		

For the Build LRT to Azusa Alternative, the total cost for capital, prior State/local expenditure for ROW and the Gold Line Phase I, and O&M is \$1,137.9 million (YOE \$). Of this total, \$436.0 million is for capital, \$358.0 for prior State/local expenditure, and \$343.9 million is for O&M over the initial 16-year period of operations. Included in the prior State/local expenditures are \$73.0 million for the acquisition of the railroad ROW to Azusa and a \$278.6 million share of the total cost for the Metro Gold Line Phase I.

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 county. The Los Angeles County share is 97.4 percent of the capital costs and prior State/local expenditure for the Full Build (Pasadena to Montclair) Alternative and 100.0 percent of the capital costs and prior State/local expenditure for the Build LRT to Azusa Alternative. Of the \$1,948.1 million in capital cost and prior expenditure for the Full Build (Pasadena to Montclair) Alternative, \$1,896.8 million is the Los Angeles County share and \$51.3 million is the San Bernardino County share. Of the \$794.0 million in capital cost and prior expenditure for the Build LRT to Azusa Alternative, all costs are for Los Angeles County

Table ES-5-13 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 \$424.4 million in O&M costs for the Full Build (Pasadena to Montclair) Alternative, \$303.0 million (71.3 percent) are for LRT service, \$10.4 million (2.5 percent) is for bus service provided by LACMTA, and \$111.0 million (26.2 percent) are for bus service provided by Foothill Transit. Of the \$343.9 million in O&M costs for the Build LRT to Azusa Alternative, \$159.7 million (46.4 percent) are for LRT service, \$9.4 (2.8 percent) million for bus service provided by LACMTA, and \$174.8 million (50.8 percent) are for bus service provided by Foothill Transit

b. Overview of Proposed Sources of Funds

This section focuses on the proposed sources of funding for the Build Alternatives over the pre-2004 – 2025 period. Capital funding sources are described first, followed by a description of O&M funding sources.

Capital Funding Sources

Table ES-14 and **Figure ES-45** 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 ES-14 PROPOSED CAPITAL REVENUE SOURCES (IN YEAR OF EXPENDITURE DOLLARS, MILLIONS)				
	FULL BUILD (PASADENA TO MONTCLAIR) ALTERNATIVE		BUILD LRT TO AZUSA ALTERNATIVE	
	YOE Dollars, Millions	Percent of Total	YOE Dollars, Millions	Percent of Total
LOS ANGELES COUNTY				
CAPITAL COSTS				
Project Capital Cost	\$1,069.8	56.4%	\$436.0	54.9%
Interest Cost	\$0.0	0.0%	\$0.0	0.0%
Total Project Capital Cost	\$1,069.8	56.4%	\$436.0	54.9%
<i>Prior State/Local Expenditure for Right of Way</i>	\$96.0	5.1%	\$73.0	9.2%
<i>Phase I Metro Gold Line (Los Angeles to Sierra Madre Villa)</i>	\$731.0	38.5%	\$285.0	35.9%
TOTAL CAPITAL COSTS AND PRIOR STATE/LOCAL EXPENDITURES	\$1,896.8	100.0%	\$794.0	100.0%
CAPITAL REVENUE SOURCES				
Federal				
FTA Section 5309 New Starts	\$948.4	50.0%	\$397.0	50.0%
FTA Section 5309 Bus and Bus Related Intermodal	\$12.5	0.7%	\$12.5	1.6%
FHWA TCSP	\$2.9	0.2%	\$1.5	0.2%
State				
Proposition 192 Seismic Bond	\$13.9	0.7%	\$13.9	1.8%

**TABLE ES-14
PROPOSED CAPITAL REVENUE SOURCES
(IN YEAR OF EXPENDITURE DOLLARS, MILLIONS)**

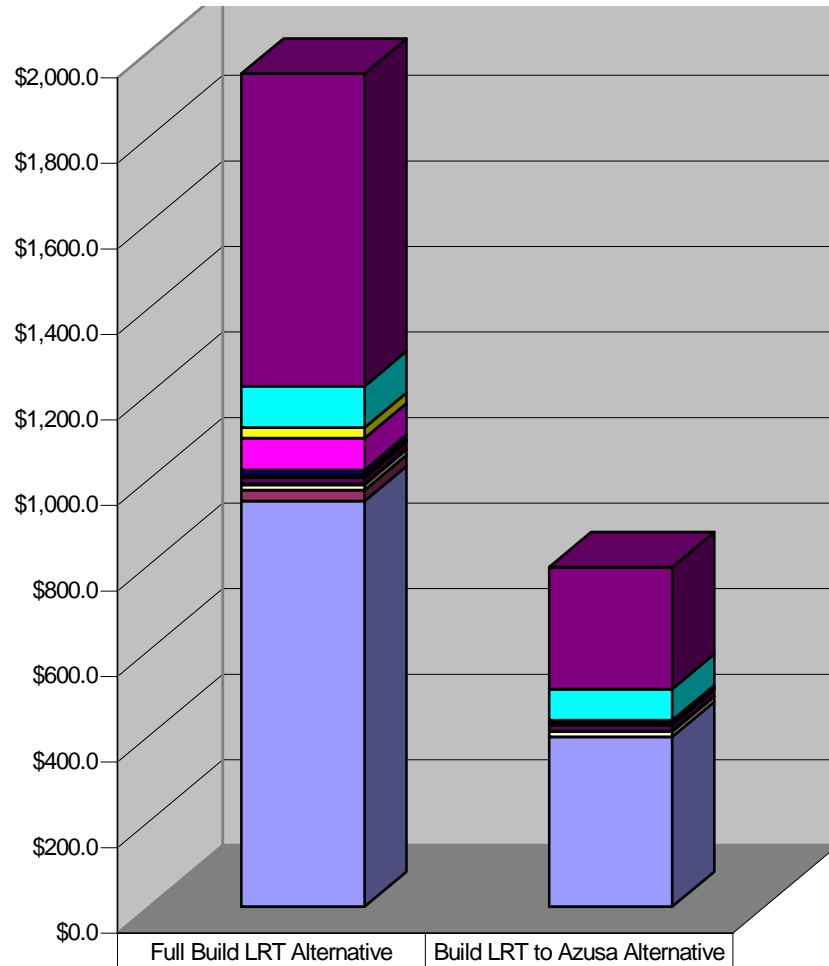
	FULL BUILD (PASADENA TO MONTCLAIR) ALTERNATIVE		BUILD LRT TO AZUSA ALTERNATIVE	
	YOE Dollars, Millions	Percent of Total	YOE Dollars, Millions	Percent of Total
<i>Regional/Local</i>				
Carryover from Phase I	\$4.0	0.2%	\$4.0	0.5%
Southern California Association of Governments	\$1.0	0.1%	\$0.5	0.1%
Interest	\$2.0	0.1%	\$1.6	0.2%
Corridor Cities Contribution	\$11.0	0.6%	\$5.0	0.6%
State/Regional/Local Sources	\$74.1	3.9%	\$0.0	0.0%
Subtotal, LA County Capital Revenue Sources	\$1,069.8	56.4%	\$436.0	54.9%
<i>Prior State/Local Expenditure on Right of Way</i>	<i>\$96.0</i>	<i>5.1%</i>	<i>\$73.0</i>	<i>9.2%</i>
<i>Phase I Metro Gold Line (Los Angeles to Sierra Madre Villa)</i>	<i>\$731.0</i>	<i>38.5%</i>	<i>\$285.0</i>	<i>35.9%</i>
TOTAL CAPITAL REVENUE SOURCES, LA COUNTY	\$1,896.8	100.0%	\$794.0	100.0%
SAN BERNARDINO COUNTY				
CAPITAL COSTS				
Project Capital Cost	\$50.2	98.0%	\$0.0	0.0%
Interest Cost	\$0.0	0.0%	\$0.0	0.0%
Total Project Capital Cost	\$50.2	98.0%	\$0.0	0.0%
<i>Prior State/Local Expenditure for Right of Way</i>	<i>\$1.1</i>	<i>2.0%</i>	<i>\$0.0</i>	<i>0.0%</i>

**TABLE ES-14
PROPOSED CAPITAL REVENUE SOURCES
(IN YEAR OF EXPENDITURE DOLLARS, MILLIONS)**

	FULL BUILD (PASADENA TO MONTCLAIR) ALTERNATIVE		BUILD LRT TO AZUSA ALTERNATIVE	
	YOE Dollars, Millions	Percent of Total	YOE Dollars, Millions	Percent of Total
TOTAL CAPITAL COSTS AND PRIOR STATE/LOCAL EXPENDITURES	\$51.3	100.0%	\$0.0	0.0%
CAPITAL REVENUE SOURCES				
<i>Federal</i>				
FTA Section 5309 New Starts	\$25.6	50.0%	\$0.0	0.0%
<i>Local</i>				
SANBAG Local *	\$24.6	48.0%	\$0.0	0.0%
Subtotal, SB County Capital Revenue Sources	\$50.2		\$0.0	0.0%
<i>Prior State/Local Expenditure on Right of Way</i>	<i>\$1.1</i>	<i>2.0%</i>	<i>\$0.0</i>	<i>0.0%</i>
TOTAL CAPITAL REVENUE SOURCES, SB COUNTY	\$51.3	100.0%	\$0.0	0.0%

* San Bernardino Associated Governments (SANBAG) has committed up to \$35.0 million in local funds.

Source: Sharon Greene & Associates, 2005.



	Full Build LRT Alternative	Build LRT to Azusa Alternative
■ Phase I - Metro Gold Line (Los Angeles to Sierra Madre)	\$731.0	\$284.9
■ Prior Local/State Expenditure for Ph II Right of Way	\$97.1	\$73.0
■ Countywide Sales Tax (San Bernardino)	\$24.6	\$0.0
■ State/Regional/Local Sources	\$74.1	\$0.0
■ Corridor Cities Contribution	\$11.0	\$5.0
■ Interest	\$2.0	\$1.6
■ Southern California Association of Governments	\$1.0	\$0.5
■ Carryover from Phase I	\$4.0	\$4.0
■ State Funds (Proposition 192 Seismic Bond)	\$13.9	\$13.9
■ FHWA TCSP	\$2.9	\$1.5
■ 5309 Bus and Bus Related Intermodal	\$12.5	\$12.5
■ 5309 New Starts (San Bernardino County)	\$25.6	\$0.0

Figure ES-45: Summary of Capital Resources in YOE Dollars

Of the sources proposed for the LA County share, federal sources comprise 50.9 percent of the capital revenues proposed for the Full Build (Pasadena to Montclair) Alternative and 51.8 percent of the revenues for the Build LRT to Azusa Alternative. The predominant federal source is FTA Section 5309 New Starts funding, which comprises 50.0 percent of the capital revenues for each alternative. State sources contribute between 1 and 2 percent of total revenues. Regional/Local sources comprise 4.8 percent and 1.4 percent. Prior State/Local expenditures comprise the remaining 43.6 percent and 45.1 percent of the funding for the two Build alternatives respectively.

Of the sources proposed for the San Bernardino County share, federal sources comprise 50.0 percent of the capital revenues for the Full LRT Build (Pasadena to Montclair) Alternative. All federal funding for the San Bernardino share is proposed to be derived from FTA New Starts funds. Of the 50.0 percent balance, 48.0 percent is proposed to be provided from local sources, with 2.0 percent from prior State/Local expenditures for Right of Way. While local funding of \$24.6 million is proposed in the financial plan, SANBAG has committed up to \$35.0 million in local funding for the Full Build (Pasadena to Montclair) Alternative.

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, 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 50.0 percent of the funding for both Build alternatives, or \$974.1 million and \$397.0 million for the alternatives respectively. The Construction Authority will coordinate with San Bernardino Associated Governments in securing New Starts funding for the Gold Line Foothill Extension.

For the portion of the alternatives allocated to LA County, this source is proposed to provide 50.0 percent of the capital funding. The total level of FTA New Starts proposed for the LA County share is \$948.4 million for the Full Build (Pasadena to Montclair) Alternative and \$390.6 for the Build LRT to Azusa Alternative. Of these totals, \$4.0 million and \$0.5 million in FTA New Starts funding was authorized in the 2004 and 2005 Federal Budget respectively. An additional \$25.6 million in FTA New Starts funding is proposed for the San Bernardino County share of the Full Build Alternative, representing 50.0 percent of the capital funding for the San Bernardino County portions of this alternative. The Section 5309 shares for these build alternatives, total and by county, are within the 50% maximum share objective for New Starts Program contributions.

Table ES-15 summarizes the annual schedule of projected for drawdown of FTA Section 5309 funds through 2014 for the Full Build Alternative and through 2013 for the Build LRT to Azusa Alternative.

**TABLE ES-15
ANNUAL DRAWDOWN LEVELS OF NEW STARTS FUNDING
PROPOSED OVER THE PRE-2004 - 2014 PERIOD
(IN YEAR OF EXPENDITURE DOLLARS, MILLIONS)**

Fiscal Year	FULL BUILD (PASADENA TO MONTCLAIR) ALTERNATIVE		BUILD LRT TO AZUSA ALTERNATIVE	
	LOS ANGELES COUNTY	SAN BERNARDINO COUNTY	LOS ANGELES COUNTY	SAN BERNARDINO COUNTY
2005	\$ 0.9	\$ 0.0	\$ 0.9	
2006	\$ 18.3	\$ 0.3	\$ 18.3	
2007	\$108.3	\$ 0.0	\$108.3	
2008	\$102.9	\$ 0.0	\$102.9	
2009	\$ 99.8	\$ 0.0	\$ 99.8	
2010	\$ 61.3	\$ 1.3	\$ 39.6	
2011	\$157.0	\$ 7.1	\$ 10.3	
2012	\$176.0	\$ 7.3	\$ 10.6	
2013	\$163.6	\$ 6.8	\$ 6.3	
2014	\$ 60.4	\$ 2.8	\$ 0.0	
Total	\$948.4	\$25.6	\$397.0	\$0.0

Note: Revenues not rounded.

Source: Sharon Greene & Associates, 2005.

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 Foothill Extension. A total of \$12.5 million in FTA Section 5309 Bus funding is authorized for the Gold Line Foothill Extension in SAFETEA-LU.

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 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.

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 are being expended on the Extension beginning in 2003. A total of \$13.9 million in such funding is proposed in both LRT build alternatives.

Regional/Local Sources for Capital

Regional/Local sources are projected to provide \$92.1 million and \$11.1 million for the LA portions of the Full Build (Pasadena to Montclair) Alternative and the Build LRT to Azusa Alternative, respectively, representing 4.9 percent and 1.4 percent of proposed capital revenues. Within San Bernardino County, of

the \$35.0 million in local funding committed by SANBAG, \$24.6 million is proposed to fund 48.0 percent of the San Bernardino County portion of the Full Build Alternative.

The sources of Regional/Local funding proposed for LA County consist of carryover funds from Phase I, SCAG, interest earnings, Corridor cities contributions, and a combination of State/Regional/Local sources. Local funding for the San Bernardino County share would be provided through the extension of the Measure I county sales tax program approved by county voters in November 2004

Carryover Funds from Phase I

The Authority has approved the use of \$4.0 million in carryover funds from Phase I for the Metro Gold Line Foothill Extension.

Southern California Association of Governments

The Authority has received \$1.0 million from the Southern California Association of Governments for use on the Metro Gold Line Foothill Extension. Of this total, \$0.5 million is for the Build LRT to Azusa Alternative, with the full \$1.0 million available for the Full Build Alternative,

Interest Earnings

The Authority has programmed a total of \$2.0 million in interest earnings for use on the Metro Gold Line Foothill Extension. Of this total, \$1.6 million is available for use on the Build LRT to Azusa Alternative, with the full \$2.0 million available for the Full Build Alternative.

Corridor Cities Contribution

The local jurisdictions along the Gold Line Foothill Extension corridor have indicated their commitment to assist in funding the capital cost of the project. Each city is proposed to contribute \$1 million. With 11 cities along the Full Build Alternative and five along the Build LRT to Azusa, a total of \$11.0 million and \$5.0 million is proposed for the two alternatives respectively.

Local jurisdictions could potentially use a variety of funding sources for their contributions or in-kind services. Among possible funding sources 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.

State/Regional/Local Sources

Combinations of State/Regional/Local sources are proposed to provide \$74.1 million in funding for the Full Build Alternative in Los Angeles County. These sources could include funds secured directly from the State, State Highway Account funds programmed by Caltrans and by the LACMTA, Proposition A and C sales tax funds, and Transportation Development Act funds. Currently, the LACMTA 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 \$592.1 million in 2005, with TDA forecasted to generate \$302.3 million in 2005. The LACMTA receives, programs, and allocates these funds and audits their usage. In addition, enabling legislation was passed in 2003 authorizing the LACMTA 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 Foothill Extension. 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 LACMTA 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 LACMTA 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 $\frac{1}{4}$ of 1 percent of the state sales tax for transportation purposes. The LACMTA allocates TDA funds to municipal transit operators based on established criteria and formulas. Before allocation, 1 percent of TDA funds are set-aside for LACMTA administrative costs and $\frac{3}{4}$ 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.

County sales tax funds are also proposed for use in San Bernardino County. Initially 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 including the Gold Line Foothill Extension. The extension of the Measure I program was approved by county voters in November 2004.

Prior State/Local Expenditure for Right-of-Way

In 1992, the LACMTA and SANBAG purchased the Pasadena Subdivision railroad right-of-way within their jurisdictions. The acquisition was 100 percent funded with LACMTA Proposition A sales tax funds, SANBAG Measure I sales tax funds, and State Proposition 116 Rail Bonds funds, with no federal funding used.

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 Foothill Extension project. Extending from downtown Los Angeles to Montclair, the total cost expended for the right-of-way for the Full Build Alternative was \$97.1 million (1992 dollars). Of this total, \$96.0 million was in Los Angeles County and \$1.1 million in San Bernardino County. For the Build LRT to Azusa Alternative, a total of \$73.0 million was expended in Los Angeles County for the right-of-way from downtown Los Angeles to Azusa.

The Prior State/Local Expenditure on Right of Way reflects actual expenditure in 1992 and is in 1992 dollars. Per comments received from FTA, the Authority has not inflated this number to 2005 dollars, however the Authority reserves the right to escalate this figure to 2005 dollars if it is found later to be acceptable to FTA

Prior State/Local Expenditure for Phase I Metro Gold Line

A total of \$731.0 million in State and local funding was expended for Phase I of the Metro Gold Line from downtown Los Angeles to Sierra Madre Villa, with no federal funds expended. This prior expenditure of State/Local funds is also proposed to be credited as part of the non-federal match for the

Gold Line Foothill Extension project. For the Full Build Alternative, the entire \$731.0 million is proposed as match. For the Build LRT to Azusa Alternative, \$285.0 million of the total prior State/Local expenditure is proposed as match.

Revenue Sources for Operations and Maintenance

Table ES-16 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 \$424.4 million and \$343.9 million in incremental O&M costs are projected over the FY 2010-2025 period for the Full Build (Pasadena to Montclair) Alternative and the Build LRT to Azusa Alternative, respectively. These costs consist of three components: LRT and incremental LACMTA and Foothill Transit bus service.

Approximately 71.4 percent of the incremental O&M costs of the Full Build (Pasadena to Montclair) Alternative are attributable to the extension of the Gold Line LRT service, with 2.5 percent and 26.2 percent attributable to additional LACMTA and Foothill Transit bus service respectively. With its reduced miles of LRT service and greater reliance on LACMTA and Foothill Transit buses, the Build LRT to Azusa Alternative has O&M costs that are divided between LRT (46.4 percent) and LACMTA and Foothill Transit bus services (2.7 percent and 50.8 percent respectively).

TABLE ES-16 PROPOSED OPERATIONS AND MAINTENANCE FUNDING FISCAL YEARS 2010 - 2025 (IN YEAR OF EXPENDITURE DOLLARS, MILLIONS)				
	Full Build (Pasadena to Montclair) Alternative		Build LRT to Azusa Alternative	
	Cost	Percent	Cost	Percent
O&M COSTS & REVENUES				
O&M COSTS				
LRT	\$303.0	71.4%	\$159.7	46.4%
LACMTA Bus	\$10.4	2.5%	\$9.3	2.7%
Foothill Transit	\$111.0	26.2%	\$174.8	50.8%
Total O&M Costs	\$424.4	100.0%	\$343.8	100.0%
SOURCES OF O&M FUNDS				
LRT Farebox Revenues	\$63.0	14.9%	\$32.9	9.6%
Bus Farebox Revenue	\$32.4	7.6%	\$49.1	14.3%
LACMTA Local Funds	\$328.9	77.5%	\$261.8	76.1%
Total O&M Sources	\$424.4	100.0%	\$343.8	100.0%
Source: Sharon Greene & Associates, 2005.				

Incremental O&M costs are projected to grow annually over the 2010–2025 period. **Table ES-17** summarizes the increases in O&M costs at key intervals in 2005 dollars and in YOE dollars. In constant 2005 dollars, the total annual O&M costs of the Full Build (Pasadena to Montclair) Alternative are projected to be \$6.5 million in 2010, increase to \$21.7 million per year in 2015, and remain at this level through 2025. In constant 2005 dollars, the total annual O&M costs of the Build LRT to Azusa

Alternative are projected to be \$7.9 million in 2010, increase to \$15.8 million per year in 2015, and remain at this level through 2025. With respect to LRT service, in 2005 constant dollars, the operating cost for LRT service is projected to be \$3.7 million in 2010, increase to \$16.1 million per year in 2015 and remain at this level through 2025 for the Full Build (Pasadena to Montclair) Alternative. In 2005 constant dollars, the LRT operating costs for the Build LRT to Azusa Alternative are projected to be \$3.7 million in 2010, increase to \$7.4 million per year in 2015 and remain at this level through 2025.

Funding for the O&M costs of the Build Alternatives is proposed to be derived from three sources. These sources are Gold Line Foothill Extension LRT fare revenues, LACMTA and Foothill Transit bus fare revenues, and LACMTA Operating Support.

TABLE ES-17				
INCREMENTAL OPERATIONS AND MAINTENANCE COSTS OVER NO BUILD				
IN FY 2010, FY 2015, FY 2025				
(IN YEAR OF EXPENDITURE DOLLARS, MILLIONS)				
Fiscal Year	Full Build (Pasadena to Montclair) Alternative		Build LRT to Azusa Alternative	
	2005 \$	Year of Expenditure \$	2005 \$	Year of Expenditure \$
FY 2010				
LRT	\$3.7	\$4.2	\$3.7	\$4.2
LACMTA Bus	\$0.2	\$0.3	\$0.2	\$0.2
Foothill Transit	\$2.6	\$2.9	\$4.0	\$4.6
Total	\$6.5	\$7.3	\$7.9	\$9.0
FY 2015				
LRT	\$16.1	\$20.9	\$7.4	\$9.5
LACMTA Bus	\$0.5	\$0.6	\$0.4	\$0.6
Foothill Transit	\$5.1	\$5.3	\$8.1	\$10.4
Total	\$21.7	\$28.1	\$15.9	\$20.5
FY 2025				
LRT	\$16.1	\$30.8	\$7.4	\$14.0
LACMTA Bus	\$0.5	\$0.9	\$0.4	\$0.8
Foothill Transit	\$5.1	\$9.7	\$8.1	\$15.4
Total	\$21.7	\$41.4	\$15.9	\$30.2
Source: Sharon Greene & Associates, 2005				

Fare Revenues

Fares comprise an average of 30.1percent for LACMTA operations, 26.6 for municipal operators including Foothill Transit and 21.3 percent for LACMTA rail operations revenues for the Gold Line Phase I under the “Long Range Transportation Plan Financial Forecasting Model, August 5, 2004”, based on current fare revenue assumptions. Fare recovery is assumed to adjust to reflect 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).

Over the 2010-2025 period, for the Full Build (Pasadena to Montclair) Alternative, LRT fare revenues are projected to fund a total of \$63.1 million, or fund 14.9 percent of total O&M costs. Bus fare revenues are projected to total \$32.4 million, and fund 7.6 percent of total O&M costs. The 77.5 percent balance or \$328.9 million is proposed to be derived from LACMTA local funds.

With respect to the Build LRT to Azusa Alternative, LRT fare revenues are projected to fund a total of \$32.9 million, or 9.6 percent of total O&M costs. Bus fare revenues are projected to total \$49.2 million, and fund 14.3 percent of total O&M costs. The 76.1 percent balance or \$261.8 million is proposed to be derived from LACMTA local funds.

LACMTA Operating Support

In July 2005, the LACMTA Board voted to approve LACMTA's operation of the Gold Line Foothill Extension. Over the 2010-2025 period, LACMTA operating support is proposed to fund a total of \$328.9 million (77.5 percent) and \$261.8 million (76.1 percent) of total O&M costs for the Full Build (Pasadena to Montclair) and Build LRT to Azusa Alternatives respectively. This level of operating support would be funded as part of the funding LACMTA currently provides for operation of public transportation services, totaling over \$50.0 billion. LACMTA 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 LACMTA 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 33.5% of the total LACMTA bus operations and 67.3% of LACMTA rail operations over the financial plan period. Based on the LACMTA Long Range Financial Model updated in August 2004, the specific uses of the sales tax based revenues are as follows:

Proposition A Half-Cent Sales Tax. LACMTA rail operations are funded in part by the Proposition A 35% rail program. LACMTA bus operations are funded in part by the Proposition A 40% discretionary program. Approximately 68.0% of the available Proposition A revenues fund LACMTA bus and rail operations through the financial forecasting model period of 2025, with 54.4 percent for bus operations and 13.6% for rail operations.

Proposition C Half-Cent Sales Tax. The Proposition C 40% Discretionary program funds a portion of the LACMTA bus and rail operations along with the Proposition C 5% security funds. These Proposition C funds contribute approximately 12.4% of the total LACMTA bus operations funding and approximately 25.8% 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 \$200.0 million is generated annually for Article 4 purposes. TDA funds about 21.8% of LACMTA bus operations.

FTA Section 5307

Under TEA-21 and SAFETEA-LU, FTA grant recipients may use Section 5307 formula funds to pay for preventive maintenance costs. LACMTA is using these flexible funds for eligible bus and rail preventive

maintenance costs in the operating budget. Approximately 8.8% of the LACMTA bus operations costs are funded with this source through 2025.

Other Revenues

LACMTA 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, as well as federal funds through the Congestion Mitigation and Air Quality (CMAQ) program. Specific one-time revenues, such as anticipated lease-leaseback arrangements and the liquidation of reserve funds that are no longer required, are also used for O&M.

ES-9.4.2 Proposed Flow of Costs and Revenues from Pre-2004–2025

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 (Pasadena to Montclair) Alternative and the Build LRT to Azusa Alternative. **Table ES-18** and **Table ES-19** 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 ES-46 to ES-48 illustrate the flow of costs proposed over the pre-2004 to 2025 period. **Figures ES-46** and **ES-47** indicate the annual cost expenditures by category for the Full Build (Pasadena to Montclair) Alternative and the Build LRT to Azusa Alternative, respectively. As shown in the figures, peak expenditures are proposed to occur in 2011-2013 for the Full Build (Pasadena to Montclair) Alternative and in 2007-2009 for the Build LRT to Azusa Alternative.

Figure ES-48 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 greater for the Build LRT to Azusa Alternative due to the more extensive bus service associated with this alternative. Beginning in 2014, with the extension of LRT revenue service to Montclair, annual O&M costs are greater for the Full Build Alternative.

TABLE ES-18

FULL BUILD LRT ALTERNATIVE: METRO GOLD LINE PHASE II EXTENSION – SEGMENTS 1 + 2 TO MONTCLAIR—ESCALATED CAPITAL COSTS CASHFLOW REVENUE OPERATION DATE: NOVEMBER 2009 TO AZUSA; APRIL 2014 TO MONTCLAIR (IN YOE DOLLARS, THOUSANDS)

LOS ANGELES COUNTY USES AND SOURCES						
	TOTAL	FY 2004 and before	FY 2005	FY 2006	FY 2007	FY 2008
CAPITAL COSTS & REVENUES						
Capital Costs						
10 Guideway and Track Elements	\$144,137.7	\$0.0	\$0.0	\$0.0	\$20,212.6	\$20,715.8
20 Stations	\$62,494.6	\$0.0	\$0.0	\$0.0	\$0.0	\$11,020.7
30 Support Facilities *	\$72,848.2	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$231,071.8	\$0.0	\$0.0	\$0.0	\$28,487.8	\$29,198.9
50 Systems	\$188,879.3	\$0.0	\$0.0	\$0.0	\$22,814.1	\$23,382.2
60 ROW, Land, Existing Improvements	\$95,517.4	\$0.0	\$0.0	\$15,398.0	\$18,851.0	\$0.0
70 Vehicles *	\$48,553.3	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
80 Professional Services *	\$220,347.0	\$3,520.0	\$4,520.0	\$21,759.7	\$26,841.1	\$24,271.9
90 Unallocated Contingency *	\$27,381.1	\$0.0	\$0.0	\$0.0	\$3,475.2	\$3,561.7
100 Special Conditions	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Total Project Capital Cost	\$1,089,830.5	\$3,520.0	\$4,520.0	\$37,155.7	\$120,681.5	\$112,148.8
Interest Cost						
Total Interest Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
** Prior Local/State Expenditure for Ph I and II Right of Way (LA Co)	\$96,020.0	\$96,020.0				
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre)	\$731,000.0	\$731,000.0				
Total Prior Local/State Expenditure	\$827,020.0	\$827,020.0	\$0.0	\$0.0	\$0.0	\$0.0
TOTAL CAPITAL COST AND PRIOR EXPENDITURE	\$1,896,850.5	\$830,540.0	\$4,520.0	\$37,155.7	\$120,681.5	\$112,148.8
Capital Revenues						
Federal						
5309 New Starts (Los Angeles)	\$948,425.3	\$0.0	\$850.0	\$18,290.8	\$108,201.9	\$102,888.4
5309 Bus and Bus Related Intermodal FHWA TCSP	\$12,540.0	\$0.0	\$750.0	\$3,111.8	\$3,009.8	\$3,260.4
	\$2,900.0	\$800.0	\$2,100.0			
State						
State Funds (Proposition 192 Seismic Bond)	\$13,910.0	\$620.0	\$420.0	\$11,353.1	\$1,816.9	
Regional/Local						
Carryover from Phase I	\$4,000.0	\$800.0		\$3,200.0		
Southern California Association of Governments	\$1,000.0	\$1,000.0				
Interest	\$2,000.0	\$400.0	\$400.0	\$1,200.0		
Corridor Cities Contribution	\$11,000.0				\$2,500.0	\$2,500.0
State/Regional/Local Sources	\$74,055.3	\$0.0	\$0.0	\$0.0	\$5,293.1	\$3,500.0
Total Capital Revenues	\$1,089,830.5	\$3,520.0	\$4,520.0	\$37,155.7	\$120,681.5	\$112,148.8
** Prior Local/State Expenditure for Ph I and II Right of Way (LA Co)	\$96,020.0	\$96,020.0				
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre)	\$731,000.0	\$731,000.0				
Total Prior Local/State Expenditure	\$827,020.0	\$827,020.0	\$0.0	\$0.0	\$0.0	\$0.0
TOTAL CAPITAL REVENUES AND PRIOR EXPENDITURE	\$1,896,850.5	\$830,540.0	\$4,520.0	\$37,155.7	\$120,681.5	\$112,148.8
	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
O&M COSTS AND REVENUES						
O&M Costs						
LRT	\$302,997.6					
MTA Bus	\$10,425.7					
Foothill Transit Bus	\$110,889.8					
Total O&M Costs	\$424,413.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
O&M Revenues						
LRT Farebox Revenues	\$63,072.3					
Bus Farebox Revenues	\$32,403.7					
MTA Local Funds	\$328,937.1					
TOTAL O&M REVENUES	\$424,413.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
SAN BERNARDINO COUNTY USES AND SOURCES						
	TOTAL	FY 2004 and before	FY 2005	FY 2006	FY 2007	FY 2008
CAPITAL COSTS & REVENUES						
Capital Costs						
10 Guideway and Track Elements	\$7,938.6	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
20 Stations	\$2,619.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$16,903.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
50 Systems	\$8,565.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
60 ROW, Land, Existing Improvements	\$297.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
70 Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
80 Professional Services	\$12,568.2	\$480.0	\$480.0	\$656.9	\$0.0	\$0.0
90 Unallocated Contingency	\$1,329.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
100 Special Conditions	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Total Project Capital Cost	\$50,220.9	\$480.0	\$480.0	\$656.9	\$0.0	\$0.0
Interest Cost						
Total Interest Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
** Prior State/Local Expenditure for Right of Way (SB Co)	\$1,030.0	\$1,030.0				
TOTAL CAPITAL COST	\$51,250.9	\$1,510.0	\$480.0	\$656.9	\$0.0	\$0.0
Capital Revenues						
5309 New Starts (SANBAG)	\$25,625.5			\$328.4	\$0.0	\$0.0
SANBAG Local	\$24,595.5	\$480.0	\$480.0	\$328.4	\$0.0	\$0.0
** Prior State/Local Expenditure for Right of Way (SB Co)	\$1,030.0	\$1,030.0				
TOTAL CAPITAL REVENUES	\$51,250.9	\$1,510.0	\$480.0	\$656.9	\$0.0	\$0.0
Net Surplus/(Deficit)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0

Notes:
 * Include costs associated with 10 LRT cars and additional buses.
 ** The Prior State/Local Expenditure on Right of Way reflects actual expenditure in 1992 and is in 1992 dollars. Per comments received from FTA, the Authority has not inflated this number to 2005 dollars, however the Authority reserves the right to escalate this figure to 2005 dollars if it is found later to be acceptable to FTA.
 *** Reflects total uninflated cost of Phase I.

TABLE ES-18

FULL BUILD LRT ALTERNATIVE: METRO GOLD LINE PHASE II EXTENSION – SEGMENTS 1 + 2 TO MONTCLAIR—ESCALATED CAPITAL COSTS CASHFLOW REVENUE OPERATION DATE: NOVEMBER 2009 TO AZUSA; APRIL 2014 TO MONTCLAIR (IN YOE DOLLARS, THOUSANDS)

LOS ANGELES COUNTY USES AND SOURCES							
	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
CAPITAL COSTS & REVENUES							
Capital Costs							
10 Guideway and Track Elements	\$21,198.5	\$7,236.5	\$21,719.2	\$22,294.7	\$22,912.3	\$7,848.2	\$0.0
20 Stations	\$11,277.4	\$2,666.5	\$0.0	\$16,632.9	\$17,093.6	\$3,903.4	\$0.0
30 Support Facilities *	\$0.0	\$0.0	\$1,531.5	\$28,861.6	\$28,045.4	\$14,409.7	\$0.0
40 Sitemwork & Special Conditions	\$29,877.2	\$10,199.1	\$38,896.1	\$39,926.9	\$41,032.8	\$14,055.1	\$0.0
50 Systems	\$23,927.0	\$8,187.9	\$26,312.5	\$27,009.7	\$27,757.9	\$9,508.0	\$0.0
60 ROW, Land, Existing Improvements	\$0.0	\$15,079.5	\$46,190.9	\$0.0	\$0.0	\$0.0	\$0.0
70 Vehicles *	\$0.0	\$0.0	\$1,982.9	\$22,045.3	\$22,525.1	\$0.0	\$0.0
80 Professional Services *	\$13,281.1	\$23,728.8	\$34,423.5	\$36,337.0	\$18,910.7	\$13,753.8	\$0.0
90 Unallocated Contingency *	\$3,844.7	\$1,244.2	\$3,776.1	\$3,876.1	\$3,907.0	\$3,830.2	\$0.0
100 Special Conditions	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Total Project Capital Cost	\$103,206.0	\$68,222.4	\$174,832.6	\$195,984.2	\$182,244.9	\$67,314.5	\$0.0
Interest Cost							
Total Interest Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
** Prior Local/State Expenditure for Ph I and II Right of Way (LA Co)							
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre)							
Total Prior Local/State Expenditure	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
TOTAL CAPITAL COST AND PRIOR EXPENDITURE	\$103,206.0	\$68,222.4	\$174,832.6	\$195,984.2	\$182,244.9	\$67,314.5	\$0.0
Capital Revenues							
Federal							
5309 New Starts (Los Angeles)	\$99,820.2	\$81,250.0	\$156,987.6	\$175,980.3	\$183,843.3	\$60,443.8	\$0.0
5309 Bus and Bus Related Intermodal FHWA TCSP	\$2,408.2	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
State							
State Funds (Proposition 192 Seismic Bond)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Other State Funds	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Regional/Local							
Carryover from Phase I	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Southern California Association of Governments	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Interest	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Corridor Cities Contribution	\$0.0	\$0.0	\$0.0	\$3,000.0	\$3,000.0	\$0.0	\$0.0
State/Regional/Local Sources	\$977.6	\$5,963.4	\$17,845.0	\$17,003.9	\$15,601.6	\$6,870.7	\$0.0
Total Capital Revenues	\$103,206.0	\$68,222.4	\$174,832.6	\$195,984.2	\$182,244.9	\$67,314.5	\$0.0
** Prior Local/State Expenditure for Ph I and II Right of Way (LA Co)							
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre)							
Total Prior Local/State Expenditure	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
TOTAL CAPITAL REVENUES AND PRIOR EXPENDITURE	\$103,206.0	\$68,222.4	\$174,832.6	\$195,984.2	\$182,244.9	\$67,314.5	\$0.0
	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
O&M COSTS AND REVENUES							
O&M Costs							
LRT	\$0.0	\$4,192.5	\$8,539.9	\$6,766.1	\$9,009.2	\$9,258.0	\$20,886.2
MTA Bus	\$0.0	\$271.5	\$559.9	\$571.7	\$587.8	\$603.8	\$621.8
Foothill Transit Bus	\$0.0	\$2,890.0	\$5,929.2	\$6,086.3	\$6,285.0	\$6,427.7	\$6,617.4
Total O&M Costs	\$0.0	\$7,323.9	\$15,028.0	\$15,424.1	\$15,851.8	\$16,289.5	\$28,127.1
O&M Revenues							
LRT Farebox Revenues	\$0.0	\$802.3	\$1,646.1	\$1,689.7	\$1,736.6	\$1,784.5	\$4,283.2
Bus Farebox Revenues	\$0.0	\$630.9	\$1,723.3	\$1,768.9	\$1,818.0	\$1,869.2	\$1,930.7
MTA Local Funds	\$0.0	\$5,681.6	\$11,656.7	\$11,965.4	\$12,297.3	\$12,636.8	\$21,913.2
TOTAL O&M REVENUES	\$0.0	\$7,323.9	\$15,028.0	\$15,424.1	\$15,851.8	\$16,289.5	\$28,127.1
SAN BERNARDINO COUNTY USES AND SOURCES							
	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
CAPITAL COSTS & REVENUES							
Capital Costs							
10 Guideway and Track Elements	\$0.0	\$0.0	\$2,305.9	\$2,367.0	\$2,432.5	\$893.2	\$0.0
20 Stations	\$0.0	\$0.0	\$0.0	\$1,157.7	\$1,169.7	\$271.7	\$0.0
30 Support Facilities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitemwork & Special Conditions	\$0.0	\$0.0	\$4,909.7	\$5,039.8	\$5,179.4	\$1,774.1	\$0.0
50 Systems	\$0.0	\$0.0	\$2,488.0	\$2,553.9	\$2,624.6	\$899.0	\$0.0
60 ROW, Land, Existing Improvements	\$0.0	\$297.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
70 Vehicles	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
80 Professional Services	\$0.0	\$1,341.5	\$3,172.1	\$3,255.0	\$1,804.2	\$1,378.5	\$0.0
90 Unallocated Contingency	\$0.0	\$0.0	\$319.1	\$327.5	\$336.6	\$345.9	\$0.0
100 Special Conditions	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Total Project Capital Cost	\$0.0	\$1,638.9	\$13,194.7	\$14,700.8	\$13,567.1	\$5,502.5	\$0.0
Interest Cost							
Total Interest Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
** Prior State/Local Expenditure for Right of Way (SB Co)							
Total Prior Local/State Expenditure	\$0.0	\$1,638.9	\$13,194.7	\$14,700.8	\$13,567.1	\$5,502.5	\$0.0
Capital Revenues							
5309 New Starts (SANBAG)	\$0.0	\$1,299.5	\$7,112.4	\$7,350.4	\$6,783.5	\$2,751.2	\$0.0
SANBAG Local	\$0.0	\$339.5	\$6,082.4	\$7,350.4	\$6,783.5	\$2,751.2	\$0.0
Total Capital Revenues	\$0.0	\$1,638.9	\$13,194.7	\$14,700.8	\$13,567.1	\$5,502.5	\$0.0
Net Surplus/(Deficit)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0

Notes:
 * Include costs associated with 10 LRT cars and additional buses.
 ** The Prior State/Local Expenditure on Right of Way reflects actual expenditure in 1992 and is in 1992 dollars. Per comments received from FTA, the Authority has not inflated this number to 2005 dollars, however the Authority reserves the right to escalate this figure to 2005 dollars if it is found later to be acceptable to FTA.
 *** Reflects total uninitiated cost of Phase I.

TABLE ES-18

FULL BUILD LRT ALTERNATIVE: METRO GOLD LINE PHASE II EXTENSION – SEGMENTS 1 + 2 TO MONTCLAIR—ESCALATED CAPITAL COSTS CASHFLOW REVENUE OPERATION DATE: NOVEMBER 2009 TO AZUSA; APRIL 2014 TO MONTCLAIR (IN YOE DOLLARS, THOUSANDS)

LOS ANGELES COUNTY USES AND SOURCES									
	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
CAPITAL COSTS & REVENUES									
Capital Costs									
10 Guideway and Track Elements									
20 Stations									
30 Support Facilities *									
40 Sitework & Special Conditions									
50 Systems									
60 ROW, Land, Existing Improvements									
70 Vehicles *									
80 Professional Services *									
90 Unallocated Contingency *									
100 Special Conditions									
Total Project Capital Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Interest Cost									
Total Interest Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
** Prior Local/State Expenditure for Ph I and II Right of Way (LA Co)									
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre)									
Total Prior Local/State Expenditure	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
TOTAL CAPITAL COST AND PRIOR EXPENDITURE	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Capital Revenues									
Federal									
5309 New Starts (Los Angeles)									
5309 Bus and Bus Related Intermodal									
FHWA TCSP									
State									
State Funds (Proposition 192 Seismic Bond)									
Other State Funds									
Regional/Local									
Carryover from Phase I									
Southern California Association of Governments									
Interest									
Corridor Cities Contribution									
State/Regional/Local Sources									
Total Capital Revenues	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
** Prior Local/State Expenditure for Ph I and II Right of Way (LA Co)									
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre)									
Total Prior Local/State Expenditure	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
TOTAL CAPITAL REVENUES AND PRIOR EXPENDITURE	\$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	\$0.0	\$0.0	\$0.0
O&M COSTS AND REVENUES									
O&M Costs									
LRT	\$21,519.7	\$22,077.2	\$22,677.9	\$23,286.8	\$23,910.1	\$24,516.9	\$25,127.9	\$25,794.4	\$26,413.6
MTA Bus	\$840.4	\$657.0	\$674.9	\$693.0	\$711.5	\$729.6	\$747.6	\$767.6	\$786.0
Foothill Transit Bus	\$6,817.5	\$6,994.1	\$7,184.4	\$7,377.3	\$7,574.7	\$7,767.0	\$7,960.5	\$8,171.7	\$8,387.9
Total O&M Costs	\$28,977.5	\$29,728.2	\$30,537.1	\$31,357.0	\$32,196.3	\$33,013.5	\$33,836.2	\$34,733.7	\$35,567.5
O&M Revenues									
LRT Farebox Revenues	\$4,412.7	\$4,527.0	\$4,650.2	\$4,775.1	\$5,126.6	\$5,256.7	\$5,387.7	\$5,530.6	\$5,683.4
Bus Farebox Revenues	\$1,989.1	\$2,040.6	\$2,096.1	\$2,152.4	\$2,218.1	\$2,274.4	\$2,331.1	\$2,393.0	\$2,450.4
MTA Local Funds	\$22,575.7	\$23,160.6	\$23,790.7	\$24,429.5	\$24,851.6	\$25,482.3	\$26,117.4	\$26,810.1	\$27,453.7
TOTAL O&M REVENUES	\$28,977.5	\$29,728.2	\$30,537.1	\$31,357.0	\$32,196.3	\$33,013.5	\$33,836.2	\$34,733.7	\$35,567.5

SAN BERNARDINO COUNTY USES AND SOURCES									
	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
CAPITAL COSTS & REVENUES									
Capital Costs									
10 Guideway and Track Elements									
20 Stations									
30 Support Facilities									
40 Sitework & Special Conditions									
50 Systems									
60 ROW, Land, Existing Improvements									
70 Vehicles									
80 Professional Services									
90 Unallocated Contingency									
100 Special Conditions									
Total Project Capital Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Interest Cost									
Total Interest Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
** Prior State/Local Expenditure for Right of Way (SB Co)									
TOTAL CAPITAL COST	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Capital Revenues									
5309 New Starts (SANBAG)									
SANBAG Local									
** Prior State/Local Expenditure for Right of Way (SB Co)									
TOTAL CAPITAL REVENUES	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Net Surplus/(Deficit)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0

Notes:
 * Include costs associated with 10 LRT cars and additional buses.
 ** The Prior State/Local Expenditure on Right of Way reflects actual expenditure in 1992 and is in 1992 dollars. Per comments received from FTA, the Authority has not inflated this number to 2005 dollars, however the Authority reserves the right to escalate this figure to 2005 dollars if it is found later to be acceptable to FTA.
 *** Reflects total uninfated cost of Phase I.

TABLE ES-18

**FULL BUILD LRT ALTERNATIVE: METRO GOLD LINE PHASE II EXTENSION –
SEGMENTS 1 + 2 TO MONTCLAIR—ESCALATED CAPITAL COSTS CASHFLOW
REVENUE OPERATION DATE: NOVEMBER 2009 TO AZUSA; APRIL 2014 TO MONTCLAIR
(IN YOE DOLLARS, THOUSANDS)**

LOS ANGELES COUNTY USES AND SOURCES		
	FY 2025	Total
CAPITAL COSTS & REVENUES		
Capital Costs		
10 Guideway and Track Elements		\$144,137.7
20 Stations		\$62,494.6
30 Support Facilities *		\$72,848.2
40 Sitework & Special Conditions		\$231,671.8
50 Systems		\$168,879.3
60 ROW, Land, Existing Improvements		\$95,517.4
70 Vehicles *		\$46,553.3
80 Professional Services *		\$220,347.0
90 Unallocated Contingency *		\$27,381.1
100 Special Conditions		\$0.0
Total Project Capital Cost	\$0.0	\$1,069,830.5
Interest Cost		
Total Interest Cost	\$0.0	\$0.0
** Prior Local/State Expenditure for Ph I and II Right of Way (LA Co)		\$96,020.0
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre)		\$731,000.0
Total Prior Local/State Expenditure	\$0.0	\$827,020.0
TOTAL CAPITAL COST AND PRIOR EXPENDITURE	\$0.0	\$1,896,850.5
Capital Revenues		
Federal		
5309 New Starts (Los Angeles)		\$948,425.3
5309 Bus and Bus Related Intermodal		\$12,540.0
FHWA TCSP		\$2,900.0
State		
State Funds (Proposition 192 Seismic Bond)		\$13,910.0
Other State Funds		\$0.0
Regional/Local		
Carryover from Phase I		\$4,000.0
Southern California Association of Governments		\$1,000.0
Interest		\$2,000.0
Corridor Cities Contribution		\$11,000.0
State/Regional/Local Sources		\$74,055.3
Total Capital Revenues	\$0.0	\$1,069,830.5
** Prior Local/State Expenditure for Ph I and II Right of Way (LA Co)		\$96,020.0
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre)		\$731,000.0
Total Prior Local/State Expenditure	\$0.0	\$827,020.0
TOTAL CAPITAL REVENUES AND PRIOR EXPENDITURE	\$0.0	\$1,896,850.5
	\$0.0	\$0.0
O&M COSTS AND REVENUES		
O&M Costs		
LRT	\$27,049.3	\$302,997.6
MTA Bus	\$804.9	\$10,425.7
Foothill Transit Bus	\$8,569.2	\$110,989.5
Total O&M Costs	\$36,423.5	\$424,413.1
O&M Revenues		
LRT Farebox Revenues	\$5,799.7	\$63,072.3
Bus Farebox Revenues	\$2,509.4	\$32,403.7
MTA Local Funds	\$28,114.4	\$328,937.1
TOTAL O&M REVENUES	\$36,423.5	\$424,413.1
SAN BERNARDINO COUNTY USES AND SOURCES		
	FY 2025	Total
CAPITAL COSTS & REVENUES		
Capital Costs		
10 Guideway and Track Elements		\$7,938.6
20 Stations		\$2,619.1
30 Support Facilities		\$0.0
40 Sitework & Special Conditions		\$16,903.0
50 Systems		\$8,565.5
60 ROW, Land, Existing Improvements		\$297.5
70 Vehicles		\$0.0
80 Professional Services		\$12,568.2
90 Unallocated Contingency		\$1,329.1
100 Special Conditions		\$0.0
Total Project Capital Cost	\$0.0	\$60,220.9
Interest Cost		
Total Interest Cost		\$0.0
** Prior State/Local Expenditure for Right of Way (SB Co)		\$1,030.0
TOTAL CAPITAL COST	\$0.0	\$51,250.9
Capital Revenues		
5309 New Starts (SANBAG)		\$26,825.5
SANBAG Local		\$24,595.5
** Prior State/Local Expenditure for Right of Way (SB Co)		\$1,030.0
TOTAL CAPITAL REVENUES	\$0.0	\$51,250.9
Net Surplus/(Deficit)	\$0.0	\$0.0

Notes:

* Include costs associated with 10 LRT cars and additional buses.
 ** The Prior State/Local Expenditure on Right of Way reflects actual expenditure in 1992 and is in 1992 dollars. Per comments received from FTA, the Authority has not inflated this number to 2005 dollars, however the Authority reserves the right to escalate this figure to 2005 dollars if it is found later to be acceptable to FTA.

*** Reflects total uninflated cost of Phase I.

Note: Includes capital costs of maintenance facility and 11 buses.

TABLE ES-19

BUILD LRT TO AZUSA ALTERNATIVE: METRO GOLD LINE PHASE II EXTENSION – SEGMENTS 1 + 2 TO MONTCLAIR—ESCALATED CAPITAL COSTS CASHFLOW REVENUE OPERATION DATE: NOVEMBER 2009 TO AZUSA (IN YOE DOLLARS, THOUSANDS)

LOS ANGELES COUNTY USES AND SOURCES						
	TOTAL	FY 2004 and before	FY 2005	FY 2006	FY 2007	FY 2008
CAPITAL COSTS & REVENUES						
Capital Costs						
10 Guideway and Track Elements	\$69,363.3	\$0.0	\$0.0	\$0.0	\$20,212.5	\$20,715.8
20 Stations	\$24,864.6	\$0.0	\$0.0	\$0.0	\$0.0	\$11,020.7
30 Support Facilities *	\$7,900.2	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
40 Sitework & Special Conditions	\$97,760.9	\$0.0	\$0.0	\$0.0	\$28,487.6	\$29,196.9
50 Systems	\$78,291.2	\$0.0	\$0.0	\$0.0	\$22,814.1	\$23,382.2
60 ROW, Land, Existing Improvements	\$34,247.0	\$0.0	\$0.0	\$15,396.0	\$18,851.0	\$0.0
70 Vehicles *	\$15,224.2	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
80 Professional Services *	\$94,625.8	\$2,000.0	\$2,500.0	\$13,179.0	\$26,841.1	\$24,271.5
90 Unallocated Contingency *	\$13,712.4	\$0.0	\$0.0	\$0.0	\$3,475.2	\$3,561.7
100 Special Conditions	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Total Project Capital Cost	\$435,989.4	\$2,000.0	\$2,500.0	\$28,575.0	\$120,681.5	\$112,148.8
Interest Cost						
Total Interest Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
** Prior Local/State Expenditure for Right of Way (Ph I and Ph II to Azusa)	\$73,040.0	\$73,040.0				
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre - part of total)	\$284,949.4	\$284,949.4				
Total Prior Local/State Expenditure	\$357,989.4	\$357,989.4	\$0.0	\$0.0	\$0.0	\$0.0
TOTAL CAPITAL COST AND PRIOR EXPENDITURE	\$793,978.7	\$359,989.4	\$2,500.0	\$28,575.0	\$120,681.5	\$112,148.8
Capital Revenues						
Federal						
5309 New Starts (Los Angeles)	\$396,899.4	\$0.0	\$850.0	\$18,290.8	\$108,261.9	\$102,888.4
5309 Bus and Bus Related Intermodal	\$12,540.0			\$2,884.2	\$3,009.6	\$3,200.4
FIHWA TCSP	\$1,450.0		\$1,450.0			
State						
State Funds (Proposition 192 Seismic Bond)	\$13,910.0	\$500.0		\$3,000.0	\$6,910.0	\$3,500.0
Other State Funds						
Regional/Local						
Carryover from Phase I	\$4,000.0	\$800.0		\$3,200.0		
Southern California Association of Governments	\$500.0	\$500.0				
Interest	\$1,000.0	\$200.0	\$200.0	\$1,200.0		
Corridor Cities Contribution	\$5,000.0				\$2,500.0	\$2,500.0
State/Regional/Local Sources	\$0.0					
Total Capital Revenues	\$435,989.4	\$2,000.0	\$2,500.0	\$28,575.0	\$120,681.5	\$112,148.8
** Prior Local/State Expenditure for Right of Way (Ph I and Ph II to Azusa)	\$73,040.0	\$73,040.0				
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre - part of total)	\$284,949.4	\$284,949.4				
Total Prior Local/State Expenditure	\$357,989.4	\$357,989.4	\$0.0	\$0.0	\$0.0	\$0.0
TOTAL CAPITAL REVENUES AND PRIOR EXPENDITURE	\$793,978.7	\$359,989.4	\$2,500.0	\$28,575.0	\$120,681.5	\$112,148.8
O&M COSTS AND REVENUES						
O&M Costs						
LRT	\$159,006.9					
MTA Bus	\$8,339.7					
Foothill Transit Bus	\$174,847.0					
Total O&M Costs	\$342,893.6	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
O&M Revenues						
LRT Farebox Revenues	\$32,009.4					
Bus Farebox Revenues	\$49,158.2					
MTA Local Funds	\$281,817.9					
TOTAL O&M REVENUES	\$362,985.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
SAN BERNARDINO COUNTY USES AND SOURCES						
	TOTAL	FY 2004 and before	FY 2005	FY 2006	FY 2007	FY 2008
CAPITAL COSTS & REVENUES						
Capital Costs						
10 Guideway and Track Elements	\$0.0					
20 Stations	\$0.0					
30 Support Facilities	\$0.0					
40 Sitework & Special Conditions	\$0.0					
50 Systems	\$0.0					
60 ROW, Land, Existing Improvements	\$0.0					
70 Vehicles	\$0.0					
80 Professional Services	\$0.0					
90 Unallocated Contingency	\$0.0					
100 Special Conditions	\$0.0					
Total Project Capital Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Interest Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
** Prior State/Local Expenditure on Right of Way (SB Co)	\$0.0					
TOTAL CAPITAL COST	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Capital Revenues						
5309 New Starts (SANBAG)	\$0.0					
SANBAG Local	\$0.0					
** Prior State/Local Expenditure on Right of Way (SB Co)	\$0.0					
TOTAL CAPITAL REVENUES	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Net Surplus/(Deficit)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0

Notes:
 * Include costs associated with additional buses.
 ** The Prior State/Local Expenditure on Right of Way reflects actual expenditures in 1992 and is in 1992 dollars. Per comments received from FTA, the Authority has not inflated this number to 2005 dollars, however the Authority reserves the right to escalate this figure to 2005 dollars if it is found later to be acceptable to FTA.
 *** Of the \$731.0 million total actual cost of Phase I, \$278.6 million has been used as match.

TABLE ES-19

BUILD LRT TO AZUSA ALTERNATIVE: METRO GOLD LINE PHASE II EXTENSION – SEGMENTS 1 + 2 TO MONTCLAIR—ESCALATED CAPITAL COSTS CASHFLOW REVENUE OPERATION DATE: NOVEMBER 2009 TO AZUSA (IN YOE DOLLARS, THOUSANDS)

LOS ANGELES COUNTY USES AND SOURCES							
	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
CAPITAL COSTS & REVENUES							
Capital Costs							
10 Guideway and Track Elements	\$21,108.6	\$7,226.5	\$0.0	\$0.0	\$0.0		
20 Stations	\$11,277.4	\$2,566.5	\$0.0	\$0.0	\$0.0		
30 Support Facilities *	\$0.0	\$0.0	\$3,698.5	\$4,011.8	\$0.0		
40 Sitework & Special Conditions	\$29,877.2	\$10,199.1	\$0.0	\$0.0	\$0.0		
50 Systems	\$23,927.0	\$8,167.9	\$0.0	\$0.0	\$0.0		
60 ROW, Land, Existing Improvements	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0		
70 Vehicles *	\$0.0	\$0.0	\$5,048.9	\$5,182.0	\$4,992.7		
80 Professional Services *	\$13,281.1	\$10,188.7	\$783.8	\$804.5	\$778.0		
90 Unallocated Contingency *	\$3,844.7	\$1,244.2	\$592.3	\$608.0	\$586.3		
100 Special Conditions	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0		
Total Project Capital Cost	\$103,206.0	\$39,602.8	\$10,323.4	\$10,596.9	\$6,355.0	\$0.0	\$0.0
Interest Cost							
Total Interest Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
** Prior Local/State Expenditure for Right of Way (Ph I and Ph II to Azusa)							
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre - part of total)							
Total Prior Local/State Expenditure	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
TOTAL CAPITAL COST AND PRIOR EXPENDITURE	\$103,206.0	\$39,602.8	\$10,323.4	\$10,596.9	\$6,355.0	\$0.0	\$0.0
Capital Revenues							
Federal							
5309 New Starts (Los Angeles)	\$99,820.2	\$30,602.8	\$10,323.4	\$10,596.9	\$6,355.0	\$0.0	
5309 Bus and Bus Related Intermodal FHWA TCSP	\$3,385.8						
State							
State Funds (Proposition 192 Seismic Bond)							
Other State Funds							
Regional/Local							
Carryover from Phase I							
Southern California Association of Governments							
Interest							
Corridor Cities Contribution							
State/Regional/Local Sources							
Total Capital Revenues	\$103,206.0	\$39,602.8	\$10,323.4	\$10,596.9	\$6,355.0	\$0.0	\$0.0
** Prior Local/State Expenditure for Right of Way (Ph I and Ph II to Azusa)							
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre - part of total)							
Total Prior Local/State Expenditure	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
TOTAL CAPITAL REVENUES AND PRIOR EXPENDITURE	\$103,206.0	\$39,602.8	\$10,323.4	\$10,596.9	\$6,355.0	\$0.0	\$0.0
O&M COSTS AND REVENUES							
O&M Costs							
LRT		\$4,162.5	\$8,530.0	\$8,766.1	\$9,009.2	\$9,258.0	\$9,518.2
MTA Bus		\$243.2	\$468.9	\$512.2	\$520.4	\$540.9	\$558.8
Foothill Transit Bus		\$4,552.7	\$9,340.5	\$9,587.9	\$9,853.8	\$10,125.9	\$10,424.7
Total O&M Costs	\$0.0	\$8,958.4	\$18,379.3	\$18,866.2	\$19,389.4	\$19,924.7	\$20,499.7
O&M Revenues							
LRT Farebox Revenues		\$802.3	\$1,648.1	\$1,689.7	\$1,736.8	\$1,784.5	\$1,951.7
Bus Farebox Revenues		\$1,274.2	\$2,614.2	\$2,683.4	\$2,767.9	\$2,834.0	\$2,928.9
MTA Local Funds		\$8,881.8	\$14,119.0	\$14,493.0	\$14,895.0	\$15,306.2	\$15,619.0
Total O&M Revenues	\$0.0	\$8,958.4	\$18,379.3	\$18,866.2	\$19,389.4	\$19,924.7	\$20,499.7
SAN BERNARDINO COUNTY USES AND SOURCES							
	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
CAPITAL COSTS & REVENUES							
Capital Costs							
10 Guideway and Track Elements							
20 Stations							
30 Support Facilities							
40 Sitework & Special Conditions							
50 Systems							
60 ROW, Land, Existing Improvements							
70 Vehicles							
80 Professional Services							
90 Unallocated Contingency							
100 Special Conditions							
Total Project Capital Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Interest Cost							
Total Interest Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
** Prior State/Local Expenditure on Right of Way(SB Co)							
TOTAL CAPITAL COST	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Capital Revenues							
5309 New Starts (SANBAG)							
SANBAG Local							
Total Capital Revenues	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Net Surplus(Deficit)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
<small> Note: * include costs associated with additional buses. ** The Prior State/Local Expenditure on Right of Way reflects actual expenditure in 1992 and is in 1992 dollars. Per comments received from FTA, the Authority has not inflated this number to 2005 dollars, however the Authority reserves the right to escalate this figure to 2005 dollars if it is found later to be acceptable to FTA. *** Of the \$731.0 million total actual cost of Phase I, \$278.6 million has been used as match. </small>							

TABLE ES-19

BUILD LRT TO AZUSA ALTERNATIVE: METRO GOLD LINE PHASE II EXTENSION – SEGMENTS 1 + 2 TO MONTCLAIR—ESCALATED CAPITAL COSTS CASHFLOW REVENUE OPERATION DATE: NOVEMBER 2009 TO AZUSA (IN YOE DOLLARS, THOUSANDS)

LOS ANGELES COUNTY USES AND SOURCES									
	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
CAPITAL COSTS & REVENUES									
Capital Costs									
10 Guideway and Track Elements									
20 Stations									
30 Support Facilities *									
40 Sitemwork & Special Conditions									
50 Systems									
60 ROW, Land, Existing Improvements									
70 Vehicles *									
80 Professional Services *									
90 Unallocated Contingency *									
100 Special Conditions									
Total Project Capital Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Interest Cost									
Total Interest Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
** Prior Local/State Expenditure for Right of Way (Ph I and Ph II to Azusa)									
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre - part of total)									
Total Prior Local/State Expenditure	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
TOTAL CAPITAL COST AND PRIOR EXPENDITURE	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Capital Revenues									
Federal									
5309 New Starts (Los Angeles)									
5309 Bus and Bus Related Intermodal									
FHWA TCSP									
State									
State Funds (Proposition 192 Seismic Bond)									
Other State Funds									
Regional/Local									
Carryover from Phase I									
Southern California Association of Governments									
Interest									
Corridor Cities Contribution									
State/Regional/Local Sources									
Total Capital Revenues	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
** Prior Local/State Expenditure for Right of Way (Ph I and Ph II to Azusa)									
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre - part of total)									
Total Prior Local/State Expenditure	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
TOTAL CAPITAL REVENUES AND PRIOR EXPENDITURE	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
O&M COSTS AND REVENUES									
O&M Costs									
LRT	\$9,805.9	\$10,000.0	\$10,333.7	\$10,011.1	\$10,895.2	\$11,171.7	\$11,450.1	\$11,733.8	\$12,030.0
MTA Bus	\$573.7	\$888.5	\$604.6	\$620.8	\$637.4	\$653.6	\$669.9	\$687.6	\$704.1
Foothill Transit Bus	\$10,739.8	\$11,018.1	\$11,317.8	\$11,021.7	\$11,032.8	\$12,235.7	\$12,540.6	\$12,873.2	\$13,182.2
Total O&M Costs	\$21,119.5	\$21,666.6	\$22,256.1	\$22,853.7	\$23,465.4	\$24,061.0	\$24,660.6	\$25,314.7	\$25,922.4
O&M Revenues									
LRT Farebox Revenues	\$2,010.8	\$2,062.8	\$2,119.0	\$2,175.9	\$2,336.1	\$2,395.3	\$2,455.0	\$2,520.2	\$2,580.7
Bus Farebox Revenues	\$3,017.4	\$3,005.6	\$3,179.8	\$3,265.2	\$3,364.0	\$3,450.3	\$3,536.3	\$3,630.1	\$3,717.2
MTA Local Funds	\$16,091.3	\$16,508.1	\$16,957.3	\$17,412.6	\$17,764.4	\$18,215.3	\$18,609.2	\$19,164.4	\$19,624.5
Total O&M REVENUES	\$21,119.5	\$21,666.6	\$22,256.1	\$22,853.7	\$23,465.4	\$24,061.0	\$24,660.6	\$25,314.7	\$25,922.4

SAN BERNARDINO COUNTY USES AND SOURCES									
	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
CAPITAL COSTS & REVENUES									
Capital Costs									
10 Guideway and Track Elements									
20 Stations									
30 Support Facilities									
40 Sitemwork & Special Conditions									
50 Systems									
60 ROW, Land, Existing Improvements									
70 Vehicles									
80 Professional Services									
90 Unallocated Contingency									
100 Special Conditions									
Total Project Capital Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Interest Cost									
Total Interest Cost	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
** Prior State/Local Expenditure on Right of Way(SB Co)									
TOTAL CAPITAL COST	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Capital Revenues									
5309 New Starts (SANBAG)									
SANBAG Local									
** Prior State/Local Expenditure on Right of Way (SB Co)									
TOTAL CAPITAL REVENUES	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Net Surplus/(Deficit)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0

Notes:
 * Include costs associated with additional buses.
 ** The Prior State/Local Expenditure on Right of Way reflects actual expenditure in 1992 and is in 1992 dollars. Per comments received from FTA, the Authority has not inflated this number to 2005 dollars, however the Authority reserves the right to escalate this figure to 2005 dollars if it is found later to be acceptable to FTA.
 *** Of the \$731.0 million total actual cost of Phase I, \$278.6 million has been used as match.

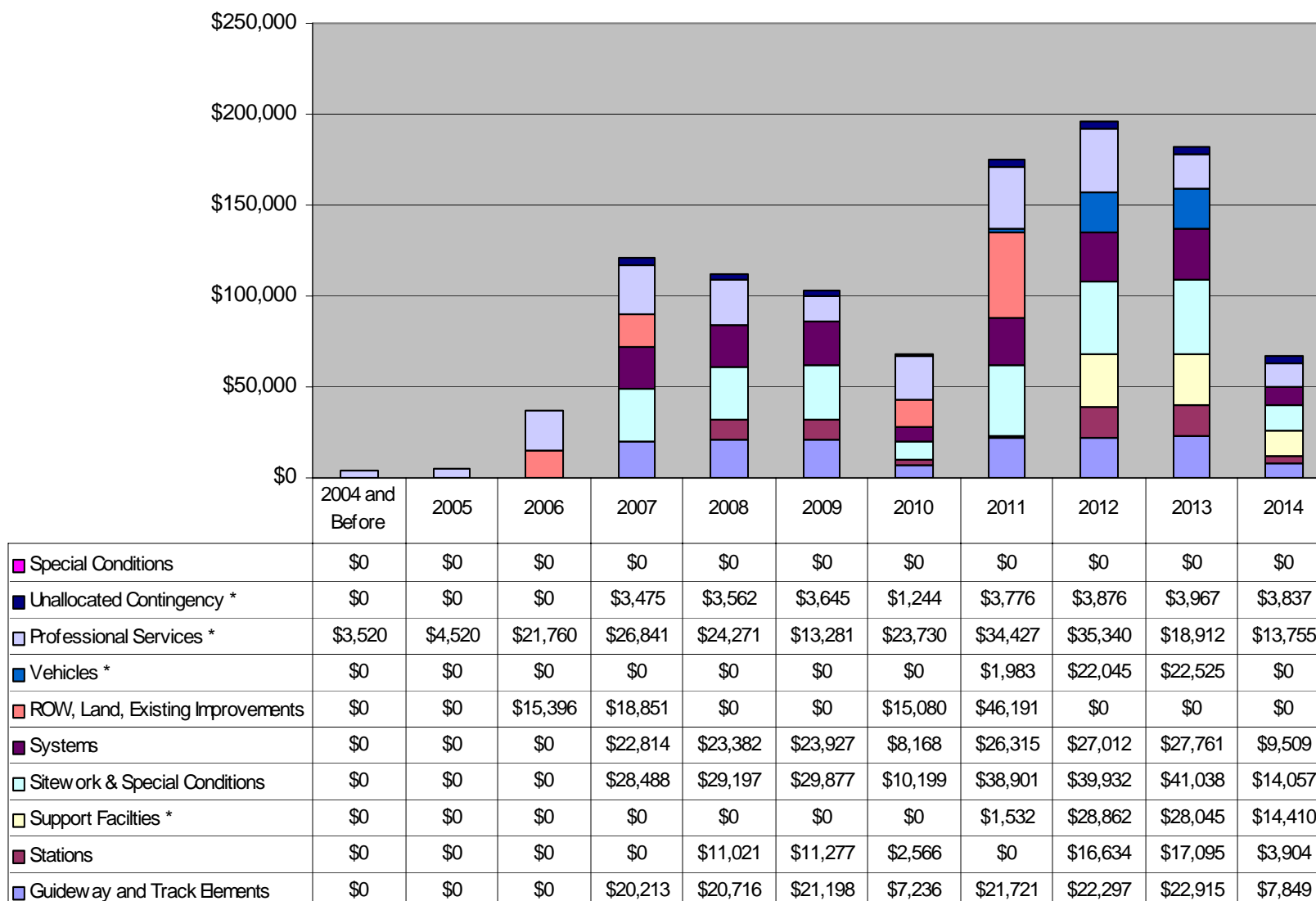
TABLE ES-19

BUILD LRT TO AZUSA ALTERNATIVE: METRO GOLD LINE PHASE II EXTENSION – SEGMENTS 1 + 2 TO MONTCLAIR—ESCALATED CAPITAL COSTS CASHFLOW REVENUE OPERATION DATE: NOVEMBER 2009 TO AZUSA (IN YOE DOLLARS, THOUSANDS)

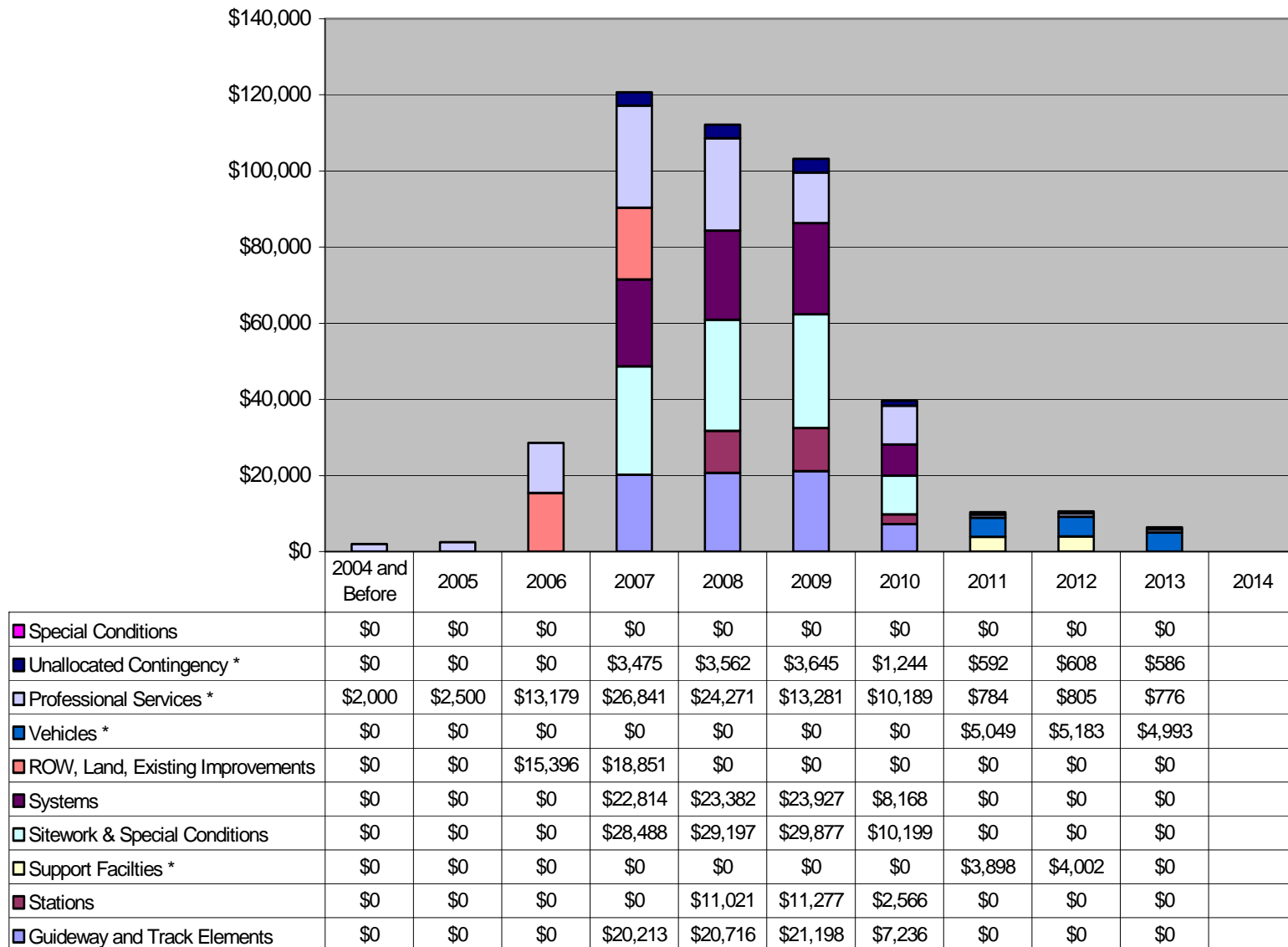
LOS ANGELES COUNTY USES AND SOURCES		
	FY 2025	Total
CAPITAL COSTS & REVENUES		
Capital Costs		
10 Guideway and Track Elements		\$69,363.3
20 Stations		\$24,864.6
30 Support Facilities *		\$7,900.2
40 Sitemwork & Special Conditions		\$97,760.9
50 Systems		\$78,291.2
60 ROW, Land, Existing Improvements		\$34,247.0
70 Vehicles *		\$15,224.2
80 Professional Services *		\$94,625.6
90 Unallocated Contingency *		\$13,712.4
100 Special Conditions		\$0.0
Total Project Capital Cost	\$0.0	\$435,989.4
Interest Cost		
Interest Cost		\$0.0
Total Interest Cost	\$0.0	\$0.0
** Prior Local/State Expenditure for Right of Way (Ph I and Ph II to Azusa)		\$73,040.0
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre - part of total)		\$284,949.4
Total Prior Local/State Expenditure	\$0.0	\$357,989.4
TOTAL CAPITAL COST AND PRIOR EXPENDITURE	\$0.0	\$793,978.7
Capital Revenues		
Federal		
5309 New Starts (Los Angeles)		\$306,989.4
5309 Bus and Bus Related Intermodal		\$12,540.0
FHWA TCSP		\$1,450.0
State		
State Funds (Proposition 192 Seismic Bond)		\$13,910.0
Other State Funds		\$0.0
Regional/Local		
Carryover from Phase I		\$4,000.0
Southern California Association of Governments		\$500.0
Interest		\$1,600.0
Corridor Cities Contribution		\$5,000.0
State/Regional/Local Sources		\$0.0
Total Capital Revenues	\$0.0	\$435,989.4
** Prior Local/State Expenditure for Right of Way (Ph I and Ph II to Azusa)		\$73,040.0
*** Phase I - Metro Gold Line (Los Angeles to Sierra Madre - part of total)		\$284,949.4
Total Prior Local/State Expenditure	\$0.0	\$357,989.4
TOTAL CAPITAL REVENUES AND PRIOR EXPENDITURE	\$0.0	\$793,978.7
O&M COSTS AND REVENUES		
O&M Costs		
LRT	\$12,325.6	\$159,696.6
MTA Bus	\$721.1	\$9,339.7
Foothill Transit Bus	\$13,409.5	\$174,847.0
Total O&M Costs	\$26,546.2	\$343,883.6
O&M Revenues		
LRT Farebox Revenues	\$2,642.8	\$32,909.4
Bus Farebox Revenues	\$3,806.7	\$49,156.2
MTA Local Funds	\$20,096.7	\$261,817.6
TOTAL O&M REVENUES	\$26,546.2	\$343,883.6
SAN BERNARDINO COUNTY USES AND SOURCES		
	FY 2025	Total
CAPITAL COSTS & REVENUES		
Capital Costs		
10 Guideway and Track Elements		\$0.0
20 Stations		\$0.0
30 Support Facilities		\$0.0
40 Sitemwork & Special Conditions		\$0.0
50 Systems		\$0.0
60 ROW, Land, Existing Improvements		\$0.0
70 Vehicles		\$0.0
80 Professional Services		\$0.0
90 Unallocated Contingency		\$0.0
100 Special Conditions		\$0.0
Total Project Capital Cost	\$0.0	\$0.0
Interest Cost		
Interest Cost		\$0.0
** Prior State/Local Expenditure on Right of Way(SB Co)		\$0.0
TOTAL CAPITAL COST	\$0.0	\$0.0
Capital Revenues		
5309 New Starts (SANBAG)		\$0.0
SANBAG Local		\$0.0
** Prior State/Local Expenditure on Right of Way (SB Co)		\$0.0
TOTAL CAPITAL REVENUES	\$0.0	\$0.0
Net Surplus/(Deficit)	\$0.0	\$0.0

Notes:
 * Include costs associated with additional buses.
 ** The Prior State/Local Expenditure on Right of Way reflects actual expenditure in 1992 and is in 1992 dollars. Per comments received from FTA, the Authority has not inflated this number to 2005 dollars, however, the Authority reserves the right to escalate this figure to 2005 dollars if it is found later to be acceptable to FTA.
 *** Of the \$731.0 million total actual cost of Phase I, \$278.6 million has been used as match.

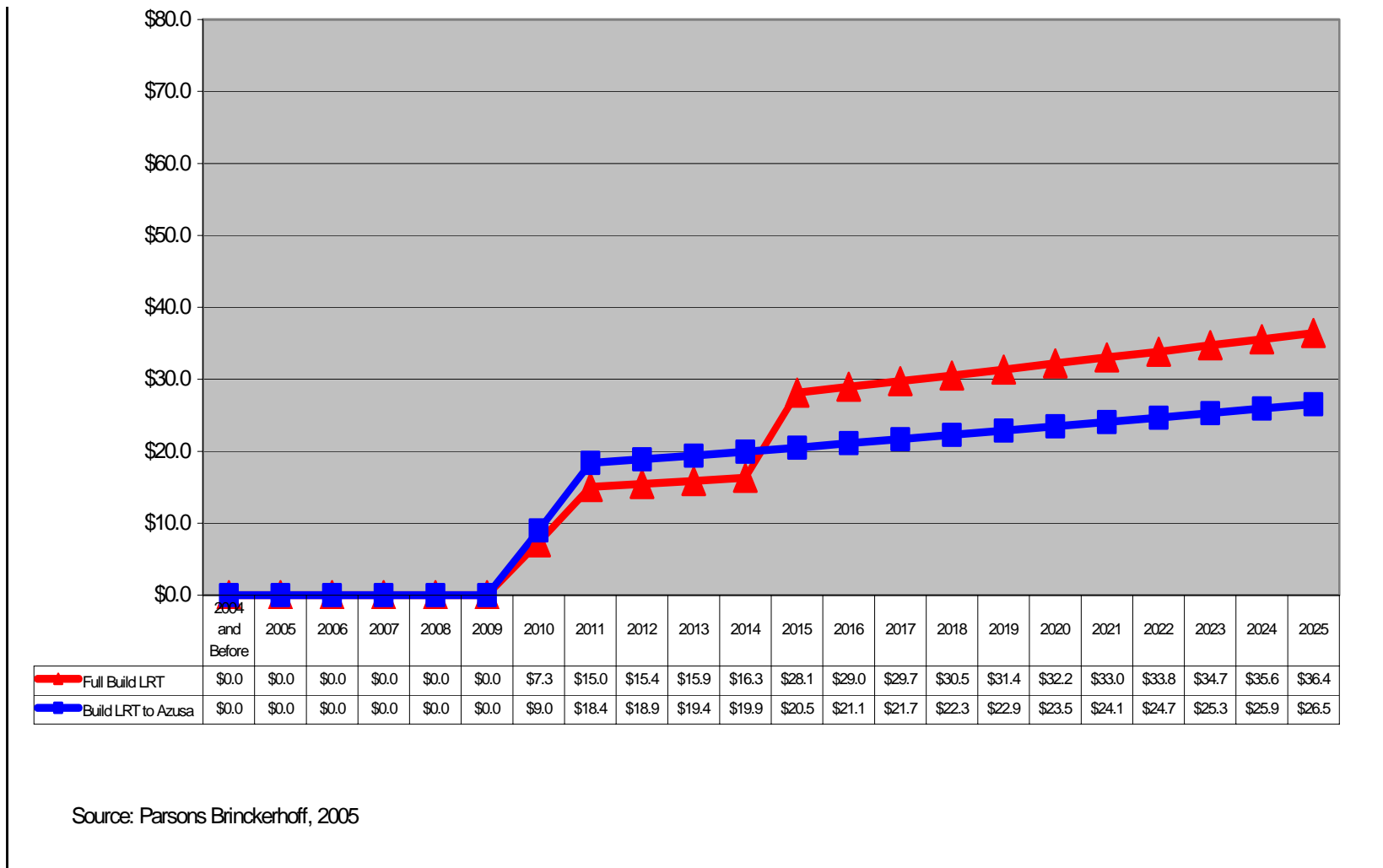
Note: Includes capital cost of 28 buses.



**FIGURE ES-46: FULL BUILD LRT ALTERNATIVE CAPITAL COST, BY YEAR (PRE-2004 - 2014)
(IN YEAR OF EXPENDITURE DOLLARS, THOUSANDS)**



**FIGURE ES-47: BUILD LRT TO AZUSA ALTERNATIVE CAPITAL COST, BY YEAR (PRE-2004 - 2014)
(IN YEAR OF EXPENDITURE DOLLARS, THOUSANDS)**



**FIGURE ES-48: SUMMARY OF BUS AND LRT O&M COSTS, BY YEAR
PRE-2004 – 2005 (IN YOE \$, MILLIONS)**

ES-9.5 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 Azusa **and** in the 2014 timeframe for full operation to Montclair.

ES-9.6 Comparative Analysis of Alternatives

This section provides a variety of measures to evaluate and compare the Full Build (Pasadena to Montclair) Alternative and the Build LRT to Azusa Alternative to the No Build Alternative. In addition, the build alternatives will be compared to the TSM Alternative described in the Draft EIS/EIR as recommended by FTA. These measures are consistent with the FTA guidelines for assessing and evaluating major investments. **Table ES-20** summarizes the categories and measures included in this section.

TABLE ES-20 COMPARATIVE ANALYSIS OF ALTERNATIVES	
Effectiveness in Improving Mobility	Corridor Goals and Objectives
	Ridership – New Transit Trips
	Travel Time Savings
Cost-Effectiveness	Incremental Cost per Incremental Hour of Transportation System User Benefit
Equity	Discussion of Demographic Factors

Other analyses and discussion for FTA measures related to air quality and land use can be found in Chapter 3. This section ends with a discussion of the trade-offs between the No-Build and the Build Alternatives.

ES-9.6.1 Effectiveness in Improving Mobility

Various elements serve as indicators of improved mobility including responsiveness to goals and objectives and transportation problems and deficiencies identified in Chapter 1. Ridership describes the amount of people using the proposed transit alternatives in 2025, as estimated through a transportation demand model. Travel time savings assess the annual value of time saved for transit users as a result of the proposed transit alternatives.

a. Corridor Goals and Objectives

In addition to the evaluation factors discussed below, the Full Build (Pasadena to Montclair) Alternative and the Build LRT to Azusa Alternative relate to the goals and objectives presented in Section 1-1.5.1 and Table 1-1.6. Throughout the planning development process these goals and objectives have been at the forefront of the alternatives development, analysis, and selection process. The nine goals are listed below:

- To locate stations that facilitate cities' visions for land use and development around transit stations and adjoining activity centers
- To create a system that creates/adds identity and attractiveness to San Gabriel Valley cities
- To complement other existing transit in the corridor and optimize previous investments
- To reduce auto dependency
- To improve mobility and provide connectivity to regional and local transit systems
- To implement a project within a reasonable period of time
- To develop a cost-effective transit system
- To improve air quality and preserve and protect the natural and man-made environment
- To work collaboratively with local cities throughout the project development process.

In addition to responding to the corridor's goals and objectives the alternatives directly related to assisting in solving the transportation problems that have been identified in the corridor. These problems and issues are presented in Section 1-2 of Chapter 1. The LRT Build alternatives respond most strongly to the goals, objectives, and problems within the corridor

Ridership

For all proposed projects and alternatives, transit ridership is a function of travel time and cost. All else being equal, the faster technologies attract more riders. The speed is usually a function of both the technology and the physical conditions in which it has to operate. Longer segments have higher ridership because they service a larger area, incorporate more stations, and potentially reduce the number of transfers.

Transit ridership has been estimated for the Full Build (Pasadena to Montclair) Alternative, the Build LRT to Azusa Alternative, and the No Build Alternative using the latest LACMTA travel simulation model, based on the forecast year of 2025. The alternatives definitions are described in Chapter 2 and the model runs are discussed in Section 3-15, Traffic and Transportation.

The major measure of effectiveness of transit ridership for comparison between alternatives is the number of new "transit" trips compared to the No Build Alternative. Compared to the No Build Alternative, the Build LRT to Azusa Alternative attracted 10,100 new transit trips and the Full Build (Pasadena to Montclair) Alternative, 18,100 new transit trips. In addition, the usage of the expanded and extended Gold Line is increased by the build alternatives. The daily boardings in 2025 would increase from 59,000 in the No Build Alternative to approximately 79,000 for the Full Build (Pasadena to Montclair) Alternative and to approximately 69,300 for the Build LRT to Azusa Alternative.

b. Travel Time Savings

The travel time savings measure is defined as the total travel time savings for transit riders that would be expected to result from the build alternatives in the forecast year (2025), compared to the No Build Alternative. Compared to the No Build Alternative, the Build LRT to Azusa Alternative would save riders 2.4 million hours per year and the Full Build (Pasadena to Montclair) Alternative, 3.9 million hours per year.

c. Efficiency (Cost-Effectiveness)

Cost-effectiveness is a measure used to evaluate how the costs of a transit project alternative (for both construction and operation) compare to the expected benefits. Over the last few years FTA has revised the cost-effectiveness measure and changed the measure of benefits from “new transit trips” to “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 that 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 Alternative. 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 ES-7.4.1, were aggregated according to their assumed useful life and annualized accordingly, using FTA annualization factors shown in **Table ES-21**.

TABLE ES-21 LIFE CYCLE ASSUMPTIONS		
Project Element	Useful Life	Annualization Factor
Right-of-way	100 years	0.0701
Exclusive at-grade guideway	80 years	0.0703
At-grade stations	70 years	0.0706
Light rail vehicles	25 years	0.0858
Buses	12 years	0.1259

Source: Technical Guidance Major Capital Project Costs, FTA, June 24, 2005

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 LACMTA travel forecasting model.

Table ES-22 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 ES-22
COST-EFFECTIVENESS—INCREMENTAL COST PER HOUR OF TRANSPORTATION
SYSTEM USER BENEFIT (YEAR 2025)**

Factor	Alternatives			
	No Build	TSM Alternative	Full Build (Pasadena to Montclair) Alternative ⁽¹⁾	Build LRT to Azusa Alternative
Annualized capital cost (million 2005 \$)	\$0.0	\$6.13	\$67.96	\$30.81
Total systemwide annual O&M cost (million 2005 \$)	\$1,172.97	\$1,183.31	\$1,194.68	\$1,188.79
Total annualized cost in forecast year (2025) (million 2005 \$)	\$1,172.97	\$1,189.44	\$1,262.64	\$1,219.60
Incremental annualized cost compared to No Build (million 2005 \$)	N/A	\$16.47	\$89.67	\$46.63
Incremental annualized cost compared to TSM (million 2005 \$)	N/A	N/A.	\$73.20	\$30.16
Annual hours of user benefit compared to No Build (million)	N/A	0.98	3.93	2.35
Annual hours of user benefit compared to TSM (million)	N/A	N/A	3.09	1.43
Cost – effectiveness to No Build	N/A	\$16.81	\$22.82	\$19.84
Cost – effectiveness to TSM	N/A	N/A	\$23.69	\$21.09
⁽¹⁾ Includes ¼ cost of M&O facility. Source: Parsons Brinckerhoff, 2005.				

d. 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 Alternative would not offer the study area residents and businesses the enhanced mobility, regional connectivity, and accessibility provided by the Full Build (Pasadena to Montclair) Alternative and the Build LRT to Azusa Alternative as stated in the goals and objectives and the statement of purpose and need.

The Full Build (Pasadena to Montclair) Alternative and the Build LRT to Azusa Alternative 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 ES-23 summarizes the significant transportation characteristics related to the alternatives

TABLE ES-23 SUMMARY OF SIGNIFICANT TRANSPORTATION CHARACTERISTICS				
Factor	Alternatives			
	No Build	TSM Alternative	Full Build (Pasadena to Montclair) Alternative	Build LRT to Azusa Alternative
Capital Cost (million 2005 \$)	\$0.0	\$69.2	\$976.3	\$402.3
Annual O&M Cost compared to No Build (million 2005 \$)	N/A.	\$10.34	\$21.71	\$15.82
Annual Hours of Transit User Benefit compared to No Build (million)	NA	0.98	3.93	2.35

TABLE ES-23 SUMMARY OF SIGNIFICANT TRANSPORTATION CHARACTERISTICS				
Factor	Alternatives			
	No Build	TSM Alternative	Full Build (Pasadena to Montclair) Alternative	Build LRT to Azusa Alternative
Daily New Transit Trips compared to No Build	N/A.	3,100	18,100	10,100
Annual New Transit Trips compared to No Build (millions)	N/A.	0.99	5.79	3.23
Source: Parsons Brinckerhoff, 2005.				

ES-9.6.2 Trade-Offs between Alternatives

The trade-offs between the No Build Alternative and the Full Build (Pasadena to Montclair) Alternative and the Build LRT to Azusa Alternatives are that the No Build Alternative 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 (Pasadena to Montclair) Alternative and the Build LRT to Azusa Alternative would, on the other 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 (Pasadena to Montclair) 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 and the Build LRT to Azusa Alternatives and the No Build Alternative 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 (Pasadena to Montclair) 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.

ES-10 PROPOSED FINDINGS

The environmental analysis process indicated that there would be no remainder adverse effects under the National Environmental Policy Act and ~~no~~ two remainder significant impacts under the California Environmental Quality Act when identified impacts were considered in light of (1) 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 proposed project would not be inconsistent with applicable Executive Orders.

The proposed project would not make use of Section 4(f) properties.

The proposed project would be financially feasible to build and operate.

The project would have residual air quality impacts during the construction period.

ES-11 AGENCY COORDINATION

The proposed project was presented to responsible federal agencies with jurisdiction over and or interest in the proposed project through the NEPA and CEQA scoping process. In addition to issuance of the NOI by the FTA in the Federal Register on July 9, 2003, the Authority mailed a NOP to federal, state, and local agencies on June 26, 2003 via a trackable delivery service (UPS, 2nd Day Air). The NOP included an IS Checklist that identified anticipated project impacts (see section ES-2.2, Environmental Process of this document for more information).

Two meetings were held with the Federal Transit Administration in the fall of 2003 during the Draft EIS/EIR process. These meetings were attended by representatives from FTA, the Construction Authority, and the consultant team. The purposes of the meetings were to discuss the project and schedule, as well as any other potential issues.

Consultation and coordination with the California Air Resources Board, the California Public Utilities Commission, the State Historic Preservation Officer, and the US Army Corps of Engineers 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, and Notice of Availability of the Draft EIS/EIR.

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.

The following agencies 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
- 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. The remainder of the meetings (rounds four through seven) focused on city-specific issues, review of design and construction, or environmental aspects of the proposed project.

ES-12 PUBLIC INVOLVEMENT AND COMMENT

ES-12.1 Scoping Meeting

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 multi-layered outreach 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 was 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 have been considered in the environmental process. Chapter 8 includes a table that summarizes comments received and indicates where in the Draft EIS/EIR the issues raised are discussed.

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. Additionally, Spanish- and Mandarin Chinese-speaking team members were available for facilitating community participation

Recorded attendance at the scoping meetings was 217 persons.

ES-12.2 Other Meetings

Meetings with other interested parties along the alignment to provide information about the project and project alternatives while the Draft EIS/EIR was in preparation:

- 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)

University of La Verne

Foothill Presbyterian Hospital

Xerox

Northrup Grumman

City Chambers of Commerce

Senior Center—City of La Verne

A & A Building

Fasching Car Wash

Bowden Development.

ES-12.3 Draft EIR/EIS Public Meetings

FTA and the Construction Authority issued Notices of Availability (NOA) and set a 45-day circulation period for agencies and the public to review the Draft EIS/EIR and to submit comments. The circulation period is between May 7 and June 21, 2004.

The Draft EIS/EIR was issued to agencies and the public for review and comment for a 45-day period. That period is May 7 to June 21, 2004. Documents and/or Notices of Availability were distributed to the mailing list that was used for Scoping and updated throughout the time period in which the Draft EIS/EIR was being developed. Document distribution and noticing under CEQA occurred the week on April 27-30, 2004 and included newspaper notices of the availability of the Draft EIS/EIR in the Los Angeles Times and the San Gabriel Valley Tribune on April 30, 2004. The Notice of Availability under NEPA was published in the Federal Register on May 7, 2004. The advertisements and notices included locations at which copies of the documents were available and the schedule of public hearings.

Copies of the Draft EIS/EIR were placed in the public libraries in the cities of Los Angeles, South Pasadena, Pasadena, Arcadia, Monrovia, Irwindale, Azusa, Glendora, San Dimas, LA Verne, Pomona, Claremont, Montclair and Upland. Copies were also placed at the offices of the Construction Authority and the San Gabriel Valley Council of Governments. An electronic copy of the Draft EIS/EIR was posted on the Construction Authority's website. Links to this site were placed on the websites of LACMTA and the cities along the study corridor.

Additionally, a Construction Authority Newsletter/Notice of Availability was distributed to more than 23,000 addresses, which includes all properties within 300 feet either side of the proposed LRT alignment. This Newsletter/Notice of Availability also was sent to all agencies/persons receiving documents or notices the week of April 27-30.

During the 45-day public review and comment period, public hearings were held in cities along the entire ~~Phase II~~ Foothill Extension study corridor, as well as in the cities of Los Angeles and South Pasadena.

GOLD LINE FOOTHILL EXTENSION DRAFT EIS/EIR 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	City of Pasadena. 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	Ganesh 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

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 (626-799-8599)
- 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.

ES-13 ISSUES TO BE RESOLVED/AREAS OF CONTROVERSY

ES-13.1 Issues to Be Resolved

There are several issues ~~to be resolved~~ by the Construction Authority ~~in order~~ to define the parameters of work to be accomplished in ~~the next phase of project development~~, Preliminary Engineering and Final EIS/EIR. These issues ~~are~~: were:

- Selection of a Locally Preferred Alternative (LPA). This is typically the alternative which best addresses the Purpose and Needs and Goals and Objectives for the study area;
- Approval of the elements of the alternative to be addressed during Preliminary Engineering. . This approval can be of the alternative and elements as it described in this draft document, or the definition of the alternative can be modified to include variations, a combination of elements, localized options, or other matters raised during the public and agency review and comment process. The environmental impacts of the selected alternative at the end of the Preliminary Engineering phase are reported in the Final EIS/EIR; and
- Approval of an initial financial plan to support the LPA.
- Approval of an initial financial plan to support the LPA.

ES-13.1.1 LPA Decision – August 2004

Following the release of the Draft EIS/EIR, the public comment period, and input from the cities along the alignment, the Construction Authority Board approved a Locally Preferred Alternative (LPA) in August 2004. This LPA included the Triple Track Alternative (2 LRT and 1 Freight track), a station in each City, and the location of the Maintenance and Operations Facility.

ES-13.1.2 Project Definition Report – March 2005

The Draft Project Definition Report (PDR) was submitted to the TAC (Technical Advisory Committee), the JPA (Joint Powers Authority), and the Authority’s Board in January. The PDR identified the results of Draft Environmental Impact Statement/Report (Draft EIS/EIR) comments and their impacts on refined station and parking lot locations, grade crossings and rail grade separations, and traction power substation locations. During February and early March, each of the corridor City Councils along the Foothill Extension alignment approved the PDR with some caveats. Comments from each of the Cities were incorporated into the Final Project Definition Report and the Authority Board approved the document on March 23, 2005. The Final EIS/EIR and engineering work that support the Final EIS/EIR are based on the project as identified in the Final PDR (March 2005), with the following modifications. Following the PDR, the Authority Board approved a Revised LPA in June 2005, which added freight/LRT grade separations in Azusa and Pomona. Between March and August 2005, station options in Arcadia and Claremont were added.

The Revised LPA in June 2005 confirmed the construction of the maintenance and operations facility in conjunction with the second segment of the project.

ES-13.2 Areas of Controversy

Based on comments received during Scoping meetings in 2003, the areas of controversy for the proposed project focused on potential impacts associated with the LRT alternatives. The top three issues (along with the typical concerns raised) were:

- Noise: requested noise walls; stated that whistle-blowing is unnecessary; concerned about construction noise.
- Parking and traffic: stated the need for adequate parking; concerned about the impact of grade crossings; requested transportation centers so cars are kept out of downtown.
- Aesthetics: concerned about the appearance of the catenary wires and poles; suggested landscape treatments for the route.

Other comments addressed in a general, non-specific manner: safety; station design and location; loss of privacy alignment design; lighting; property values; community impacts; operational hours; drainage impacts; and alignment suggestions.

ES-14 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

An environmentally superior alternative needs to be identified under CEQA. Although the No-Build Alternative 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 (Pasadena to Montclair) Alternative is the environmentally superior alternative that 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 and two 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 to Azusa Alternative provides many of the same benefits, but to a lesser degree because it serves only six cities.

ES-15 PERMITS AND APPROVALS

The following agencies may use the EIR in the event that permits or discretionary approvals from these agencies are required for the proposed project:

- California Department of Fish and Game: *Streambed Alteration Agreement (1601)*
- California Department of Toxic Substances Control: *Disposal of hazardous materials*
- California Department of Transportation: *Approvals regarding bridge protection, encroachment permit for construction*
- California Public Utilities Commission: *Grade Crossings General Order 88A*
- California Transportation Commission: *Project Funding*
- Corridor Cities: *Permits for street construction and utility relocations; railroad bridges over flood control channels*
- Los Angeles County and San Bernardino Flood Control Districts: *Permits for railroad bridges over flood control channels*
- Los Angeles County Metropolitan Transportation Authority: *Project funding, design and operations*
- Los Angeles and Santa Ana Regional Water Quality Control Boards: *401 Water Quality Certification; National Pollutant Discharge Elimination System (NPDES) Permits, Standard Urban Stormwater Mitigation Plan*
- South Coast Air Quality Management District: *Air quality permits (construction period)*
- US Army Corps of Engineers: *404 Permit (Clean Water Act); Permits for San Gabriel River railroad bridge*
- US Fish & Wildlife Service: Possible consultation process.

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