

## 6.1 Introduction

This chapter summarizes the capital costs and planned sources of funding for the build alternatives proposed as part of the East San Fernando Valley Transit Corridor Project and analyzed in this Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR). Also presented are the methodology for evaluating the potential alternatives, along with descriptions of the alternatives, and a side-by-side comparison of environmental impacts. This chapter also identifies the environmentally superior alternative. Information contained in this chapter builds on the East San Fernando Valley Transit Corridor's Alternatives Analysis Report (AA Report), completed in December 2012 and included in Appendix F of this DEIS/DEIR, and the Los Angeles County Metropolitan Transportation Authority's (Metro's) 2009 Long-Range Transportation Plan (LRTP).

This analysis will help the Federal Transit Administration (FTA), Metro, City of Los Angeles (City) officials, stakeholders, and the general public understand and evaluate Metro's financial capacity with respect to constructing the East San Fernando Valley Transit Corridor as well as operating and maintaining the existing transit system. In addition, the analysis discusses the basis for recommendation of a Locally Preferred Alternative (LPA), which will be made following the DEIS/DEIR public circulation and comment period.

Costs and funding presented in this chapter are in 2014 base-year dollars and year-of-expenditure (YOE) dollars; the YOE is assumed to be 2018. YOE dollars reflect the financial impact of funds that would need to be expended in the actual YOE and the relative effects of inflation on costs and revenues. Annual and compounded inflation rates and the project implementation schedule are used to project from base-year dollars to YOE dollars. This inflation rate is the most current rate and used for other projects. For example, in YOE dollars, \$1.00 in 2016 is equivalent to \$1.03 in 2017, using an inflation rate of 3.0 percent. YOE cost estimates are derived by multiplying the constant dollar cost estimate for a particular year by the inflation factor calculated for that year. In addition, the costs and revenues presented are consistent with Metro's fiscal year, which begins July 1 and runs through June 30.

## 6.2 Capital Costs and Funding

This section presents the capital cost of the project as well as the federal, state, and local revenue sources proposed for funding. The detailed assumptions for the Capital Costs Report are provided in Appendix GG.

### 6.2.1 Capital Costs

Capital cost estimates for the alternatives are based on conceptual engineering drawings. The capital costs for the Transportation Systems Management (TSM) Alternative and the build alternatives (Alternatives 1 to 4) are presented in 2014 base-year dollars and YOE dollars in Table 6-1. Costs for the No-Build Alternative are not included because no new transit projects, beyond those that are already

**Table 6-1: Capital Cost Estimates in 2014 and YOE Dollars (\$ in Millions)**

Alternative	2014 Dollars	YOE Dollars
TSM Alternative	\$35.2	\$39.4
Alternative 1	\$294	\$329.3
Alternative 2	\$402	\$450.2
Alternative 3	\$1,300	\$1,456
Alternative 4	\$2,674–\$2,875	\$2,995–\$3,220

Source: KOA and ICF International, 2016.

planned, approved, and funded, would be constructed in the project area. The capital costs of the alternatives range from approximately \$35.2 million (\$39.4 million in YOE dollars) for the TSM Alternative to \$2.87 billion (\$3.22 billion in YOE dollars) for the Light-Rail Transit (LRT) Alternative with Maintenance and Storage Facility (MSF) Option B. The YOE costs for the TSM Alternative and build alternatives reflect the implementation plan assumed in Metro’s LRTP.

The capital costs for the alternatives presented in Table 6-2 were developed with use of FTA’s Standard Cost Categories (SCC). FTA requires submission of capital costs in SCC format at key milestones in the project development process. These costs represent gross capital expenditures relative to the No-Build Alternative. Total capital costs are divided into five major categories.

- General Construction: Guideway elements, stations, maintenance yards, site work, systems, and contingencies;
- Vehicles: Vehicle manufacturing and assembly;
- Right-of-Way (ROW): All rights-of-way, land, maintenance yards, and existing improvements;
- Soft Costs: Professional engineering and related services. Generally, soft costs are capital expenditures that are required to complete an operational transit project; the funds are not spent directly on activities related to brick-and-mortar construction, vehicle and equipment procurement, or land acquisition. Instead, these expenses are for the professional services that are necessary to complete the project; and,
- Unallocated Contingency: Additional costs included in the estimate that may be used to cover unforeseen costs, inflation, and/or mitigation measures.

It should be noted that the capital costs presented in this chapter are not inclusive of Metro’s Project Development costs. As the East San Fernando Valley Transit Corridor Project moves through FTA’s major capital project development process, the costs and implementation schedule will be further refined.

**Table 6-2: Capital Cost Estimates by Alternative**

Cost Category	TSM Alternative	Alternative 1	Alternative 2	Alternative 3			Alternative 4		
				MSF Option A	MSF Option B	MSF Option C	MSF Option A	MSF Option B	MSF Option C
Construction	\$1,970,333	\$191,007,987	\$266,184,084	\$670,911,297	\$670,911,297	\$670,911,297	\$1,774,917,577	\$1,857,290,822	\$1,803,642,606
ROW, Land, Maintenance Yards, and Existing Improvements	\$19,703	\$ —	\$ —	\$100,713,051	\$122,671,407	\$103,068,389	\$124,296,027	\$213,929,855	\$198,466,878
Vehicles	\$26,628,588	\$34,236,756	\$40,576,896	\$209,760,000	\$209,760,000	\$209,760,000	\$135,556,476	\$135,556,476	\$135,556,476
Professional Services	\$709,320	\$68,762,875	\$95,826,270	\$241,528,067	\$241,528,067	\$241,528,067	\$638,970,328	\$668,624,696	\$649,311,338
Unallocated Contingency (Construction)	\$5,865,589	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —

Notes: This table lists only the net capital expenditures for each alternative relative to the No-Build Alternative. Capital costs include construction of a maintenance yard for Alternatives 3 and 4.  
Source: KOA, 2014.

## 6.2.2 Operating and Maintenance Costs

This section summarizes the operating and maintenance (O&M) cost estimates for all the alternatives. The information is derived from the O&M Costs Report included in Appendix FF. The build alternatives are projected to cost between \$37.4 and \$75.9 million annually to operate and maintain; the cost variations are related to the mode (bus rapid transit [BRT], low-floor LRT/tram, or LRT) and operational headway of the alternative. O&M costs for each alternative are summarized below in Table 6-3.

The Low-Floor LRT/Tram Alternative (Alternative 3) has the highest O&M costs. The most significant factor for the higher Alternative 3 O&M costs compared with the costs of the LRT Alternative (Alternative 4) is the more frequent service (shorter headways). The shorter headways and the maintenance required for tracks, stations, and vehicles make the O&M costs greater for both Alternatives 3 and 4 compared with the BRT Alternatives (Alternatives 1 and 2).

**Table 6-3: O&M Costs by Alternative**

Alternative/Operating Scenario	O&M Cost (in millions of \$ [2014])
No Build	\$22.7
TSM	\$32.4
Alternative 1: Bus Rapid Transit – Curb Running	\$37.4
Alternative 2: Bus Rapid Transit – Median Running	\$38.5
Alternative 3: Tram – Median Running	\$75.9
Alternative 4: Light Rail – Fixed Guideway	\$64.0

Source: STV, 2014; Metro, 2012; NTD, 2014.

## 6.2.3 Capital Funding Sources

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

- Federal Sources
  - Congestion Management and Air Quality (CMAQ) Program
  - Regional Surface Transportation Program (RSTP)
  - Other future FTA funding
- State Sources
  - Regional Improvement Program (RIP)
  - Traffic Congestion Relief Program (TCRP)
  - Cap-and-Trade Program

- Local Sources
  - Measure R Sales Tax
  - Local Agency Funds
  - Proposition A Sales Tax
  - Proposition C Sales Tax
  - 2016 Transportation Sales Tax Ballot Measure (should the electorate approve it)

The \$170.1 million reserved for this project is composed of federal Section 5339 funds, state traffic congestion relief dollars, local Proposition C and Measure R funds, and a local agency contribution. However, these funds would cover only part of the projected capital costs of the build alternatives. Additional revenue sources would need to be identified to fund the full cost of the build alternatives. The required additional revenues would range from approximately \$159.3 million for Alternative 1 (Curb-Running BRT) to \$3.05 billion for Alternative 4 (LRT) with MSF Option B. These costs would be subject to change when more detailed advanced conceptual and preliminary engineering studies are conducted during the later phases of project development. This may include development of a Minimal Operable Segment.

Measure R was amended by the Metro Board of Directors in June 2013 to reflect changes regarding the availability of Measure R funds for the East San Fernando Valley Transit Corridor and other projects. Funds would be available for the East San Fernando Valley Transit Corridor Project prior to 2018 if certain conditions are met. The change in Measure R funding availability is conditioned on meeting several threshold tests, including passage of the American Fast Forward Tax Credit Bond Program. If these conditions are met and the funds are available, then the Metro Board of Directors can amend the LRTP to reflect this change in availability. As such, the financial plan contained in the Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/FEIR) will reflect the Measure R amendment and clearly identify the timeframe in which Measure R funds will be available for this project.

In an effort to implement third-decade projects, as identified by Measure R, sooner and advance the issuance of the FEIS/FEIR, thereby reducing costs and providing new services to riders sooner, the Metro Board of Directors is pursuing additional funding mechanisms for projects that are planned for the later years of Measure R. Metro's effort includes the second part of its America Fast Forward legislation, a new class of qualified tax credit bonds for transportation.

A brief description of each funding source is provided in the sections below.

### 6.2.3.1 Federal Sources

#### **Congestion Management and Air Quality Program**

The CMAQ program is a federal formula grant program for projects that contribute to attainment of national ambient air quality standards. The CMAQ program is also programmed for rail and bus operations and can be used for the first 3 years of operation of individual new rail and bus projects.

#### **Regional Surface Transportation Program**

Established by California statute, the RSTP program funds projects through use of the Surface Transportation Program, in accordance with Section 133(f) of Title 23 of the United States Code. Of the \$470 million apportioned annually, 76 percent is directed to California's eleven urbanized areas with a population greater than 200,000.

## 6.2.3.2 State Sources

### Regional Improvement Program Funds

RIP funding is derived from the State Highway Account and programmed in the State Transportation Improvement Program (STIP). Funds in the State Highway Account are comprised of state fuel excise taxes, truck weight fees, and other state transportation revenues as well as California's allocation of federal highway trust funds. Within the STIP, 75 percent of the funding is allocated and programmed by regional transportation planning agencies such as Metro under the RIP. The remaining 25 percent is programmed by the state under the Interregional Improvement Program.

Using a fund estimate prepared by the California Department of Transportation (Caltrans), the California Transportation Commission develops the annual RIP programming targets for each agency. Metro selects and programs the projects to be funded. Metro has programmed and reprogrammed its STIP projects to conform to the targets, which are subject to changes related to the level of funds available and the extent of borrowing of transit revenues by the state for use in balancing the state budget.

### Traffic Congestion Relief Program Funds

The Traffic Congestion Relief Act of 2000 (Assembly Bill 2928 and Senate Bill 1662) created the TCRP and committed \$4.909 billion to 141 specific projects that are designated in law. One of the TCRP projects earmarked for \$100 million in funding is the North–South Corridor Project (East San Fernando Valley Transit Corridor), which would “interface with the East–West Burbank–Chandler Corridor Project and the Ventura Boulevard Rapid Bus Project.”

### Cap-and-Trade Program

The Cap-and-Trade Program provides for the quarterly auction of emissions allowances, which are purchased by greenhouse gas emitters. The program deposits the proceeds into the state's Greenhouse Gas Reduction Fund. These auction proceeds are then reinvested through 12 programs that further the objectives of the Global Warming Solutions Act of 2006 (Assembly Bill 32) by reducing greenhouse gas emissions while also delivering benefits to disadvantaged communities. One of the 12 programs, the Transit and Intercity Capital Rail Program, is a competitive, multi-year grant program to fund a broad range of capital improvements for bus, rail, and ferry systems that reduce greenhouse gas emissions by decreasing vehicle miles traveled.

## 6.2.3.3 Local Sources

### Measure R Sales Tax

A significant portion of the project would be funded with Measure R funds, which are collected through a sales tax for the purpose of making transportation investments in the county. Measure R, a half-cent transportation sales tax approved in November 2008 by Los Angeles County voters, is intended to meet the transportation needs of the county. This is the third half-cent transportation sales tax implemented in Los Angeles County; the others were Proposition A and Proposition C. Collection of the Measure R tax began on July 1, 2009, for public transit purposes (rail expansion, local street improvements, traffic reduction, improved public transportation, and quality of life) for a period of 30 years.

Metro is responsible for administering the Measure R revenues. The revenues are allocated in accordance with legally binding allocation rules delineated in Los Angeles County Ordinance #08-01, the Metro Formula Allocation Procedure, and Metro Board of Directors actions. Ordinance #08-01

mandates that 65 percent of Measure R revenues be allocated to rail or bus transit. Twelve transit projects were identified in the Measure R ordinance, one of which is the East San Fernando Valley North–South Rapidway (later renamed the East San Fernando Valley Transit Corridor). Funds reserved in Measure R for this project were adequate for funding BRT, but if rail is chosen as the preferred alternative, additional funds will need to be identified.

## **Local Agency Funds**

The Measure R Expenditure Plan calls for local jurisdictions to provide 3 percent of total project costs for Measure R transit projects. Approximately 3 percent of total costs of the East San Fernando Valley Transit Corridor Project will be provided from local agency funds.

## **Proposition A Sales Tax**

Proposition A is a half-cent sales tax, which is designated for transportation projects throughout Los Angeles County. Proposition A was approved in 1980 by county voters and was instrumental in the advancement of several projects, including the Metro Blue Line to Long Beach and Metro Red Line to North Hollywood.

## **Proposition C Sales Tax**

Proposition C was also approved by county voters in 1990 as a half-cent sales tax for transportation improvements throughout the county. Revenues from the sales tax are distributed to five different categories, including 5 percent to rail and bus security; 10 percent to commuter rail facilities, transit centers, and park-and-ride lots; 25 percent to transit-related improvements to streets and highways; 20 percent as local return; and 40 percent as discretionary revenue for capital and operations improvement projects.

## **2016 Transportation Sales Tax Ballot Measure**

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

In March 2016, the Metro Board of Directors released the draft Potential Ballot Measure Expenditure Plan for public review. The draft plan anticipates expenditures of more than \$120 billion (YOE) over a period of 40 or more years. It relies on the following funding assumptions: a half-cent sales tax augmentation to begin in fiscal year 2018 and an extension of an existing half-cent sales tax rate

beyond the current expiration of Measure R in 2039, with a combined one-cent sales tax sunset in 2057 and a partial extension for ongoing repairs, operations, and debt service. The draft plan currently identifies the East San Fernando Valley Transit Corridor Project for a total of \$1.33 billion in funding, including \$810 million from potential ballot measure revenues and \$520 million from other LRTP revenues. The project, as defined in the draft plan, would be a high-capacity transit project, with mode to be determined, that would connect the Orange Line Van Nuys station to the Sylmar/San Fernando Metrolink station, consisting of at least 14 stations over 9.2 miles.

## 6.3 Comparison of Alternatives

This section summarizes information from other chapters of this DEIS/DEIR and highlights important trade-offs between the proposed alternatives. Section 6.3.1 summarizes the evaluation methodology used to compare the alternatives. Further information regarding the cost and ridership estimates used in this analysis is provided in Chapter 2, Project Description/Alternatives Considered. Detailed discussions of environmental considerations are provided in Chapter 4, Environmental Analysis, Consequences, and Mitigation.

### 6.3.1 Evaluation Methodology

Metro applied the objectives below in evaluating potential alternatives for the East San Fernando Valley Transit Corridor Project. These objectives reflect Metro's mission to meet public transportation and mobility needs for transit infrastructure while also being a responsible steward of the environment and considerate of affected agencies and community members when planning a fiscally sound project.

- Provide new service and/or infrastructure that improves passenger mobility and connectivity to regional activity centers;
- Increase transit service efficiency (speeds and passenger throughput) in the project study area; and
- Make transit service more environmentally beneficial by providing alternatives to auto-centric travel modes and other environmental benefits, such as reduced air pollutants, including reductions in greenhouse gas emissions in the project study area.

These goals draw upon those presented in the AA Report completed in 2012. For the purposes of this DEIS/DEIR, these goals have been updated and refined to reflect public involvement and further analysis of the proposed alternatives, the project area, and the background transportation system.

In addition to the extent to which each alternative achieves the objectives above, the alternatives were compared with respect to the features and environmental impacts remaining after mitigation.

### 6.3.2 Evaluation Results

This section examines the proposed TSM Alternative and the four build alternatives (Alternatives 1 to 4), according to the criteria discussed in Section 6.3.1. These criteria were used to compare the alternatives to each other and the No-Build Alternative, which represents 2040 conditions without the proposed East San Fernando Valley Transit Corridor Project. Detailed descriptions of the potential alternatives are provided in Chapter 2, Project Description/Alternatives Considered. The results of the evaluation are presented in Table 6-4. Further discussion of the results is provided in the sections below.

**Table 6-4: Alternatives Evaluation Results**

Criteria	No Build	TSM	Alt 1: Curb- Running BRT	Alt 2: Median- Running BRT	Alt 3: Median- Running Low-Floor LRT/Tram	Alt 4: Median- Running LRT
<b>Project Objectives</b>						
Provide new service and/or infrastructure that improves passenger mobility and connectivity to regional activity centers	No	Yes	Yes	Yes	Yes	Yes
Increase transit service efficiency (speeds and passenger throughput) in the project study area	No	No	Yes	Yes	Yes	Yes
Make transit service more environmentally beneficial through reductions in greenhouse gas emissions in the project study area.	No	No	No	No	No	Yes
<b>Alternative Features</b>						
New daily system-wide linked trips in 2040	N/A	466	2,970	2,969	8,452	8,604
Average weekday daily boardings	33,247	38,128	46,644	46,934	55,145	69,221
Travel time (minutes)*	35.7	35.7	32.2	29.2	34.3	25.4
Capital costs (millions of \$ [2018])	\$ 0	\$39.4	\$329.3	\$450.2	\$1,456	\$2,995– \$3,220
Alternative length (miles)	N/A	N/A	9.2	9.2	9.2	9.2
New stations	0	0	18	17	28	14
<b>Adverse/Significant Environmental Impacts Remaining after Mitigation?</b>						
Transportation: Intersection congestion impacts during operation	No	No	Yes	Yes	Yes	Yes
Transportation: Removal of bicycle lanes	No	No	Yes	Yes	Yes	Yes
Community and Neighborhood Impacts: Removal of bicycle lanes	No	No	Yes	Yes	Yes	Yes

Criteria	No Build	TSM	Alt 1: Curb- Running BRT	Alt 2: Median- Running BRT	Alt 3: Median- Running Low-Floor LRT/Tram	Alt 4: Median- Running LRT
Community and Neighborhood Impacts: Changes to community and neighborhood character due to business displacement and operational visual impacts	No	No	No	No	Yes	Yes
Visual and Aesthetics: Changes that affect scenic views of the surrounding mountains and foothills	No	No	No	No	Yes	Yes
Air Quality: Localized PM10 and PM2.5 emissions during construction, exceeding local thresholds	No	No	Yes	Yes	Yes	Yes
Safety and Security: Removal of bicycle lanes	No	No	Yes	Yes	Yes	Yes
Safety and Security: Sidewalk narrowing in some locations where sidewalks are already crowded	No	No	No	Yes	Yes	Yes
Safety and Security: Changes to emergency vehicle response times due to turn restrictions and increased congestion	No	No	No	Yes	Yes	Yes
Noise & Vibration: Construction Noise is Adverse/Significant and Unavoidable	No	No	Yes	Yes	Yes	Yes
Climate Change: Increase in GHG Emissions Due to Increased Traffic Congestion	No	No	No	No	Yes	No
* AM peak northbound travel time from Metro Orange Line to Sylmar Metrolink station. Source: KOA and ICF International, 2016.						

### 6.3.2.1 Achievement of Project Objectives

As indicated in Table 6-4, the TSM Alternative and four build alternatives (Alternatives 1 to 4) would provide new service and/or infrastructure that would improve passenger mobility and connectivity to regional activity centers. However, the BRT alternatives (Alternatives 1 and 2) and rail alternatives (Alternatives 3 and 4) would provide better service to transit riders, given their shorter travel times, compared with the TSM Alternative.

The TSM Alternative would increase the number and frequency of buses compared with the No-Build Alternative but would not provide improvements in travel time along the corridor (i.e., faster service). However, the build alternatives would improve transit service efficiency (i.e., speeds and passenger throughput) in the project study area compared with the TSM Alternative because of the dedicated guideways or lanes and increased capacity (e.g., LRT cars can carry more passengers than buses). The TSM Alternative would provide more frequent bus service compared with existing conditions but would not separate buses from mixed-flow traffic conditions.

As presented in Table 6-4, Alternatives 3 and 4 would result in the highest number of new daily system-wide linked trips in 2040 (more than 8,000 linked trips). A linked trip is a trip from origin to destination on the transit system. Even if a person must make several transfers during a journey, the trip is counted as one linked trip on the system. The BRT alternatives would provide fewer than 3,000 new daily linked trips. Boardings are unlinked trips that occur every time a person boards a transit vehicle. Average weekday daily boardings would increase from the no-build condition of 33,247 with the TSM and BRT Alternatives (38,128 under the TSM Alternative, 46,644 under Alternative 1, and 46,934 under Alternative 2). Boardings would increase even more with the rail alternatives, to 55,145 under Alternative 3 and 69,221 under Alternative 4.

Alternative 4 (LRT) would have the shortest travel time compared with the other alternatives, with a travel time of 25.4 minutes from the Sylmar/San Fernando Metrolink station to the Metro Orange Line Van Nuys station, but the highest capital costs compared with the other alternatives.

Alternative 2 has the next-shortest travel time, at 29.2 minutes, and a much lower capital cost than the rail alternatives; the relative capital cost is not much more than that of Alternative 1. Alternative 3 has the longest travel time of the build alternatives, at 34.3 minutes, though this is largely due to it having the most stations (28 stations versus between 14 to 18 stations for the other build alternatives) and consolidating both local and rapid service.

Although the TSM Alternative has the lowest capital costs compared with the build alternatives, it has the longest travel time and the lowest number of new linked trips. Alternative 4 (LRT) would provide the fewest new stations; however, it would have the highest average weekday daily boardings, with 69,221.

### 6.3.2.2 Environmental Impacts Remaining after Mitigation

As shown in Table 6-4, above, both Alternatives 3 and 4 would result in more adverse environmental effects/significant impacts after mitigation compared with the other alternatives. With regard to the unavoidable community and neighborhood impacts associated with the build alternatives, both Alternative 3 and 4 would provide benefits in most of the other categories that federal guidance (Sections 4.4.1.1 through 4.4.1.3) considers in weighing the effect of a project on quality of life by increasing mobility and access to the various populations, businesses, and community services listed in that guidance. Nonetheless, the adverse changes to the physical character of the existing community (removal of bicycle lanes, increased congestion with turn restrictions, and narrowing of sidewalks) in this area cannot be fully mitigated.

Table ES-1 in the Executive Summary of this DEIS/DEIR summarizes the impacts, mitigation measures, and impacts remaining after mitigation associated with each alternative.

## 6.4 Environmentally Superior Alternative

Identification of an environmentally superior alternative is required per Section 15126.6(e)(2) of the California Environmental Quality Act (CEQA) Guidelines. In general, the environmentally superior alternative is the alternative that would be expected to generate the fewest adverse impacts. In this case, the No-Build Alternative would result in the fewest impacts on the existing environment. However, it should also be recognized that there could be adverse transportation, air quality, and greenhouse gas environmental consequences from making no improvements to transit service along the project corridor, and none of the mobility and connectivity benefits for the community that could occur under the proposed build alternatives would occur under the No-Build Alternative.

Pursuant to CEQA regulations (see CEQA Guidelines Section 15126.6(e)(2), when the No-Project (aka No-Build) Alternative is the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives. To determine which of the other alternatives would be environmentally superior, the analysis focuses on those impacts identified as adverse and/or significant and unavoidable, even after mitigation.

As shown in s 6-4, the TSM Alternative would not result in any significant impacts/adverse effects after mitigation, as opposed to all four build alternatives, which would result in significant impacts/adverse effects after mitigation. The TSM Alternative would, therefore, be the environmentally superior alternative. However, as shown in Table 6-4, the TSM Alternative would meet only one of the three primary project objectives. Alternatives 1 through 4 would meet most of the project objectives; Alternative 4 would meet all the project objectives. Among Alternatives 1 through 4, Alternative 1 would be the environmentally superior alternative because, as shown in Table 6-4, it would result in unavoidable significant adverse impacts in five of the 11 environmental impact categories identified in the table, compared with seven for Alternative 2 and 11 for Alternatives 3 and 4. However, it should be noted that Alternative 1 would not provide the mobility and environmental benefits that could occur, for example, under Alternative 4, which would have the greatest number of transit trips and the greatest travel time reductions. Alternative 4 is the only alternative that would substantively reduce greenhouse gas emissions because of grade separation along the most congested portion of the corridor and its much higher average weekday daily boardings.

## 6.5 Alternatives Considered But Eliminated

Section 15126.6(c) of the State CEQA Guidelines requires EIRs to identify any alternatives that were considered by the lead agency but rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination.

As stated at the beginning of this chapter, a formal alternative analysis process was completed for the proposed project and an AA Report that presents the results of that process was completed in December 2012. According to the proposed project's AA Report, seven main evaluation criteria, each having a set of corresponding performance measures, were developed to help screen the alternatives that were developed during the alternative analysis process. These criteria include the following:

- Travel and mobility benefits and impacts;
- Regional connectivity;
- Cost effectiveness;
- Environmental benefits and impacts;
- Economic and land use considerations;
- Community input; and
- Financial capability.

Performance measures associated with these criteria are included in Appendix F.

The following alternative alignments were identified and considered but subsequently eliminated from further review in this DEIS/DEIR during the alternative analysis process and as a result of the DEIS/DEIR scoping process:

- Sepulveda Boulevard – Other than the southern segment, this alignment failed to link with many primary destination points. It would realize fewer boardings than an alignment that would travel primarily on Van Nuys Boulevard, which has higher transit-dependent populations and transit ridership. Furthermore, it was opposed by the community in the northern section of the alignment. There was strong community support for an alignment on Van Nuys Boulevard.
- I-210 Freeway Terminus Point – An alignment to this location failed to link with local/regional bus or rail service and lacked the ridership potential compared with an alignment that would terminate at the Sylmar/San Fernando Metrolink station. The Metrolink station provides regional and local linkages, a park-and-ride lot, and bus layover facilities, and it garnered greater community support.
- Van Nuys Boulevard between the Metro Orange Line and Ventura Boulevard – Van Nuys Boulevard is significantly wider south of the Metro Orange Line, resulting in buses being able to travel at higher speeds. Although buses travel faster, boardings decrease significantly because of the nature of the businesses along this stretch of the Boulevard. Because of the low number of boardings and the existing efficiency of bus service, it was determined that there was little to no need for enhanced transit service south of the Metro Orange Line. Additionally, because the alignment of the future Sepulveda Pass Transit Project has not yet been determined, including the location where such a transit line would connect to existing transit lines in the San Fernando Valley, it was decided that this transit corridor should not preclude the location of the connection. Therefore, the southern terminus for this corridor was modified to be at an existing transit line, the Metro Orange Line.

It should be noted that the Curbside BRT Alternative was eliminated from further consideration during the alternatives analysis process because it failed to achieve several of the operational efficiencies that were called for in the project's purpose and need. After further analysis, this alternative is being reconsidered and included for evaluation in this DEIS/DEIR because 1) it could meet most of the project's objectives and purpose and need, 2) it could have the least impact on existing traffic, and 3) it has the potential to be constructed within the budget reserved for this project in the Board-adopted 2009 LRTP. In addition, this alternative allows for bicycles to travel in the proposed curbside lanes, sharing the lane with only buses, in response to comments received on the alternatives analysis in support of bicycle facilities along the corridor. The other alternatives being considered would require bicycles to travel in mixed-flow traffic lanes because of ROW constraints.

## 6.6 Identification of a Locally Preferred Alternative

The LPA is the alternative that will be identified in the FEIS/FEIR. Following the DEIS/DEIR public comment period, the Metro Board of Directors may choose to select an LPA after examining the DEIS/DEIR, comments received during the public comment period, and other relevant information. After certification of the FEIS/FEIR, Metro will consider officially adopting a project alternative for implementation. For informational purposes, the differences among the BRT and rail alternatives are highlighted below.

### 6.6.1 BRT Alternatives

The station locations for the two BRT alternatives considered are virtually identical. However, under Alternative 1, buses would operate in a curb lane; under Alternative 2, buses would operate in the median of Van Nuys Boulevard. The significant differences are outlined below.

Alternative 1: Curb-Running BRT	Alternative 2: Median-Running BRT
Local buses could share the dedicated bus lane with BRT but may slow BRT buses.	Local buses would remain in the curb lane with mixed-flow traffic, while BRT would operate in the median.
Bicyclists could share the dedicated lane with buses but may slow BRT speeds.	Bicyclists would share the curb lane with automobile traffic.
Right-turning vehicles at driveways and intersections would negatively affect travel speeds (projected to average 13.4 mph).	Right-turning vehicles would not affect median-running buses, resulting in superior travel speeds (projected to average 15 mph).
Left turns into business driveways and onto secondary streets would be permitted.	Left turns into business driveways and onto secondary streets would be prohibited.
On-street parking would be permitted from 7 p.m. to 7 a.m.	On-street parking would be prohibited.
Stations would be on the curb along Van Nuys Boulevard, thereby requiring less roadway width to construct.	Stations would be in the median of Van Nuys Boulevard, which would result in narrower lanes and/or narrower sidewalks.
Fare transactions and barrier gates would be more challenging on curbs.	Fare transactions and barrier gates would be easier to accommodate in a median bus station.
Due to an exclusive bus bench contract with the Los Angeles Department of Transportation, it may not be possible to build sidewalk stations.	Median bus stations would resemble Metro rail stations.

### 6.6.2 Rail Alternatives

The differences between the alignments and operational characteristics of the two rail alternatives considered are more significant than those of the BRT alternatives, as outlined below.

Alternative 3: Low-Floor LRT/Tram	Alternative 4: LRT
Twenty-eight stations.	Fourteen stations.
Frequent stops, resulting in longer travel times (42 minutes end to end) and fewer overall boardings (35,800 projected average weekday total corridor boardings) compared with LRT.	Fewer stops, resulting in faster travel times (29 minutes end to end) and more boardings (47,440 projected average weekday total corridor boardings) compared with Low-Floor LRT/Tram.
No subway segment or grade separations	Two and one-half miles of subway and three subway stations
Dedicated ROW on Van Nuys Boulevard (6.2 miles) and mixed-flow lanes on San Fernando Road (2.5 miles).	Dedicated ROW for full length (9.2 miles).
Adjacent local bus service replaced with additional rail stations and more frequent train service in the median.	Local bus service would remain in the curb lane, while rail would operate in the median.
Low-floor trains and curb platforms (14 inches).	High-floor trains and platforms (39 inches).
Projected \$1.3 billion cost (2014 dollars).	Projected \$2.75 billion cost (2014 dollars).

After public comments are evaluated and funding identified, staff members would evaluate the rail and bus alternatives, recognizing public support, technical merit, and available financial resources. Because there are significant differences between the two rail alternatives, both of which have positive attributes, if rail is selected as the preferred alternative, then the alternative could be a hybrid of both. For example, the evaluation of the two rail alternatives found:

- The fewer stations of the LRT Alternative (Alternative 4) would result in superior travel speeds and a greater number of overall boardings compared with the Low-Floor LRT/Tram Alternative (Alternative 3);
- The recommended 2.5-mile subway portion of the LRT Alternative (Alternative 4) would be very expensive and have a significant construction impact; it would result in little time savings compared with the at-grade Low-Floor LRT/Tram Alternative (Alternative 3);
- The Low-Floor/LRT Alternative (Alternative 3) would not require long ADA ramps, and as a consequence, stations placed in the median of Van Nuys Boulevard would require smaller envelopes of space compared with stations for the LRT Alternative (Alternative 4);
- Stations for the LRT/Tram Alternative (Alternative 3) would be narrower, similar to systems in Europe. However, these narrower stations may not have the space needed to accommodate the newly adopted Board of Directors fare gate criteria for station designs;
- Operating trains on a dedicated rail ROW adjacent to San Fernando Road (Alternative 4) would result in fewer train/automobile conflicts compared with operating trains in mixed-flow traffic (Alternative 3); and
- The Low-Floor LRT/Tram Alternative (Alternative 3) would replace local bus service with more frequent rail service; however, this would result in fewer overall boardings and require trains to stop more often, which would result in slower travel speeds.

The above-mentioned considerations, and others identified during the 45-day public comment period and public hearings, will be taken into consideration when the LPA is recommended by the staff and reviewed for action by the Metro Board of Directors.