

Memorandum

To: Chairman and Commissioners

Date: April 20, 2001

From: Robert I. Remen

File No:
Book Item 2.2b
Action

Ref: Draft Supplemental Environmental Impact Statement/Report on the Los Angeles Eastside Corridor Project

Issue:

Should the Commission comment on the Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR) for the proposed Los Angeles Eastside Corridor Transit light rail transit (LRT) project by the Los Angeles County Metropolitan Transportation Authority (MTA)?

Recommendation:

According to the Draft SEIS/SEIR, only one of the three LRT options can be funded with the \$759.5 million estimated to be available in federal and state funding sources for the proposed project. The least expensive option would use \$441 million in federal funds and \$236 million in Traffic Congestion Relief Program funds from AB 2928 (Torlakson, 2000) for \$677 million or 89.1 % of the \$759.5 million needed. The remaining 10.9% would come from locally controlled federal CMAQ (Congestion Mitigation and Air Quality Program) and RSTP (Regional Surface Transportation Program) funding for \$77.1 million (10.2%) and \$5.2 million (0.7%) from the regional portion of the STIP. The other two options' capital cost, interest financing and cash flow needs would exceed the \$759.5 million by at least \$31 to \$95 million.

Given the relatively modest commitment of locally controlled funds (\$82.3 million or 10.9% of the total funding) to the Eastside Corridor extension, staff would recommend that the Commission, as a responsible agency, make the following comment on the Draft SEIS/SEIR:

- MTA should only consider the light rail option that can be fully funded by the revenues available; or
- Should MTA select the second or third option over the first option, then MTA should commit to using a local funding source to fully fund the project.

Background:

Project Description: The preferred alternative is a 6-mile, eight station light rail line physically connected to the Pasadena Blue Line at Union station (see maps, Figures S1 and S3). The line would then extend eastward from Union Station on the surface along 1st and then 3rd Streets, going underground between Utah Street and Lorena Street, resurfacing and ending at Atlantic

and Beverly Boulevard. The light rail alternative includes three rail alignment options near Lorena and Hicks Streets. Two options are surface options, where the parking is removed or additional right-of-way is acquired. The third option would extend the proposed subway portion of the light rail line an additional 3000 feet. The preferred alternative also includes as part of its capital and operational cost an estimated 40 peak-period buses to serve the light rail stations. A storage and maintenance facility is also proposed for the light rail extension and three sites are identified.

The operating characteristics of the LRT would be for 5-minute peak service and 12-minute off-peak service. Buses would connect to all the stations along the line. At-grade speeds would be up to 35 mph and 55 mph in the subway portion. Average travel time ranges between 15 minutes for the extended subway option and 15.5 minutes for the two surface alignment options.

Estimated Project Cost: The cost of the three options is shown in the following chart in 1999 dollars and in expenditure year dollars. **The total estimated project cost is \$759.5 million, which includes \$714.6 million in capital costs and \$44.9 million to cover interest costs and cash flow needs.** All of the funding would come from committed federal and state funds anticipated to be available. No local transportation sales tax funds are committed to this project.

Capital Cost Estimates for the Eastside Corridor Light Rail Alternatives (Interest costs and cash flow needs are not included)						
Cost Category	LRT Option 1		LRT Option 2		LRT Option 3	
Alignment difference	Parking removed on Indiana Street		Acquire add'l right-of-way on Indiana Street		Extended tunnel & underground station	
	1999 \$ Millions	Expenditure Year \$ Millions	1999 \$ Millions	Expenditure Year \$ Millions	1999 \$ Millions	Expenditure Year \$ Millions
Preliminary Engineering	\$ 10.0	\$ 10.4	\$ 10.0	\$ 10.4	\$ 12.0	\$ 12.7
Final Design	\$ 24.0	\$ 25.9	\$ 24.0	\$ 26.1	\$ 28.1	\$ 30.6
Right-of-way	\$ 38.0	\$ 41.9	\$ 48.3	\$ 53.9	\$ 38.0	\$ 42.2
Construction	\$401.9	\$463.2	\$403.2	\$476.2	\$487.3	\$ 581.0
Vehicles	\$ 90.0	\$104.0	\$ 90.0	\$105.3	\$ 90.0	\$ 107.9
Contingency	\$ 60.4	\$ 69.2	\$ 63.3	\$ 73.8	\$ 67.7	\$ 80.1
Total Capital Cost	\$624.3	\$714.6	\$638.8	\$745.7	\$723.1	\$ 854.5
Operations Begin		November 2006		November 2006		November 2008

The operating costs are expected to be the same for the 3 options and are estimated to cost about \$22.5 million/year in 1999 dollars. \$11 million would be used to support light rail service, while the remaining \$11.5 million would be used for increased bus service to support the rail service.

Environmental Impact of the Light Rail Transit Project: Attached are two tables (Table S-7 and S-8) from the Draft SEIS/R that identify the impacts from the proposed LRT alternative and

the maintenance station options. Under the California Environmental Quality Act, the following unavoidable significant impacts are expected to occur with the LRT alternative:

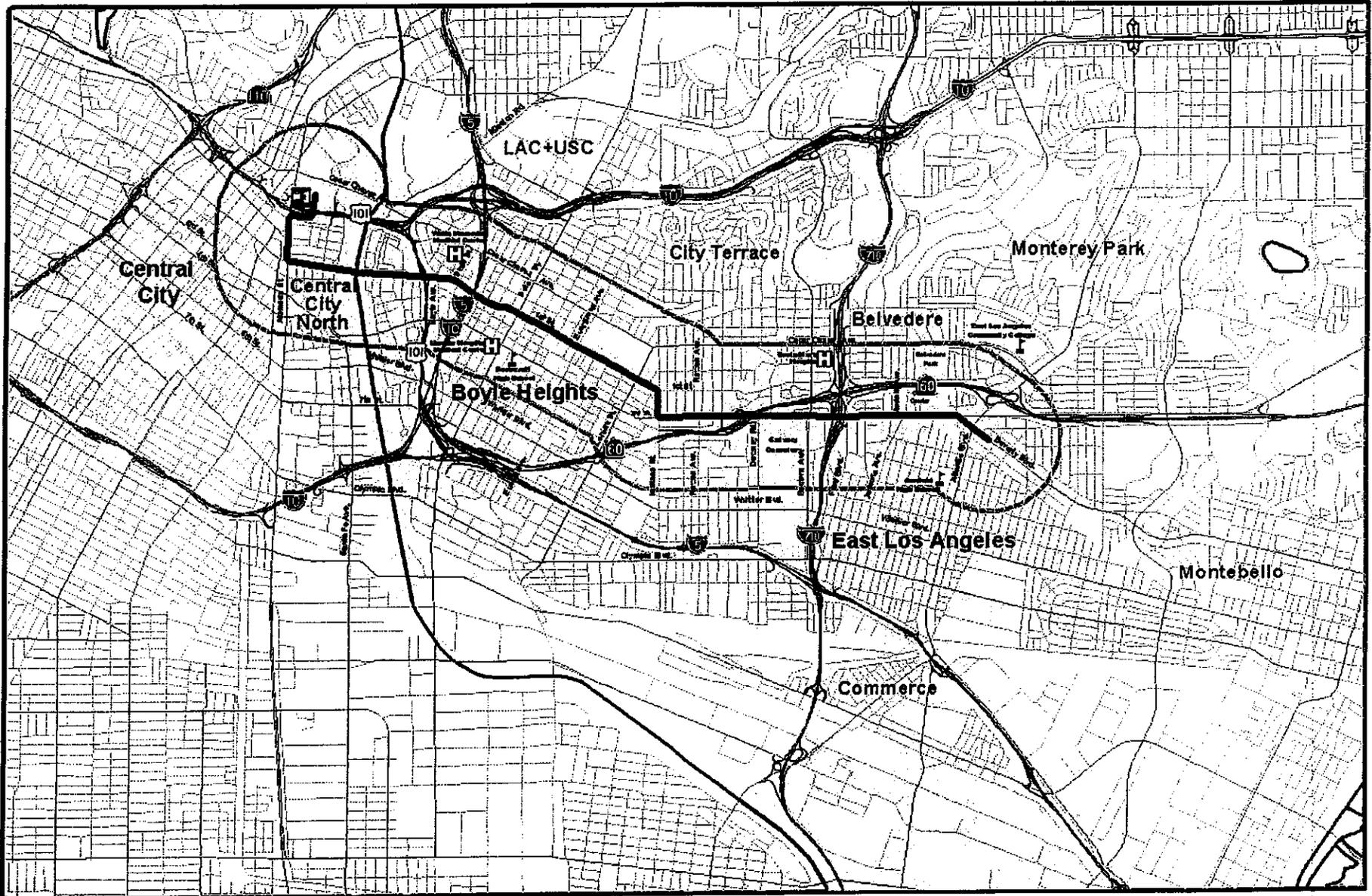
- The project will require property acquisition and relocation of residents and businesses. The high housing demand and low vacancy rate in the area may limit the availability of comparable replacement housing, resulting in some residents relocating outside the corridor.
- 14 traffic intersections in the project area will be impacted by this alternative.
- Tunneling during construction of the subway segment may result in destruction of fossils.
- Temporary impacts during construction are possible with regard to parking losses, traffic lane closures, potential bus stop relocations, partial daytime side walk closures, total nighttime sidewalk closures, potential bus stop relocations, and traffic patterns due to movement of general construction traffic.
- Temporary air quality, noise, and vibration impacts are also possible during construction.

Historical and Financial Background: In 1994, MTA selected, as its preferred alternative for the Eastside Corridor, an extension of the Red Line heavy-rail subway. Construction started in 1997; it was suspended in 1998 due to a massive funding shortfall on the local level. (Newspaper accounts reported the shortfall to be at least \$1 billion.) The Federal Transit Administration (FTA) and the Commission expressed their concerns over MTA's ability to deliver the Red Line subway extensions to North Hollywood, Eastside and Mid-City, as well as the Pasadena Blue light rail line. As a result, MTA met with its funding partners, FTA and the Commission, to discuss how it would accomplish its plans with the funding available. Ultimately, MTA was required to show that its revised capital plan would fund and complete the proposed projects within the agreed upon schedule and funding available. After MTA restructured its capital financing plan, it adopted in May 1998 its Restructuring Plan for completing the Red Line North Hollywood extension and the Pasadena Blue light rail line. MTA suspended its Eastside Corridor and Mid-City rail extensions. The Plan also called for studying viable and effective options in Los Angeles County for the corridors in which rail projects had been suspended. With the Eastside corridor, this meant an examination of alternative fixed guideway options to the suspended heavy rail subway project.

In late 1998, MTA completed a Regional Transit Alternatives Analysis that reviewed all of the alternatives in previous environmental documents, proposed at public hearings, and suggested by interested parties. Alternatives considered included heavy subway rail, light rail, bus rapid transit, a combination heavy rail and bus rapid transit, a low cost alternative (transportation systems management – TSM), and no project. (TSM and the no project alternative are always considered in an environmental document.)

A number of criteria were used by MTA to reduce the 47 “guideway” alternatives proposed. Some crucial factors used in the winnowing process were the funding available (from FTA, the state, and local revenues), the decision by Los Angeles voters to forgo further subway expansions, community issues, mobility factors and previous decisions based on policy, legislation or judgments.

The narrowed field of eight “guideway” alternatives for the Eastside corridor included bus rapid transit alternatives, light rail alternatives and heavy rail alternatives, which were studied in the Re-Evaluation Major Investment Study. For the Draft SEIS, MTA initially focused on bus rapid alternatives and light rail alternatives, if funding was available. In June 2000, MTA decided to limit further the number of “guideway” alternatives to LRT with the availability of \$236 million in State Traffic Congestion Relief Program funding, which gave MTA the last increment of funding needed to fully fund Option 1 of the LRT alternatives. (Of the \$236 million available, the Commission approved two MTA applications in December 2000 and January 2001 totaling \$19.5 million for environmental and preliminary engineering, which would be used to prepare a design/build proposal by December 2001.)



Los Angeles Eastside Corridor SEIS/SEIR

Eastside Corridor Study Area



Figure S-1

0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

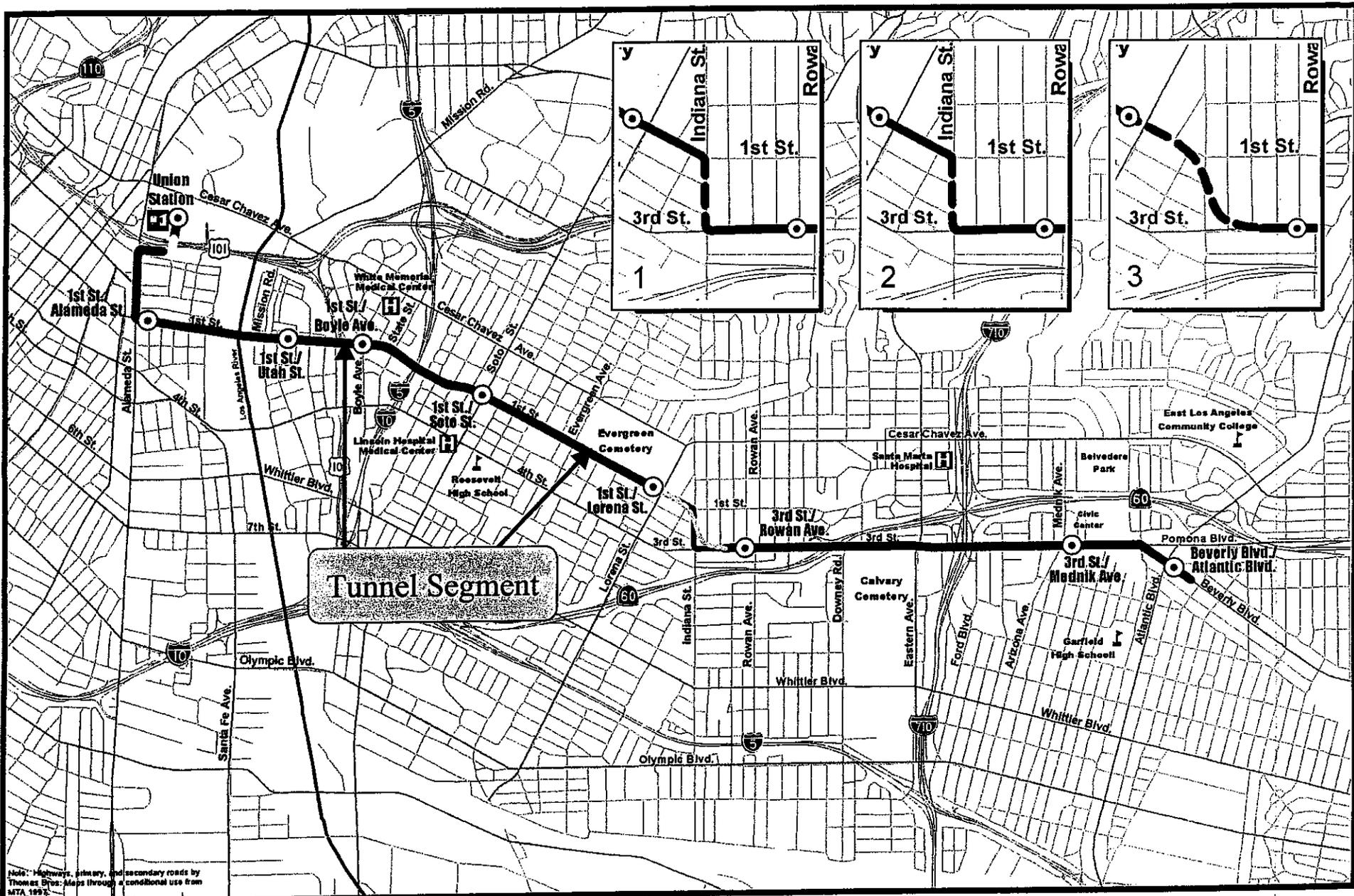
Legend

- Eastside Corridor
- SEIS Project Study Area
- LRT Alignment
- Highway
- Primary Road
- Secondary Road
- River

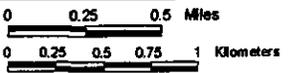
M Eastside Corridor
Transit Consultants

Note: Highways, primary, and secondary roads by Thomas
Reed, Maps Through Conditional Use from MTA 1997.

August 2, 2000



Note: Highways, primary, and secondary roads by Thomas Bros. Maps through a conditional use from MTA, 1992.



LEGEND

- | | | |
|----------------|---|------------------|
| ○ Stations | ① — Indiana Street Remove Parking Option | — Highway |
| — At Grade | ② — Indiana Street Acquire Additional Right-of-Way Option | — Primary Road |
| — Tunnel | ③ — Extended Subway Option | — Secondary Road |
| — Elevated | | |
| □ Options Area | | |

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
TRANSPORTATION				
Transit				
No-Build	Transit service performance expected to decrease due to increased traffic congestion because no significant improvements to transit service would be made.	N/A	N/A	N/A
LRT Build	<ul style="list-style-type: none"> ◆ Ridership will increase in the corridor. 2020 Eastside LRT daily transit boardings = 15,230 ◆ A premium transit service would be introduced that is regionally serving and provides improved service reliability and reduced transit travel times. ◆ Greater access to regional transit opportunities and improved regional transit connectivity will be provided. ◆ Some bus routes would be rerouted to provide improved access to LRT. ◆ 3 Monterey Park routes (1, 2, and 5) will be extended south on Atlantic to the Beverly/Atlantic Station to provide convenient access to Monterey Park, Atlantic Square Shopping Center, and East LA College. ◆ Some bus stops may be relocated to provide better interface with the LRT stations. 	<p align="center">Beneficial</p> <p align="center">Beneficial</p> <p align="center">Beneficial</p> <p align="center">Not significant</p> <p align="center">Beneficial</p> <p align="center">Potentially significant</p>	<p align="center">None required.</p> <p align="center">◆ Replacement bus stops would be designated within 1/8 mile of original stop.</p>	<p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p> <p align="center">N/A</p> <p align="center">Less than significant</p>
Traffic				
No-Build	No impacts anticipated.	N/A	N/A	N/A
LRT Build	<p>54 traffic intersections in study area were evaluated to determine 2020 levels of service (LOS). The results are:</p> <ul style="list-style-type: none"> ◆ 32 intersections would not be adversely affected. ◆ 22 intersections would be adversely affected. 	<p align="center">Not significant</p> <p align="center">Significant</p>	<ul style="list-style-type: none"> ◆ None required. ◆ Mitigation consists of one or more of the following measures: restripe approaches; prohibit left-turns; incorporate into ATSAC system; signalize unsignalized intersections; or impose peak hour parking restrictions. 	<p align="center">N/A</p> <p align="center">8 intersections- Less than significant</p> <p align="center">14 intersections- significant</p>
Parking				
No-Build	No impacts anticipated.	N/A	N/A	N/A

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
LRT Build Option 1 Option 2 Option 3	<ul style="list-style-type: none"> ◆ 131 spaces removed in AM peak, 188 spaces removed off-peak, and 140 spaces removed in PM peak. All losses on 1st or Indiana. ◆ 83 spaces removed in AM peak, 140 spaces removed off-peak, and 94 spaces removed in PM peak. All losses on 1st. ◆ 54 spaces removed in AM peak, 111 spaces removed off-peak, and 65 spaces removed in PM peak. All losses on 1st. 	Potentially significant	MTA is committed to implementing a feasible parking replacement plan. Possible measures to replace parking include: <ul style="list-style-type: none"> ◆ Acquire vacant parcels on 1st between Alameda and Vignes. ◆ Work with City Housing Authority to develop parking at the Pico Aliso redevelopment project or purchase other property in the area. ◆ Develop MTA-owned land at 1st/Lorena for parking. (Options 1 and 2 only) ◆ Acquire land along Indiana St. (Option 1 only). 	Less than significant
Other Modes				
No-Build	No impacts on bicycle or pedestrian facilities anticipated.			
LRT Build Option 1 Option 2 Option 3	<ul style="list-style-type: none"> ◆ Possibility of conflicts between trains and pedestrians at the 2 tunnel portals if pedestrians attempt to enter tunnel or if pedestrians or cyclists make unsafe street and track crossings at unsignalized locations. ◆ Sidewalks narrowed 4 feet at 1st/Utah and 1st/Lorena Stations; narrowed 2 feet on west side of Indiana Street. ◆ The proposed Commuter Bikeway on 1st Street may not be classified as such because of the increased curb lane traffic volumes. ◆ Bicyclists on Indiana affected by the removal of curb parking and the narrowing of traffic lanes. ◆ Bicyclists on 3rd Street affected by the removal of one lane in each direction. ◆ Similar to Option 1, except no impacts on Indiana Street. ◆ Similar to Option 2, except sidewalks would not be narrowed along 1st Street in the vicinity of the extended subway segment east of Lorena Street. 	Potentially significant Potentially significant Significant Less than significant Less than significant See Option 1 See Option 1	Possible strategies include: <ul style="list-style-type: none"> ◆ Use signalized crossings, pedestrian crosswalks, well-defined pedestrian paths, signage, and barriers where appropriate to discourage unsafe pedestrian crossings. ◆ Develop MTA-funded Community Linkages Studies to provide pedestrian and bicyclists linkages from neighborhoods to LRT stations. ◆ Provide rail safety programs and crossing guards to the schools where needed. ◆ Provide watch patrols, distinctive signs or lights, or install garage-style doors near tunnel portals. Remove designation of 1 st Street as a bikeway between Alameda and Indiana (Options 1 and 2) and Alameda and US 101 (Option 3). Designate a parallel street such as Chavez Avenue as a bikeway facility. To be investigated during Community Linkages Studies.	Less than significant

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
LAND USE AND DEVELOPMENT				
No-Build	No land use changes would occur in the study area. This alternative would maintain the status quo and, therefore, would not address the stated goals and objectives for the communities within the study area.	N/A	N/A	N/A
LRT Build	<ul style="list-style-type: none"> ◆ Generally compatible with local and regional plans and land use policies. ◆ Provides improved access and mobility in support of redevelopment and revitalization areas in the corridor. ◆ Transit-oriented development districts will likely be spurred by the project. ◆ Displacements of homes near 1st/Boyle, 1st/Soto, and along Indiana Street (Option 2 only) would challenge the Boyle Heights Community Plan policy that requires conservation and improvement to existing sound housing especially for low- and moderate-income families. 	<p>Beneficial</p> <p>Beneficial</p> <p>Beneficial</p> <p>Potentially significant</p>	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>◆ The remaining space on acquired parcels would be reconfigured and made available for neighborhood commercial and medium-density residential uses as designated in the plan.</p>	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>Less than significant</p>
ECONOMIC AND FISCAL IMPACTS				
No-Build	Does not stimulate employment, generate fiscal impacts, or create need for additional government services.	N/A	N/A	N/A
LRT Build	<ul style="list-style-type: none"> ◆ Generates 1,078 direct and indirect jobs over 1st 14 years to operate and maintain LRT and bus service ◆ Property acquisitions will result in permanent loss of property taxes but losses would be minimal compared to total tax revenues collected by City and County. Long term development and revitalization due to LRT operation is expected to ultimately increase overall tax revenues. ◆ Will not require additional fire or police staff or services. 	<p>Beneficial</p> <p>Not significant</p> <p>Not significant</p>	<p>None required.</p>	<p>N/A</p>
LAND ACQUISITION/DISPLACEMENT AND RELOCATION				
No-Build	No impact anticipated.	N/A	N/A	N/A
LRT Build Option 1	<ul style="list-style-type: none"> ◆ Acquisition of 4 multi-family and 9 single-family units displacing 52 persons; 9 businesses displacing 15 employees; DWP frontage; 1 vacant lot; and portions of 6 parking lots displacing 64 spaces. Subsurface easement to be obtained between 1st/Gless and 1st/Lorena. 	Significant	<ul style="list-style-type: none"> ◆ Relocation assistance under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and California Relocation Act. 	Less than significant
Option 2	<ul style="list-style-type: none"> ◆ Acquisition of 7 multi-family and 25 single-family units displacing 128 persons; 14 businesses displacing 28 employees; DWP frontage and 1 DWP facility; 1 vacant lot; and portions of 	Significant	<ul style="list-style-type: none"> ◆ Implement MTA's Housing Replenishment Program targeted to assist development of the MTA station sites and adjacent 	Less than significant

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
Option 3 All options	<p>DWP frontage and 1 DWP facility; 1 vacant lot; and portions of 6 parking lots displacing 64 spaces. Subsurface easement to be obtained between 1st/Gless and 1st/Lorena.</p> <ul style="list-style-type: none"> ◆ Same as Option 1 except surface easement to be obtained between 1st/Gless and 3rd/Hicks. ◆ Corridor's high housing demand and low vacancy rate may limit availability of comparable replacement homes resulting in the need to relocate outside the study area. 	<p>Significant</p> <p>Potentially significant</p>	<p>the MTA station sites and adjacent properties as well as other projects in the study area through establishment of a revolving loan fund.</p> <ul style="list-style-type: none"> ◆ MTA to provide funds for job training for persons unable to find a job as a result of business relocations. ◆ None available 	<p>Less than significant</p> <p>Potentially significant</p>
COMMUNITIES/NEIGHBORHOODS				
No-Build	No adverse or beneficial impacts anticipated.			
LRT Build All options All options All options Option 1 All options All options All options	<ul style="list-style-type: none"> ◆ Provides new transit connections and increased mobility. ◆ Acquisition and displacement of residences as discussed in Land Acquisition/Displacements section. ◆ Loss of parking spaces as discussed in Transportation section. ◆ Pedestrian and bicycles affected as discussed in Transportation section. ◆ Sidewalks at two stations along 1st St. would be narrowed 4 feet. ◆ Sidewalks along west side of Indiana St. would be narrowed 2 feet. ◆ 22 traffic intersections would be adversely affected. ◆ Moderate noise impacts as discussed in Noise and Vibration section. ◆ Ground-borne noise and vibration impacts as discussed in Noise and Vibration section. 	<p>Beneficial Significant</p> <p>Potentially significant</p> <p>Significant and potentially significant</p> <p>Potentially significant</p> <p>Not significant</p> <p>Significant</p> <p>Not significant</p> <p>Significant</p>	<p>See mitigation measures described in the Land Acquisition/Displacements, Transportation, and Noise and Vibration sections.</p>	<p>Acquisitions and displacements, parking, sidewalk narrowing, pedestrian and bicycle, noise and vibration, and 7 intersection impacts would be less than significant</p> <p>14 of 22 intersections would be significant</p>
EQUITY AND ENVIRONMENTAL JUSTICE CONSIDERATIONS				
No-Build	Does not provide equity, mobility, regional connectivity, and economic benefits to the community.	N/A	N/A	N/A
LRT Build	<ul style="list-style-type: none"> ◆ Benefits include equity, mobility, regional connectivity, and economic benefits to the community. ◆ Adverse impacts include acquisitions and displacements; loss of curb parking; localized vibration, traffic, and circulation impacts; and temporary impacts during construction. 	<p>Beneficial</p> <p>Potentially significant to significant</p>	<p>None required.</p> <p>See Noise and Vibration, Land Acquisition/Displacement, Transportation, and Construction Impacts discussions.</p>	<p>N/A</p> <p>See Communities/Neighborhoods discussions</p>

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
	and temporary impacts during construction.			during construction and operations.
	VISUAL AND AESTHETICS			
No-Build	No impacts anticipated.			
LRT Build All options	♦ Trackwork and catenary system would add to visual clutter already experienced in the vicinity of the 1 st St. Bridge.	Significant	♦ Impacts on 1 st St. Bridge can be mitigated by installing a span-wire catenary system to avoid need for additional mid-street supports.	Less than significant
All options	♦ Demolition of a market adjacent to Mariachi Plaza would adversely affect the enclosing element of Mariachi Plaza.	Significant	♦ Impacts on Mariachi Plaza can be mitigated by installing a façade to replace the existing mass to replace the enclosing element.	Less than significant
Option 1	♦ LRT vehicles traveling west on 3 rd and then turning north on Indiana would shine their headlamps into adjacent residential areas.	Significant	♦ Glare impacts on Indiana St. can be mitigated by landscaping or planting other screening material in the path of LRT vehicle headlamps.	Less than significant
Option 2	♦ The first row of structures along the west side of Indiana would be removed exposing yards from the remaining residences to view from passing motorists, transit riders, and properties on the east side of Indiana.	Significant	♦ Impacts on Indiana St. can be mitigated by developing some of the acquired parcels as open space or recreation.	Less than significant
	AIR QUALITY			
No-Build	Carbon monoxide (CO) and Reactive Organic Gases (ROG) emissions in 2020 would be higher than under the LRT Build Alternative.	N/A	N/A	N/A
LRT Build	♦ CO and ROG emissions would be lower than the No-Build Alternative due to fewer Vehicle Miles Traveled (VMT) in 2020. ♦ There would be no CO emission violations at any study area intersections in 2020.	Beneficial No impact	None required.	N/A
	NOISE AND VIBRATION			
No-Build	No impacts anticipated.			Noise- N/A
LRT Build Options 1, 2	♦ <u>Moderate noise impacts</u> anticipated on 36 single-family, 29 multi-family, and 6 residential/commercial mixed units totaling 71 receptors. No severe impacts anticipated. <u>Ground-borne noise impacts</u> anticipated on 43 single-family, 12 multi-family, and 11 residential/commercial mixed units totaling 66 receptors. <u>Vibration impacts</u> anticipated on 60 single-family, 29 multi-family, and 3 residential/commercial mixed units, 2 museums,	Noise- Not significant Ground-borne noise and vibration- Significant	♦ No feasible mitigation available for wayside noise impacts, and none is required. ♦ Ground-borne noise and vibration measures to be selected during final design. Options include: rubber-booted rail for embedded track; high resilience direct fixation fasteners for embedded track and	Ground-borne noise and vibration- Less than significant

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
Option 3	<p>and the Veterans Clinic totaling 95 receptors.</p> <ul style="list-style-type: none"> Moderate noise impacts anticipated on 18 single-family, 24 multi-family, and 6 residential/commercial mixed units totaling 48 receptors. No severe impacts anticipated. <u>Ground-borne noise impacts</u> anticipated on 67 single-family, 20 multi-family, and 11 residential/commercial mixed units totaling 98 receptors. <u>Vibration impacts</u> anticipated on 26 single-family, 24 multi-family, and 3 residential/commercial mixed units, 2 museums, and the Veterans Clinic totaling 56 receptors. 		<p>fixation fasteners for embedded track and in underground subway tunnels; ballast mat for ballast and tie track; floating slab trackwork for either embedded or direct fixation track; and spring-loaded switch frogs or high resilience direct fixation fasteners for areas where impacts may be caused by cross-overs and switches.</p>	
GEOLOGIC/SEISMIC CONDITIONS				
No-Build	No impacts anticipated.			
LRT Build	<ul style="list-style-type: none"> Subsurface materials are predominantly corrosive to severely corrosive to metals and moderately deleterious to concrete. Shallow and perched groundwater may be encountered above design tunnel and station elevations. Project would be subject to significant ground motions during an earthquake. However, its relation to known active or potentially active faults indicates that the alignment is not exposed to a greater seismic risk than other sites in southern California. The Coyote Pass Escarpment is immediately adjacent to and parallels alignment in the vicinity of 1st/Soto. Local zones of potentially liquefiable layers may exist within and below tunnel envelope. Portions of alignment near the Los Angeles River and other localized areas may be subject to seismically-induced settlement due to densification of loose to medium-dense granular soils. 	<p>Potentially significant</p> <p>Potentially significant</p> <p>Potentially significant</p> <p>Potentially significant</p> <p>Potentially significant</p>	<ul style="list-style-type: none"> Use concrete resistant to moderate sulfate exposure and corrosion protection for metals where needed. Design tunnel liners and station walls and floors below groundwater for hydrostatic pressure. Structural elements will be designed to resist appropriate site-specific ground motions. Added ductility or other measures will be used in the design, if needed. Previous investigations in the vicinity reveal that potential for liquefaction is low to very low. Mitigation, such as soil improvement and/or special foundation systems, will be used if liquefiable soils are encountered. Soil improvement and/or special foundation systems will be used if needed. 	<p>Less than significant</p>
HAZARDOUS MATERIALS				
No-Build	No impacts anticipated.			
LRT Build	<p>Minor quantities of methane and hydrogen sulfide may be encountered along the tunnel section and in underground stations, which may migrate into the tunnel and stations during operation.</p>	Potentially significant	<p>Use of gas barriers, continuous monitoring, and auxiliary ventilation similar to that in operation for the Metro Red Line will be implemented.</p>	Less than significant

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
WATER RESOURCES				
No-Build	No impacts anticipated.			
LRT Build	<ul style="list-style-type: none"> ◆ <u>Surface water</u>-Impervious surfaces of stations and maintenance areas would increase runoff and associated contaminants such as oil and grease. Most runoff would be collected by the existing storm sewer system in the streets. ◆ <u>Floodplain</u>-No above or underground facilities would be located within the 100-year floodplain. ◆ <u>Ground water</u>-Dewatering activities and subsequent discharge may occur during operations. 	<p>Potentially significant</p> <p>No impact</p> <p>Potentially significant</p>	<ul style="list-style-type: none"> ◆ Any water entering tunnel structures and surface runoff from impervious areas will be treated before being discharged into the drainage system. Treatment methods will include oil/water separators with siltation basins. The appropriate permits will be acquired as needed. ◆ Any leaks into the tunnel would be pumped with a sump pump. The appropriate permits would be obtained as required. 	<p>Less than significant</p> <p>Less than significant</p>
NATURAL RESOURCES AND ECOSYSTEMS				
No-Build	No impacts anticipated.			
LRT Build	No impacts anticipated.	No impact	None required.	N/A
ENERGY				
No-Build	2020 annual energy consumption=172,096,668 barrels of oil	Not significant	None required.	
LRT Build	2020 annual energy consumption=172,124,128 barrels of oil	Not significant	None required. However, measures would be incorporated into the design of the LRT system to conserve energy.	N/A
SAFETY AND SECURITY				
No-Build	No impacts anticipated.	N/A	N/A	N/A
LRT Build	<ul style="list-style-type: none"> ◆ There is a potential for collisions between LRT vehicles and automobiles and pedestrians. ◆ Patron safety could be an issue in the LRT vehicles and stations especially in the subway segment. ◆ Car thefts, robberies, vandalism, loitering, and other crimes have the potential to occur around stations and parking facilities and in the LRT vehicles. 	<p>Potentially significant</p> <p>Potentially significant</p> <p>Potentially significant</p>	<ul style="list-style-type: none"> ◆ MTA will work with the City and County traffic control depts. and also LAUSD to develop measures to minimize risks. A wide range of options are available and are discussed in the Safety and Security section of the Draft SEIS/SEIR. ◆ Underground stations will include fire alarm protection; minimum of 2 fire emergency routes; emergency ventilation and lighting; communications system between adjoining fire agencies; fire separations in public occupancy areas; and methane detection system for each station. ◆ MTA will work with the LAPD and the County Sheriff to establish plans similar to those in existence on other Metro rail lines. 	<p>Less than significant</p> <p>Less than significant</p> <p>Less than significant</p>

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
	<ul style="list-style-type: none"> ◆ Emergency vehicles may be delayed responding to an emergency not involving the LRT system. ◆ Emergency vehicles may be delayed responding to an emergency involving the LRT system. 	<p>Potentially significant</p> <p>Potentially Significant</p>	<p>Options include increased policing, and well-placed lighting and clear visibility of the station area from the street and sidewalk. Also, possibly procure one agency for the entire alignment, as done on existing Blue Line, to provide on-board security for the rail cars.</p> <ul style="list-style-type: none"> ◆ The LRT is in a tunnel in streets portions of the corridor; therefore, no effect is anticipated in those areas. ◆ MTA will work with all public safety agencies to ensure their concerns are addressed on planned changes in street or vehicle access. ◆ The facility will be designed with appropriate operating equipment, hardware, procedures and software subsystems to provide for protection of life and property. 	<p>Less than significant</p> <p>Less than significant</p> <p>Less than significant</p>
	HISTORIC/ARCHAEOLOGICAL/PALEONTOLOGICAL RESOURCES			
No-Build	No impacts anticipated.			
LRT Build All options	◆ Ground disturbance during construction has an unknown effect on 3 known archaeological sites and 10 areas of high archaeological sensitivity.	Potentially significant	◆ If archaeological sites are encountered, the site would be evaluated to determine if potentially eligible for National Register listing. If project plans cannot be altered to avoid site, a Memorandum of Agreement (MOA) with the State Historic Preservation Office (SHPO) would be implemented to resolve the adverse effect.	Less than significant
All options	◆ Demolition of adjacent market for 1 st /Boyle Station and construction staging area will result in an adverse effect (preliminary determination) that will alter the historic setting of Mariachi Plaza.	Potentially significant	◆ Alteration of historic setting at Mariachi Plaza and 1 st /Soto would require a MOA with SHPO if resources are determined eligible for the National Register.	Less than significant
All options	◆ 1 st /Soto Station portal entrance and construction staging area will result in an adverse effect (preliminary determination) due to alteration of historic setting of 3 commercial buildings and 3 residences.	Potentially significant	Measures would be taken to replicate the historic setting.	

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
Option 2	◆ Demolition of 5 buildings on Indiana St. will result in an adverse effect (preliminary determination).	Potentially significant	◆ A MOA would be implemented for the structures to be demolished on Indiana St. if Option 2 is selected, and it is determined that the buildings are eligible for National Register listing. A comprehensive documentation of the affected structures as they currently exist would be undertaken.	Less than significant
All options	◆ Paleontological resources could be disturbed in the tunnel portions of the alignment and also in the aerial segment near US 101.	Potentially significant	◆ A variety of measures will be taken to recover fossil remains and associated data as stated in Section 4.15. However, some of the fossils may still be inadvertently destroyed during tunneling or pile driving for the aerial segment.	Potentially significant
Option 3	◆ More fossil-bearing strata may be encountered than under the other options because of the additional 0.6 miles of tunnel.	Potentially significant	◆ Recovery of important fossil remains would make them available for future study.	Beneficial
COMMUNITY FACILITIES/PARKLANDS				
No-Build	No adverse or beneficial impacts anticipated.			
LRT Build	◆ Increased access to nearby community facilities/parklands	Beneficial	None required.	N/A
All options	◆ Potential noise and vibration impacts due to vent shaft and emergency ventilation fans near Mariachi Plaza will be attenuated through proper design.	Not significant	None required.	N/A
All options	◆ Parking losses near Pecan Park and Aliso Pico Multipurpose Center. Excess parking capacity exists along other streets surrounding both locations.	Not significant	None required	N/A
All options	◆ Visual and historic setting impacts on Mariachi Plaza due to 1 st /Boyle Station portal and construction staging area.	Significant	See Visual and Aesthetics and Historic Resources discussions.	Less than significant
All options	◆ Vibration impacts anticipated on Veterans Clinic, and the Geffen and Japanese American National Museums.	Potentially significant	See Noise and Vibration discussion.	Less than significant
All options	◆ Students crossing LRT alignment to get to and from nearby schools has a potential for safety concerns.	Potentially significant	◆ Provide a crossing guard at nearby schools if requested by school administrators	Less than significant
Option 1	◆ Parking losses near Ramona High School.	Significant	◆ Work with LAUSD and private institutions along alignment to implement mutually agreed upon safety measures. ◆ MTA is committed to implementing a parking plan to replace parking.	Less than significant

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
	CONSTRUCTION IMPACTS			
No-Build	No adverse impacts. However, no short-term jobs during construction would be created.	N/A	N/A	N/A
	Transportation-Construction Impacts			
LRT Build Options 1, 2	<ul style="list-style-type: none"> ◆ Curb parking may be prohibited at times when traffic lanes are closed. Sidewalk construction on 1st St. would also necessitate prohibition of parking. Indiana St. would have temporary parking prohibitions. 	Significant	<ul style="list-style-type: none"> ◆ A parking mitigation plan will be developed in cooperation with the City and County. Construction impacts would be sequenced to the extent possible to avoid removal of multiple blocks of parking at the same time. Consideration will be given to using the MTA-owned parcel at 1st/Lorena and park-and-ride site near Beverly/Atlantic to replace temporary parking losses in those areas. ◆ MTA will work with the City, County, and affected transit operators to develop a plan to minimize impacts on transit service and with LADOT and County DPW to develop Worksite Traffic Control Plans to accommodate traffic and pedestrian movements and minimize impacts on neighborhoods. ◆ Handrails, fences, and walkways would be provided as needed where construction would impact sidewalk areas. ◆ If a crosswalk is closed, pedestrians will be directed to use nearby ones. Several adjacent crosswalks would not be closed simultaneously. ◆ Signage will be provided, as needed, to warn bicyclists to ride cautiously in streets and on sidewalks or to choose other routes. 	Potentially significant
Option 3	<ul style="list-style-type: none"> ◆ Same as Options 1 and 2 except that parking along Indiana St. would not be affected. 	Significant		
All options	<ul style="list-style-type: none"> ◆ Temporary traffic lane closures during the day may affect normal traffic flow and bus travel times. Night closures of entire street blocks may require some buses to be temporarily re-routed. Some bus stops may also be temporarily relocated. General construction traffic may affect traffic patterns. 	Significant		Potentially significant
All options	<ul style="list-style-type: none"> ◆ Portions of sidewalks at subway station locations may be temporarily closed for decking construction. Night sidewalks closures may be necessary in some locations. Some existing crosswalks may be temporarily closed. Lane and street closures could inhibit bicycle traffic flow. 	Significant		Potentially significant Potentially significant Potential significant
	Land Use and Development-Construction Impacts			
LRT Build	Short term air quality, noise, and traffic impacts and congestion around construction staging areas could temporarily interfere with plans and policies intended to attract new businesses and residents to	Significant	The project would be built in stages thereby diminishing the overall impact of construction activity. MTA will coordinate with local	Less than significant

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
	the area. However, long term benefits of LRT operations would further local goals and policies.		businesses and residents to provide advanced notification of traffic detours and delays and potential utility disruptions.	
	Air Quality-Construction Impacts			
LRT Build	Air quality impacts are anticipated due to demolition of existing structures, excavation activities, mobile emissions related to construction vehicles, and stationary emissions from on-site construction equipment.	Significant	Mitigation measures to meet MTA's Systems Design Criteria and Standards will be included in the construction contract. A variety of mitigation options are presented in Section 4.19 of the Draft SEIS/SEIR.	Less than significant with the exception of PM ₁₀ and NO _x emissions. Impacts from those emissions would be significant.
	Noise and Vibration-Construction Impacts			
LRT Build Options 1, 2 Option 3	Noise impacts likely in the at-grade segments. Vibration impacts possible at both the at-grade and subway segments. Same as other options, except that noise impacts are not an issue in the extended subway segment. However, vibration impacts are still possible.	Significant Significant	<ul style="list-style-type: none"> ◆ Mitigation will be required to meet City of Los Angeles and MTA construction noise and vibration criteria. ◆ Contractor will be required to prepare a Noise and Vibration Control Plan to demonstrate that criteria and limits will be achieved. ◆ MTA will provide hotel accommodations to residents disturbed by the short-term tunneling activity below their residences. ◆ MTA will coordinate with LAUSD and individual school administrators to determine and implement strategies to maintain acceptable interior classroom noise levels. ◆ Contractor will be responsible for protection of vibration-sensitive historic buildings or cultural resource structures within 200 feet of construction activity. 	Potentially significant
	Visual and Aesthetics-Construction Impacts			
LRT Build	◆ Mariachi Plaza may become temporarily unusable for musical performances.	Significant	◆ The demolition and construction areas will be screened and construction accelerated as much as possible. If required, a temporary alternative site will be provided nearby.	Less than significant

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
	<ul style="list-style-type: none"> The 1st/Gless portal excavation site could affect use of adjacent Pecan Park. 	Significant	<ul style="list-style-type: none"> Solid, tamper-proof screening materials would be installed around park perimeter. 	Less than significant
	Economic Activity-Construction Impacts			
LRT Build Option 1 Option 2 Option 3	<ul style="list-style-type: none"> Generates 46,862 direct and indirect short-term jobs. Generates 47,070 direct and indirect short-term jobs. Generates 54,651 direct and indirect short-term jobs. 	Beneficial	None required.	N/A
	Neighborhoods/Community Facilities/Parklands-Construction Impacts			
LRT Build	<ul style="list-style-type: none"> Temporary traffic, access, circulation, noise and vibration, and air quality impacts. 	Potentially significant	<ul style="list-style-type: none"> See Transportation, Noise and Vibration, and Air Quality Construction Impacts discussions. One or more Metro Field Offices will be opened and staffed with personnel to provide information and handle complaints during construction. 	Potentially significant
	Geologic and Seismic Conditions-Construction Impacts			
LRT Build	<ul style="list-style-type: none"> Tunnel stability is of concern due to running sand and potential for ground surface settlement. For the cut-and-cover excavations for station sites and tunnel sites adjacent to portals, vertically cut walls of excavation can slough and cave in alluvial soils, particularly when excessively wet or dry. Shallow and perched ground water may be encountered above design tunnel and station elevations. 	<p>Potentially significant</p> <p>Potentially significant</p> <p>Potentially significant</p>	<ul style="list-style-type: none"> Use tunnel construction technologies, such as a pressure-face tunnel boring machine or soil grouting where tunnel depth and soil conditions could produce unacceptable settlements. Stabilize excavation walls, if needed, with specialized shoring and/or chemical grouting and dewatering. Use dewatering systems for station construction extending below groundwater. Pressure-face tunnel boring machines may also be used in the tunnel segments. 	<p>Less than significant</p> <p>Less than significant</p> <p>Less than significant</p>
	Hazardous Materials-Construction Impacts			
LRT Build	<ul style="list-style-type: none"> Minor quantities of subsurface gases such as methane and hydrogen sulfide may be encountered during tunnel and station excavations. 	Potentially significant	<ul style="list-style-type: none"> Use pressure-face tunnel boring machines (TBM) and bolted, gasketed tunnel liners, as needed. At station sites, impermeable liners would reduce gas infiltration. 	Less than significant

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
	<ul style="list-style-type: none"> ◆ The alignment passes near the following numbers of properties with known or potential environmental contamination: 4 of high concern; 6 of moderate concern; and 24 of low concern. Ground water or soil could be contaminated. 	Potentially significant	<ul style="list-style-type: none"> ◆ Continuous gas monitoring would be undertaken, as needed, and additional ventilation provided if concentrations exceed action levels. ◆ Treat contaminated ground water on-site to local and state criteria and discharge into the sanitary sewer or storm water system. If on-site remediation is not feasible, contaminated ground water will be disposed by recycling in a permitted facility. ◆ Remove and dispose, treat and recycle at a permitted facility, or remediate contaminated soil offsite for disposal as clean fill in a landfill. 	<p align="center">Less than significant</p> <p align="center">Less than significant</p>
LRT Build	Water Resources-Construction Impacts			
	<ul style="list-style-type: none"> ◆ <u>Surface water</u>-Runoff and sedimentation possible from excavation activities and installation of impervious surfaces (paving) at some facilities. Also, dewatering activities for the tunneling and cut-and-cover station construction would be limited to the immediate excavation area, thus avoiding potential adverse impacts of a lowered water table. ◆ <u>Floodplains</u>-No construction will occur within the Los Angeles River floodplain. ◆ <u>Ground water</u>-Shallow and perched ground water may be present in the tunnels or underground station construction requiring dewatering activities. Contaminated groundwater may be encountered. 	<p align="center">Not significant</p> <p align="center">No impact</p> <p align="center">Potentially significant</p>	<ul style="list-style-type: none"> ◆ An NPDES permit will be obtained that will address storm water runoff and include a monitoring program to ensure that measures taken are effective. Large paved areas and construction sites may require installation of oil/water separators or siltation basins. ◆ Spoil from tunneling activities will be stored in the tunnel staging area (not anywhere near water drainage facilities) and hauled to appropriate sites to minimize sedimentation. ◆ Mitigation not required. However, crossing of the Los Angeles River will require consultation with the County and COE. ◆ Use dewatering systems as discussed in the geologic/seismic conditions section. ◆ Employ remedial options for contaminated ground water in conformance with local, state, and federal regulations. 	<p align="center">Less than significant</p> <p align="center">Less than significant</p> <p align="center">N/A Less than significant Less than significant</p>
LRT Build	Natural Resources and Ecosystems-Construction Impacts			
	No construction impacts.	No impact	None required.	N/A

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
	Utilities-Construction Impacts			
LRT Build	Some utilities may need to be relocated or abandoned and there could be temporary disruptions of service or loss of access.	Potentially significant	A variety of measures are available to minimize adverse impacts and are discussed in Section 4.19.2.17 of the Draft SEIS/SEIR.	Less than significant
	Energy-Construction Impacts			
LRT Build	Energy required for construction activities; however, no adverse effect anticipated on the availability of fossil fuels or electricity in region.	Not significant	None required. However, standard construction practices and techniques will ensure that energy sources are not used in a wasteful manner.	N/A
	Safety and Security-Construction Impacts			
LRT Build	Construction activity at several locations including the following could affect public safety: in the streets and stations for the at-grade segments; staging and storage areas for construction equipment and materials; locations where construction equipment is moving; excavation sites at the portals and other areas where some of the underground construction is being conducted at street level; and locations where haul trucks are transporting debris from tunnel excavations.	Significant	MTA will work with LADOT, LA Co. DPW, and LAUSD, to develop plans to incorporate appropriate safety features into the construction project. Numerous options are available and are discussed in the Safety and Security section of the Draft SEIS/SEIR. A focus of this effort will be to ensure that the construction sites are not attractive to children.	Less than significant
¹ For discussion of LRT Build Alternative, impacts of all 3 options in the vicinity of Ramona High School are similar unless specifically stated. Option 1=Indiana Street Remove Parking Option; Option 2=Indiana Street Acquire Additional Right-of-Way Option; Option 3=Extended Subway Option.				
² N/A = not applicable.				

**TABLE S-8
SUMMARY OF POTENTIAL IMPACTS¹
MAINTENANCE AND STORAGE FACILITY OPTIONS**

Impact Category	Option 1 Red Line ²		Option 2 West Bank ²		Option 3 East Bank ²	
	A	B	A	B	A	B
Traffic	Yes	Yes	Yes	Yes	Yes	Yes
Parking	Yes	Yes	Yes	Yes	Yes	Yes
Land Use and Development	Maybe	Maybe	Maybe	Maybe	Maybe	Maybe
Economic and Fiscal	No	No	No	No	Maybe	Maybe
Land Acquisition/ Displacements/Relocations	Yes	Yes	Yes	Yes	Yes	Yes
Communities/Neighborhoods	No	No	No	No	No	No
Equity and Environmental Justice Considerations	No	No	No	No	Maybe	Maybe
Visual	Maybe	Maybe	Maybe	Maybe	Maybe	Maybe
Air Quality	Maybe	Maybe	Maybe	Maybe	Maybe	Maybe
Noise and Vibration	No	No	No	No	No	No
Geologic and Seismic Conditions	Maybe	Maybe	Maybe	Maybe	Maybe	Maybe
Hazardous Materials	Maybe	Maybe	Maybe	Maybe	Maybe	Maybe
Water Resources	Maybe	Maybe	Maybe	Maybe	Yes	Yes
Natural Resources and Ecosystems	No	No	No	No	No	No
Energy	Maybe	Maybe	Maybe	Maybe	Maybe	Maybe
Safety and Security	No	No	No	No	No	No
Historic/Archaeological	Maybe	Maybe	Maybe	Maybe	Maybe	Maybe
Community Facilities/Parklands	No	No	No	No	No	No
Section 4(f)	Maybe	Maybe	Maybe	Maybe	Maybe	Maybe
Utilities	Maybe	Maybe	Maybe	Maybe	Maybe	Maybe

¹ "Yes" indicates adverse impacts would be expected to occur. "Maybe" indicates adverse impacts are possible. "No" indicates adverse impacts would not be expected to occur.

² A and B denote alternate lead track alignments to access the specific maintenance and storage facility site.