

EXECUTIVE SUMMARY

Introduction

The Exposition Metro Line Construction Authority (Expo Authority) has prepared this Draft Environmental Impact Report (DEIR) in order to extend high capacity, high frequency transit service from the Westside of Los Angeles to Santa Monica. This project, called the Exposition Corridor Transit Project Phase 2 (Expo Phase 2), would improve transportation mobility and connectivity for residents and commuters in the project study area, provide faster, more reliable public transportation services; increase the capacity of the transportation system; and provide more travel choices. The area is currently underserved by mass transit.

The primary purpose of this DEIR is to assist decision-makers and the public in assessing the impacts associated with the implementation of the alternatives under consideration. This DEIR will be circulated for review to interested parties, including private citizens, community groups, the business community, elected officials and public agencies in accordance with state requirements.

Project Purpose

The underlying purpose of The Expo Phase 2 project is to provide high-capacity transit service on the Westside of Los Angeles to Santa Monica, extending the mobility benefits of the Expo Phase 1 project beyond the terminus in Culver City. This proposed high-capacity, major transit investment would:

- Accommodate existing population and employment growth and transit-supportive land use densities
- Improve mobility for the large Westside transit-dependent population who have modest incomes or do not drive
- Provide enhanced access to activity centers, including a linkage to downtown Los Angeles, Culver City, Santa Monica and other destinations in the corridor
- Serve existing and future travel demand for east/west commute trips, with improved connectivity to a regional transit system
- Attract more riders by greatly improving transit services and facilities in the corridor for both work and non-work trips
- Provide an effective transit alternative to the current and expected increase in roadway congestion in the corridor
- Address system capacity constraints of heavily-used highway and transit networks



- Realize economic benefits from travel time savings, increasing the attractiveness of the corridor to employers and workers
- Spur redevelopment and revitalization plans through the availability of efficient and reliable high-capacity transit service
- Realize environmental benefits associated with increased transit usage, such as improved air quality and energy efficiencies

Corridor Issues and Opportunities

The need for transit improvements in the corridor is reflected in the following:

- The study area includes job densities in excess of 20 jobs per acre in portions, with additional job growth projected at 24 percent by 2030. In 2000, there were 8,535 employees per square mile in the study area. By 2030, the Southern California Association of Governments (SCAG) projects that job densities will increase to 10,558 employees per square mile in the study area.
- The study area includes transit-dependent populations equivalent in percentage with other areas of Los Angeles County. Improved transit in the study area would improve mobility options for students, seniors, the disabled, and those without access to an automobile.
- The I-10 Freeway currently experiences considerable congestion, operating at Level of Service F during peak periods. Congestion on the freeway is expected to increase through 2030. East/west arterials in the study area also experience congestion. Average travel volumes on these streets are expected to increase 15 to 35 percent by 2030, with peak hour volumes increasing 13 to 32 percent by 2030.
- Daily vehicle miles traveled within the study area will increase by 27 percent between the years 2005 and 2030. The increase in vehicles miles traveled will be even greater during the peak periods, increasing by 32 percent during the AM peak period and 31 percent during the PM peak period.
- Between 2005 and 2030, daily average speeds within the study area will decrease by 25 percent, from 32 mph in 2005 to 24 mph in 2030. Average speeds during the AM peak period will decrease by 32 percent, from 28 mph to 19 mph; while average speeds during the PM peak period will decrease by 39 percent, from 26 mph to 16 mph.
- Between 2005 and 2030, daily vehicle hours traveled within the study area will increase by 74 percent. The increase in vehicle hours traveled will be even greater during the peak periods, increasing by 93 percent during the AM peak period and 105 percent during the PM peak period.
- Connectivity exists with the Expo Phase 1 project and will be enhanced by the extension of the Expo Phase 2 project. Average weekday person trips¹ from the Expo Phase 1 study area to the Expo Phase 2 study area increase 20 percent between 2005 and 2030. Average weekday person trips from the Expo Phase 2 study area to the Expo Phase 1 study area increase 11 percent from 2005 to 2030.

¹ Weekday person trip is a trip taken on any transportation mode (walk, bus, rail, auto) on a weekday.

- Connectivity between the Expo Phase 1 project and the Expo Phase 2 study area is important. Average weekday transit trips² from the Expo Phase 1 study area to the Expo Phase 2 study area are forecast to increase 45 percent from 2005 to 2030. Average weekday transit trips from the Expo Phase 2 study area to the Expo Phase 1 study area increase 26 percent from 2005 to 2030.
- Bus transit will experience increased challenges in meeting the needs of the study area. Peak hour loads on buses traveling in the east and west directions within the study area will increase by 111 percent between the years 2005 and 2030, from 8,095 to 17,701. During the same period, the average peak hour speeds of the buses will decrease by 8 percent to 11 mph.
- Land use plans being developed by the City of Los Angeles and the City of Santa Monica support transit oriented development and the expansion of transit into the Westside.
- Air quality, greenhouse gas, and energy conservation efforts in the Los Angeles basin including the Westside are heavily reliant on the expansion of transit to achieve conservation goals.

Alternatives Considered

Six alternatives are evaluated in this DEIR. Two include the No-Build and Transportation System Management (TSM) Alternatives, described as follows:

- No-Build Alternative consists of the existing transit services as well as improvements explicitly committed to be constructed by the year 2030 as defined in the Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP).³
- The TSM Alternative would involve three basic components: addition of a rapid bus route connecting downtown Culver City with downtown Santa Monica; associated service improvements on selected north/south routes to feed stations along the new rapid bus route; and service improvements on selected routes connecting Westside communities to the Expo Phase 1 terminus.

The four proposed LRT Alternatives would begin at the terminus of the Expo Phase 1 in Culver City and would terminate in downtown Santa Monica in the vicinity of the intersection of 4th Street and Colorado Avenue. Figure 1 (Project Map—By Segment) shows the alignment of each of the Alternatives. This figure, which is included at the back of this Executive Summary, may be folded out and used as a reference while reading the summary. Depending upon the alternative, the alignments would vary as follows:

- LRT 1 Expo ROW—Olympic Alternative (LRT Alternative 1) would utilize approximately 5 miles of the existing Exposition ROW from the Expo Phase 1 terminus in Culver City to the intersection with Olympic Boulevard in Santa Monica. From that point, the alignment would follow Olympic Boulevard to the proposed terminus station.
- LRT 2 Expo ROW—Colorado Alternative (LRT Alternative 2) would also utilize the existing Exposition ROW from the Expo Phase 1 terminus in Culver City to the intersection with Olympic Boulevard in Santa Monica. From that point, the alignment

² Any trip taken on transit (bus or rail) on a weekday.

³ 2008 Regional Transportation Plan: Making the Connections, adopted May 2008.

would continue within the Exposition ROW to west of 19th Street, then diverge from the ROW and enter onto Colorado Avenue east of 17th Street and follow the center of Colorado Avenue to the proposed terminus.

- LRT 3 Venice/Sepulveda–Olympic Alternative (LRT Alternative 3) would divert from the Exposition ROW at the Expo Phase 1 terminus and follow Venice Boulevard and Sepulveda Boulevard until reaching the intersection with the Exposition ROW. The alignment would then continue westward along the Exposition ROW and Olympic Boulevard identical to the LRT 1 Expo ROW–Olympic Alternative.
- LRT 4 Venice/Sepulveda–Colorado Alternative (LRT Alternative 4) would divert from the Exposition ROW at the Expo Phase 1 terminus and follow Venice Boulevard and Sepulveda Boulevard until reaching the intersection with the Exposition ROW. The alignment would then continue westward along the Exposition ROW and Colorado Avenue identical to the LRT 2 Expo ROW–Colorado Alternative.



Summary Comparison of Alternatives

Table 1 (Performance Measures of the TSM and LRT Alternatives) provides the results of ridership analysis of the different Alternatives as a way to gauge the effectiveness of the Alternatives relative to one another.

The results show that the TSM has only one-third of the weekday boardings of the LRT Alternatives. The TSM does show benefit to transit dependents, but would attract very few New Transit Trips, particularly when compared to any of the LRT Alternatives. Thus, the TSM does not achieve the basic transportation goals of the project.

When compared to each other, the four LRT Alternatives show similar results with respect to weekday boardings, passenger miles, new transit trips, and percent of new transit trips. The variation between Alternatives is not significant and is generally within the margin of error for the travel forecasting model, described in the *Modeling Results Technical Report*. The combined forecast ridership for The Expo Phase 2 project and Expo Phase 1 project (now under construction) is shown as well, and is consistent with the Phase 2 only Weekday Boarding results.

Table 1 Performance Measures of the TSM and LRT Alternatives

Measures	TSM	LRT 1 Expo ROW– Olympic	LRT 2 Expo ROW– Colorado	LRT 3 Venice/ Sepulveda– Olympic	LRT 4 Venice/ Sepulveda– Colorado
Performance Measures					
2030 Weekday Boardings (Phase 2 Only)	10,296	36,653	36,412	35,880	35,849
Annual Transit Dependent Passenger Miles	5,819,772	42,325,305	41,643,183	41,200,002	40,811,658
Percent of User Benefits to Transit Dependents	63.0%	63.1%	62.8%	62.5%	62.3%
New Transit Trips	3,397	11,010	10,980	10,250	10,322
Phase 1 and Phase 2 Combined					
2030 Weekday Boardings	N/A	64,048	63,998	62,105	62,077

SOURCE: AECOM, SUMMIT Model, June 2008.

Environmental Benefits and Impacts

All of the LRT Alternatives have been identified as environmentally superior to the No-Build and TSM Alternatives. While the No-Build and TSM Alternatives avoid some impacts that occur under the LRT Alternatives, neither Alternative would meet the project objectives. Table 2 (Environmental Impacts—Comparison of LRT Alternatives) summarizes the environmental differences between the LRT Alternatives.

LRT Alternative 1 offers the greatest opportunity to reduce regional vehicle miles traveled, serve to expand the existing transit system and increase regional connectivity in the Expo study area, Los Angeles County and the six-county Region. LRT Alternative 2 offers the next best reduction of these factors for Los Angeles County and the Expo study area but does not perform as well in the region. LRT Alternatives 3 and 4 do not perform as well as in Los Angeles County and the Expo study area. The projected reduction in vehicle miles traveled would also translate into reductions in air pollutant and greenhouse gas emissions.

Implementation of the LRT Alternatives would result in an overall reduction in total single-passenger vehicle and bus energy consumption within the study area. The LRT Alternatives would result in less energy consumption than the No-Build Alternative and, as such, would result in a beneficial energy impact. While the LRT Alternatives would lead to localized traffic impacts and removal of parking spaces, as well as potential noise and vibration impacts, visual quality and potential cultural resource impacts, and property acquisitions, these impacts would largely be mitigated to less than significant.

LRT Alternatives 1 and 2 do not result in any traffic impacts that could not be mitigated. The other two LRT Alternatives would result in impacts to two intersections that could not be mitigated due to right of way constraints.

LRT Alternative 1 would result in substantially fewer property acquisitions including 62 total acquisitions with residential relocations impacting an estimated 5 residents. LRT Alternative 2 would have 83 total acquisitions resulting in the relocation of an estimated 3 residents; LRT Alternative 3 would have 194 total acquisitions including an estimated 256 resident relocations; and LRT Alternative 4 would have 215 total acquisitions including an estimated 254 resident relocations.

LRT Alternative 1 would also result in the least amount of traffic disruption during construction; LRT Alternative 2 would involve construction in the middle of Colorado Avenue, and LRT Alternatives 3 and 4 would involve construction within the median of Venice and Sepulveda Boulevards. LRT Alternative 4 would additionally include construction in the middle of Colorado Avenue.

LRT Alternative 1 would result in aesthetic/visual quality impacts to the Expo/Westwood Station area due to the change in the character of the area associated with the proposed station and parking facility. LRT Alternative 1 would also result in aesthetic/visual quality impacts on Olympic Boulevard due to the elimination of the Coral trees within the median. The impacts to the Coral trees would be avoided by implementation of LRT Alternative 2, but this Alternative would result in traffic disruption on Colorado Avenue during construction. LRT Alternatives 3 and 4 would result in aesthetic/visual quality impacts along Venice and Sepulveda Boulevards due to the construction of elevated guideway and stations along major portions of those streets along with the acquisition and removal of many buildings. LRT Alternative 3 would also include the afore-mentioned elimination of the Coral trees on Olympic Boulevard.

LRT Alternatives 1 and 2 would have the least potential to impact cultural resources due to the near small number of such resources along these two Alternatives.

In summary, given the relative impacts associated with the various Alternatives, LRT Alternatives 1 or 2 are considered to be the environmentally superior Alternatives.

Table 2 Environmental Impacts—Comparison of LRT Alternatives

Alternatives Compared to Each Other: ○ = Least Impact, ● = Most Impact

Alternative / Impact Topic	LRT 1	LRT 2	LRT 3	LRT 4	Differentiating Characteristics
Transportation/Traffic	○ ○	○ ○	● ●	● ●	Intersection Delay: LRT Alts 3 and 4 have two Significant Unavoidable Impacts. Loss of On Street Parking: LRT Alts 3 and 4 displace twice as many on street parking spaces as LRT Alts 1 and 2. LRT Alt 2 displaces 67 fewer spaces than LRT Alt 1. Although replacement parking will be provided, the least disruption will occur with LRT Alt 2.
Aesthetics	●	○	●	●	Important Aesthetic Features and Visual Character: LRT Alts 1 and 2 will change the character of the ROW between Overland Avenue and Military Avenue through the construction of an at-grade station and roadway improvements, a distance of approximately 3,000 feet. LRT Alt 1 will require the removal of mature Coral trees on Olympic Boulevard from midway between Cloverfield Blvd. and 20 th Street to 10 th Street (approximately 43 trees). LRT Alt 3 will require the construction of street modifications and approximately 8,400 feet of elevated Guideway along Venice and Sepulveda Blvds, where no such structure exists today, as well as the removal of the Coral trees. LRT Alt 4 will require the same type of construction as LRT Alt 3 on Venice and Sepulveda Blvds, but will not require the removal of the Coral Trees.
Air Quality	○	●	○	●	LRT Alt 1 has the greatest reduction in Vehicle Miles Traveled and thus provides largest reduction in pollutants. LRT Alts 2, 3, and 4 also provide air quality improvements, but to a lesser degree.
Global Climate Change	○	●	○	●	LRT Alt 1 has the greatest reduction in Vehicle Miles Traveled and thus provides largest reduction in pollutants. LRT Alts 2, 3, and 4 also provide air quality improvements, but to a lesser degree.
Biological	○	○	○	○	All alternatives perform equally.
Cultural	○	○	●	●	LRT Alts 3 and 4 may require the physical taking of a portion of an eligible historic architectural resource.
Geology	○	○	○	○	All alternatives have similar performance characteristics.

Table 2 Environmental Impacts—Comparison of LRT Alternatives

Alternatives Compared to Each Other: ○ = Least Impact, ● = Most Impact

Alternative / Impact Topic	LRT 1	LRT 2	LRT 3	LRT 4	Differentiating Characteristics
Hazards and Hazardous Materials	○	○	○	○	All alternatives have similar performance characteristics.
Hydrology	●	●	○	○	LRT Alts 1 and 2 may have a station in a 100 year Flood Zone.
Land Use/Planning	○	○	○	○	All alternatives have similar performance characteristics.
Noise / Vibration	○	○	○	○	All alternatives have similar performance characteristics.
Paleontological	○	○	○	○	All alternatives have similar performance characteristics.
Parks and Community Facilities	○	○	○	○	All alternatives have similar performance characteristics.
Safety and Security	○	○	○	○	All alternatives have similar performance characteristics.
Socioeconomics	○	○	●	●	LRT Alts 3 and 4 require substantially more property acquisition than LRT Alternatives 1 and 2. In particular, the widening and reconstruction of Venice and Sepulveda Blvds. will be very disruptive with significant residential relocations.
Energy	○	○	○	○	All alternatives have similar performance characteristics.
Construction	○	○	●	●	The widening and reconstruction of Venice and Sepulveda Blvds. associated with LRT Alts 2 and 4 will be very disruptive. Similarly, the reconstruction of Colorado Blvd in LRT Alts 2 and 4 will be disruptive.

Effectiveness and Efficiency

The proposed project has been evaluated across a broad range of performance measures. The discussion below considers capital and operating costs, as well as the overall efficiency of the LRT Alternatives in meeting the Transportation elements of the Project Purpose. These measures are generally of interest to decision-makers and the public alike.

Capital Costs—TSM Alternative

For the TSM Alternative, the capital costs are estimated to be \$44.3 million in mid-2008 dollars, as shown in Table 3 (TSM Capital Costs [000s]). The principal components of these costs are vehicles, professional services (project management, engineering, construction management, inspection, insurance, etc), construction of minor bus stops and street improvements, and contingencies. There would be no ROW acquisition required for the TSM Alternative.

Table 3 TSM Capital Costs (000s)

Principal Components (2008\$)	TSM
Construction	\$1,610
Right-of-Way	\$0
Vehicles	\$32,814
Professional Services and Contingency	\$9,905
Total	\$44,329

SOURCE: Capital Construction Costs, DMJM Harris/Lenax, October 2008.

Capital Costs—LRT Alternatives

Table 4 (LRT Alternatives Capital Costs in 2008\$s [000s]) shows the capital costs in mid-2008 dollars for each LRT Alternative. Alternatives 1 and 2 are substantially less expensive than LRT Alternatives 3 and 4 in all categories, primarily due to the extensive land acquisition and structure costs associated with guideway construction on Venice and Sepulveda Boulevards.

Table 4 LRT Alternatives Capital Costs in 2008\$ (000s)

Principal Components (2008\$)	LRT 1 Expo ROW– Olympic	LRT 2 Expo ROW– Colorado	LRT 3 Venice/ Sepulveda– Olympic	LRT 4 Venice/ Sepulveda– Colorado
Construction	\$508,334	\$454,378	\$694,647	\$640,648
Right-of-Way	\$151,167	\$164,916	\$277,054	\$290,803
Vehicles	\$79,013	\$90,864	\$94,815	\$102,716
Professional Services and Contingency	\$231,395	\$222,265	\$368,270	\$356,643
Total	\$969,909	\$932,423	\$1,434,786	\$1,390,811

SOURCE: Capital Construction Costs, DMJM Harris/Lenax, September 2008.

These capital costs are based on the conceptual engineering design. More detailed cost estimates will be developed during Preliminary Engineering (PE) following selection of the Locally Preferred Alternative (LPA).

Table 5 (Project Costs for each LRT Alternative [Year of Construction] [000s]) shows the year of construction (escalated) dollar costs for each LRT Alternative.

Table 5 Project Costs for each LRT Alternative (Year of Construction) (000s)

Principal Components	LRT 1 Expo ROW– Olympic	LRT 2 Expo ROW– Colorado	LRT 3 Venice/ Sepulveda– Olympic	LRT 4 Venice/ Sepulveda– Colorado
Construction	\$718,077	\$642,992	\$979,028	\$903,882
Right-of-Way	\$197,341	\$215,289	\$361,679	\$379,628
Vehicles	\$117,072	\$134,633	\$140,486	\$152,194
Professional Services and Contingency	\$320,886	\$308,206	\$510,761	\$494,624
Total	\$1,353,375	\$1,301,121	\$1,991,956	\$1,930,328

SOURCE: Capital Construction Costs, DMJM Harris/Lenax, September 2008.

Costs are escalated to year of construction using a 7.5 percent escalation through 2010, 5 percent from 2011 through 2013, and 3 percent through completion of construction.

Operating and Maintenance Costs

This section presents the operating and maintenance costs for the TSM and LRT Alternatives. Operating and maintenance costs for the Alternatives are based on the service and fleet assumptions, as well as the bus and rail vehicle revenue miles and hours described in Chapter 2 (Project Alternatives). Table 6 (2030 TSM and LRT Alternative Annual Operating and Maintenance Costs in 2008 Dollars [000s]) shows the annual operating and maintenance costs

in 2008 dollars for 2030 service levels. Operating cost for the LRT Alternatives are similar, but reflect the longer length of LRT Alternatives 3 and 4.

Table 6 2030 TSM and LRT Alternative Annual Operating and Maintenance Costs in 2008 Dollars (000s)

Mode	TSM Alternative	LRT 1 Expo ROW–Olympic	LRT 2 Expo ROW–Colorado	LRT 3 Venice/ Sepulveda–Olympic	LRT 4 Venice/ Sepulveda–Colorado
Operating Cost Increment over No-Build	\$10,853	\$22,531	\$23,788	\$25,654	\$26,891
Operating Cost Increment over TSM	NA	\$11,678	\$12,935	\$14,801	\$16,038

SOURCE: Connetics Transportation Group (August 2008)

Table 7 (Cost Effectiveness of the TSM and LRT Alternatives) provides the results of cost-effectiveness of the different Alternatives using the methodology of the Federal Transit Administration as a way to gauge the relative efficiency and effectiveness of the Alternatives relative to one another.

The significant performance difference between the Alternatives emerges with the examination of the cost of providing the transportation benefits. As seen on Table 1 (Performance Measures of the TSM and LRT Alternatives), LRT Alternatives 1 and 2 show slightly higher ridership as LRT Alternatives 3 and 4. However, the Cost of per Annual Hour of User Benefit on Table 7 shows that LRT Alternatives 1 and 2 provide this better ridership at 2/3rds the cost of LRT Alternatives 3 and 4 for this key performance measure. It is worth noting that were the Expo Authority competing for funds under the Federal New Starts process, LRT Alternatives 3 and 4 would not be eligible to continue in the project development process because of their high cost per Annual Hour of User Benefit.

Table 7 Cost Effectiveness of the TSM and LRT Alternatives

Measures	TSM	LRT 1 Expo ROW–Olympic	LRT 2 Expo ROW–Colorado	LRT 3 Venice/ Sepulveda–Olympic	LRT 4 Venice/ Sepulveda–Colorado
Cost Effectiveness Measures					
Annual User Benefit Hours	1,160,871	3,972,637	3,949,064	3,557,885	3,571,264
Cost per Annual Hour of User Benefit	\$13.70	\$20.21	\$20.01	\$32.76	\$32.23

SOURCE: AECOM, SUMMIT Model, June 2008.

Summary of Significant Environmental Impacts and Proposed Mitigation Measures

Table 8 (Summary of Significant Environmental Impacts and Proposed Mitigation, and Significant Unavoidable Impacts for LRT Alternatives) provides a summary of the significant environmental impacts and proposed mitigation measures for the LRT Alternatives. Table 8 can be found at the back of this Executive Summary, immediately before Figure 1 (Project Map—By Segment). Section 3.18 (CEQA Impact Summary Table) of the DEIR provides a comprehensive summary of all impacts by topic and mitigation measures. For a more detailed discussion and description, refer to the applicable sections and chapters of this DEIR.

The following abbreviations are used to classify impacts by level of significance in Table 1 (Performance Measures of the TSM and LRT Alternatives):

- S = Significant or Potentially Significant Impact (before mitigation)
- LTS = Less Than Significant (below threshold either before or after mitigation)
- SU = Significant Unavoidable Impact (mitigation would not reduce to less-than-significant)

The differences among the LRT Alternatives in terms of impacts, mitigation, and level of significance are called out in the exhibit. If only one level of significance classification is provided, then the impacts, mitigation, and level of significance are the same among the LRT Alternatives. Further, the exhibit focuses exclusively on the LRT Alternatives because the TSM Alternative would not have any impacts that would require mitigation measures.

In addition to the proposed mitigation measures, the Expo Authority will comply with the following in the design and implementation of all LRT Alternatives:

- *Metro Design Criteria*
- California Building Code
- Standard for Fixed Guideway Transit and Passenger Rail Systems (NFPA 130)
- National Electrical Code (NFPA 70)
- American Railway Engineering and Maintenance of Way Association Standards (AREMA)
- Metro Operating Rules
- Expo Fire/Life Safety Design Criteria
- California, Public Utility Commission (CPUC) General Orders (Including but not limited to 88, 95, 143-B and 164-D)
- Metro Sustainability Guidelines
- South Coast Air Quality Management District (SCAQMD) Rule 403
- National Pollution Discharge Elimination Standards (NPDES)
- Standard Urban Stormwater Mitigation Plan (SUSMP)

- Stormwater Pollution Prevention Plan (SWPPP)

Areas of Controversy/Issues to Be Resolved

This DEIR addresses environmental issues that are known or were raised by agencies or interested parties during the Notice of Preparation (NOP) public review period and/or during the Scoping Meetings for the Proposed Project. All of the NOP/Scoping comment letters, and the Scoping Meeting Summary Report, are readily available for review at www.buildexpo.org. The following were identified as issues to be resolved:

- Selection of a Locally Preferred Alternative, choosing among:
 - LRT 1: Expo ROW–Olympic Alternative
 - LRT 2: Expo ROW–Colorado Alternative
 - LRT 3: Venice/Sepulveda–Olympic Alternative
 - LRT 4: Venice/Sepulveda–Colorado Alternative
- Final locations for traction power substations
- On-street replacement parking final amounts and locations
- Final specific noise mitigation measures for each required location
- Final traffic detour plans and haul routes for construction

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
3.2 Transportation/Traffic			
<p>Development of some of the LRT Alternatives would result in increased delays at local intersections or reduction of the intersection level of service to below E or F. Some of the study intersections in the vicinity of the project LRT Alternatives would experience a potentially significant increase in delay without mitigation. Five out of the 86 study intersections would be significantly impacted under the LRT Alternatives. Impact at three of these five intersections would be considered less than significant after mitigation.</p> <p>Two intersections are expected to remain with significant unavoidable impacts. These are the intersection of Sepulveda and Palms Boulevards, and Girard Avenue and Venice Boulevard (LRT 3 and 4). These intersections cannot be mitigated because of right of way constraints.</p>	<p>LRT 3 & 4: S LRT 1 & 2: LTS</p>	<p>MM TR-1 <i>Clarington Avenue/Venice Boulevard.</i> Adjust signal timing and add a southbound left-turn lane. This additional lane will require the removal of on-street parking. Property would have to be acquired to provide replacement parking. Potential parcels at the northwest and southwest corners of the Hughes Avenue/Venice Boulevard intersection have been identified.</p> <p>MM TR-2 <i>Hughes Avenue/Venice Boulevard.</i> Adjust signal timing and add a northbound left-turn lane, a southbound left-turn lane, and an eastbound right-turn lane. These additional lanes will require the removal of on-street parking. Property would have to be acquired to provide replacement parking. Potential parcels at the northwest and southwest corners of the Hughes Avenue/Venice Boulevard intersection have been identified.</p> <p>MM TR-3 <i>20th St/Olympic Boulevard.</i> Adjust signal timing and add a northbound right-turn lane. To make it a feasible mitigation, partial acquisitions will be required for corner cuts at all four corners of the intersection.</p>	<p>LRT 3, & 4: SU LRT 1 & 2: LTS</p>
<p>Based on the ridership and mode of transit access forecasts at the proposed LRT stations, the demand for parking will exceed the proposed supply at several stations, potentially resulting in some parking intrusion into adjacent neighborhoods. Spillover parking in the neighborhoods around the stations can be expected</p>	<p>All LRT: S</p>	<p>MM TR-4 In the quarter mile area surrounding each station where spillover parking is anticipated, a program shall be established to monitor the on-street parking activity in the area prior to the opening of service and shall monitor the availability of parking monthly for</p>	<p>All LRT: LTS</p>

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
to occur around all of the stations except the Sepulveda/National and Colorado/4 th Street Stations.		six months following the opening of service. If a parking shortage is determined to have occurred due to the parking activity of the LRT patrons, Metro shall work with the appropriate local jurisdiction and affected communities to assess the need for and specific elements of a permit parking program for the impacted neighborhoods. The guidelines established by each local jurisdiction for the assessment of permit parking programs and the development of community consensus on the details of the permit program shall be followed. Metro shall reimburse the local jurisdictions for the costs associated with developing the local permit parking programs within one-quarter mile of the stations and for the costs of the signs posted in the neighborhoods. Metro will not be responsible for the costs of permits for residents desiring to park on the streets in the permit districts.	
Development of the proposed project would result in loss of existing on-street parking spaces along the project corridor. However, the overall utilization of parking is less than 50 percent along most of the segments. Along most roadway segments, replacement parking options are available on adjacent streets, within the Exposition ROW or acquired parcels as part of the project. At locations where replacement parking options are not available along adjacent streets or the Exposition ROW, the identified mitigation measures would be implemented.	All LRT: S	<p>MM TR-5 Overland Avenue. The parking time limit of adjacent streets should be lengthened to accommodate parking spaces being displaced on Overland Avenue.</p> <p>MM TR-6 Venice Boulevard. The loss of on-street parking on Venice Boulevard cannot be accommodated on adjacent streets due to the high overall parking demand in adjacent neighborhoods. Replacement parking would be required along the affected sections of</p>	All LRT: LTS

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		<p>Venice Boulevard. The potential replacement parking lots are listed below:</p> <p>MM TR-6(a) <i>South Side of Venice Boulevard, between Robertson Boulevard to Watseka Avenue.</i> Property would have to be acquired to provide replacement parking. A potential parcel at the southeast corner of Venice Boulevard and Main Street has been identified.</p> <p>MM TR-6(b) <i>North side of Venice Boulevard, between Robertson Boulevard and Watseka Avenue.</i> Property would have to be acquired to provide replacement parking. A potential parcel at the northeast corner of the Canfield Avenue and Venice Boulevard intersection has been identified.</p> <p>MM TR-6(c) <i>Venice Boulevard, between Watseka Avenue and Jasmine Avenue.</i> Property would have to be acquired to provide replacement parking. Potential parcels at the northwest and southwest corners of the Hughes Avenue/Venice Boulevard intersection have been identified.</p> <p>MM TR-6(d) <i>Venice Boulevard, between Jasmine Avenue and Glendon Avenue/Midway Avenue.</i> Property would have to be acquired to provide replacement parking. Potential parcels at the northwest corners of Venice Boulevard/Motor Avenue and Venice Boulevard/Keystone Avenue have been identified.</p>	

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		<p>MM TR-6(e) Venice Boulevard, between Glendon Avenue/Midway Avenue and Sepulveda Boulevard. Property would have to be acquired to provide replacement parking. Potential parcels on the south side of Venice Boulevard have been identified.</p> <p>MM TR-7 Sepulveda Boulevard. Replacement parking would be required along the affected portions of Sepulveda Boulevard. The potential replacement parking lots are listed below:</p> <p>MM TR-7(a) Sepulveda Boulevard, between Venice Boulevard and Charnock Road. Property would have to be acquired to provide replacement parking. Potential parcels at the northeast corner of Venice Boulevard and Sepulveda Boulevard, and northwest corner of Charnock Road (South) and Sepulveda Boulevard, have been identified.</p> <p>MM TR-7(b) Sepulveda Boulevard, between Charnock Road and Sepulveda Channel. Property would have to be acquired to provide replacement parking. Potential parcels at the northeast corner of Venice Boulevard and Sepulveda Boulevard, and northwest corner of Charnock Road (South) and Sepulveda Boulevard, have been identified.</p> <p>MM TR-7(c) Sepulveda Boulevard, between Sepulveda Channel and Clover Avenue. Property would have to be acquired to provide replacement parking. A potential parcel at the</p>	

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		<p>northwest corner of Clover Avenue and Sepulveda Boulevard has been identified.</p> <p>MM TR-7(d) <i>Sepulveda Boulevard, between Clover Avenue and I-10.</i> Property would have to be acquired to provide replacement parking. Potential parcels on the west side of the street have been identified.</p> <p>MM TR-7(e) <i>Sepulveda Boulevard, between I-10 and Exposition Boulevard.</i> Property would have to be acquired to provide replacement parking. Potential parcels along the east side of the street have been identified.</p> <p>MM TR-8 <i>Olympic Boulevard (20th Street to Euclid Street).</i> Property would have to be acquired to provide replacement parking. Potential parcels at the southwest corners of 17th Street/Olympic Boulevard and 16th Street/Olympic Boulevard have been identified.</p> <p>MM TR-9 <i>Colorado Avenue.</i> Replacement parking would be required along the impacted portions of Colorado Avenue. The potential replacement parking lots are listed below:</p> <p>MM TR-9(a) <i>South side of Colorado Avenue, between 14th Street and 11th Street.</i> Property would have to be acquired to provide replacement parking. Potential parcels on the south side of Colorado Avenue between 18th Street and 16th Street have been identified.</p>	

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		MM TR-9(b) South side of Colorado Avenue, between 11 th Street and 4 th Street. Property would have to be acquired to provide replacement parking. Potential parcels at the southwest corner of Lincoln Boulevard and Colorado Avenue have been identified.	
3.3 Aesthetics			
<p>Implementation of the proposed project would result in an impact on a scenic vista, or damage or remove important aesthetic features (e.g., removal of vegetation originally intended to enhance the appearance of the constructed environment) as the result of the removal of coral trees in Segment 3 (Olympic) (LRT Alternatives 1 and 3).</p> <p>The Expo Authority will implement an urban design process that will endeavor to minimize community aesthetic impacts and allow for the transit system to become a source of civic pride. The urban design vision would be implemented with a focus on Landscaping and Station Design, Station Area Planning, fully integrated Vertical Elements, and Public Art.</p>	<p>LRT 1 & 3: S LRT 2 & 4: LTS</p>	<p>MM AES-1 Prior to the issuance of grading permits associated with construction along Olympic Boulevard of Segment 3 (Olympic), the Expo Authority shall consult with the City of Santa Monica to determine whether the coral trees could be relocated. If relocation is not feasible, the Expo Authority shall negotiate with the City of Santa Monica on tree replacement.</p>	<p>LRT 1 & 3: SU LRT 2 & 4: LTS</p>
<p>Implementation of the proposed project could substantially degrade the existing visual character or quality of the site and its surroundings. This is considered a potential impact for a portion of Segment 1 (Expo ROW) (LRT Alternatives 1 and 2) (i.e., Expo/Westwood Station site) and all of Segment 1a (Venice/Sepulveda) (LRT Alternatives 3 and 4) (i.e., visual dominance of the aerial structures).</p>	<p>All LRT: S</p>	<p>MM AES-2 In the event that a property acquisition along Segment 1a (Venice/Sepulveda) results in residential uses fronting directly onto a city street that was previously shielded by the acquired property, a barrier, such as fencing or landscaping, shall be installed where feasible to shield the existing residential uses from the reconfigured</p>	<p>All LRT: SU</p>

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
<p>For the Expo/Westwood Station, the Expo Authority will implement an urban design process that will endeavor to minimize community aesthetic impacts and allow for the transit system to become a source of civic pride. The urban design vision would be implemented with a focus on Landscaping and Station Design, Station Area Planning, fully integrated Vertical Elements, and Public Art. Nevertheless, given the substantial change in the character of this area, a significant impact will remain, which cannot be fully mitigated.</p> <p>For the area along Venice and Sepulveda Blvds., the opportunity for replacement landscaping is more limited due to right of way constraints. The Expo Authority will use the same design process described above, but a significant impact will remain, which cannot be fully mitigated.</p>		streetscape.	
3.7 Cultural Resources			
Implementation of the proposed project could result in impacts to previously unidentified archaeological resources that may be potentially eligible for the California Register.	All LRT: S	<p>MM CUL-1 This project involves ground-disturbing activities throughout the area defined as the archaeological APE. Because buried or otherwise obscured archaeological resources may be encountered, an archaeological monitoring program shall be implemented in accordance with the project's MOA.</p> <p>Archaeological monitoring of ground-disturbing activities shall be limited to those portions of the Expo ROW that are presently obscured by pavement and/or buildings and on Venice Boulevard where there exists a</p>	All LRT: LTS

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		<p>possibility of encountering archaeological remnants associated with the Venice Short Line. Monitoring shall be conducted by a qualified archaeological monitor who is working under the direct supervision of a Project Manager or Principal Investigator certified by the Register of Professional Archaeologists (RPA) (qualifications derived from 36 CFR Part 61). Ground-disturbing activities include, but are not limited to, pavement/asphalt removal, boring, trenching, grading, excavating, and the demolition of building foundations. The archaeological monitor will observe representative ground-disturbing activities in these locations to a depth of 3 feet. A preconstruction information and safety meeting should be held to make construction personnel aware of archaeological monitoring procedures and the types of archaeological resources that might be encountered.</p> <p>In the event archaeological resources are encountered during archaeological monitoring, the monitor may halt work in the immediate vicinity until the discovery is assessed by the project archaeologist and appropriate treatment determined. Additional monitoring recommendations may be made at that time. If archaeological resources are encountered by construction personnel in portions of the project area where a monitor is not present, work in the immediate vicinity</p>	

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		<p>shall be suspended until the project archaeologist investigates the discovery and determines appropriate treatment.</p> <p>In the event human remains are discovered, work in the immediate vicinity of the discovery will be suspended and additional measures will be implemented as required by state law.</p> <p>Prior to the commencement of construction activities, a Cultural Resources Discovery Plan shall be prepared describing treatment methods that will be implemented in the event archaeological resources are discovered during construction. The Discovery Plan may be part of the Historic Properties Treatment Plan (HPTP).</p> <p>Upon completion of all ground-disturbing activities associated with this project, an Archaeological Resources Monitoring Report shall be prepared documenting construction activities observed, including copies of all daily archaeological monitoring logs. If discoveries are made during ground-disturbing activities, the report will also document the associated cultural materials and the methods of treatment as determined appropriate by the archaeologist.</p>	
<p>Implementation of the proposed project would result in impacts to a proposed California Register–eligible archaeological resource, the Santa Monica Air Line.</p>	<p>All LRT: S</p>	<p>MM CUL-2 If it is determined from the SHPO consultation process that there will be adverse effects to California Register–eligible resources, including the Santa Monica Air Line segment, an MOA shall be prepared in</p>	<p>All LRT: LTS</p>

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		consultation with the SHPO. The MOA would define the actions of the Expo Authority in implementing the project. The Expo Authority shall prepare a HPTP to identify measures to reduce the project's adverse effects to significant cultural resources, including the Santa Monica Air Line segment. The HPTP will be submitted to the SHPO as part of the MOA consultation and may be appended to the MOA for reference.	
Implementation of the proposed project could result in a physical take of a portion of an eligible historic architectural resource, the Citizens State Bank at 10341 Venice Boulevard, and this would constitute a direct impact. A portion of the parcel could be acquired for the project, requiring alterations to the building itself. This impact could be avoided by selection of LRT Alternatives 1 or 2, or installation of a custom curb return and ramp.	LRT 3 & 4: S LRT 1 & 2: NI	MM CUL-3 If it is determined from the SHPO consultation process that there will be adverse effects to California Register-eligible resources, including the Citizens State Bank at 10341 Venice Boulevard, an MOA shall be prepared in consultation with the SHPO. The MOA would define the actions of the Expo Authority in implementing the project. The Expo Authority shall prepare a HPTP to identify measures to reduce the project's adverse effects to significant cultural resources. The HPTP will be submitted to the SHPO as part of the MOA consultation and may be appended to the MOA for reference.	LRT 3 & 4: LTS LRT 1 & 2: NI
Implementation of the proposed project may have an indirect impact on the setting of the historic Ivy Substation associated with the installation of aerial structures over Venice Boulevard in Segment 1 (Expo ROW) and Segment 1a (Venice/Sepulveda).	All LRT: S	MM CUL-4 If it is determined from the SHPO consultation process that there will be adverse effects to California Register-eligible resources, including the Ivy Substation at 9015 Venice Boulevard, a MOA shall be prepared by the Expo Authority in consultation with the SHPO. The MOA would	All LRT: LTS

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		define the actions of the Expo Authority in implementing the project. The Expo Authority shall prepare a HPTP to identify measures to reduce the project's adverse effects to significant cultural resources. The HPTP will be submitted to the SHPO as part of the MOA consultation and may be appended to the MOA for reference.	
3.10 Hydrology/Water Quality			
Implementation of LRT Alternative 1 and 2 could substantially alter the existing drainage pattern of the site or area in a manner that would cause substantial localized flooding, or increase runoff that would contribute to exceedance of the capacity of stormwater drainage systems.	LRT 1 & 2: S LRT 3 & 4: LTS	<p>MM WQ-1 The Expo Authority shall grade the Expo/Westwood Station and associated station parking facility and provide a stormwater drainage system with detention facilities and/or pervious pavement adequate to convey runoff from the Expo/Westwood Station during a 100-year storm event to prevent on-site flooding. The Expo Authority shall also implement stormwater detention facilities and/or pervious pavement for parking lots to reduce the off-site peak runoff from the Expo/Westwood Station and associated parking lots to existing condition levels. All detention facilities shall be designed to drain within 48 hours to minimize vector control and human safety concerns.</p> <p>The Expo Authority shall include these facilities and their design specifications in the engineering plans. Use of pervious pavement shall be consistent with the SUSMP and Municipal NPDES Permit limitations on infiltration BMPs. Construction and operation</p>	LRT 1 & 2: LTS LRT 3 & 4: LTS

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		of these BMPs shall be incorporated as part of the proposed project and subject to all applicable existing regulatory requirements.	
Implementation of LRT Alternatives 1 and 2 may place structures within a 100-year flood hazard area that could impede or redirect flood flows, or otherwise expose people and/or property to water-related hazards, such as flooding.	LRT 1 & 2: S LRT 3 & 4: NI	<p>MM WQ-2(a) The Expo Authority shall conduct a detailed topographic survey of the Segment 1 (Expo ROW) within the Federal Emergency Management Agency (FEMA)-defined 100-year flood hazard area, including Westwood Boulevard, and extending at least 50 feet beyond the proposed project ROW. The Expo Authority shall consult with the Los Angeles County Department of Public Works and/or FEMA to determine the current flood elevations within this area. The Expo Authority shall submit an application to FEMA for a LOMA, removing the proposed project alignment from the FEMA 100-year flood hazard area.</p> <p>OR:</p> <p>MM WQ-2(b) The Expo Authority shall design drainage and flood protection improvements to remove the portion of the LRT Alternative from the Federal Emergency Management Agency (FEMA)-defined 100-year flood hazard area. This shall include sufficient drainage structures to pass existing flood flow from areas up-gradient from the portion of the LRT Alternative to areas down-gradient, such that there is no net change in off-site flooding and flood flows or on storm drain system capacity. This may include rerouting of flood</p>	LRT 1 & 2: LTS LRT 3 & 4: NI

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		<p>waters from Westwood Boulevard at locations further north from the portion of the LRT Alternative to bypass the alignment corridor and Westwood Boulevard intersection.</p> <p>Prior to the beginning of construction activities, the Expo Authority shall submit to FEMA an application for and obtain a Conditional Letter of Map Revision (CLOMR) and shall implement all conditions imposed by FEMA. The CLOMR would ensure that the project design is sufficient for removing the portion of the LRT Alternative from the 100-year flood hazard area. Prior to the beginning of operation, the Expo Authority shall obtain a Letter of Map Revision (LOMR), and potentially a No Rise Certificate, indicating that construction and implementation of the designed improvements have been conducted in accordance with the CLOMR and FEMA requirements and that the proposed project alignment corridor has been effectively removed from the 100-year flood hazard area.</p> <p>Implementation of Segment 1 (Expo ROW) would use fill material, or place other structures (such as station platforms) in the floodplain, that could impede flood flows or reduce flood storage capacity. Therefore, MM WQ-2(b) shall not include use of fill material within an existing floodplain unless sufficient additional detention and flood storage is also provided. Any detention used</p>	

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		<p>as part of the flood improvements shall be designed to drain within 48 hours to minimize vector control and human safety issues.</p> <p>The Expo Authority shall include any facilities used for flood improvements and their design specifications in the engineering drawings. As such, construction and operation of these facilities shall be incorporated as part of the proposed project and subject to existing regulatory requirements.</p>	
3.12 Noise and Vibration			
<p>The proposed project could expose the public to, or generate, noise levels in excess of standards established by the Federal Transit Administration (FTA) noise impact criteria during the operational phase.</p>	<p>All LRT: S</p>	<p>MM NOI-1 Solid, impervious objects that block the direct path between the sound source and the receiver shall be installed to reduce the sound level at the receiver, with sound walls being the preferred option. Sound walls are a common noise mitigation measure and have been widely used on highways and on rail transit lines. Alternatively, the Expo Authority may construct a landscaped berm parallel to the rail line or use low berms with a low wall along the top. As long as the wall, berm, or berm/wall combination reaches the same elevation, the acoustical performance will be equivalent. Except where noise impacts are due to special trackwork at crossovers and turnouts, the predicted noise impact can be eliminated with sound walls or berms that extend to heights of:</p> <ul style="list-style-type: none"> • 6 to 8 ft above the top of rail for ballast and tie track sections 	<p>All LRT: LTS</p>

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		<ul style="list-style-type: none"> • 3.5 to 4 ft above the top of rail on aerial structures <p>The wall heights can be reduced by 6 to 12 inches if an acoustically absorbent surface treatment is used on the track side of the wall.</p> <p>Additionally, in areas where crossovers would be located near sensitive receptors, low-impact frogs may be either an alternative to sound walls or supplemental measure to sound walls. There are several different types of low-impact frogs that could be used.</p> <p>If during Final Engineering or Operations it is determined that measures described above are not practicable or do not provide sufficient noise mitigation, the Expo Authority or Metro, as appropriate, shall provide for sound insulation of residences and other noise-sensitive facilities as a another alternative that could be used. Sound insulation involves upgrading or replacing existing windows and doors, and weather stripping windows and doors. Installing a mechanical ventilation system may be needed so that windows do not need to be opened for ventilation.</p> <p>MM NOI-2 The volume of crossing bells shall be reduced to the bottom of the CPUC-approved range. This step is sufficient to reduce the bell noise to below the applicable FTA impact thresholds.</p> <p>MM NOI-3 If wheel squeal occurs that is</p>	

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		<p>sufficient to cause community noise levels that exceed the applicable FTA moderate impact thresholds, measures to reduce wheel squeal, such as rail or wheel lubrication, will be considered by Metro. If, by the end of the first year of service, noise from wheel squeal cannot be reduced to below the FTA moderate noise impact thresholds, the noise mitigation measures discussed in measure MM NOI-1 would be applied to further reduce levels of wheel squeal so that the levels are below the FTA moderate impact thresholds. No additional mitigation is required.</p> <p>MM NOI-4 Noise levels would be sufficient to warrant mitigation at 7 of the 15 proposed TPSS sites. All noise impacts can be eliminated by (1) specifying a noise limit of 44 dBA at 50 ft from any part of the TPSS units that would be used at sites 1, 2, 3, 8, 10, 12, and 13, and (2) locating the TPSS units at sites 1 and 2 at a minimum of 20 ft from the closest residential land use.</p> <p>MM NOI-5 An 8- to 10-foot-high sound wall shall be installed along the southern property line of the Maintenance Facility. The wall height can be reduced to 6 to 8 feet high if the car wash and blowdown facilities are designed to generate lower noise levels than standard facilities. This can be achieved through the use of silencers on compressors and fans, minimizing openings on the south side of the blowdown and car wash buildings,</p>	

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		and constructing the south walls of the facilities of masonry, brick, or wood studs with insulation in the cavities instead of sheet metal.	
The proposed project could expose the public to, or generate, groundborne vibration, groundborne noise levels, or vibration levels in buildings exceeding the FTA vibration impact criteria during the operational phase.	All LRT: S	<p>MM NOI-6 Further site-specific testing shall be performed during the Preliminary Engineering Design where potential for vibration impact has been identified. Where vibration impact is still predicted, the vibration energy transmitted into the ground shall be decreased by (1) use of low impact frogs to reduce the banging at special trackwork, and/or (2) installation of a resilient layer between the tracks and the ground. There are a number of different approaches to installing resilient elements in track to reduce vibration. Vibration-reducing design specifications for the track sections shall be determined in consultation with a qualified vibration scientist or engineer during the design phase.</p> <p>The specific locations where vibration mitigations are expected to be required are listed in Table 3.12-20 (Vibration Mitigation Locations). Final type, location, and extent of such mitigations will be determined in Final Design.</p>	All LRT: LTS
The proposed project could cause a substantial permanent increase in ambient noise levels in the project vicinity.	All LRT: S	MM NOI-1, MM NOI-2, MM NOI-3, MM NOI-4, and MM NOI-5 , listed above.	All LRT: LTS

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
3.13 Paleontological Resources			
Implementation of the proposed project could disturb or destroy unique paleontological resources or sites.	All LRT: S	<p>MM PAL-1 The Expo Authority shall retain a qualified paleontologist to prepare and implement a Paleontological Resources Management Plan (PRMP) to the standards detailed in the <i>Paleontological Resources Technical Background Report</i>.</p> <p>Monitoring is required at the surface and below of Segment 1 (Expo ROW) from station 540+00 to 600+00, Segment 1a (Venice/Sepulveda) from station 615+00 to 635+00, Segment 3 (Olympic) from station 790+00 to 855+00, Segment 3a (Colorado) from station 830+00 to 855+00 where there are known surface exposures of Quaternary old alluvial fan deposits of high paleontological sensitivity.</p> <p>In other project areas, the paleontologist will examine subsurface work to adjust monitoring to cover Quaternary old alluvial fan sediments only.</p> <p>Upon completion of all monitoring and mitigation activities, the paleontologist will submit a final report to the Expo Authority summarizing the work and confirming that all recommendations were implemented.</p>	All LRT: LTS

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
3.14 Parks and Community Facilities			
Implementation of the proposed project may disrupt community facilities and services through a reduction in access to facilities or cause a substantial alteration of service areas.	All LRT: S	MM PAR-1 For those community facilities that utilize on street parking, the Expo Authority shall provide reasonably proximate parking to replace permanently lost parking spaces. Prior to construction of the proposed project, the Expo Authority shall complete a parking demand study for affected community facilities to determine the appropriate amount of parking replacement that would be required. The location of the replacement parking would be in accordance with the requirements listed in MM TR-5 through MM TR-9(b) in Section 3.2 (Transportation/Traffic) listed above.	All LRT: LTS
3.15 Safety and Security			
Implementation of the proposed project could substantially limit the delivery of community safety services, such as police, fire, or emergency services, to locations along the proposed alignments.	All LRT: S	MM SAF-1 During operation of the LRT Alternatives, Metro shall coordinate with the cities of Culver City, Santa Monica, and Los Angeles and inform the appropriate community safety provider of Metro's emergency response procedures as incorporated into Metro's standard operating procedures. Metro shall provide a detailed description of their emergency response procedures so as to provide other public safety providers with the knowledge of Metro's response plan in order to provide a fast, controlled and coordinated response to the various types of emergencies that may occur on the Metro rail system. Additionally,	All LRT: LTS

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		Metro shall encourage the cities of Culver City, Los Angeles, and Santa Monica to update their emergency response procedures to address implementation of an LRT Alternative.	
4.0 Construction			
Transportation/Traffic			
The construction of the proposed project could result in the closure of one or more lanes of a major traffic-carrying street for an extended period of time during construction (one month or more).	LRT 2, 3 & 4: S LRT 1: NI	<p>MM CON-1 To ensure that continued vehicular access to community facilities is maintained, the Expo Authority shall provide at least one lane of traffic in each direction on access cross streets that are not going to be dead-ended during construction. If one lane of traffic cannot be maintained, the Expo Authority shall provide a detour route for motorists.</p> <p>MM CON-2 Before the start of construction, Worksite Traffic Control Plans (WTCP) and Traffic Circulation Plans, including identification of detour requirements, will be formulated in cooperation with the City of Los Angeles, City of Santa Monica, Culver City and other affected jurisdictions (County, State) in accordance with the Work Area Traffic Control Handbook (WATCH) manual and Manual on Uniform Traffic Control Devices (MUTCD) as required by the relevant municipality. The WTCPs will be based on lane requirements and other special requirements defined by the Los Angeles City Department of Transportation (LADOT), the</p>	LRT 2, 3 & 4: LTS LRT 1: NI

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		<p>City of Santa Monica, and Culver City for construction within their city and from other appropriate agencies for construction in those jurisdictions.</p> <p>MM CON-3 No designated Major or Secondary Highway will be closed to vehicular or pedestrian traffic except at night or on weekends, unless approval is granted by the jurisdiction in which it is located.</p>	
Construction activities for the proposed project could result in the diversion of traffic through residential areas.	All LRT: S	<p>MM CON-2 Listed above.</p> <p>MM CON-4 The Expo Authority's contractor will develop preferred haul route plans for the removal of excavated material. Construction will be scheduled and haul routes will be planned to minimize conflicts during school arrival and dismissal times.</p> <p>MM CON-5 The Expo Authority will coordinate with other major construction projects within a 1-mile radius of the construction site to avoid, to the maximum extent practicable, overlapping haul routes with other public or private construction projects.</p>	All LRT: LTS
Construction activities for the LRT Alternatives could result in the long-term loss (three months or more) of parking or pedestrian access that is essential for continued operation of business during construction.	All LRT: S	MM CON-6 Unless otherwise specified in the worksite traffic control plan, the Expo Authority shall maintain access to the businesses that rely on on-street parking and pedestrian access during construction. If it is necessary to temporarily restrict access to a business, the Expo Authority shall provide the	All LRT: LTS

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		<p>facility advance notice of restrictions. Unless otherwise specified in the worksite traffic control plan, the Expo Authority shall schedule access restrictions to off-peak hours or during times when the business is closed and shall not fully restrict access for the total hours of operation of a business on any given day of operation.</p> <p>MM CON-7 Relative to maintaining access to businesses, construction activities shall be sequenced to minimize the temporary removal of multiple blocks of on-street parking at one time unless otherwise specified by the worksite traffic control plan.</p> <p>MM CON-8 Contractors shall use temporary special signage to inform the public of closure information in advance of temporary closures. Signage shall also provide special access directions, if warranted.</p>	
Aesthetics			
<p>Implementation of the proposed project could substantially degrade the existing visual character or quality of the site and its surroundings for a portion of Segment 1 (Expo ROW) (LRT Alternatives 1 and 2) (i.e., the Sara Berman Greenway).</p>	<p>LRT 1 & 2: S LRT 3 & 4: NI</p>	<p>MM CON-9 To the extent possible, the Expo Authority shall protect the Sara Berman Greenway during construction of Segment 1 (Expo ROW) (LRT Alternatives 1 and 2), including the placement of a construction barrier around the perimeter of the Greenway, and notifying contractors of restrictions. Substantial damage to the Greenway caused by construction activities shall be repaired as appropriate during or after the course of construction, which could include the</p>	<p>LRT 1 & 2: LTS LRT 3 & 4: NI</p>

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		provision of replacement landscaping.	
Air Quality			
Peak construction activities associated with the proposed project could generate emissions that exceed SCAQMD thresholds. Compliance with SCAQMD Rule 403 would reduce this impact; however, SCAQMD thresholds would still be exceeded.	All LRT: S	None	All LRT: SU
The LRT Alternatives would result in a cumulatively considerable net increase of the criteria pollutant (NO _x) during construction activities for which the project region is classified non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors). Compliance with SCAQMD Rule 403 would reduce emissions, but not NO _x emissions to a level below the threshold of impact established by the SCAQMD.	All LRT: S	None	All LRT: SU
Construction activities associated with the LRT Alternatives would generate emissions that could result in an exceedance of localized significance thresholds (LST) established by the SCAQMD, and, therefore, could expose sensitive receptors to substantial pollutant concentrations. Implementation of Rule 403 BMPs would reduce localized pollutant levels for all regulated pollutants except PM ₁₀ . PM ₁₀ levels would still exceed the established thresholds. The contractor(s) would be required to employ best practices to minimize diesel emissions, but no feasible measures exist today that would achieve the	All LRT: S	None	All LRT: SU

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
standards on large construction projects.			
Biological Resources			
Implementation of the proposed project could result in an impact on MBTA protected species and/or avian species protected under Section 3503 of the Fish and Game Code.	All LRT: S	<p>MM CON-10 During construction of the proposed project, the removal of trees, shrubs, or weedy vegetation should be avoided during the February 1 through August 31 bird nesting period. If the removal of trees, shrubs, or weedy vegetation were to occur during the nesting period, a survey for nesting birds shall be conducted by a qualified wildlife biologist no earlier than 14 days prior to the removal of trees, shrubs, grassland vegetation, buildings, or other construction activities. Survey results shall be valid for 21 days following the survey. The area surveyed should include all construction areas with the potential to support nesting birds protected by the MBTA and/or Section 3503 of the <i>Fish and Game Code</i>, as well as areas within 75 feet of the boundaries, as practicable or as determined by the biologist in the field, of the areas to be cleared or as otherwise determined by the biologist. If no vegetation or tree removal is proposed during the nesting period, no surveys would be required.</p> <p>In the event that an active nest is discovered in the areas to be cleared, or in other habitats within 75 feet of construction boundaries, clearing and construction should be postponed within this area for at least two</p>	All LRT: LTS

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		weeks or until a wildlife biologist has determined that the young have fledged (left the nest), the nest is vacated, and there is no evidence of second nesting attempts. Other buffers or construction requirements may be determined by the wildlife biologist in the field as practicable.	
Land Use/Planning			
Implementation of the proposed project would result in the physical division of a community through temporary access restrictions.	All LRT: S	MM CON-6 Listed above.	All LRT: LTS
Noise and Vibration			
The proposed project could expose the public to, or generate, noise levels in excess FTA noise impact criteria and <i>Metro Design Criteria</i> during the construction phase.	All LRT: S	MM CON-13 The Expo Authority's contractor shall develop a Noise Control Plan demonstrating how he will achieve the more restrictive of the <i>Metro Design Criteria</i> noise limits and the noise limits of the city noise control ordinance. The plan shall include measurements of existing noise, a list of the major pieces of construction equipment that will be used, and predictions of the noise levels at the closest noise-sensitive receptors (residences, hotels, schools, churches, temples, and similar facilities). The Noise Control Plan will need to be approved by the Expo Authority prior to initiating construction. Where the construction cannot be performed in accordance with the requirements of the Metro or applicable city noise limits, the contractor shall investigate alternative	All LRT: LTS

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
		<p>construction measures that would result in lower sound levels. The contractor shall conduct noise monitoring to demonstrate compliance with contract noise limits.</p> <p>MM CON-14 The contractor shall utilize a combination of the following options of best management practices for noise abatement to comply with the <i>Metro Design Criteria</i>:</p> <ul style="list-style-type: none"> • The contractor shall utilize specialty equipment equipped with enclosed engines and/or high-performance mufflers as commercially available. • The contractor shall locate equipment and staging areas as far from noise-sensitive receptors as possible. • The contractor shall limit unnecessary idling of equipment. • The contractor shall install temporary noise barriers as determined by the Noise Control Plan. • The contractor shall reroute construction-related truck traffic away from residential streets to the extent permitted by the relevant municipality. • The contractor shall avoid impact pile driving where possible. Where geological conditions permit their use, drilled piles or a vibratory pile driver is generally quieter. 	

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
Parks and Community Facilities			
Implementation of the proposed project may disrupt community facilities and services through a reduction in access to facilities or cause a substantial alteration of service areas.	All LRT: S	<p>MM CON-1 Listed above.</p> <p>MM CON-15 Unless otherwise specified in the worksite traffic control plan, the Expo Authority shall maintain vehicular and pedestrian access to the identified community facilities (refer to Table 4.6 4 [Access, Parking, and Service Area Impacts on Community Facilities]) during construction. If it is necessary to temporarily restrict access to a community facility, the Expo Authority shall provide the facility notice of any restriction. Unless otherwise specified in the worksite traffic control plan, the Expo Authority shall schedule access restrictions to off-peak hours or during times when the community facility is closed and shall not restrict access for the total hours of operation of a community facility on any given day of operation.</p> <p>MM CON-16 Near the identified community facilities construction activities shall be sequenced to minimize the temporary removal of multiple blocks of on-street parking at one time unless otherwise specified by the worksite traffic control plan</p>	All LRT: LTS
Safety and Security			
Implementation of the proposed project could substantially limit the delivery of community safety services, such as police, fire, or emergency services,	All LRT: S	MM CON-17 The Expo Authority shall maintain access to all police and fire stations at all times during construction.	All LRT: LTS

Table 8 Summary of All Impacts and Proposed Mitigation for LRT Alternatives

Impact	Significance Before Mitigation by Alternative	Mitigation Measures	Significance After Mitigation by Alternative
to locations along the proposed alignments.		MM CON-18 During construction of the LRT Alternatives, the Expo Authority shall coordinate with the cities of Culver City, Santa Monica, and Los Angeles and inform the appropriate community safety provider of the construction emergency response procedures as incorporated into the Contractor's Systems Safety Program Plan. The Plan will include a detailed description of all emergency response procedures that shall be implemented by the contractor, so as to provide other public safety providers with the knowledge of the contractor's response plan in order to provide a fast, controlled, and coordinated response to the various types of emergencies. Additionally, the Expo Authority shall encourage the cities of Culver City, Santa Monica, and Los Angeles to update their emergency response procedures to address construction of the LRT Alternatives.	
Socioeconomics			
Construction of the proposed project could disrupt a business for a period of three months or more.	All LRT: S	MM CON-1, MM CON-2, MM CON-3, MM CON-13, and MM CON-14 listed above.	All LRT: LTS

KEY:
 NI = No Impact
 B = Beneficial Impact
 S = Significant or Potentially Significant Impact (before mitigation)
 LTS = Less Than Significant (below threshold either before or after mitigation)
 SU = Significant Unavoidable Impact (mitigation would not reduce to less than significant)

Figure 1 Project Map—By Segment

Source: EXPO, 2008.



