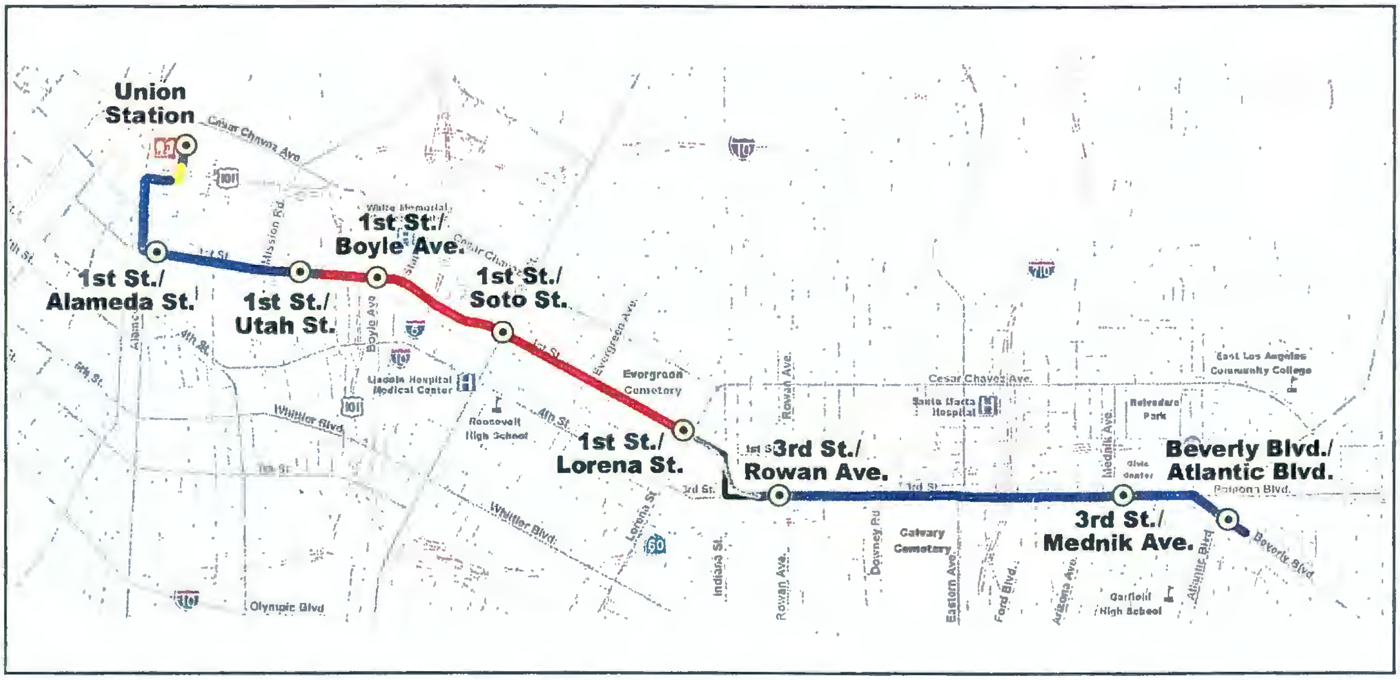
Los Angeles Eastside Corridor



Draft Supplemental Environmental Impact Statement/ Draft Subsequent Environmental Impact Report

March, 2001

U.S. Department of Transportation
Federal Transit Administration

Los Angeles County Metropolitan Transportation Authority

**DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT/
SUBSEQUENT ENVIRONMENTAL IMPACT REPORT**

For

THE LOS ANGELES EASTSIDE CORRIDOR PROJECT
LOS ANGELES, CALIFORNIA

State Clearinghouse Number 1999081061

Prepared Pursuant to the

National Environmental Policy Act of 1969, §102 (42 U.S.C. §4332); Federal Transit Laws (49 U.S.C. §5301(e), §5323(b) and §5324(b)); Title 49 U.S.C. §303 (formerly Department of Transportation Act of 1966, §4(f)); Executive Order 12898 (Environmental Justice); and California Environmental Quality Act, California Public Resources Code 2100, *et seq.*

By the

**FEDERAL TRANSIT ADMINISTRATION
U.S. DEPARTMENT OF TRANSPORTATION**

And the

**LOS ANGELES COUNTY
METROPOLITAN TRANSPORTATION AUTHORITY**

2/22/01
Date of Approval

F. James Kenna
F. James Kenna
Acting Regional Administrator
Federal Transit Administration

2/21/01
Date of Approval

Julian Burke
Chief Executive Officer
Los Angeles County
Metropolitan Transportation Authority

DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT/SUBSEQUENT ENVIRONMENTAL IMPACT REPORT

RESPONSIBLE AGENCIES:
Lead Agencies: Federal Transit Administration, U.S. Department of Transportation and
Los Angeles County Metropolitan Transportation Authority

TITLE OF PROPOSED ACTION:
Los Angeles Eastside Corridor Transit Improvements, Los Angeles, California

ABSTRACT:
This report documents the environmental impacts of the Los Angeles Eastside Corridor Light Rail Transit (LRT) Build Alternative. The Los Angeles County Metropolitan Transportation Authority selected the LRT Build Alternative on February 24, 2000, based on extensive public involvement and environmental and technical analysis conducted as part of the Re-Evaluation/Major Investment Study. This 6-mile, nine station project will be an extension of the under construction Pasadena Blue Line. The project extends from Union Station to Beverly and Atlantic Boulevards in East Los Angeles, via Alameda Street, 1st Street, Indiana Street, 3rd Street, and Beverly Boulevard.

This project is a replacement project for the previously adopted and environmentally cleared Red Line East Side Corridor extension. The Red Line extension project was suspended in 1998 and alternatives to the suspended project were studied in the Re-Evaluation/Major Investment Study.

This report is a combined Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report, satisfying the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). It focuses on the environmental impacts of the LRT Build Alternative and the three transition options on Indiana Street between 1st/Lorena and 3rd/Rowan. In addition an environmental and cost comparison is presented for three possible maintenance and storage facilities sites to be used to house the 25 new light rail transit vehicles that will be required.

The Draft SEIS/SEIR examines potential areas of impact including traffic, parking, land use and development, economic and fiscal, land acquisition/displacement and relocation, communities/neighborhoods, equity and environmental justice considerations, visual and aesthetics, air quality, noise and vibration, geologic and seismic, hazardous materials, water resources, natural resources and ecosystems, energy, safety and security, historic/archaeological/paleontological resources, community facilities, Section 4(f), utilities, and construction. Mitigation measures for the impacts are identified.

FOR ADDITIONAL INFORMATION CONCERNING THIS DOCUMENT, PLEASE CONTACT:

Mr. Ray Sukys
Office of Planning and Program Development
Federal Transit Administration
Region 9
201 Mission Street, Suite 2210
San Francisco, CA 94105
Phone: (415) 744-3115

Mr. Erv Poka
Metropolitan Office
Federal Transit Administration/
Federal Highway Administration,
Region 9
201 N. Figueroa St.,
Suite 1460
Los Angeles, CA 90012
Phone: (213) 202-3952

Mr. Steve Brye,
Project Manager
Los Angeles County
Metropolitan Transportation
Authority (LACMTA)
One Gateway Plaza
Los Angeles, CA 90012
Phone (213) 922-3078

COMMENTS:
Comments on this document may be submitted in writing or may be made orally at the public hearings. Written comments should be submitted to the Los Angeles County Metropolitan Transportation Authority at the above address. Information on the public hearing dates is available from the Los Angeles County Metropolitan Transportation Authority. Comments are due by April 17, 2001.

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EXECUTIVE SUMMARY

S.1 PURPOSE OF THE DRAFT SEIS/SEIR

The purpose of the Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (Draft SEIS/SEIR) is to evaluate the Light Rail Transit (LRT) Build Alternative along with its three transition options between 1st Street and 3rd Street (near Indiana Street) and the No-Build Alternative and for the Los Angeles County Metropolitan Transportation Authority (MTA) Board of Directors to select the most appropriate transition option for the Eastside Corridor while ensuring that potentially significant environmental consequences are considered as part of this process. In addition, the Board will select one of the three Maintenance and Storage Facility (M&SF) sites for further analysis in subsequent documents.

The Draft SEIS/SEIR document will be circulated for review by interested and concerned parties, including private citizens, community groups, the business community, elected officials, and public agencies. Public hearings will be held to solicit citizen and agency comments as part of the decision-making process. The selection of the design option for the LRT Build Alternative and the M&SF site will be made by the MTA Board of Directors after consideration of the comments received from the circulation of the Draft SEIS/SEIR and at the public hearings.

The next step would be to prepare a Final SEIS/SEIR using Preliminary Engineering design level of detail.

S.2 NEED FOR THE PROPOSED ACTION

S.2.1 Regional Context

Los Angeles has a regional rail network that consists of heavy rail, light rail, and commuter rail components. The Los Angeles Rail Rapid Transit Project (Metro Red Line) is an 18-mile heavy rail rapid transit subway project extending from Union Station to North Hollywood. The final North Hollywood segment was completed and opened for revenue service on June 24, 2000. Opened for service in 1990, the 22-mile Metro Blue Line light rail system operates between Downtown Los Angeles and Long Beach. In 1994, the 19-mile Metro Green Line light rail system opened for service between Redondo Beach and Norwalk, primarily operating in the median of the Century Freeway (I-105). In 1992, commuter rail service was initiated with Metrolink, a regional rail network that connects Ventura, Los Angeles, Orange, San Bernardino, Riverside, and San Diego counties utilizing existing rail right-of-way. In 2003, the 13.8-mile Metro Blue Line to Pasadena will open for service and will connect Downtown Los Angeles with East Pasadena. All told, the region will have over 400 miles of commuter rail and over 70 miles of urban rail (Table S-1) by the year 2003.

TABLE S-1 LOS ANGELES COUNTY METRO RAIL NETWORK IN 2003			
Line	**Length (Mi.)**	**End Destination**	**End Destination**
Blue Line (Long Beach)	22	Downtown Los Angeles	Downtown Long Beach
Green Line	19	Redondo Beach	Norwalk
Red Line	18	North Hollywood/Wilshire Center	Union Station
Blue Line (Pasadena)	13.8	Union Station	Pasadena

Source: MTA, 2000.

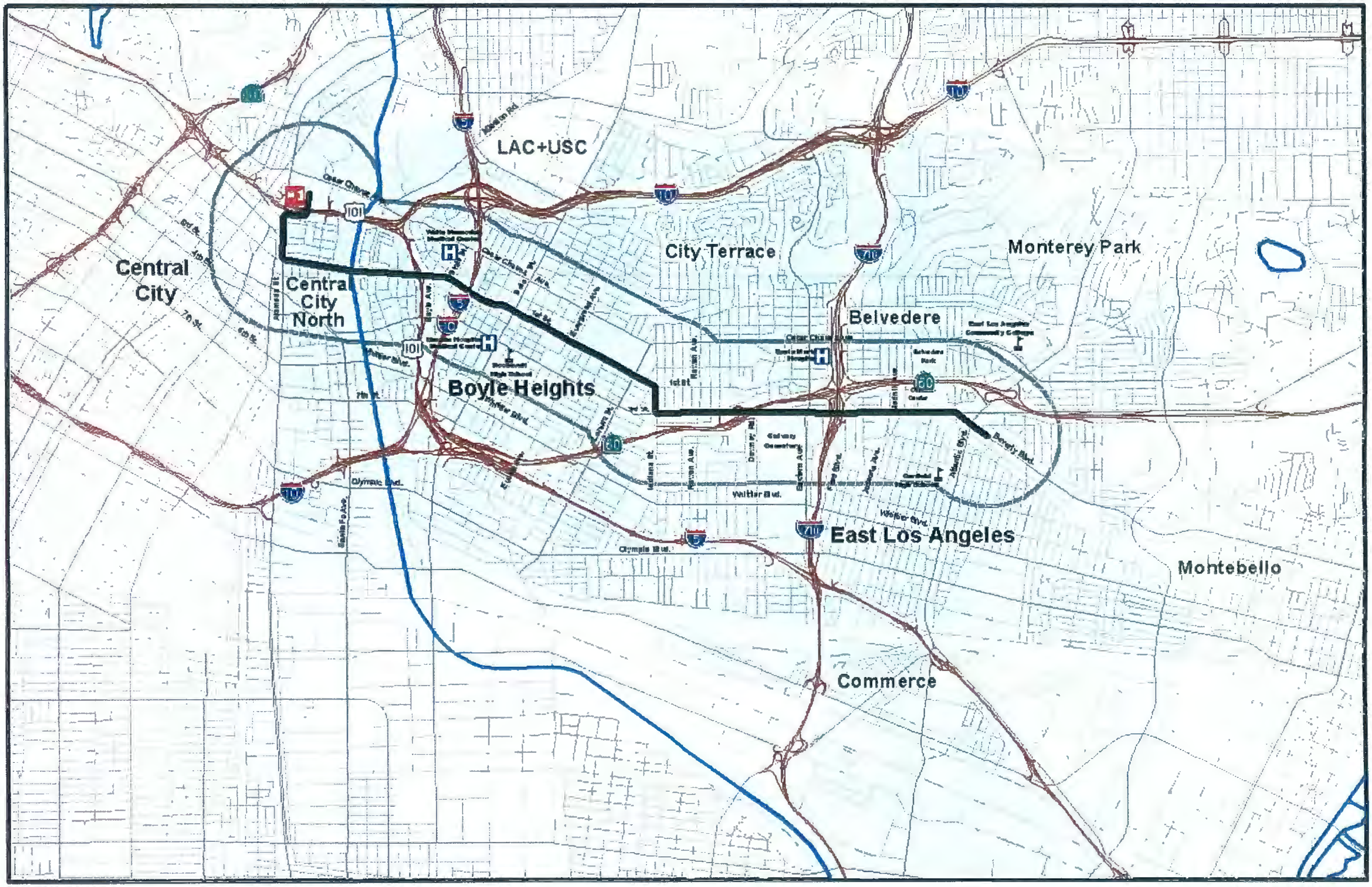
In 1994, the Metro Red Line Eastern Extension was selected as the Locally Preferred Alternative, and final design was begun on this project. The project was to be an extension of the heavy-rail Red Line subway system from Union Station to Whittier and Atlantic Boulevards through Boyle Heights and East Los Angeles. The project was split into two phases, with a minimum operable segment initially to be constructed to 1st and Lorena Streets. This 3.8-mile first phase extension was to have stations located at Little Tokyo/Arts District near 3rd Street and Santa Fe Avenue, 1st Street and Boyle Avenue, Chavez Avenue and Soto Street, and 1st and Lorena Streets. Construction activities began on Phase 1 in 1997.

Work on the planned Eastside extension of the Metro Red Line subway was suspended by MTA in January 1998 due to local financial difficulties. The MTA Restructuring Plan adopted in May 1998 called for the MTA to study "viable and effective options" for all parts of Los Angeles County, with an emphasis on the corridors in which rail projects had been suspended. Within the Eastside Corridor, this necessitated the examination of alternative fixed guideway options to the suspended heavy rail subway project.

Based on the results of the November 1998 draft Regional Transit Alternatives Analysis (RTAA Study), the MTA Board approved the concept of a rapid bus plan in March 1999, which included a rapid bus demonstration project on the Eastside. The Board also reaffirmed its commitment to fund fixed guideway transit improvements beyond rapid bus in the suspended rail corridors. The Board subsequently authorized the preparation of the Re-Evaluation/Major Investment Study (MIS) and Draft and Final Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR) for the suspended Metro Red Line Eastside Transit Corridor Project. The Re-Evaluation MIS was completed in February 2000 and analyzed eight build alternatives. This SEIS/SEIR identifies both beneficial and adverse environmental impacts associated with the LRT Build Alternative that was selected for further study following completion of the Re-Evaluation MIS and compares them with those associated with the No-Build Alternative.

S.2.2 Eastside Study Area

The Eastside Corridor study area is shown in Figure S-1, extending from Alameda Street in Central Los Angeles east through the Boyle Heights community in the City of Los Angeles and the City Terrace, Belvedere and East Los Angeles communities of unincorporated Los Angeles County. The study area also includes a portion of the City of Monterey Park.



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

Eastside Corridor Transit Consultants

Note: Highways, primary, and secondary roads by Thomas Bros. Maps through a conditional use from MTA 1997.

Legend

Eastside Corridor
SEIS Project Study Area
LRT Alignment

Highway
Primary Road
Secondary Road
River

August 2, 2000

Los Angeles Eastside Corridor SEIS/SEIR

Eastside Corridor Study Area

Figure S-1

S.2.3 The Mobility Problem

The East Los Angeles Transit Corridor Technical Report was prepared by the Southern California Association of Governments (SCAG) in July 1998 and provides an overview of community transit needs for the area. The Eastside Corridor communities of Boyle Heights and East Los Angeles are characterized by a large and growing population (over 212,000 according to the 1990 census, 275,000 expected by 2020) of predominantly Latino ethnic origin, a high percentage of low income households, and relatively high rates of transit use and transit dependence. In these communities, over 19 percent of workers use the bus system on their journey to work (as compared to 6.8 percent for Los Angeles County as a whole), and rates of carpooling and walking to work are also higher than the County average.

East Los Angeles and Boyle Heights are served by a significant number of bus routes, primarily operated by the Los Angeles County MTA, and generally organized in a grid pattern. There are approximately 40,000 weekday transit boardings in the area with several heavily used bus transit corridors that include Soto Street, Cesar Chavez Avenue, 1st Street, Whittier Boulevard, and Olympic Boulevard. New Metro Rapid bus service was initiated on Whittier Boulevard on June 24, 2000 and provides limited stop service and buses equipped with devices to extend the green phase of traffic signals to make for speedier trips. The heaviest bus routes carry passengers in an east-west direction. The average speed for all bus routes in the area is 12.9 MPH, and the typical passenger trip length for transit riders is between one and three miles.

The existing bus system has very high ridership on many routes during peak periods and moderate to low levels of ridership on other routes during peak as well as off-peak periods. Adequate transit services are not being provided to locations of higher transit demand. Most person trips to key activity centers within the study area require at least one transfer. This can result in longer travel times, less convenience, and an ultimate compromise in mobility for the traveler.

S.2.4 Goals and Objectives

The goals and objectives of the SEIS/SEIR, Los Angeles Eastside Corridor have been developed from the extensive corridor and systems planning studies carried out over the past ten years, including the Eastside Alternatives Analysis/DEIS/DEIR process, public reviews leading to selection of the Locally Preferred Alternative, and the Re-Evaluation/MIS. Based on these planning and community involvement activities, the following goals and objectives listed were used. They are based on established transportation and land use goals and objectives of the major government jurisdictions within the study area, including the City of Los Angeles and the County of Los Angeles. These goals and objectives were utilized in the development and evaluation of the Eastside Corridor transit alternatives.

1. Improve access and mobility for residents, employees, and visitors to the Eastside Corridor.
   - Provide direct service to employment opportunities
   - Provide direct service to education, medical, shopping, and cultural opportunities
   - Minimize total travel times
   - Maximize transit ridership
   - Minimize transfers and changes of mode by integrating the system
   - Provide convenient access and improve connectivity to the regional transit system
   - Provide for the long term expansion of the future transit system
2. Support land use and development goals as stated in City of Los Angeles and County of Los Angeles plans for:
   - Community plan consistency
   - Regional plan consistency

- Joint development opportunities
- Increased land use intensity in transit station areas
- Mixed-use commercial/residential development
- Create a pedestrian-oriented environment
- Enhance urban design features

3. Achieve local consensus by ensuring that the process is responsive to the community and policy-makers.
   - Define the desired transit system attributes from a community perspective
   - Maximize the opportunities for community and resident input
   - Enhance the public image of the proposed transit improvements
   - Build community and political support through effective communication and integration with local and regional plans
4. Provide a transportation project that is compatible with and enhances the physical environment wherever possible.
   - Implement an alternative that minimizes adverse impacts on the environment
   - Minimize air pollution
   - Minimize noise pollution
   - Minimize vibration impacts
   - Minimize the disturbance of public facilities
   - Minimize impacts on cultural resources, such as those that are historic, archaeological, or involve parkland
   - Conform to all local, state, and federal environmental regulations
5. Provide a transportation project that minimizes adverse impacts on the community.
   - Minimize business and residential dislocations, community disruptions, and damage to property
   - Avoid creating physical barriers, destroying neighborhood cohesion, or diminishing the quality of the human environment
   - Minimize traffic and parking impacts
   - Minimize impacts during periods of construction
6. Provide a transportation project that is reasonably within budget constraints for both capital and operating expenses.
   - Ensure adequate local funding commitments to secure federal and state contributions
   - Ensure adequate operating funds
   - Ensure fiscal consistency with the MTA's current financial plan
   - Minimize right-of-way costs by using land previously acquired by the MTA

S.2.5 Community Factors

The Eastside Corridor study area contains a low- to moderate-income population, which is expected to grow by 30 percent to 275,000 by 2020, according to the SCAG forecast data. The Eastside Corridor contains a dense concentration of households.

Access to employment opportunities is one of the major mobility problems that affect Eastside Corridor residents. The 1990 Census analysis of the study area work force revealed a breakdown of home-based work trips generated from the Eastside Corridor area. Nine percent of work trips from the Eastside Corridor were destined for the Los Angeles CBD, 36 percent for areas north and west of the CBD, 13 percent for the South Bay region of the County, 24 percent for locations within the corridor, and 18 percent for areas in the remainder of the County.

SCAG forecast data for the year 2020 show an increase in the number of trips generated in the study area as the population grows. The forecast results indicate that there will be less reliance on the Los Angeles CBD and a greater number of trips being made to other sub-areas of the Los Angeles region. Work trips to the West Los Angeles area are projected to increase by 57% from the study area, and work trips to the southern part of the County are expected to increase by 42%. While work trips to the San Fernando Valley are expected to decrease by 46%, work trips to the San Gabriel Valley are expected to increase by 100%. Work trips destined for Orange County are expected to increase by 50%. As employment and activities in the region decentralize, greater reliance will be placed upon modes of travel that provide relatively convenient and timely service, especially in light of the increase in the amount of traffic congestion and resulting public transit delays that will be experienced in the coming 20 years.

The study area's mobility problems are exacerbated by socioeconomic factors. As reported in the 1990 Census, and shown in Table S-2, the percentage of occupied dwelling units in the corridor whose residents did not have access to an automobile was approximately 30 percent, which is almost three times greater than the figure for the County of Los Angeles as a whole (11 percent). Many of the area's residents were young, with 21 percent between the ages of six and 18 years, and only eight percent being elderly (over 65 years). About 26 percent of the housing units were owner-occupied, and vacancy rates were generally low, averaging less than one percent. Most of the housing units were single-family houses with an average household size of 4.0 persons, which is about 35 percent higher than the City and County of Los Angeles averages of 2.9 and 3.0 persons per household, respectively. The minority composition of the study area in 1990 was 96.7 percent, most of whom were of Latino ethnic background. Given the growing population and the number of low-income households in the corridor (26 percent of total households), reliance on public transportation will not decrease, but will likely increase in the future.

TABLE S-2
A COMPARISON OF SELECTED POPULATION CHARACTERISTICS BETWEEN THE LOS ANGELES EASTSIDE CORRIDOR AND LOS ANGELES COUNTY

Characteristic	Location	Percentage or Number
Percentage residents without access to an automobile	Eastside Corridor	30%
	Los Angeles County	11%
Percentage persons age 6-18 years	Eastside Corridor	21%
	Los Angeles County	18%
Percentage persons age over 65	Eastside Corridor	8%
	Los Angeles County	10%
Average household size	Eastside Corridor	4.0
	Los Angeles County	3.0
Percentage low-income households	Eastside Corridor	26%
	Los Angeles County	12%
Percentage minority households	Eastside Corridor	97%
	Los Angeles County	59%

Source: U.S. Census of Population and Housing, 1990.

S.2.6 Summary of Need

Travel demand forecasts prepared by SCAG and the MTA over the past decade have identified the need for transit improvements in the Southern California region, especially in Los Angeles County, to meet the mandates of the federal Clean Air Act and address the increasing mobility needs of the region. Current freeway and surface arterial street facilities cannot be expanded sufficiently to handle the forecasted demand for mobility. Regional forecasts for the year 2020 based on 1990 census data estimate that person trips will increase by over 40 percent in the region and by almost 30 percent in Los Angeles County. The MTA, in the development and adoption of its 1992 30-Year Integrated Transportation Plan, addressed the mobility deficiency issues identified in the regional plan developed by SCAG. Subsequent travel demand forecasting conducted for the update of the MTA Long Range Plan has confirmed the continuing need for improvements in mobility.

The existing population and employment density in the Eastside Corridor is high and very transit supportive. The corridor transit work trip mode split is 2.8 times higher than Los Angeles County as a whole. The corridor has a high concentration of low-income, minority, transit-dependent residents. Over 19 percent of workers use the bus system on their journey to work (as compared to 6.8 percent for Los Angeles County as a whole), and rates of carpooling and walking to work are higher than the County average. Employment densities are six times higher within the Eastside Corridor than Los Angeles County as a whole. The corridor is growing (20 percent population and 30 percent employment growth between now and 2020), and a new transit investment would make the Corridor attractive for other types of urban investment in the future. This will make the corridor even more transit supportive over time, as new investments are attracted by transit and community centers and encouraged by potential development and tax incentives offered by other agencies responsible for these issues.

All major freeways serving the Eastside Corridor area are currently operating above their design capacities during peak periods, and for significant durations during off-peak periods. No major improvements to existing freeways in the study area are identified in the current SCAG Regional Transportation Plan except for the extension of the I-710 freeway north to Pasadena. During previous project scoping and community meetings, residents of the Eastside Corridor expressed their desire for improved transit service because many are transit-dependent and need improved access to the region's educational, employment and cultural opportunities. Current meetings with Eastside Corridor elected officials have confirmed the need for improved transit service and connections to the regional system, especially in light of community initiatives for revitalization, employment opportunities, and economic development on the Eastside. The project now under study in this SEIS/SEIR will further these goals and contribute to an improved overall transportation system for the Los Angeles region and for the Eastside Corridor specifically.

S.3 ALTERNATIVES CONSIDERED

S.3.1 Previous EIS/EIR and Suspended Project (1990 –1998)

Eastside Corridor planning for the Red Line Extension was initiated in 1990 through the Alternative Analysis/Draft Environmental Impact Statement/Draft Environmental Impact Report (AA/DEIS/DEIR) process. Following extensive public review of the ten alternatives presented in the April 1993 AA/DEIS/DEIR document, the MTA Board of Directors in June 1993 selected the Locally Preferred Alternative (LPA) for the Los Angeles Eastside Corridor. The LPA was subsequently incorporated into the Southern California Association of Governments's (SCAG's) Regional Mobility Element (RME) planning process and included as part of the regional Air Quality Management Plan. The East Side Extension Preferred Alternative was identified as a heavy rail subway line from Union Station to Whittier/Atlantic Boulevard, to be implemented in two phases.

The Final EIS/EIR for the Eastside Corridor was completed in June 1994. It evaluated the LPA to ensure that all significant environmental consequences and all reasonable and feasible mitigation measures were considered in its selection. The Record of Decision was signed on December 1994. Full Funding Grant Agreements were subsequently executed with the Federal Transit Administration and the projects were transitioned into the construction phase.

In January 1998, the MTA suspended work on extensions of the Metro Red Line heavy rail subway project, including the initial 3.7-mile segment of the Eastside LPA from Union Station to First/Lorena. Since the suspension, several planning initiatives have provided further guidance for the development of Eastside transit alternative improvements.

The MTA Restructuring Plan titled: *Analysis and Documentation of the MTA's Financial and Managerial Ability to Complete North Hollywood Rail Construction and Meet the Terms of the Bus Consent Decree*, was adopted by the MTA Board of Directors on May 13, 1998 and subsequently approved by the FTA on July 2, 1998. The Restructuring Plan documented that the MTA did not have sufficient local matching funds to finance heavy rail subway projects in the Eastside and Mid-City corridors as anticipated in the original Full Funding Grant Agreements for those projects. At the same time, the Restructuring Plan called for the MTA to study "viable and effective options" for transit in all parts of Los Angeles County, with an emphasis on the corridors in which the rail lines had been suspended.

Within the Eastside and Westside corridors, this necessitated the examination of alternative fixed guideway options to heavy rail subway. It also committed the MTA to a reevaluation of the financial capacities of the agency to undertake new start, fixed guideway projects. To that end, the Board authorized the Regional Transit Alternatives Analysis (RTAA) Study that commenced in July 1998 and was completed in November 1998.

The RTAA Study accomplished several important objectives for the MTA. The study identified the amount of funding available for new projects between FY1999 and FY2004. It suggested possible funding allocations, identified immediate bus transit improvements in Los Angeles County, and established a framework for further fixed guideway project development in the Eastside, Westside, and San Fernando Valley corridors.

The study included a preliminary evaluation of fixed guideway alternatives in the three corridors. The study did not make recommendations with regard to preferred fixed guideway transit modes or configurations, but recommended that a Major Investment Study (MIS) level of analysis be conducted to provide more information regarding these choices.

Results of the RTAA Study were presented to the MTA Board on November 9, 1998. At that meeting, the Board approved the concept of a recommended rapid bus system serving the Eastside, Westside and San Fernando Valley. The Board also reaffirmed its commitment to fund fixed guideway transit improvements beyond rapid bus in the suspended rail corridors. A priority funding commitment of $220 million through FY2004 was made to the Eastside and Mid-City areas from remaining uncommitted funds.

In a step made to obtain greater flexibility in project definition for the project corridors, the MTA sought to expand the definition of Metro Red Line Segment 3. Segment 3 was defined in both the Intermodal Surface Transportation and Efficiency Act (ISTEA) and the Segment 3 Full Funding Grant Agreement as a "heavy rail subway" project. With the cooperation and assistance of the Los Angeles congressional delegation, the MTA obtained revised definitional language in the Transportation Equity Act for the Twenty-First Century (TEA-21), which was signed into law by the President on June 9, 1998. This action was taken with the intent to have the option available to utilize the Segment 3 funding balance in the future for any type of fixed guideway project in the Eastside and other corridors. The TEA-21 legislation expanded the definition of the Segment 3 project to include "any fixed guideway project" (not necessarily heavy rail subway) in the transportation corridors to be served by the three extensions of Segment 3. It also authorized the start of final design and construction for the Segment 3 project during the FY1998-2003 funding cycle under FTA section 5309 (new starts funding).

A 1998 ballot initiative sponsored by County Supervisor Zev Yaroslavsky, referred to as the Metropolitan Transportation Authority Reform and Accountability Act, was approved (and became effective) on November 3, 1998. The most significant provision of the new law stipulates that no local Proposition A or C sales tax monies will be used to fund the planning, design, construction, or operation of any New Subway. The term "New Subway" is defined to mean any subway project (a rail line which is in a tunnel below grade) other than the Metro Red Line Segments 1,2 or 3 (North Hollywood). As a result, the initiative prohibits the use of these sales tax revenues to build subway extensions in the Eastside or Mid-City/Westside corridors.

The initiative does not prohibit the use of sales tax revenues to design and construct light rail, at-grade rail, elevated rail systems, or busways in the Eastside, or other areas of Los Angeles County. Nor does this initiative prevent the MTA from using State or Federal revenues or local revenues other than sales tax, to design and construct a new subway in the Eastside or other areas.

S.3.2 Re-Evaluation/Major Investment Study (1999 –2000)

In June 1999, the MTA initiated a Re-Evaluation/Major Investment Study (MIS) for the Eastside Transit Corridor. The MTA also authorized parallel Re-Evaluation/Major Investment Studies for the Mid-City/Westside and San Fernando Valley Corridors.

There were two major objectives for the Eastside Corridor Re-Evaluation/MIS study: (1) develop alternatives to the Suspended Project, and (2) identify the corridor long term transportation needs to be addressed in the MTA Long Range Plan. The Re-Evaluation/MIS Report provided the public and MTA Board of Directors the technical information needed in order to make an informed decision related to selecting an alternative or alternatives that satisfy the needs of the Eastside Corridor. The selected alternatives will then be subject to the next phase of analysis, which is the preparation of this Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (Draft SEIS/SEIR).

S.3.2.1 First-round Screening of Alternatives

The MIS included not only alignments but also three different transit modes: Bus Guideway (also called Bus Rapid Transit or Busway and predominately at-grade or surface running); Light Rail Transit (mainly at-grade or surface running) and Heavy Rail Transit (mainly subway). The first task was to assemble and document the alternatives that had been considered over the last ten years. Six major relevant studies (listed below) have been conducted in the Eastside Corridor.

1. Regional Transit Alternatives Analysis, November 1998, MTA.
2. East Los Angeles Study for 1st District, October 1998, ACG Environments.
3. 1998 RTP Transit Restructuring Evaluation, East Los Angeles, Transit Corridor Technical Report, July 1998, SCAG.
4. Los Angeles East Side Extension, FEIS/FEIR, September 1994, MTA.
5. Route 10/60 Corridor Preliminary Planning Study, June 1993, MTA.
6. Los Angeles Eastside Corridor, AA/DEIS/DEIR, April 1993, MTA.

From these six studies as well as input from the public and staff, 47 alternatives were identified. The goal was to reduce the identified alternatives to eight fixed guideway alternatives for analysis in the MIS in addition to the No-Build and Transportation Systems Management (TSM) Alternatives. The eight alternatives had to consider the three possible modes of fixed guideway transit and service the full length of the Eastside Corridor.

As part of the Federal and local project development and environmental clearance process, a local and Federal process called "scoping" was initiated in addition to a very aggressive public involvement program. The scoping process was initiated with the cooperation of the Federal Transit Administration (FTA) and was properly noticed through a Federal Notice of Intent (August 13, 1999) and the State required Notice of Preparation (August 10, 1999) by MTA. The purpose of the intensive scoping process was to invite interested individuals, organizations, and Federal, State, and local agencies to participate in defining the alternatives to be evaluated in the Re-Evaluation Major Investment Study (MIS) and the subsequent environment impact statement and report and identifying any significant social, economic, or environmental issues related to the alternatives. The study area was defined in the scoping information booklets and the 47 alternatives were shown at the scoping meetings.

Three official community scoping meetings were noticed and conducted on August 24, 1999; August 26, 1999; and September 2, 1999 plus seven major follow-up community meetings were conducted over the course of the study and discussed in Chapter 6 of this document. Over 270 persons attended the three community scoping meetings and the comments are fully documented in the *Scoping Meeting Summary Report* dated September 24, 1999. In addition to the three community scoping meetings a separate governmental agency scoping meeting was conducted on August 25, 1999 at MTA Headquarters. Their comments are also documented in the *Scoping Meeting Summary Report*.

To further enhance the initial community outreach program for the MIS, meetings with the MTA Review Advisory Committee (RAC) for the Eastside were conducted on July 21, 1999; August 4, 1999; and August 18, 1999. These meetings brought the RAC up to date on the efforts that had been initiated by MTA and presented the study process and schedule leading to a decision for an Eastside fixed guideway transit project by the MTA Board of Directors. The meeting agendas, distributed materials, and meeting minutes are also included in the *Scoping Meeting Summary Report*.

In addition to the above meetings with the community, meetings were held with the MTA Elected Officials Committee (representing the Eastside communities), and a number of community ad-hoc meetings were conducted during the scoping period. Throughout the whole MIS process, a very extensive public outreach program was conducted and is summarized in Chapter 6 of the Draft SEIS/SEIS document.

In order to reduce the number of identified alternatives, the first task was to identify a list of screening evaluation criteria that could be applied to the 47 alternatives. This was a very difficult and controversial undertaking by the staff and consultant team. A number of staff and consultant team work sessions were undertaken after scoping to identify the eight fixed guideway alternatives to be analyzed. Some 32 measures or criteria, listed below, were used in the first round of screening.

1. Alternative considered in formal MTA study process.
2. Scoping meetings input – support.
3. Right-of-way acquired by the MTA is not used.
4. Alternative eliminated by previous studies.
5. Alternative does not penetrate the corridor.
6. Alternative does not serve major activity centers.
7. Section 4(f) or 106 properties (recreational or cultural resources) potentially affected.
8. Parking for businesses is removed.
9. Sensitive resources are affected by noise, vibration, etc.

10. Connections with existing transit facilities are non-existent.
11. Access is provided to high-density areas.
12. Major right of way impacts anticipated.
13. Major traffic impacts anticipated resulting in slow travel times.
14. Redevelopment/development potential low.
15. Major impacts on utilities.
16. Construction implementation difficult.
17. Major new structures or other high cost items are needed.
18. Major existing structures will be impacted.
19. Community supports the alternative.
20. Elected officials support for the alternative.
21. Equity is an issue.
22. Major visual impacts on surroundings.
23. Potential high contaminated lands affected (from previous studies).
24. Geotechnical/seismic issues.
25. Lane miles of traffic lanes removed.
26. Lane miles of parking lanes removed.
27. Provisions for north-south bus interface connections (major MTA, Montebello, and other community bus systems).
28. Cultural resources potentially impacted; schools, parks, churches, hospitals and cemeteries.
29. Street curb-to-curb width.
30. Street right-of-way width.
31. Serves the study goals and objectives.
32. Conceptual preliminary cost within reason.

From the 47 alternatives, some 15 alternatives were chosen for further consideration after the first round of evaluation.

S.3.2.2 Second-Round Screening of Alternatives

A second round of evaluation was conducted in order to reduce the number of alternatives to eight. The eight alternatives were chosen based on a review of previous alternatives and studies, three fixed guideway technologies (Bus Rapid Transit, Light Rail Transit, and Heavy Rail Transit), a workshop by the consultant team to consider the initial screening criteria in reducing the number of alternatives, discussion with the MTA/consultant study team, identification of logical termini (Union Station and Whittier/Norwalk Boulevards) to serve the identified study area, and the basic objective to recommend eight build alternatives for analysis in the Re-Evaluation/MIS Report.

Other assumptions included the provision that no traffic lanes would be replaced for the at-grade alignments, as much on-street parking would be retained as possible, and that the fixed guideway technologies would operate on exclusive rights-of-way. In addition, a key assumption was that the alternatives presented be implementable, even though they may have impacts and capable of being constructed in phases over time based on the resources available.

S.3.2.3 Alternatives Considered for Evaluation in Re-Evaluation MIS

Based on the community, technical staff, and consultant team inputs, eight fixed guideway build alternatives, the No-Build Alternative, and the TSM Alternative were developed for environmental and technical analysis in the study. The alternatives are summarized below.

The No-Build Alternative includes all highway and transit projects and operations that the region and MTA expect to be in place in the year 2020 (the future analysis year for the Draft SEIS/SEIR). These include improvements to the local bus system and the completion of the Red Line to North Hollywood and the Pasadena Blue Line to Sierra Madre Villa in Pasadena.

The Transportation System Management (TSM) Alternative is defined by the Federal Transit Administration (FTA) as the No-Build Alternative plus lower cost transit capital and operational improvements that are intended to enhance the performance of the transportation system within the study corridor. The TSM Alternative in comparison to the "build" alternatives should be a relatively low cost approach to addressing the transportation problems. The TSM should represent the best that can be done to improve transit mobility in the corridor without the construction of major new transit facilities. The TSM Alternative for the Eastside Corridor includes additions in bus service frequencies to the major east-west and north-south existing transit routes as well as the implementation of the Whittier/Wilshire Rapid Bus line from Whittier and Garfield (Montebello) to Colorado and Ocean (Santa Monica). This Rapid Bus Line was approved for implementation in June 2000 and provides a combined operating frequency of 1.75 minutes during the peak periods and five minutes during the off-peak periods. There are 24 stops along the route with six on the stops within the Eastside Corridor study area. This service would provide a strong linkage (no transfers) between a portion of the Eastside Corridor study area to Downtown, Mid-Wilshire, and the far westside of Los Angeles. The TSM Alternative also includes more frequent service for the Metro Red Line.

The eight fixed guideway build alternatives are listed below.

1. Bus Rapid Transit (BRT) (Dedicated Busway), At-Grade. 1st/Alameda to Union Station (northside) to Whittier and Norwalk Boulevards via Cesar Chavez, Soto, 4th, 3rd, Beverly, and Whittier.

2. Bus Rapid Transit (Dedicated Busway), At-Grade. Union Station (southside) to Whittier and Norwalk Boulevards via Alameda, 1st, Soto, 4th, 3rd, and Whittier.

3. Light Rail Transit (LRT), At-Grade. Union Station (southside) to Whittier and Norwalk Boulevards via Alameda, 1st, Soto, 4th, 3rd, and Whittier.

4. Bus Rapid Transit (Dedicated Busway), At-Grade. Union Station (southside) to Whittier and Norwalk Boulevards via Alameda, 1st, Soto, 4th, 3rd, Beverly, and Whittier.

5. Light Rail Transit, At-Grade. Union Station (southside) to Whittier and Norwalk Boulevards via Alameda, 1st, Soto, 4th, 3rd, Beverly, and Whittier.

6. Light Rail Transit. At-grade Union Station (southside) to 1st/Boyle. LRT (subway) 1st/Boyle to 1st/Lorena. LRT (at-grade) from 1st/Lorena to Whittier and Norwalk Boulevards via Alameda, 1st, Indiana, 4th, 3rd, and Whittier.

7. Heavy Rail Transit and Light Rail Transit. Heavy Rail (subway) from Union Station to 1st/Lorena subway station with a subway station at 1st/Boyle and 1st/Lorena. Light Rail Transit (at-grade) from 1st/Lorena to Whittier and Norwalk Boulevards via Indiana, 4th, 3rd, Beverly, and Whittier.

8. Heavy Rail Transit and Bus Rapid Transit (Dedicated Busway). Heavy Rail (subway) from Union Station to Chavez/Soto subway station with a subway station at 1st/Boyle. Bus Rapid Transit (at-grade) from Chavez/Soto to Whittier and Norwalk Boulevards via Soto, 4th, 3rd, Beverly, and Whittier.

In the Re-Evaluation/MIS study each of the eight fixed guideway alternatives, the TSM Alternative, and the No-Build Alternative were analyzed with respect to each of the environmental conditions or potential impacts listed below. In addition preliminary mitigation measures were discussed for each of the potentially adverse impacts identified.

- Transit Service Levels
- Transit Ridership
- Traffic
- Parking
- Land Use and Development
- Population and Employment
- Residences and Businesses Displaced
- Environmental Justice
- Visual and Aesthetic
- MTA Arts Program
- Air Quality
- Noise and Vibration
- Geotechnical
- Hazardous Substances
- Water Resources
- Wetlands
- Energy
- Cultural/Paleontologic Resources
- Parks and Recreation Facilities
- Major Utilities
- Safety
- Capital Costs
- Operating and Maintenance Costs
- Community Involvement Response

S.3.2.4 MTA Board Action (February 24, 2000)

In February 2000, the MIS study recommendations were presented to the Board of Directors of the MTA. The Board considered the environmental and technical information contained in the MIS study in making their decision. On February 24, 2000, the Board adopted a Light Rail Transit (LRT) Build Alternative that would extend from Union Station (as an extension of the Pasadena Blue Line) to Beverly and Atlantic Boulevards utilizing Alameda St., 1st St., 3rd St. and Beverly Boulevard, with a tunnel under Boyle Heights from approximately Utah St. to Lorena St. under 1st St. In selecting the LRT Build Alternative, the Board considered the reduced environmental impacts associated with tunneling through Boyle Heights as represented by the chosen alternative. The Board adopted alternative was a combination of alignments and station locations from the MIS Alternatives 5 and 6. The Board also directed that Bus Rapid Transit (BRT) be further studied in the EIS phase of project development, subject to financing availability for the LRT Build alternative.

S.3.2.5 MTA Board Action (June 22, 2000)

On June 22, 2000, the MTA Board of Directors officially dropped the Bus Rapid Transit technology from any further analysis and consideration in the project development phases and in this Draft SEIS/SEIR. The basis for the Bus Rapid Transit technology to be officially dropped from further consideration was based on the project funding being approved for the LRT Build Alternative in the State's Traffic Congestion Relief Program.

In addition, the Southern California Association of Governments (SCAG) found the MIS study process and technical work effort conducted for the Eastside Transit Corridor in full compliance with SCAG's adopted procedures. A Letter of Completion has been approved by SCAG. SCAG has also determined that the LRT Build Alternative, as the Locally Preferred Alternative for the Los Angeles Eastside Corridor, is part of the currently adopted Regional Transportation Plan and the Transportation Improvement Program.

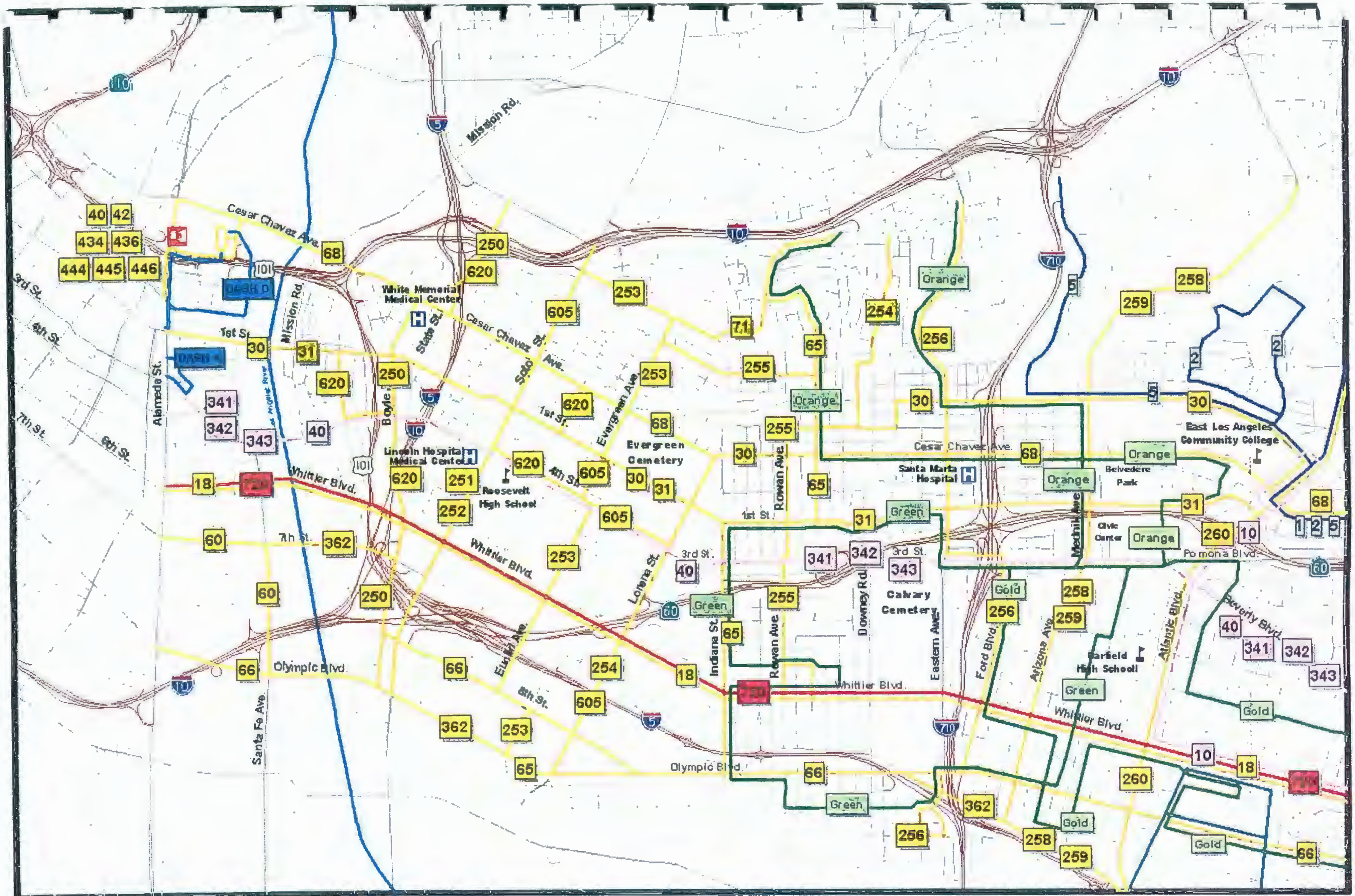
S.3.3 Alternatives Considered in this Draft SEIS/SEIR

S.3.3.1 No-Build Alternative

The No-Build Alternative, as defined by FTA, should represent the baseline case consisting of existing and committed elements of the region's transportation plan, excluding the proposed fixed guideway transit (bus and light rail transit) investments for the study corridor. The No-Build Alternative includes all highway and transit projects and operations that the region and MTA expect to be in place by the year 2020. These include improvements to the local bus systems and operation of the existing Red, Blue, and Green Lines as well as completion of the Pasadena Blue Line from Union Station to Sierra Madre Villa in Pasadena.

Transit Service

Figure S-2 shows the Eastside bus routes by MTA, Montebello, Monterey Park, Commerce, LADOT, and Los Angeles County in the Eastside service area. Table S-3 shows the existing weekday service frequencies for the major bus routes in the Eastside Corridor as well as the frequencies planned for the No-Build Alternative. The development of the No-Build Alternative was based on a fiscally constrained local and regional plan. Additional service improvements are proposed for a number of the major east-west and north-south transit routes as well as more frequent service for the MTA operated rail lines as shown in Table S-4.



LEGEND

31 MTA Routes
720 Metro Rapid Route
40 Montebello Routes
5 Monterey Park Routes
LADOT Routes
GOLD LA County Shuttle Routes
Commerce (All Routes)

Eastside Corridor Transit Consultants

Los Angeles Eastside Corridor SEIS/SEIR

Existing Bus Route System

Year 2000

Figure S-2

TABLE S-7
SUMMARY OF IMPACTS

Alternative[1]	Potential Environmental Impacts	CEQA Determination of Signficance	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	♦ Ridership will increase in the corridor. 2020 Eastside LRT daily transit boardings = 15,230	Beneficial	None required.	N/A
	♦ A premium transit service would be introduced that is regionally serving and provides improved service reliability and reduced transit travel times.	Beneficial	None required.	N/A
	♦ Greater access to regional transit opportunities and improved regional transit connectivity will be provided.	Beneficial	None required.	N/A
	♦ Some bus routes would be rerouted to provide improved access to LRT.	Not significant	None required.	N/A
	♦ 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.	Beneficial	None required.	N/A
	♦ Some bus stops may be relocated to provide better interface with the LRT stations.	Potentially significant	♦ Replacement bus stops would be designated within 1/8 mile of original stop.	Less than significant
Traffic				
No-Build	No impacts anticipated.	N/A	N/A	N/A
LRT Build	54 traffic intersections in study area were evaluated to determine 2020 levels of service (LOS). The results are:			
	♦ 32 intersections would not be adversely affected.	Not significant	♦ None required.	N/A
	♦ 22 intersections would be adversely affected.	Significant	♦ 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.	8 intersections-Less than significant 14 intersections-significant
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 Signficance	Mitigation Measures	CEQA Significance After Mitigation[2]
LRT Build Option 1 Option 2 Option 3	♦ 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: ♦ 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	♦ 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: ♦ 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 1st 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 Signficance	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	♦ Generally compatible with local and regional plans and land use policies.	Beneficial	N/A	N/A
	♦ Provides improved access and mobility in support of redevelopment and revitalization areas in the corridor.	Beneficial	N/A	N/A
	♦ Transit-oriented development districts will likely be spurred by the project.	Beneficial	N/A	N/A
	♦ 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.	Potentially significant	♦ The remaining space on acquired parcels would be reconfigured and made available for neighborbood commercial and medium-density residential uses as designated in the plan.	Less than significant
	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	♦ Generates 1,078 direct and indirect jobs over 1st 14 years to operate and maintain LRT and bus service	Beneficial	None required.	N/A
	♦ 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.	Not significant		
	♦ Will not require additional fire or police staff or services.	Not significant		
	LAND ACQUISITION/DISPLACEMENT AND RELOCATION			
No-Build	No impact anticipated.	N/A	N/A	N/A
LRT Build Option 1	♦ Acquisition of 4 multi-family and 9 single-family units displacing 52 persons; 9 businesses displaeing 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	♦ Relocation assistance under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and California Relocation Act.	Less than significant
Option 2	♦ 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	♦ Implement MTA's Housing Replenisbment 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 Signficance	Mitigation Measures	CEQA Significance After Mitigation[2]
	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.		the MTA station sites and adjacent properties as well as other projects in the study area through establishment of a revolving loan fund.	
Option 3	♦ Same as Option 1 except surface easement to be obtained between 1st/Gless and 3rd/Hicks.	Significant	♦ MTA to provide funds for job training for persons unable to find a job as a result of business relocations.	Less than significant
All options	♦ 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.	Potentially significant	♦ None available	Potentially significant
	COMMUNITIES/NEIGHBORHOODS			
No-Build	No adverse or beneficial impacts anticipated.			
LRT Build	♦ Provides new transit connections and increased mobility.	Beneficial	See mitigation measures described in the Land Acquisition/Displacements, Transportation, and Noise and Vibration sections.	Acquisitions and displacements, parking, sidewalk narrowing, pedestrian and bicycle, noise and vibration, and 7 intersection impacts would be less than significant
All options	♦ Acquisition and displacement of residences as discussed in Land Acquisition/Displacements section.	Significant		
All options	♦ Loss of parking spaces as discussed in Transportation section.	Potentially significant		
All options	♦ Pedestrian and bicycles affected as discussed in Transportation section.	Significant and potentially significant		
All options	♦ Sidewalks at two stations along 1st St. would be narrowed 4 feet.	Potentially significant		
Option 1	♦ Sidewalks along west side of Indiana St. would be narrowed 2 feet.	Not significant		
All options	♦ 22 traffic intersections would be adversely affected.	Significant		14 of 22 intersections would be significant
All options	♦ Moderate noise impacts as discussed in Noise and Vibration section.	Not significant		
All options	♦ Ground-borne noise and vibration impacts as discussed in Noise and Vibration section.	Significant		
	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	♦ Benefits include equity, mobility, regional connectivity, and economic benefits to the community.	Beneficial	None required.	N/A
	♦ Adverse impacts include acquisitions and displacements; loss of curb parking; localized vibration, traffic, and circulation impacts; and temporary impacts during construction.	Potentially significant to significant	See Noise and Vibration, Land Acquisition/Displacement, Transportation, and Construction Impacts discussions.	See Communities/ Neighborhoods discussions

TABLE S-7 SUMMARY OF IMPACTS				
Alternative[1]	**Potential Environmental Impacts**	**CEQA Determination of Signficance**	**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 1st St. Bridge.	Significant	♦ Impacts on 1st 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 3rd 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.			
LRT Build Options 1, 2	♦ Moderate noise impacts anticipated on 36 single-family, 29 multi-family, and 6 residential/commercial mixed units totaling 71 receptors. No severe impacts anticipated. Ground-borne noise impacts anticipated on 43 single-family, 12 multi-family, and 11 residential/commercial mixed units totaling 66 receptors. Vibration impacts 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	Noise- N/A Ground-borne noise and vibration- Less than significant

TABLE S-7 SUMMARY OF IMPACTS				
Alternative[1]	**Potential Environmental Impacts**	**CEQA Determination of Signficance**	**Mitigation Measures**	**CEQA Significance After Mitigation**[2]
Option 3	and the Veterans Clinic totaling 95 receptors. ♦ Moderate noise impacts anticipated on 18 single-family, 24 multi-family, and 6 residential/commercial mixed units totaling 48 receptors. No severe impacts anticipated. Ground-borne noise impacts anticipated on 67 single-family, 20 multi-family, and 11 residential/commercial mixed units totaling 98 receptors. Vibration impacts anticipated on 26 single-family, 24 multi-family, and 3 residential/commercial mixed units, 2 museums, and the Veterans Clinic totaling 56 receptors.		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.	
	GEOLOGIC/SEISMIC CONDITIONS			
No-Build	No impacts anticipated.			
LRT Build	♦ 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.	Potentially significant Potentially significant Potentially significant Potentially significant Potentially significant Potentially significant	♦ 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.	Less than significant Less than significant Less than significant Less than significant Less than significant Less than significant
	HAZARDOUS MATERIALS			
No-Build	No impacts anticipated.			
LRT Build	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.	Potentially significant	Use of gas barriers, continuous monitoring, and auxiliary ventilation similar to that in operation for the Metro Red Line will be implemented.	Less than significant

TABLE S-7
SUMMARY OF IMPACTS

Alternative[1]	Potential Environmental Impacts	CEQA Determination of Signficance	Mitigation Measures	CEQA Significance After Mitigation[2]
	WATER RESOURCES			
No-Build	No impacts anticipated.			
LRT Build	♦ Surface water-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.	Potentially significant	♦ 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.	Less than significant
	♦ Floodplain-No above or underground facilities would be located within the 100-year floodplain.	No impact		
	♦ Ground water-Dewatering activities and subsequent discharge may occur during operations.	Potentially significant	♦ Any leaks into the tunnel would be pumped with a sump pump. The appropriate permits would be obtained as required.	Less than significant
	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	♦ There is a potential for collisions between LRT vehicles and automobiles and pedestrians.	Potentially significant	♦ 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.	Less than significant
	♦ Patron safety could be an issue in the LRT vehicles and stations especially in the subway segment.	Potentially significant	♦ 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.	Less than significant
	♦ Car thefts, robberies, vandalism, loitering, and other crimes have the potential to occur around stations and parking facilities and in the LRT vehicles.	Potentially significant	♦ MTA will work with the LAPD and the County Sheriff to establish plans similar to those in existence on other Metro rail lines.	Less than significant

TABLE S-7 SUMMARY OF IMPACTS				
Alternative[1]	**Potential Environmental Impacts**	**CEQA Determination of Signficance**	**Mitigation Measures**	**CEQA Significance After Mitigation[2]**
			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.	
	♦ Emergency vehicles may be delayed responding to an emergency not involving the LRT system.	Potentially significant	♦ 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.	Less than significant Less than significant
	♦ Emergency vehicles may be delayed responding to an emergency involving the LRT system.	Potentially Significant	♦ The facility will be designed with appropriate operating equipment, hardware, procedures and software subsystems to provide for protection of life and property.	Less than significant
	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 1st/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 1st/Soto would require a MOA with SHPO if resources are determined eligible for the National Register. Measures would be taken to replicate the historic setting.	Less than significant
All options	♦ 1st/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		

TABLE S-7 SUMMARY OF IMPACTS				
Alternative[1]	**Potential Environmental Impacts**	**CEQA Determination of Signficance**	**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 1st/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 signficant	♦ Provide a crossing guard at nearby schools if requested by school administrators ♦ Work with LAUSD and private institutions along alignment to implement mutually agreed upon safety measures.	Less than significant
Option 1	♦ Parking losses near Ramona High School.	Significant	♦ 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 Signficance**	**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 Options1, 2	♦ 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	♦ 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.	Potentially significant
Option 3	♦ Same as Options 1 and 2 except that parking along Indiana St. would not be affected.	Significant		
All options	♦ 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	♦ 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.	Potentially significant
All options	♦ 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	♦ 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 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 Signficance	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	♦ 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 Signficance**	**Mitigation Measures**	**CEQA Significance After Mitigation**[2]
	♦ The 1st/Gless portal excavation site could affect use of adjacent Pecan Park.	Significant	♦ 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	♦ 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	♦ Temporary traffic, access, circulation, noise and vibration, and air quality impacts.	Potentially significant	♦ 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	♦ 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.	Potentially significant Potentially significant Potentially significant	♦ 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.	Less than significant Less than significant Less than significant
	Hazardous Materials-Construction Impacts			
LRT Build	♦ Minor quantitites of subsurface gases such as methane and hydrogen sulfide may be encountered during tunnel and station excavations.	Potentially significant	♦ 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 Signficance	Mitigation Measures	CEQA Significance After Mitigation[2]
			Continuous gas monitoring would be undertaken, as needed, and additional ventilation provided if concentrations exceed action levels.	
	♦ 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	♦ 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.	Less than significant
			♦ Remove and dispose, treat and recycle at a permitted facility, or remediate contaminated soil offsite for disposal as clean fill in a landfill.	Less than significant
	Water Resources-Construction Impacts			
LRT Build	♦ Surface water-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.	Not significant	♦ 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.	Less than significant
			♦ 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.	Less than significant
	♦ Floodplains-No construction will occur within the Los Angeles River floodplain.	No impact	♦ Mitigation not required. However, crossing of the Los Angeles River will require consultation with the County and COE.	N/A
	♦ Ground water-Shallow and perched ground water may be present in the tunnels or underground station construction requiring dewatering activities. Contaminated groundwater may be encountered.	Potentially significant	♦ Use dewatering systems as discussed in the geologic/seismic conditions section.	Less than significant
			♦ Employ remedial options for contaminated ground water in conformance with local, state, and federal regulations.	Less than significant
	Natural Resources and Ecosystems-Construction Impacts			
LRT Build	No construction impacts.	No impact	None required.	N/A

TABLE S-7 SUMMARY OF IMPACTS				
Alternative[1]	**Potential Environmental Impacts**	**CEQA Determination of Signficance**	**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 IMPACTS[1] MAINTENANCE AND STORAGE FACILITY OPTIONS						
	Option 1 Red Line[2]		**Option 2 West Bank[2]**		**Option 3 East Bank[2]**	
Impact Category	**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.

S.5 FINANCIAL ANALYSIS AND EVALUATION

S.5.1 <u>Financial Analysis</u>

The cost of a transportation investment falls into two categories: capital costs, and operating and maintenance (O&M) costs. Capital costs are the start-up costs for the project, including the costs of guideway construction, vehicles, and any system facilities necessary before the project can begin operation. Operating and maintenance costs are the costs associated with the regular running of a new transportation facility. Costs such as labor, vehicle maintenance, and overall facility maintenance all fall into this category.

This section discusses both types of costs, presents the proposed capital financing plan, and then analyzes the Los Angeles County Metropolitan Transportation Authority (MTA's) ability to afford the alternatives.

S.5.1.1 Capital Cost Estimates

This section summarizes the capital cost estimates for the LRT Build Alternative and its three options along with a comparative capital cost estimate of the three Maintenance and Storage Facility (M&SF) options. The No-Build Alternative does not have any associated capital costs for comparative purposes as they are considered in the overall financial capability of the MTA with the LRT Build Alternative.

LRT Build Alternative

Cost estimates are developed by identifying quantities on conceptual drawings and applying standardized rates. For guideways and/or alignment lengths, typical cross sections provided a basis for identifying costs on a linear foot basis. The alignment plans, typical cross sections, and station concepts are included in Appendix E of the Draft SEIS/SEIR. In other cases, unit costs were developed and applied on a per item basis to account for non-linear cost elements such as parking spaces, stations, vehicles, etc. In addition, capital costs for both additional buses (for the expanded bus services) and the LRT vehicles as well as an allowance for a maintenance and storage facility has been included. The capital cost estimates were prepared with all costs expressed in 1999 dollars.

The total capital cost includes allowances for Owner Controlled Insurance Program (OCIP), professional services (preliminary engineering, final design, design services during construction, agency costs, construction management, specialty subconsultants), at-grade yard leads, bridge retrofit, testing and pre-revenue operations, environmental mitigation, urban design allowance, and artwork. Additionally, contingency has been included for construction, vehicles, and Right-of-Way (ROW) & program implementation.

In addition, a tentative implementation schedule was needed in order to conduct the financial analyses as required by the Federal Transit Administration (FTA). The capital costs are also presented in year-of expenditure dollars. Year of expenditure dollars are important because they take into account inflation over the time of project development. The year of expenditure estimate is an estimate of the actual cost of the project and its options.

Table S-9 presents the total capital costs (in millions of dollars) for each of the three options for the LRT Build Alternative in both 1999 dollars and in year of expenditure dollars. The year of expenditure capital costs vary between $715 million (LRT Option 1) and $855 million (LRT Option 3). The major difference in capital cost between the three options is that Option 3 has an additional 3,000 feet of tunnel construction along with an additional underground station. Option 3 will also take an additional one to two years to complete construction and begin operations compared to Options 1 and 2. The difference between Option 1 and Option 2 is attributable to the additional right-of-way and relocation costs for acquiring the residents and businesses on the west side of Indiana Street between 1st and 3rd Streets under Option 2. As will be discussed in the following sections, only Option 1 has funding identified and committed to it. The other two options do not have available funds to implement them.

TABLE S-9 CAPITAL COST ESTIMATES (1999 $ AND YEAR OF EXPENDITURE $)						
	1999 Dollars in Millions			Year of Expenditure Dollars in Millions		
Cost Category	**LRT Option 1**	**LRT Option 2**	**LRT Option 3**	**LRT Option 1**	**LRT Option 2**	**LRT Option 3**
Preliminary Engineering	$10.0	$10.0	$12.0	$10.4	$10.4	$12.7
Final Design	$24.0	$24.0	$28.1	$25.9	$26.1	$30.6
Right of Way	$38.0	$48.3	$38.0	$41.9	$53.9	$42.2
Construction	$401.9	$403.2	$487.3	$463.2	$476.2	$581.0
Vehicles	$90.0	$90.0	$90.0	$104.0	$105.3	$107.9
Contingency	$60.4	$63.3	$67.7	$69.2	$73.8	$80.1
Total Cost	**$624.3**	**$638.8**	**$723.1**	**$714.6**	**$745.7**	**$854.5**

Maintenance and Storage Facility Options

In Chapter 2 the three possible options for the Maintenance and Storage Facility (M&SF) are described and in Chapter 4.20 an initial comparative evaluation is presented that will allow for the selection of a locally preferred site that would be more detailed in Preliminary Engineering and the Final SEIS/SEIR. The capital cost estimates presented above have a placeholder amount of approximately $56 million in 1999 dollars for an M&SF Facility. On a comparative cost basis Option 1 – Red Line Yard is expected to cost $52 million; Option 2 – West Bank Yard approximately $49 million; and Option 3 – East Bank Yard approximately $73 million. Options 1 and 2 are generally within the current budget while Option 3 is outside the existing budget amount.

S.5.1.2 Operating and Maintenance Cost Estimates

This section summarizes the Operating and Maintenance (O&M) cost estimate for the LRT Build Alternative. The O&M costs were determined using the MTA's O&M cost model. This cost model was developed to estimate O&M costs for MTA's bus, Blue Line, Green Line, and Red Line operating modes, as well as support department costs related to operations.

The MTA O&M cost model estimates staffing requirements, labor costs, and non-labor expenses by transit mode (i.e., Motor Bus, Blue Line, Green Line, Red Line) and department within each mode. The model is calibrated to MTA's fiscal year (FY) 1998-99 Adopted Budget. Overhead costs are allocated to the transit modes based on the allocations made for MTA's Adopted Budget. The model uses operating characteristics (e.g., peak vehicles, number of stations, passengers) to determine future costs. As future operating plans change (e.g., new rail lines are constructed), costs change accordingly.

For the No-Build and Eastside LRT Alternatives, O&M costs were calculated for the entire MTA system of bus, Red Line, Green Line and Blue Line services.

The costs were first estimated for the MTA's No-Build Alternative. The costs for the LRT Build Alternative were then estimated for the year 2020 in 1999 dollars. The LRT Build Alternative includes not only the operation and maintenance cost of the LRT service, but includes the cost of the enhanced bus system.

The increase in annual operating and maintenance cost for the LRT Build Alternative over the No-Build Alternative is approximately $22.5 million in the year 2020 in 1999-dollar equivalents. Of the $22.5 million additional cost required for the Eastside Corridor project, approximately $11 million would be spent on the LRT service and $11.5 million would be spent on supporting the increased bus services. There are basically no significant differences between the three LRT options that would affect the operating and maintenance costs. Conversely, because of the location of the three Maintenance and Storage Facility options, there would not be any significant operating and maintenance cost differences.

S.5.1.3 The Project Finance Plan

The Eastside LRT project became a reality in July 2000 when the Governor and the California State Legislature approved the Traffic Congestion Relief Program. This program provided $236 million in State funds for the Eastside LRT project. At the same time the MTA developed a comprehensive financial program that would demonstrate that MTA could construct and operate the Eastside Corridor project as well as fixed guideway projects in the San Fernando Valley and Mid-City/Wilshire corridors. The financial program is described in more detail in the following section. The Eastside LRT project has a capital budget of $714.6 million as described above. Based on the financial analysis, an additional $44.9 million may be needed to fund interest payments due to the implementation schedule and the cash flow anticipated from the Federal government. This would bring the total Eastside LRT project cost to $759.5 million. Table S-10 lists the anticipated source of capital funds and the expected amount as adopted by the MTA. No local funds are being used for the Eastside LRT project. Approximately 68.3 % of the funding is anticipated from Federal sources, with the balance coming from State-funded programs.

TABLE S-10
FUNDING SOURCES AND AMOUNT FOR EASTSIDE LRT PROJECT

Source	Amount ($, millions)	Amount ($, millions)
Federal		**$518.3**
FTA Section 5309 New Starts	$402.3	
FTA Section 5309 Fixed Guideway Modernization	$38.9	
Congestion Relief and Air Quality (CMAQ)	$37.2	
Regional Surface Transportation Program (RSTP)	$39.9	
State/Local		**$241.2**
State Traffic Congestion Relief Program	$236.0	
State Regional Improvement Funds (AB 1012)	$5.2	
TOTAL		**$759.5**

S.5.1.4 Financial Capability to Build and Operate

MTA has used its financial forecasting model for Los Angeles County to assess the financial feasibility of the Eastside Corridor alternative. This financial model is the tool used to project all capital and operating costs and revenues for all transportation modes in Los Angeles County from FY 2000 through FY 2025.

In a document submitted to the FTA (Section 5309 submittal, July 2000), the MTA provided detailed analysis from the financial forecasting model to establish the ability to fund projects in the Mid-City/Westside, San Fernando Valley, and Eastside corridors of Los Angeles County. The No-Build scenario was modeled to provide a baseline for the build alternatives. Initial No-Build scenario financial results indicated significant but manageable operating shortfalls could occur in FY 06 through FY 09 if no further actions are taken by the MTA. A $438 million operating deficit, or 3.3% of the total MTA operating budget of $13.2 billion, was projected for the period FY 2000-2010. This deficit is expected to be largely addressed through a number of cost reduction strategies, which is projected to essentially balance the No-Build scenario to within 0.5% of the overall operating budget. This balanced plan provides a basis for analyzing the financial impacts of introducing the three corridor projects.

The model includes revenues from the State Traffic Congestion Relief Plan (AB 2928) and FTA 5309 New Starts funds which are expected to provide 80% of the capital funding needed for the capital costs of the corridors. The balance of the capital funding plan for these projects will come from committed flexible federal funds (Congestion Relief and Air Quality - CMAQ and Regional Surface Transportation Program - RSTP) and local half-cent sales tax funds. The funding plan for the projects is stable and reliable given the commitments of funding recently realized. The financial analysis indicates that funding is available to complete the Eastside LRT Build Alternative Option 1 so that operations can begin as soon as November 2006.

The combined impacts of the San Fernando Valley, Mid-City/Westside and Eastside projects lead to a projected operating deficit of $151.2 million for the FY 2004-FY 2010 period, if no further actions are taken to balance the operating plan. The most challenging shortfalls are projected to occur in FY 2007, FY 2008, and FY 2009.

MTA has established a Cost Reduction Team whose goal is to reduce bus and rail hourly operating costs. The strategies developed by the team will be phased-in beginning in FY 2005 to reduce hourly operating costs by one dollar per year for six years, for a total of six dollars per hour in 2010. This cost reduction plan will achieve the $151.2 million systemwide savings needed to ensure a balanced operating plan with the three corridor projects.

The twenty-year cash flows indicate that MTA has the financial capacity to build and operate the Eastside LRT project including the supporting bus operations while continuing the operation and maintenance of the entire regional transit system. Selection of an Eastside LRT Build Alternative Option which requires funding beyond the financial analysis outlined in the Section 5309 submittal would need to be integrated into the MTA's Long Range Plan, since it would commit funds that could otherwise be considered for other projects.

S.5.2 Evaluation

This section provides a variety of measures to evaluate and compare the LRT Build Alternative to the No-Build Alternative. These measures are consistent with the FTA guidelines for assessing major investments. Enactment of the Transportation Equity Act for the 21st Century (TEA-21) in 1998 requires that FTA evaluate and rate candidate New Starts projects as the basis for approving projects for federal funding. Table S-11 summarizes the indices included in this section.

TABLE S-11
COMPARATIVE ANALYSIS OF ALTERNATIVES

Analysis Category	Measures
Effectiveness in Improving Mobility	Ridership
	Travel Time Comparison
	Travel Time Savings
Cost-Effectiveness	Annualized Cost per New Daily Transit Trip
Operating Efficiencies	Operating Cost per Passenger Mile
Equity	Discussion of Demographic Factors

This section ends with a discussion of the trade-offs between the No-Build Alternative and the LRT Build Alternative and the LRT Build Alternative options.

S.5.2.1 Effectiveness in Improving Mobility

Various elements serve as indicators of improved mobility. Ridership describes the amount of people using the proposed project, as estimated through a transportation demand model. A travel time comparison provides an understanding of how the proposed project performs during an average transit trip between two points. Travel time savings assess the annual hours of time saved for both transit and automobile users as a result of the proposed project.

Ridership

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

Ridership has been estimated for the proposed project (LRT Build Alternative) through the MTA's travel simulation model, based on the forecast year 2020. Model runs were performed for the No-Build Alternative and the LRT Build Alternative Option 1. Even though the LRT Build Alternative Option 3 is about 30 seconds (compared to total travel time of 15 minutes) faster between Beverly and Atlantic Boulevards to Union Station, the additional access time to the new subway station at 1st and Lorena negates any increase in transit ridership for Option 3 over Options 1 and 2.

The implementation of the LRT Build Alternative, which includes the additional bus system improvements, would increase transit trips by over 9,700 per day or over 3 million transit trips annually compared to the No-Build Alternative. The estimated daily ridership in the forecast year 2020 on the Eastside segment of the light rail line from Union Station to Beverly and Atlantic Boulevards is over 15,000 per day. With the combination Eastside segment and the Pasadena Blue Line, the estimated daily ridership in the forecast year 2020 is over 42,000.

Travel Time Comparisons

In order to compare the LRT Build Alternative to the No-Build Alternative related to showing mobility improvements related to reducing travel times, two points along the proposed LRT line were compared to four different destination points in the Los Angeles area. The four destination points included downtown Hollywood (Hollywood/Highland); Wilshire and Fairfax; Downtown Los Angeles (1st/Hill); and Pasadena Downtown (Fair Oaks/Colorado). 1st/Soto and 3rd/Mednik were used as the beginning points for the transit trip comparisons. Table S-12 presents these comparisons.

TABLE S-12
TRANSIT TRAVEL TIMES (IN MINUTES) FROM SELECTED ORIGINS IN THE EASTSIDE CORRIDOR TO SELECTED DESTINATIONS

Trip Origin	Hollywood/Highland		Wilshire/ Fairfax		1st/Hill		Fair Oaks/Colorado	
	No-Build	LRT	No-Build	LRT	No-Build	LRT	No-Build	LRT
1st/Soto	62	53	70	60	26	24	67	55
3rd/Mednik	67	60	75	67	39	32	47	45

All of the comparisons show improvement over the No-Build Alternative.

Travel Time Savings

This measure is defined as the total travel time savings that are expected to result from the LRT Build Alternative in the forecast year (2020), compared to the No-Build Alternative. This aggregate value includes travel time savings for people making trips on transit (both new and existing transit riders) as well as savings that accrue to people using competitive modes (automobile users). This measure is calculated using reported values from the MTA's transportation simulation model. It is expected that the LRT Build Alternative will save users over 400,000 hours in travel time in the forecast year (2020) over the No-Build Alternative.

S.5.2.2 Efficiency (Cost-Effectiveness)

Cost-effectiveness is a measure used to evaluate how the costs of a transit project (for both construction and operation) compare to the expected benefits (increased transit ridership).

The FTA's cost effectiveness criterion is measured by the incremental cost per incremental passenger in the forecast year. This measure is based on the annualized total capital investment and annual operating and maintenance (O&M) costs, divided by the change in annual transit system ridership, expressed as the following equation:

$$\text{Cost Effectiveness Index} = \frac{\Delta\text{Capital Cost} + \Delta\text{O\&M Cost}}{\Delta\text{Linked Transit Trips}}$$

The smaller the index, the more cost-effective the project alternative. To calculate the change in capital cost, project costs discussed above were aggregated according to their assumed useful life and annualized accordingly, using FTA annualization factors shown in Table S-13:

TABLE S-13
LIFE CYCLE ASSUMPTIONS

Project Element	Useful Life	Annualization Factor
Right-of-way	100 years	0.070
Structures, trackwork, signals, electrification	30 years	0.081
Rail vehicles	25 years	0.086
Buses	12 years	0.126

Source: Technical Guidance on Section 5309 New Starts Criteria, FTA, July 1999.

Annual operating and maintenance costs were calculated using the approach described above. The change in transit trips for the forecast year 2020 was determined using the MTA travel forecasting model.

Table S-14 summarizes the data used in the calculation of the cost-effectiveness index for the three options of the LRT Build Alternative, and the resulting incremental cost per incremental passenger is shown in Table S-15.

TABLE S-14 COST-EFFECTIVENESS CALCULATION: INCREMENTAL VALUES OVER NO-BUILD			
LRT Build Alternative/Options	**Annualized Capital Cost (millions)**	**Annual O&M Cost (millions)**	**Annual Linked Trips (millions)**
LRT Build Alternative – Option 1	$51.45	$22.5	3.074
LRT Build Alternative – Option 2	$52.47	$22.5	3.074
LRT Build Alternative – Option 3	$59.44	$22.5	3.074

TABLE S-15 COST-EFFECTIVENESS OF LRT BUILD ALTERNATIVE: ANNUALIZED COST PER NEW DAILY TRANSIT TRIP	
LRT Build Alternative/Options	**Over No-Build Alternative**
LRT Build Alternative – Option 1	$24.02
LRT Build Alternative – Option 2	$24.35
LRT Build Alternative – Option 3	$26.61

Based on cost-effectiveness, LRT Build Alternative Options 1 and 2 are the most cost-effective. The substantial increase in total capital cost and annualized capital cost for LRT Build Alternative Option 3 does not provide enough operational and mobility benefits to make it more cost-effective than LRT Build Alternative Options 1 and 2.

The ridership projections are based on the 1998 adopted demographic projections by the regional metropolitan planning organization, the Southern California Association of Governments (SCAG). As such they are the official future demographic projections. However, they are believed to understate project ridership since the 1998 adopted demographic projections assume most of the future growth in Los Angeles County will occur on the outer edges of the county.

Model runs testing an alternative future demographic assumption assuming somewhat more growth in the existing urban areas of the county will be done. These model runs are expected to show higher ridership for the Eastside Corridor.

S.5.2.3 Operating Efficiency

The FTA uses a single measure for the Operating Efficiencies criterion, which is the change in operating cost per passenger mile for the entire regional transit system. The basic calculation involves dividing the system annual operating cost for transit service by the system annual passenger-miles projected for the year 2020. Calculation of the total transit operating costs is discussed above. System annual passenger-miles are produced from the MTA transportation model. The No-Build Alternative has an operating cost per passenger mile of $0.32. The LRT Build Alternative with the increases in service and usage produced the same overall system operating cost per passenger mile of $0.32. Therefore the LRT Build Alternative compared to the No-Build Alternative for this FTA measure shows no change.

S.5.2.4 Equity Considerations

Equity considerations generally fall into three interrelated classes: (1) the extent to which the transportation investments improve transportation service to various population segments (i.e., the extent to which transit improvements benefit the transit dependent); (2) the distribution of project costs across the population through the funding mechanisms used for the local contribution for construction and operation; and (3) the incidence of significant environmental impacts. In addition, Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that federal agencies consider and address disproportionately high adverse environmental effects of proposed federal projects on the health and environment of minority and low-income populations to the greatest extent practicable by law. Section 4.5 of the Draft SEIS/SEIR discusses in detail the equity and environmental justice considerations for the Eastside Corridor and for the LRT Build Alternative. It discusses the study area demographics, the historic major issues of the Eastside Communities related to major infrastructure projects, and the extent of the public involvement program conducted as part of this planning process.

The No-Build Alternative would not offer the study area residents and businesses the enhanced mobility, regional connectivity, and accessibility provided by the LRT Build Alternative.

The LRT Build Alternative provides many benefits related to equity, mobility improvements, economic revitalization, employment opportunities, federal and state funds for construction, and additional local funds for the operating and maintenance costs of the LRT and expanded bus services, as discussed below. There are some potential impacts as identified in Table S-7, but the benefits by far outweigh the impacts.

Equity

Indicators of transit dependence, such as low-income households and zero-auto households, are nearly three times higher than for Los Angeles County as a whole. The need for and reliance on transit has not been balanced by regional public transportation investments that would benefit this transit dependent community. For example, MTA rail services extend to Western Avenue and to North Hollywood, to Norwalk and El Segundo, to Long Beach and ultimately to Pasadena. Metrolink serves suburban destinations in all directions. Yet, no major investment in transit service, either bus or rail, has been made in the Eastside Corridor. A concerted effort to extend the Metro Red Line to the corridor was suspended in 1998 as discussed above. In addition, the corridor has borne the disproportionate effects of a regional freeway system that has cut through its neighborhoods to reach suburban destinations. Implementing LRT service in the corridor would help restore the balance of regional capital transportation expenditures as well as compensate for the adverse impacts that previous transportation planning decisions have caused.

Mobility/Transit Travel Times/Regional Connectivity

The LRT Build Alternative is expected to increase the number of daily transit trips compared with the current bus service offered by the No-Build Alternative and reduce travel times. Travel times between the corridor and major travel destinations, such as Hollywood, Wilshire Boulevard, Downtown Los Angeles, and Pasadena, would decrease with the LRT Build Alternative. This decrease indicates the value of quality transit service in attracting riders. It also indicates that light rail service offers improved access for area residents to local destinations as well as to the regional rail and bus system and, therefore, to regional destinations. The LRT Build Alternative also would serve many educational and community centers in the corridor, enhancing mobility for young adults and school age children.

Economic Revitalization

The LRT Build Alternative includes eight new stations as well as a station at Union Station. With proper incentives and with favorable market conditions, developers may consider the merits of constructing housing and commercial developments that are oriented to the light rail stations and that take advantage of the new light rail service. Station areas that have vacant land resulting from right-of-way acquisition for the suspended Metro Red Line project or for the construction of the LRT Build Alternative can be developed, in accordance with City and County of Los Angeles planning and redevelopment policies and Community Plans, to benefit the surrounding neighborhoods. In a corridor that has an extremely low vacancy rate and a great demand for affordable housing, such development could provide needed housing and space for retail and social service uses. The new development could offer larger units for families with children, helping to meet a dire need in the community. In addition, landscape treatments along the light rail line could enhance the urban design of the community, making opportunities for development more attractive.

Employment Opportunities

The LRT Build Alternative is anticipated to generate approximately 47,000 (Options 1 and 2) to 54,000 (Option 3) new construction jobs and, within the first 14 years of operation, over 1,000 permanent jobs to operate and maintain the LRT line and additional bus service. MTA also offers a series of programs designed to encourage minority and women-owned businesses to participate in the construction and operation of new transportation projects.

Project Funding

As discussed in Section 5.1.3, almost $760 million in Federal and State/Local funding has been anticipated for the LRT Build Alternative Option 1. The estimated $22.5 million in additional annual operating and maintenance funds will be provided from local MTA sales tax dedicated to transit uses.

S.5.2.5 Trade-Offs Between Alternatives

The following observations highlight key financial differences and the tradeoffs between the No-Build Alternative and the LRT Build Alternative and the LRT Build Alternative options relative to cost, performance, mobility, and impacts.

The tradeoff between the No-Build Alternative and the LRT Build Alternative is that the No-Build Alternative would involve fewer environmental impacts, but would not provide an enhanced level of mobility and accessibility to this lower-income, transit-dependent and principally Hispanic community. The LRT Build Alternative would, on the other hand, provide improved access to a broader range of employment, shopping, educational, and cultural opportunities, consistent with the goals and objectives for the Eastside Corridor. The LRT Build Alternative will also provide improvements in air quality. The LRT Build Alternative will have some impacts and disruptions during construction but that is a consideration in the tradeoff between the No-Build Alternative and the LRT Build Alternative.

The tradeoffs between the LRT Build Alternatives Options 1, 2, and 3, involve funding availability to build each option, the relative cost-effectiveness, and the possible impacts.

From a mobility standpoint, the LRT Build Alternative Option 1 provides the same level of improved mobility to the Eastside Corridor as the other two options. Even though the LRT Build Alternative Option 3 extends the tunnel section an additional 3000 feet, few additional riders would be attracted. This same level of improved mobility is obtained for a lower capital cost in LRT Build Alternative Option 1 than in

LRT Build Alternative Options 2 and 3 as presented above. The capital cost requirements would be an additional \$31 million for the LRT Build Alternative Option 2 and \$140 million for LRT Build Alternative Option 3. No additional funding has been identified by MTA for either LRT Build Alternative Option 2 or Option 3.

As shown in Table S-15, LRT Build Alternative Option 1 is the most cost-effective option based on FTA's cost effectiveness criterion. LRT Build Alternative Option 3 is over ten percent less cost-effective than LRT Build Alternative Option 1.

Related to equity, as discussed above, all the options provide additional investment and job opportunities to the Eastside Corridor while providing increased mobility and economic revitalization potential.

The transportation and environmental consequences are discussed in detail in Chapters 3 and 4 of the Draft SEIS/SEIR and Section S.4 above. Relative to traffic and parking, all the options impact traffic operations at a number of intersections, while LRT Build Alternative Option 1 has the most number of on-street parking spaces removed compared to LRT Build Alternative Option 3, which has the least number removed.

One of the most significant tradeoffs between the LRT Build Alternative options is relative to the amount of land acquisition/displacement and relocations required. As shown in Table S-7, LRT Build Alternative Option 1 would acquire 4 multi-family and 9 single-family units (displacing 52 persons) and 9 businesses (displacing 15 employees). LRT Build Alternative Option 2, because of the proposed acquisitions along the west side of Indiana Street, would require the acquisition of 7 multi-family and 25 single-family units (displacing 128 persons) and 14 businesses (displacing 28 employees). LRT Build Alternative Option 3 would require the same acquisitions as Option 1 except that additional subsurface easements would be required between 1st/Lorena and 3rd/Hicks. In addition Option 3 would require tunneling under Ramona High School. The MTA has established a \$2.6 million Affordable Housing Revolving Loan Fund Program to replenish the housing units MTA has acquired for the previous Metro Red Line Eastside Extension project. The MTA will add funding to its affordable housing revolving loan fund program at least in accordance with the formula used to arrive at the present funding level. This a critical tradeoff category because of the area's high housing demand and its low vacancy rate that may limit the availability of comparable replacement homes in the immediate area.

S.6 ISSUES TO BE RESOLVED/AREAS OF CONTROVERSY

The preparation of the Draft SEIS/SEIR, together with the required circulation, public hearings, and review, ensures that all significant transportation and environmental impacts are assessed, and that public participation and comments are solicited to help guide the decision-making process.

The identification, examination, and assessment of all reasonable and feasible alternatives (*Re-Evaluation/MIS* and the Draft SEIS/SEIR) are necessary to meet the requirements of the National Environmental Policy Act (NEPA), as well as the California Environmental Quality Act (CEQA). CEQA requires similar environmental analysis in Environmental Impact Reports (EIRs) and public review for projects that will have significant effects on the environment. The State of California encourages joint preparation of EIRs and EISs and has produced guidelines to facilitate preparation of joint documents.

The purpose of the Draft SEIS/SEIR is evaluate the LRT Build Alternative along with its three transition options and the No-Build Alternative and for the MTA Board of Directors to select the most appropriate option for the Eastside Corridor while ensuring that potentially significant environmental consequences are considered as part of this process. In addition: the Board will select one of the three Maintenance and Storage Facility (M&SF) sites for further analysis in subsequent documents. The Draft SEIS/SEIR document will be circulated for a minimum of 45 days for review by interested and concerned parties, including private citizens, community groups, the business community, elected officials, and public agencies. A Notice of Availability will be published in the Federal Register and local newspapers. A Notice of Completion will also be sent to the State of California, Office of Planning and Research (State Clearinghouse). Public hearings will be held to solicit citizen and agency comments as part of the decision-making process. The selection of the design option for the LRT Build Alternative and the M&SF site will be made by the MTA Board of Directors after consideration of the comments received from the circulation of the Draft SEIS/SEIR and at the public hearings.

The next step would be to prepare a Final Supplemental Environmental Impact Statement (SEIS) and Final Subsequent Environmental Impact Report (SEIR) using Preliminary Engineering design level of detail.

1.0 PURPOSE AND NEED

1.1 OVERVIEW OF PURPOSE AND NEED

1.1.1 Eastside Study Area

The Eastside Corridor study area is shown in Figure 1-1, extending from Alameda Street in Central Los Angeles east through the Boyle Heights community in the City of Los Angeles and the City Terrace, Belvedere and East Los Angeles communities of unincorporated Los Angeles County. The study area also includes a portion of the city of Monterey Park.

1.1.2 Regional Context

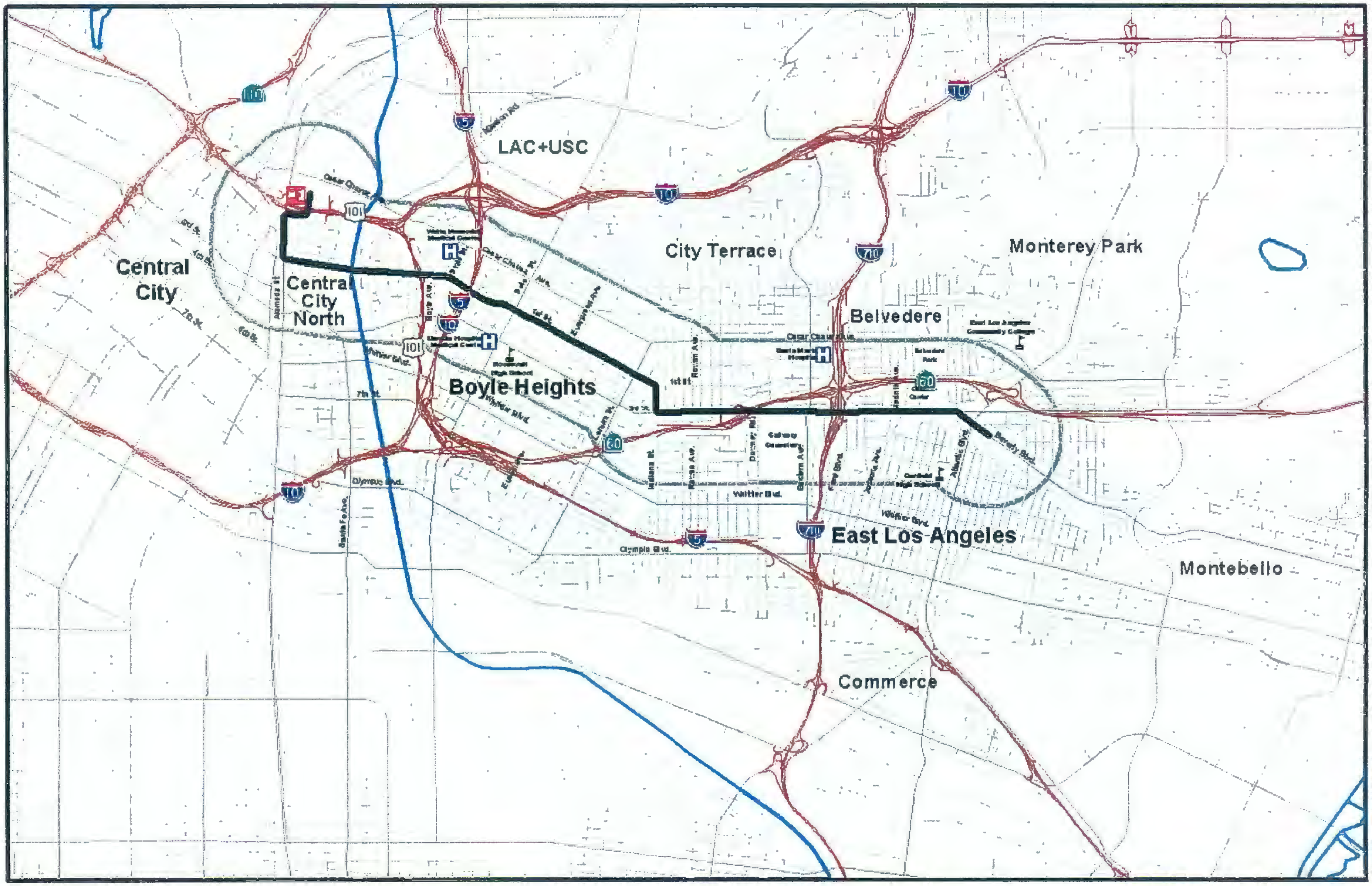
Los Angeles has a regional rail network that consists of heavy rail, light rail, and commuter rail components. The Los Angeles Rail Rapid Transit Project (Metro Red Line) is an 18-mile heavy rail rapid transit subway project extending from Union Station to North Hollywood. The final North Hollywood segment was completed and opened for revenue service on June 24, 2000. Opened for service in 1990, the 22-mile Metro Blue Line light rail system operates between Downtown Los Angeles and Long Beach. In 1994, the 19-mile Metro Green Line light rail system opened for service between Redondo Beach and Norwalk, primarily operating in the median of the Century Freeway (I-105). In 1992, commuter rail service was initiated with Metrolink, a regional rail network that connects Ventura, Los Angeles, Orange, San Bernardino, Riverside, and San Diego counties utilizing existing rail right-of-way. In 2003, the 13.8-mile Metro Blue Line to Pasadena will open for service and will connect Downtown Los Angeles with East Pasadena. All told, the region will have over 400 miles of commuter rail and over 70 miles of urban rail (Table 1-1) by the year 2003.

TABLE 1-1
LOS ANGELES COUNTY METRO RAIL NETWORK IN 2003

Line	Length (Mi.)	End Destination	End Destination
Blue Line (Long Beach)	22	Downtown Los Angeles	Downtown Long Beach
Green Line	19	Redondo Beach	Norwalk
Red Line	18	North Hollywood/Wilshire Center	Union Station
Blue Line (Pasadena)	13.8	Union Station	Pasadena

Source: MTA, 2000.

In 1994, the Metro Red Line Eastern Extension was selected as the Locally Preferred Alternative, and final design was begun on this project. The project was to be an extension of the heavy-rail Red Line subway system from Union Station to Whittier and Atlantic Boulevards through Boyle Heights and East Los Angeles. The project was split into two phases, with a minimum operable segment initially to be constructed to 1st and Lorena Streets. This 3.8-mile first phase extension was to have stations located at Little Tokyo/Arts District near 3rd Street and Santa Fe Avenue, 1st Street and Boyle Avenue, Chavez Avenue and Soto Street, and 1st and Lorena Streets. Construction activities began on Phase 1 in 1997.



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

Eastside Corridor
Transit Consultants

Note: Highways, primary, and secondary roads by Thomas Bros. Maps through a conditional use from MTA 1997.

Legend

Eastside Corridor
SEIS Project Study Area
LRT Alignment

Highway
Primary Road
Secondary Road
River

August 2, 2000

LOS ANGELES EASTSIDE CORRIDOR
DRAFT SEIS/SEIR

EASTSIDE CORRIDOR STUDY AREA

FIGURE 1-1

Work on the planned Eastside extension of the Metro Red Line subway was suspended by MTA in January 1998 due to local financial difficulties. The MTA Restructuring Plan adopted in May 1998 called for the MTA to study "viable and effective options" for all parts of Los Angeles County, with an emphasis on the corridors in which rail projects had been suspended. Within the Eastside Corridor, this necessitated the examination of alternative fixed guideway options to the suspended heavy rail subway project.

Based on the results of the November 1998 draft Regional Transit Alternatives Analysis (RTAA Study), the MTA Board approved the concept of a rapid bus plan in March 1999, which included a rapid bus demonstration project on the Eastside. The Board also reaffirmed its commitment to fund fixed guideway transit improvements beyond rapid bus in the suspended rail corridors. The Board subsequently authorized the preparation of the Re-Evaluation/Major Investment Study (MIS) and Draft and Final Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR) for the suspended Metro Red Line Eastside Transit Corridor Project. The Re-Evaluation/MIS was completed in February 2000 and analyzed several alternatives which are discussed in Section 1.2.3.7. This SEIS/SEIR identifies both beneficial and adverse environmental impacts associated with the LRT Build Alternative that was selected for further study following completion of the Re-Evaluation/MIS and compares them with those associated with the No-Build Alternative.

1.1.3 The Mobility Problem

The East Los Angeles Transit Corridor Technical Report was prepared by the Southern California Association of Governments (SCAG) in July 1998 and provides an overview of community transit needs for the area. The Eastside Corridor communities of Boyle Heights and East Los Angeles are characterized by a large and growing population (over 212,000 according to the 1990 census, 275,000 expected by 2020) of predominantly Latino ethnic origin, a high percentage of low income households, and relatively high rates of transit use and transit dependence. In these communities, over 19 percent of workers use the bus system on their journey to work (as compared to 6.8 percent for Los Angeles County as a whole), and rates of carpooling and walking to work are also higher than the County average.

East Los Angeles and Boyle Heights are served by a significant number of bus routes, primarily operated by the Los Angeles County MTA, and generally organized in a grid pattern. There are approximately 40,000 weekday transit boardings in the area with several heavily used bus transit corridors that include Soto Street, Cesar Chavez Avenue, 1st Street, Whittier Boulevard, and Olympic Boulevard. New Metro Rapid bus service was initiated on Whittier Boulevard on June 24, 2000 and provides limited stop service and buses equipped with devices to extend the green phase of traffic signals to make for speedier trips. The heaviest bus routes carry passengers in an east-west direction. The average speed for all bus routes in the area is 12.9 MPH, and the typical passenger trip length for transit riders is between one and three miles.

The existing bus system has very high ridership on many routes during peak periods and moderate to low levels of ridership on other routes during peak as well as off-peak periods. Adequate transit services are not being provided to some locations of high transit demand. Most person trips to key activity centers within the study area require at least one transfer. This can result in longer travel times, less convenience, and an ultimate compromise in mobility for the traveler.

1.1.4 <u>Eastside Corridor Alternatives</u>

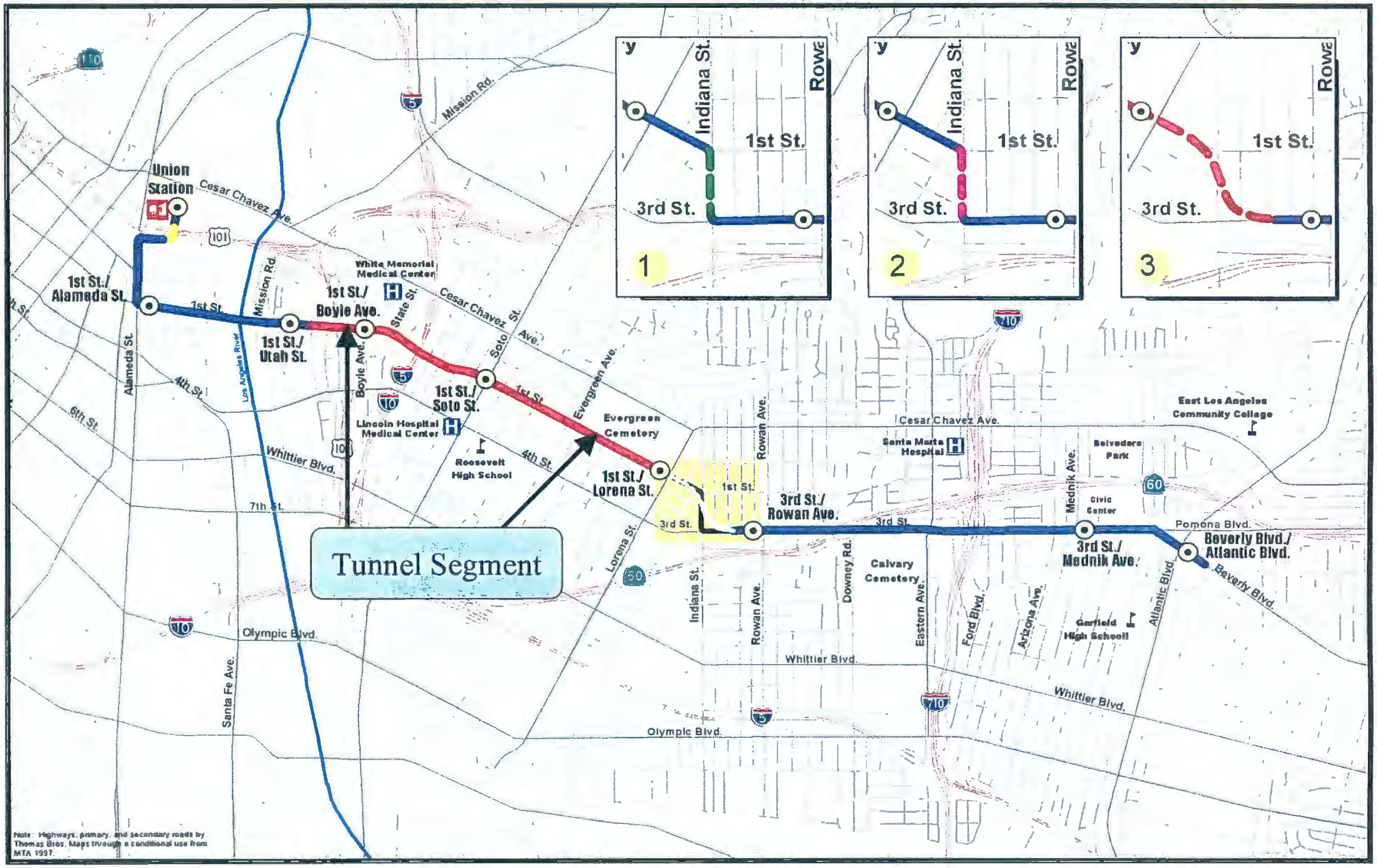
The Re-Evaluation/MIS identified a range of fixed guideway transit service extensions, including heavy rail, light rail and bus rapid transit. The primary study objectives of this SEIS/SEIR are (1) to analyze the environmental impacts of the LRT Build Alternative and to provide mitigation where feasible for adverse impacts, and (2) to determine if a fixed-guideway transit project is justified and if the LRT Build Alternative is to become the Locally Preferred Alternative (LPA) for the Los Angeles Eastside Corridor.

The Re-Evaluation/MIS yielded two alternatives for further consideration. They included one light rail transit (LRT) alternative and one bus rapid transit (BRT) alternative along the same alignment. On June 22, 2000, the MTA Board re-examined the BRT mode and determined that this mode should be dropped from further consideration in part because the new State Traffic Congestion Relief Plan committed to funding only light rail. As illustrated in Figure 1-2, this alignment begins at the Union Station passenger terminal (trackways 1 and 2) and follows Alameda Street south to 1st Street. The alignment then follows 1st Street east to Indiana Street. The alignment is in a tunnel profile between the 1st/Utah and 1st/Lorena stations along 1st Street. There are three options under study in the vicinity of Indiana Street for the transition between 1st and 3rd streets. The alignment under Options 1 and 2 follows 1st Street east to Indiana Street and then follows Indiana Street south to 3rd Street. Option 1 removes on-street parking and a portion of the sidewalks on Indiana Street, and Option 2 provides for the purchase of right-of-way on the west side of Indiana to accommodate standard sidewalks and on-street parking. Two subway stations are located at 1st/Boyle and 1st/Soto under both options. Option 3 includes an extension of the tunnel segment east past Lorena Street to 3rd Street west of Rowan Avenue. Option 3 includes three subway stations at 1st/Boyle, 1st/Soto, and 1st/Lorena. The alignment, under all three options, continues east on 3rd Street and Beverly Boulevard to Atlantic Boulevard. The LRT line will operate as an extension of the Pasadena Blue Line with continuing service through Union Station in both directions.

1.2 BACKGROUND AND PLANNING CONTEXT

The Metro Red Line Eastern Extension has been an integral element of local, regional and federal transportation planning since the early 1990's. Eastward from the Los Angeles Central Business District (LACBD) to just east of Atlantic Boulevard, the Eastern Extension had been the subject of in-depth technical studies and extensive community involvement during this period.

An Alternatives Analysis/Draft Environmental Impact Statement/Draft Environmental Impact Report (AA/DEIS/DEIR) was previously prepared in 1993, and a Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/FEIR) was prepared in 1994. Following a systems planning study reviewed in sections 1.2.2 and 1.2.3, these two documents studied several subway alignments between Union Station in Central Los Angeles and the vicinity of Atlantic Boulevard in the unincorporated community of East Los Angeles. In 1994, after completion of the FEIS/FEIR and the Record of Decision (ROD) by the Federal Transit Administration (FTA), the Metropolitan Transportation Authority (MTA) Board adopted a Locally Preferred Alternative (LPA) for Metro Red Line Segment 3 in the corridor. The first phase of the Eastside extension was to operate between Union Station and 1st Street/Lorena Street. At the same time the MTA Board also adopted a LPA for the Metro Red Line for the Mid-City Corridor. Full Funding Grant Agreements were executed with the Federal Transit Administration (FTA), and the projects were transitioned into the construction phase.



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

LEGEND

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

Eastside Corridor Transit Consultants

Los Angeles Eastside Corridor SEIS/SEIR

LRT Build Alternative

Figure 1-2

Subsequently, an evaluation of the current local funding available for the Eastside project and other rail projects in Los Angeles County led to a suspension of work in January 1998. Voters also approved a new County law in November 1998 that restricts the use of Proposition A and C sales tax revenues for "new subways". The MTA Restructuring Plan adopted in May 1998 called for the agency to study "viable and effective options" for all parts of Los Angeles County, with an emphasis on the corridors in which the rail lines had been suspended. Within the Los Angeles Eastside Corridor, this included the examination of alternative fixed guideway options to heavy rail subway. To evaluate feasible options, the MTA Board subsequently authorized preparation of a Re-Evaluation/MIS and Draft and Final SEIS/SEIRs for the suspended Metro Red Line Eastside Transit Corridor project.

1.2.1 Regional Transportation Plan

The current Regional Transportation Plan (RTP) for the six-county Southern California region was prepared by the Southern California Association of Governments (SCAG) and adopted on April 16, 1998. The RTP incorporates the Los Angeles Eastside Transit Corridor Project, consistent with the MTA Locally Preferred Alternative for the Eastside Corridor. The RTP recommends the following actions:

- Construct exclusive transit corridors to minimize travel time and achieve certain ridership goals.
- Perform Major Investment Studies on Potential Transit Corridors.

A completion schedule of 2010 is shown in the RTP for the East Los Angeles Transit Corridor Project.

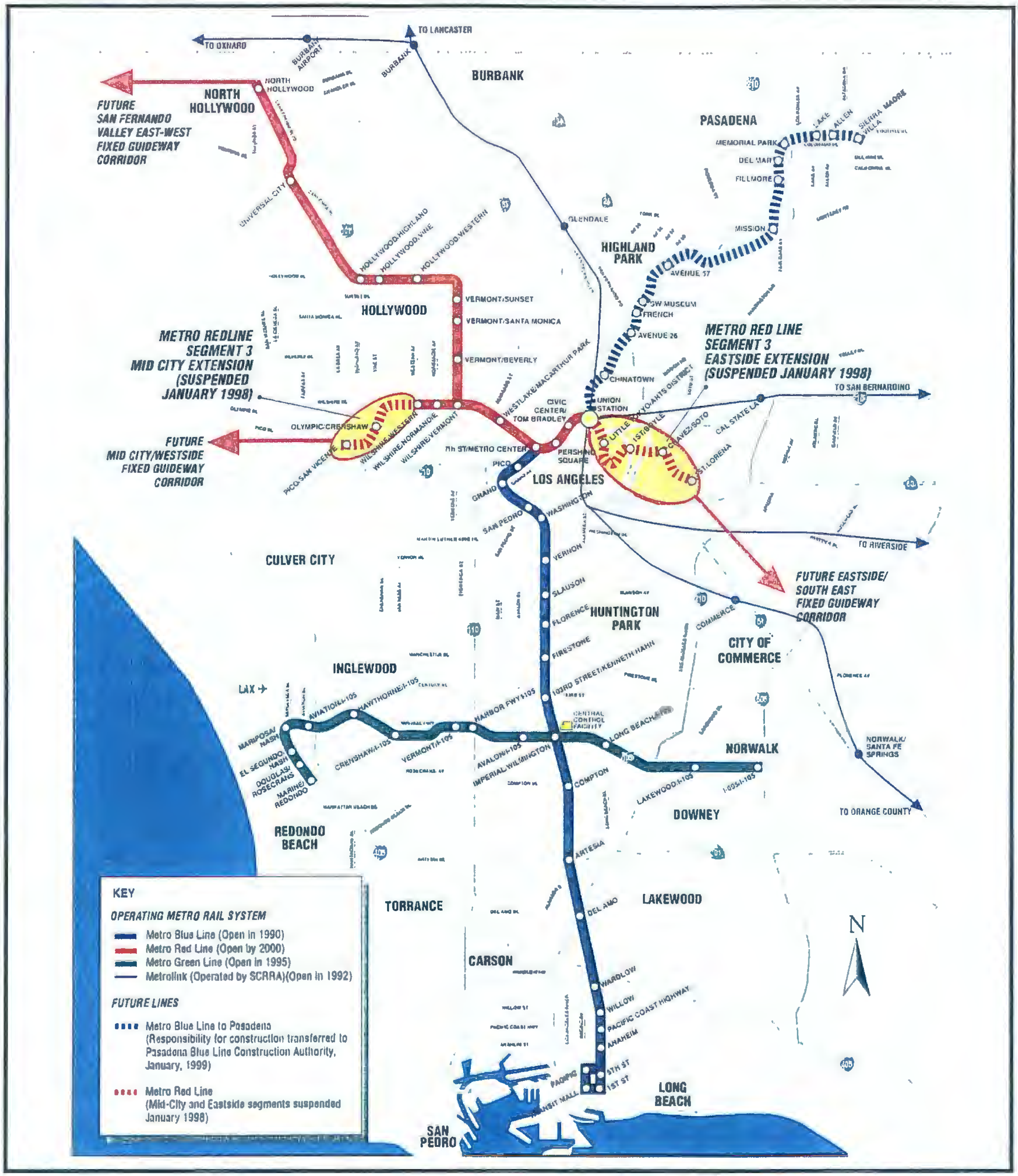
The MTA has also prepared a comprehensive long range planning document to guide the development of the countywide transportation system. The MTA's 30-Year Integrated Transportation Plan identified the Eastern Extension of the Metro Red Line as a high priority funded and committed rail project. An updated Long Range Plan (LRP) is presently being prepared by the MTA, reflecting the Eastside Corridor transit planning currently being undertaken.

1.2.2 Systems Planning

The initial systems planning background and context for the 1999-2000 Re-Evaluation/MIS was developed in the *Metro Red Line Extension System Planning Study* prepared by SCAG in 1989, as well as in the *Los Angeles Metro Orange Line Extension: Transitional Analysis* prepared by the Los Angeles County Transportation Commission in 1990. The MTA is the successor agency to both the Transportation Commission and the Rapid Transit District. These reports document the historical framework for the definition of the Eastside/Santa Ana Transit Corridor and other corridors. They provide the background systems analysis that was used to justify the need for major capital expenditures in these corridors. The results of the two studies are summarized in the following sections.

1.2.2.1 SCAG System Planning Study

The August 1989 Metro Red Line Extension System Planning Study was prepared by SCAG for the Los Angeles County Transportation Commission (LACTC) to evaluate future extensions of the original 18-mile Metro Red Line subway line between Union Station and North Hollywood. The Extension Study evaluated travel corridor characteristics, reviewed existing transit operations and analyzed the proposed corridor for consistency with the adopted regional plan. Based on the analysis, the study identified proposed corridor extensions as shown in Figure 1-3 which met federal criteria for current ridership, projected transit demand and consistency with the adopted regional plan. Note that both of the proposed Red Line extension projects shown in the figure are the lines that have been suspended.



Suspended Red Line Corridor Extensions

Figure 1-3

1.2.2.2 LACTC Transitional Analysis

Based on the 1989 System Planning Study, a Central East/West Corridor was identified as the highest priority for a Metro Red Line LPA heavy rail extension. The 1990 Transitional Analysis was undertaken to demonstrate that an extension to the east and west could meet federal cost-effectiveness thresholds and provide the basis for proceeding with an Alternatives Analysis/Draft Environmental Impact Statement. Based on conservative assumptions for the ridership projections, the total cost per new rider was determined to be under the federal threshold. This supported the decision to proceed with a full Alternatives Analysis/DEIS for the east-west corridor extensions.

1.2.3 Corridor Planning

In January 1998, the MTA suspended work on extensions of the Metro Red Line heavy rail subway project, including the initial 3.7-mile segment of the Eastside LPA from Union Station to 1st/Lorena. Since the suspension, several planning initiatives have provided further guidance for the development of Eastside transit alternative improvements.

1.2.3.1 MTA Restructuring Plan

The MTA Restructuring Plan titled: *Analysis and Documentation of the MTA's Financial and Managerial Ability to Complete North Hollywood Rail Construction and Meet the Terms of the Bus Consent Decree*, was adopted by the MTA Board of Directors on May 13, 1998 and was subsequently approved by the FTA on July 2, 1998. The Restructuring Plan documented that the MTA did not have sufficient local matching funds to finance heavy rail subway projects in the Eastside Corridor as anticipated in the original Full Funding Grant Agreements for the project. At the same time, the Restructuring Plan called for the MTA to study "viable and effective options" for transit in all parts of Los Angeles County, with an emphasis on the corridors in which the rail lines had been suspended.

Within the Eastside corridor, this necessitated the examination of alternative fixed guideway options to heavy rail subway. It also committed the MTA to a reevaluation of the financial capacities of the agency to undertake new start, fixed guideway projects. To that end, the Board authorized the Regional Transit Alternatives Analysis (RTAA) Study that commenced in July 1998 and was completed in November 1998.

1.2.3.2 Regional Transit Alternatives Analysis

The RTAA Study accomplished several important objectives for the MTA. The study identified the amount of funding available for new projects between FY1999 and FY2004. It suggested possible funding allocations, identified immediate bus transit improvements in Los Angeles County, and established a framework for further fixed guideway project development in the Eastside, Westside, and San Fernando Valley corridors.

The study included a preliminary evaluation of fixed guideway alternatives in the three corridors. The study did not make recommendations with regard to preferred fixed guideway transit modes or configurations, but recommended that a Major Investment Study (MIS) level of analysis be conducted to provide more information regarding these choices.

Results of the RTAA Study were presented to the MTA Board on November 9, 1998. At that meeting, the Board approved the concept of a recommended rapid bus system serving the Eastside, Westside and San Fernando Valley. The Board also reaffirmed its commitment to fund fixed guideway transit improvements beyond rapid bus in the suspended rail corridors. A priority funding commitment of $220 million through FY2004 was made to the Eastside and Mid-City areas from remaining uncommitted funds.

1.2.3.3 TEA-21 Redefinition of Metro Red Line Segment 3

To obtain greater flexibility in project definition for the project corridors, the MTA expanded the definition of Metro Red Line Segment 3. Segment 3 was defined in both the Intermodal Surface Transportation and Efficiency Act (ISTEA) and the Segment 3 Full Funding Grant Agreement as a "heavy rail subway" project. With the cooperation and assistance of the Los Angeles congressional delegation, the MTA obtained revised definitional language in the Transportation Equity Act for the Twenty-first Century (TEA-21), which was signed into law by the President on June 9, 1998. This action was taken with the intent to have the option available to utilize the Segment 3 funding balance in the future for any type of fixed guideway project in the Eastside corridor. The TEA-21 legislation expanded the definition of the Segment 3 project to include "any fixed guideway project" (not necessarily heavy rail subway) in the transportation corridors to be served by the three extensions of Segment 3. It also authorized the start of final design and construction for the Segment 3 project during the FY1998-2003 funding cycle under FTA section 5309 (new starts funding).

1.2.3.4 Proposition A Ballot Initiative (Subway Funding Prohibition)

A 1998 ballot initiative sponsored by County Supervisor Zev Yaroslavsky, referred to as the Metropolitan Transportation Authority Reform and Accountability Act, was approved (and became effective) on November 3, 1998. The most significant provision of the new law stipulates that no local Proposition A or C sales tax monies shall be used to fund the planning, design, construction, or operation of any New Subway. The term "New Subway" is defined to mean any subway project (a rail line which is in a tunnel below grade) other than the Metro Red Line Segments 1,2 or 3 (North Hollywood). As a result, the initiative prohibits the use of these sales tax revenues to build subway extensions in the Eastside corridor.

The initiative does not prohibit the use of sales tax revenues to design and construct light rail, at-grade rail, elevated rail systems, or busways in the Eastside, or in other areas of Los Angeles County. Nor does this initiative prevent the MTA from using State or Federal revenues or local revenues other than sales tax, to design and construct new subways in these areas.

1.2.3.5 East Los Angeles Transit Corridor and Technology Study

Additional information on corridor transit needs was developed in the *East Los Angeles Transit Corridor and Technology Study*[1]. This study referenced a recent SCAG report which indicated that there are an estimated 212,000 people living in East Los Angeles based on the 1990 census and that the population is expected to grow to 275,000 by the year 2020. It was also estimated that almost 20 percent of the population uses the bus system on their journey to work. This rate of bus usage is three times higher than the county average of 6.8 percent. East Los Angeles and Boyle Heights are served by a substantial

[1] *East Los Angeles Transit Corridor and Technology Study*, prepared for Supervisor Gloria Molina, County of Los Angeles, First Supervisorial District; ACG Environments; October 29, 1998.

number of MTA bus routes. The study indicated that there are 40,000 daily transit boardings with several heavily used bus transit corridors operating on Soto Street, Cesar Chavez Avenue, Whittier Boulevard, and Olympic Boulevard.

Based on the above factors, the study found that the East Los Angeles population is heavily transit dependent and recommended that planning and implementation of proposed public transportation systems in East Los Angeles should support the basic community needs of the local population.

The study identified ways that the East Los Angeles transit dependent community can effectively access jobs, health services, and education. The study stated that substantial "quality of life" growth within this community can be initiated with a balanced and comprehensively planned transit system improvement implemented within available funding sources.

Once the transit infrastructure plan is in place, opportunities may develop for enhancing community amenities and stimulating economic development within the corridor. Community plans will identify areas where enhancements could be facilitated within the context of the community.

1.2.3.6 Interstate 5 Corridor Improvement Project

Additional data on Corridor transportation needs were developed in the 1998 I-5 Corridor Improvement Project[2]. The study area for this corridor extends from SR 91 northwest along the I-5 corridor to Soto Street. The I-5 Corridor Study concluded that an effective multimodal transportation network within the I-5 study area is necessary to meet the mobility needs of residents and businesses in southeast Los Angeles County by providing vital intra- and inter-regional linkages and services.

The I-5 study area currently has severe mobility problems, and these problems are projected to worsen by the year 2015. These problems are manifest as extensive congestion on the freeway and on the local arterial network. The entire freeway segment is projected to be operating at level of service F3 (greater than three hours of congestion per day), and more than 28 percent of the major intersections will be operating below level of service E by the year 2015.

In addition, a significant proportion of the population in the study area does not have access to a private automobile and must rely on the public transportation system and/or other alternative transportation options to meet their basic travel needs.

1.2.3.7 Eastside Transit Corridor Study Re-Evaluation/MIS

The Re-Evaluation/MIS looked at eight build alternatives as well as a No-Build Alternative and a Transportation System Management (TSM) Alternative within a broadened study area from that evaluated in the original AA/DEIS/DEIR and FEIS/FEIR. The expanded study area for the Eastside Transit Corridor Study extended from Alameda Street in Central Los Angeles east through the Boyle Heights community in the City of Los Angeles and the City Terrace, Belvedere, and East Los Angeles communities of unincorporated Los Angeles County. South and east of the East Los Angeles area, the study area included major portions of the cities of Montebello, Pico Rivera, and Commerce and portions of Monterey Park, Santa Fe Springs, and Whittier. The eight build alternatives assessed in the Re-Evaluation/MIS included: three at-grade Bus Rapid Transit (BRT) alternatives; two at-grade Light Rail Transit (LRT) Alternatives; one LRT alternative consisting of an alignment combination of at-grade and

[2] *I-5 Corridor Improvement Project, Final Evaluation Report;* Parsons Brinckerhoff, 1998.

subway segments; one hybrid alternative consisting of LRT at-grade alignment with heavy rail subway alignment; and one hybrid alternative consisting of BRT at-grade alignment with heavy rail subway alignment. All of the build alternatives would run along various alignments between Union Station and the intersection of Whittier Boulevard/Norwalk Boulevard in the City of Whittier. The reader is referred to the *Eastside Transit Corridor Study, Los Angeles, California, Re-Evaluation/MIS* draft report (February 24, 2000), incorporated herein by this reference, for additional information about the alternatives studied and the potential environmental impacts.

Subsequent to completion of the Re-Evaluation/MIS and an extensive public involvement program, the MTA Board directed further study of an alignment that was essentially a combination of a shortened segment of two of the LRT alternatives considered. The selected alignment runs between Union Station as its western terminus to the intersection of Beverly and Atlantic Boulevards in East Los Angeles. The board further directed that this alignment, consisting of an at-grade alignment as well as a subway segment through a portion of Boyle Heights, be studied comparing two alternative modes: LRT and BRT. The board decided to eliminate the segment of the alignment east of Atlantic Boulevard that was studied in the Re-Evaluation/MIS because of the need to further study the optimal path for a fixed-guideway alternative in this portion of the study area. On June 22, 2000, the board re-examined the BRT mode and determined that this mode should be dropped from further consideration in part because the new State Traffic Congestion Relief Plan had committed funding for the light rail mode only.

1.2.3.8 Los Angeles Eastside Corridor SEIS/SEIR

The FTA, as the Federal lead agency, and the MTA, as the local lead agency, are preparing this joint SEIS/SEIR in accordance with the National Environmental Policy Act of 1969 (NEPA) and the California Environmental Quality Act (CEQA). The SEIS/SEIR supplements the information in the 1994 Final EIS/EIR. The SEIS/SEIR assesses the impacts of the LRT Build Alternative (described in Section 1.1.4) that MTA directed for further study. In addition, the No-Build Alternative is assessed in accordance with NEPA and CEQA requirements.

There are a few differences between the regulations implementing NEPA and CEQA that affect reporting in this document. CEQA requires identification of, and mitigation for, significant adverse impacts in an EIR, while under NEPA, mitigation is considered for all of the adverse impacts of a project, regardless of significance. This combined NEPA/CEQA document identifies the impacts of the alternatives regardless of whether they would be considered "significant" under CEQA and proposes mitigation wherever practicable to reduce identified adverse effects. Specific discussion of impact significance and mitigation in accordance with CEQA is provided in Chapters 3 and 4. Chapter 4 also addresses growth-inducing and cumulative impacts analyses.

1.3 TRANSPORTATION CONDITIONS AND NEEDS

The following sections provide an overview of the existing Eastside transportation system and transit services, including system performance, deficiencies and community factors related to corridor transportation needs.

1.3.1 Roadway Conditions

The Eastside Corridor study area is served by several freeways that connect to neighboring communities and other parts of the Southern California metropolitan region. The San Bernardino Freeway (I-10), with twelve general purpose traffic lanes and two high-occupancy vehicle (HOV) lanes, runs east-west along the northern edge of the study area west of the Long Beach Freeway (I-710). To the south, the Pomona Freeway (SR-60), with ten general purpose traffic lanes, also runs in an east-west orientation. Both freeways connect the study area with the Los Angeles Central Business District (LACBD) to the west and San Bernardino and Riverside Counties to the east.

The Santa Ana Freeway (I-5 and US-101), with six to ten general purpose traffic lanes, runs in a northwest-southeast orientation and connects the study area with the LACBD and Orange County. This major regional freeway connects with the Pomona (SR-60), Santa Monica (I-10), and Golden State (I-5) freeways at the East Los Angeles interchange, one of the busiest and most congested interchanges in the region. The Long Beach Freeway (I-710), with six general traffic lanes, runs north-south and connects the study area with Alhambra to the north and Long Beach to the south. It has interchanges with the San Bernardino (I-10), Pomona (SR-60) and Santa Ana (I-5) freeways.

The Los Angeles Eastside Corridor contains a developed network of arterial and neighborhood collector streets as shown in Figure 1-4. The east-west arterials include Cesar Chavez Avenue, 1st Street, 4th/3rd Streets, Pomona Boulevard, Beverly Boulevard, Whittier Boulevard, and Olympic Boulevard. North-south arterials include Soto Street, Eastern Avenue, and Atlantic Boulevard. The Boyle Heights portion of the corridor contains narrow roadways as do many parts of the East Los Angeles portion. Both areas have very high levels of pedestrian activity. Table 1-2 shows the approximate average daily traffic volumes for several of the major arterial streets in the study area. Lane configurations for major and minor arterial streets in the corridor are presented in Table 1-3.

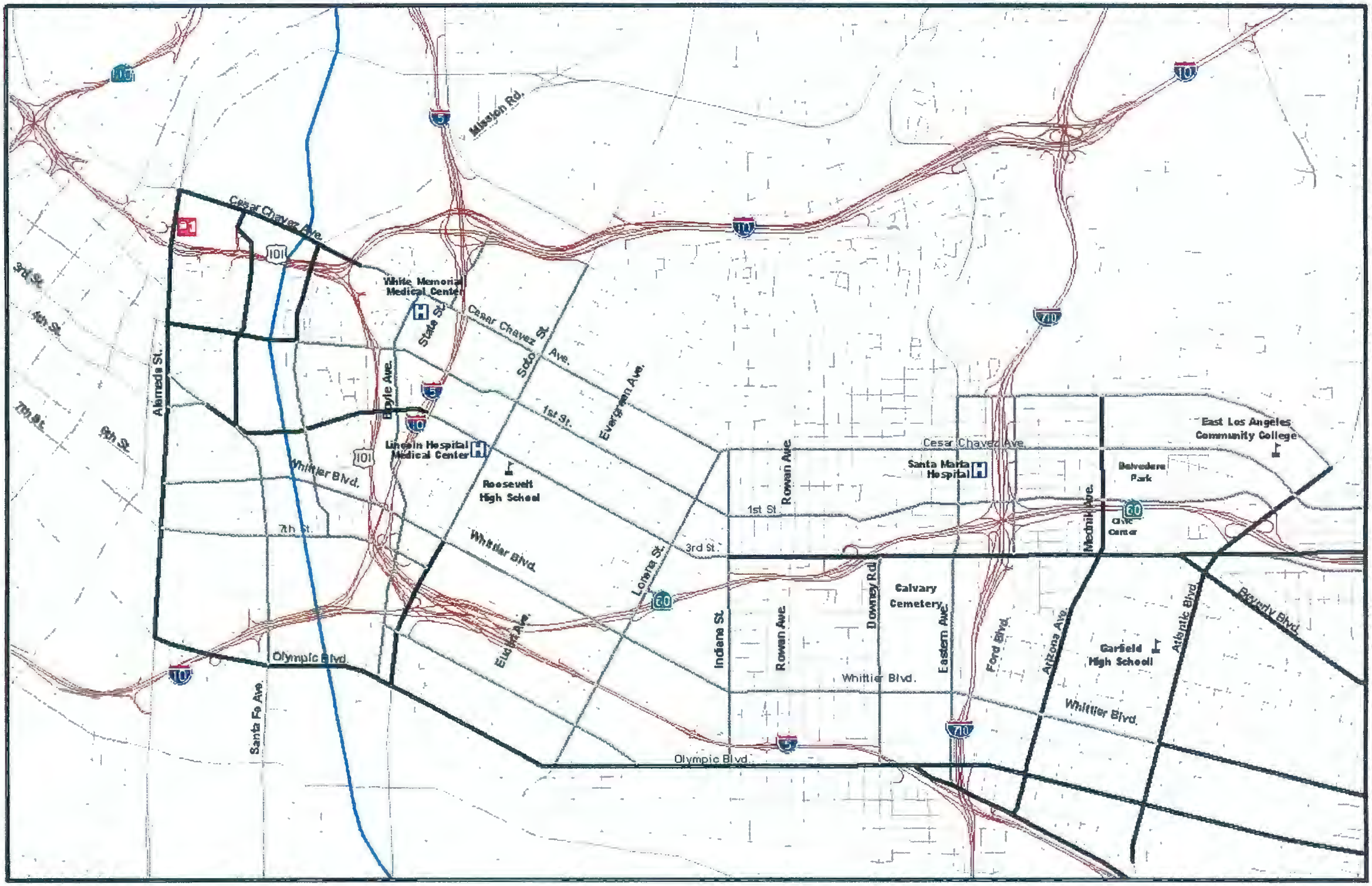
1.3.1.1 Congestion Management Plan

The Congestion Management Program (CMP) for Los Angeles County includes a program for monitoring major arterial, freeway and transit system conditions in the county. For freeways, the traditional Level of Service (LOS) scale of A to F is expanded to include LOS designations F0, F1, F2 and F3, which correspond to the length of time that a freeway segment experiences level of service F. The F3 designation represents the worst conditions, with level of service F conditions (severe congestion and speeds less than 20 MPH) experienced for three hours or more per day. Table 1-4 summarizes the results of CMP freeway monitoring in the study area.

The monitoring results indicate that most freeways experience LOS F0 or worse during the AM or PM peak period in at least one direction, and in both directions at two of the four monitoring stations. The CMP data indicate that the PM peak period is the worse time period, with severe congestion on the freeways in the eastbound direction on I-10 and SR-60 (the outbound evening commute flow from Los Angeles). During the AM peak period, congested conditions exist on both I-10 and SR-60 in the westbound (inbound) direction.

1.3.2 <u>Transit Services</u>

The Eastside Corridor has one of the most extensive networks of bus routes in the County as shown in Figure 1-5. The corridor's transit routes generally follow a grid pattern and include many express and local routes and one limited service route. Four public agencies operate bus service in the Eastside Corridor. They include the Los Angeles County Metropolitan Transportation Authority, Montebello Transit, the City of Monterey Park, and the City of Commerce. Table 1-5 lists all the current bus transit routes operated in the corridor with the limits of their service.



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

Legend
- Freeway
- Major Street
- Secondary Street
- Local Street
- River

August 2, 2000

Eastside Corridor Transit Consultants

Source: Los Angeles Department of Transportation and Los Angeles County Department of Public Works Street Classification System.

Note: Base map courtesy by Thomas Bros. Maps through a conditional use from MTA 1997.

LOS ANGELES EASTSIDE CORRIDOR
DRAFT SEIS/SEIR

EASTSIDE CORRIDOR STREET NETWORK

FIGURE 1-4

Most of the heavily used routes are those that run in an east-west direction. These include bus routes that operate on Cesar Chavez Avenue, 1st Street, Whittier Boulevard, and Olympic Boulevard. Soto Street and Atlantic Boulevard are two north-south streets on which heavily used bus routes operate. Although north-south travel is constricted into two main through bus lines on Soto and Atlantic, the predominant flow of transit passengers in the corridor is in an east-west orientation. There is very high ridership on many of these routes during peak periods. A service allocation mismatch is evident in the fact that some bus lines have high ridership and others have low ridership during various periods of the day. Table 1-6 shows the service frequency (headways) for all the bus lines in the corridor. Some lines, such as the 30/31 on 1st Street and the 66 on Olympic, have very high levels of transit service.

TABLE 1-2
SELECTED AVERAGE DAILY TRAFFIC VOLUMES

No.	Street	Screenline	ADT Count
1	Cesar Chavez	East of Alameda	26,800
2	Cesar Chavez	West of I-5 Freeway	20,900
3	Cesar Chavez	West of Lorena	21,700
4	Cesar Chavez	West of Eastern	20,800
5	Cesar Chavez	West of Atlantic	13,600
6	1st Street	East of Alameda	17,370
7	1st Street	West of I-5 Freeway	13,300
8	1st Street	West of Lorena	15,300
9	1st Street	West of Eastern	10,200
10	1st Street	West of Atlantic	7,300
11	3rd Street	East of Alameda	13,800
12	4th Street	East of Alameda	11,100
13	4th Street	West of I-5 Freeway	19,500
14	4th Street	West of Lorena	19,300
15	3rd Street	West of Eastern	19,100
16	Pomona Blvd	West of Atlantic	11,600
17	Beverly Blvd	West of Atlantic	17,900
18	Alameda St	South of 1st Street	19,100
19	Mission Rd	South of 1st Street	2,600
20	Boyle Ave	South of 1st Street	12,100
21	Soto St	South of 1st Street	17,500
22	Evergreen Ave	South of 1st Street	5,700
23	Lorena St	South of 1st Street	12,300
24	Indiana St	South of 1st Street	10,500
25	Eastern Ave	South of 1st Street	12,800
26	Mednik Ave	South of 1st Street	12,300
27	Atlantic Blvd	South of 1st Street	35,100

Source: The Traffic Solution, 2000; LADOT, 1997-2000; Los Angeles County, 1999

1.3.3 Transportation System Performance

According to screenline analysis results (Table 1-7), one location had an Average Daily Traffic (ADT) level of service (LOS) D under existing conditions. This location was on Atlantic Boulevard south of 1st Street in the vicinity of the Pomona Freeway (SR-60) interchange. The remaining screenline locations exhibit levels of service A, B, and C operating conditions. Levels of service were also calculated across screenlines to provide corridor performance for more than one street at a given point in the corridor. These calculations reveal that each screenline operated at LOS A, which indicates good levels of service for all streets within the corridor taken together at one screenline location. Table 1-7 shows existing ADT capacities, volumes, volume-to-capacity ratios, and corresponding levels of service (LOS) for each screenline location analyzed in the Eastside Corridor.

TABLE 1-3
LANE CONFIGURATIONS OF ARTERIAL STREETS

No.	Street	Street Orientation	Number of Lanes	On-Street Parking	Peak Hour Parking Restrictions
1	Cesar Chavez	E-W	5	Yes	Yes
2	1st Street	E-W	5	Yes	Yes
3	4th Street	E-W	5	Yes	Yes
4	3rd Street	E-W	7	Yes	Yes
5	Beverly Boulevard	E-W	5	Yes	No
6	Whittier Boulevard	E-W	5	Yes	Yes
7	Olympic Boulevard	E-W	7	Yes	No
8	Alameda Street	N-S	5	Yes	Yes
9	Soto Street	N-S	5	Yes	Yes
10	Lorena Street	N-S	4	Yes	No
11	Indiana Street	N-S	2	Yes	No
12	Arizona Street	N-S	5	Yes	No
13	Atlantic Boulevard	N-S	7	Yes	Yes

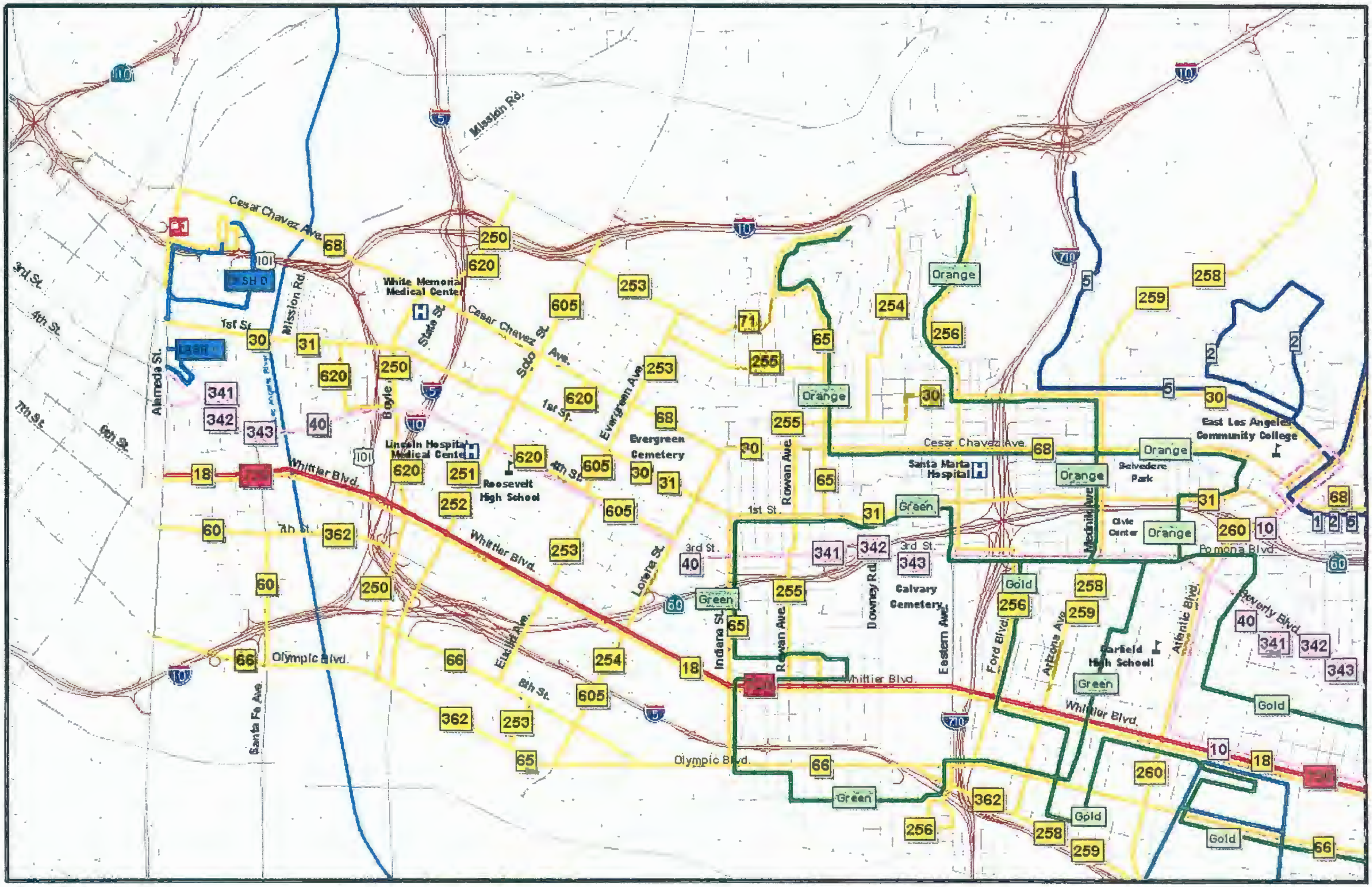
Refer to Figure 1-4 for locations of arterial streets.
Source: Field Survey and SCAG Land Use Data Base

TABLE 1-4
CMP MONITORING RESULTS

Freeway	Location	Northbound/Eastbound		Southbound/Westbound	
		AM LOS	PM LOS	AM LOS	PM LOS
I-5	Ferris Ave	F1	C	D	F2
I-10	Indiana St	C	F0	D	C
SR-60	Indiana St	B	F1	F2	B
I-710	Whittier Blvd	D	E	E	F0

Source: 1999 Congestion Management Program for Los Angeles County

The traffic intersection analysis results in Table 1-8 for the Eastside Corridor reveal that two signalized locations were operating at LOS E in the year 2000. These locations were Cesar Chavez at Mednik and Beverly at Atlantic. Five signalized locations were operating at LOS D, and the remaining signalized intersections were operating at LOS C or better. For the unsignalized intersections analyzed, two



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

Eastside Corridor Transit Consultants

Legend

- 30 MTA Routes
- Metro Rapid Route
- 40 Montebello Routes
- 5 Monterey Park Routes
- LADOT Routes
- Gold LA County Routes
- Commerce Routes (All Routes)
- Highway
- Primary Road
- Secondary Road
- River

Note: Highways, primary, and secondary roads by Thomas Bros. Maps through conditional use from MTA 1997.

August 28, 2000

LOS ANGELES EASTSIDE CORRIDOR
DRAFT SEIS/SEIR

EASTSIDE BUS ROUTES

FIGURE 1-5

locations were operating at LOS F during the PM peak hour. These were 1st Street at Alma and 4th Street at the Southbound I-5 Ramps. One location was operating at LOS D, and the remaining unsignalized locations were operating at LOS C or better.

TABLE 1-5
BUS TRANSIT ROUTES IN THE LOS ANGELES EASTSIDE CORRIDOR

Operator	Line(s)	Destinations
Commerce	Blue	Community Circulator (Commerce)
	Green	Community Circulator (Commerce)
	Orange	Community Circulator (Commerce)
	Red	Community Circulator (Commerce)
	Yellow	Community Circulator (Commerce)
Los Angeles County	Gold	East Los Angeles
	Green	East Los Angeles
	Orange	East Los Angeles - CSULA
Montebello	10	East LA College - Pico Rivera
	40	Downtown LA - Whittier
	341,342,343	Downtown LA - Montebello Express
Monterey Park	1	Community Circulator (Monterey Park)
	2	Community Circulator (Monterey Park)
	5	Community Circulator (Monterey Park)
MTA	18	Wilshire Center - Whittier
	30,31	Mid City - East LA College
	65	Downtown Los Angeles - CSULA
	66	Wilshire Center - Montebello
	68	West LA Transit Ctr - Montebello Towne Center
	71	Downtown Los Angeles - CSULA
	250	LAC+USC - Boyle Heights
	251	Cypress Park - Watts
	252	El Sereno - Lynwood
	253	LAC+USC - Boyle Heights
	254	LAC+USC - Willowbrook
	255	Montecito Heights - East Los Angeles
	256	Altadena - East Los Angeles
	258	Alhambra - South Gate
	259	El Sereno - South Gate
	260	Altadena – Compton
	362	Downtown Los Angeles – Hawaiian Gardens
	605	LAC+USC - Boyle Heights
	620	LAC+USC - Boyle Heights
	720	Santa Monica - Montebello

Source: 1999-2000 MTA, Montebello, Monterey Park, Los Angeles County, and Commerce bus timetables.

TABLE 1-6
FREQUENCY OF TRANSIT SERVICE (IN MINUTES)

Operator	Line	Days	AM Peak 6-9am	Midday 9am-3pm	PM Peak 3-7pm	Evening 7-11pm	Owl 11pm-6am	Hours of Service
Commerce	Red	Weekday	60	60	60			6am-6pm
		Saturday	60	60	60			6am-6pm
	Blue	Weekday		60	60			9am-6pm
		Saturday		60	60			9am-6pm
	Green	Weekday	60	60	60			6am-9:30pm
		Saturday	60	60	60			6am-9:30pm
	Orange	Weekday	60	60	60			5:30am-6pm
	Yellow	Weekday	60	60	60			6am-9am
Los Angeles County	Gold	Weekday	60	60	60			6am-6pm
		Saturday		60	60			9am-5pm
	Green	Weekday	60	60	60			6am-6pm
		Saturday		60	60			9am-5pm
	Orange	Weekday	60	60	60			6am-6pm
		Saturday		60	60			9am-5pm
Montebello	10	Weekday	8	10	15			5am-11pm
		Saturday	20	10	20			5am-11pm
		Sunday	20	10	20			5am-11pm
	40	Weekday	10	12	30			5am-11pm
		Saturday	15	15	30			5am-12am
		Sunday	20	20	20			5am-11pm
	341	Weekday	30					7-9:30a,3-6p
	342	Weekday	180					6-7am, 5-6pm
	343	Weekday	30					6-8am, 5-7pm
Monterey Park	1	Weekday	40	40	40			6:30am-6pm
		Saturday	40	40	40			6:30am-6pm
	2	Weekday	40	40	40			6:30am-6pm
		Saturday	40	40	40			6:30am-6pm
	5	Weekday	50	30	30			6:30am-6pm
MTA	18	Weekday	10	15	10	15	60	24 hours
		Saturday	15	12	15	20	60	24 hours
		Sunday	20	30	15	30	60	24 hours
	30 / 31	Weekday	4	7.5	5	15	60	24 hours
		Saturday	7	7	12	30	60	24 hours
		Sunday	12	7	8	30	60	24 hours

TABLE 1-6 (CONTINUED)
FREQUENCY OF TRANSIT SERVICE (IN MINUTES)

Operator	Line	Days	AM Peak 6-9am	Midday 9am-3pm	PM Peak 3-7pm	Evening 7-11pm	Owl 11pm-6am	Hours of Service
MTA	65	Weekday	15	30	25	50		5:30am-10pm
		Saturday	60	60	60	60		6am-8pm
		Sunday		60	60	60		8am-8pm
	66	Weekday	3	8	7	30		4:30am-1:30am
		Saturday	4	10	15	30		5am-1:30am
		Sunday	15	12	12	30		5am-1am
	68	Weekday	8	12	12	40		4am-12:30am
		Saturday	15	10	15	40		4am-12:30am
		Sunday	40	15	20	40		4:30am-12:30am
	71	Weekday	12	22	20			4:30am-8:30pm
		Saturday	30	40	30			4:30am-8pm
		Sunday	40	30	30			5:30am-8pm
	250	Weekday	40	40	40			6am-7pm
	251/252	Weekday	5	12	10	30	60	24 hours
		Saturday	15	15	12	30	60	24 hours
		Sunday	30	20	20	30	60	24 hours
	253	Weekday	40	40	40			6am-8pm
		Saturday	40	40	40			6am-7:30pm
		Sunday	35	40	40			8am-6:30pm
	254	Weekday	60	55	30	60		4:30am-8:30pm
		Saturday	60	60	60			6:30am-7:30pm
		Sunday	45	60	60			7:30am-7:30pm
	255	Weekday	45	50	45			5am-8:30pm
		Saturday		45	45			5:30am-8:30pm
		Sunday		45	45			5:30am-8:30pm
	256	Weekday	35	50	35	50		6am-10:30pm
		Saturday	60	60	60	60		5:30am-9pm
		Sunday	60	60	60	60		5:30am-9pm
	258/259	Weekday	20	30	30			5am-8pm
	260	Weekday	12	15	15	60		4am-11:30pm
		Saturday	30	25	20	60		5am-12m
		Sunday	50	25	25	60		6am-12m
	362	Weekday	20	30	25	60		5am-11:30pm
		Saturday	50	60	60	60		5am-11:30pm
		Sunday	50	60	60	60		5am-11:30pm
	605	Weekday	15	30	15	30		6am-7:30pm
		Saturday	30	30	30			6am-7:30pm
		Sunday	30	30	30			6am-7:30pm
	620	Weekday		12	12			9am-6:30pm
	720	Weekday	8	10	8	20		5am-1am
		Saturday	12	12	12	20		5am-1am
		Sunday	12	12	12	20		5am-1am

Source: 1999-2000 LACMTA, Montebello, Commerce, Los Angeles County, and Monterey Park bus timetables.

TABLE 1-7
EXISTING CONDITIONS SCREENLINE ADT ANALYSIS

Screenline Location	Street	V/C[1]	LOS[2]
1. east of Alameda	Cesar Chavez Ave	0.79	C
	1st Street	0.51	A
	3rd Street (WB street)	0.51	A
	4th Street (EB street)	0.41	A
2. west of I-5 Freeway	Cesar Chavez Ave	0.65	B
	1st Street	0.42	A
	4th Street	0.57	A
3. west of Lorena	Cesar Chavez Ave	0.68	B
	1st Street	0.48	A
	4th Street	0.54	A
4. west of Eastern	Cesar Chavez Ave	0.65	B
	1st Street	0.32	A
	3rd Street	0.56	A
5. west of Atlantic	Cesar Chavez Ave	0.40	A
	1st Street	0.22	A
	Pomona Blvd	0.34	A
	Beverly Blvd	0.53	A
6. south of Temple St	Alameda St	0.78	C
	Mission Rd	0.35	A
7. south of 1st Street	Alameda St	0.56	A
	Mission Rd	0.17	A
	Boyle Ave	0.38	A
	Soto St	0.55	A
	Evergreen Ave	0.38	A
	Lorena St	0.38	A
	Indiana St	0.70	C
	Eastern Ave	0.40	A
	Mednik Ave	0.38	A
	Atlantic Blvd	0.88	D

[1]Volume/Capacity Ratio.
[2]Level of Service.
Source: City of Los Angeles DOT, County of Los Angeles Dept. of Public Works, The Traffic Solution, Parsons Brinckerhoff, 1997-2000.

TABLE 1-8
YEAR 2000 INTERSECTION LEVELS OF SERVICE

No.	East-West Street	North-South Street	PM Peak Hour Level of Service
1	Cesar Chavez	Vignes St	B
2	Cesar Chavez	Mission Rd	B
3	Cesar Chavez	Boyle Ave	A
4	Cesar Chavez	State St	B
5[1]	Cesar Chavez	I-5 SB Ramp	B
6	Cesar Chavez	I-5 NB Ramp	A
7	Cesar Chavez	Soto St	A
8	Cesar Chavez	Evergreen Ave	A
9	Cesar Chavez	Lorena St	A
10[1]	Cesar Chavez	Indiana St	D
11	Cesar Chavez	Rowan Ave	A
12	Cesar Chavez	Eastern Ave	A
13	Cesar Chavez	Mednik Ave	E
14	Cesar Chavez	Atlantic Blvd	D
15	Commercial St	Alameda St	A
16[1]	Commercial St	Vignes St	B
17	Temple St	Alameda St	B
18	1st Street	Alameda St	D
19	1st Street	Vignes St	A
20	1st Street	Mission Rd	C
21[1]	1st Street	US-101 SB Ramp/Pecan St	C
22	1st Street	US-101 NB Ramp	A
23	1st Street	Boyle Ave	A
24	1st Street	Soto St	B
25	1st Street	Evergreen Ave	A
26	1st Street	Lorena St	A
27	1st Street	Indiana St	A
28[1]	1st Street	Alma Ave	F
29	1st Street	Rowan Ave	A
30	1st Street	Eastern Ave	A
31	1st Street	Mednik Ave	A
32	1st Street	Atlantic Blvd	D
33	3rd Street	Alameda St	A
34	4th Street	Alameda St	B
35[1]	4th Street	US-101 SB Ramps	B
36	4th Street	US-101 NB Ramp	A
37	4th Street	Boyle Ave	A
38[1]	4th Street	I-5 SB Ramps	F
39	4th Street	I-5 NB Ramps	A
40	4th Street	Soto St	A
41	4th Street	Evergreen Ave	A
42	4th Street	Euclid Ave	A
43	3rd Street	Indiana St	D
44[1]	3rd Street	Alma Ave	C

TABLE 1-8 (CONTINUED) YEAR 2000 INTERSECTION LEVELS OF SERVICE			
No.	**East-West Street**	**North-South Street**	**PM Peak Level of Service**
45	3rd Street	Rowan Ave	A
46	3rd Street	Eastern Ave	C
47	3rd Street	Ford Blvd	A
48	3rd Street	Mednik Ave	B
49	3rd Street	Woods Ave/Beverly Blvd	C
50	Pomona Blvd	Atlantic Blvd	D
51	Beverly Blvd	Atlantic Blvd	E
52	Beverly Blvd	Hillview Ave	A
53	SR-60 EB Off-Ramp	Atlantic Blvd	A
54	4th Street	Atlantic Blvd	A

[1]Unsignalized intersection.
Source: Parsons Brinckerhoff and Kaku Associates, 2000.

As mentioned in the previous section, there are high levels of transit service provided on many of the bus routes in the Eastside Corridor during peak periods. The pattern of a grid-based system of transit service provision can provide for transit to be less convenient and inefficient for many of the transit-dependent residents of the corridor. A single trip to an activity may require at least one transfer to another bus line, and overcrowding makes the connection to other services unreliable. Transit speed reliability is another factor that hinders the mobility of the transit passenger. On MTA lines that run through the study area, average speeds range from 7.8 to 15.7 miles per hour. On the most heavily used lines, speeds average 12-14 mph. During congested peak periods on the major arterial streets, travel speeds decrease during the same time period where passenger loads are the highest. This creates a situation where the greatest number of people are being served at a lower level of service. The existing system of bus lines in the Eastside Corridor does not sufficiently serve the daily needs for mobility of those that are dependent on the system of public transit services.

1.3.4 Community Factors

The Eastside Corridor study area contains a low- to moderate-income population, which is expected to grow by 30 percent to 275,000 by 2020, according to Southern California Association of Governments (SCAG) forecast data. The Eastside Corridor contains a dense concentration of households.

Access to employment opportunities is one of the major mobility problems that affect Eastside Corridor residents. The 1990 Census analysis of the study area work force revealed a breakdown of home-based work trips generated from the Eastside Corridor area. Nine percent of work trips from the Eastside Corridor were destined for the Los Angeles CBD, 36 percent for areas north and west of the CBD, 13 percent for the South Bay region of the County, 24 percent for locations within the corridor, and 18 percent for areas in the remainder of the County.

SCAG forecast data for the year 2020 show an increase in the number of trips generated in the study area as the population grows. The forecast results indicate that there will be less reliance on the Los Angeles CBD and a greater number of trips being made to other sub-areas of the Los Angeles region. Work trips to the West Los Angeles area are projected to increase by 57% from the study area, and work trips to the southern part of the County are expected to increase by 42%. While work trips to the San Fernando Valley are expected to decrease by 46%, work trips to the San Gabriel Valley are expected to increase by 100%. Work trips destined for Orange County are expected to increase by 50%. As employment and activities in the region decentralize, greater reliance will be placed upon modes of travel that provide relatively convenient and timely service, especially in light of the increase in the amount of traffic congestion and resulting public transit delays that will be experienced in the coming 20 years.

The study area's mobility problems are exacerbated by socioeconomic factors. As reported in the 1990 Census, and shown in Table 1-9, the percentage of occupied dwelling units in the corridor whose residents did not have access to an automobile was approximately 30 percent, which is almost three times greater than the figure for the County of Los Angeles as a whole (11 percent). Many of the area's residents were young, with 21 percent between the ages of six and 18 years, and only eight percent being elderly (over 65 years). About 26 percent of the housing units were owner-occupied, and vacancy rates were generally low, averaging less than one percent. Most of the housing units were single-family houses with an average household size of 4.0 persons, which is about 35 percent higher than the City and County of Los Angeles averages of 2.9 and 3.0 persons per household, respectively. The minority composition of the study area in 1990 was 96.7 percent, most of whom were of Latino ethnic background. Given the growing population and the number of low-income households in the corridor (26 percent of total households), reliance on public transportation will not decrease, but will likely increase in the future.

TABLE 1-9
A COMPARISON OF SELECTED POPULATION CHARACTERISTICS BETWEEN THE LOS ANGELES EASTSIDE CORRIDOR AND LOS ANGELES COUNTY

Characteristic	Location	Percentage or Number
Percentage residents without access to an automobile	Eastside Corridor	30%
	Los Angeles County	11%
Percentage persons age 6-18 years	Eastside Corridor	21%
	Los Angeles County	18%
Percentage persons age over 65	Eastside Corridor	8%
	Los Angeles County	10%
Average household size	Eastside Corridor	4.0
	Los Angeles County	3.0
Percentage low-income households	Eastside Corridor	26%
	Los Angeles County	12%
Percentage minority households	Eastside Corridor	97%
	Los Angeles County	59%

Source: U.S. Census of Population and Housing, 1990.

1.3.5 Goals and Objectives

The goals and objectives of the SEIS/SEIR, Los Angeles Eastside Corridor have been developed from the extensive corridor and systems planning studies carried out over the past ten years, including the Eastside Alternatives Analysis/DEIS/DEIR process, public reviews leading to selection of the Locally Preferred Alternative, and the Re-Evaluation/MIS. Based on these planning and community involvement activities, the following goals and objectives listed were used. They are based on established transportation and land use goals and objectives of the major government jurisdictions within the study area, including the City of Los Angeles and the County of Los Angeles. These goals and objectives were utilized in the development and evaluation of the Eastside Corridor transit alternatives.

1. Improve access and mobility for residents, employees, and visitors to the Eastside Corridor.
   - Provide direct service to employment opportunities
   - Provide direct service to education, medical, shopping, and cultural opportunities
   - Minimize total travel times
   - Maximize transit ridership
   - Minimize transfers and changes of mode by integrating the system
   - Provide convenient access and improve connectivity to the regional transit system
   - Provide for the long term expansion of the future transit system
2. Support land use and development goals as stated in City of Los Angeles and County of Los Angeles plans for:
   - Community plan consistency
   - Regional plan consistency
   - Joint development opportunities
   - Increased land use intensity in transit station areas
   - Mixed-use commercial/residential development
   - Create a pedestrian-oriented environment
   - Enhance urban design features
3. Achieve local consensus by ensuring that the process is responsive to the community and policy-makers.
   - Define the desired transit system attributes from a community perspective
   - Maximize the opportunities for community and resident input
   - Enhance the public image of the proposed transit improvements
   - Build community and political support through effective communication and integration with local and regional plans
4. Provide a transportation project that is compatible with and enhances the physical environment wherever possible.
   - Implement an alternative that minimizes adverse impacts on the environment
   - Minimize air pollution
   - Minimize noise pollution
   - Minimize vibration impacts
   - Minimize the disturbance of public facilities
   - Minimize impacts on cultural resources, such as those that are historic, archaeological, or involve parkland
   - Conform to all local, state, and federal environmental regulations
5. Provide a transportation project that minimizes adverse impacts on the community.
   - Minimize business and residential dislocations, community disruptions, and damage to property
   - Avoid creating physical barriers, destroying neighborhood cohesion, or diminishing the quality of the human environment

- Minimize traffic and parking impacts
- Minimize impacts during periods of construction

6. Provide a transportation project that is reasonably within budget constraints for both capital and operating expenses.
   - Ensure adequate local funding commitments to secure federal and state contributions
   - Ensure adequate operating funds
   - Ensure fiscal consistency with the MTA's current financial plan
   - Minimize right-of-way costs by using land previously acquired by the MTA

1.3.6 Summary of Need

Travel demand forecasts prepared by SCAG and the MTA over the past decade have identified the need for transit improvements in the Southern California region, especially in Los Angeles County, to meet the mandates of the federal Clean Air Act and address the increasing mobility needs of the region. Current freeway and surface arterial street facilities cannot be expanded sufficiently to handle the forecasted demand for mobility. Regional forecasts for the year 2020 based on 1990 census data estimate that person trips will increase by over 40 percent in the region and by almost 30 percent in Los Angeles County. The MTA, in the development and adoption of its 1992 30-Year Integrated Transportation Plan, addressed the mobility deficiency issues identified in the regional plan developed by SCAG. Subsequent travel demand forecasting conducted for the update of the MTA Long Range Plan has confirmed the continuing need for improvements in mobility.

The existing population and employment density in the Eastside Corridor is high and very transit supportive. The corridor transit work trip mode split is 2.8 times higher than Los Angeles County as a whole. The corridor has a high concentration of low-income, minority, transit-dependent residents. Over 19 percent of workers use the bus system on their journey to work (as compared to 6.8 percent for Los Angeles County as a whole), and rates of carpooling and walking to work are higher than the County average. Employment densities are six times higher within the Eastside Corridor than Los Angeles County as a whole. The corridor is growing (20 percent population and 30 percent employment growth between now and 2020), and a new transit investment would make the Corridor attractive for other types of urban investment in the future. This will make the corridor even more transit supportive over time, as new investments are attracted by transit and community centers and encouraged by potential development and tax incentives offered by other agencies responsible for these issues.

All major freeways serving the Eastside Corridor area are currently operating above their design capacities during peak periods, and for significant durations during off-peak periods. No major improvements to existing freeways in the study area are identified in the current SCAG Regional Transportation Plan except for the extension of the I-710 freeway north to Pasadena. During previous project scoping and community meetings, residents of the Eastside Corridor expressed their desire for improved transit service because many are transit-dependent and need improved access to the region's educational, employment and cultural opportunities. Current meetings with Eastside Corridor elected officials have confirmed the need for improved transit service and connections to the regional system, especially in light of community initiatives for revitalization, employment opportunities, and economic development on the Eastside. The project now under study in this SEIS/SEIR will further these goals and contribute to an improved overall transportation system for the Los Angeles region and for the Eastside Corridor specifically.

2.0 ALTERNATIVES CONSIDERED

2.1 EARLY PLANNING STUDIES

The initial systems planning background and context for the Eastside Corridor was developed in the *Metro Red Line Extension System Planning Study* prepared by the Southern California Association of Governments (SCAG) in 1989, as well as in the *Los Angeles Metro Orange Line Extension: Transitional Analysis* prepared by the Los Angeles County Transportation Commission (LACTC) in 1990. These reports document the historical framework for the definition of the Eastside/Santa Ana Transit Corridor and other corridors. They provide the background systems analysis that was used to justify the need for major capital expenditures in these corridors. The results of the two studies are summarized below:

The August 1989 Metro Red Line Extension System Planning Study was prepared by SCAG for the Los Angeles County Transportation Commission (LACTC) to evaluate future extensions of the original 18-mile Metro Red Line subway line between Union Station and North Hollywood. The Extension Study evaluated travel corridor characteristics, reviewed existing transit operations and analyzed the proposed corridor for consistency with the adopted regional plan. Based on the analysis, the Systems Planning Study identified proposed corridor extensions, which meet federal criteria for current ridership, projected transit demand and consistency with the adopted regional plan.

Based on the 1989 System Planning Study, a Central East/West Corridor was identified as the highest priority for a Metro Red Line LPA heavy rail extension. The 1990 Transitional Analysis was undertaken by the LACTC to demonstrate that an extension to the east and west could meet federal cost-effectiveness thresholds and provide the basis for proceeding with an Alternatives Analysis/Draft Environmental Impact Statement. Based on conservative assumptions for the ridership projections, the total cost per new rider was determined to be under the federal threshold. This supported the decision to proceed with a full Alternatives Analysis/DEIS/DEIR for the east-west corridor extension.

2.2 PREVIOUS EIS/EIR AND SUSPENDED PROJECT (1990 –1998)

Eastside Corridor planning for the Red Line Extension was initiated in 1990 through the Alternative Analysis/DEIS/DEIR process. Following extensive public review of the ten alternatives presented in the April 1993 Alternative Analysis/DEIS/DEIR document, the MTA Board of Directors in June 1993 selected the Locally Preferred Alternative (LPA) for the Los Angeles Eastside Corridor. The LPA was subsequently incorporated into SCAG's Regional Mobility Element (RME) planning process and included as part of the regional Air Quality Management Plan. The East Side Extension Preferred Alternative was identified as a heavy rail subway line from Union Station to Whittier/Atlantic Boulevard, to be implemented in two phases.

The Final EIS/EIR for the Eastside Corridor was completed in June 1994. It evaluated the LPA to ensure that all significant environmental consequences and all reasonable and feasible mitigation measures were considered in its selection. The Record of Decision was signed on December 1994. Full Funding Grant Agreements were subsequently executed with the Federal Transit Administration and the projects were transitioned into the construction phase.

In January 1998, the MTA suspended work on extensions of the Metro Red Line heavy rail subway project, including the initial 3.7-mile segment of the Eastside LPA from Union Station to First/Lorena. Since the suspension, several planning initiatives have provided further guidance for the development of Eastside transit alternative improvements.

The MTA Restructuring Plan titled: *Analysis and Documentation of the MTA's Financial and Managerial Ability to Complete North Hollywood Rail Construction and Meet the Terms of the Bus Consent Decree*, was adopted by the MTA Board of Directors on May 13, 1998 and subsequently approved by the FTA on July 2, 1998. The Restructuring Plan documented that the MTA did not have sufficient local matching funds to finance heavy rail subway projects in the Eastside and Mid-City corridors as anticipated in the original Full Funding Grant Agreements for those projects. At the same time, the Restructuring Plan called for the MTA to study "viable and effective options" for transit in all parts of Los Angeles County, with an emphasis on the corridors in which the rail lines had been suspended.

Within the Eastside and Westside corridors, this necessitated the examination of alternative fixed guideway options to heavy rail subway. It also committed the MTA to a reevaluation of the financial capacities of the agency to undertake new start, fixed guideway projects. To that end, the Board authorized the Regional Transit Alternatives Analysis (RTAA) Study that commenced in July 1998 and was completed in November 1998.

The RTAA Study accomplished several important objectives for the MTA. The study identified the amount of funding available for new projects between FY1999 and FY2004. It suggested possible funding allocations, identified immediate bus transit improvements in Los Angeles County, and established a framework for further fixed guideway project development in the Eastside, Westside, and San Fernando Valley corridors.

The study included a preliminary evaluation of fixed guideway alternatives in the three corridors. The study did not make recommendations with regard to preferred fixed guideway transit modes or configurations, but recommended that a Major Investment Study (MIS) level of analysis be conducted to provide more information regarding these choices.

Results of the RTAA Study were presented to the MTA Board on November 9, 1998. At that meeting, the Board approved the concept of a recommended rapid bus system serving the Eastside, Westside and San Fernando Valley. The Board also reaffirmed its commitment to fund fixed guideway transit improvements beyond rapid bus in the suspended rail corridors. A priority funding commitment of $220 million through FY2004 was made to the Eastside and Mid-City areas from remaining uncommitted funds.

In a step made to obtain greater flexibility in project definition for the project corridors, the MTA sought to expand the definition of Metro Red Line Segment 3. Segment 3 was defined in both the Intermodal Surface Transportation and Efficiency Act (ISTEA) and the Segment 3 Full Funding Grant Agreement as a "heavy rail subway" project. With the cooperation and assistance of the Los Angeles congressional delegation, the MTA obtained revised definitional language in the Transportation Equity Act for the Twenty-First Century (TEA-21), which was signed into law by the President on June 9, 1998. This action was taken with the intent to have the option available to utilize the Segment 3 funding balance in the future for any type of fixed guideway project in the Eastside and other corridors. The TEA-21 legislation expanded the definition of the Segment 3 project to include "any fixed guideway project" (not necessarily heavy rail subway) in the transportation corridors to be served by the three extensions of Segment 3. It also authorized the start of final design and construction for the Segment 3 project during the FY1998-2003 funding cycle under FTA section 5309 (new starts funding).

A 1998 ballot initiative sponsored by County Supervisor Zev Yaroslavsky, referred to as the Metropolitan Transportation Authority Reform and Accountability Act, was approved (and became effective) on November 3, 1998. The most significant provision of the new law stipulates that no local Proposition A or C sales tax monies will be used to fund the planning, design, construction, or operation of any New Subway. The term "New Subway" is defined to mean any subway project (a rail line which is in a tunnel below grade) other than the Metro Red Line Segments 1,2 or 3 (North Hollywood). As a result, the initiative prohibits the use of these sales tax revenues to build subway extensions in the Eastside or Mid-City/Westside corridors.

The initiative does not prohibit the use of sales tax revenues to design and construct light rail, at-grade rail, elevated rail systems, or busways in the Eastside, or other areas of Los Angeles County. Nor does this initiative prevent the MTA from using State or Federal revenues or local revenues other than sales tax, to design and construct a new subway in the Eastside or other areas.

2.3 RE-EVALUATION/MAJOR INVESTMENT STUDY (1999 –2000)

In June 1999, the MTA initiated a Re-Evaluation/Major Investment Study (MIS) for the Eastside Transit Corridor. The MTA also authorized parallel Re-Evaluation/Major Investment Studies for the Mid-City/Westside and San Fernando Valley Corridors.

There were two major objectives for the Eastside Corridor Re-Evaluation/MIS study: (1) develop alternatives to the Suspended Project, and (2) identify the corridor long term transportation needs to be addressed in the MTA Long Range Plan. The Re-Evaluation/MIS Report provided the public and MTA Board of Directors the technical information needed in order to make an informed decision related to selecting an alternative or alternatives that satisfy the needs of the Eastside Corridor. The selected alternatives will then be subject to the next phase of analysis, which is the preparation of this Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (Draft SEIS/SEIR).

2.3.1 First-round Screening of Alternatives

The MIS included not only alignments but also three different transit modes: Bus Guideway (also called Bus Rapid Transit or Busway and predominately at-grade or surface running); Light Rail Transit (mainly at-grade or surface running) and Heavy Rail Transit (mainly subway). The first task was to assemble and document the alternatives that had been considered over the last ten years. Six major relevant studies (listed below) have been conducted in the Eastside Corridor.

1. Regional Transit Alternatives Analysis, November 1998, MTA.
2. East Los Angeles Study for 1st District, October 1998, ACG Environments.
3. 1998 RTP Transit Restructuring Evaluation, East Los Angeles, Transit Corridor Technical Report, July 1998, SCAG.
4. Los Angeles East Side Extension, FEIS/FEIR, September 1994, MTA.
5. Route 10/60 Corridor Preliminary Planning Study, June 1993, MTA.
6. Los Angeles Eastside Corridor, AA/DEIS/DEIR, April 1993, MTA.

From these six studies as well as input from the public and staff, 47 alternatives were identified. The goal was to reduce the identified alternatives to eight fixed guideway alternatives for analysis in the MIS in addition to the No Build and Transportation Systems Management (TSM) Alternatives. The eight alternatives had to consider the three possible modes of fixed guideway transit and service the full length of the Eastside Corridor.

As part of the Federal and local project development and environmental clearance process, a local and Federal process called "scoping" was initiated in addition to a very aggressive public involvement program. The scoping process was initiated with the cooperation of the Federal Transit Administration (FTA) and was properly noticed through a Federal Notice of Intent (August 13, 1999) and the State required Notice of Preparation (August 10, 1999) by MTA. The purpose of the intensive scoping process was to invite interested individuals, organizations, and Federal, State, and local agencies to participate in defining the alternatives to be evaluated in the Re-Evaluation Major Investment Study (MIS) and the subsequent environment impact statement and report and identifying any significant social, economic, or environmental issues related to the alternatives. The study area was defined in the scoping information booklets and the 47 alternatives were shown at the scoping meetings.

Three official community scoping meetings were noticed and conducted on August 24, 1999; August 26, 1999; and September 2, 1999 plus seven major follow-up community meetings were conducted over the course of the study and discussed in Chapter 6 of this document. Over 270 persons attended the three community scoping meetings and the comments are fully documented in the *Scoping Meeting Summary Report* dated September 24, 1999. In addition to the three community scoping meetings a separate governmental agency scoping meeting was conducted on August 25, 1999 at MTA Headquarters. Their comments are also documented in the *Scoping Meeting Summary Report.*

To further enhance the initial community outreach program for the MIS, meetings with the MTA Review Advisory Committee (RAC) for the Eastside were conducted on July 21, 1999; August 4, 1999; and August 18, 1999. These meetings brought the committee up to date on the efforts that had been initiated by MTA and presented the study process and schedule leading to a decision for an Eastside fixed guideway transit project by the MTA Board of Directors. The meeting agendas, distributed materials, and meeting minutes are also included in the *Scoping Meeting Summary Report.*

In addition to the above meetings with the community, meetings were held with the MTA Elected Officials Committee (representing the Eastside communities), and a number of community ad-hoc meetings were conducted during the scoping period. Throughout the whole MIS process, a very extensive and expensive public outreach program was conducted and is summarized in Chapter 6 of this Draft SEIS/SEIS document.

In order to reduce the number of identified alternatives, the first task was to identify a list of screening evaluation criteria that could be applied to the 47 alternatives. This was a very difficult and controversial undertaking by the staff and consultant team. A number of staff and consultant team work sessions were undertaken after scoping to identify the eight fixed guideway alternatives to be analyzed. Some 32 measures or criteria, listed below, were used in the first round of screening.

1. Alternative considered in formal MTA study process.
2. Scoping meetings input – support.
3. Right-of-way acquired by the MTA is not used.
4. Alternative eliminated by previous studies.
5. Alternative does not penetrate the corridor.
6. Alternative does not serve major activity centers.
7. Section 4(f) or 106 properties (recreational or cultural resources) potentially affected.
8. Parking for businesses is removed.
9. Sensitive resources are affected by noise, vibration, etc.
10. Connections with existing transit facilities are non-existent.
11. Access is provided to high-density areas.
12. Major right of way impacts anticipated.
13. Major traffic impacts anticipated resulting in slow travel times.
14. Redevelopment/development potential low.
15. Major impacts on utilities.
16. Construction implementation difficult.
17. Major new structures or other high cost items are needed.
18. Major existing structures will be impacted.

19. Community supports the alternative.
20. Elected officials support for the alternative.
21. Equity is an issue.
22. Major visual impacts on surroundings.
23. Potential high contaminated lands affected (from previous studies).
24. Geotechnical/seismic issues.
25. Lane miles of traffic lanes removed.
26. Lane miles of parking lanes removed.
27. Provisions for north-south bus interface connections (major MTA, Montebello, and other community bus systems).
28. Cultural resources potentially impacted; schools, parks, churches, hospitals and cemeteries.
29. Street curb-to-curb width.
30. Street right of way width.
31. Serves the study goals and objectives.
32. Conceptual preliminary cost within reason.

From the 47 alternatives, some 15 alternatives were identified for further consideration.

2.3.2 Second-Round Screening of Alternatives

A second round of evaluation was conducted in order to reduce the number of alternatives to eight. The eight alternatives were chosen based on a review of previous alternatives and studies, three fixed guideway technologies (Bus Rapid Transit, Light Rail Transit, and Heavy Rail Transit), a workshop by the consultant team to consider the initial screening criteria in reducing the number of alternatives, discussion with the MTA/consultant study team, identification of logical termini (Union Station and Whittier/Norwalk Boulevards) to serve the identified study area, and the basic objective to recommend eight build alternatives for analysis in the Re-Evaluation/MIS Report.

Other assumptions included the provision that no traffic lanes would be replaced for the at-grade alignments, as much on-street parking would be retained as possible, and that the fixed guideway technologies would operate on exclusive rights-of-way. In addition, a key assumption was that the alternatives presented be implementable, even though they may have impacts and capable of being constructed in phases over time based on the resources available.

2.3.3 Alternatives Considered for Evaluation in Re-Evaluation/MIS

Based on the community, technical staff, and consultant team inputs, eight fixed guideway build alternatives, the No-Build Alternative, and the TSM Alternative were developed for environmental and technical analysis in the study. The alternatives are summarized below.

The No-Build Alternative includes all highway and transit projects and operations that the region and MTA expect to be in place in the year 2020 (the future analysis year for this SEIS/SEIR). These include improvements to the local bus system and the completion of the Red Line to North Hollywood and the Pasadena Blue Line to Sierra Madre Villa in Pasadena.

The Transportation System Management (TSM) Alternative is defined by the Federal Transit Administration (FTA) as the No-Build Alternative plus lower cost transit capital and operational improvements that are intended to enhance the performance of the transportation system within the study corridor. The TSM Alternative in comparison to the "build" alternatives should be a relatively low cost approach to addressing the transportation problems. The TSM should represent the best that can be done to improve transit mobility in the corridor without the construction of major new transit facilities. The

TSM Alternative for the Eastside Corridor includes additions in bus service frequencies to the major east-west and north-south existing transit routes as well as the implementation of the Whittier/Wilshire Rapid Bus line from Whittier and Garfield (Montebello) to Colorado and Ocean (Santa Monica). This Rapid Bus Line was approved for implementation in June 2000 and provides a combined operating frequency of 1.75 minutes during the peak periods and five minutes during the off-peak periods. There are 24 stops along the route with six on the stops within the Eastside Corridor study area. This service would provide a strong linkage (no transfers) between a portion of the Eastside Corridor study area to Downtown, Mid-Wilshire, and the far westside of Los Angeles. The TSM Alternative also includes more frequent service for the Metro Red Line.

The eight fixed guideway build alternatives are listed below and shown in Figures 2-1 and 2-2.

1. Bus Rapid Transit (BRT) (Dedicated Busway), At-Grade. 1^{st}/Alameda to Union Station (northside) to Whittier and Norwalk Boulevards via Cesar Chavez, Soto, 4^{th}, 3^{rd}, Beverly, and Whittier.

2. Bus Rapid Transit (Dedicated Busway), At-Grade. Union Station (southside) to Whittier and Norwalk Boulevards via Alameda, 1^{st}, Soto, 4^{th}, 3^{rd}, and Whittier.

3. Light Rail Transit (LRT), At-Grade. Union Station (southside) to Whittier and Norwalk Boulevards via Alameda, 1^{st}, Soto, 4^{th}, 3^{rd}, and Whittier.

4. Bus Rapid Transit (Dedicated Busway), At-Grade. Union Station (southside) to Whittier and Norwalk Boulevards via Alameda, 1^{st}, Soto, 4^{th}, 3^{rd}, Beverly, and Whittier.

5. Light Rail Transit, At-Grade. Union Station (southside) to Whittier and Norwalk Boulevards via Alameda, 1^{st}, Soto, 4^{th}, 3^{rd}, Beverly, and Whittier.

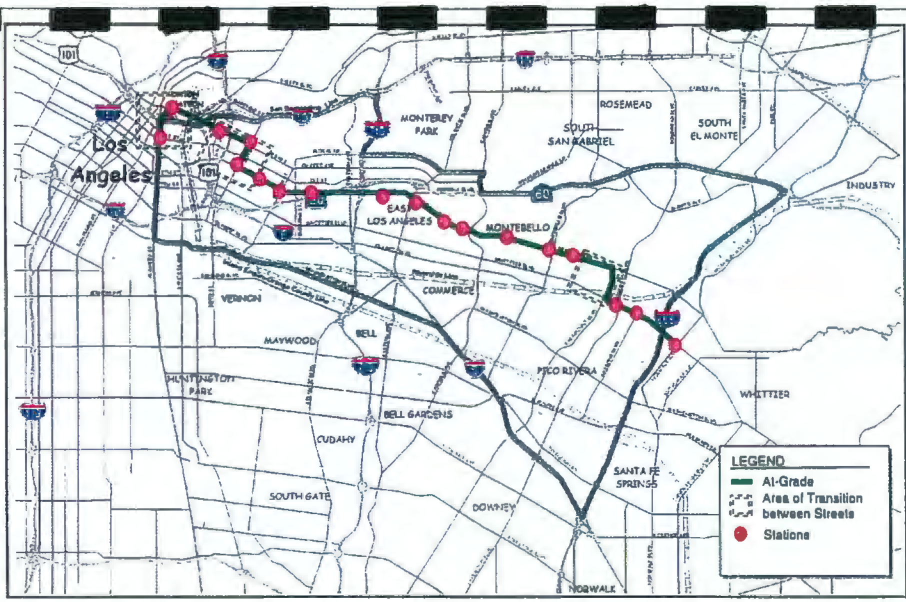
6. Light Rail Transit. At-grade Union Station (southside) to 1^{st}/Boyle. LRT (subway) 1^{st}/Boyle to 1^{st}/Lorena. LRT (at-grade) from 1^{st}/Lorena to Whittier and Norwalk Boulevards via Alameda, 1^{st}, Indiana, 4^{th}, 3^{rd}, and Whittier.

7. Heavy Rail Transit and Light Rail Transit. Heavy Rail (subway) from Union Station to 1^{st}/Lorena subway station with a subway station at 1^{st}/Boyle and 1^{st}/Lorena. Light Rail Transit (at-grade) from 1^{st}/Lorena to Whittier and Norwalk Boulevards via Indiana, 4^{th}, 3^{rd}, Beverly, and Whittier.

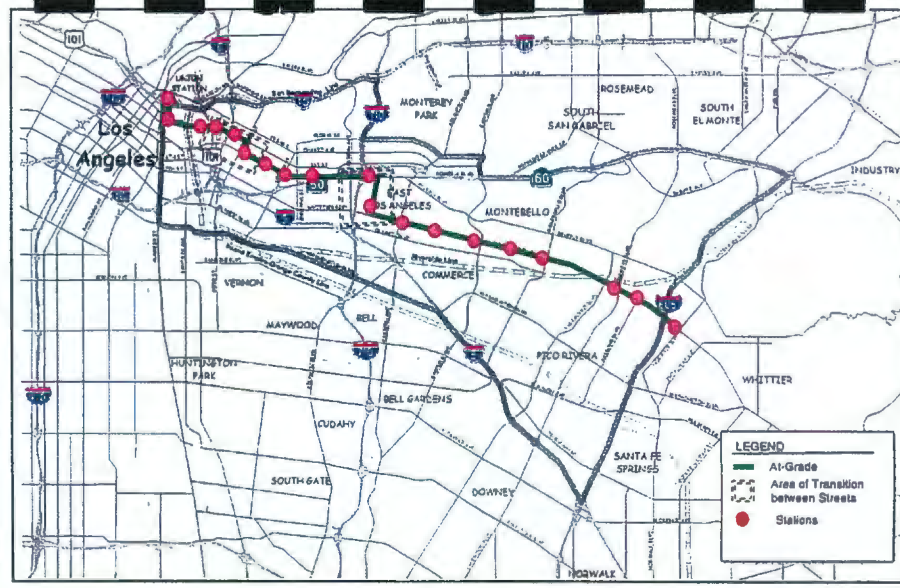
8. Heavy Rail Transit and Bus Rapid Transit (Dedicated Busway). Heavy Rail (subway) from Union Station to Chavez/Soto subway station with a subway station at 1^{st}/Boyle. Bus Rapid Transit (at-grade) from Chavez/Soto to Whittier and Norwalk Boulevards via Soto, 4^{th}, 3^{rd}, Beverly, and Whittier.

In the Re-Evaluation/MIS study each of the eight fixed guideway alternatives, the TSM Alternative, and the No-Build Alternative were analyzed with respect to each of the environmental conditions or potential impacts listed below. In addition preliminary mitigation measures were discussed for each of the potentially adverse impacts identified.

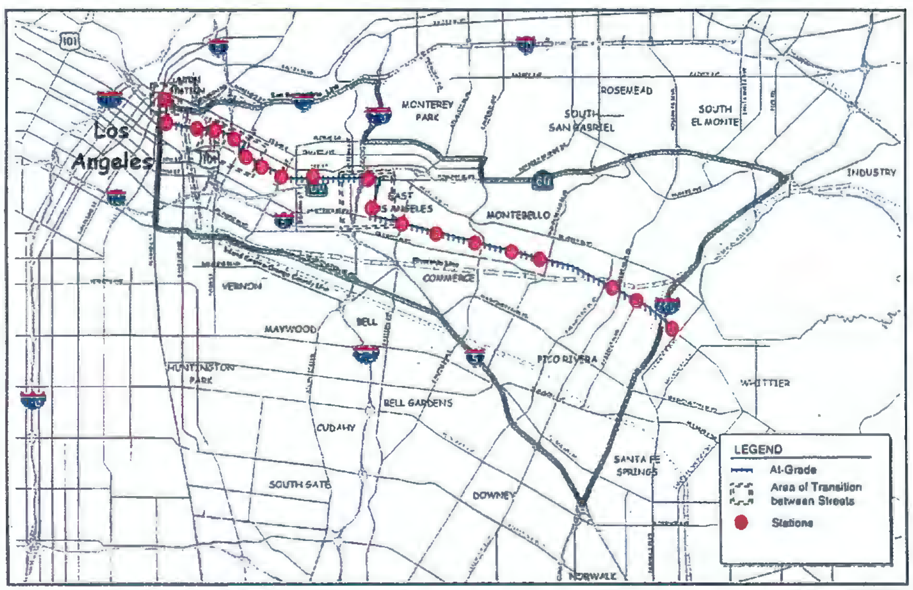
- Transit Service Levels
- Transit Ridership
- Traffic
- Parking
- Land Use and Development
- Population and Employment
- Residences and Businesses Displaced
- Environmental Justice
- Visual and Aesthetic
- MTA Arts Program
- Air Quality
- Noise and Vibration
- Geotechnical
- Hazardous Substances
- Water Resources
- Wetlands
- Energy
- Cultural/Paleontologic Resources
- Parks and Recreation Facilities
- Major Utilities
- Safety
- Capital Costs
- Operating and Maintenance Costs
- Community Involvement Response



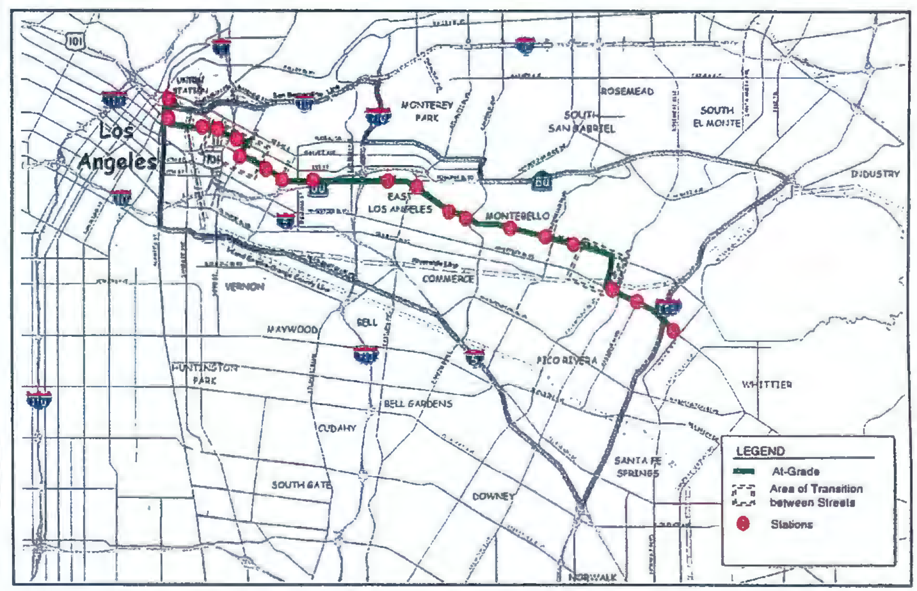
Alternative 1
Bus Rapid Transit (Dedicated Busway), At-Grade
Union Station to Whittier/Norwalk via Beverly



Alternative 2
Bus Rapid Transit (Dedicated Busway), At-Grade
Union Station to Whittier/Norwalk via Whittier



Alternative 3
Light Rail, At-Grade
Union Station to Whittier/Norwalk via Whittier



Alternative 4
Bus Rapid Transit (Dedicated Busway), At-Grade
Union Station to Whittier/Norwalk via Beverly

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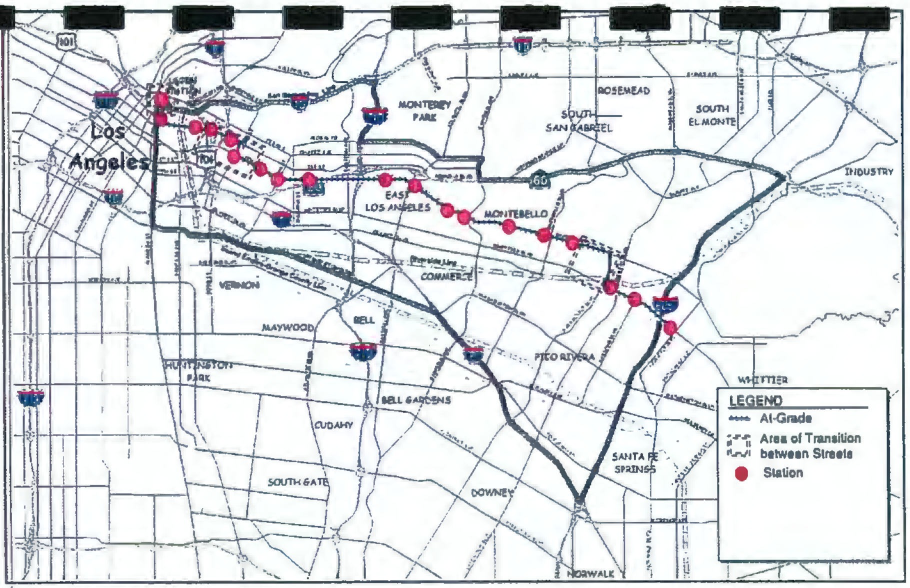
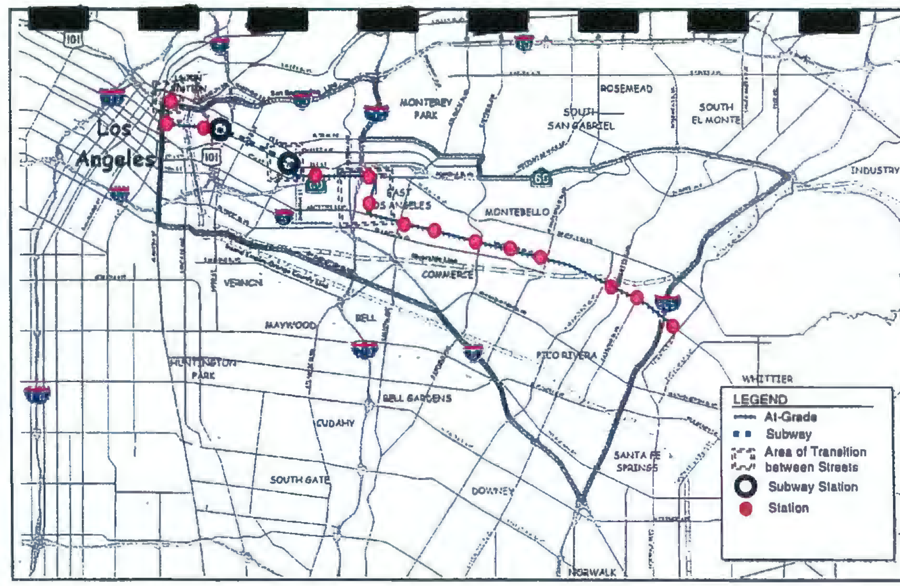
MIS Alternatives

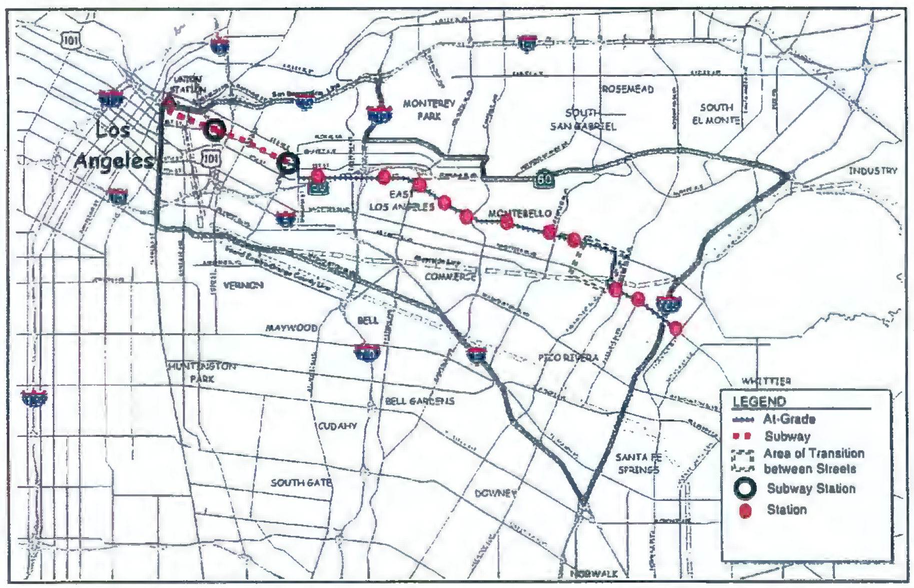
Figure 2-1



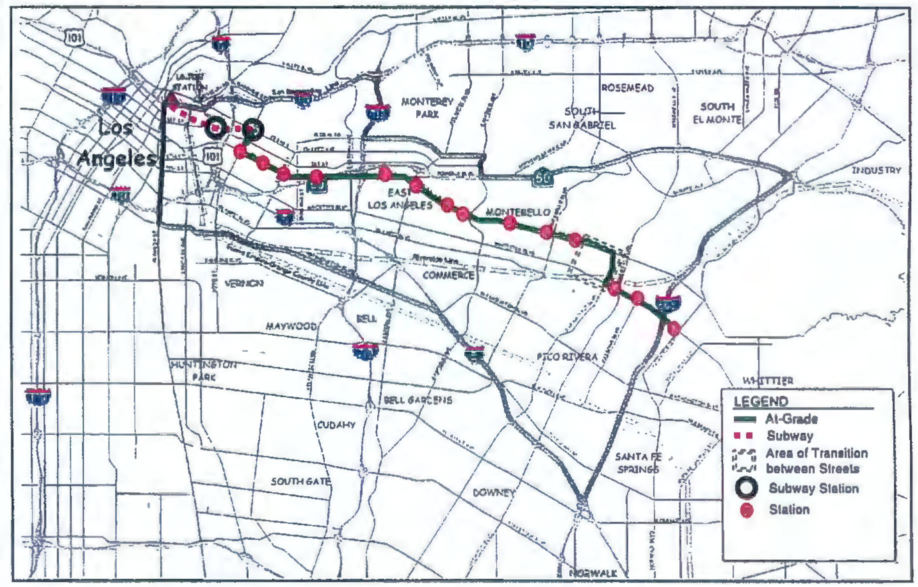
Alternative 5
Light Rail, At-Grade
Union Station to Whittier/Norwalk via Beverly



Alternative 6
Light Rail, At-Grade-Union Station to 1st/Boyle
Light Rail Subway-1st/Boyle to 1st/Lorena
Light Rail At-Grade - 1st/Lorena to Whittier/Norwalk via Whittier



Alternative 7
Heavy Rail and Light Rail
Heavy Rail Subway-Union Station to 1st/Lorena
Light Rail At-Grade - 1st/Lorena to Whittier/Norwalk via Beverly



Alternative 8
Heavy Rail and Bus Rapid Transit (Dedicated Busway)
Heavy Rail Subway-Union Station to Chavez/Soto
Bus Rapid Transit At-Grade - Chavez/Soto to Whittier/Norwalk via Beverly

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MIS Alternatives

Figure 2-2

2.3.4 MTA Board Action (February 24, 2000)

In February 2000, the MIS study recommendations were presented to the Board of Directors of the MTA. The Board considered the environmental and technical information contained in the MIS study in making their decision. On February 24, 2000, the Board adopted a Light Rail Transit (LRT) Build Alternative that would extend from Union Station (as an extension of the Pasadena Blue Line) to Beverly and Atlantic Boulevards utilizing Alameda St., 1st St., 3rd St. and Beverly Boulevard, with a tunnel under Boyle Heights from approximately Utah St. to Lorena St. under 1st St. In selecting the LRT Build Alternative, the Board considered the reduced environmental impacts associated with tunneling through Boyle Heights as represented by the chosen alternative. The Board adopted alternative was a combination of alignments and station locations from the MIS Alternatives 5 and 6. The Board also directed that Bus Rapid Transit (BRT) be further studied in the EIS phase of project development, subject to financing availability for the LRT Build alternative.

2.3.5 MTA Board Action (June 22, 2000)

On June 22, 2000, the MTA Board of Directors officially dropped the Bus Rapid Transit technology from any further analysis and consideration in the project development phases and in this Draft SEIS/SEIR. The basis for the Bus Rapid Transit technology to be officially dropped from further consideration was based on the project funding being approved for the LRT Build Alternative in the State's Traffic Congestion Relief Program.

In addition, the Southern California Association of Governments (SCAG) found the MIS study process and technical work effort conducted for the Eastside Transit Corridor in full compliance with SCAG's adopted procedures. A Letter of Completion has been approved by SCAG. SCAG has also determined that the LRT Build Alternative, as the Locally Preferred Alternative for the Los Angeles Eastside Corridor, is part of the currently adopted Regional Transportation Plan and the Transportation Improvement Program.

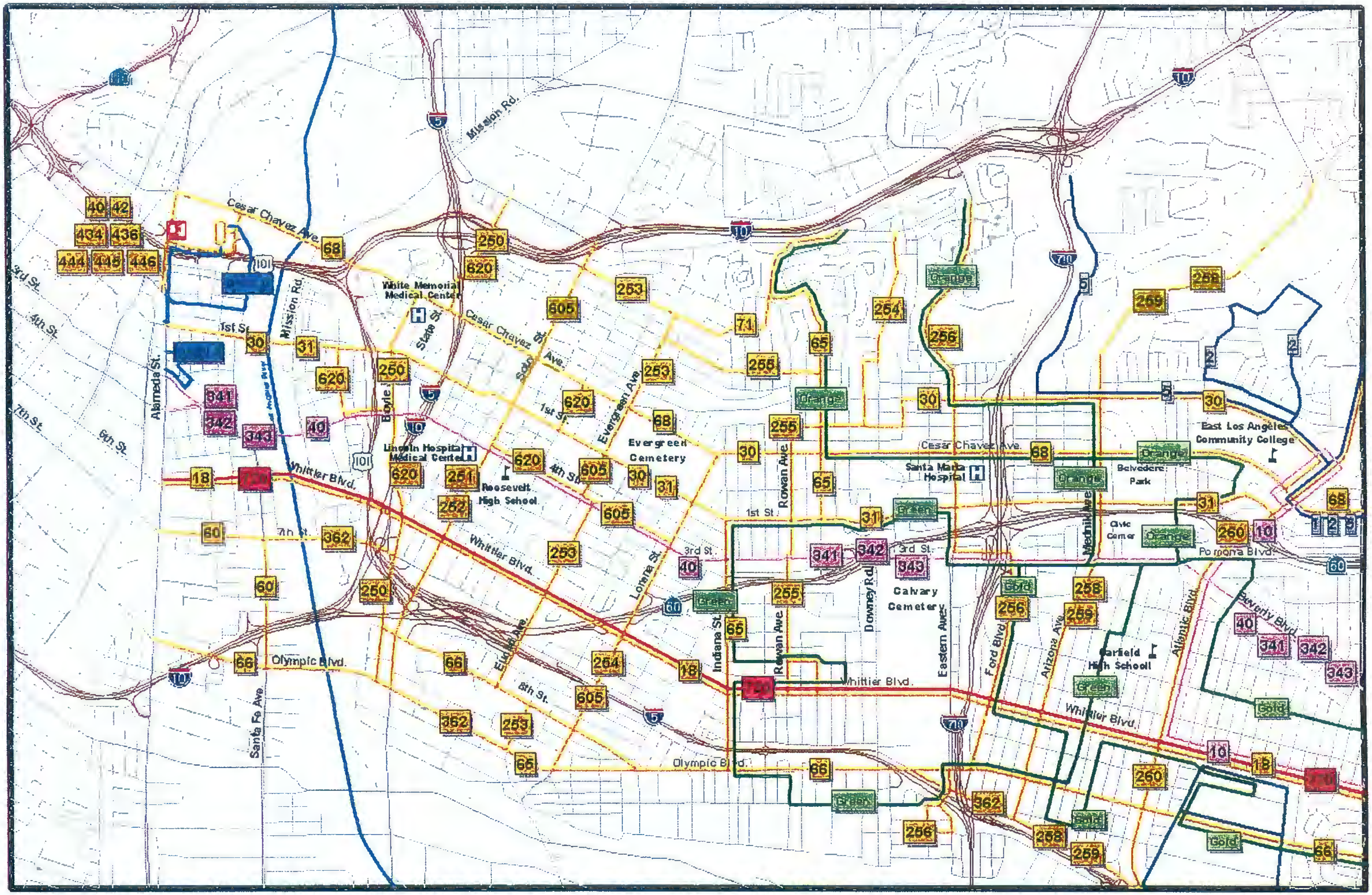
2.4 ALTERNATIVES CONSIDERED IN THIS DRAFT SEIS/SEIR

2.4.1 No-Build Alternative

The No-Build Alternative, as defined by FTA, should represent the baseline case consisting of existing and committed elements of the region's transportation plan, excluding the proposed fixed guideway transit (bus and light rail transit) investments for the study corridor. The No-Build Alternative includes all highway and transit projects and operations that the region and MTA expect to be in place by the year 2020. These include improvements to the local bus systems and operation of the existing Red, Blue, and Green Lines as well as completion of the Pasadena Blue Line from Union Station to Sierra Madre Villa in Pasadena.

2.4.1.1 Transit Service

Figure 2-3 shows the Eastside bus routes by MTA, Montebello, Monterey Park, Commerce, LADOT, and Los Angeles County in the Eastside service area. Section 1.3.2 of this document presents additional detail about the existing transit service. Table 2-1 shows the existing weekday service frequencies for the major bus routes in the Eastside Corridor as well as the frequencies planned for the No-Build Alternative. The development of the No-Build Alternative was based on a fiscally constrained local and regional plan. Additional service improvements are proposed for a number of the major east-west and north-south transit routes as well as more frequent service for the MTA operated rail lines as shown in Table 2-2.



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Los Angeles Eastside Corridor SEIS/SEIR

Existing Bus Route System
Year 2000

Figure 2-3

TABLE 2-1
FREQUENCY OF WEEKDAY BUS TRANSIT SERVICE (IN MINUTES)

			Existing		No-Build		LRT Build	
Operator	**Route**	**Destinations**	**Peak**	**Off-Peak**	**Peak**	**Off-Peak**	**Peak**	**Off-Peak**
MTA	18	Wilshire Center - Whittier	10	15	6	10	6	10
	30/31	Mid City – East Los Angeles	4-5	7.5	4	6.5	3.5	5
	31A	East Los Angeles – 1st/Lorena	-	-	-	-	10	15
	65	Downtown Los Angeles - CSULA	15-25	30	13	45	10	15
	66	Wilshire Center - Montebello	3-7	8	5.5	12	5.5	12
	68	West LA Transit Ctr - Montebello Towne Center	8-12	12	8	10.5	8	10.5
	250	LAC+USC - Boyle Heights	40	40	40	40	15	20
	251	Cypress Park – Watts	12	24	15	24	10	20
	252	El Sereno - Lynwood	12	24	12	24	10	20
	253	LAC+USC - Boyle Heights	40	40	40	40	15	20
	254	LAC+USC - Willowbrook	30-60	55	45	60	10	20
	255	Montecito Heights - East Los Angeles	45	50	45	50	10	20
	256	Altadena - East Los Angeles	35	50	30	50	30	50
	258	Alhambra - South Gate	45	60	45	60	30	30
	258A	Olympic - Floral	-	-	-	-	15	20
	259	El Sereno - South Gate	45	60	45	60	30	30
	260	Altadena – Compton	12-15	15	5.6	20	5.5	20
	530	Panorama City – East Los Angeles	-	-	15	30	15	30
	605	LAC+USC - Boyle Heights	15	30	22	30	10	12
	620	LAC+USC - Boyle Heights	0-12	12	0-12	14	10	12
	720	Santa Monica – Montebello	8	10	6	10	6	10
L.A. County	Gold	East Los Angeles	60	60	45	45	10	15
	Green	East Los Angeles	60	60	45	45	10	15
	Orange	East Los Angeles – CSULA	60	60	45	45	10	15
Monterey Park	1	Community Circulator	40	40	35	35	20	30
	2	Community Circulator	40	40	35	35	20	30
	5	Community Circulator	50	50	35	35	20	30
Montebello	10	East LA College – Whittier	8-15	10	8	12	8	12
	40	Whittier – Downtown LA	10-30	12	12	20	10	20
	341(2)(3)	Downtown LA – Montebello Express Routes	30-60	-	30-60	-	30-60	-
LADOT	Dash A	Little Tokyo – Convention Center	5	5	5	5	5	5
	DashD	South Park	5	5	5	5	5	5

TABLE 2-2 FREQUENCY OF WEEKDAY RAIL TRANSIT SERVICE (IN MINUTES)								
			Existing		No-Build		LRT Build	
Operator	Route	Destinations	Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
MTA	Blue	7^{th}/Flower to Long Beach	6	12	5	12	5	12
	Blue	Union Station – Sierra Madre Villa	-	-	5	12	5	12
	Blue	Beverly/Atlantic – Union Station (Eastside) through to Pasadena (no transfer required at Union Station)	-	-	-	-	5	12
	Red	Union Station – North Hollywood	5	10	4	8	4	8
	Red	Union Station – Wilshire/Western	5	10	4	8	4	8
	Green	I-105/I-605 – El Segundo (Marine)	8	15	5	12	5	12

2.4.1.2 Highway/Roadway Improvements

Within the Eastside Corridor, no major arterial street or freeway improvements are planned. Studies have identified the need for substantive improvements to the operations and capacity of the Santa Ana Freeway (I-5), the Pomona Freeway (SR 60), the Long Beach Freeway (I-710), and the San Bernardino Freeway (I-10), but agreement on the improvements to be made and the source of funding have not been agreed upon.

The only improvement planned is the widening of the U.S. 101 in the vicinity of Union Station, including relocation of the freeway entrances and exits at Vignes St. In this same area, the City of Los Angeles has proposed to widen Commercial Street from Alameda to Santa Fe Avenue, which is parallel to the U.S. 101 freeway in this area.

2.4.1.3 Other Committed Improvements

The only other committed transportation improvement is the proposed extension of the Amtrak service tracks from Union Station, over U.S. 101 and parallel to the Eastside LRT Build Alternative, to the mainline Amtrak tracks in the vicinity of Jackson Street.

2.4.2 LRT Build Alternative

The LRT Build Alternative introduces the light rail transit (LRT) mode to the Los Angeles Eastside Corridor. The LRT fixed guideway concept would operate in a dual track configuration in the center of selected streets and provide for high platform center station arrangements for the at-grade LRT segments (similar to that in use on the Long Beach Blue Line) and cut-and-cover station boxes for the subway segment (similar, but of shorter length, to that in use on the Metro Red Line subway). LRT is electrically powered and receives its electric power from overhead power lines (like the Long Beach Blue Line and Green Line) within the street rights-of-way or in the tunnel for the subway segment. The LRT operations would include a traffic signal preemption system, to allow for faster travel times, similar to other MTA in-street running operations.

The LRT Build Alternative is approximately six miles long with eight new stations from a connection with, the under construction, Pasadena Blue Line at Union Station to Beverly and Atlantic Boulevards via Alameda Street, 1st Street, Indiana Street (with the exception of options as discussed below), 3rd Street, and Beverly Boulevard (Figure 2-4). Appendix E, *Plan and Profile Drawings of the LRT Build Alternative, November 1, 2000*, shows the plans and profiles for the LRT Build Alternative and each option. Appendix F shows the proposed property acquisitions and easements for the LRT Build Alternative and each option.

The LRT Build Alternative also includes provisions for an eight to ten acre maintenance and storage facility (M&SF) to house the required 25 new light rail vehicles using Ducommun and Commercial Streets as the possible connections to the three optional sites being considered (Section 2.4.2.7). An emergency power generator will also be provided at the M&SF facility in order to provide emergency power for the tunnel segment and subway stations. There are four traction power substations along the six-mile route. They are located near the 1st/Alameda station in a parking lot (Appendix F, drawing number RW-003), near the 1st/Lorena station on property owned by the MTA (Appendix F, RW-008), near the SR60/3rd Street interchange (Appendix F, RW-010), and off 3rd Street near Woods Avenue in a parking lot (Appendix F, RW-013).

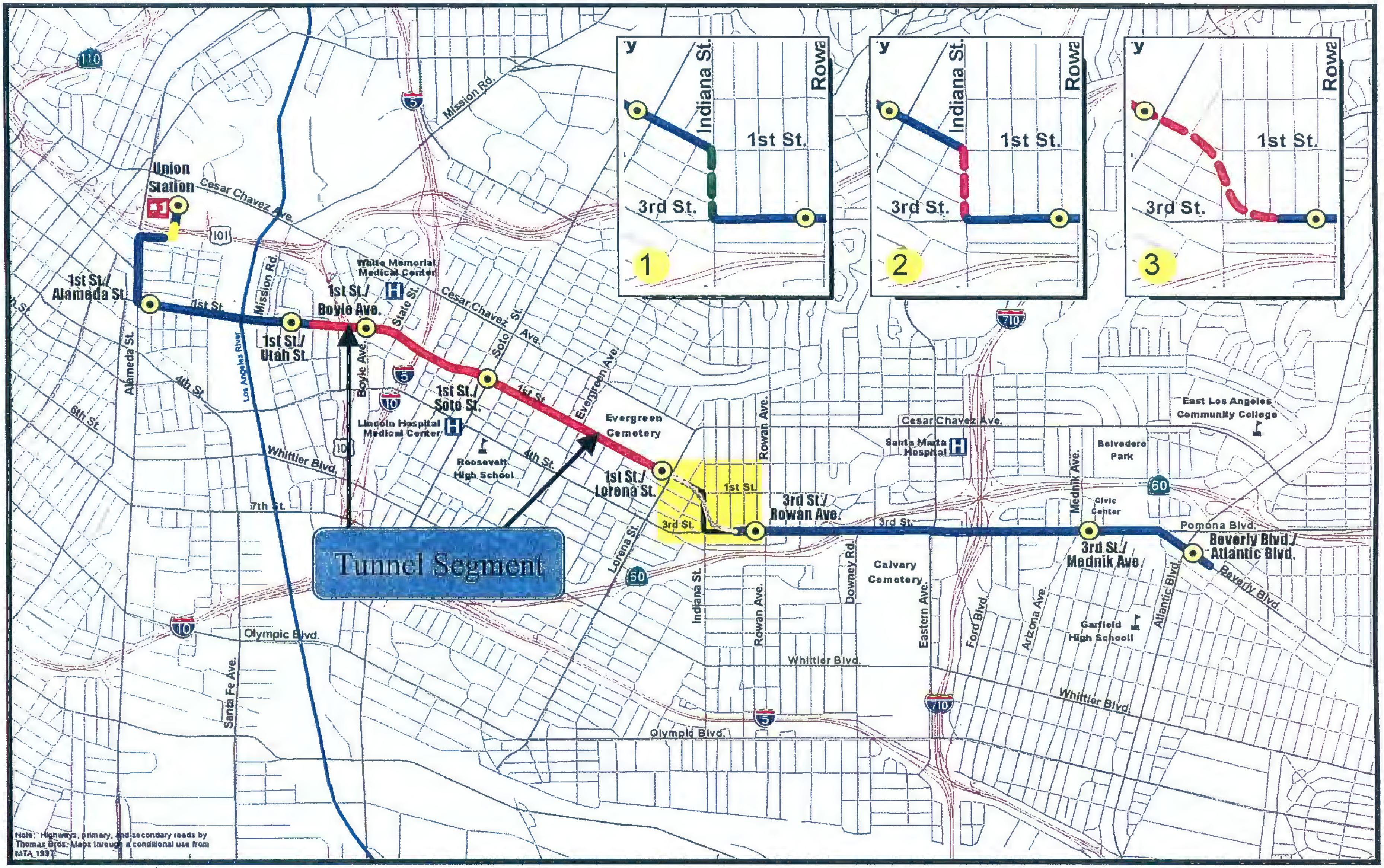
The subway or tunnel segment of the LRT Build Alternative includes a number of ventilation and emergency exit areas for the subway segment in the vicinity of the subway stations. The locations for emergency exits and exhausts on MTA property and public rights-of-way (sidewalks or street) are shown in Appendix E. In Appendix E, Drawing No. D-002 shows the locations for the area around the 1st/Boyle subway station; Drawing No. D-003 shows the locations around the 1st/Soto subway station; Drawing No. D-004 shows the emergency exhaust location for the 1st/Lorena at-grade station area; and Drawing No. D-011 shows the locations around the 1st/Lorena subway station for the extended subway option.

The stations will house emergency ventilation fan shafts as well as separate emergency exit shafts at both ends of the stations. Ventilation fans are used for extracting smoke from the tunnels and stairs for evacuation in the event of an emergency – such as a fire in the underground areas. The two-level vent structure is generally a 45-foot-wide, approximately 70-foot-deep concrete box at two ends of the station, joining openings in the top of the tunnels to a vertical shaft penetrating the ground in a convenient location. Ventilation fans and their control equipment, as well as the emergency exit stairs, would be housed in this horizontal concrete box. The area of the shaft will be dependent on the height of the box. Where shafts vent at ground level the area is typically about 400 sq. ft. reducing to about half this area where towers are provided. Minimum tower height would be about ten feet. In some cases vent structures are incorporated with other structures and the height may be adjusted to match or compliment the structure. these fans are operated only for emergencies and for routine maintenance.

Each subway station at each end will have two exit hatches connected to emergency stairs. Each exit hatch is about 6 feet wide. Currently most of these hatches and gratings are shown at the station entrance plazas or right-of-way to be acquired for the construction staging areas. During the preliminary engineering design phase, further coordination with the City of Los Angeles will be required to determine if some or all of these hatches and gratings could be located within the public right-of-way. This may require variances from City codes.

2.4.2.1 Bus Service

As a major component of implementing Light Rail Transit service in the Eastside Corridor, MTA has designed a corresponding increase in feeder bus and increased service to existing routes that would serve the LRT stations. Table 2-1 shows the increase in service frequency as well as the addition of two routes



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

LEGEND

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

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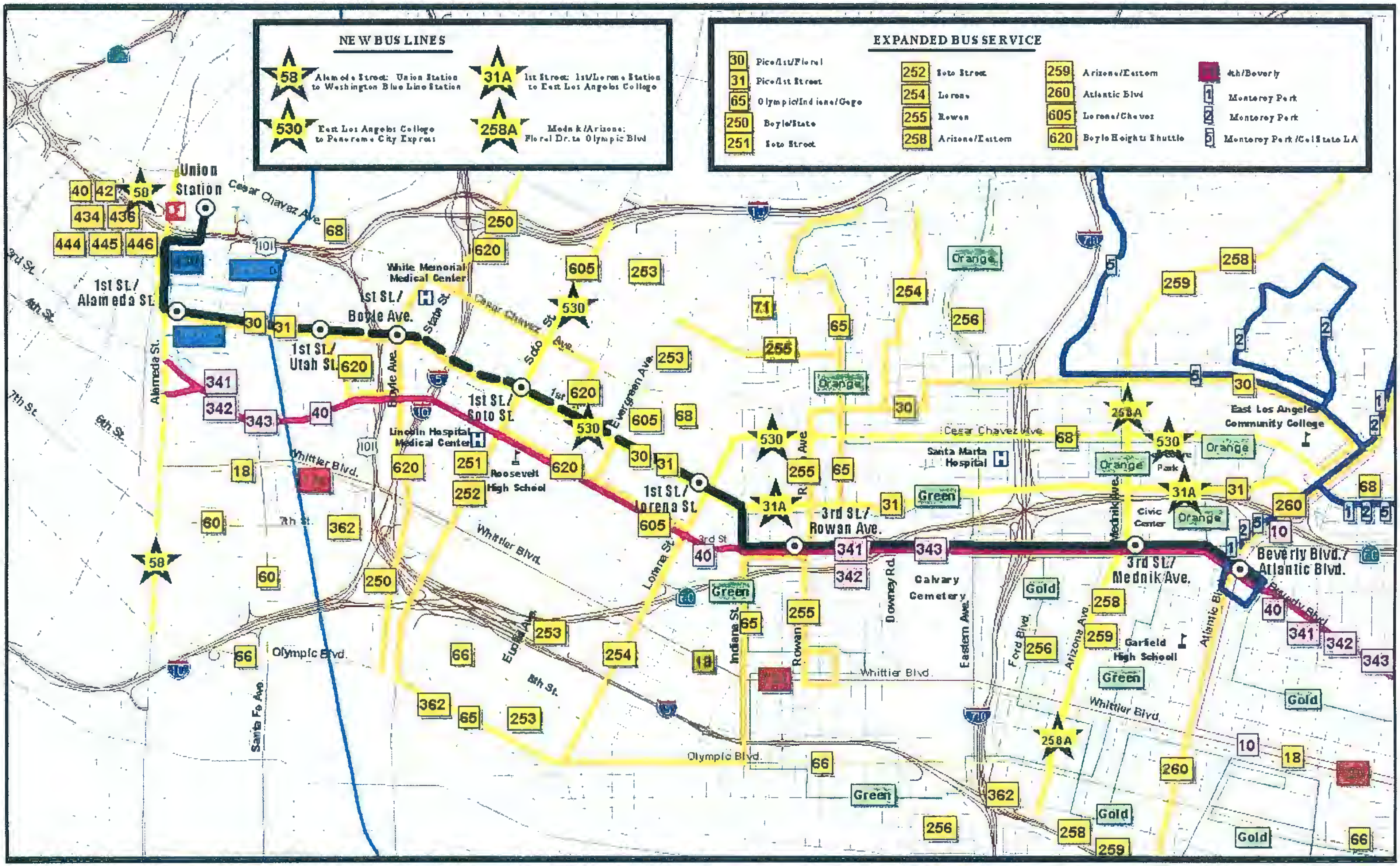
LRT Build Alternative

Figure 2-4



Los Angeles Eastside Corridor SEIS/SEIR

LEGEND

- LRT Alignment
- MTA Routes
- Metro Rapid Route
- Montebello Routes
- Monterey Park Routes
- LADOT Routes
- LA County Shuttle Routes
- Commerce (All Routes)

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Modified Bus Route System With the LRT System Year 2020

Figure 2-5

(31A and 258A) expressly recommended to support the LRT Build Alternative. Increased service is proposed for MTA bus services in the Eastside Corridor as well as increased service for routes operated by Monterey Park and Los Angeles County. This increase in bus service will require an increase of over 40 peak period buses. The capital cost of these improvements as well as the increased bus operating costs are included in the costs for the LRT Build Alternative as described in Chapter 5.

In order to maintain connectivity with other transit operators and bus services within the corridor, it is important that proposed stations interface with existing and proposed bus routes. The transit operating plan for the LRT Build Alternative provides for a connection of existing bus lines at each station location. Figure 2-5 shows how the LRT system would fit into the Eastside Corridor's bus route network. At three station locations, bus lines would be rerouted in order to provide improved access to the light rail system. These rerouted lines include:

- MTA Line 65 to 3rd/Rowan Station via 3rd Street and Rowan Avenue
- MTA Line 530 to 1st/Soto Station via Soto and 1st Street
- MTA Line 620 to 1st/Utah Station via Utah Street
- Monterey Park Lines 1, 2 and 5 to Beverly/Atlantic Station via Atlantic Boulevard

MTA Line 65 is a local bus line that currently runs north on Indiana Street in the vicinity of the LRT Build Alternative alignment and turns east on 1st Street to Rowan Avenue. In order to provide access to the 3rd/Rowan Station, this line will be rerouted onto 3rd Street east to Rowan Avenue and then on Rowan to 1st Street. This minor reroute will not have a significant impact on transit ridership or transit access due to its proximity to the current routing one quarter of a mile to the west on Indiana. Access to the business district on 1st Street would still be provided at 1st and Rowan. Routing this bus line away from Indiana Street also will help to mitigate the impacts of Option 1 on Indiana for the transition between 1st and 3rd Streets if this option is chosen.

MTA Line 530 is a new service that will debut in 2001 as outlined in the MTA's 1998 Five-Year Plan. Line 530 is an express route that will connect East Los Angeles College and Boyle Heights with Panorama City via the County-USC Medical Center and the Burbank Media District. Line 530 currently is proposed to run south on Soto Street from the San Bernardino Freeway (I-10) to Cesar Chavez Avenue and then turn east to East Los Angeles College. In order to provide service to the 1st/Soto Station, this line will be rerouted south on Soto Street to 1st Street. It will then continue east on 1st Street to Lorena Street back to Cesar Chavez Avenue. Line 530 will also serve the 1st/Lorena Station on its amended route.

MTA Line 620 is a community shuttle service jointly operated by MTA and LADOT that currently runs on Clarence Street west of the 101 Freeway between 4th and 1st streets. It is proposed that this line be rerouted from Clarence Street to 3rd Street and Utah Street where it will continue north to interface with the 1st/Utah Station at the corner of 1st and Utah streets. This minor reroute will not affect line patronage because of the close proximity of Utah Street to Clarence Street one block away.

Monterey Park's Spirit Transit system provides community transportation services on five routes within the city of Monterey Park. Three of its lines currently operate in the vicinity of Cesar Chavez Avenue and Atlantic Boulevard. These three routes (1, 2, and 5) will be extended southward along Atlantic to the Beverly/Atlantic Station. The extension of these three routes will provide convenient access to the LRT system from the City of Monterey Park. The three Monterey Park lines will also provide connecting service from the LRT system to the Atlantic Square shopping area as well as to East Los Angeles College.

Table 2-3 shows the interface of bus lines at each station (except Union Station) along the alignment of the LRT Build Alternative.

TABLE 2-3
BUS ROUTE INTERFACE AT LRT STATIONS

Station	Operator	Line	Destinations
1st/Alameda	LADOT	DASH A	Little Tokyo – Los Angeles Convention Center
		DASH D	Union Station – Grand Blue Line Station
	MTA	30 / 31	Mid City – East LA College
		40	Union Station – South Bay Galleria
		42	Union Station – LA Int'l Airport
		58	Union Station – Washington Blue Line Station
		434	Union Station – Malibu
		436	Union Station – Ocean Park
		442	Union Station – South Bay Galleria
		445	Union Station – San Pedro
		446	Union Station – San Pedro
1st/Utah	MTA	30 / 31	Mid City – East LA College
		620 (reroute)	LAC+USC – Boyle Heights
1st/Boyle	MTA	30 / 31	Mid City – East LA College
		250	LAC+USC – Boyle/Olympic
		620	LAC+USC – Boyle Heights
1st/Soto	MTA	30 / 31	Mid City – East LA College
		250	Cypress Park – Watts
		251	El Sereno – Lynwood
		530 (reroute)	Panorama City – East LA College
		605	LAC+USC – Boyle Heights
1st/Lorena	MTA	30 / 31/31A	Mid City – East LA College
		254	LAC+USC – Willowbrook
		530 (reroute)	Panorama City – East LA College
3rd/Rowan	Montebello	40	Downtown LA – Whittier
	MTA	65 (reroute)	Downtown LA – CSULA
		255	Montecito Heights – East Los Angeles
3rd/Mednik	Los Angeles County	Gold	East Los Angeles
		Green	East Los Angeles
		Orange	East Los Angeles – City Terrace – CSULA
	Montebello	40	Downtown LA – Whittier
	MTA	258/258A	El Sereno – South Gate
		259	Alhambra – South Gate
Beverly/Atlantic	Montebello	10	East LA College – Pico Rivera
		40	Downtown LA – Whittier
		341, 342, 343	Downtown LA – Montebello Express
	Monterey Park	1 (reroute)	Monterey Park
		2 (reroute)	Monterey Park
		5 (reroute)	Monterey Park – CSULA
	MTA	260	Altadena – Compton

Source: 1999-2000 MTA, Montebello, Monterey Park, Los Angeles County, and Commerce bus timetables; Parsons Brinckerhoff.

2.4.2.2 LRT Alignment

The alignment begins at Union Station and crosses over US 101 on an aerial structure (approximately 1,000 feet in length) and then gradually becomes an at-grade segment near where it intersects with Alameda Street. The alignment continues south along Alameda Street and then turns east on 1st Street where it continues at grade to Clarence Street in Boyle Heights and then becomes a subway segment. The subway segment traverses underneath or adjacent to 1st Street for about 1.8 miles east to just west of Lorena Street in Boyle Heights.

From about Lorena Street to about Hicks Avenue, three alignment options are being studied. They include: 1) Indiana Street Remove Parking Option; 2) Indiana Street Acquire Additional Right-of-Way Option; and 3) Extended Subway Option. The Indiana Street Remove Parking Option (Option 1) includes an at-grade segment traversing 1st Street east from Lorena Street to Indiana Street where it turns south and continues along Indiana Street to 3rd Street. At 3rd Street, the alignment turns eastward to Hicks Avenue. This option removes the existing parking lanes on both sides of Indiana Street and results in narrower sidewalks along that street. The Indiana Street Acquire Additional Right-of-Way Option (Option 2) is similar to Option 1 except that an additional 26-foot width of right-of-way on the west side of Indiana Street would be required to accommodate the two LRT tracks. However, the parking lanes and current sidewalk widths would be preserved with implementation of Option 2. Indiana Street has a narrower right-of-way than the other streets along the alignment, thus the LRT double-track facility requires additional area from the parking lanes or adjacent right-of-way to accommodate it. The Extended Subway Option (Option 3) involves continuation of the tunnel from Lorena Street in a southerly and easterly direction under several properties, including Ramona High School, to a point along 3rd Street just east of Hicks Avenue where the alignment again becomes at grade.

From Hicks Avenue, the alignment travels east on 3rd Street at grade to Beverly Boulevard where it turns to the southeast and continues for a short distance on Beverly Boulevard to a point just east of Atlantic Boulevard. For the at-grade sections, the LRT would operate on existing arterial streets and would generally require removal of one general-purpose travel lane in each direction. This design configuration would allow for the retaining of a majority of the on-street parking on the arterial streets that are used. The center sections of all the designated arterial streets would require major reconstruction in order to implement the LRT system.

2.4.2.3 LRT Service Characteristics

The operating plan for the LRT Build Alternative is comprised of two components: 1) the LRT operating line between Union Station and Beverly/Atlantic Boulevards with five-minute peak service and 12-minute off-peak service; and 2) local connecting bus routes to all stations along the LRT line. Because the individual cars can be "trained" together, the train lengths can then vary from one to three cars depending on the demand and time of day. Local buses with local stops would continue to operate along the same arterial streets as the LRT but would be at lower service frequencies. This will also allow transit patrons to access areas that are not directly served by the LRT station stops. The LRT running time with making stops at each station is estimated to be 16 minutes from Beverly/Atlantic Boulevards to Union Station. The LRT operations has assumed a traffic signal preemption system similar to other MTA street running operations. Based on the LRT operating plan, the number of trains per hour in the peak direction on the LRT track would be 12 during the peak times and five during the off-peak times.

The LRT operating speeds for the at-grade segments would be similar to existing street-running LRT operations in other parts of Los Angeles. Because of the placement of the LRT track and stations within arterial streets, the maximum speed of operation would be limited by the streets' speed limit (varies from 25 mph to 35 mph) with a 35 mph maximum speed allowed under all circumstances by State Public

Utilities Commission (PUC) regulations. Based on experience with the Long Beach Blue Line operations, the lower speed at-grade operation has fewer fatalities than high speed (55 mph) operations even though the number of accidents is greater with the in-street operation like that proposed for the Los Angeles Eastside Corridor. The maximum LRT operating speed of the subway portion would be much faster (55 mph) than the at-grade segments because it would not operate along the existing street rights-of-way. The Eastside Corridor would not have high speed surface-running operations in a reserved right-of-way such as exists in the mid corridor of the existing Long Beach Metro Blue Line.

Table 2-4 shows the travel time between each proposed station and the total travel time from each station to Union Station. The LRT Build Alternative with Options 1 and 2 have the same travel time of approximately 15.5 minutes while Option 3 (the longer tunnel section) is approximately a 15-minute travel time.

TABLE 2-4
OPERATING PLAN – LRT BUILD ALTERNATIVE

		Options 1 and 2		Option 3	
Station (A)	**Station (B)**	**Travel Time between Stations, minutes**	**Total Travel Time from Station (A) to Union Station, minutes**	**Travel Time between Stations, minutes**	**Total Travel Time from Station (A) to Union Station, minutes**
Beverly/Atlantic	3rd/Mednik	1.4	15.6	1.4	15.0
3rd/Mednik	3rd/Rowan	3.2	14.2	3.2	13.6
3rd/Rowan	1st/Lorena	2.0	11.0	1.4	10.4
1st/Lorena	1st/Soto	1.7	9.0	1.7	9.0
1st/Soto	1st/Boyle	1.3	7.3	1.3	7.3
1st/Boyle	1st/Utah	1.2	6.0	1.2	6.0
1st/Utah	1st/Alameda	2.1	4.8	2.1	4.8
1st/Alameda	Union Station	2.7	2.7	2.7	2.7
	Total	15.6		15.0	

Automobiles and delivery vehicles would operate in a different fashion along the at-grade segments than they do now. In order to maximize the safety of the LRT operation and to minimize private vehicles conflict with the LRT trains, left turns and crossings of the LRT train track would be limited and mostly restricted to major intersecting streets where advanced traffic and train control systems can be implemented. Between major intersections, a six-inch curb next to the travel lane would protect the LRT track section and, therefore, driveways and minor or secondary streets would be limited to right-turns in and out. Private vehicles would not be able to make left turns across the LRT tracks or cross from one side to the other (no straight through movements) between intersections. Private vehicles left turns at designated intersections would be controlled and safety measures (including the possibility of left-turn gates) would be taken. The mountable curb for the track section would allow for emergency vehicles to park on or cross the track when necessary. All of these changes will be similar to those encountered when a street has a raised center median of any type.

It is expected that the streets where the LRT tracks are located will become more "transit" oriented, and through traffic will be reduced and shifted to other streets within the corridor. On the narrower streets along the LRT alignment, left turns may need to be restricted at certain intersections during some portions of the day (probably peak periods) because of the lack of space for a dedicated left turn pocket. The reduction of one traffic lane in each direction would impact the level of service and possible ease of access by automobile to commercial buildings and other public activities. It is expected that, over time, traffic would re-orient itself because many of the streets in the corridor have some available capacity and might accept more traffic and still operate at acceptable levels of service. In addition, the LRT will provide an improved level of service of public transit service, which some may choose in preference to using an automobile.

If the LRT Build Alternative were implemented, an increase in the provision of transit service would occur in the Eastside Corridor. There would be the introduction of a premium service that would be regionally serving and provide improved service reliability and a decrease in travel times for transit patrons. Forecast data indicate that transit ridership would increase in the Corridor with the introduction of the improved service.

The introduction of a light rail system into the Eastside Corridor would provide passengers with greater access to regional transit opportunities and would provide for improved regional transit connectivity. Transfers could be made at Union Station to a variety of different transit alternatives. The Eastside Corridor Light Rail system will provide continuing service to Pasadena via the Pasadena Blue Line, which is expected to open for service in 2003. Transfers can be made to the Metro Red Line at Union Station with its subway service to Wilshire Center and North Hollywood. The Long Beach Blue Line can also be accessed via the Red Line at the 7th/Metro Center station in Downtown Los Angeles, and the Green Line to Norwalk and Redondo Beach is accessible via the Long Beach Blue Line. Dozens of local and express bus lines converge at Union Station including the Big Blue Bus's popular Line 10 express to Santa Monica. Several transit providers serve Union Station, including Santa Monica's Big Blue Bus, LADOT, Foothill Transit, Torrance Transit, Santa Clarita Transit, and the Antelope Valley Transportation Authority. Metrolink commuter rail service is also available for regional travel to Ventura, San Bernardino, Riverside, Orange, and San Diego counties as well as to northern Los Angeles County. Amtrak rail service can also be accessed at Union Station for long-distance travel to other cities in California and the nation. Impacts on regional transit access and connectivity as a result of the LRT Build Alternative are beneficial.

2.4.2.4 Passenger Stations

As discussed in the bus service section, the LRT Build Alternative consists of eight new stations and one station modification: Union Station (station modification), 1st/Alameda, 1st/Utah, 1st/Boyle, 1st/Soto, 1st/Lorena, 3rd/Rowan, 3rd/Mednik, and Beverly/Atlantic. Under Options 1 and 2, all stations are at grade with the exception of 1st/Boyle and 1st/Soto, which are within the subway segment and 1st/Lorena, which is located in an open cut. For Option 3 (Extended Subway Option), three stations (1st/Boyle, 1st/Soto, and 1st/Lorena) are within the subway segment. The LRT at grade station stops would entail constructing a 270-foot long platform (allows for a maximum of three-car trains) along with pedestrian walkways to allow for safe passage to crosswalks for arriving and departing passengers. The LRT underground stations will include 270-foot platforms. The subway stations are projected to have center platforms, a bridge-like mezzanine and single entrances located in plazas adjacent to 1st Street. The design of the subway stations will be refined during preliminary engineering and final design. The stations will be similar to the Long Beach and Pasadena Blue Line stations.

2.4.2.5 Park-and-Ride Facilities (including bus interface at Beverly/Atlantic)

Two areas for park-and-ride facilities are associated with this alternative. The first is the existing lot at Union Station, which is the western terminus of the Los Angeles Eastside Corridor LRT line. The project does not involve any expansion or improvements to that lot. The second is near the Beverly/Atlantic Station at the eastern terminus of the line. Park-and-ride surface parking for a total of about 200 vehicles would be provided at two locations near the station. One location includes the half-block located at the southwest corner of Beverly and Atlantic Boulevards. A Mobil gasoline station is currently located there and would be acquired and relocated. Approximately 100 spaces would be provided at this site. The other location is the existing parking lot behind (to the east of) the Pep Boys auto parts store that is located on the east side of Atlantic Boulevard north of Beverly Boulevard. MTA intends to enter into negotiations with the owners of Pep Boys to develop a joint use agreement with them for the existing parking lot that contains about 100 spaces. Minor improvements to the Pep Boys lot are anticipated. It is expected that a long-term agreement will be entered into that will allow control of the parking spaces for the expected life of the improvement.

2.4.2.6 Vehicle Fleet

The type of light rail transit (LRT) vehicles to be used for the Eastside Corridor will be the same as used on the Long Beach and Pasadena Blue Lines. They will be standard conventional articulated light rail transit vehicles. In order to provide the future service level of 5-minute frequencies between trains, as well as a maximum train length of 3 cars, a total of 25 new LRT vehicles will be required for the LRT Build Alternative.

2.4.2.7 Maintenance and Storage Facility

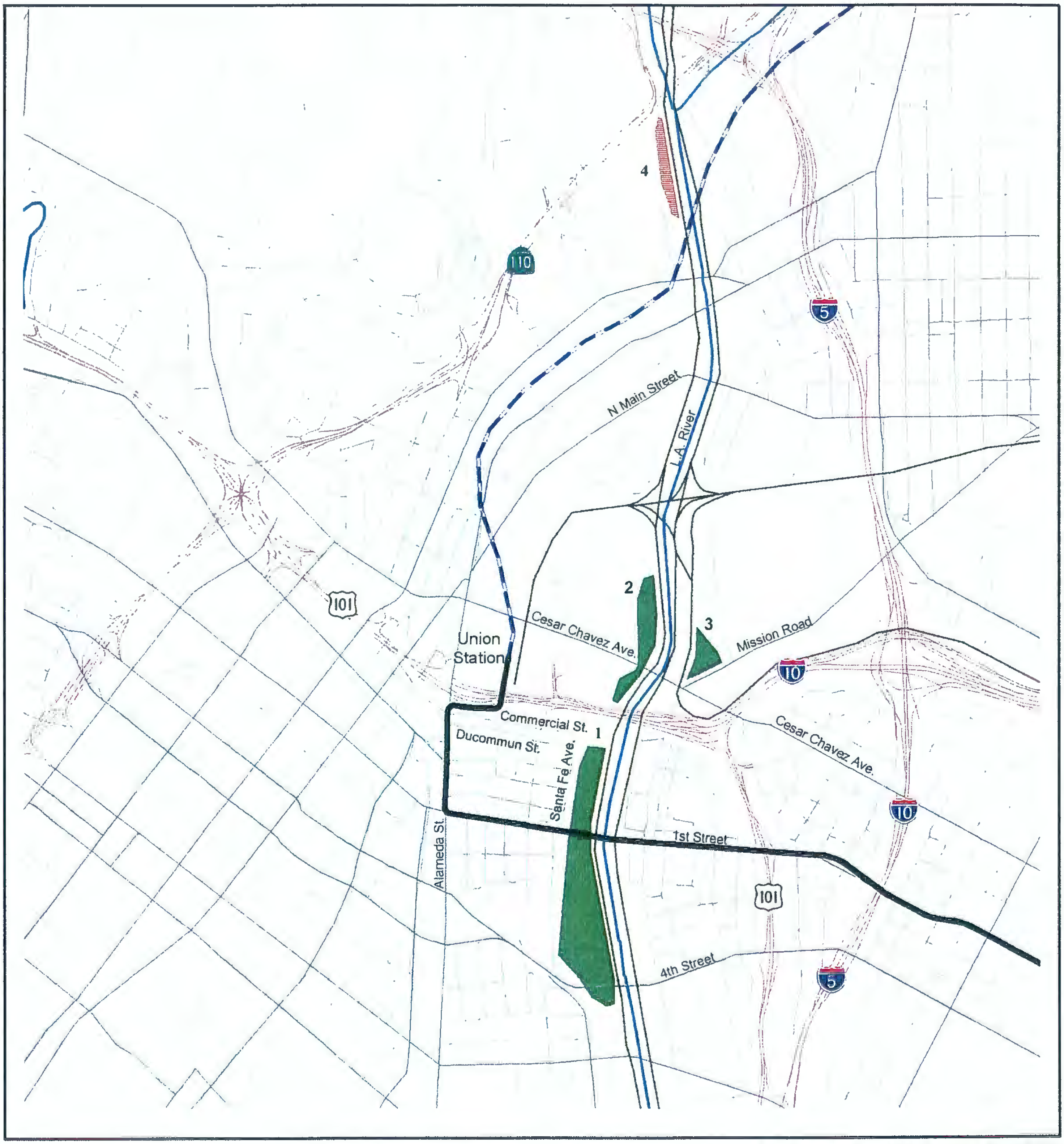
Three alternative sites are being considered for the maintenance and storage facility (M&SF) for the rail cars for the Los Angeles Eastside Corridor LRT extension. The locations and a general description of each are provided below. Figure 2-6 shows the location of each option. Each facility would include the following components:

- Storage for at least 25 LRT vehicles (approximately 2,250 linear feet, four cars could be in light duty maintenance building)
- Car wash area
- Blowdown area
- Cleaning platform
- 18,000 square foot light duty maintenance building with room for four cars (220' by 80')
- Emergency power generator for tunnel section and subway stations
- Parking for workers and operators (50 spaces – ½ acre)
- Service road
- Track spacing 14 to 18 feet apart
- No more than nine cars per storage track
- The site would require about eight to ten acres depending on the configuration of the property

The purpose of the facility would be to perform routine maintenance and light repairs. All heavy repairs would require transporting the vehicles to the existing LRT repair facility located along the Long Beach Blue Line or else sending out components. The vehicles will be transported by lowbody flatbed trucks using city streets or by lowbody flatbed rail cars using the Metrolink and other railroads trackage.

Option 1-Red Line Yard

This 45-acre site is located southeast of Union Station between approximately Ducommun and 4th Streets on the west side of the Los Angeles River. The property is owned by MTA and currently provides storage and maintenance functions for the Metro Red Line vehicles. The major land uses surrounding this site are industrial and railroads. The site currently contains excess capacity for the Red Line cars and could accommodate the storage and maintenance functions for the Eastside Corridor LRT vehicles. The additional facilities to be built would include a maintenance building and installation of the overhead



LEGEND

0 0.5 1 Miles

0 0.5 1 1.5 2 Kilometers

Alternative Sites for Eastside Yard

1 – Red Line Yard (MTA Owned Property)

2 - West Bank Yard (MTA Owned Property and City of Los Angeles Owned Property)

3 - East Bank Yard (Privately Owned - Bozek Family)

Part of the PBL Project

4 - Midway Yard (MTA Owned Property)

Pasadena Blue Line (PBL)

Eastside Line (Extension of Pasadena Blue Line)

Highway

Primary Road

Secondary Road

Railroad

December 2000

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Alternative Sites for Eastside Light Rail Maintenance and Storage Facility

Figure 2-6

catenary and poles for the LRT. No additional rail would need to be constructed. No existing structures would be displaced.

The lead track to this site is displayed in Figures 2-7 and 2-8. Basically, the lead track would branch off from the LRT operating line at Alameda Street/Ducommun Street and proceed east as a single track a distance of one block to Hewitt Street. At Hewitt Street, one single track would continue eastward along Ducommun, and another single track would proceed north along Hewitt Street to Commercial and then turn eastward. Both single tracks would continue eastward along Ducommun (Alternative A) and Commercial Streets, and turn south, east of Center Street. A variation of this is also shown on Figure 2-8 as Alternative B. The major difference between this and Alternative A is that the single track that extends eastward along Ducommun Street (under Alternative A) would turn north at Center Street and then turn east on Commercial Street. At this point it would continue south and then enter the Red Line Yard.

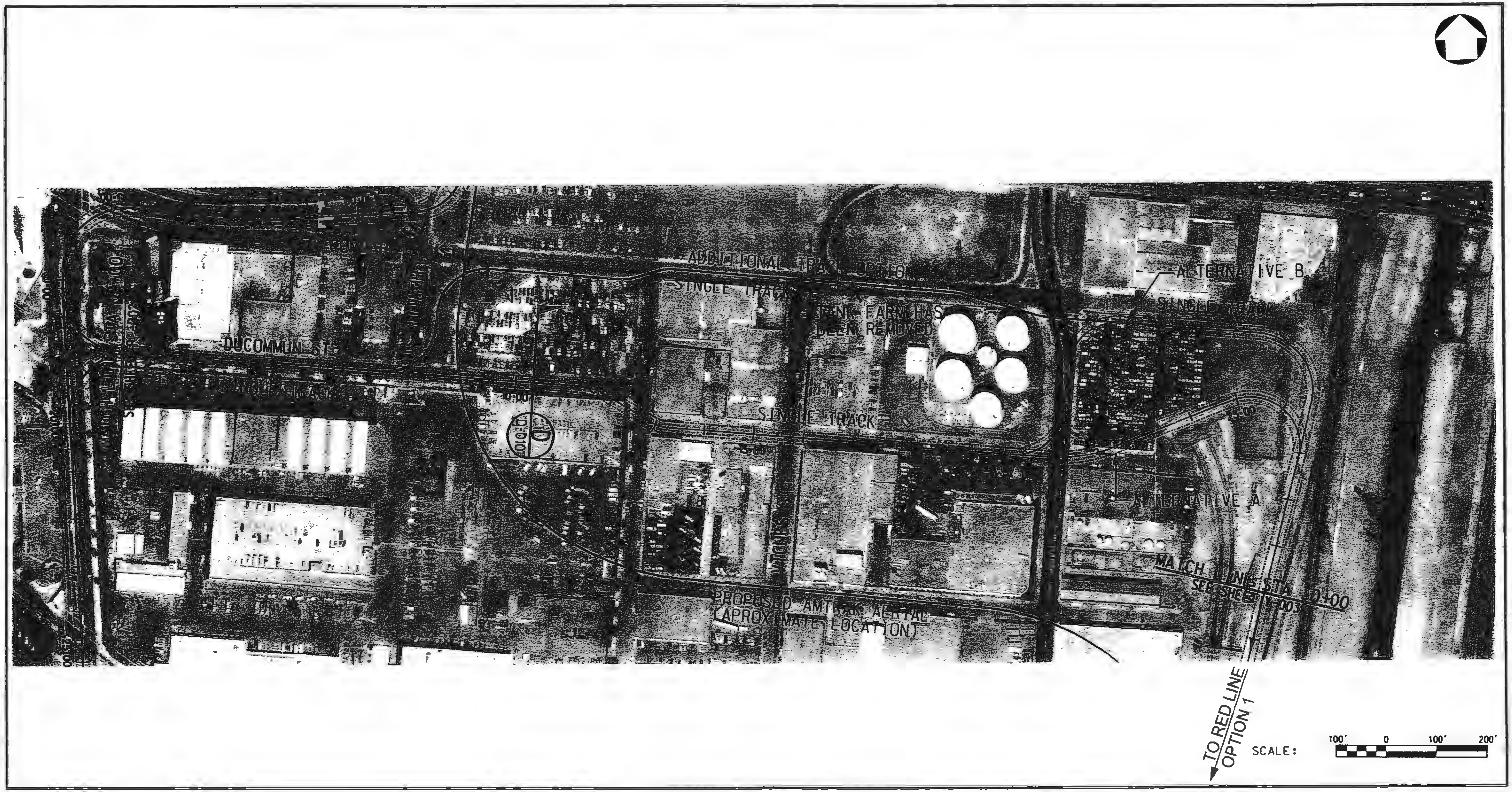
Industrial is the major land use in the vicinity of the lead tracks. To accommodate the lead track alignment will require the acquisition of several parcels including: a small portion of a parking lot at Ducommun/Alameda; portion of a gas station at the same intersection (however, this gas station is already being partially or fully acquired to accommodate the new right-of-way on the east side of Alameda); partial reconstruction of a parking structure at Ducommun/Garvey; and a small portion (on the southwest side for Alternative A or on the northwest side for Alternative B) of the City impound lot located adjacent to Center Street between Commercial and Ducommun.

Option 2-West Bank Yard

This 7-acre site is located just east of, and near, Union Station on the west bank of the Los Angeles River. This option was previously studied in the 1992 *Pasadena Light Rail Supplemental EIR*, but was eliminated from consideration as the preferred site for that maintenance and storage facility. Figure 2-9 presents the layout for the site as shown in the 1992 EIR. The northern portion of the site (north of Macy Street or Chavez Avenue Bridge) is owned by MTA, and most of MTA's land is currently used as the Regional Rebuild Center for their bus fleet. The southern portion of the site (south of the bridge) is owned by the City of Los Angeles and includes the Piper Technical Center. Adjacent land uses consist of public works projects, government buildings and facilities, and industrial uses. The yard itself would not require displacements of any buildings.

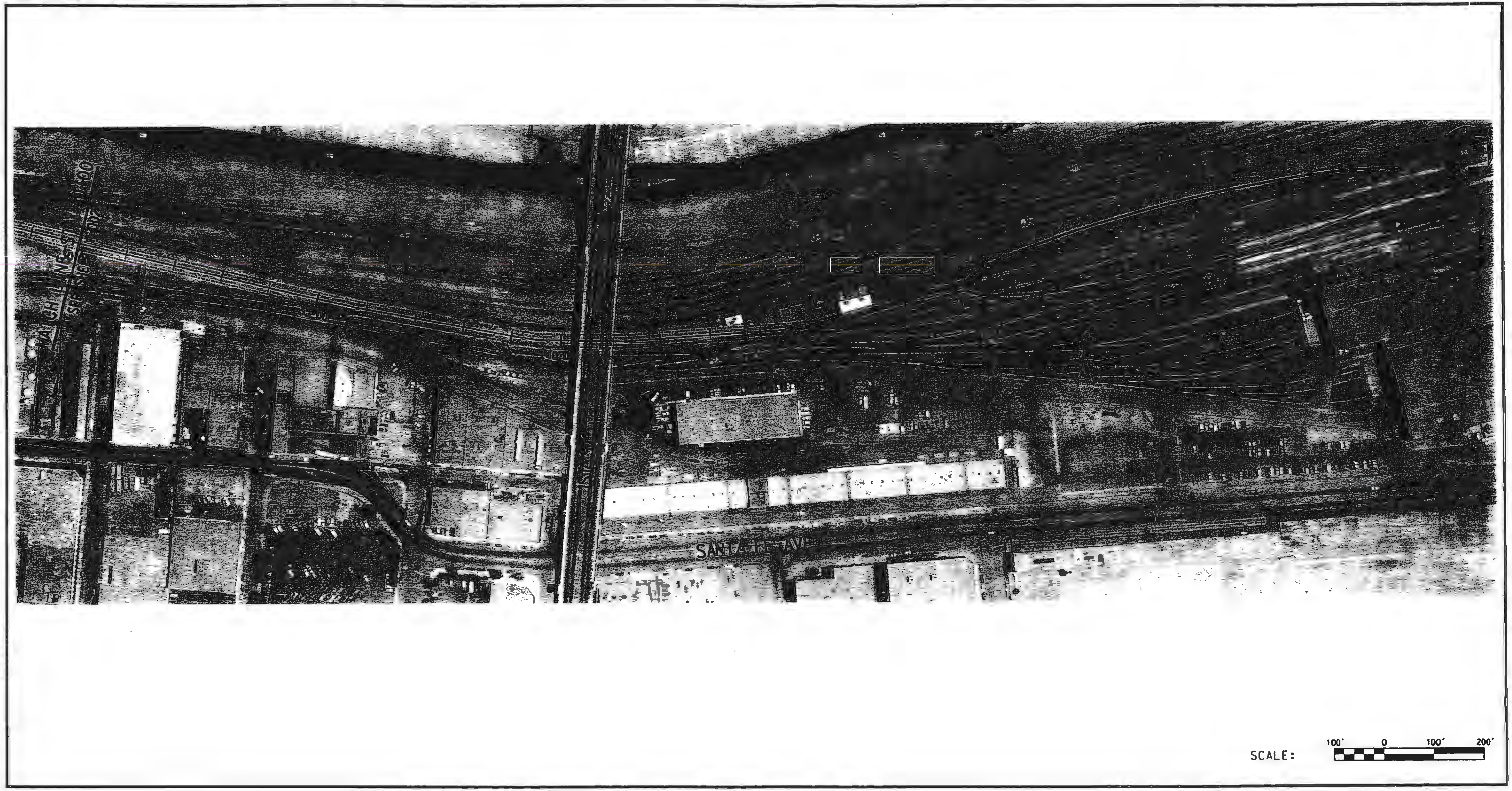
Figure 2-9 shows the lead track from Union Station coming into the north portion of this site. However, the lead track alignment no longer applies. For the Eastside Corridor project, the lead track would come from the south. (See Figures 2-10 and 2-11). Basically, the lead track would branch off from the LRT operating line at Alameda Street/Ducommun Street and proceed east as a single track a distance of one block to Hewitt Street. At Hewitt Street, one single track would continue eastward along Ducommun, and another single track would proceed north along Hewitt Street to Commercial and then turn eastward. Both single tracks would continue eastward along Ducommun and Commercial Streets, respectively, to the eastern portion of the Piper Technical Center. At this point, the tracks would turn north and merge into a single track and continue into the M&SF. A variation of this is also shown on Figure 2-10 as Alternative B. The major difference between this and Alternative A is that the single track that extends eastward along Ducommun Street (under Alternative A) would turn north at Center Street and then turn east on Commercial Street to the eastern portion of the Piper Technical Center and then continue as under Alternative A into the M&SF.

Industrial is the major land use in the vicinity of the lead tracks. To accommodate the lead track alignment will require the acquisition of several parcels including: a small portion of a parking lot at Ducommun/Alameda; portion of a gas station at the same intersection (however, this gas station is already being partially or fully acquired to accommodate the new right-of-way on the east side of Alameda);



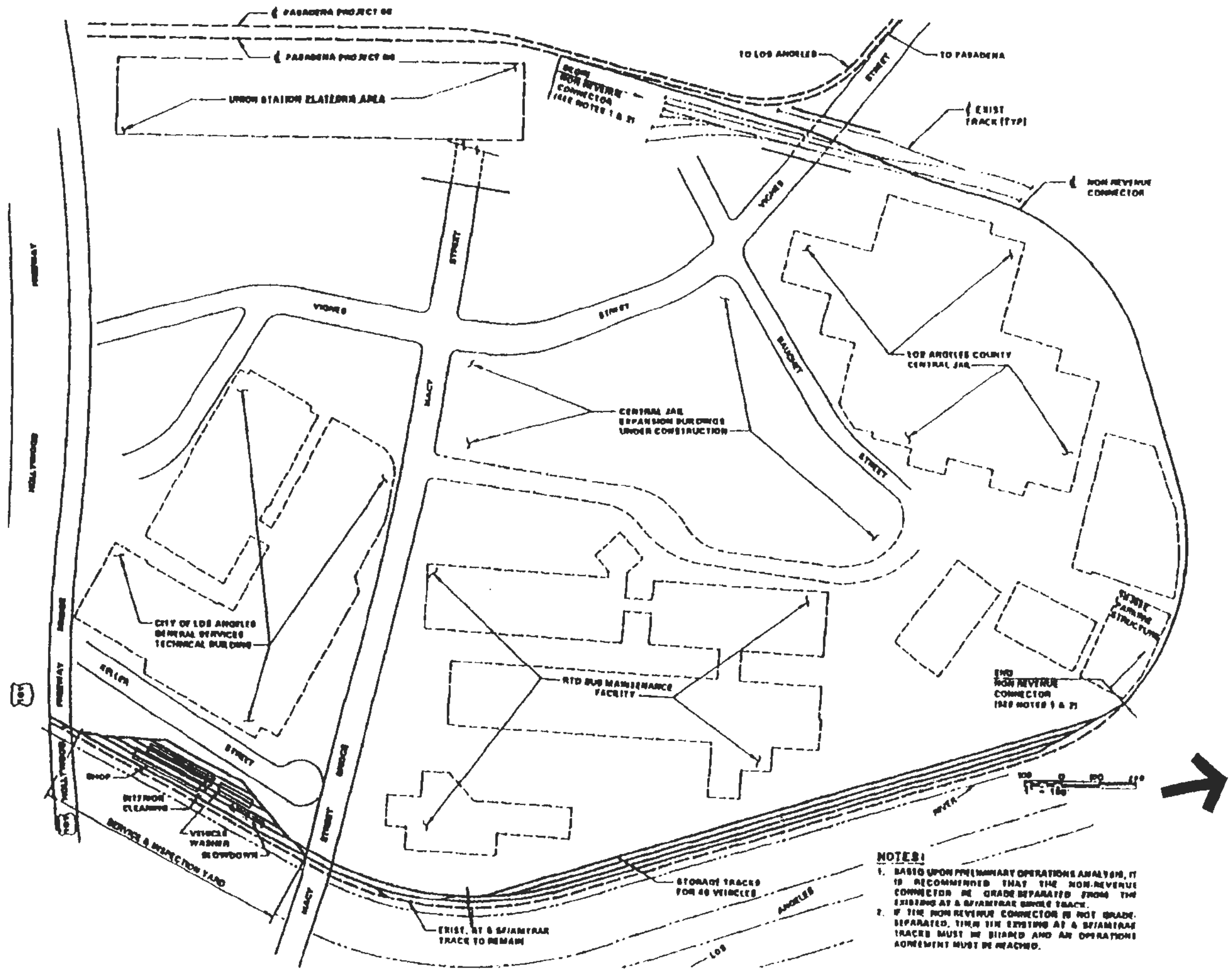
Yard Lead Plans for Option 1

Figure 2-7



Red Line Yard Area – Option 1

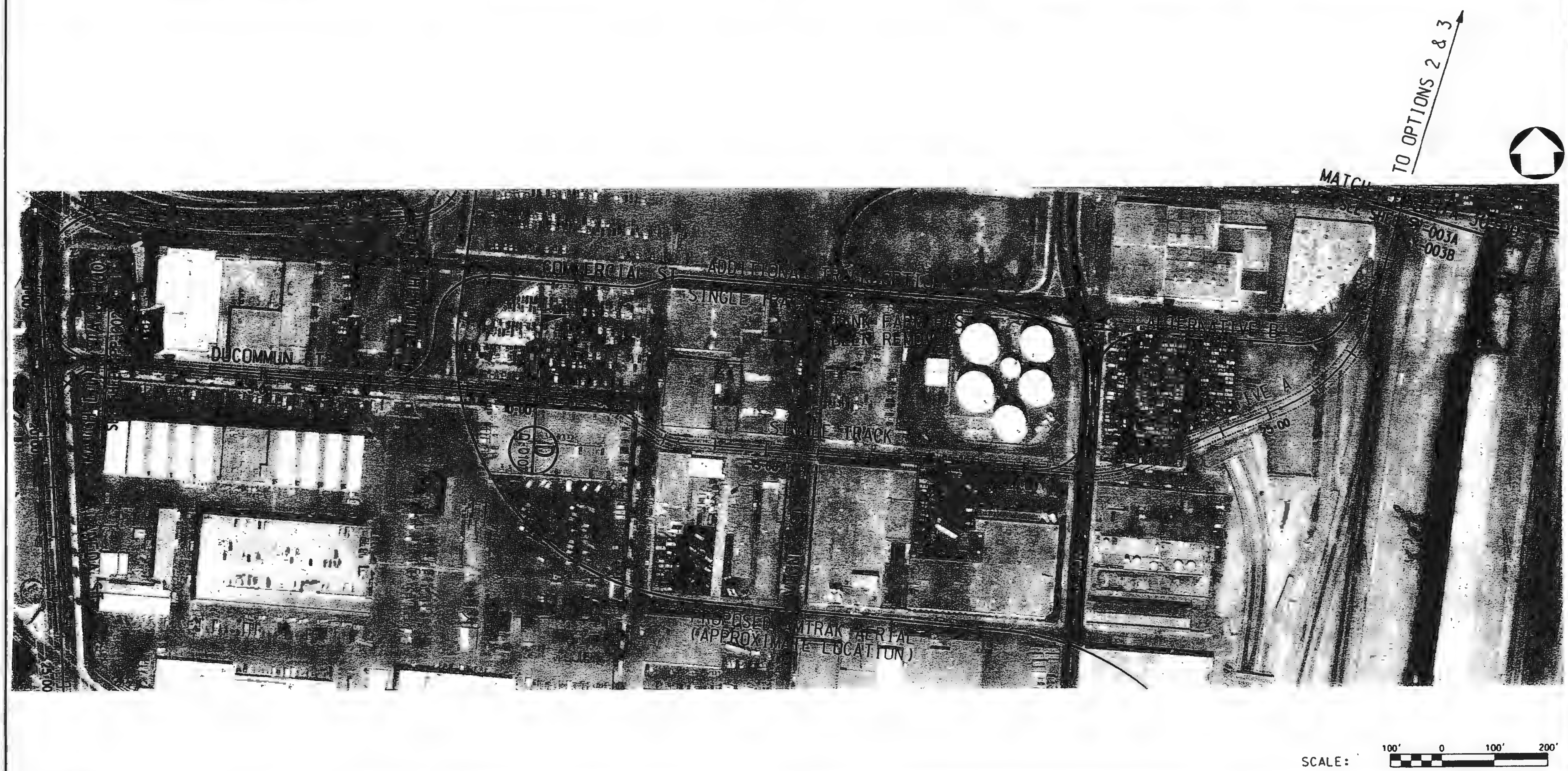
Figure 2-8



Source: Pasadena Light Rail Supplemental EIR, LACTC, September 1992

West Bank Option 2

Figure 2-9

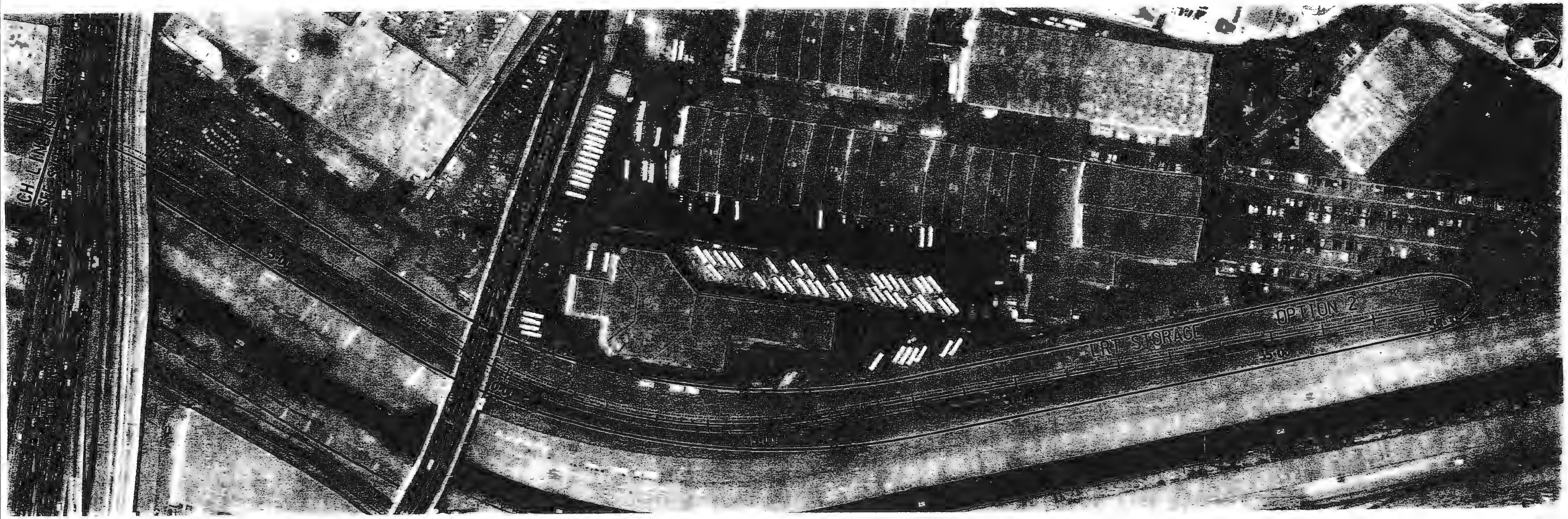


Source: Eastside Transit Corridor Consultants - November 1, 2000

Eastside Corridor
Transit Consultants

Yard Lead Plans for Options 2 and 3

Figure 2-10



West Bank Yard Area – Option 2

Figure 2-11

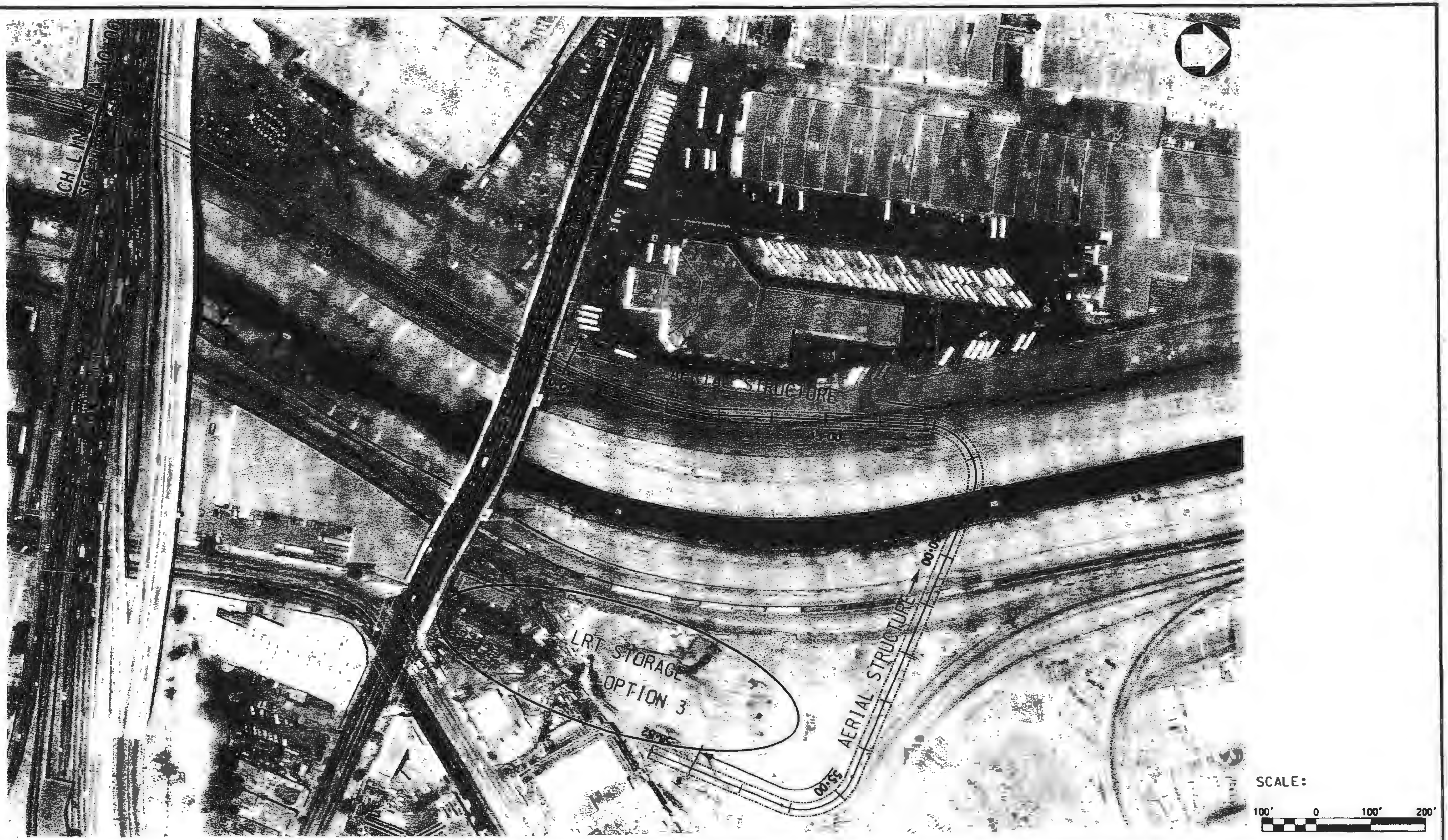
partial reconstruction of a parking structure at Ducommun/Garvey; and a small portion (on the southwest side for Alternative A or on the northwest side for Alternative B) of the City impound lot located adjacent to Center Street between Commercial and Ducommun.

Option 3-East Bank Yard

This 9.9-acre site is located on the east bank of the Los Angeles River near the intersection of Chavez Avenue/Mission Road. It is directly across the river from MTA's Regional Rebuild Center. The property is privately owned and contains a large rock crushing sand and gravel operation as well as auto salvage yards with buildings. Surrounding land uses are mostly industrial and railroad. To accommodate the M&SF at this location would require demolition of the existing structures on the property and displacement of the several businesses that operate there.

The lead track to this site is displayed in Figures 2-10 and 2-12. The alignment would be similar to that described for Option 2 (and includes consideration of Alternatives A and B as described above), except that the alignment would traverse north at grade through the Piper Technical Center and a portion of the Regional Rebuild Center properties adjacent to the river and then would become aerial just north of Chavez Avenue to cross over to the east side of the river. Once it crosses the river, the alignment would continue east into that private property and then curve south becoming at grade again to enter the M&SF.

Acquisitions would be similar to those described for the lead track under Option 2 except that additional right-of-way would be needed from the city-owned Piper Technical Center to accommodate the lead track.



East Bank Yard Area – Option 3

Figure 2-12

2.5 OTHER ALTERNATIVES EVALUATED THAT MAY REDUCE IMPACTS

The *Re-Evaluation/Major Investment Study* conducted a rigorous review, analysis, and screening of potential fixed guideway transit (Bus, Light Rail, and Heavy Rail) alternatives that could serve as a replacement to the suspended Red Line project and to provide an adequate level of service to the residents and businesses in the Eastside Corridor. This process included extensive public discussion of environmental impacts as well as the technical conditions. An intensive public, agency, and elected officials involvement program was also conducted as discussed in Chapter 6. The Locally Preferred Alternative selected by the MTA Board of Directors considered all alternatives and especially the alternatives that reduced impacts in the sensitive Boyle Heights neighborhood.

Options 1, 2, and 3 in the vicinity of 1st/Indiana/3rd Streets were introduced for analysis in this Draft SEIS/SEIR after Ramona High School, the Los Angeles Unified School District, and the community expressed concerned about the impacts to the area.

Only the No-Build Alternative being considered would not have any impacts but would be totally inconsistent with the Purpose and Need and the actions taken previously related to the Red Line suspended project.

2.6 ISSUES TO BE RESOLVED/AREAS OF CONTROVERSY

The preparation of this Draft SEIS/SEIR, together with the required circulation, public hearings, and review, ensures that all significant transportation and environmental impacts are assessed, and that public participation and comments are solicited to help guide the decision-making process.

The identification, examination, and assessment of all reasonable and feasible alternatives (*Re-Evaluation/MIS* and this Draft SEIS/SEIR) are necessary to meet the requirements of the National Environmental Policy Act (NEPA), as well as the California Environmental Quality Act (CEQA). CEQA requires similar environmental analysis in Environmental Impact Reports (EIRs) and public review for projects that will have significant effects on the environment. The State of California encourages joint preparation of EIRs and EISs and has produced guidelines to facilitate preparation of joint documents.

The purpose of this Draft SEIS/SEIR is to evaluate the LRT Build Alternative along with its three options and the No-Build Alternative and for the MTA Board of Directors to select the most appropriate option for the Eastside Corridor while ensuring that potentially significant environmental consequences are considered as part of this process. In addition; the Board will select one of the three Maintenance and Storage Facility (M&SF) sites for further analysis in subsequent documents. This Draft SEIS/SEIR document will be circulated for review by interested and concerned parties, including private citizens, community groups, the business community, elected officials, and public agencies. Public hearings will be held to solicit citizen and agency comments as part of the decision-making process. The selection of the design option for the LRT Build Alternative and the M&SF site will be made by the MTA Board of Directors after consideration of the comments received from the circulation of the Draft SEIS/SEIR and at the public hearings.

The next step would be to prepare a Final Supplemental Environmental Impact Statement (SEIS) and Final Subsequent Environmental Impact Report (SEIR) using Preliminary Engineering design level of detail.

3.0 TRANSPORTATION

The transportation chapter includes evaluation of the LRT system, traffic, parking, bicycling, and pedestrian modes within the Eastside Corridor. This section of the SEIS/SEIR covers the affected environment, existing conditions, anticipated impacts, and proposed mitigation for both the build and no-build LRT project alternatives.

3.1 TRANSIT

3.1.1 Affected Environment

The Eastside Corridor study area has one of the most extensive networks of bus routes in Los Angeles County. The study area's transit routes generally follow a grid pattern and include many express and local routes, one limited service route, and one new Metro Rapid bus route. Five public transit agencies operate bus service in the Eastside Corridor: Metropolitan Transportation Authority, Montebello Transit, the City of Monterey Park, the City of Commerce, and the County of Los Angeles. Table 3-1 lists all the current Eastside Corridor bus transit routes with the end destinations of their services, and Figure 3-1 illustrates these routes.

Most of the heavily used routes are those that run in an east-west direction. These include bus routes that operate on Cesar Chavez Avenue, 1st Street, Whittier Boulevard, and Olympic Boulevard. Soto Street and Atlantic Boulevard are two north-south streets on which heavily used bus routes also operate. Regional north-south travel is limited to these two main bus lines on Soto Street and Atlantic Boulevard. The predominant flow of transit passengers in the corridor is in an east-west orientation. Many of these routes experience very high ridership during peak periods. Table 3-2 shows the service frequency (headways) for all the bus lines in the corridor. This table illustrates the high demand for service on many of the lines, particularly on MTA lines 30/31 and 66 where headways during the morning peak period average three to four minutes.

A new demonstration service debuted on June 24, 2000 on Whittier Boulevard in the Eastside Corridor called Metro Rapid Bus. Operated by the MTA, this new streamlined limited-stop service connects Santa Monica and Montebello via Wilshire and Whittier Boulevards through Downtown Los Angeles, Boyle Heights, and East Los Angeles as Line 720. A similar route began operation at the same time in the San Fernando Valley along Ventura Boulevard as Line 750 that connects Warner Center and the Universal City Metro Red Line station. The Metro Rapid service utilizes buses equipped with devices that can be used to extend the green phase at traffic signals. This speeds up the limited bus service and provides improved reliability in travel time for passengers. In the Eastside Corridor, the new Metro Rapid bus line 720 replaces MTA line 318 on Whittier Boulevard. Line 318 east of Garfield Avenue in Montebello was converted into an extension of MTA line 18 to Whittier. Line 18 still provides local bus service along the Whittier Boulevard corridor. The Rapid Bus demonstration program is designed to provide long-distance corridor service, time savings, and service reliability with the ability to extend the green phase at signalized intersections.

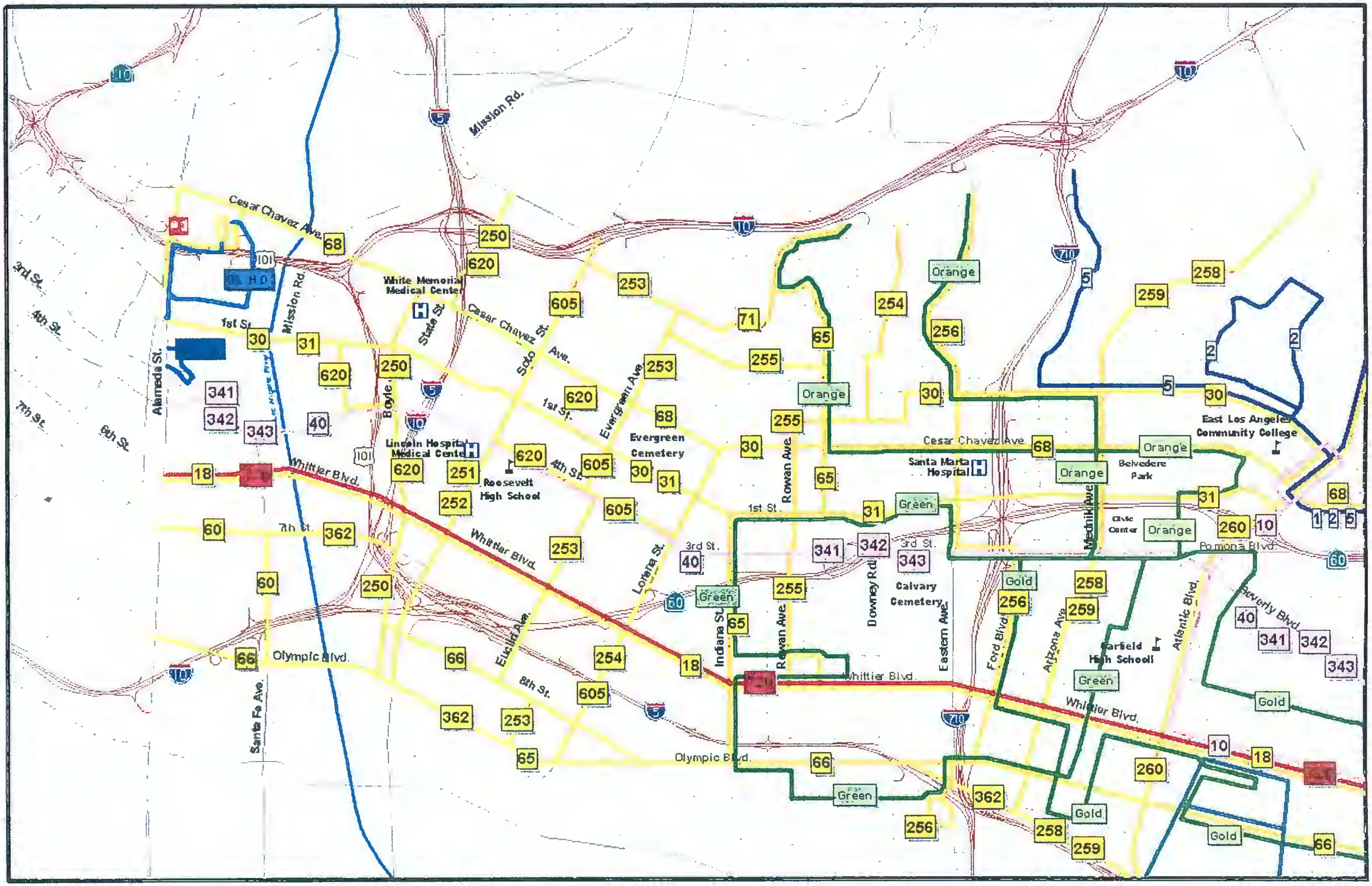
TABLE 3-1 BUS TRANSIT ROUTES IN THE EASTSIDE CORRIDOR		
Operator	**Line(s)**	**Destinations**
Commerce Municipal Bus	Blue	Community Circulator (Commerce)
	Green	Community Circulator (Commerce)
	Orange	Community Circulator (Commerce)
	Red	Community Circulator (Commerce)
	Yellow	Community Circulator (Commerce)
Los Angeles County Shuttle	Gold	East Los Angeles
	Green	East Los Angeles
	Orange	East Los Angeles - CSULA
Montebello Transit	10	East LA College - Pico Rivera
	40	Downtown LA - Whittier
	341,342,343	Downtown LA - Montebello Express
Monterey Park Spirit Bus	1	Community Circulator (Monterey Park)
	2	Community Circulator (Monterey Park)
	5	Community Circulator (Monterey Park)
MTA	18	Wilshire Center - Whittier
	30,31	Mid City - East LA College
	65	Downtown Los Angeles - CSULA
	66	Wilshire Center - Montebello
	68	W. LA Transit Center - Montebello Towne Center
	71	Downtown Los Angeles - CSULA
	250	LAC+USC - Boyle Heights
	251	Cypress Park - Watts
	252	El Sereno - Lynwood
	253	LAC+USC - Boyle Heights
	254	LAC+USC - Willowbrook
	255	Montecito Heights - East Los Angeles
	256	Altadena - East Los Angeles
	258	Alhambra - South Gate
	259	El Sereno - South Gate
	260	Altadena - Compton
	362	Downtown Los Angeles - Hawaiian Gardens
	605	LAC+USC - Boyle Heights
	620	LAC+USC - Boyle Heights
	720 (Rapid)	Santa Monica – Montebello

Source: 1999-2000 MTA, Montebello, Monterey Park, Los Angeles County, and Commerce bus timetables.

3.1.2 Impacts

3.1.2.1 No-Build Alternative

The No-Build Alternative provides no significant improvement in transit services in the Eastside Corridor. As the population grows, the demand for increased transit service provision and service reliability increases. Without the introduction of premium transit service in the Eastside Corridor, such as a light rail system, transit service performance will likely decrease due to increased traffic congestion. This is likely to make travel via transit a less attractive option for Eastside patrons. For those transit patrons that have no other travel options, travel times will increase and transit usage will be less convenient. There will be a negative impact upon those that rely on the public transit system if no significant improvements in transit service are provided in the No-Build Alternative.



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

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Legend

- 30 MTA Routes
- Metro Rapid Route
- 40 Montebello Routes
- 5 Monterey Park Routes
- LADOT Routes
- Gold LA County Routes
- Commerce Routes (All Routes)
- Highway
- Primary Road
- Secondary Road
- River

Note: Highways, primary, and secondary roads by Thomas Bros. Maps through conditional use from MTA 1997.

August 28, 2000

LOS ANGELES EASTSIDE CORRIDOR
DRAFT SEIS/SEIR

EASTSIDE BUS ROUTES

Figure 3-1

TABLE 3-2
FREQUENCY OF TRANSIT SERVICE (IN MINUTES)

Operator	Line	Days	AM Peak 6-9am	Midday 9am-3pm	PM Peak 3-7pm	Evening 7-11pm	Owl 11pm-6am	Hours of Service
Commerce	Red	Weekday	60	60	60			6am-6pm
		Saturday	60	60	60			6am-6pm
	Blue	Weekday		60	60			9am-6pm
		Saturday		60	60			9am-6pm
	Green	Weekday	60	60	60			6am-9:30pm
		Saturday	60	60	60			6am-9:30pm
	Orange	Weekday	60	60	60			5:30am-6pm
	Yellow	Weekday	60	60	60			6am-9am
Los Angeles County	Gold	Weekday	60	60	60			6am-6pm
		Saturday		60	60			9am-5pm
	Green	Weekday	60	60	60			6am-6pm
		Saturday		60	60			9am-5pm
	Orange	Weekday	60	60	60			6am-6pm
		Saturday		60	60			9am-5pm
Montebello	10	Weekday	8	10	15			5am-11pm
		Saturday	20	10	20			5am-11pm
		Sunday	20	10	20			5am-11pm
	40	Weekday	10	12	30			5am-11pm
		Saturday	15	15	30			5am-12am
		Sunday	20	20	20			5am-11pm
	341	Weekday	30					7-9:30am,3-6pm
	342	Weekday	180					6-7am, 5-6pm
	343	Weekday	30					6-8am, 5-7pm
Monterey Park	1	Weekday	40	40	40			6:30am-6pm
		Saturday	40	40	40			6:30am-6pm
	2	Weekday	40	40	40			6:30am-6pm
		Saturday	40	40	40			6:30am-6pm
	5	Weekday	50	30	30			6:30am-6pm
MTA	18	Weekday	10	15	10	15	60	24 hours
		Saturday	15	12	15	20	60	24 hours
		Sunday	20	30	15	30	60	24 hours
	30 / 31	Weekday	4	7.5	5	15	60	24 hours
		Saturday	7	7	12	30	60	24 hours
		Sunday	12	7	8	30	60	24 hours
	65	Weekday	15	30	25	50		5:30am-10pm
		Saturday	60	60	60	60		6am-8pm
		Sunday		60	60	60		8am-8pm
	66	Weekday	3	8	7	30		4:30am-1:30am
		Saturday	4	10	15	30		5am-1:30am
		Sunday	15	12	12	30		5am-1am
	68	Weekday	8	12	12	40		4am-12:30am
		Saturday	15	10	15	40		4am-12:30am
		Sunday	40	15	20	40		4:30am-12:30am
	250	Weekday	40	40	40			6am-7pm

TABLE 3-2 (continued) FREQUENCY OF TRANSIT SERVICE (IN MINUTES)								
Operator	**Line**	**Days**	**AM Peak 6-9am**	**Midday 9am-3pm**	**PM Peak 3-7pm**	**Evening 7-11pm**	**Owl 11pm-6am**	**Hours of Service**
MTA (cont.)	251/252	Weekday	5	12	10	30	60	24 hours
		Saturday	15	15	12	30	60	24 hours
		Sunday	30	20	20	30	60	24 hours
	253	Weekday	40	40	40			6am-8pm
		Saturday	40	40	40			6am-7:30pm
		Sunday	35	40	40			8am-6:30pm
	254	Weekday	60	55	30	60		4:30am-8:30pm
		Saturday	60	60	60			6:30am-7:30pm
		Sunday	45	60	60			7:30am-7:30pm
	255	Weekday	45	50	45			5am-8:30pm
		Saturday		45	45			5:30am-8:30pm
		Sunday		45	45			5:30am-8:30pm
	256	Weekday	35	50	35	50		6am-10:30pm
		Saturday	60	60	60	60		5:30am-9pm
		Sunday	60	60	60	60		5:30am-9pm
	258/259	Weekday	20	30	30			5am-8pm
	260	Weekday	12	15	15	60		4am-11:30pm
		Saturday	30	25	20	60		5am-12m
		Sunday	50	25	25	60		6am-12m
	362	Weekday	20	30	25	60		5am-11:30pm
		Saturday	50	60	60	60		5am-11:30pm
		Sunday	50	60	60	60		5am-11:30pm
	605	Weekday	15	30	15	30		6am-7:30pm
		Saturday	30	30	30			6am-7:30pm
		Sunday	30	30	30			6am-7:30pm
	620	Weekday		12	12			9am-6:30pm
	720	Weekday	8	10	8	20		5am-1am
		Saturday	12	12	12	20		5am-1am
		Sunday	12	12	12	20		5am-1am
Source: 1999-2000 LACMTA, Montebello, Commerce, Los Angeles County, and Monterey Park bus timetables.								

3.1.2.2 LRT Build Alternative

Regional Transit Access and Connectivity

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

The introduction of a light rail system into the Eastside Corridor would provide passengers with greater access to regional transit opportunities and would provide for improved regional transit connectivity. Transfers could be made at Union Station to a variety of different transit alternatives. The Eastside Corridor Light Rail system will provide continuing service to Pasadena via the Pasadena Blue Line, which is expected to open for service in 2003. Transfers can be made to the Metro Red Line at Union Station with its subway service to Wilshire Center and North Hollywood. The Long Beach Blue Line can also be accessed via the Red Line at the 7th/Metro Center station in Downtown Los Angeles, and the Green Line to Norwalk and Redondo Beach is accessible via the Long Beach Blue Line. Dozens of local and express bus lines converge at Union Station, and several transit providers service Union Station, including Santa Monica's Big Blue Bus, LADOT, Foothill Transit, Torrance Transit, Santa Clarita Transit, and the Antelope Valley Transportation Authority. Metrolink commuter rail service is also available for regional travel to Ventura, San Bernardino, Riverside, Orange, and San Diego counties as well as to northern Los Angeles County. Amtrak rail service can also be accessed at Union Station for long-distance travel to other cities in California and the nation. Impacts on regional transit access and connectivity as a result of the LRT Build Alternative are beneficial.

Bus Route Interface

There are several bus lines that would operate on the same streets as the LRT Build Alternative. These include MTA lines 30, 31, 65, Montebello lines 40, 341, 342, and 343, and Los Angeles County Gold, Green and Orange shuttles. The LRT Build Alternative would overlap MTA lines 30 and 31 on 1st Street, MTA line 65 (rerouted) and the Los Angeles County shuttles on 3rd Street, and Montebello lines 40, 341, 342, and 343 on 3rd Street and Beverly Boulevard. Bus transit service would continue to operate on streets where the LRT system would be running in order to maintain existing local service levels along these streets. Table 3-3 summarizes the bus lines that would overlap the alignment of the LRT Build Alternative.

TABLE 3-3
BUS ROUTES OVERLAPPING THE LRT ALIGNMENT AT-GRADE

Operator	Line	Street along Alignment	Limits of Overlapping Routes
Los Angeles County	Gold	3rd Street	Ford Blvd – Beverly Blvd
	Green	Indiana Street	1st Street – 3rd Street
		3rd Street	Ford Blvd – La Verne Ave
	Orange	3rd Street	Mednik Ave – Beverly Blvd
LADOT	430	Alameda Street	Commercial St – Temple St
Montebello Transit	40	3rd Street/Beverly Blvd	Indiana St – Atlantic Blvd
	341	3rd Street/Beverly Blvd	Indiana St – Atlantic Blvd
	342	3rd Street/Beverly Blvd	Indiana St – Atlantic Blvd
	343	3rd Street/Beverly Blvd	Indiana St – Atlantic Blvd
MTA	30 / 31	1st Street	Alameda St – 101 Freeway
	30 / 31	1st Street	Fresno St – Indiana St
	40	Alameda Street	Commercial St – Temple St
	42	Alameda Street	Commercial St – Temple St
	65 (reroute)	3rd Street	Indiana St – Rowan Ave
	434	Alameda Street	Commercial St – Temple St
	436	Alameda Street	Commercial St – Temple St
	444	Alameda Street	Commercial St – Temple St
	445	Alameda Street	Commercial St – Temple St
	466	Alameda Street	Commercial St – Temple St
	530 (reroute)	1st Street	Soto St – Lorena St
	620	1st Street	Utah St – 101 Freeway

Source: 1999-2000 MTA, Montebello, Monterey Park, Los Angeles County, and Commerce bus timetables; Parsons Brinckerhoff.

In order to maintain connectivity with other transit operators and bus services within the corridor, it is important that proposed stations interface with existing and proposed bus routes. The proposed transit operating plan for the LRT Build Alternative offers a connection of existing bus lines at each station location. Figure 3-2 shows how the LRT system would fit into the Eastside Corridor's bus route network. At three station locations, it is proposed that certain bus lines be considered for rerouting in order to provide improved access to the light rail system. Rerouting considerations would follow the typical MTA bus route changes process, including some type of public review and comment process and input from members of the Bus Riders Union. The lines considered for rerouting include:

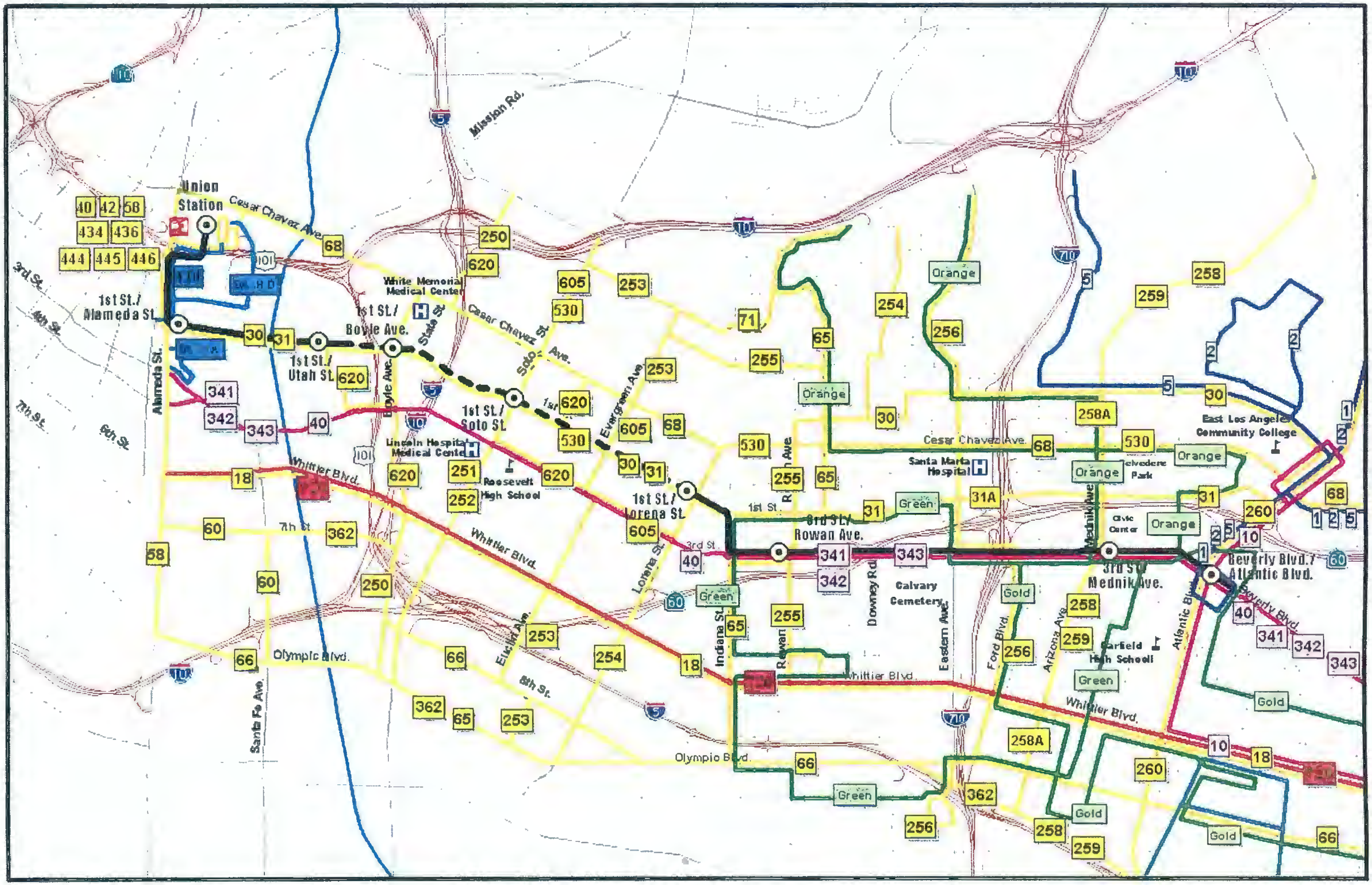
- MTA Line 65 to 3rd/Rowan Station via 3rd Street and Rowan Avenue
- MTA Line 530 to 1st/Soto Station via Soto and 1st Street
- MTA Line 620 to 1st/Utah Station via Utah Street
- Monterey Park Lines 1, 2 and 5 to Beverly/Atlantic Station via Atlantic Boulevard

MTA Line 65 is a local bus line that currently runs north on Indiana Street in the vicinity of the LRT Build Alternative alignment and turns east on 1st Street to Rowan Avenue. In order to provide access to the 3rd/Rowan Station, it is proposed to consider rerouting this line onto 3rd Street east to Rowan Avenue and then on Rowan to 1st Street. This minor reroute will not have a significant impact on transit ridership or transit access due to its proximity to the current routing one quarter of a mile to the west on Indiana. Access to the business district on 1st Street would still be provided at 1st and Rowan. Routing this bus line away from Indiana Street also will help to mitigate the impacts of Option 1 on Indiana for the transition between 1st and 3rd Streets if this option is chosen. All relevant agencies and organizations will be included in the discussion concerning any proposed bus routes considered for modification.

MTA Line 530 is a new service that will debut in 2001 as outlined in the MTA's 1998 Five-Year Plan. Line 530 is an express route that will connect East Los Angeles College and Boyle Heights with Panorama City via the County-USC Medical Center and the Burbank Media District. Line 530 currently is proposed to run south on Soto Street from the San Bernardino Freeway (I-10) to Cesar Chavez Avenue and then turn east to East Los Angeles College. In order to provide service to the 1st/Soto Station, it is proposed to consider rerouting this line south on Soto Street to 1st Street. It will then continue east on 1st Street to Lorena Street back to Cesar Chavez Avenue. Line 530 will also serve the 1st/Lorena Station on its amended route. All relevant agencies and organizations will be invited to provide input concerning any proposed route modifications.

MTA Line 620 is a community shuttle service jointly operated by MTA and LADOT that currently runs on Clarence Street west of the 101 Freeway between 4th and 1st Streets. It is proposed that this line be considered for rerouting from Clarence Street to 3rd Street and Utah Street where it will continue north to interface with the 1st/Utah Station at the corner of 1st and Utah Streets. This minor reroute will not affect line patronage because of the close proximity of Utah Street to Clarence Street one block away. However, since this line directly serves the 1st/Boyle station, the proposed rerouting may not be required.

Monterey Park's Spirit Transit system provides community transportation services on five routes within the city of Monterey Park. Three of its lines currently operate in the vicinity of Cesar Chavez Avenue and Atlantic Boulevard. It is proposed to consider extending these three routes (1, 2, and 5) southward along Atlantic to the Beverly/Atlantic Station. The extension of these three routes will provide convenient access to the LRT system from the city of Monterey Park. The three Monterey Park lines will also provide connecting service from the LRT system to the Atlantic Square shopping area as well as to East Los Angeles College. This is a beneficial impact under CEQA.



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

Eastside Corridor Transit Consultants

Note: Highways, primary, and secondary roads by Thomas Bros. Maps through a conditional use from MTA 1997.

Legend

- MTA Routes
- Metro Rapid Route
- Montebello Routes
- Monterey Park Routes
- LADOT Routes
- LA County Routes
- Commerce Routes (All Routes)
- LRT Alignment
- Highway
- Primary Road
- Secondary Road
- River

August 28, 2000

LOS ANGELES EASTSIDE CORRIDOR
DRAFT SEIS/SEIR

MODIFIED BUS SYSTEM WITH LRT

Figure 3-2

According to FTA regulations and guidelines for entities that receive federal transit funding, a public hearing must be offered for a change in fare structure or for service changes that affect more than 25% of the revenue or route-miles for a given transit line. CEQA requires that impacts be measured against criteria for significance and that all significant impacts be addressed and/or mitigated. The above bus route modifications constitute a less than significant impact and require no mitigation. Table 3-4 shows the interface of bus lines at each new station along the alignment of the LRT Build Alternative.

TABLE 3-4
BUS ROUTE INTERFACE AT LRT STATIONS

Station	Operator	Line	Destinations
1st/Alameda	LADOT	DASH A	Little Tokyo – Los Angeles Convention Center
		DASH D	Union Station – Grand Blue Line Station
	MTA	30 / 31	Mid City – East LA College
		40	Union Station – South Bay Galleria
		42	Union Station – LA Int'l Airport
		58	Union Station – Washington Blue Line Station
		434	Union Station – Malibu
		436	Union Station – Ocean Park
		442	Union Station – South Bay Galleria
		445	Union Station – San Pedro
		446	Union Station – San Pedro
1st/Utah	MTA	30 / 31	Mid City – East LA College
		620 (reroute)	LAC+USC – Boyle Heights
1st/Boyle	MTA	30 / 31	Mid City – East LA College
		250	LAC+USC – Boyle/Olympic
		620	LAC+USC – Boyle Heights
1st/Soto	MTA	30 / 31	Mid City – East LA College
		250	Cypress Park – Watts
		251	El Sereno – Lynwood
		530 (reroute)	Panorama City – East LA College
		605	LAC+USC – Boyle Heights
1st/Lorena	MTA	30 / 31	Mid City – East LA College
		254	LAC+USC – Willowbrook
		530 (reroute)	Panorama City – East LA College
3rd/Rowan	Montebello	40	Downtown LA – Whittier
	MTA	65 (reroute)	Downtown LA – CSULA
		255	Montecito Heights – East Los Angeles
3rd/Mednik	Los Angeles County	Gold	East Los Angeles
		Green	East Los Angeles
		Orange	East Los Angeles – City Terrace – CSULA
		40	Downtown LA – Whittier
	Montebello	258	El Sereno – South Gate
	MTA	259	Alhambra – South Gate
Beverly/Atlantic	Montebello	10	East LA College – Pico Rivera
		40	Downtown LA – Whittier
		341, 342, 343	Downtown LA – Montebello Express
	Monterey Park	1 (reroute)	Monterey Park
		2 (reroute)	Monterey Park
		5 (reroute)	Monterey Park – CSULA
	MTA	260	Altadena – Compton

Source: 1999-2000 MTA, Montebello, Monterey Park, LA County, and Commerce bus timetables; Parsons Brinckerhoff.

Bus Operation Impacts

Generally speaking, bus stop locations will remain in the same locations under the LRT Build Alternative scenario. Some stops may be relocated in order to better interface with the LRT station at station locations along 1st and 3rd Streets and Beverly Boulevard. Bus stops will be located close to the street corner where there is access to the station entrance at station locations.

Along 1st Street between LRT stations, buses will utilize curbside bus stops as provided in the No-Build condition. In LRT station areas where parking is prohibited and only one traffic lane will exist, buses will utilize the traffic lane to accommodate the boarding and alighting of passengers. Along 3rd Street and Beverly Boulevard where there would be two lanes available, buses would utilize the curb lane to stop. As is the case in the No-Build condition, parking would be prohibited at bus stop locations.

Traffic lanes on major and secondary arterials on which bus lines will continue to operate, where the LRT has an at-grade profile, would be at least 11 feet wide to accommodate the operation of buses. On 1st Street, the traffic lanes would be between 11 and 13.5 feet wide, while 3rd Street and Beverly Boulevard would have traffic lanes between 12 and 15 feet wide. Indiana Street under Option 1 would have 11-foot traffic lanes, and this would provide for the operation of the County shuttle buses on this portion of Indiana Street. Indiana Street under Options 2 and 3 would have no change in traffic lane widths. Alameda Street would have 11- to 12-foot traffic lanes, as would be the case in the No-Build Alternative. Overall, there may be significant impacts on local bus operations as a result of the LRT Build Alternative because of potential bus stop displacements and possible increases in bus operating times resulting from one lane operations along 1st Street.

Eastside LRT Patronage Forecasts

Table 3-5 shows the projected passenger boardings at each station based on transportation demand model results for the year 2020 LRT Build Alternative. The highest number of passengers boarding the system is at Union Station, with the next highest being at 1st/Alameda and the terminal station at Beverly/Atlantic. The stations with the highest patronage have the greatest number of connecting transit services. The highest concentration of boardings is in the peak periods as people utilize the system on their trips to and from their places of employment. Total boardings for the Eastside Corridor LRT system are projected to be 15,230 passengers per day by the year 2020. Combined boardings for the Pasadena Blue Line and the Eastside LRT are expected to be 42,000 passengers per day by the year 2020.

TABLE 3-5
YEAR 2020 DAILY BOARDINGS BY STATION

Station	Peak Boardings	Off-Peak Boardings	Total Daily Boardings
Union Station	2,392	1,153	3,545
1st/Alameda	1,759	726	2,485
1st/Utah	585	365	950
1st/Boyle	856	548	1,404
1st/Soto	924	530	1,454
1st/Lorena	604	428	1,032
3rd/Rowan	660	348	1,008
3rd/Mednik	695	545	1,240
Beverly/Atlantic	1,370	742	2,112
Total Eastside LRT Daily Boardings			15,230
Combined Pasadena Blue Line and Eastside LRT Daily Boardings			42,000

Source: Parsons Brinckerhoff, 2000.

3.1.3 Mitigation

3.1.3.1 Rerouted Bus Lines

No mitigation is required because no significant impacts have been identified. The re-routing of bus lines to connect with the LRT system at certain stations does not create any significant impacts.

3.1.3.2 Bus Operations

If any bus stops are displaced due to street design changes with the introduction of the LRT system, a replacement bus stop would be designated within one-eighth of a mile of the original stop. Bus stops would be relocated to the adjacent corner of the same intersection if possible in order to maintain service access for bus passengers. Local bus service schedules would be reviewed and adjusted if required to reflect the modified traffic conditions with LRT operations. These measures would reduce any potential impacts to a level that is less than significant.

3.2 TRAFFIC

3.2.1 Affected Environment

The environment in which traffic will be examined includes the north-south major and secondary arterials between and including Alameda Street and Atlantic Boulevard and the east-west major and secondary arterials that are located one half mile to the north and south of the LRT alignment. The north-south streets include Alameda Street, Mission Road, Boyle Avenue, State Street, Soto Street, Evergreen Avenue, Lorena Street, Indiana Street, Rowan Avenue, Eastern Avenue, Ford Boulevard, Mednik Avenue, and Atlantic Boulevard. The east-west streets include Cesar Chavez Avenue, 1st Street, 3rd Street, 4th Street, Pomona Boulevard, and Beverly Boulevard. Figure 3-3 illustrates the street network in the Eastside Corridor.

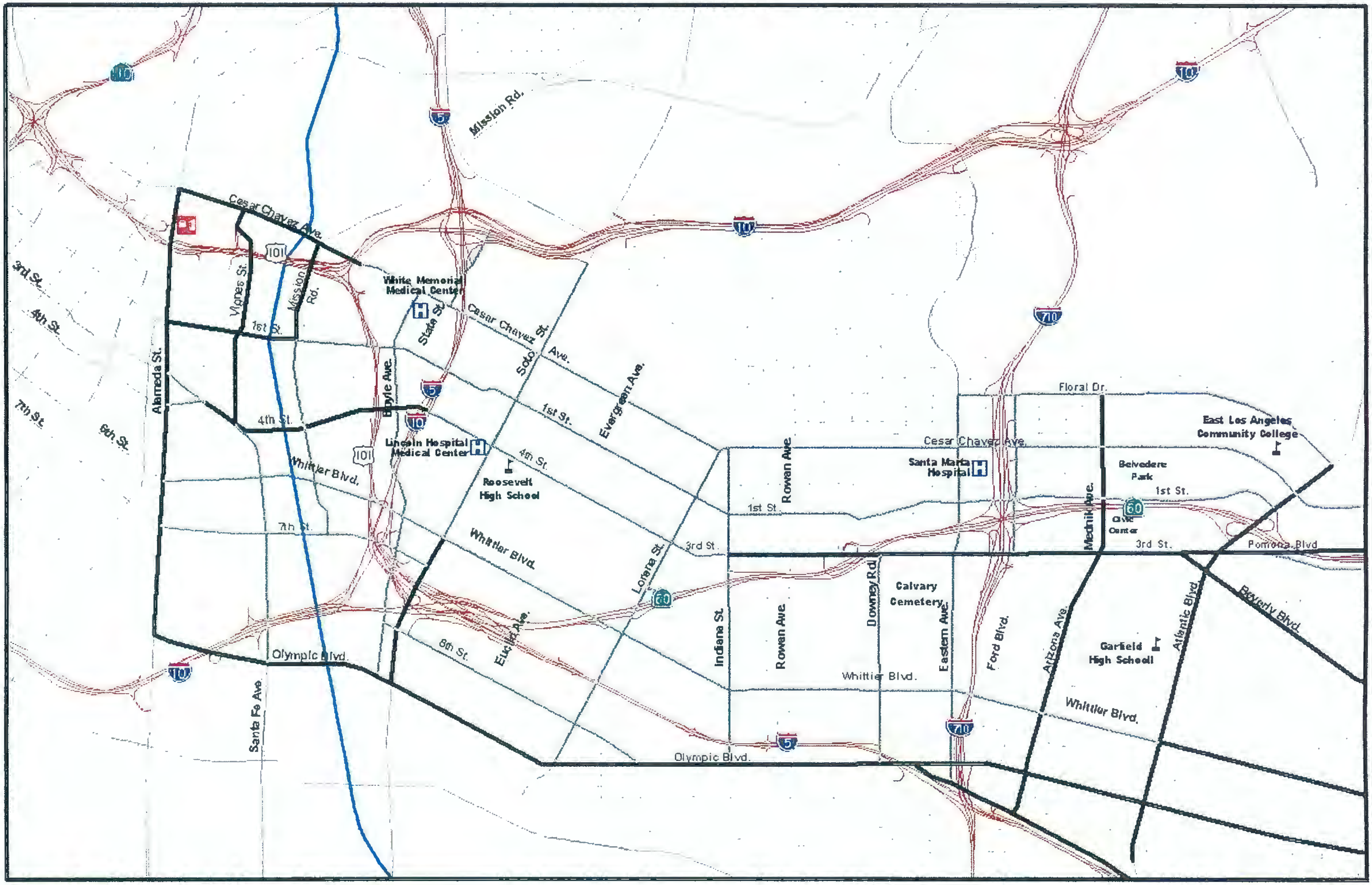
3.2.2 Existing Traffic Conditions

3.2.2.1 Traffic Analysis Locations

In order to determine the existing traffic operating conditions in the Eastside Corridor and perform traffic analysis for the future year 2020, seven screenline locations and 54 intersections were identified. The jurisdictions that are represented by the traffic analysis locations include the City of Los Angeles, County of Los Angeles, and City of Monterey Park. The screenline locations were used to identify traffic on different streets at a point in the corridor to compare volumes and aggregate corridor traffic flows. Screenline analysis was performed using average daily traffic (ADT) volumes, and intersections were analyzed using PM peak hour volumes. Figure 3-4 shows the screenline and intersection locations that were used in the traffic analysis for this Draft SEIS/SEIR.

3.2.2.2 Screenline Traffic Analysis

Seven screenlines were used in the analysis to determine existing daily traffic operations. Five intercepted east-west streets and two summarized north-south street traffic volumes. There were 29 locations at which ADT volumes were collected. Existing ADT count information was obtained from the City of Los Angeles, County of Los Angeles, and City of Monterey Park. New traffic counts were taken in June 2000, which account for 10 of the ADT counts and 49 of the peak hour counts.



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

Source: Los Angeles Department of Transportation and Los Angeles County Department of Public Works Street Classification System.

Legend

- Freeway
- Major Street
- Secondary Street
- Local Street
- River

Note: Base map courtesy by Thomas Bros. Maps through aconditional use from MTA 1997.

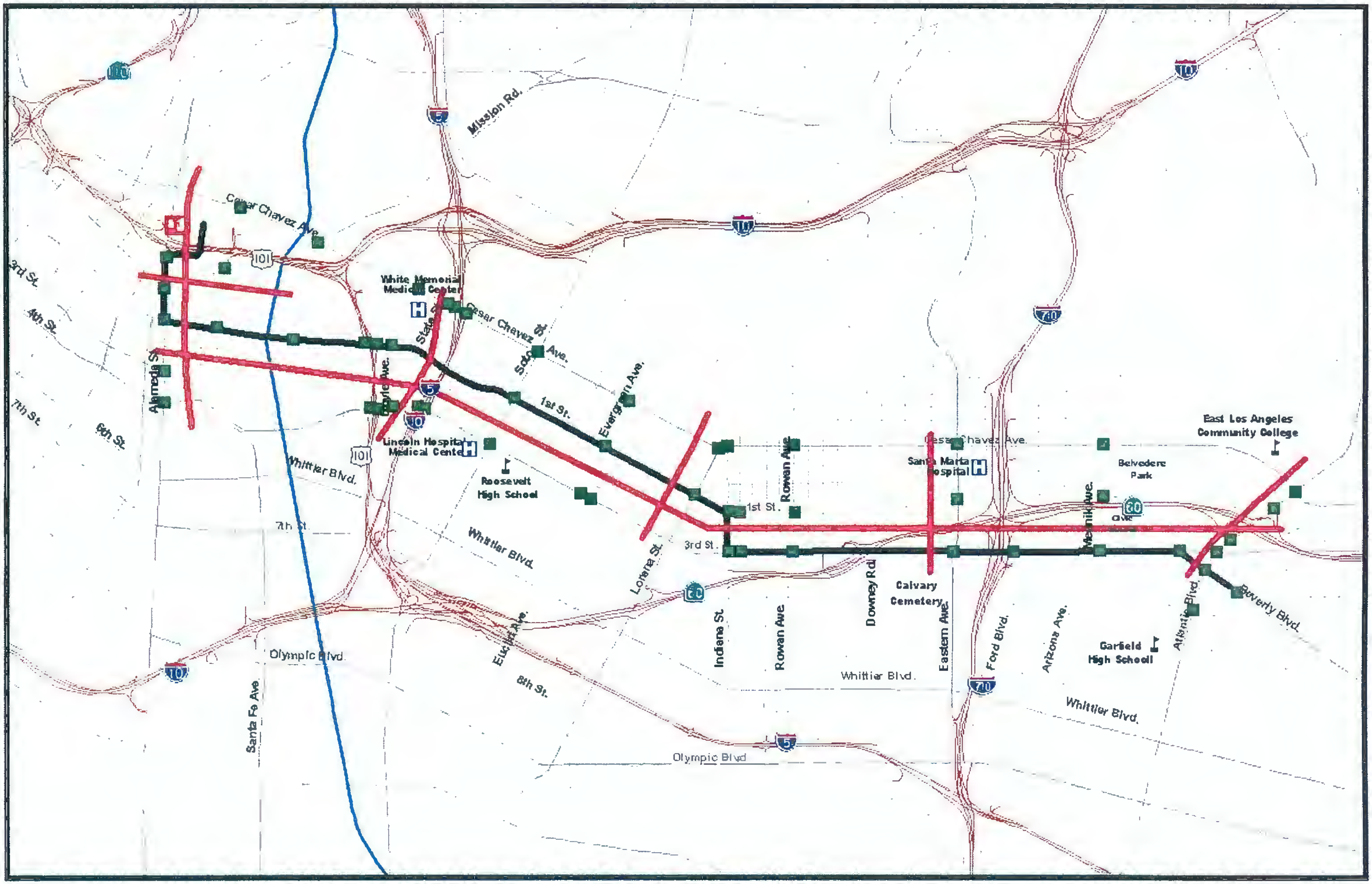
August 2, 2000

Eastside Corridor Transit Consultants

LOS ANGELES EASTSIDE CORRIDOR
DRAFT SEIS/SEIR

EASTSIDE CORRIDOR STREET NETWORK

Figure 3-3



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

Legend

- LRT Alignment
- Intersection Analysis Locations
- Screenline Locations
- Highway
- Primary Road
- Secondary Road
- River

Eastside Corridor Transit Consultants

Note: Highways, primary, and secondary roads by Thomas Bros. Maps through a conditional use from MTA 1997. Demographic information from SCAG.

August 16, 2000

LOS ANGELES EASTSIDE CORRIDOR
DRAFT SEIS/SEIR

TRAFFIC ANALYSIS LOCATIONS

Figure 3-4

TABLE 3-6
EXISTING CONDITIONS SCREENLINE ADT ANALYSIS

Screenline Location	Street	Capacity	Volume	V/C[1]	LOS[2]
1. East of Alameda	Cesar Chavez Ave	34,000[3]	26,839	0.79	C
	1st Street	34,000	17,370	0.51	A
	3rd Street (WB street)	27,000[4]	13,784	0.51	A
	4th Street (EB street)	27,000	11,135	0.41	A
	Screenline Total	**122,000**	**69,128**	**0.57**	**A**
2. West of I-5 Freeway	Cesar Chavez Ave	32,000[5]	20,919	0.65	B
	1st Street	32,000	13,333	0.42	A
	4th Street	34,000	19,509	0.57	A
	Screenline Total	**98,000**	**53,761**	**0.55**	**A**
3. West of Lorena	Cesar Chavez Ave	32,000	21,731	0.68	B
	1st Street	32,000	15,277	0.48	A
	4th Street	32,000	17,337	0.54	A
	Screenline Total	**96,000**	**54,345**	**0.57**	**A**
4. West of Eastern	Cesar Chavez Ave	32,000	20,823	0.65	B
	1st Street	32,000	10,242	0.32	A
	3rd Street	34,000	19,126	0.56	A
	Screenline Total	**98,000**	**50,191**	**0.51**	**A**
5. West of Atlantic	Cesar Chavez Ave	32,000	13,637	0.40	A
	1st Street	32,000	7,334	0.22	A
	Pomona Blvd	34,000	11,588	0.34	A
	Beverly Blvd	34,000	17,864	0.53	A
	Screenline Total	**132,000**	**50,423**	**0.38**	**A**
6. South of Temple St	Alameda St	34,000	26,577	0.78	C
	Mission Rd	34,000	11,769	0.35	A
	Screenline Total	**68,000**	**38,346**	**0.56**	**A**
7. South of 1st Street	Alameda St	34,000	19,181	0.56	A
	Mission Rd	15,000[6]	2,609	0.17	A
	Boyle Ave	32,000	12,099	0.38	A
	Soto St	32,000	17,492	0.55	A
	Evergreen Ave	15,000	5,746	0.38	A
	Lorena St	32,000	12,309	0.38	A
	Indiana St	15,000	10,532	0.70	C
	Eastern Ave	32,000	12,827	0.40	A
	Mednik Ave	32,000	12,291	0.38	A
	Atlantic Blvd	40,000[7]	35,058	0.88	D
	Screenline Total	**279,000**	**140,144**	**0.50**	**A**

[1] Volume/Capacity Ratio.
[2] Level of Service.
[3] Capacity of 34,000 assumes 850 vehicles per lane per hour and 10% of daily demand in peak hour.
[4] Capacity of 27,000 assumes 900 vehicles per lane per hour and 10% of daily demand in peak hour.
[5] Capacity of 32,000 assumes 800 vehicles per lane per hour and 10% of daily demand in peak hour.
[6] Capacity of 15,000 assumes 750 vehicles per lane per hour and 10% of daily demand in peak hour.
[7] Capacity of 40,000 assumes 800 vehicles per lane per hour and 10% of daily demand in peak hour.
Source: LADOT, County of Los Angeles Dept. of Public Works, The Traffic Solution, Parsons Brinckerhoff, 1997-2000.

TABLE 3-7
UNSIGNALIZED LEVEL OF SERVICE DEFINITIONS

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

Source: Transportation Research Board, *Highway Capacity Manual, Special Report 209*, 1997.

TABLE 3-8
SIGNALIZED LEVEL OF SERVICE DEFINITIONS

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

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

TABLE 3-9

EXISTING[1] INTERSECTION LEVEL OF SERVICE ANALYSIS

E/W Street	N/S Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Cesar Chavez Av	Vignes St	LADOT	0.686	B
Cesar Chavez Av	Mission Rd	LADOT	0.636	B
Cesar Chavez Av	Boyle Ave	LADOT	0.501	A
Cesar Chavez Av	State	LADOT	0.604	B
Cesar Chavez Av	I-5 SB Ramps	LADOT	10.9	B
Cesar Chavez Av	I-5 NB Ramps	LADOT	0.379	A
Cesar Chavez Av	Soto St	LADOT	0.583	A
Cesar Chavez Av	Evergreen Ave	LADOT	0.531	A
Cesar Chavez Av	Lorena St	LADOT	0.516	A
Cesar Chavez Av	Indiana St	LA County	27.6	D
Cesar Chavez Av	Rowan Ave	LA County	0.553	A
Cesar Chavez Av	Eastern Ave	LA County	0.561	A
Cesar Chavez Av	***Mednik Ave***	***LA County***	***0.951***	***E***
Cesar Chavez Av	Atlantic Blvd	Monterey Park	0.888	D
Commercial St	Alameda St	LADOT	0.482	A
Commercial St	Vignes St	LADOT	12.97	B
Temple St	Alameda St	LADOT	0.691	B
1st St	Alameda St	LADOT	0.895	D
1st St	Vignes St	LADOT	0.483	A
1st St	Mission Rd	LADOT	0.748	C
1st St	101 SB Ramps	LADOT	21.5	C
1st St	101 NB Ramps	LADOT	0.364	A
1st St	Boyle Ave	LADOT	0.493	A
1st St	Soto St	LADOT	0.622	B
1st St	Evergreen Ave	LADOT	0.448	A
1st St	Lorena St	LADOT	0.348	A
1st St	Indiana St	LADOT	0.560	A
1st St	***Alma Ave***	***LA County***	***128.1***	***F***
1st St	Rowan Ave	LA County	0.300	A
1st St	Eastern Ave	LA County	0.401	A
1st St	Mednik Ave	LA County	0.471	A
1st St	Atlantic Blvd	Monterey Park	0.850	D
3rd St	Alameda St	LADOT	0.521	A
4th St	Alameda St	LADOT	0.664	B
4th St	101 SB Ramps	LADOT	11.2	B
4th St	101 NB Ramps	LADOT	0.395	A
4th St	Boyle Ave	LADOT	0.416	A
4th St	***I-5 SB Ramps***	***LADOT***	***97.6***	***F***
4th St	I-5 NB Ramps	LADOT	0.536	A
4th St	Soto St	LADOT	0.542	A
4th St	Evergreen Ave	LADOT	0.373	A
4th St	Euclid Ave	LADOT	0.384	A
3rd St	Indiana St	LADOT	0.853	D

TABLE 3-9 (continued) EXISTING[1] INTERSECTION LEVEL OF SERVICE ANALYSIS				
E/W Street	N/S Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
3rd St	Alma Ave	LA County	17.1	C
3rd St	Rowan Ave	LA County	0.550	A
3rd St	Eastern Ave	LA County	0.707	C
3rd St	Ford Blvd	LA County	0.473	A
3rd St	Mednik Ave	LA County	0.602	B
3rd St	Pomona / Beverly / Woods	LA County	0.727	C
Pomona Blvd	Atlantic Blvd	LA County	0.817	D
Beverly Blvd	***Atlantic Blvd***	***LA County***	***0.959***	***E***
Beverly Blvd	Hillview Ave	LA County	0.527	A
SR 60 EB Ramp	Atlantic Blvd	LA County	0.575	A
4th St	Atlantic Blvd	LA County	0.541	A

[1]Year 2000 evening peak hour.
Source: LADOT Data, Kaku Associates, 2000.

3.2.3 Future Traffic Impacts

3.2.3.1 No-Build Alternative

Intersection Traffic Conditions

In order to determine the potential changes in traffic operations within the study area with the proposed LRT system, the future conditions were first assessed without the LRT project.

The No-Build conditions for the next 20 years were discussed with representatives of the project team and LADOT. The study area was analyzed based upon: historical traffic data, potential growth within the study area and within areas directly adjacent to the study area, and the long-range traffic projections from the modeling efforts as part of this study. This assessment resulted in the determination that the No-Build future traffic projections would be developed by factoring the existing peak hour traffic data by 1.20. This factor represents an average annual growth rate of one percent.

The 1.20 growth factor was applied to each of the 54 study intersections. The future conditions (without the LRT) were analyzed and the resulting operating conditions and corresponding level of service are provided in Table 3-10. This analysis assumed no improvements to the existing roadway system. A review of the results indicates that under No-Build conditions, 42 intersections will continue to operate at level of service D or better. The 12 intersections that are projected to operate at level of service E or F are highlighted in the table.

3.2.3.2 LRT Build Alternative

The LRT Build Alternative includes 5.9 miles of light rail with a 1.8-mile tunnel section under a portion of Boyle Heights. The remaining 4.1 miles are at-grade where trains would run in the center of existing streets. These streets include Alameda Street, 1st Street, Indiana Street (under Options 1 and 2), 3rd Street, and Beverly Boulevard. The typical width of the LRT envelope is 26 feet between stations and 37 feet at stations. Raised curbs would be constructed along the edge of the LRT envelope to keep traffic out of the LRT right-of-way. However, the curbs would be mountable to allow for emergency vehicle access.

TABLE 3-10 2020 NO-BUILD INTERSECTION LEVEL OF SERVICE ANALYSIS				
E/W Street	**N/S Street**	**Jurisdiction**	**Traffic Conditions**	
			V/C or Delay	**LOS**
Cesar Chavez Av	Vignes St	LADOT	0.836	D
Cesar Chavez Av	Mission Rd	LADOT	0.764	C
Cesar Chavez Av	Boyle Av	LADOT	0.602	B
Cesar Chavez Av	State	LADOT	0.725	C
Cesar Chavez Av	I-5 SB Ramps	LADOT	12.5	B
Cesar Chavez Av	I-5 NB Ramps	LADOT	0.454	A
Cesar Chavez Av	Soto St	LADOT	0.680	B
Cesar Chavez Av	Evergreen Av	LADOT	0.637	B
Cesar Chavez Av	Lorena St	LADOT	0.618	B
Cesar Chavez Av	***Indiana St***	***LA County***	***76.5***	***F***
Cesar Chavez Av	Rowan Av	LA County	0.663	B
Cesar Chavez Av	Eastern Av	LA County	0.673	B
Cesar Chavez Av	***Mednik Av***	***LA County***	***1.141***	***F***
Cesar Chavez Av	***Atlantic Bl***	***Monterey Park***	***1.065***	***F***
Commercial St	Alameda St	LADOT	0.593	A
Commercial St	Vignes St	LADOT	18.04	C
Temple St	Alameda St	LADOT	0.843	D
1st St	***Alameda St***	***LADOT***	***1.087***	***F***
1st St	Vignes St	LADOT	0.595	A
1st St	Mission Rd	LADOT	0.898	D
1st St	***101 SB Ramps***	***LADOT***	***36.4***	***E***
1st St	101 NB Ramps	LADOT	0.437	A
1st St	Boyle Av	LADOT	0.613	B
1st St	Soto St	LADOT	0.835	D
1st St	Evergreen Av	LADOT	0.538	A
1st St	Lorena St	LADOT	0.451	A
1st St	Indiana St	LADOT	0.672	B
1st St	***Alma Av***	***LA County***	***229.3***	***F***
1st St	Rowan Av	LA County	0.361	A
1st St	Eastern Av	LA County	0.482	A
1st St	Mednik Av	LA County	0.565	A
1st St	***Atlantic Bl***	***Monterey Park***	***1.020***	***F***
3rd St	Alameda St	LADOT	0.625	B
4th St	Alameda St	LADOT	0.810	D
4th St	101 SB Ramps	LADOT	12.5	B
4th St	101 NB Ramps	LADOT	0.488	A
4th St	Boyle Av	LADOT	0.464	A
4th St	***I-5 SB Ramps***	***LADOT***	***	***F***
4th St	I-5 NB Ramps	LADOT	0.658	B
4th St	Soto St	LADOT	0.664	B
4th St	Evergreen Av	LADOT	0.461	A
4th St	Euclid Av	LADOT	0.475	A
3rd St	***Indiana St***	***LADOT***	***1.024***	***F***

TABLE 3-10 (continued)
2020 NO-BUILD INTERSECTION LEVEL OF SERVICE ANALYSIS

E/W Street	N/S Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
3rd St	Alma Av	LA County	23.5	C
3rd St	Rowan Av	LA County	0.701	C
3rd St	***Eastern Av***	***LA County***	***0.939***	***E***
3rd St	Ford Bl	LA County	0.567	A
3rd St	Mednik Av	LA County	0.722	C
3rd St	Pomona Bl/Beverly Bl/Woods Av	LA County	0.873	D
Pomona Bl	***Atlantic Bl***	***LA County***	***0.981***	***E***
Beverly Bl	***Atlantic Bl***	***LA County***	***1.151***	***F***
Beverly Bl	Hillview Av	LA County	0.631	B
SR 60 EB Ramp	Atlantic Bl	LA County	0.691	B
4th St	Atlantic Bl	LA County	0.649	B

* Denotes delay estimated to be greater than 999.9 sec/veh.
Source: Kaku Associates, 2000.

Traffic and pedestrians would be allowed to cross the LRT tracks only at signalized intersections along the alignment. Some unsignalized intersections would be signalized to accommodate LRT crossings, such as the on-ramps to the SR-60 and I-710 Freeways. All driveways and unsignalized intersections would have right-in and right-out access where vehicles, bicyclists, and pedestrians would be prohibited from crossing the tracks. Through and left turn movements across the tracks would be prohibited at these locations.

In order to maintain the flow of traffic, left turns from the LRT alignment streets will be accommodated at signalized intersections only. At these locations, split-phase signal operation would be implemented to accommodate the left turn demand. In order to provide for safe LRT operations, these left turns across the tracks would be controlled via left turn arrows. Specific locations that would experience significant traffic impacts are identified in subsequent sections. At several locations, the recommended mitigation consists of left turn prohibitions to reduce intersection traffic impacts.

Traffic Lane Reductions

In the at-grade segments of the alignment, the LRT tracks would utilize existing street right-of way. For most at-grade sections, the LRT would run in or near the center of the street. The typical cross-sections as described in the subsequent sections show that, as a rule, one traffic lane would be removed in each direction where the LRT system would be operating within the street right-of way. The removal of traffic lanes and elimination of some left turns is reflected in the analysis of intersection traffic impacts presented in the following pages.

Commercial Street

The LRT system would utilize portions of Caltrans right-of-way and enter Commercial Street east of its intersection with Alameda Street. At this location, the LRT tracks would begin to curve through the intersection and require that the westbound intersection stop line be moved back approximately 110 feet[1] in order to keep the LRT right-of-way clear and to avoid conflicts between cars and trains. There would be no traffic lanes removed on Commercial Street.

[1] LRT alignment refinements during design will seek to reduce this preliminary setback distance estimate.

Alameda Street

Alameda Street would be widened to the east by 14 feet to 24.5 feet to maintain the number of through traffic lanes provided in the No-Build Alternative and provide for adequate space in the center of the street for the LRT system. No through traffic lanes would be eliminated on Alameda Street. However, both northbound and southbound left turn lanes would be eliminated at the intersection of Temple Street, and the southbound left turn lane would be eliminated at the intersection of 1st Street. Figure 3-5 shows the proposed cross-section for Alameda Street south of Temple Street.

1st Street

Under the LRT Build Alternative, 1st Street would have one traffic lane removed in each direction in sections where the LRT system is at-grade. These sections are between Alameda Street and the 101 Freeway in all options and also between Fresno and Indiana Streets in Options 1 and 2. Figure 3-6 shows the proposed typical 1st Street station area cross-section. In station areas, the traffic lane would be 13.5 feet wide, curb parking would be prohibited, and sidewalks would be narrowed from 10 feet to 8 feet to maintain one traffic lane in each direction. At other 1st Street locations where curb parking is retained (Cheesbroughs Lane to Indiana Street), 11-foot traffic lanes and 8-foot curb parking lanes would be provided. Sidewalk narrowing from 12 feet to 8 feet will be necessary to accommodate the traffic lanes plus curb parking at these locations. Where curb parking is not required, 15-foot traffic lanes and existing 12-foot sidewalks with no curb parking would be provided within the existing 80-foot right of way.

In the areas of 1st Street where the LRT has a tunnel profile, there would be no street modifications. These areas are between the US-101 Freeway and Fresno Street in Options 1 and 2, and between the US-101 Freeway and Indiana Street in Option 3. However, some limited street modifications may occur at tunnel station locations, depending on specific designs.

Indiana Street

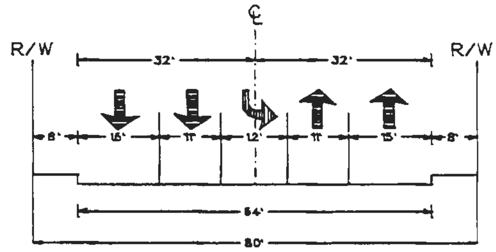
Under Option 1 of the LRT Build Alternative, a 24-foot LRT system would occupy the center of the street at-grade, and one 11-foot traffic lane would remain in each direction. Curb parking would be prohibited. Figure 3-7 shows the proposed cross-section for Indiana Street north of 2nd Street under Option 1. At this location, the sidewalk would be narrowed to six feet on the west side to accommodate the LRT tracks within the existing 60-foot right-of-way

Under Option 2, 26 feet of right-of-way would be acquired on the west side of the street and a LRT system would occupy the center of the widened street at-grade. Traffic lane and sidewalk widths would not change from the No-Build Alternative. Curb parking would be provided. Figure 3-7 shows the proposed cross-section for Indiana Street north of 2nd Street under Option 2.

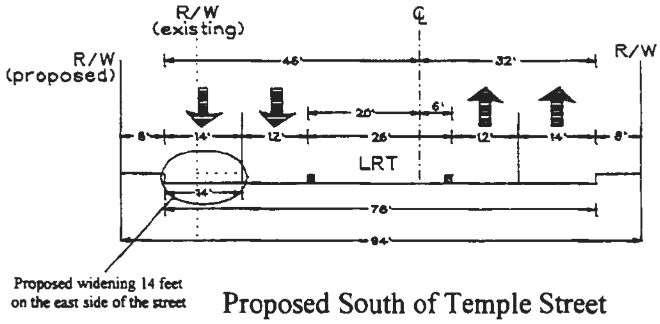
Under Option 3, the LRT system would have a tunnel profile in the vicinity of Indiana Street. There would be no LRT operation on this street under this option and there would be no impacts.

3rd Street

Under the LRT Build Alternative, 3rd Street would have one traffic lane removed in each direction in sections where the LRT system would have an at-grade profile. These sections are between Indiana Street and Beverly Boulevard in Options 1 and 2, and between Hicks Avenue and Beverly Boulevard in Option 3.



Existing South of Temple Street



Proposed South of Temple Street

Alameda Street Cross-Section

Eastside Corridor
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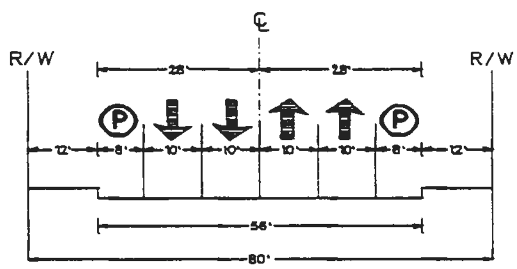
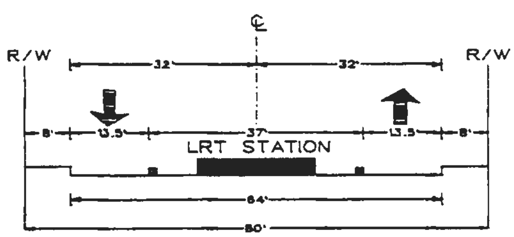
Figure 3-5



Existing

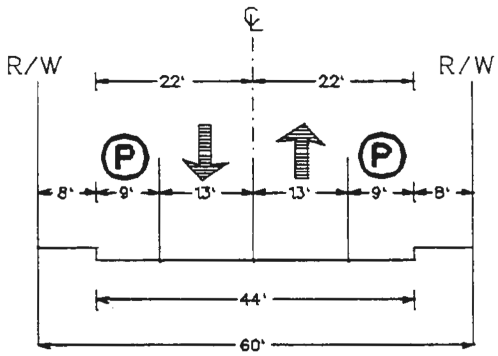


Proposed in
Surface Station Areas

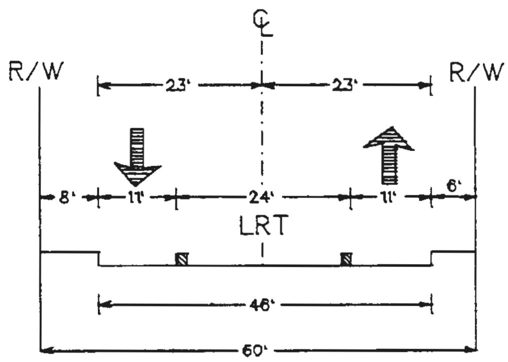
1st Street Typical Cross-Sections

Eastside Corridor
Transit Consultants

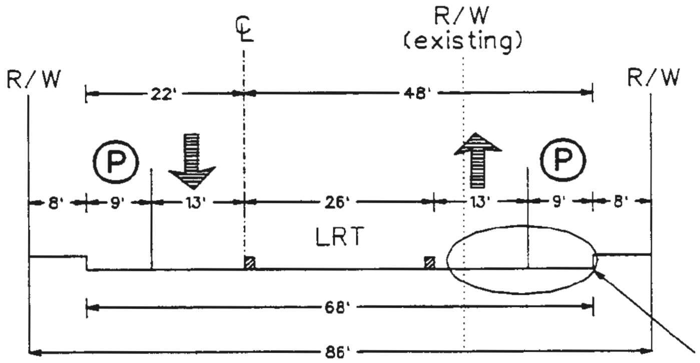
Figure 3-6



Existing



Proposed under Option 1



Proposed under Option 2

Proposed widening by 26 feet on the west side of the street

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Indiana Street Cross-Sections
North of 2nd Street

Figure 3-7

Figure 3-8 shows the typical street cross-section of 3rd Street near stations and between station areas. After the introduction of the LRT system on 3rd Street, one traffic lane plus curb parking would remain in each direction. As the cross-sections illustrate, the inside traffic lane would be 13 feet and 10.5 feet wide between stations and at station locations, respectively. The curb parking lane would be 15 feet and 12 feet wide between stations and at station locations, respectively. Similar to existing conditions and the No-Build Alternative, curb parking would be prohibited and the curb lane would be utilized as a traffic lane during the hours of 6:30-9 a.m. in the westbound direction and 4-6 p.m. in the eastbound direction. Lane continuity would be maintained for through traffic movements during both the peak and off-peak hours. At all other times, the curb lanes would continue to provide for parking. Sidewalks would not be modified along 3rd Street.

Beverly Boulevard

Under the LRT Build Alternative, Beverly Boulevard would have one traffic lane removed in each direction because the LRT system would have an at-grade profile. Figure 3-9 shows the typical street cross-section of Beverly Boulevard at the Atlantic Boulevard station. The median would be removed on Beverly where the LRT would occupy the center of the street between 3rd Street/Woods Avenue and Hillview Avenue. One 10.5-foot traffic lane in each direction would be provided at the station. Curb parking would be maintained with existing regulations that stipulate that 2-hour parking is permitted between 7 a.m. and 6 p.m. Sidewalks would not be modified along Beverly Boulevard.

Summary of Traffic Lane Reductions along the LRT Alignment

Where the LRT system utilizes street right-of-way at-grade, one traffic lane would be removed in each direction under the LRT Build Alternative except along the segments that utilize Alameda and Indiana Streets. A summary of lane reductions is provided in Table 3-11. Figure 3-10 illustrates graphically the street segments that would be affected.

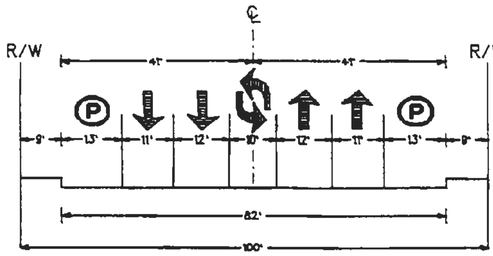
Traffic Circulation and Neighborhood Accessibility

Local neighborhood traffic patterns and pedestrian circulation across the LRT tracks would be modified with the LRT Build Alternative. Traffic and pedestrian crossings at stop sign-controlled streets along the at-grade segments of the alignment will not be allowed to cross the tracks. This would also be the case for mid-block driveways. As stated earlier, these locations will be converted to right-in and right-out traffic operation. Traffic and pedestrian movements that cross the tracks will be accommodated at signalized crossings with special traffic signal phasing to provide safe, separated intervals for train, traffic, and pedestrian crossings.

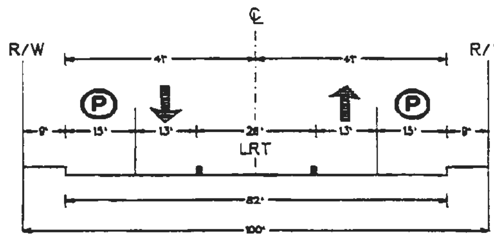
Due to the limited number of crossings of the tracks introduced by the LRT Build Alternative, traffic on streets that do cross the tracks may increase. Pedestrian paths may be modified if pedestrians are not able to cross the tracks at an unauthorized location. Pedestrians would be directed to cross the tracks at the nearest signalized intersection. Emergency vehicles would be the only vehicles allowed to mount the low curb and drive on the tracks.

Shifts in Traffic Patterns along the LRT Alignment

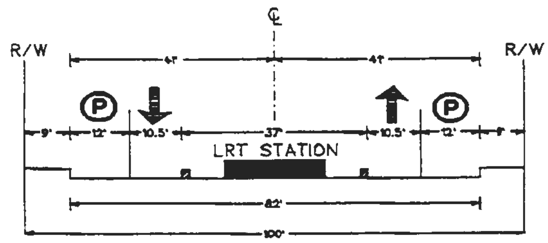
Adjustments to traffic flow patterns due to the proposed LRT project were determined by utilizing MTA model projections developed for this study. The future No-Build and LRT peak hour model data were compared to determine the effects of the proposed project on traffic flow. The PM peak hour link data from each model output were utilized in this analysis. The results of this analysis are summarized below, comparing the 2020 traffic forecasts with the LRT project versus the 2020 traffic forecasts without the LRT.



Existing with Peak Hour Parking Restrictions
(AM Restrictions Westbound, PM Restrictions Eastbound)



Proposed Between Station Areas
with Peak Hour Parking Restrictions
(AM Restrictions Westbound, PM Restrictions Eastbound)



Proposed in Station Areas
with Peak Hour Parking Restrictions
(AM Restrictions Westbound, PM Restrictions Eastbound)

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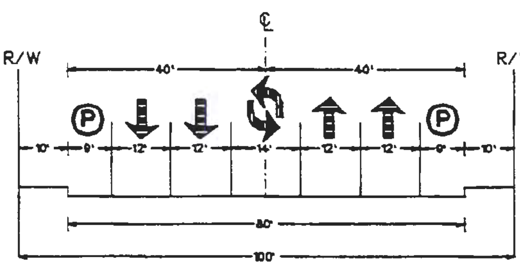
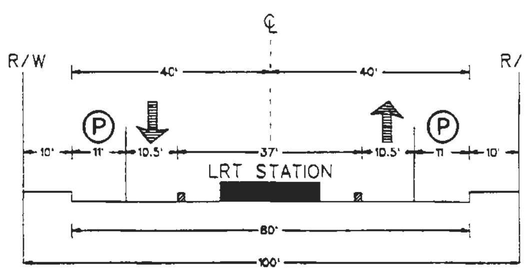
3rd Street Typical Cross-Sections

Figure 3-8



Existing

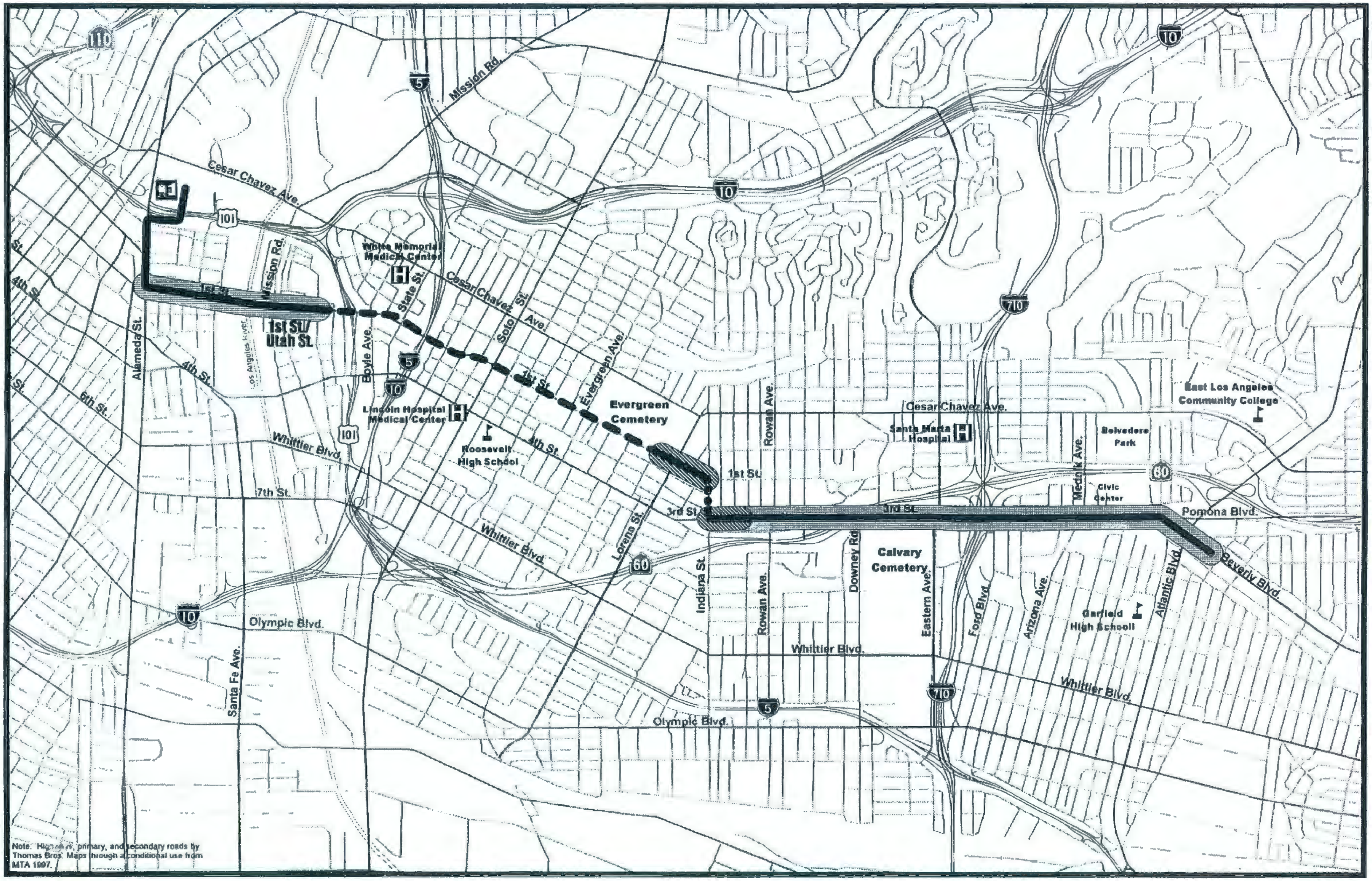


Proposed at Station Areas

Eastside Corridor
Transit Consultants

Beverly Blvd Typical Cross-Section

Figure 3-9



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

Los Angeles Eastside Corridor SEIS/SEIR

LEGEND

One Traffic Lane Removed in Each Direction:
- All Options
- Options 1 and 2 Only

- LRT Alignment not in Tunnel
- LRT Alignment in Tunnel
- Option 1 Only
- Highway
- Primary Road
- Secondary Road

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December 19, 2000

Traffic Lane Reductions

Figure 3-10

TABLE 3-11
SUMMARY OF THROUGH TRAVEL LANES

Street	From	To	Total Number of Traffic Lanes			
			No Build	Option 1	Option 2	Option 3
Alameda St	Commercial St	1st Street	4	4	4	4
1st Street	Alameda St	101 Freeway	4	2	2	2
1st Street[1]	101 Freeway[1]	Fresno St[1]	4[1]	4[1]	4[1]	4[1]
1st Street	Fresno St	Indiana St	4	2	2	4
Indiana St	1st Street	3rd Street	2	2	2	2
3rd Street	Indiana St	Beverly Blvd	5 / 4[2]	3 / 2[3]	3 / 2[3]	3 / 2[3,4]
Beverly Blvd	3rd Street	Hillview Ave	4	2	2	2

[1] There is no at-grade LRT operation in this segment.
[2] 5 lanes during peak periods/4 lanes during off-peak periods.
[3] 3 lanes during peak periods/2 lanes during off-peak periods.
[4] Under Option 3, 3rd Street would have lane reductions between Hicks Avenue and Beverly Boulevard.
Source: Parsons Brinckerhoff, 2000.

- On Cesar Chavez, the traffic volumes increased overall by an average of 2 to 3 percent.
- Along 1st Street, west of Indiana Street, the traffic volumes decreased within a range of 16 to 24 percent. East of Indiana Street, the traffic volumes on 1st Street increased by an average of 12 percent.
- On 3rd Street, the traffic volumes increased by 2 to 3 percent west of Interstate 5. Between I-5 and Indiana the volumes decreased by 3 to 4 percent. Along the alignment, east of Indiana Street, the traffic volumes on 3rd Street decreased by 40 to 45 percent. It is expected that much of the traffic would shift to adjacent parallel facilities in order to avoid traffic conditions due to the effects of the LRT alignment. Because of the reduction in number of travel lanes and/or the restriction of turn movements at key intersections, the 40 to 45 percent reduction could be expected.
- On the north/south roadways, the peak hour traffic volumes in general increased by 2 to 4 percent. The noted exceptions to this were along the alignment. On Alameda Street, the traffic decreased by 5 to 8 percent and along Indiana Street the traffic decreased by an average 24 percent.

The overall shifts in traffic identified above, were applied to the Year 2020 No-Build peak hour turning movement volumes in order to develop the future LRT Build traffic volumes at each of the 54 study intersections.

Intersection Traffic Service

The future intersection geometrics for the No-Build conditions assumed no changes to the existing geometrics. As discussed previously, the proposed LRT project will result in changes to the geometrics at intersections along the alignment. The intersection traffic analysis accounted for these modifications.

The traffic signals on the proposed LRT alignment would require modification. An exclusive signal phase for the LRT would be necessary at most locations. The intersection analysis assumed split phasing at intersections where no exclusive left-turn lane would be available due to the LRT project. The analysis incorporated a capacity reduction factor to reflect the time required by the LRT signal phase. The LRT capacity reduction factor was determined to be equivalent to a V/C of 0.22. This amount was added to the V/C ratio and equates to approximately 300 to 330 passenger cars added to the critical movement. This factor was based upon the following assumptions:

- Operation of 3-car trains at 5-minute headways per direction (train length is assumed to be approximately 270 feet).

- An average street running operating speed of 20 miles per hour.
- An average cross-street width of 80 feet.

The proposed Atlantic/Beverly Station was assessed to account for the patron related traffic utilizing the station. Parking areas are planned for the northeast and southwest corners of this intersection. A total of 200 parking spaces are planned. Future patron projections indicate that approximately 75 kiss-n-ride patrons would utilize the station during the evening peak hour. Traffic generated by the station was estimated and assigned to the local roadway system. Access to the parking and drop-off areas was assumed to be limited to right-turns entering and exiting only.

The future peak hour traffic volumes at the 54 study intersections were determined based upon the anticipated shifts in traffic and accounting for localized station related traffic. The future traffic operations were then analyzed utilizing the projected peak hour traffic volumes and accounting for modifications to the roadway geometrics and signal operations along the proposed alignment. The resulting intersection operations and level of service are provided in Table 3-12. As indicated in the table, 31 intersections are anticipated to operate at level of service D or better. Twenty-three intersections would operate at level of service E or F.

Summary of Impacts

The future intersection operations under the No-Build and LRT Build Alternatives were compared. This comparison identified the study intersections where the LRT Build Alternative would result in significant traffic impacts under CEQA. The significant impact criteria utilized in this comparison were based upon the guidelines set forth by LADOT for the intersections within the City of Los Angeles, and by the County of Los Angeles for the intersections located in the County. The LADOT criteria are provided in Table 3-13, and the County criteria are provided in Table 3-14.

Table 3-15 indicates which locations are expected to be significantly impacted by the proposed LRT Build Alternative. As indicated in the table, 22 study intersections are anticipated to be significantly impacted. The impacts of the three options being considered are the same, with the exception of Option 3 at the intersections of Indiana with 1st and 3rd Street. At these two locations, the alignment under Option 3 remains underground; consequently the No-Build intersection configuration is maintained. It should be noted that 10 intersections are expected to be positively impacted by the proposed LRT Build Alternative.

3.2.4 Mitigation

3.2.4.1 Intersections

The 22 intersections where significant traffic impacts are anticipated were evaluated to determine potential mitigation measures. The following modifications were considered:

- Modifications to intersection geometrics. This improvement was primarily limited to within the existing pavement width. If proposed traffic mitigation would require the narrowing of a sidewalk to provide additional roadway width, it was only considered feasible if a minimum standard sidewalk width could be maintained.
- Changes to signal operations to improve efficiency.
- Signalization of selected intersections that are currently stop-controlled.
- Incorporation of the signal into the ATSAC system. The City of Los Angeles signal network system, referred to as the ATSAC system, coordinates signals for optimal operations.
- Prohibition of left turns at intersections along the alignment. This potential prohibition could allow for the LRT to operate concurrently with adjacent traffic and eliminate the need for split-phasing. This mitigation measure also considered the potential impacts on adjacent locations where the left turns would shift.

TABLE 3-12
2020 LRT BUILD INTERSECTION LEVEL OF SERVICE ANALYSIS

E/W Street	N/S Street	Jurisdiction	Traffic Conditions	
			V/C or Delay	LOS
Cesar Chavez Av	Vignes St	LADOT	0.851	D
Cesar Chavez Av	Mission Rd	LADOT	0.769	C
Cesar Chavez Av	Boyle Ave	LADOT	0.608	B
Cesar Chavez Av	State	LADOT	0.733	C
Cesar Chavez Av	I-5 SB Ramps	LADOT	13.2	B
Cesar Chavez Av	I-5 NB Ramps	LADOT	0.467	A
Cesar Chavez Av	Soto St	LADOT	0.697	B
Cesar Chavez Av	Evergreen Ave	LADOT	0.657	B
Cesar Chavez Av	Lorena St	LADOT	0.636	B
Cesar Chavez Av	***Indiana St***	***LA County***	***48.2***	***E***
Cesar Chavez Av	Rowan Ave	LA County	0.676	B
Cesar Chavez Av	Eastern Ave	LA County	0.693	B
Cesar Chavez Av	***Mednik Ave***	***LA County***	***1.165***	***F***
Cesar Chavez Av	***Atlantic Blvd***	***Monterey Park***	***1.113***	***F***
Commercial St	***Alameda St***	***LADOT***	***0.924***	***E***
Commercial St	***Vignes St***	***LADOT***	*****	***F***
Temple St	***Alameda St***	***LADOT***	***1.611***	***F***
1st St	***Alameda St***	***LADOT***	***2.244***	***F***
1st St	***Vignes St***	***LADOT***	***1.657***	***F***
1st St	***Mission Rd***	***LADOT***	***1.738***	***F***
1st St	***101 SB Ramps***	***LADOT***	***58.8***	***F***
1st St	101 NB Ramps	LADOT	0.408	A
1st St	Boyle Ave	LADOT	0.541	A
1st St	Soto St	LADOT	0.785	C
1st St	Evergreen Ave	LADOT	0.485	A
1st St	***Lorena St***	***LADOT***	***1.131***	***F***
1st St	***Indiana St***	***LADOT***	***1.215***	***F***
1st St	***Alma Ave***	***LA County***	*****	***F***
1st St	Rowan Ave	LA County	0.399	A
1st St	Eastern Ave	LA County	0.515	A
1st St	Mednik Ave	LA County	0.608	B
1st St	***Atlantic Blvd***	***Monterey Park***	***1.120***	***F***
3rd St	Alameda St	LADOT	0.595	A
4th St	Alameda St	LADOT	0.789	C
4th St	101 SB Ramps	LADOT	12.8	B
4th St	101 NB Ramps	LADOT	0.493	A
4th St	Boyle Ave	LADOT	0.450	A
4th St	***I-5 SB Ramps***	***LADOT***	*****	***F***
4th St	I-5 NB Ramps	LADOT	0.672	B
4th St	Soto St	LADOT	0.665	B
4th St	Evergreen Ave	LADOT	0.479	A
4th St	Euclid Ave	LADOT	0.478	A
3rd St	***Indiana St***	***LADOT***	***1.340***	***F***
3rd St	Alma Ave	LA County	9.5	A

TABLE 3-12 (continued) 2020 LRT BUILD INTERSECTION LEVEL OF SERVICE ANALYSIS				
E/W Street	**N/S Street**	**Jurisdiction**	**Traffic Conditions**	
			V/C or Delay	**LOS**
3rd St	*Rowan Ave*	*LA County*	*1.000*	*E*
3rd St	*Eastern Ave*	*LA County*	*1.345*	*F*
3rd St	*Ford Blvd*	*LA County*	*1.132*	*F*
3rd St	*Mednik Ave*	*LA County*	*1.244*	*F*
3rd St	*Pomona Bl/Beverly Bl/Woods Av*	*LA County*	*1.016*	*F*
Pomona Blvd	*Atlantic Blvd*	*LA County*	*0.977*	*E*
Beverly Blvd	*Atlantic Blvd*	*LA County*	*2.114*	*F*
Beverly Blvd	Hillview Ave	LA County	0.497	A
SR 60 EB Ramp	Atlantic Blvd	LA County	0.779	C
4th St	Atlantic Blvd	LA County	0.686	B

* Denotes delay estimated to be greater than 999.9 sec/veh.
Source: Kaku Associates, 2000.

TABLE 3-13 LADOT INTERSECTION CRITERIA	
Intersection V/C Ratio with Project Traffic	**Significant Increase in V/C ratio from No-Build**
0.701 – 0.800	≥ 0.040
0.801 – 0.900	≥ 0.020
0.901 or greater	≥ 0.010

Source: City of Los Angeles, Department of Transportation, 2000.

TABLE 3-14 LOS ANGELES COUNTY INTERSECTION CRITERIA	
Intersection V/C Ratio with Project Traffic	**Significant Increase in V/C ratio from No-Build**
0.701 – 0.800	≥ 0.040
0.801 – 0.900	≥ 0.020
0.901 or greater	≥ 0.010

Source: County of Los Angeles, Traffic Impact Analysis Guidelines, 1997.

It should be noted that along the alignment, several intersections were considered for left turn prohibitions. However, if the prohibition resulted in increased impacts to adjacent intersections that were already projected to operate at poor levels of service, this type of mitigation measure was not considered. For example, on Alameda Street, there are significant impacts at both Temple Street and 1st Street. The prohibition of left-turns at one of these locations would shift the impacts to the other location. Additionally, along 3rd Street, between Indiana Street and Beverly Boulevard, there are several locations where left-turns could be prohibited. However, the study intersections along 3rd Street are all projected to operate at level of service E or F. A shift of left-turns to an adjacent intersection would impact other locations that are already expected to operate with long delays. In addition, the potential shift of traffic onto adjacent residential streets was not considered a feasible mitigation measure.

TABLE 3-15 SUMMARY OF 2020 LRT BUILD INTERSECTION IMPACTS				
E/W Street	**N/S Street**	**Jurisdiction**	**V/C or Delay Increase**	**Significant Impact**
Cesar Chavez Av	Vignes St	LADOT	0.015	NO
Cesar Chavez Av	Mission Rd	LADOT	0.005	NO
Cesar Chavez Av	Boyle Ave	LADOT	0.006	NO
Cesar Chavez Av	State	LADOT	0.008	NO
Cesar Chavez Av	I-5 SB Ramps	LADOT	0.7	NO
Cesar Chavez Av	I-5 NB Ramps	LADOT	0.013	NO
Cesar Chavez Av	Soto St	LADOT	0.017	NO
Cesar Chavez Av	Evergreen Ave	LADOT	0.02	NO
Cesar Chavez Av	Lorena St	LADOT	0.018	NO
Cesar Chavez Av	Indiana St	LA County	-28.3	NO
Cesar Chavez Av	Rowan Ave	LA County	0.013	NO
Cesar Chavez Av	Eastern Ave	LA County	0.02	NO
Cesar Chavez Av	***Mednik Ave***	***LA County***	***0.024***	***YES***
Cesar Chavez Av	***Atlantic Blvd***	***Monterey Park***	***0.048***	***YES***
Commercial St	***Alameda St***	***LADOT***	***0.331***	***YES***
Commercial St	***Vignes St***	***LADOT***	*	***YES***
Temple St	***Alameda St***	***LADOT***	***0.768***	***YES***
1st St	***Alameda St***	***LADOT***	***1.157***	***YES***
1st St	***Vignes St***	***LADOT***	***1.062***	***YES***
1st St	***Mission Rd***	***LADOT***	***0.84***	***YES***
1st St	***101 SB Ramps***	***LADOT***	***22.4***	***YES***
1st St	101 NB Ramps	LADOT	-0.029	NO
1st St	Boyle Ave	LADOT	-0.072	NO
1st St	Soto St	LADOT	-0.05	NO
1st St	Evergreen Ave	LADOT	-0.053	NO
1st St	***Lorena St***	***LADOT***	***0.68***	***YES***
1st St	***Indiana St***	***LADOT***	***0.543***	***YES***
1st St	***Alma Ave***	***LA County***	*	***YES***
1st St	Rowan Ave	LA County	0.038	NO
1st St	Eastern Ave	LA County	0.033	NO
1st St	Mednik Ave	LA County	0.043	NO
1st St	***Atlantic Blvd***	***Monterey Park***	***0.1***	***YES***
3rd St	Alameda St	LADOT	-0.03	NO
4th St	Alameda St	LADOT	-0.021	NO
4th St	Boyle Ave	LADOT	-0.014	NO
4th St	101 SB Ramps	LADOT	0.3	NO
4th St	101 NB Ramps	LADOT	0.005	NO
4th St	***I-5 SB Ramps***	***LADOT***	*	***YES***
4th St	I-5 NB Ramps	LADOT	0.014	NO
4th St	Soto St	LADOT	0.001	NO
4th St	Evergreen Ave	LADOT	0.018	NO
4th St	Euclid Ave	LADOT	0.003	NO
3rd St	***Indiana St***	***LADOT***	***0.317***	***YES***
3rd St	Alma Ave	LA County	-14	NO

TABLE 3-15 (continued) SUMMARY OF 2020 LRT BUILD INTERSECTION IMPACTS				
E/W Street	**N/S Street**	**Jurisdiction**	**V/C or Delay Increase**	**Significant Impact**
3rd St	***Rowan Ave***	***LA County***	***0.299***	***YES***
3rd St	***Eastern Ave***	***LA County***	***0.406***	***YES***
3rd St	***Ford Blvd***	***LA County***	***0.565***	***YES***
3rd St	***Mednik Ave***	***LA County***	***0.522***	***YES***
3rd St	***Pomona Bl/Beverly Bl/Woods Av***	***LA County***	***0.143***	***YES***
Pomona Blvd	Atlantic Blvd	LA County	-0.004	NO
Beverly Blvd	***Atlantic Blvd***	***LA County***	***0.963***	***YES***
Beverly Blvd	Hillview Ave	LA County	-0.134	NO
SR 60 EB Ramp	***Atlantic Blvd***	***LA County***	***0.088***	***YES***
4th St	Atlantic Blvd	LA County	0.037	NO

* LRT intersection delay is estimated to exceed 999.9 sec/veh.
Source: Kaku Associates, 2000.

Based upon the mitigation measures considered to be feasible, the following improvements are proposed:

- Cesar Chavez Avenue and Mednik Avenue – Restripe the westbound and eastbound Cesar Chavez approaches to provide the following: one left-turn lane, one through lane, and one shared through/right-turn lane.
- Cesar Chavez Avenue and Atlantic Boulevard – Restripe the westbound and eastbound Cesar Chavez approaches to provide the following: one left-turn lane, two through lanes, and an exclusive right-turn lane.
- Commercial Street and Alameda Street – Contribute to the design and implementation of ATSAC.
- Commercial Street and Vignes – Signalization of this intersection is proposed.
- Temple Street and Alameda Street – Contribute to the design and implementation of ATSAC.
- 1st Street and Alameda Street – Contribute to the design and implementation of ATSAC.
- 1st Street and Vignes Street – Contribute to the design and implementation of ATSAC.
- 1st Street and Mission Road – Contribute to the design and implementation of ATSAC.
- 1st Street and 101 SB Ramps – Signalization of this intersection is proposed.
- 1st Street and Lorena Street – Prohibit the eastbound and westbound left-turns. This would result in permissive east/west signal phasing and accommodate the LRT during the permissive phase.
- 1st Street and Indiana Street – Prohibit the eastbound left-turns. The signal phasing in the westbound direction would accommodate a protected only left-turn phase. The north/south phasing would be split and the LRT would be accommodated during the northbound signal phase. Connect this signal to the ATSAC system.
- 1st Street and Alma Avenue – Signalization of this intersection is proposed.
- 1st Street and Atlantic Boulevard – Restripe the westbound approach from SR 60 WB Ramp to provide the following: one left-turn lane, one through lane, and an exclusive right-turn lane. Restripe the eastbound approach on 1st Street to provide the following: one left-turn lane and two exclusive right-turn lanes.
- 4th Street and I-5 SB Ramps – Signalization of this intersection is proposed.
- 3rd Street and Indiana Street – Prohibit the westbound left-turn. The eastbound phase would accommodate a protected only left-turn. The westbound direction would have permissive phasing. The northbound and southbound directions would be split phase. The LRT would operate during the southbound signal phase. Connect this signal to the ATSAC system.

- 3rd Street and Rowan Avenue – Impose peak hour parking restrictions in the westbound direction. The westbound approach on 3rd Street would accommodate: one shared left-turn/through lane and one shared through/right-turn lane.
- 3rd Street and Eastern Avenue – Impose peak hour parking restrictions in the westbound direction. The westbound approach on 3rd Street would accommodate: one shared left-turn/through lane and one shared through/right-turn lane.
- 3rd Street and Ford Boulevard – Impose peak hour parking restrictions in the westbound direction. The westbound approach on 3rd Street would accommodate: one shared left-turn/through lane and one shared through/right-turn lane.
- 3rd Street and Mednik Avenue – Impose peak hour parking restrictions in the westbound direction. The westbound approach on 3rd Street would accommodate one shared left-turn/through lane and one shared through/right-turn lane.
- 3rd Street and Pomona Bl/Beverly Bl/Woods Av – Impose peak hour parking restrictions on Beverly Boulevard. The northbound approach on Beverly Boulevard would accommodate: one lane from Beverly to 3rd Street and one shared lane from Beverly to both 3rd Street and Woods Avenue.
- Beverly Boulevard and Atlantic Boulevard – Prohibit the eastbound left-turn on Beverly Boulevard. Impose peak hour parking restrictions on Beverly Boulevard. The westbound approach on Beverly would provide the following: one shared left-turn/through lane and one shared through/right-turn lane. The eastbound approach on Beverly would provide the following: one through lane and one shared through/right-turn lane.
- SR 60 EB Ramp and Atlantic Boulevard – No mitigation measures are considered feasible at this location.

3.2.4.2 Impacts After Mitigation

The results of the intersection level of traffic service analysis with the mitigation measures are provided in Table 3-16. The table indicates those locations where residual significant impacts would occur. The following 14 intersections would continue to be impacted to significant levels with the proposed mitigation measures:

- Commercial Street and Alameda Street
- Temple Street and Alameda Street
- 1st Street and Alameda Street
- 1st Street and Vignes Street
- 1st Street and Mission Road
- 1st Street and Indiana Street
- 3rd Street and Indiana Street
- 3rd Street and Rowan Avenue
- 3rd Street and Eastern Avenue
- 3rd Street and Ford Boulevard
- 3rd Street and Mednik
- 3rd Street and Pomona Bl/Beverly Bl/Woods Av
- Beverly Boulevard and Atlantic Boulevard
- SR 60 EB Ramp and Atlantic Boulevard

TABLE 3-16
2020 LRT BUILD (WITH MITIGATION) INTERSECTION LEVEL OF SERVICE ANALYSIS

E/W Street	N/S Street	Jurisdiction	LRT w/ Mitigation		V/C Increase	Residual Impact
			V/C	LOS		
Cesar Chavez Av	Mednik Av	LA County	1.027	F	-0.114	NO
Cesar Chavez Av	Atlantic Bl	Monterey Park	0.980	E	-0.085	NO
Commercial St	***Alameda St***	***LADOT***	***0.897***	***D***	***0.304***	***YES***
Commercial St	Vignes St	LADOT	0.796	C	N/A	NO
Temple St	***Alameda St***	***LADOT***	***1.564***	***F***	***0.721***	***YES***
1st St	***Alameda St***	***LADOT***	***2.179***	***F***	***1.092***	***YES***
1st St	***Vignes St***	***LADOT***	***1.609***	***F***	***1.014***	***YES***
1st St	***Mission Rd***	***LADOT***	***1.624***	***F***	***0.726***	***YES***
1st St	101 SB Ramps	LADOT	0.605	B	N/A	NO
1st St	Lorena St	LADOT	0.551	A	0.100	NO
1st St	***Indiana St***	***LADOT***	***1.001***	***F***	***0.329***	***YES***
1st St	Alma Av	LA County	0.550	A	N/A	NO
1st St	Atlantic Bl	Monterey Park	0.995	E	-0.025	NO
4th St	I-5 SB Ramps	LADOT	0.679	B	N/A	NO
3rd St	***Indiana St***	***LADOT***	***1.034***	***F***	***0.010***	***YES***
3rd St	***Rowan Av***	***LA County***	***0.901***	***E***	***0.200***	***YES***
3rd St	***Eastern Av***	***LA County***	***1.289***	***F***	***0.350***	***YES***
3rd St	***Ford Bl***	***LA County***	***0.988***	***E***	***0.421***	***YES***
3rd St	***Mednik Av***	***LA County***	***1.153***	***F***	***0.431***	***YES***
3rd St	***Pomona/Beverly/ Woods***	***LA County***	***0.929***	***E***	***0.056***	***YES***
Beverly Bl	***Atlantic Bl***	***LA County***	***1.397***	***F***	***0.246***	***YES***
SR 60 EB Ramp	***Atlantic Bl***	***LA County***	***0.779***	***C***	***0.088***	***YES***

N/A = Not Applicable.
Source: Kaku Associates, 2000.

There are several locations where left-turn prohibitions are recommended as mitigation measures. These prohibitions result in a re-routing of traffic within the study area. Five intersections, shown in Table 3-17, will be affected by this re-routed traffic. As indicated in the table, the re-routed traffic is not anticipated to significantly impact these five locations.

TABLE 3-17
LRT BUILD (WITH ADJACENT MITIGATIONS)
INTERSECTION LEVEL OF SERVICE ANALYSIS

E/W Street	N/S Street	Jurisdiction	LRT w/Adjacent Mitigation		V/C Increase	Significant Impact
			V/C or Delay	LOS		
Cesar Chavez Av	Evergreen Av	LADOT	0.657	B	0.02	NO
Cesar Chavez Av	Lorena St	LADOT	0.667	B	0.049	NO
Cesar Chavez Av	Indiana St	LA County	45.4	E	-31.1	NO
1st St	Evergreen Av	LADOT	0.577	A	0.039	NO
Pomona Bl	Atlantic Bl	LA County	0.983	E	0.002	NO

Source: Kaku and Associates, 2000.

The local access changes due to the introduction of the LRT tracks will be implemented with the use of signage and physical designs that discourage the crossing of the tracks by vehicles, bicyclists, and pedestrians at prohibited locations. Appropriate traffic control devices, signage, and physical designs will be provided at signalized intersections where crossing would be allowed. Maps of the crossing opportunities will be made available to the community once the LRT project is in place to encourage the safe crossing of the tracks. Presentations and information will be made available at local schools, community groups, and social services locations to educate residents about safety related to the track crossing issue. Enforcement will also be provided to raise awareness of the crossing prohibitions and direct people to legally cross the tracks at designated locations.

3.3 PARKING

3.3.1 Affected Environment

A comprehensive data collection effort was undertaken to develop a detailed description of the street characteristics along the LRT alignment, including the availability of on-street parking. The collected data provides the number of travel lanes by direction, type of median, speed limit, and the presence of on-street parking and associated parking restrictions, if any. Along most of the alignment, parking regulations permit on-street parking in one or both directions during peak hours and in both directions during off-peak hours. Table 3-18 provides a summary of this information.

3.3.2 Impacts

3.3.2.1 No-Build Alternative

The No-Build Alternative has no impact on the number of on-street parking spaces in the Eastside Corridor.

3.3.2.2 LRT Build Alternative

Since the LRT Build Alternative will utilize existing roadway space along its alignment where it is at-grade, there will be a reduction in traffic lanes and/or parking spaces along these street segments. The three options involved with the transition from 1st to 3rd Streets near Indiana Street have different parking impacts. Each option is evaluated in this analysis.

Parking supply was based on 1999 and 2000 field surveys to inventory the number of parking spaces available. Every street segment was surveyed along the alignment where it has an at-grade profile. The survey also yielded parking restriction information on each of the street segments to determine whether parking is permitted in each block. For example, the presence of a 24-hour parking prohibition on a block where the LRT is running would yield no potential parking impact because there was no parking available in the No-Build condition.

The number of parking spaces removed was estimated based on the characteristics of each street segment and the proposed LRT street cross-sections. As the typical cross-sections illustrate in Figures 3-6 and 3-8, 1st Street has a curb-to-curb width of 56 feet and 3rd Street has a curb-to-curb width of 82 feet. Parking impacts are different on 1st Street under the LRT Build Alternative scenario than on 3rd Street because of the differing curb-to-curb street widths. The anticipated impacts along each of the street segments that the alignment would traverse are discussed below.

TABLE 3-18
EXISTING ROADWAY CHARACTERISTICS

Segment	From	To	No. Lanes		Median Type	Parking Restrictions		Speed Limit
			NB/ EB	SB/ WB		NB/EB	SB/WB	
Alameda St	Commercial St	Temple St	3	3	2LT	NSAT	NSAT	35
	Temple St	1st St	2	2	2LT	NSAT	NSAT	35
1st St	Alameda St	Rose St	2	2	DY	NSAT	NSAT	30
	Rose St	Vignes St	2	2	DY	2HR (m)PA 8a-4p (NS 4-6p)	2HR (m)PA 9a-6p (NS 7a-9p)	30
	Vignes St	Mission Rd	2	2	DY	NSAT	NSAT	30
	Mission Rd	Anderson St	2	2	DY	NSAT	NSAT	30
	Anderson St	Clarence St	2	2	DY	1HR PA 8a-4p (NS 4-7p)	1HR PA 9a-6p (NS 7a-9p)	30
	Clarence St	Gless St	2	2	DY	1HR PA 8a-4p (NS 4-7p)	PA (NS 7-9a)	30
	Gless St	Boyle Av	2	2	DY	NSAT	NSAT	30
	Boyle Av	Mathews St	2	2	DY	1HR (m)PA 8a-6p	1HR (m)PA 8a-6p	30
	Mathews St	Fickett St	2	2	DY	1HR (m)PA 8a-6p	1HR (m)PA 8a-6p	30
	Fickett St	Mott St	2	2	DY	PA	1HR (m)PA 8a-6p	30
	Mott St	Saratoga St	2	2	2LT	NPAT 8a-6p	PA	30
	Saratoga St	Savannah St	2	2	DY	NPAT 7a-5p	PA	30
	Savannah St	Lorena St	2	2	DY	PA	PA	30
	Lorena St	Cheesbroughs Ln	2	2	DY	1HR PA 8a-6p	PA	30
	Cheesbroughs Ln	Indiana St	2	2	DY	1HR PA 8a-6p	NSAT	30
Indiana St	1st St	3rd St	1	1	SDY	PA	PA	30
3rd St	Indiana St	Gage St	2(3)	2(3)	2LT	PA (NS 4-6p)	PA (NS 6:30-9a)	35
	Gage St	Herbert Av	2(3)	2(3)	RM	PA (NS 4-6p)	PA (NS 6:30-9a)	35
	Herbert Av	Downey Rd	3	3	RM	NSAT	NSAT	35
	Downey Rd	Sunol Dr	3	3	RM	NSAT	NSAT	35
	Sunol Dr	Eastern Av	2(3)	2(3)	2LT	PA (NS 4-6p)	PA (NS 6:30-9a)	35
	Eastern Av	Humphreys Av	2(3)	2(3)	2LT	PA (NS 4-6p)	PA (NS 6:30-9a)	35
	Humphreys Av	Ford Bl	2(3)	2(3)	DY	PA (NS 4-6p)	PA (NS 6:30-9a)	35
	Ford Bl	Mednik Av	2(3)	2(3)	2LT	PA (NS 4-6p)	PA (NS 6:30-9a)	35
	Mednik Av	Fetterly Av	2(3)	2(3)	2LT	PA (NS 4-6p)	2HR PA 9a-6p (NS 6:30-9a)	35
	Fetterly Av	Beverly Bl	2(3)	2(3)	2LT	PA (NS 4-6p)	PA (NS 6:30-9a)	35
Beverly Bl	3rd St	Atlantic Bl	2	2	RM	PA	2HR PA 8a-5p	35
	Atlantic Bl	Margaret St	2	2	RM	2HR PA 7a-6p	2HR PA 7a-6p	35

Notes:
Lanes: #(#)= Number of Lanes (Lanes during Peak Hours)
Parking: (m) = Metered Parking
PA = Parking Allowed with No Restrictions except for Street Sweeping
NSAT = No Stopping Anytime NPAT = No Parking Anytime

Median Type:
DY = Double Yellow Centerline
RM = Raised Median
2LT = Dual Left Turn Centerline
SDY = Single Dashed Yellow Centerline

Source: Field Survey, Jenkins/Gales & Martinez, 1999.

Commercial Street

In the section of Commercial Street that will be affected by the LRT alignment aerial structure and at-grade section, curb parking is currently prohibited. There will be no parking impacts along Commercial Street.

Alameda Street

In the section of Alameda Street that will be affected by the LRT alignment between Commercial Street and 1st Street, curb parking is currently prohibited. There will be no parking impacts along Alameda Street.

1st Street

Figure 3-6 in Section 3.2 shows the typical cross-section dimensions and lane configurations for the existing conditions and the LRT Build Alternative scenario both at a station and between stations at-grade. There are no parking impacts at locations where the LRT is in a tunnel profile except near the portals at each end of the tunnel. There will be parking spaces removed on 1st Street in the vicinity of at-grade LRT stations under the LRT Build Alternative scenario. The curb-to-curb street width on 1st Street (56 feet) is not sufficient to accommodate the light rail system in the center of the street and maintain one traffic lane plus parking in each direction in the vicinity of at-grade stations or near tunnel portals located near Utah Street and Lorena Street (Options 1 and 2) and Hicks Avenue (Option 3). In areas between stations on 1st Street, existing curb parking will be retained and sidewalks narrowed from 12 feet to 8 feet in order to provide sufficient space for a traffic lane and parking. In order to retain parking spaces in the high demand area on the south side of 1st Street west of Lorena near the portal (Options 1 and 2 only), the LRT alignment will be shifted to the north by five feet and the north side sidewalk will be reduced to a 3-foot width.

Parking impacts are described in the following sections under each alternative option. Table 3-19 shows the number of parking spaces that would be removed in each block along 1st Street where the LRT has an at-grade profile under each LRT Build Alternative option. Blocks where the LRT is in a tunnel profile and away from tunnel portals are not included in the table because there will be no parking impacts in these blocks. Within Table 3-19, parking data is disaggregated for each roadway segment along 1st Street by side of the street, spaces available, and by time period (AM Peak, Off-Peak, and PM Peak). Peak hour parking prohibitions have been identified on 1st Street west of the 101 Santa Ana Freeway. Since peak hour parking prohibitions restrict the parking supply during peak hours, the number of parking spaces removed during the peak periods will be less.

1st Street Impacts under Options 1 and 2

Parking impacts on 1st Street under Options 1 and 2 are identical. Options 1 and 2 impact on-street parking on 1st Street in three areas: from Alameda Street to Vignes Street, from Anderson Street to the 101 Freeway, and from 200 feet west of Concord Street to Cheesbroughs Street. There will be no parking impacts on 1st Street in the areas where the LRT is in a tunnel profile, except in the vicinity of the portals near Utah Street and Lorena Street. There will also be no parking impacts between Cheesbroughs and Indiana Streets. In these blocks, sidewalks will be narrowed from 12 to 8 feet and parking will be retained. Parking is currently prohibited on the 1st Street Bridge over the Los Angeles River between Vignes Street and Mission Road.

TABLE 3-19 PARKING IMPACTS ON 1st STREET NEAR STATIONS AND TUNNEL PORTALS						
Block		Side of Street	Spaces Available	Spaces Removed AM Peak	Spaces Removed Off-Peak	Spaces Removed PM Peak
From	To					
Alameda	Rose	North	4	0	4	4
		South	0	0	0	0
Rose	Hewitt	North	6	0	6	6
		South	6	6	6	0
Hewitt	Garey	North	9	0	9	9
		South	5	5	5	0
Garey	Vignes	North	1	0	1	1
		South	1	1	1	0
Vignes	Mission	North	0	0	0	0
		South	0	0	0	0
Mission	Anderson	North	0	0	0	0
		South	0	0	0	0
Anderson	Utah	North	12	0	12	12
		South	12	12	12	0
Utah	Clarence	North	12	0	12	12
		South	10	10	10	0
Clarence	Gless	North	10	0	10	10
		South	9	9	9	0
Gless	Pecan	North	8	0	8	8
		South	6	6	6	0
Pecan	US-101 SB Ramp	North	0	0	0	0
		South	0	0	0	0
Fresno[1]	Concord[1]	North	20	8[1]	8[1]	8[1]
		South	27	0	0	0
Concord[1]	Lorena[1]	North	14	14	14[1]	14[1]
		South	14	0	0	0
Lorena[1]	Cheesbroughs[1]	North	9	7[1]	7[1]	7[1]
		South	7	0	0	0
Cheesbroughs	Velasco	North	8	0	0	0
		South	6	0	0	0
Velasco	Indiana	North	4	0	0	0
		South	1	0	0	0
	TOTALS	Option 1	221	83	140	94
		Option 2	221	83	140	94
		Option 3	221	54	111	65

[1] Under Option 3, these blocks of 1st Street will not have on-street parking spaces removed.
Source: Parsons Brinckerhoff, 2000.

During the AM Peak period, 83 on-street parking spaces would be removed under Options 1 and 2. During the Midday period, 140 spaces would be removed, and 94 parking spaces would be removed during the PM Peak period. The spaces removed between Alameda Street and the Los Angeles River are metered, 1-hour only spaces. The remainder of the spaces removed are unmetered spaces. The impacted spaces located between the Los Angeles River and the 101 Freeway and between Lorena and Indiana Streets have a 1-hour time limit, but are not metered. Between Fresno and Lorena Streets, on-street parking is unrestricted. In the area where there are peak hour parking prohibitions (between Alameda

Street and the 101 Freeway), spaces would be removed on the south side of the street (eastbound travel direction) in the AM Peak period (7-9 a.m.) and on the north side of the street (westbound travel direction) in the PM Peak period (4-6 p.m.). Parking on both sides of the street would be removed in the Midday period in this section.

1st Street Impacts under Option 3

The parking impact on 1st Street is less under Option 3 because of the extension of the tunnel profile of the LRT system. Under Option 3, the tunnel is extended beyond 1st Street near Lorena Street to 3rd Street. There is no at-grade LRT operation on 1st Street east of the Utah Street tunnel portal just west of the 101 Freeway. The only parking impacts on 1st Street under Option 3 occur west of the 101 Freeway. Parking would be removed from Alameda to Vignes Streets and from Anderson Street to the 101 Freeway.

During the AM Peak period, 54 on-street parking spaces would be removed under Option 3. During the Midday period, 111 spaces would be removed, and 65 spaces would be removed during the PM Peak period. The spaces removed between Alameda Street and the Los Angeles River are metered, 1-hour only spaces. The remainder of the spaces removed are free, non-metered spaces. The impacted spaces that are located between the Los Angeles River and the 101 Freeway have a 1-hour time limit, but are not metered. In the area where there are peak hour parking prohibitions (between Alameda Street and the 101 Freeway), spaces would be removed on the south side of the street (eastbound travel direction) in the AM Peak period (7-9 a.m.) and on the north side of the street (westbound travel direction) in the PM Peak period (4-6 p.m.).

Indiana Street

Table 3-20 shows the number of parking spaces that would be removed in each block along Indiana Street under Option 1, the only option where on-street parking spaces would be removed on Indiana Street. Parking data on the table is disaggregated for each roadway segment along Indiana Street by side of the street, spaces available, and by time period (AM peak, off-peak, and PM peak). Because Indiana Street has no peak-hour parking prohibitions, parking impacts are the same for each time period during the day.

Indiana Street would have no parking impacts under Options 2 and 3. Options 1 and 2 both have the LRT alignment on Indiana Street, but under Option 2, the street would be widened to accommodate both LRT and the same on-street parking condition that exists today. Option 1 removes all parking on Indiana Street along the LRT alignment (between 1st and 3rd Streets). The number of on-street parking spaces removed under Option 1 is 48 for all time periods during the day. Option 3 has no portion of the LRT alignment on Indiana Street, and there are no parking impacts on this street under this option. No on-street parking spaces have time restrictions or meters except for weekly street-sweeping operations.

Parking Utilization Analysis

A parking utilization analysis study was conducted in order to assess the demand for parking on Indiana Street because multiple options are being considered for the alignment in this area. The study was conducted in the Midday and PM Peak periods, and one parking count was performed at 10:00 p.m. in order to assess nightly parking utilization. Parking counts were performed on Thursday, June 15, 2000 between 12:00 p.m. and 6:00 p.m. The number of cars parked on the street was tallied at half-hour intervals with one count being performed at 10:00 p.m.

TABLE 3-20 PARKING IMPACTS ON INDIANA STREET UNDER OPTION 1[1]						
Block		**Side of Street**	**Spaces Available**	**Spaces Removed AM Peak**	**Spaces Removed Off-Peak**	**Spaces Removed PM Peak**
From	**To**					
1st Street	Gleason	East	6	6	6	6
		West	8	8	8	8
Gleason	2nd Street	East	14	14	14	14
		West	10	10	10	10
2nd Street	3rd Street	East	6	6	6	6
		West	4	4	4	4
	Total	**Option 1**	**48**	**48**	**48**	**48**

[1] Indiana Street will only have parking impacts under Option 1.
Source: Parsons Brinckerhoff, 2000.

The results of the utilization study are found in Tables 3-21 and 3-22. Overall parking utilization rates tend to be clustered in the 45%-60% range for both sides of Indiana Street between 1st and 3rd Streets. There are several hours where parking utilization is over 65% with one hour showing a utilization of 100% on the west side of the street between Gleason and 2nd Street. Although the northern block between 1st and Gleason Streets has some commercial uses, there is a substantial amount of residential uses on the west side of Indiana. The east side of the street contains Ramona High School. Table 3-21 shows a summary of parking utilization rates combining the three blocks between 1st and 3rd Streets on Indiana Street.

TABLE 3-21 INDIANA STREET PARKING UTILIZATION SUMMARY BY TIME OF DAY			
Time Period	**Side of Street**	**Spaces Available**	**Utilization Rate**
Midday	East	26	53%
	West	22	45%
PM Peak	East	26	45%
	West	22	61%
Night	East	26	46%
	West	22	32%

Source: Parsons Brinckerhoff, 2000.

3rd Street

In the section of 3rd Street that will be affected by the LRT alignment, all existing parking regulations will be retained. There will be no parking impacts along 3rd Street.

Beverly Boulevard

In the section of Beverly Boulevard that will be affected by the LRT alignment, all existing parking regulations will be retained. There will be no parking impacts along Beverly Boulevard.

TABLE 3-22 PARKING UTILIZATION ANALYSIS ON INDIANA STREET										
			Number of Occupied Spaces							
Block	**Side**	**Capacity**	**Midday**				**PM Peak**			**Night**
			12:00pm	**1:00pm**	**2:00pm**	**3:00pm**	**4:00pm**	**5:00pm**	**6:00pm**	**10:00pm**
1st to Gleason	East	6	1 17%	2 33%	3 50%	1 17%	3 50%	2 33%	3 50%	1 17%
	West	8	3 38%	5 63%	3 38%	3 38%	4 50%	3 38%	1 13%	0 0%
Gleason to 2nd	East	14	8 57%	7 50%	8 57%	8 57%	6 43%	9 64%	5 36%	10 71%
	West	10	5 50%	7 70%	5 50%	5 50%	9 90%	9 90%	10 100%	6 60%
2nd to 3rd	East	6	4 67%	4 67%	4 67%	5 83%	3 50%	3 50%	1 17%	1 17%
	West	4	2 50%	0 0%	0 0%	2 50%	2 50%	1 25%	1 25%	1 25%
Total by Hour	**East**	**26**	**50%**	**50%**	**58%**	**54%**	**46%**	**54%**	**35%**	**46%**
	West	**22**	**45%**	**55%**	**36%**	**45%**	**68%**	**59%**	**55%**	**32%**

Source: Parsons Brinckerhoff, 2000.

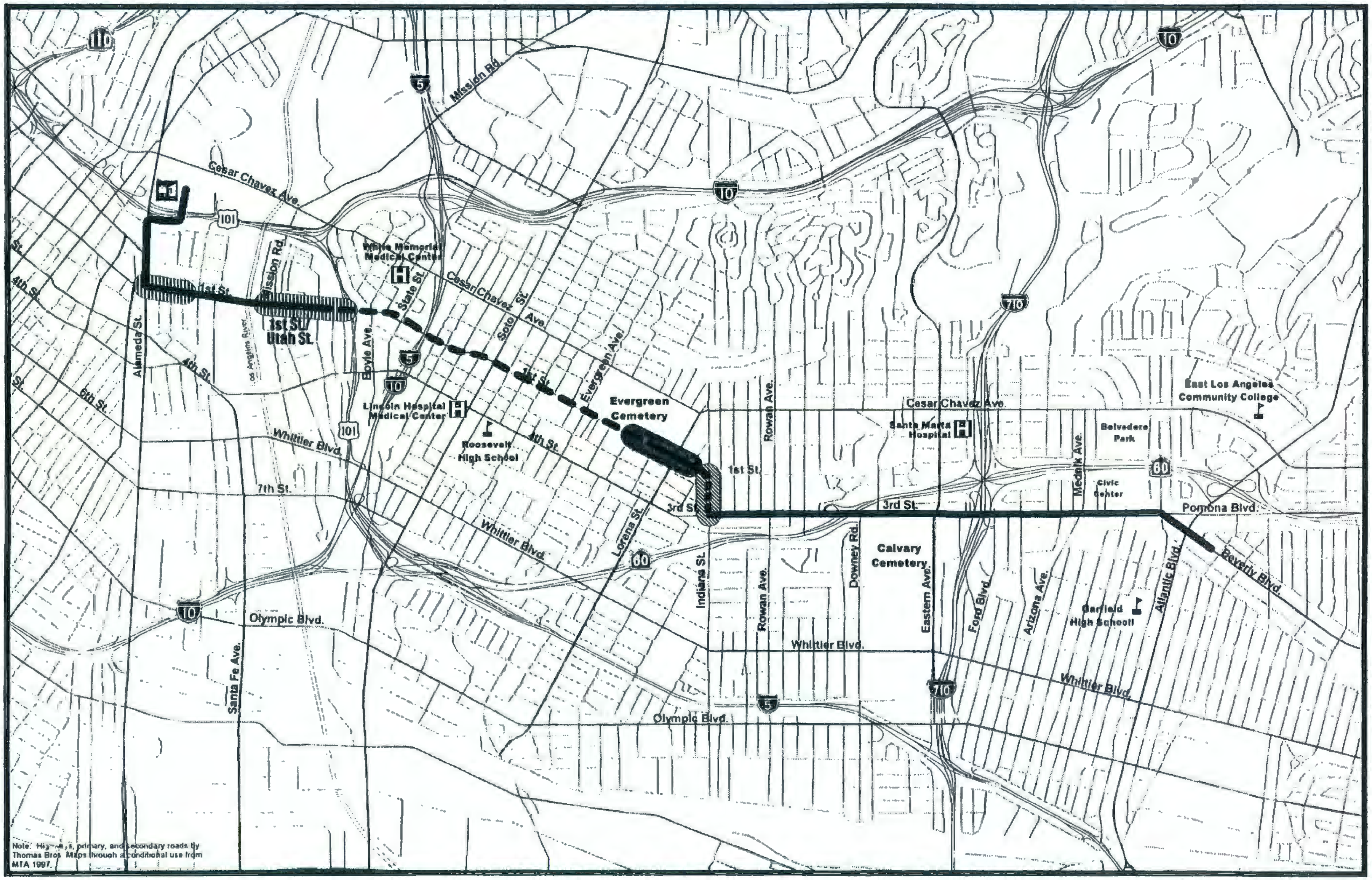
Summary of Parking Impacts

The width of the streets along the LRT alignment largely determine whether curb parking spaces would be removed and during which time period during the day. For all options, 1st Street would have parking removed during all periods of the day. This is also the case for Indiana Street under Option 1. There would be no parking impacts on Commercial Street, Alameda Street, 3rd Street, or Beverly Boulevard. Figure 3-11 shows the locations where on-street parking would be affected along the alignment in the LRT Build Alternative.

Table 3-23 summarizes the numbers of curb parking spaces removed by time period during the day by alignment option. Option 1 has the greatest number of spaces removed, which is due to the removal of parking on Indiana Street during all three time periods. Option 3 has the least number of curb parking spaces removed due to the retention of parking in areas where the LRT is in a subway profile under 1st and Indiana Streets east of Lorena Street. Under Option 1, 188 off-peak spaces would be removed while 131 to 140 spaces would be removed during peak periods. Option 2 would have 140 off-peak spaces and 83 to 94 spaces would be removed during peak periods. Option 3 would remove 111 off-peak spaces and 54 to 65 spaces would be removed during peak periods.

Criteria for Determination of Impacts under CEQA

Based on the previous AA/DEIS/DEIR for which this is a supplement/subsequent document, the impact of the removal of parking spaces related to the project is potentially significant. The MTA is committed to implementing a parking replacement plan which may include options for the replacement of on-street parking are discussed in the mitigation section.



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

LEGEND

On-Street Parking Spaces Removed:

- All Spaces in All Options
- North Side Spces Only Options 1 & 2
- All Spaces Option 1 Only

- LRT Alignment not in Tunnel
- LRT Alignment in Tunnel
- Option 1 Only
- Highway
- Primary Road
- Secondary Road

Eastside Corridor Transit Consultants

December 19, 2000

Los Angeles Eastside Corridor SEIS/SEIR

Summary of Parking Impacts

Figure 3-11

TABLE 3-23 SUMMARY OF PARKING IMPACTS			
Option	**Spaces Removed AM Peak**	**Spaces Removed Off-Peak**	**Spaces Removed PM Peak**
Option 1	131	188	140
Option 2	83	140	94
Option 3	54	111	65
Source: Parsons Brinckerhoff, 2000.			

3.3.3 Mitigation

There are four areas along the alignment where replacement parking may be required if utilization warrants:

- 1st Street between Alameda and Vignes Streets (all options);
- 1st Street between Mission Road and the 101 Freeway (all options);
- 1st Street between Fresno and Indiana Streets (Options 1 and 2); and
- Indiana Street between 1st and 3rd Streets (Option 1 only).

Along 1st Street between Alameda and Vignes Streets, there exist several parcels of land that are currently used for surface off-street parking. A portion of this vacant land could be purchased for use as a surface parking lot to replace the spaces removed on 1st Street. Another option at this location is not to replace the removed parking spaces because of the low utilization of the spaces that currently exist there. A parking utilization study was conducted to estimate the level of parking space utilization in this area and the conclusion was that there was very low parking space utilization during the day. Table 3-24 shows the typical parking utilization for the different periods of the day. The maximum occupancy of spaces in this area was eight cars during the midday period out of a total of 30 spaces available in this area. It may be appropriate in this situation not to mitigate for the removal of parking because of the low utilization rate observed in the existing condition. The land uses in this area are largely industrial with the exception of the Buddhist Temple, which is located near the intersection of Vignes and 1st Streets. Existing off-street parking may be adequate to absorb the low demand for on-street parking spaces in this area.

Between Mission Road and the 101 Freeway, coordination with the City Housing Authority may provide replacement parking north of 1st Street where there are plans to redevelop the Pico Aliso housing tract. Another option is to purchase property in the area to use for replacement parking. A parking utilization study was conducted for this area, and the results indicate relatively low parking demand in this area. During the highest utilization period, the midday, there were 16 cars parked in this section between Mission Road and the 101 Freeway out of a total of 79 total spaces available. The highest utilization was in the block between Anderson and Utah Streets near the location of a convenience store. If the Pico Aliso complex is redeveloped, land uses may change and off-street parking may be provided for any new uses that are located there in the future. The removal of spaces on 1st Street may be off-set by low parking utilization on the side streets off of 1st Street in this area. The side streets just off of 1st Street may have excess on-street parking capacity that could absorb the demand for parking on 1st Street if the spaces are removed.

TABLE 3-24
PARKING UTILIZATION ANALYSIS ON 1st STREET

Block	Side	Capacity	Number of Occupied Spaces: AM Peak 7:30am	AM Peak 8:30am	Midday 12:30pm	PM Peak 4:30pm	PM Peak 5:30pm
Alameda to Rose	North	2	NS 7-9pm	NS 7-9pm	2 **100%**	0 **0%**	0 **0%**
	South	0	NPAT	NPAT	NPAT	NPAT	NPAT
Rose to Hewitt	North	6	NS 7-9pm	NS 7-9pm	3 **50%**	0 **0%**	0 **0%**
	South	6	0 **0%**	0 **0%**	2 **33%**	NS 4-6pm	NS 4-6pm
Hewitt to Garey	North	9	NS 7-9pm	NS 7-9pm	0 **0%**	0 **0%**	0 **0%**
	South	5	1 **20%**	1 **20%**	1 **20%**	NS 4-6pm	NS 4-6pm
Garey to Vignes	North	1	NS 7-9pm	NS 7-9pm	0 **0%**	0 **0%**	0 **0%**
	South	1	0 **0%**	0 **0%**	0 **0%**	NS 4-6pm	NS 4-6pm
Anderson to Utah	North	12	NS 7-9pm	NS 7-9pm	8 **66%**	6 **50%**	7 **58%**
	South	12	2 **17%**	2 **17%**	3 **25%**	NS 4-6pm	NS 4-6pm
Utah to Clarence	North	12	NS 7-9pm	NS 7-9pm	0 **0%**	0 **0%**	0 **0%**
	South	10	0 **0%**	0 **0%**	0 **0%**	NS 4-6pm	NS 4-6pm
Clarence to Gless	North	10	NS 7-9pm	NS 7-9pm	4 **40%**	3 **30%**	3 **30%**
	South	9	0 **0%**	1 **11%**	1 **11%**	NS 4-6pm	NS 4-6pm
Gless to Pecan	North	8	NS 7-9pm	NS 7-9pm	0 **0%**	0 **0%**	0 **0%**
	South	6	0 0%	0 **0%**	0 **0%**	NS 4-6pm	NS 4-6pm
Fresno to Concord	North	20	1 **5%**	0 **0%**	1 **5%**	0 **0%**	2 **10%**
	South	27	20 **74%**	21 **78%**	17 **63%**	20 **74%**	23 **85%**
Concord to Lorena	North	14	1 **7%**	2 **14%**	2 **14%**	2 **14%**	2 **14%**
	South	14	9 **64%**	11 **79%**	10 **71%**	9 **64%**	10 **71%**
Lorena to Cheesbroughs	North	9	3 **33%**	4 **44%**	8 **89%**	7 **78%**	5 **56%**
	South	7	0 **0%**	0 **0%**	4 **57%**	4 **57%**	3 **43%**
Cheesbroughs to Velasco	North	8	5 **63%**	5 **63%**	6 **75%**	2 **25%**	6 **75%**
	South	6	2 **33%**	4 **66%**	5 **83%**	5 **83%**	5 **83%**
Velasco to Indiana	North	4	3 **75%**	3 **75%**	4 **100%**	0 **0%**	0 **0%**
	South	3	3 **100%**	1 **33%**	0 **0%**	0 **0%**	0 **0%**

Source: Parsons Brinckerhoff, 2000. NS = No Stopping. NPAT = No Parking Any Time.

Between Fresno and Indiana Streets under Options 1 and 2, the MTA-owned parcel of land at the northeast intersection of 1st and Lorena Streets could be used to replace on-street spaces removed on 1st Street under these options in this area. However, it may not be necessary to replace the spaces removed in this location due to the very low utilization of the spaces proposed to be removed on the north side of 1st Street west of Lorena Street. The higher parking demand is on the south side of the street, and these spaces will be retained under all three options. East of Lorena Street, the demand for parking on the north side of the street could be absorbed by the remaining spaces along 1st Street and/or by the MTA-owned parcel located in the vicinity. The number of spaces removed east of Lorena Street is seven where the demand is high.

On Indiana Street under Option 1, development of a potential off-street parking lot will be considered for replacement parking. The relatively high utilization of on-street parking spaces on Indiana Street may preclude the possibility of demand being sufficiently transferred to side streets, such as 2nd or Gleason Streets. There would be no parking spaces removed on Indiana Street under Options 2 or 3, and therefore no replacement parking would be sought under these two options.

3.3.3.1 Impacts Remaining after Mitigation

The MTA is committed to implementing a parking replacement plan which will reduce parking impacts to a less than significant level under Options 1, 2 or 3.

3.4 OTHER MODES

3.4.1 Affected Environment

The areas that may have potential impacts on pedestrians and bicyclists include the streets and intersections where the LRT has an at-grade profile. This area includes Alameda Street between Commercial and 1st Streets, 1st Street between Alameda Street and the 101 Freeway and between Fresno and Indiana Streets (Options 1 and 2 only), Indiana Street between 1st and 3rd Streets (Options 1 and 2 only), 3rd Street between Indiana Street and Beverly Boulevard, and Beverly Boulevard between 3rd Street and Hillview Avenue.

3.4.2 Impacts

3.4.2.1 No-Build Alternative

There will be no impacts on bicycle or pedestrian facilities under the No-Build Alternative.

3.4.2.1 LRT Build Alternative

Pedestrians

Sidewalks

According to the 1990 census, approximately 6.7% of residents within the MTA Central Area (census designation), which includes communities along the LRT alignment, walk to work. This is significantly higher than the percent of Los Angeles County and the City of Los Angeles residents that walk to work (3.3% and 3.9% respectively). This indicates that walking is a significant commuting mode within the study area.

The 1994 AASHTO "Green Book" provides guidelines for the width of sidewalks for both urban and residential areas. Sidewalks with a planted strip separating the pedestrian from the curb are recommended to be between 8 and 14 feet wide. The planted strip should be no less than two feet in width to allow for maintenance access. Where planted strips are not an option, such as in urban settings, sidewalks are recommended to be 6 to 9.8 feet wide. This space closest to the curb allows for a buffer against moving traffic as well as space for street hardware, including light poles, meters, and street signs. The City of Los Angeles' guidelines indicate secondary arterial sidewalk widths of between 9 and 10.7 feet.

Alameda Street

Between Commercial and 1st Streets on Alameda where the LRT system would operate at-grade, sidewalk widths would not change. The street would be widened to the east and landscaped in order to maintain the current number of traffic lanes and preserve existing sidewalk widths. Sidewalks are currently 10 feet wide north of Temple Street and 8 feet wide south of Temple. There would be no impact on sidewalks along Alameda Street under the LRT Build Alternative.

1st Street

At certain 1st Street locations, sidewalks would be narrowed from 12 to 8 feet or less to accommodate LRT stations within existing right-of-way. This would occur specifically in the vicinities of the 1st/Utah Station (from east of Mission Street to west of Clarence Street) and the 1st/Lorena Station (from west of Concord Street to Indiana Street). However, where feasible in redevelopment areas, full-width sidewalks may be restored if planned in conjunction with new development.

Indiana Street

Of the three proposed options for Indiana Street, only Option 1 would affect sidewalk widths. The existing west side sidewalk between 1st Street and 3rd Street, currently 8 feet wide, would be reduced to 6 feet and curb parking would be removed under this scenario. Options 2 and 3 would maintain the current sidewalk widths, and curb parking would be maintained. No significant pedestrian impacts are anticipated under Options 1, 2 or 3 due to reduced sidewalk widths.

3rd Street

Sidewalks would not be narrowed as part of the LRT street design on 3rd Street under any of the three options. They would remain at the current width of 9 feet.

Crossing Issues

LRT stations would be located near major signalized intersections, where pedestrian crosswalks are currently in place. The station layouts are designed for pedestrians' convenience and safety. As is the design of the existing Metro Blue Line along Washington Boulevard, LRT passengers would enter and exit stations via a ramp that would lead to the crosswalk at signalized intersections. There would be a holding area at this location where pedestrians would wait for a walk signal in order to cross the street to the sidewalk areas.

All of the signalized intersections along the LRT alignment currently have pedestrian call buttons. All intersections that become signalized because of the introduction of the LRT system would be equipped with pedestrian call buttons. Although it may be legal for pedestrians to cross at unsignalized intersections in the existing condition, these movements would be prohibited across the LRT tracks in order to minimize potential conflicts. Signs would be placed at these unsignalized locations indicating that crossing is prohibited and that the nearest safe crossing is nearby at a signalized crosswalk.

The possibility of conflicts between trains and pedestrians may occur at the tunnel portal locations along the LRT alignment if pedestrians attempt to enter the tunnel during daytime operations or at night. The portals are located on 1st Street east of the 1st/Utah station in all three options, at the 1st/Lorena Station in Options 1 and 2, and on 3rd Street just west of the 3rd/Rowan Station in Option 3. Signing and surveillance will be utilized at the tunnel portals to reduce the possibility of unauthorized tunnel entry.

Potentially significant pedestrian safety issues associated with unauthorized pedestrian crossings of the tracks will be addressed during design and utilize MTA standards to minimize possible conflicts. Potential mitigation measures are discussed in Section 3.4.3.

Bicyclists

Bicycle use for the commute to work in the MTA Central Area (census designation) of Los Angeles is consistent with the City and County averages. The 1990 Census of Population and Housing counted 0.63% of the County of Los Angeles and 0.59% of the City of Los Angeles as bicycle commuters, compared to 0.57% of the MTA Central Area, which includes the Eastside Corridor.

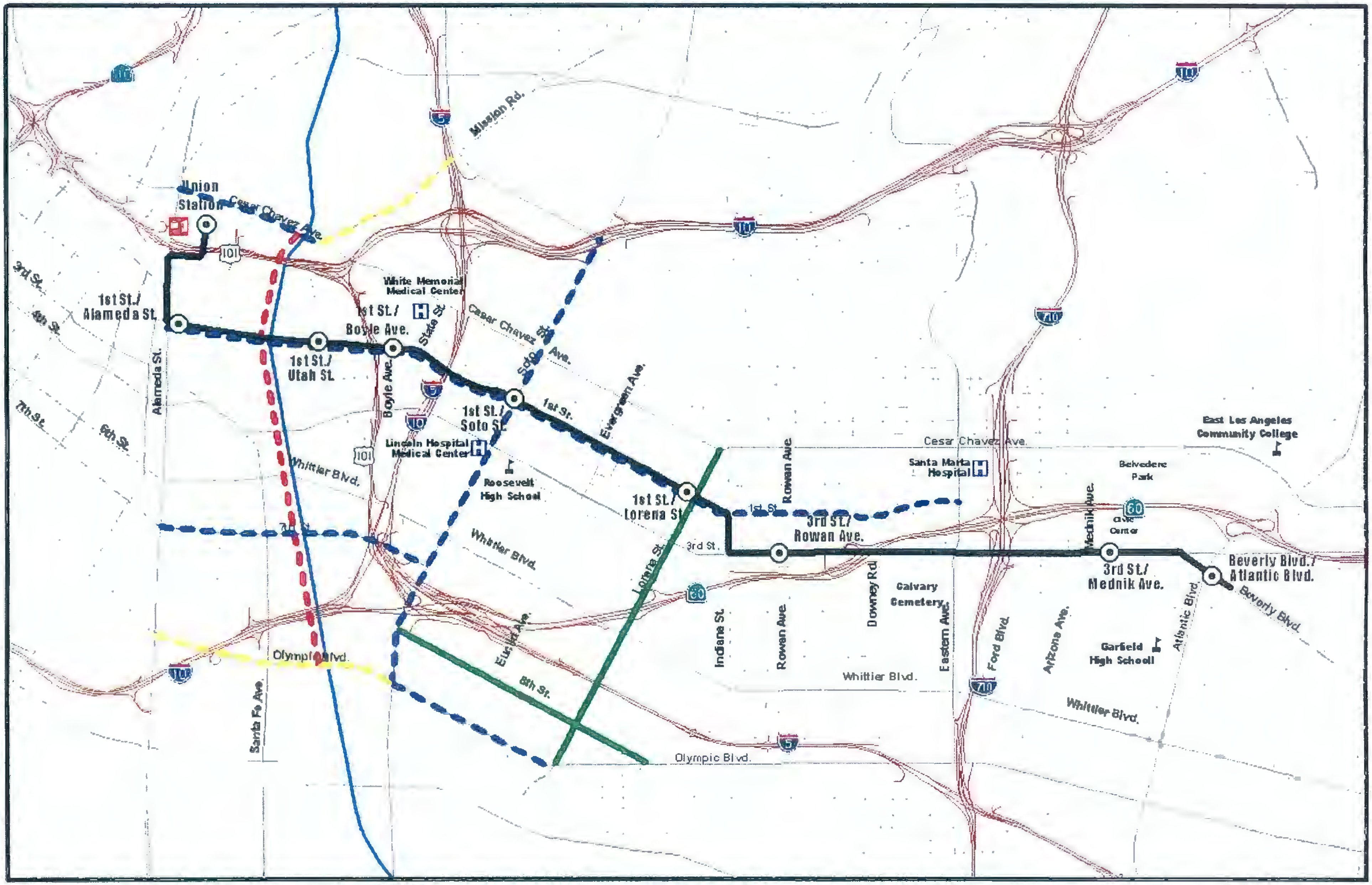
Bicycle Routes

The MTA Central Area Bicycle Master Plan, which incorporates the bicycle plans of the City of Los Angeles and the County, has designated 1st Street a future Commuter Bikeway. This is defined as a hybrid of a Class II and Class III bikeway. Class II bikeways are designated striped lanes on surface streets, and Class III bikeways are unstriped bike routes that are designated by green "bike route" signage. Commuter Bikeways are unstriped routes that utilize a wide curb lane where parking is prohibited during peak hours. On 1st Street, the Commuter Bikeway would utilize the curb lane during peak periods when parking is prohibited. During off-peak hours, bicyclists ride in the traffic stream to avoid the opening of car doors. Figure 3-12 shows the existing and proposed bicycle facilities in the Eastside Corridor.

If parking is prohibited during peak periods west of the 101 Freeway, as would be the case in the No-Build Alternative, then the proposed 1st Street Commuter Bikeway designation could be retained because there would be an 18-foot lane during peak periods that could be utilized by both cars and bicycles. Currently, 1st Street has two traffic lanes in each direction and carries a volume of more than 10,000 vehicles per day, and according to intersection traffic data presented in Section 3.2, curb lane volumes would be above the threshold for a commuter bikeway with implementation of the LRT Build Alternative. Under the criteria set forth, these volumes would be too high for the street to be considered a Commuter Bikeway along 1st Street between Alameda and Indiana Streets.

In the 1997 MTA Central Area Bicycle Master Plan, 1st Street between Glendale Boulevard and Eastern Avenue is included as part of the Proposed Regional Bikeway system. This is consistent with the 1996 City of Los Angeles General Plan Transportation Element Bicycle Plan Inventory. The MTA is currently re-evaluating the Central Area Bicycle Master Plan, which will take into consideration recent changes in the area, including the Eastside Corridor LRT project. Figure 3-13 shows the proposed regional bikeway system network in the Eastside Corridor according to the Central Area Bicycle Master Plan. Some routes in Figure 3-12 do not appear in Figure 3-13 because not all bicycle facilities are included in the regional bikeway system. A regional bikeway is a route that connects different regions of the county for longer distance, inter-regional travel.

The Commuter Bikeway along Soto Street from the Los Angeles River to Huntington Drive is not affected by the LRT alignment because the LRT is in a tunnel where it crosses Soto Street. There are also no impacts on the Lorena Street Bike Route that crosses the LRT at-grade at 1st and Lorena Streets.



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

Source: Central Area Bicycle Master Plan, MTA 1997

Eastside Corridor Transit Consultants

Note: Highways, primary, and secondary roads by Thomas Bros. Maps through a conditional use from MTA 1997.

Legend

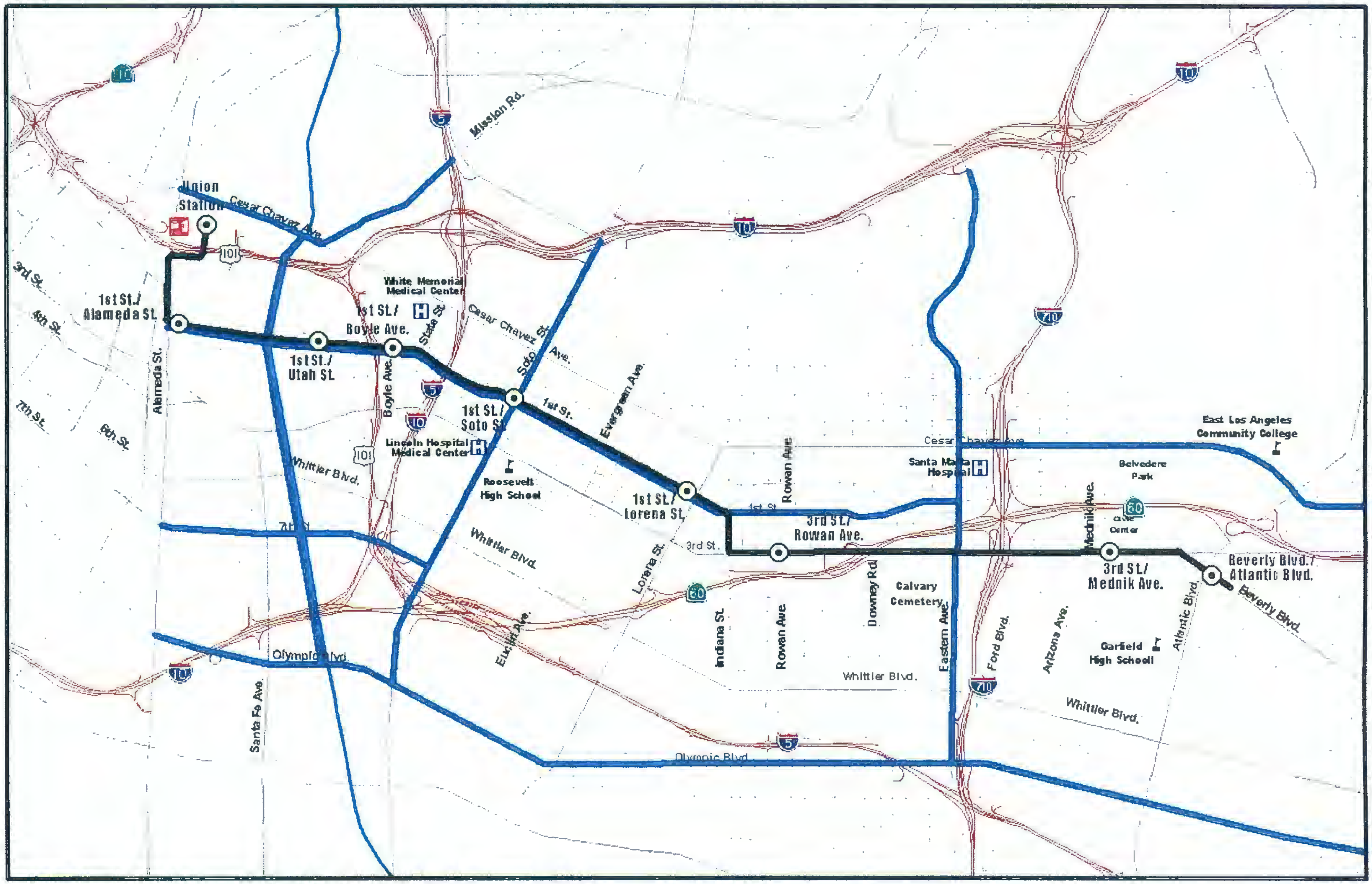
- Proposed Class I Bike Path
- Proposed Class II Bike Lane
- Existing Class III Bike Route
- Proposed Commuter Bikeway
- LRT Alignment
- Highway
- Primary Road
- Secondary Road
- River

August 15, 2000

LOS ANGELES EASTSIDE CORRIDOR
DRAFT SEIS/SEIR

EXISTING AND PROPOSED BICYCLE FACILITIES

Figure 3-12



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

Source: Central Area Bicycle Master Plan, MTA 1997

Legend

Proposed Regional Bikeway

LRT Alignment

Highway

Primary Road

Secondary Road

River

LOS ANGELES EASTSIDE CORRIDOR
DRAFT SEIS/SEIR

Eastside Corridor Transit Consultants

Note: Highways, primary, and secondary roads by Thomas Bros. Maps through a conditional use from MTA 1997.

August 15, 2000

PROPOSED REGIONAL BIKEWAY SYSTEM

Figure 3-13

Street Bikeway Design

The City of Los Angeles 1996 Transportation Element Bicycle Plan design standards recommend that the minimum curb lane width for streets designated as Commuter Bikeways should be 14 feet. This wider lane creates flexibility for all users of the facility, including automobile drivers, parked cars, buses, and bicyclists.

1st Street

Currently, 1st Street is a four-lane street that connects East Los Angeles and Boyle Heights with downtown Los Angeles. Under the LRT Build Alternative scenario, lane widths on 1st Street would be 13.5 feet near stations and 15 feet between station areas. These are non-standard Commuter Bikeway designs as the curb lanes would not meet the recommended minimum width of 14 feet near stations.

The Commuter Bikeway that traverses 1st Street from Glendale Boulevard to Eastern Avenue would be impacted by the Eastside LRT alignment with the removal of one traffic lane where the LRT has an at-grade profile. This reduction in traffic lanes could make the facility less suitable for bicyclists because of the narrow space available in areas where there is parking. It is likely that bicyclists would utilize the traffic lane to avoid interference with parked car doors or would choose to travel on another parallel route. Due to the existence of only one traffic lane at these locations where a bicyclist may utilize the traffic lane, bicyclists may reduce the speed of traffic on 1st Street to bicycle speeds (12-20 mph).

Although future year traffic forecasts predict less total traffic on 1st Street under the LRT Build Alternative, 1st Street would be carrying more traffic per lane than in the No-Build Alternative. This situation would make 1st Street less attractive to bicyclists. As such, the commuter bikeway designation would be difficult to maintain with the introduction of the LRT system at-grade. It would be unlikely that 1st Street would be designated a commuter bikeway due to the design and operations issues discussed here, and there would exist a gap in the regional bikeway system. The resultant gap in the commuter bikeway and regional bikeway network would constitute a significant impact under CEQA.

Indiana Street

Indiana Street is not designated a bikeway. However, if cyclists use this street, the three options in the vicinity of Ramona High School would have different impacts. Option 1 removes the curb parking lane and narrows the traffic lanes to 11 feet. This is not enough space for a vehicle and bicyclist to share the same roadway space side by side. Bicyclists would typically either utilize the traffic lane, potentially slowing traffic, or utilize the sidewalks. This would be considered a less than significant impact under CEQA. Options 2 and 3 would have no impact on bicyclists because these options do not affect existing lane widths or curb parking.

3rd Street

There are no existing or proposed bikeways on 3rd Street. Although there are no designated bike routes on this street, the potential impacts on bicyclists that may use the street should be taken into account. The LRT alignment would operate in the center of 3rd Street at-grade and would require the removal of one traffic lane in each direction. The curb lane width would be 15 feet between stations and 12 feet near station locations. The curb lane would be utilized for traffic during peak periods and for parking during off-peak periods. During peak periods, bicyclists would travel near the curb in the 15-foot lane that meets the criterion for width for commuter bikeway width between stations. However, near stations the curb lane is not wide enough to comfortably accommodate traffic and bicyclists. It would be typical for bicyclists to utilize the 12-foot traffic lane for travel near stations. During off-peak hours when there would be parked cars occupying the curb lane, there would be enough space between parked cars and moving vehicles for the comfortable provision of bicycle traffic when the curb lane is 15 feet wide. During peak periods between stations, the 15-foot wide curb lane would provide enough space to accommodate both moving vehicles and bicyclists. The impacts between stations are beneficial because there would be more space available for bicycle traffic, and at stations, there would be a less than significant impact.

3.4.3 Mitigation

3.4.3.1 Pedestrians

In redevelopment areas along 1st Street, coordinated development planning is expected to mitigate the impact of narrowed sidewalks along 1st Street. No significant pedestrian impacts are anticipated due to the reduction of the west sidewalk width from 8 feet to 6 feet wide along Indiana Street in Option 1.

A major mitigation measure will be MTA-funded Community Linkages Studies to develop pedestrian plans to link neighborhoods with stations along the corridor. Other mitigation measures to reduce the potential for unsafe LRT track crossings by pedestrians include the use of well-defined pedestrian paths, signage, and barriers, where appropriate. Distinctive crosswalk treatments such as textured paving and eye-catching designs can capture the attention of pedestrians and encourage the use of crosswalks. At stations, appropriate provisions for accommodating pedestrian movements between public sidewalks and station platforms will be developed during the station design phase, including sufficient pedestrian staging area and pedestrian ramps connecting the platform to marked crosswalks.

The use of pedestrian-oriented signal phasing can decrease crossing wait times and reduce the chances of impatient pedestrians crossing against the light. LRT train operations will be coordinated with traffic signal phasing to address safety issues and minimize delays. Pedestrian crossings of the LRT tracks will be permitted only at marked, signal-controlled intersection crosswalks using a protected pedestrian "walk" interval. In addition, other techniques to increase pedestrian safety, including educational programs in local schools, marketing and advertisement campaigns, crossing guards, and cohesive signage may be used. The Long Beach Blue Line operation on Washington Boulevard and on Long Beach Boulevard would serve as examples of how to address pedestrian safety issues associated with the at-grade portions of the LRT system.

Potential measures for keeping people out of the tunnel include posting security guards at both locations if required, similar to the Long Beach Blue Line situation. Other options that will be studied include the installation of garage-door style gates at tunnel entrances as well as the use of distinctive signs and/or lights to warn pedestrians of trains emerging from the tunnel.

Impacts after Mitigation

No significant pedestrian impacts will remain after application of the mitigation measures discussed above along 1st Street, and along Indiana Street in Option 1.

3.4.3.2 Bicyclists

Bicycle Routes

To address the issue of bicycle use on 1st Street, removal of the designation of 1st Street as a future commuter bicycle facility between Alameda and Indiana Streets in Options 1 and 2, and between Alameda Street and the 101 Freeway in Option 3 is recommended. It is also recommended that the commuter bikeway designation be eliminated between the 101 Freeway and Fresno Street in Options 1 and 2 because this section would be discontinuous with other segments of the bikeway. In order to maintain network continuity for the regional bikeway plan, a parallel street would be designated as a bikeway, such as Cesar Chavez Avenue. Cesar Chavez Avenue is proposed to be part of the regional bikeway system east of Eastern Avenue. The extension of this designation should be considered between Alameda Street and Eastern Avenue as a way to maintain continuity with the bikeway network. Bicycle Commuter Route alternatives will be studied as part of the future Community Linkages Study, funded by the MTA.

No bicycle route mitigation is required on Alameda Street, 3rd Street, Indiana Street, or Beverly Boulevard because these streets are not designated bikeway facilities.

Impacts after Mitigation

After implementation of the aforementioned mitigation measures, no significant bicycle impacts would remain under CEQA.

3.5 SUMMARY OF IMPACTS

3.5.1 Unavoidable Significant Adverse Impacts

3.5.1.1 Impacts Found to be Significant After Mitigation

Transit

No unavoidable significant adverse impacts under CEQA have been identified after mitigation measures have been implemented.

Traffic

After the proposed mitigation measures have been implemented, 14 of the 22 impacted intersections would continue to be impacted to significant levels.

Parking

No unavoidable significant adverse impacts under CEQA have been identified after mitigation measures have been implemented.

Other Modes

No unavoidable significant adverse impacts under CEQA have been identified after mitigation measures have been implemented.

3.5.1.2 Impacts Found Not to be Significant after Mitigation

Transit

Any potential impacts resulting from the displacement of bus stops due to street design changes would be mitigated to a level that is less than significant under CEQA.

Traffic

Of the 22 impacted intersections, 7 were mitigated to a level less than significant under CEQA.

Parking

The MTA is committed to implementing a parking replacement plan, which will reduce parking impacts to a less than significant level.

Other Modes

A parallel street such as Cesar Chavez Avenue would be designated as a bikeway facility to mitigate the removal of the Commuter Bikeway classification on 1st Street between Alameda Street and Indiana Street[2] due to the increased curb lane traffic volumes. The alternate route will be developed during MTA-funded Community Linkages studies.

3.5.2 Impacts Found Not to be Significant

Transit

The re-routing of bus lines to connect with the LRT system at certain stations does not create any significant impacts.

Traffic

Traffic impacts found not to be significant or beneficial were identified at 33 intersection locations.

Parking

No impacts found not to be significant have been identified under CEQA.

Other Modes

A number of impacts were found to be less than or not significant under CEQA.

3.5.3 Cumulative Impacts

Transit

There are a number of small-to-medium scale development projects either under construction or planned in the Eastside Corridor that would benefit from increased transit service with a light rail system. The transit trips generated by these new development projects would contribute to the operational success of the LRT system. These impacts would be considered beneficial because they would benefit the transit system as a whole by increasing ridership.

[2] Options 1 & 2. Option 3 would be between Alameda Street and US-101.

Traffic

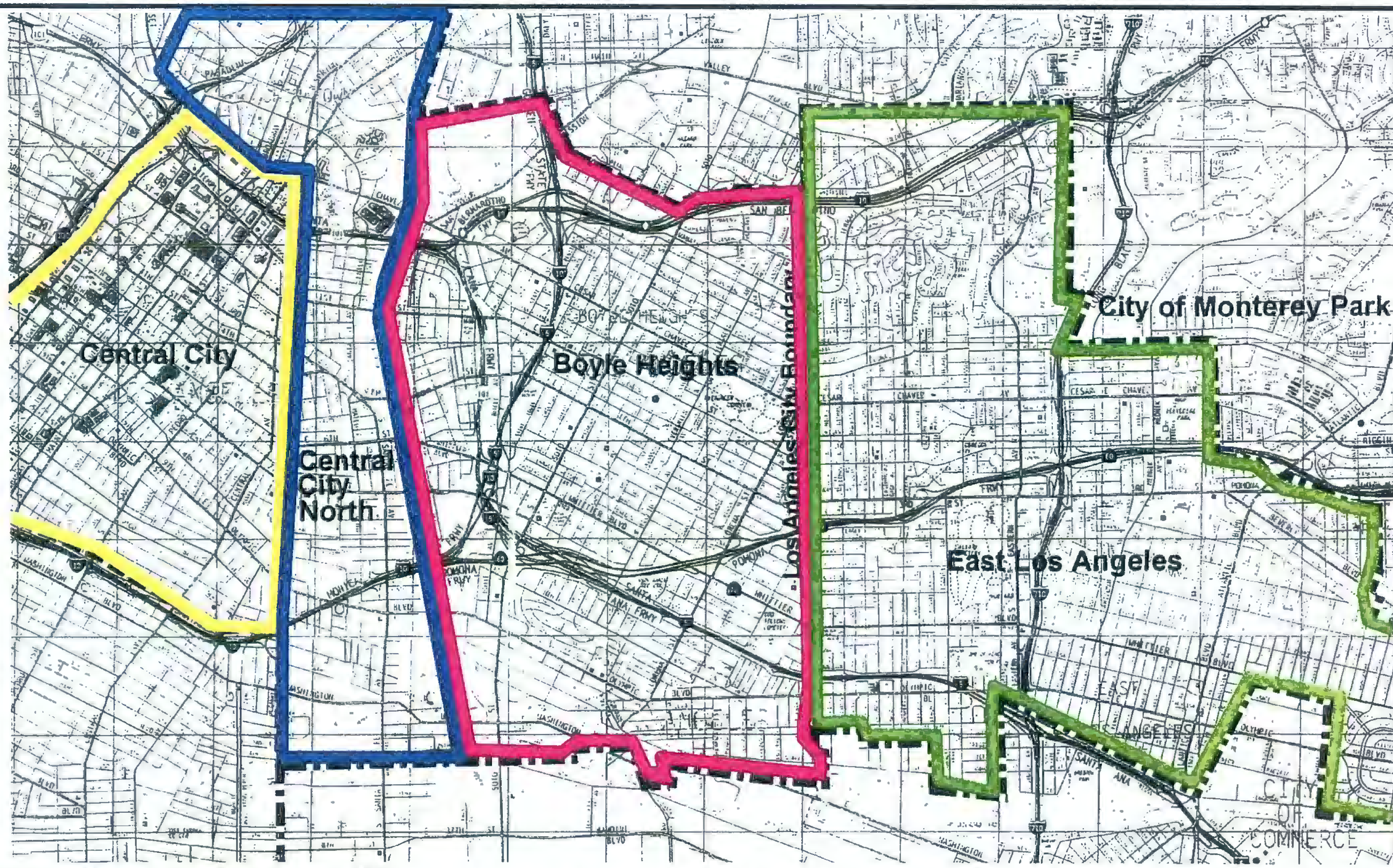
Cumulative impacts due to overall growth in the Eastside Corridor are reflected in the No-Build and LRT Build traffic forecasts and level of service estimates.

Parking

There are no cumulative curb parking impacts to be addressed.

Other Modes

A number of developments are either under construction or planned along 1st Street between the Los Angeles River and the 101 Freeway, where existing sidewalks may be narrowed for the LRT Build Alternative. Through coordination with the City, it is proposed that future full-width sidewalks be provided when these new developments are approved. This would constitute a beneficial cumulative impact under CEQA for pedestrians.



Source: Thomas Brothers, 2000; Barrio Planners, 2000.

Jurisdictional Boundary
General Plan Areas

Figure 4.1-1

Source: Thomas Brothers, 2000; Barrio Planners, 2000.

Los Angeles Eastside Corridor SEIS/SEIR

General Plan, Land Use Designations, Central City, Central City North, Boyle Heights, and East Los Angeles Communities

Figure 4.1-2

Eastside Corridor Transit Consultants

GENERAL PLAN-LAND USE DESIGNATIONS

	City of Los Angeles	County of Los Angeles	City of Monterey Park
Residential			
	Low Density 3-7 Units/Acre	Low Density 0-8 Units/Acre	Low Density 0-8 Units/Acre
	Low Medium 1 7-12 Units/Acre		
	Low Medium 2 12-24 Units/Acre	Low Medium Density 9-17 Units/Acre	
	Medium 24-40 Units/Acre	Medium Density 18-30 Units/Acre	Medium Density 9-14 Units/Acre
		Residential/Parking 18-30 Units/Acre	High Density 15-22 Units/Acre
Commercial			
	Highway Oriented	Commercial/ Residential	
	Neighborhood	Community	
	Community	Major Commercial	Commercial
	Regional		
Industrial			
	Commercial Manufacturing	Commercial Manufacturing	
	Limited/Light		
	Heavy	Industrial	
Public			
	Parks	Parks	
	Open Space	Open Space	
	Schools	Schools	
	Public/ Institutional	Public/ Institutional	

Source: Barrio Planners, 2000.

General Plan Land Use Legend

Figure 4.1-2A

Central City and Central City North

The existing land uses of the Central City and Central City North area are primarily defined by the subdistricts that comprise these areas. West of Alameda Street and south of the Hollywood area is the eastern portion of the Los Angeles Civic Center, which contains governmental buildings. From 1st Street south to 3rd Street is the historic and contemporary Little Tokyo community. The land uses include a variety of retail uses, hotels, museums, residential complexes, and community oriented uses. South of 3rd Street, the area consists primarily of light industrial uses and the expanding retail toy industry, which has reused older structures and created some new infill industrial structures.

The area east of Alameda Street and north of the Hollywood Freeway is part of the Central City North area. The subdistrict north of Hollywood Freeway includes the El Pueblo State Historic Park, Union Station, and the Gateway Center. South of the Hollywood Freeway, the land uses are primarily light industrial uses, facilities for the Los Angeles Department of Water and Power, and several large vacant parcels. The area along 1st Street and south to 3rd Street also contains several Little Tokyo oriented retail uses. South of 1st Street are the expanding artist loft district and studios intermixed with light industrial uses and scattered vacant parcels.

Boyle Heights Community

Boyle Heights has a mixture of residential, commercial, and public uses. Between Boyle Avenue and Lorena Street, residential land uses include Aliso Village, Aliso-Pico, and Pico Gardens public housing projects and a variety of residential densities ranging from two to four units per lot to over five units per lot with small scattered areas of single-family units. Smaller parcels, coupled with the mix and variety of housing types and larger than county average household sizes all contribute to higher population densities in Boyle Heights. East from the proposed 1st/Lorena Station, the land uses are primarily single-family residential uses.

Neighborhood oriented commercial uses exist along the frontage of 1st Street from Boyle Avenue on the west to Evergreen Avenue on the east. This commercial frontage is also intermixed with residential uses, public and community facilities. The small commercial hub, known as "El Mercado" is also located on 1st Street, just east of Lorena Street.

East Los Angeles Community

From Indiana Street to Mednik Avenue on the east, the neighborhoods are developed primarily with one and two-family residential dwellings per lot. A cluster of residential apartments is located along Mednik Avenue, south of Cesar Chavez Avenue. The Nueva Maravilla Housing Project, which was demolished and rebuilt in the early 1970's, is located north of Cesar Chavez Avenue.

Neighborhood serving commercial uses are located along Cesar Chavez Avenue with commercial nodes just east of Indiana Street and at Ford Boulevard and along 1st Street primarily concentrated east of Indiana Street. 3rd Street from Indiana Street to La Verne Avenue contains very scattered commercial uses intermixed with residential uses, public and community facilities. The frontages near the intersection of Beverly and Pomona Boulevards with Atlantic Boulevard contain a concentration of commercial related uses.

General Plan Summaries

Central City/City of Los Angeles

The *Central City Community Plan* was adopted by the Los Angeles City Council in 1974 and has been amended through 1998. The Central City planning area abuts the study area on the west, west of Alameda Street. Major land use and transportation policies of the plan are:

- Support additions to the housing stock in Little Tokyo;
- Retain the existing retail base in Central City;
- Make Downtown a tourist destination by combining its cultural and commercial offerings with those of the ethnic communities surrounding it;
- Encourage traditional and non-traditional sources of open space by capitalizing on linkages with transit, parking, historic resources, cultural facilities, and social services programs;
- Encourage rail connections and high occupancy vehicle lanes that will serve the Downtown traveler; and
- Reinforce the integration and accessibility of the neighborhoods surrounding Downtown with the Downtown core through enhanced levels of service.

Central City North/City of Los Angeles

The *Central City North Community Plan* was adopted in 1979 and has been amended through 1988. The Central City North planning area is located east of Alameda Street to the Los Angeles River, from North Broadway Street on the north to 25th Street on the south. The majority of the area north of 4th Street is designated for heavy industrial uses. Portions of the frontage along 1st Street and from Temple Street to the Hollywood Freeway are designated for commercial manufacturing. North of the Hollywood Freeway, the area is designated as the Government Support Area neighborhood. The community plan proposes to continue development of government facilities in the area and redevelop Union Station to accommodate tourist-oriented commercial and cultural facilities and a transportation center.

Boyle Heights/City of Los Angeles

The *Boyle Heights Community Plan* was adopted in 1979 and has been amended through 1991. The community plan area is located east of the Los Angeles River and extends to the City of Los Angeles boundary at Indiana Street. Major land use and transportation policies of the plan are:

- Conserve and improve existing sound housing especially for low and moderate-income families;
- Provide housing alternatives to accommodate a range of needs and opportunities for individual choice;
- That medium density housing be located in areas already developed to that density, on selected frontages along major and secondary highways and adjacent to commercial centers; and
- Conserve and strengthen viable commercial development.

East Los Angeles/County of Los Angeles

The *East Los Angeles Community Plan* was adopted in 1988. The planning area is located in an unincorporated area of the County bounded by Indiana Street on the west, the San Bernardino Freeway, Floral Drive, Pomona Freeway, and Repetto Street on the north, Concourse Avenue on the east, and Telegraph Road and Union Pacific Avenue on the south. Major land use and transportation policies of the plan are:

- Maintain and enhance the quality of healthy and stable residential neighborhoods;
- Allow the intensification of land uses only if it does not adversely impact existing uses, neighborhoods, and the existing character and density of the East Los Angeles community;
- Encourage rehabilitation of existing commercial uses and development of new commercial in-fill along the major corridors (Whittier, Olympic, and Atlantic Boulevards) and where transportation and other municipal services can support development;
- Improve the local public transit to more closely serve the needs of the people; and
- Improve the image of the major corridors by use of landscaping, lighting, graphics, and/or other streetscape treatments.

Redevelopment Areas

The corridor contains several redevelopment and specialized zone areas. They are delineated in Figures 4.1-3 and Figure 4.1-4.

Central City and Central City North/City of Los Angeles

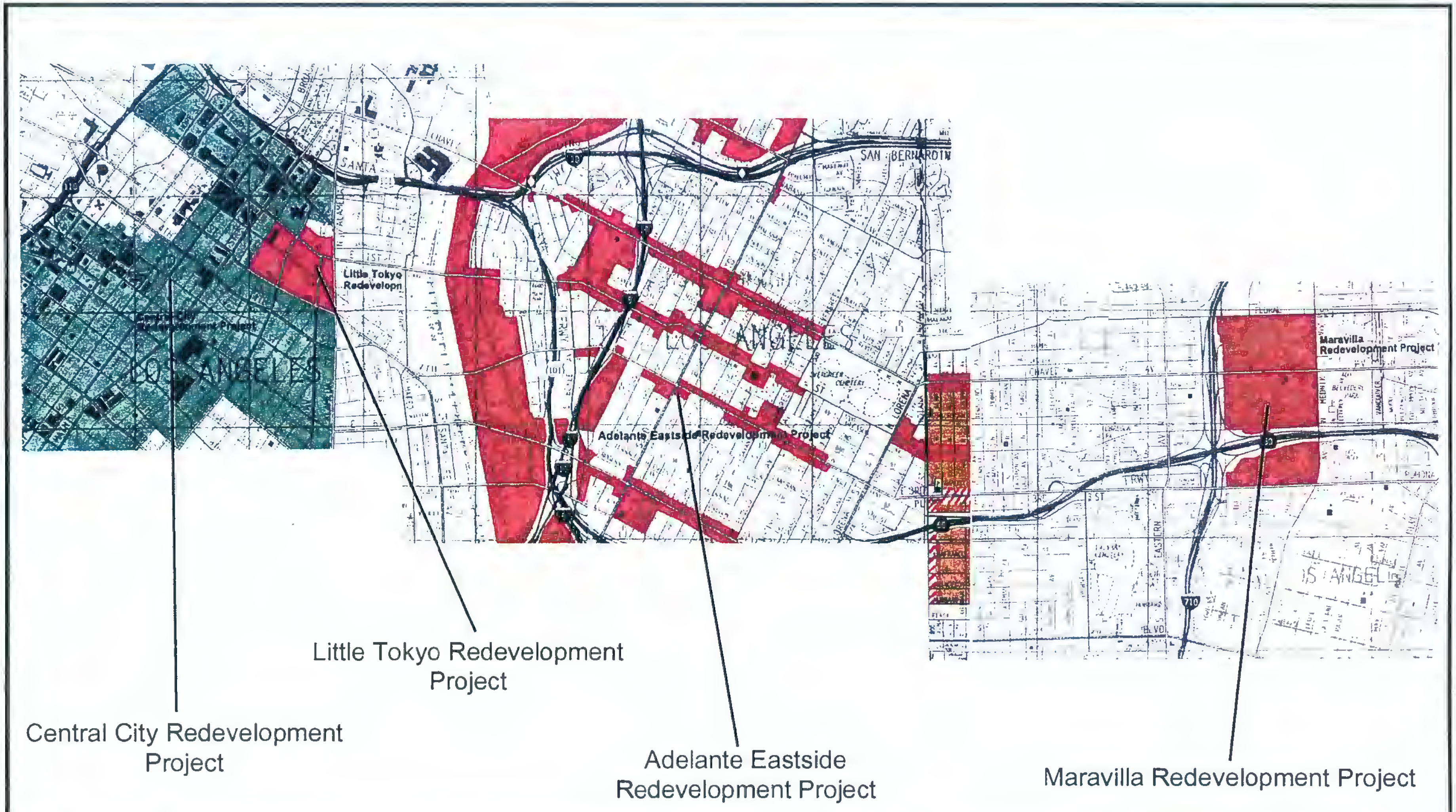
The Central City planning area contains two redevelopment project areas, the Little Tokyo Redevelopment Project, generally bounded by 1st Street on the north, Los Angeles Street on the west, 3rd Street on the south, and Alameda Street on the east, and the Central City Redevelopment Project, which borders the Little Tokyo Redevelopment Project, and extends north to the Hollywood Freeway, east to Alameda Street, and west to the Harbor Freeway with the exception of the Bunker Hill area. The Little Tokyo Redevelopment Project was adopted in 1970 and served as the catalyst for major changes in the community, including the restoration and reuse of historic structures, the Japanese American National Museum, and the Japanese American Cultural and Community Center. The community's revitalization has also included expansion of the residential base through housing developments for senior citizens and affordable housing unit complexes and commercial development to serve the residents. Some of these developments include Japanese Village Plaza and Yaohan Plaza.

Boyle Heights Community/City of Los Angeles

The Boyle Heights Community has a primarily commercial and industrial redevelopment project known as the Adelante Eastside Redevelopment Project, which was adopted in 1999 and includes all of the commercial corridors and industrial sectors of the Boyle Heights community. The redevelopment project area includes the street frontages along Cesar E. Chavez Avenue, 1st Street, 4th Street, Whittier Boulevard as well as the industrial sector that lies immediately east of the Los Angeles River, south of Olympic Boulevard, and the greater LAC+USC Medical Center Complex, which is located north of I-10.

East Los Angeles Community/County of Los Angeles

The East Los Angeles Community includes the Maravilla Redevelopment Project, which was adopted in 1973. The redevelopment area is bounded by 3rd Street on the south, Mednik Avenue on the east, Floral Drive on the north, and Ford Boulevard on the west. Some new affordable housing and senior citizen housing has been developed within the Project area located north of 3rd Street and west of Mednik Avenue.



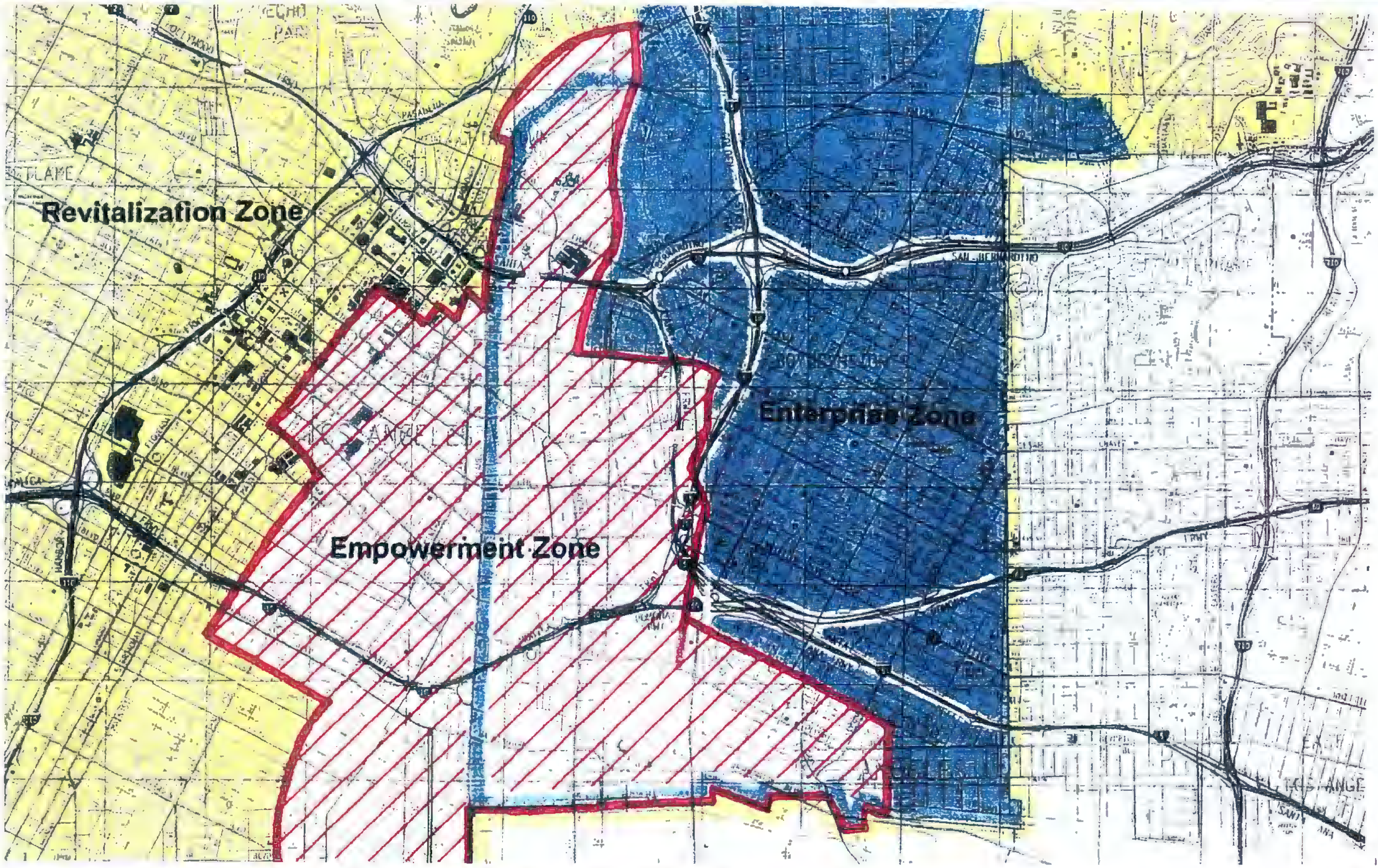
Source: Thomas Brothers, 2000; Barrio Planners, 2000.

Los Angeles Eastside Corridor SEIS/SEIR

Redevelopment Project Areas

Figure 4.1-3

Eastside Corridor Transit Consultants



Source: Thomas Brothers, 2000; Barrio Planners, 2000.

Los Angeles Eastside Corridor SEIS/SEIR

Specialized Zones
Empowerment, Enterprise, & Revitalization Zones

Figure 4.1-4

Eastside Corridor
Transit Consultants

Specialized Zones/City of Los Angeles

Eastside Enterprise Zone

The Eastside Enterprise Zone was designated by the State of California in 1988. This zone area has been targeted for economic revitalization and investment. The zone area includes all of the Boyle Heights Community and almost all of the Central City North community plan area. The enterprise designation allows for State incentives such as: 1) hiring tax credit; 2) sales and tax credits; 3) business expense deduction; 4) net interest deduction for lenders; and 5) net operating loss carryover.

Los Angeles Revitalization Zone

The Los Angeles Revitalization Zone was created by the City of Los Angeles in 1993 for areas affected by the 1992 civil unrest. In relation to the study area, the Revitalization Zone covers all of the Boyle Heights Community, Central City North, and Central City of the City of Los Angeles. The Revitalization Zone entitles the area to the following tax incentives: 1) employee hiring credit; 2) construction hiring credit; 3) sales and use tax credits; 4) business expense deduction; 5) net interest deduction for lenders; and 6) net operating loss carryover.

Empowerment Zone

The Empowerment Zone is a federal program that seeks to create reinvestment and job creation within the nation's poorest urban communities. The Empowerment Zone includes most of the Central City North area, the western and southern portion of the Boyle Heights Community, and the eastern portion of the Central City area of the City of Los Angeles. Some of the opportunities provided in the Empowerment Zone include micro-loans, business loans, commercial real estate and venture capital financing, special tax-exempt bonds, "brownfields" deduction, and city business tax reduction.

Land Use/Transportation Policy – City of Los Angeles

In 1993 and 1994, the Los Angeles City Council and the Los Angeles County Metropolitan Transportation Authority respectively adopted the *Land Use/Transportation Policy* to address land use, transportation, and air quality issues related to the regional transportation system. The Policy provides general objectives and principles to guide future development around transit station areas and addresses transit/land use coordination within the City of Los Angeles to promote transit-supportive land uses adjacent to the station areas.

Recent and Future Development Activity

A number of development projects are currently under construction, in the planning stages or proposed within the vicinity or adjacent to the LRT Build Alternative alignment. These projects, listed in Table 4.1-1, are considered in determining cumulative impacts that may arise if the LRT Build Alternative were implemented.

4.1.2 Methodology for Impact Evaluation

The evaluation of each of the alternatives' compatibility with local plans and policies as well as the types of redevelopment/revitalization areas that are serviced involved a pragmatic methodology. The community plans or general plans of each affected jurisdiction were reviewed to determine adopted land use designations and to identify appropriate land use and transportation /transit related policies. General plan land use designations were identified within an approximate 0.5-mile distance of the LRT alignment.

Information about existing redevelopment project areas and existing revitalization or special zones was reviewed from each affected jurisdiction.

Under CEQA, significant land use and planning impacts would occur if an alternative would:

- **Divide Community:** Physically divide an established community;
- **Conflict with Land Use Plans/Policies/Regulations:** Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; and
- **Conflict with Conservation Plans:** Conflict with any applicable habitat conservation plan or natural community conservation plan.

TABLE 4.1-1
RECENT AND FUTURE DEVELOPMENT ACTIVITY

Project	Location	Development	Land Use	Status
New Pico Gardens	Clarence St/South of 4th Street	280 units	Residential	Under Construction
Day Care Center/ Management Facility/ Youth Facility	4th Street & Clarence Street	10,000 sq. ft.	Community Facility	Under Construction
Multipurpose Facility	4th Street & Clarence Street	4,500 sq. ft.	Community Facility	Under Construction
Las Casitas	3rd Street & Clarence Street	42 units	Residential	Completed
Las Casitas	3rd Street & Clarence Street	39 units	Residential	Planned
Senior Housing	1st Street & Clarence Street	75 units	Residential	Planned
Nuevo Aliso Village	Mission Road/North of 1st Street	469 units	Residential	Proposed
Child Care Center	Utah Street/North of 1st Street	--------	Community Facility	Proposed
Commercial Development	1st Street & Mission Road	3 acres	Commercial	Proposed
Community Service/ Computer Learning Center	1st Street & Clarence Street	3 acres	Community Facility	Proposed
White Memorial Medical Center	Cesar Chavez & Boyle Avenue	Seismic Upgrades & Replacement Facilities	Hospital Facility	Planned
Salesian Youth Center	4th Street & Breed Streets	17,000 sq. ft.	Community Facility	Under Construction
Commercial Development	3rd Street & Mednik Avenue	34,000 sq. ft.	Commercial	Planned
ELA Civic Center	3rd Street & Mednik Avenue	Site Enhancement	Public	Planned
Parking Structure Addition	Fetterly Avenue/North of 3rd Street	180 additional parking spaces	Public	Planned
New Library	ELA Civic Center/North of 3rd Street	26,000 sq. ft	Public	Planned
Existing Library Building Reuse	3rd Street & Fetterly Avenue	15,000 sq. ft.	Public	Planned
Child Care Center	ELA Civic Center	5,500 sq. ft.	Community Facility	Planned
Soledad Enrichment Action Facility	Fetterly & Gleason Avenues	6,000 sq. ft.	Community Facility	Planned
Kaiser Medical Clinic	Pomona Boulevard & Woods Avenue	50,000 sq. ft.	Medical Facility	Proposed
Mangrove Estates Project	East of northeast corner of 1st & Alameda Streets	---	Commercial	Proposed
SCI-ARC Architectural College and student apartments	Southwest of 3rd Street and Santa Fe Avenue	---	College and Multi-family Residential	Proposed
Los Angeles Children's Museum	Southwest corner of Alameda and Temple Streets	---	Community Facility	Proposed

4.1.3 Impacts

4.1.3.1 No-Build Alternative

There would be no impacts on land use or development because this alternative only includes improvements to the transportation network that have already been approved and funded. Since no capital improvements are included under this alternative, 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 as well as the LRT Build Alternative.

4.1.3.2 LRT Build Alternative

Compatibility with Local Plans and Policies

The general plan of both the County of Los Angeles and the City of Los Angeles contain transit-supportive concepts. The existence of these policies combine with the project area characteristics that form a strong transit orientation that would match well with the LRT Build Alternative and strengthen efforts to improve the quality of life for area residents and businesses.

The LRT Build Alternative would be compatible with policies in the Central City and Central City North plans. The proposed project would provide improved accessibility to the Central City area; support the redevelopment of Union Station as a transportation center; accommodate the expansion of the Little Tokyo Community east of Alameda Street; and continue the development of government facilities.

Similarly, this alternative and its options would be generally compatible with policies in the Boyle Heights Community Plan, which encourages alternative modes of travel, particularly to meet the needs of transit-dependent residents, and to conserve and strengthen viable commercial and pedestrian corridors. Displacements on lands categorized as Medium-Density Residential would occur south of 1st Street and west of Boyle Avenue (all options). Residential displacements on Neighborhood-Commercial designated land would also occur at the southwest corner of 1st and Soto Streets (all options). Option 2 would require acquisition of more residences than Options 1 and 2 because of the need to purchase homes on Indiana Street. The displacements are considered potentially significant impacts as they would disrupt existing housing land uses and thus conflict with the Boyle Heights Community Plan policy that states: "Conserve and improve existing sound housing especially for low and moderate-income families."

The LRT Build Alternative would be compatible with the policies of the *East Los Angeles Community Plan* to improve public transit to more closely serve the needs of its residents; improve the image of major corridors by use of landscaping, lighting, and other streetscape treatments; and to encourage rehabilitation of existing commercial uses and new in-fill commercial uses.

Compatibility with Redevelopment Areas/Specialized Zones

Several redevelopment and special revitalization areas occur in the Corridor. The proposed LRT Build Alternative would provide improved access and mobility in support of efforts to redevelop and revitalize these areas. Through the public involvement process, residents and businesses have expressed support for the proposed transportation improvements to further future redevelopment efforts. As such, this alternative is compatible with Redevelopment Plans and the goals established for the City's Specialized Zones.

Impacts of Stations and Ancillary Facilities

LRT stations would be accommodated within the existing right-of-way and would include a raised platform with a canopied sign and lighting. Stations and station areas would be designed to blend with their surroundings and would not affect local neighborhoods nor be in conflict with existing land uses or study area Redevelopment and Community Plans. No land use impacts from the proposed LRT facilities are anticipated.

Potential for Transit Supportive Land Uses

FTA criteria for evaluating transit supportive land uses include: 1) promoting a variety of residential and commercial uses; 2) potential to assist in containment of sprawl; 3) encouraging greater population density, and 4) enhancing pedestrian facilities. Existing local and regional land use and transportation planning policies are compatible with these criteria and actively promote the implementation of transit supportive land uses and development. In addition, local plans and policies encourage high-traffic uses that are compatible with new transit facilities, such as schools, health care clinics, community centers, and libraries to be located along the proposed LRT alignment.

It is anticipated that transit oriented districts would be spurred by the project due to three major factors – the objectives of the *MTA Joint Development Policy*, the MTA's successful history of transit oriented districts, and the project area's long history of transit oriented development. MTA's objectives are established to encourage public-private joint partnerships in spurring transit oriented districts by: Encouraging transit compatible land use plans; providing comprehensive urban design, planning and development activities to ensure the most appropriate mix of land uses and densities; establishing procedures for the selection of private sector joint development participants through a competitive proposal process; and negotiating joint development transactions that create a long-term source of revenue to the MTA for the development, operation , and maintenance of the transit system. These objectives express MTA's commitment to nurturing and maintaining transit oriented development.

MTA projects have helped to spur and support transit oriented districts in several areas in the Los Angeles area. Districts adopted by the Los Angeles Planning Commission are located at the Broadway/Manchester (major MTA Bus lines), Avenue 57 (station on the future Pasadena Blue Line), and Vermont/Western (three stations on the red line). Fully implemented transit oriented districts include the Pine Street Project (in response to the MTA urban rail network) and the Holly Street Village (built partly on the space above the future Pasadena Blue Line). These examples show MTA's success in spurring transit-oriented districts.

The long history of the corridor's transit oriented development indicates that the dynamics for additional transit-oriented development may once again become present with the development of the LRT Build Alternative. Originally, the land uses were established in response to the streetcar system from the 1890s until 1963. The alignment passes through neighborhoods which have small lots and retail establishments under apartments, which are features sought by contemporary visions of transit oriented districts. These physical features of the corridor may act to spur new transit oriented development, and the demographics of high transit dependency on the part of the residents of these largely Latino neighborhoods near the City Center may help to maintain such transit-oriented development. This would be a beneficial impact to the community.

Significance of Impacts

The LRT Build Alternative is generally compatible with local and regional plans and land use policies. However, one of the policies of the Boyle Heights Community Plan would be challenged by displacement of residential structures for all options. If Option 2 were selected, several additional residential units would be displaced. This would be a potentially significant impact. There would also be beneficial impacts, as the City and County of Los Angeles have developed a number of transit-supportive land use plans and programs that the LRT Build Alternative would further in the Eastside Corridor.

4.1.4 Mitigation

For residential displacements at 1st/Boyle, 1st/Soto, and, on Indiana Street if Option 2 were selected, the remaining land will be reconfigured and made available for neighborhood commercial and medium-density residential uses, as designated in the Boyle Heights Community Plan.

4.1.4.1 Significance of Impacts Remaining After Mitigation

The mitigation measure would reduce impacts on land use policies to a less than significant level.

4.2 ECONOMIC AND FISCAL IMPACTS

4.2.1 Affected Environment

4.2.1.1 Employment

As presented in Table 4.2-1, the 1994 employment within the Corridor was 170,328 and is projected to grow to 221,403 in 2020, about a 30 percent increase. This is at a lower rate than Los Angeles County, where employment is expected to increase by 40.7 percent. Employment in the entire Southern California Association of Governments (SCAG) region is expected to grow 60.1 percent during this same period, or twice the rate of the Corridor. The Los Angeles County labor force was approximately 4.7 million in September 1999. As indicated in Table 4.2-2, the unemployment rate for the Corridor was 9.2 percent, substantially greater than the City and County unemployment rates.

TABLE 4.2-1
POPULATION/EMPLOYMENT DATA

Jurisdiction	1994	2020	Growth (%)
SCAG Region			
Total Population	15,610,700	22,352,000	43.2%
Total Employment	6,604,000	10,574,000	60.1%
Total Area (square miles)	38,000		
Los Angeles County			
Total Population	9,231,600	12,249,100	32.7%
Total Employment	4,134,000	5,817,600	40.7%
Total Area (square miles)	4,083		
Central Business District – Downtown LA			
Total Population	45,464	69,686	53.3%
Total Employment	250,037	278,873	11.5%
Employment – Percent of SCAG Region	3.8%	2.6%	
Employment – Percent of LA County	6.1%	4.8%	
CBD Area (square miles)	6.31		
Employment Density (employees/square mile)	39,625	44,195	
Eastside Corridor Study Area			
Total Population	284,669	340,065	19.5%
Total Employment	170,328	221,403	30.0%
Population – Percent of SCAG Region	1.8%	1.5%	
Population – Percent of LA County	3.1%	2.8%	
Employment – Percent of SCAG Region	2.6%	2.1%	
Employment – Percent of LA County	4.1%	3.8%	
Corridor Area (square miles)	27.65		
Population Density (population/square mile)	10,295	12,299	
Employment Density (employees/square mile)	6,160	8,007	

Source: SCAG 1999 TAZ Data (Employment and Population Projections).

TABLE 4.2-2
EMPLOYMENT/UNEMPLOYMENT – SEPTEMBER 1999

Area	Labor Force	Employment	Unemployment	Rate
East Los Angeles	52,840	47,960	4,880	9.2%
Los Angeles	1,897,590	1,771,650	125,940	6.6%
Los Angeles County	**4,734,900**	**4,458,400**	**276,500**	**5.8%**

Source: California Employment Development Department, 1999.

4.2.1.2 Disadvantaged Business Enterprise Participation

As part of its existing practices and procedures, MTA has established Disadvantaged Business Enterprise (DBE) Programs to encourage broad-based business participation in its mass transit procurement programs. A DBE is a firm that is owned by socially and economically disadvantaged individuals. The DBE Program was designed by MTA to comply with both state and federal laws to ensure that businesses are not discriminated against in procurement practices on the basis of gender, race, color, national origin, age, or disability. For its DBE Program, MTA reviews all businesses interested in participating in its DBE Program and evaluates each case to ensure that they meet the federal eligibility criteria set forth by U.S. Department of Transportation regulations.

4.2.1.3 Fiscal Environment

Total tax receipts for the City of Los Angeles in Fiscal Year 1999/2000 were $2.85 billion, of which property taxes accounted for an estimated $528 million; licenses, permits, fees, and fines accounted for an estimated $420 million and business tax fees accounted for an estimated $317 million. Sales tax revenue for the City of Los Angeles for Fiscal Year 1999/2000 was $332 million. Los Angeles County receipts in Fiscal Year 1996/97 were $36.5 billion, with property taxes accounting for $1.2 billion and sales tax accounting for $32 million.

The City of Los Angeles portion of the study area contains three specialized zones where economic revitalization and investment are targeted: Eastside Enterprise Zone, Los Angeles Revitalization Zone, and Empowerment Zone (refer to Section 4.1, Land Use).

4.2.2 Methodology for Impact Evaluation

4.2.2.1 Long-term Employment

Operation of the LRT Build Alternative would generate jobs and increase customer patronage for local businesses especially those located near light rail stations. These jobs are considered permanent. The completion of a project can be expected to improve business conditions and employment opportunities. Employment is generated by new business activity that occurs as a result of project completion and transit operating expenditures.

The 2000 conceptual operating cost estimates (Fiscal Years 2007/20) developed for the LRT Build Alternative and the factors identified below were used to estimate the total number of long-term jobs created. Based on the Regional Industrial Modeling System (RIMS) developed by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA), transit operating expenses create substantially more employment per $100 million than do capital projects. Most of the direct impacts from operation are created in the transit industry, usually on-site. Others are created in other sectors, such as local businesses, that indirectly benefit from the new transit service. Based on the RIMS model and the indirect multiplier of 1.365, $100 million spent on transit operations would support a total of 9,610 direct and indirect full-time equivalent (FTE) positions.

4.2.2.2 Short-term Employment

Construction of the LRT Build Alternative would generate employment opportunities at the local and regional level. Direct impacts account for construction workers, professional services, motor vehicle manufacturing, steel works, and others. Indirect impacts account for added employment in other sectors that is generated by LRT construction (the trickle down effect).

The 2000 conceptual construction cost estimates developed for the LRT Build Alternative and the direct and indirect factors identified above were used to estimate the total number of temporary jobs created. Based on the RIMS II model, transit capital investments have been shown to result in a direct regional employment benefit. Using the RIMS II model, the American Public Transit Association has determined that for each $100 million[1] invested in new rail projects, it is estimated to directly increase employment by 3,380 FTE jobs. Of the total number of short-term jobs generated by new rail starts, over half are typically construction-related or business and professional services. Employment impacts of new start projects are attributable to the labor-intensity of new transit construction work and related professional services (APTA, 1983).

Indirect impacts are estimated through an employment multiplier of 1.365 drawn from a 1981 U.S. Department of Transportation study (USDOT, 1981). This estimate is based on Bureau of Labor Statistics studies, which have been used in a number of FTA projects. A new rail transit investment of $100 million is estimated to indirectly increase short-term employment by 4,610 FTE jobs. The combination of direct and indirect short-term jobs would total 7,990 FTE positions.

4.2.2.3 Fiscal

Providing governmental services such as fire and police require additional funds supplied by the jurisdictions they are to serve. Information related to fire and police services in the study area was obtained from the Internet. Information regarding property and sales tax revenues was obtained from the City of Los Angeles for Fiscal Year 1999/2000 and from the County of Los Angeles for Fiscal Year 1996/97. Impacts were identified utilizing displacement data contained in Section 4.3, Land Acquisition/Displacement and Relocation.

4.2.3 Impacts

4.2.3.1 No-Build Alternative

There would be no impacts on employment because the No-Build Alternative only includes improvements to the transportation network that have already been approved and funded. By maintaining the status quo, this alternative would not stimulate employment within the study area, generate fiscal impacts or create the need for additional government services, such as fire and police. In addition, the No-Build Alternative would not require property acquisitions that would diminish local tax revenues.

4.2.3.2 LRT Build Alternative

Long-term Employment Impacts

Table 4.2-3 presents the conceptual operating costs for fiscal years beginning in 2006/07 and the potential long-term or permanent jobs created by the LRT Build Alternative over a 14-year period. The long-term employment estimate for direct and indirect jobs is based on operating costs. Within the first 14 years of operation, the LRT Build Alternative would support 1,078 long-term jobs, including indirect employment opportunities coming from potential business development and redevelopment along the alignment and near stations. Thus, operation of the LRT Build Alternative would result in indirectly fostering economic and population growth that has been considered in the goals and policies of local plans, and the additional employment would ultimately be a beneficial impact.

[1] Does not include right-of-way.

TABLE 4.2-3 ESTIMATED LONG-TERM EMPLOYMENT – LRT BUILD ALTERNATIVE					
Fiscal Year	**Conceptual Operating Costs (1999 $ in millions)[1]**	**Estimated Direct Employment Generated[2]**	**Estimated Indirect Employment Generated[2]**	**Estimated New Employment-Per-Year Generated[3]**	**Estimated Total Employment Generated[2]**
2006/2007	$4.5	184	251	*435*	*435*
2008	$6.8	275	376	*216*	*651*
2009	$7.1	290	396	*35*	*686*
2010	$7.5	305	417	*36*	*722*
2011	$7.9	320	438	*36*	*758*
2012	$8.3	335	458	*35*	*793*
2013	$8.6	350	479	*36*	*829*
2014	$9.0	365	499	*35*	*864*
2015	$9.4	380	520	*36*	*900*
2016	$9.7	395	540	*35*	*935*
2017	$10.1	410	561	*36*	*971*
2018	$10.5	425	582	*36*	*1,007*
2019	$10.9	441	602	*36*	*1,043*
2020	$11.2	456	623	*35*	*1,078*
TOTAL	N/A	N/A	N/A	*1,078*	*N/A*

Sources:
[1] Conceptual operations costs (PBQD, 2000).
[2] For each $100 million operating expenses - 4,060 direct and 5,550 indirect jobs would be generated (APTA, 1983).
[3] New employment-per-year generated is based on the difference between employment from immediate previous years only.

Fire/Police Services

Local fire and police staff and services would be minimally affected by the direct and indirect employment created by operation of the LRT Build Alternative. No significant impacts to fire/police services are anticipated to occur because, according to discussions with the City and County police and fire departments' personnel, the existing fire and police would be sufficiently staffed to service the LRT facility. In addition, the LRT Build Alternative is not expected to significantly increase demand on police or fire prevention services operated by the City and County of Los Angeles. System security would be an important component of rail operations and would be the responsibility of MTA. Existing fire protection services in the local jurisdictions and the county, coupled with system-wide fire safety measures, are expected to serve the system adequately. The LRT Build Alternative, therefore, is not expected to have a significant effect on the cost of providing these services.

Property Tax

Possible property acquisitions for the LRT Build Alternative have an estimated real estate value totaling $7.15 million. The estimated real estate value for partial acquisitions and easements total $3.93 million.[2] Properties that would be fully acquired for the LRT Build Alternative would reduce the tax bases of the City and County of Los Angeles. Property taxes are levied on the assessed value of all privately owned property and are collected by the County. Based on tax amounts per current property values, the property tax loss to all property acquisitions would total $94,530 annually. This figure would increase for Option 2 due to the additional property acquisitions required.

[2] Accessed at http://www.dataquick.com on November 16, 2000.

Regardless of the Indiana Street option chosen, the anticipated annual property tax loss to the City and the County would be minimal compared to their respective total property tax revenues. The resulting tax revenues would be sufficient to continue the current level of social spending and governmental services. The reduction of property tax revenue due to the LRT Build Alternative would, therefore, be less than significant. Indirect tax revenue benefits may be realized with infusion of development around stations and revitalization and development within the surrounding areas.

Sales Tax

If the LRT Build Alternative were implemented, the City of Los Angeles and East Los Angeles community would lose a minimum of 9 and a maximum of 14 businesses depending on the option selected in the vicinity of Ramona High School. The business acquisitions would lower the level of sales tax revenues if the businesses could not relocate within the local jurisdiction. By relocating within their current jurisdictions, sales tax revenue losses would be temporary or offset in nature.

The loss of sales tax revenue would not be sufficient to adversely affect the tax base for the City or the County given the relatively small number of commercial/retail acquisitions compared to the total businesses operating within these jurisdictions. The existing tax revenue amounts would be sufficient to continue the current level of social spending and governmental services. No significant impact is expected.

Business License Fees

Business License Fees are generally assessed by individual jurisdictions based on the total number of employees or the annual gross sales receipts of a business. Acquisition of commercial properties would result in lost business license fee revenues. However, the loss is not expected to generate a significant impact, since these business license fees represent only a small portion of the City's or the County's revenues, and existing revenue amounts would be sufficient to continue the current level of governmental services.

Significance of Impacts

There would be no impacts on staffing of fire or police services or reduction of tax revenues.

4.2.4 Mitigation

4.2.4.1 No-Build Alternative

No operational impacts were identified for the No-Build Alternative; therefore no mitigation measures are required.

4.2.4.2 LRT Build Alternative

Operation of the LRT Build Alternative would increase employment in the Los Angeles Eastside Corridor and would not result in impacts requiring mitigation. In addition, MTA is also formulating a local hiring policy for both construction-related and long-term jobs during LRT operations for the corridor that will be reviewed by the Eastside Corridor Review Advisory Committee. MTA will provide resources to train people in the community, as needed, to employ as many local residents as possible in the construction and operation jobs generated by the Eastside Corridor project. Also, it is MTA's policy to ensure that a job development and training commitment is provided by all proposers and bidders seeking to conduct business with the MTA.

The City and County of Los Angeles would have minimal short-term tax revenue losses, but it is anticipated that long-term development and revitalization would increase overall tax revenues. There is no mitigation for the loss of tax revenue. Operation of the LRT Build Alternative would not have a significant impact on the staffing of fire or police services, therefore, no mitigation measures are required.

Note also that Station Area Advisory Committees (SAACs) are currently being formed for each of the nine station areas in consultation with the local elected officials to ensure local public participation in both the construction and operation of the Los Angeles Eastside Corridor. The goal of each SAAC is to continue the public participation process by addressing specific station area concerns such as economic and development opportunities, transit connections, and physical station plans. All components of station area planning will be presented to the community with opportunities for comment and review.

4.3 LAND ACQUISITION/DISPLACEMENT AND RELOCATION

4.3.1 Affected Environment

Properties within a half-mile strip on either side of the LRT alignment are shown on aerial photographs and plan and profile drawings for the light rail alignment and station areas (Appendix E). Properties required for construction and operation of the LRT Build Alternative are indicated on these drawings. The three alignment options along Indiana Street, which have differing acquisition requirements, are displayed on separate drawings. During final design, the amount of property required at each acquisition site may increase or decrease. Property acquisition may be phased over time, depending on project funding and schedule.

The subway portion of the light rail alignment would be primarily under the public street rights-of-way. In those locations where the subway passed under individual parcels (either publicly or privately owned), MTA would need to obtain easements instead of acquiring or displacing the uses on those parcels. A description of land use characteristics along the alignment is presented in Section 4.1, Land Use and Development. Housing and demographic characteristics are provided in Section 4.4, Communities/Neighborhoods.

4.3.2 Methodology for Impact Evaluation

Engineering plans indicate the location of the alignment, tunnel portals, station locations, and park-and-ride facilities. The right-of-way required for these facilities was plotted on maps in July 2000. Aerial photographs of the study area, city and county land use and parcel maps, encoded real estate data for the County, as well as windshield surveys, were used to determine the characteristics of the properties needed for construction and operation of the LRT Build Alternative. Properties potentially affected were identified according to existing zoning and land use, square footage, and, in the case of residential properties, number of units and average household size. Affected properties were grouped by station location or, if they were located further than one-half mile from a proposed station site, by alignment segment.

The analysis assumed a worst-case scenario for property requirements. Full property acquisitions were assumed if the project physically intruded on existing buildings, removed a substantial portion of the available parking such that a business could not operate, or used the majority of vacant land leaving the remainder too small to develop. This assumption was also applied to properties that were needed for construction purposes only. However, in the case of parking lots, only the portion of the lot needed for the public right-of-way was included. Reference is made to properties originally acquired by MTA for the suspended Red Line Extension and needed for the construction or operation of the LRT Build Alternative. Since acquisition and displacement proceedings for these properties were finalized as part of the suspended project, they are not included in this analysis.

To determine the effect of the property acquisitions and displacements, an estimate of the number of displaced residents and employees was calculated. For residential properties, the number of persons affected was determined by multiplying the number of displaced units by 4.0, the average household size in the corridor. For non-residential displacements, the number of employees affected was determined by applying per-square-foot factors to the total building area of properties subject to full takes. The factors were taken from the Fiscal Impact Handbook (Burchell and Listokin, 1978) as follows:

- Office – 1 employee displaced for every 250 square feet of space
- Retail – 1 employee displaced for every 500 square feet of space

- Industrial – 1 employee displaced for every 525 square feet of space

If one property contained two different businesses, it was counted as two displacements, and the number of employees displaced was counted for each business. The calculations reflect full-time employees and may underestimate the number of part-time employees affected.

According to CEQA guidelines, acquisition and displacement impacts are considered "generally significant" if:

- Acquisition of privately-owned land is required, and would result in relocation of ten or more residences or businesses;
- Adequate replacement facilities for displaced households and businesses are not available;
- Housing sites and/or funds to construct replacement facilities are not available;
- Replacement facilities are available but are located in neighborhoods unfamiliar to the residents of the displaced households;
- Replacement facilities exceed the financial capability of displaced households;
- Relocation of businesses and/or industries would result in loss of jobs or decreased accessibility between residences and places of employment, resulting in loss of sales or incomes;
- Location of replacement facilities for businesses or industries decreases accessibility to established market areas; or
- A comparatively large or disproportionate number of minority, elderly, or low-income displacements would occur.

Acquisition and displacement impacts would be considered "possibly significant" if:

- Acquisition of privately owned land is required, and would result in relocation of one to ten residences and/or businesses: or
- Replacement facilities matching the needs of the displaced households and businesses are not available in the same or nearby neighborhoods.

The severity of acquisition and displacement impacts is evaluated in terms of changes in land use, loss of housing stock, effects upon special needs populations, fiscal impact, and business loss and disruption.

4.3.3 Impacts

4.3.3.1 No-Build Alternative

The No-Build Alternative would not require the acquisition or displacement of any property in the study area.

4.3.3.2 LRT Build Alternative

The LRT Build Alternative would require the acquisition and displacement of residential, commercial, and public utility property for the construction and operation of the light rail line. In the absence of mitigation, residential and non-residential displacements resulting from implementing the LRT Build Alternative are considered generally significant under CEQA. A summary of potential acquisitions and displacements is presented in Table 4.3-1.

Residential Displacement

The LRT Build Alternative would require displacing a total of 13 single-family and multiple-household units containing an estimated 52 persons. This number could increase to 32 units, displacing an estimated 128 residents, if Option 2 (widen Indiana Street on the west side between 1st and 3rd Streets) were selected. No housing along Indiana Street would be displaced for Options 1 and 3. As indicated in Table 4.3-1, residential displacements would occur at:

- 1st/Boyle – A construction staging area on the south side of 1st Street just west of Boyle Avenue would require a four-unit apartment building. The residential units, which are affordable housing, provide housing for approximately 16 persons.
- 1st/Soto – Acquisition of the northeast and southwest corners at 1st/Soto for construction of the 1st/Soto light rail station and a construction staging area would require nine single-family residences housing 36 persons. The units are affordable housing.
- Indiana Street between 1st and 3rd Streets - If Option 2 were chosen and the west side of the public right-of-way widened by 26 feet, 16 single-family and a three-unit multi-family dwelling would be acquired, displacing approximately 76 residents. All of the units are affordable housing. Three residences are historic structures that are potentially eligible for the National Register of Historic Places. This is discussed in Section 4.15, *Historic/Archaeological/Paleontological Resources.*

Under CEQA, the displacement of 13 to 32 dwelling units containing up to 128 residents would be a significant impact.

Impacts on Housing Stock

Implementing the LRT Build Alternative would displace between 13 and 32 low and moderate income residences depending upon which option is selected in the vicinity of Indiana Street. Table 4.3-2 indicates that the displacements represent one-tenth of one percent of the study area's housing stock and, with the projected increase in housing units in the study area, would not substantially diminish the total number of units. More detailed information is presented for the affected station areas below.

- 1st/Boyle – Of the 4,273 residential units located within a half-mile of this proposed station, four apartment units would be acquired. The loss of four affordable units would not substantially affect the quantity of homes or the low vacancy rate in the area, particularly since a six percent increase in housing units is anticipated in the 1st/Boyle area over the planning period (refer to Table 4.3-2). However, the rents for the newer units may not be comparable to those for the displaced units. If replacement housing matching the needs of displaced residents is not available in the same or nearby neighborhoods, this impact would be potentially significant under CEQA.
- 1st/Soto – Of the 5,435 residential units within one-half mile of the station, the acquisition of nine affordable units would not substantially affect the quantity of homes or the low vacancy rate in the area, particularly since construction of an additional 2,000 units is anticipated in the 1st/Soto area over the planning period (refer to Table 4.3-2). However, housing demand and the Corridor's low vacancy rate may limit the availability of comparable replacement homes in the study area. If replacement housing matching the needs of displaced residents is not available in the same or nearby neighborhoods is not available, this impact would be potentially significant under CEQA. In addition, the removal of structures at 1st/Soto would alter the historic setting at this location, a significant impact. For more information related to the historic setting at 1st/Soto, refer to Section 4.15, Historic/Archaeological/Paleontological Resources.

TABLE 4.3-1
RESIDENTIAL AND NON-RESIDENTIAL ACQUISITIONS & POPULATION DISPLACEMENT BY LRT STATIONS AND ALIGNMENT

Residential Uses					Non-Residential Uses						
Station/ Alignment Location	**Purpose of Property Acquisition**	**Multiple Family Units**	**Single Family Units**	**Estimated Persons Displaced[1]**	**Commercial Business**	**Public Facility**	**Vacant Lot**	**Parking Lot[2]**	**Estimated Parking Spaces**	**Estimated Building Sq. Ft.**	**Estimated Total Employ-ment[3]**
Alameda between Commercial and 1st	Right-of-Way				1 gas station with mini-mart and repair shop	Street frontage at DPW		1 1 1	13 spaces 9 spaces 11spaces	Gas/mart – 2250 Repair shop - 1350	4
1st / Alameda	Right of Way/ Substation							1 1	None 19 spaces		
1st / Boyle	Construction Staging/ Station Entrance	4 units		16			1				
1st / Soto	Construction Staging/ Station Entrance		9 units	36	5 businesses					4,925	10 persons
3rd/Sunol	Substation				1 vacant business					900	0
3rd/Woods	Substation							1	12 spaces		
Beverly/ Atlantic	Park & Ride Lot				2 businesses					600	1 person
Total Displacements (with Options 1 and 3)		**4 units**	**9 units**	52 displaced persons	**9 businesses**	**DWP frontage**	**1 vacant lot**	**6 parking lots**	**64 spaces**	**9,925**	**15 persons**
Indiana St. (Option 2 - westside between 1st & 3rd Sts.)	Right of Way	3 units	16 units	76	5 businesses	1DWP facility				4,020 6,000	13 persons Unknown
Total Displacements (with Option 2)		**7 units**	**25 units**	**128 displaced persons**	**14 businesses**	**2DWP properties**	**1 vacant lot**	**6 parking lots**	**64 spaces**	**19,945**	**28 persons**

[1]Estimated total population displacement is calculated by multiplying the number of displaced units by 4.0, the average number of persons per household.
[2]Only portions of the lots (See "Estimated Parking Spaces" column) would be acquired.
[3]Estimated employment displacement is calculated using square foot per use factors identified in the Fiscal Impact Handbook (Burchell and Listokin, 1978)

TABLE 4.3-2
DEMOGRAPHIC SUMMARY OF HOUSING CHARACTERISTICS FOR THE PROJECT STUDY AREA AND FOR A 1/2 MILE RADIUS AROUND PROPOSED LIGHT RAIL STATIONS

Demographic Area/ Station	Housing Units		Average Size Households	Vacancy Rate	Percent Owner-Occupied	Median Value of Owner-Occupied Units	Median Rent
	1990[1]	2020[2]/ % Increase	1990[1]	1990[1]	1990[1]	1990[1]	1990[1]
Los Angeles County	2,989,552	4,239,050 (29.5%)	3.0	1.9	48.2	226,400	570
Project Study Area[3,4]	25,028	40,896 (38.8%)	4.0	<0.1	26.1	123,756	404
Union Station	872	5,729 (84.8%)	2.8	<0.1	1.0	59,615	376
1st/Alameda	1,328	7,676 (82.7%)	2.6	<0.1	8.8	57,673	349
1st/Utah	3,069	3,133 (2.0%)	3.8	<0.1	7.2	103,700	470
1st/Boyle	4,273	4,545 (6.0%)	3.9	<0.1	11.0	120,782	369
1st/Soto	5,435	7,674 (29.2%)	4.1	<0.1	16.4	140,383	398
1st/Lorena	3,714	4,833 (23.2%)	4.2	<0.1	34.1	137,419	416
3rd/Rowan	3,692	4,635 (20.3%)	4.3	<0.1	32.2	141,661	427
3rd/Mednik	2,544	3,134 (18.8%)	4.1	<0.1	40.3	141,588	403
Beverly/Atlantic	2,374	3,228 (26.5%)	3.5	<0.1	45.3	171,679	472

Notes:
1. U. S. Census of Population and Housing, 1990. Data based upon blocks, which are the smallest tabulated area measurement.
2. SCAG TAZ Population and Employment Projection Data, 2020. Data based upon U. S. Census full or partial tracts that are based upon aggregated blocks.
3. The Project Study Area extends east from Union Station to Beverly Blvd just east of Atlantic and is confined to the area one-half mile on either side of the alignment.
4. The Project Study Area and its associated nine stations excluded 1990 U. S. Census block groups 207400-1, 206000-2, and 207100-5 from demographic analysis due to the presence of jail facilities.

- Indiana Street – For Option 2, the loss of 19 residences would not substantially reduce the number of housing units in the area between 1st and 3rd Streets, particularly since the number of housing units in the area is expected to increase by 23 percent over the planning period (refer to Table 4.3-2). However, housing demand and the Corridor's low vacancy rate may limit the availability of comparable (affordable) replacement homes in the study area. If replacement housing matching the needs of displaced residents is not available in the same or nearby neighborhoods is not available, this impact would be potentially significant under CEQA.

Non-residential Displacement

The LRT Build Alternative would displace nine businesses employing approximately 15 persons, six parking lots containing 64 spaces, Department of Water & Power (DWP) landscaped frontage, and one vacant lot. Five additional businesses employing at least 13 people and a DWP facility would be acquired if Indiana Street between 1st and 3rd Streets were widened (Option 2). No non-residential displacements along Indiana Street would occur for Options 1 and 3. As indicated in Table 4.3-1, non-residential displacements would occur at:

- Alameda between Commercial and 1st – Portions of three parking lots containing 33 spaces, DWP landscaped frontage, and a gas station, including a mini-mart and a repair shop, would be acquired. The displacement of a gas station would be a significant impact. It does not appear that the parking lots or the landscaped frontage would be considered significant resources under CEQA.
- 1st/Alameda – Portions of two parking lots containing 19 spaces would be acquired to accommodate the turning of the track from 1st Street onto Alameda and the installation of a traction power substation. It does not appear that these parking spaces or lots are considered significant resources under CEQA.
- 1st/Boyle -- A vacant lot would be acquired east of the apartment building that will also be acquired as part of this project (see preceding residential displacement discussion). One business, a market, was previously purchased by MTA for the suspended Metro Red Line project and is, therefore, not included in Table 4.3-1. The market continues to operate at this location and leases the property from the MTA. MTA has previously paid the market's costs to relocate the business whenever the lease is terminated. The property is needed to provide construction staging for the current project. The 1st/Boyle Station would be located underground beneath Mariachi Plaza, also owned by MTA. None of the station facilities would penetrate or use the surface of the Plaza. However, removal of the market would create a visual and spatial void in the streetscape enclosing the Plaza. The alteration of the historic setting would be a significant impact. For more information, refer to Section 4.15, Historic/Archaeological/Paleontological Resources.
- 1st/Soto – The proposed station and construction staging area would require the displacement of five businesses employing 10 people. The businesses, which serve neighborhood clientele, may be difficult to relocate in the neighborhood. Since more than ten residences and businesses would be acquired for the LRT Build Alternative, the displacement would be a significant impact.
- 1st/Lorena -- No new acquisitions are required. However, property on the northeast corner was previously acquired by MTA for the suspended Metro Red Line project and is, therefore, not shown in Table 4.3-1. This vacant property will be used for construction staging and installation of a traction power substation. This parcel would not be considered a significant resource under CEQA.
- Indiana Street – For Option 2 only, the acquisition of properties abutting the west side of Indiana Street between 1st and 3rd Streets would require five businesses that employ an estimated 13 people. Many of these businesses serve the neighborhood. One of the businesses and a Department of Water & Power station, which would also be displaced, are potentially eligible for the National Register of Historic Places. Their displacement would be a significant impact.
- 3rd/Sunol – Locating a traction power substation along 3rd Street immediately west of Sunol Drive and south of the Pomona Freeway would require acquisition of a parcel containing a vacant business. This parcel would not be considered a significant resource under CEQA.
- 3rd/Woods – Locating a traction power substation on the southwest corner of 3rd/Woods Avenue would require acquisition of a portion of the Southern California Edison parking lot containing 12 spaces. This parcel would not be considered a significant resource under CEQA.
- Beverly/Atlantic – A parcel of land would be acquired for an approximate 100-space park-and-ride lot at the eastern terminal of the light rail line. The facility would be located across Atlantic Boulevard from the light rail station on the southwest corner of the Beverly/Atlantic intersection. Two businesses on one parcel would be displaced. MTA may also consider leasing a portion of the Pep Boys property (east side of Atlantic Boulevard north of Beverly Boulevard) for additional parking space.

Easements

MTA would obtain an easement from Caltrans to construct the aerial structure and at-grade tracks on their property south of Union Station. Also subsurface easements will be obtained for properties located above the tunnel segment between 1st/Gless and 1st/Lorena (Options 1 and 2) and 1st/Gless and 3rd/Hicks (Option 3).

Significance of Impacts

The residential and non-residential displacements required under all three options would be significant. If replacement housing or business facilities are not available in the same or nearby neighborhoods, and the residences and businesses would need to relocate outside the study area, this impact would be potentially significant.

4.3.4 Mitigation

4.3.4.1 Residential and Commercial Displacement

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646, 84 Stat.1894), as amended by the Uniform Relocation Act Amendments of 1987, Title VI of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17, 101 Stat. 246-256), and as incorporated by the 1991 Intermodal Surface Transportation Efficiency Act, mandates that certain relocation services and payments by MTA be made available to eligible residents, businesses and non-profit organizations displaced by construction and operation of MTA transit-related projects. The Act provides for uniform and equitable treatment of persons displaced from their homes, businesses, and farms by federal and federally assisted programs; and establishes uniform and equitable land acquisition policies.

The State of California's revised Government Code Section 7260, et seq. brings the California Relocation Act into conformity with the Federal Uniform Relocation Act. In the acquisition of real property by a public agency, both the federal and state acts seek to: (1) ensure consistent and fair treatment for owners of real property; (2) encourage and expedite acquisition by agreement in order to avoid litigation and relieve congestion in the courts; and (3) promote confidence in public land acquisition. Owners of private property have federal and state constitutional guarantees that their property will not be taken or damaged for public use unless they first receive just compensation. Just compensation is measured by the "fair market value" of the property taken, where "fair market value" is considered to be the:

> "...highest price on the date of valuation that would be agreed to by a seller, being willing to sell, but under no particular or urgent necessity for so doing, nor obliged to sell; and a buyer, being ready, willing and able to buy but under no particular necessity for so doing, each dealing with the other with the full knowledge of all the uses and purposes for which the property is reasonably adaptable and available." (Code of Civil Procedure Section 1263.320a.)

Where acquisition and relocation are unavoidable, MTA would follow the provisions of the Uniform Act and the 1987 Amendments as implemented by the Uniform Relocation Assistance and Real Property Acquisition Regulations for Federal and Federally Assisted Programs adopted by the Department of Transportation, dated March 2, 1989. MTA would apply acquisition and relocation policies to assure compliance with the Uniform Act and Amendments. All real property acquired by MTA would be appraised to determine its fair market value. An offer of just compensation, which shall not be less than the approved appraisal, would be made to each property owner. Each homeowner, renter, business or nonprofit organization displaced as a result of the project would be given advanced written notice and would be informed of the eligibility requirements for relocation assistance and payments. Application by the MTA of the applicable acquisition and relocation programs, policies and procedures would result in relocation impacts deemed to be insignificant under CEQA after mitigation.

The Uniform Relocation Act requires that comparable, decent, safe and sanitary replacement housing which is within a person's financial means be made available before that person may be displaced. In the event that such replacement housing is not available to "re-house" persons displaced by the LRT Build Alternative within the statutory limits for replacement housing payments, the MTA may provide Last Resort Housing in a number of ways, including:

- Rehabilitating or constructing additions to existing replacement dwellings and making them available to the displaced person;
- Constructing new housing to be rented or sold to displaced persons for amounts within their financial means;
- Physically relocating comparable dwellings to replacement site;
- Purchasing existing housing to be rented or sold to displaced persons for amounts within their financial means;
- Removing barriers and/or rehabilitating structures to accommodate handicapped displaced persons when suitable replacement housing is not available;
- Making replacement-housing payments in excess of the statutory limits of $22,500 for owner/occupants and $5,250 for renters; or
- Offering a direct loan, or other financing techniques, to assist displaced persons in purchasing comparable replacement dwellings.

All eligible displaced persons have freedom of choice in the selection of comparable replacement housing, and MTA will not require any displaced person, without his/her written consent, to accept a replacement dwelling provided by MTA. If a displaced person decides not to accept the replacement housing offered by MTA, the displaced person may secure a comparable replacement dwelling of his/her choice, providing it meets decent, safe, and sanitary housing standards. Although the residences and businesses located above the light rail tunnel will not be acquired in fee simple for the LRT Build Alternative, MTA will acquire subsurface easements and will offer temporary relocation benefits to those residents requesting them during the short time required for the tunnel excavation immediately below their residences.

To mitigate the alteration of the historic setting at 1st/Boyle due to the displacement of the market, MTA will construct a façade, mural, or building to reestablish the street edge and physical enclosure of Mariachi Plaza. At 1st/Soto, MTA will mitigate the alteration of the historic setting by the temporary relocation and replacement of the original buildings or the construction of new buildings or facades that would retain the historic street edge. In addition, MTA will provide a comprehensive documentation of structures in the affected area if the buildings are determined to be eligible for listing on the National Register of Historic Places. The documentation would be performed prior to the commencement of any alteration, grading, and/or change in setting. The documentation would be consistent with Historic American Buildings Survey (HABS) standards and involve consultation with the State Historic Preservation Officer (SHPO) and National Park Service. The HABS process is generally applied to specific buildings, but may also apply to streetscapes.

As noted earlier, the project would result in the relocation of several businesses. MTA will provide the funds needed for job training for those persons unable to find a new job as a result of the relocations. As noted in Section 4.2, *Economic and Fiscal Impacts*, MTA will also provide resources to train people in the community, as needed, to employ as many local residents as possible in the construction and operation jobs that will be generated by the Eastside Corridor project.

4.3.4.2 Loss of Housing Stock

As a mitigation measure for loss of housing stock resulting from the suspended Metro Red Line East Side Extension project, MTA established the Community Transportation Linkages Program, which included the following components[3]:

- MTA committed to making available sites for joint development projects, including housing;
- MTA established a \$5.2 million revolving loan fund (which was later reduced to \$2.6 million when the Red Line Extension was truncated at 1st/Lorena) targeted to assist development of the MTA station areas and adjacent properties, as well as projects in the study area. The intent of the loan fund was to assist community based developers and property owners with financing of administrative, design, legal and other professional services required to obtain funding commitments for construction and permanent financing; and assist with affordable housing rehabilitation in Boyle Heights; and
- MTA committed to offer existing residential and other structures required for station construction to community-based housing and social service providers as well as other public agencies prior to their demolition.

Loan repayment was to be from construction and permanent loan proceeds. Criteria for eligibility, funding prerequisites, program administration, underwriting and repayment was to be formulated through the program, based on affordable housing guidelines set forth by the city, state, and federal governments. The program was designed to allow for flexibility in the type of projects MTA can fund.

To provide mitigation for the potential loss of housing stock if the LRT Build Alternative were implemented, MTA would incorporate elements of the Community Transportation Linkages Program into a Housing Replenishment Program. The Housing Replenishment Program would be limited to a \$2.6 million revolving loan fund since the loss of housing stock would not be as substantial as would have occurred with construction of the suspended Red Line East Side Extension, and the supply of housing is expected to increase throughout the Corridor during the 20-year planning period. The MTA would add funding to its affordable housing revolving loan fund program at least in accordance with the formula used to arrive at the present funding level. This fund would be used for housing replenishment as a result of the loss of housing stock. MTA will work with the Los Angeles Housing Department (LAHD), experts in the field of affordable housing finance and development, who will provide the expertise necessary to implement this program, as well as community groups, elected officials, and other housing providers.

4.3.4.3 Significance of Impacts Remaining After Mitigation

Following application of these policies and regulations by the MTA, relocation/displacement impacts would not be significant under CEQA. However, impacts would be potentially significant if the displaced residences and businesses are unable to find replacement homes or businesses in the area.

[3] Metro Red Line East Side Extension, Final Environmental Impact Statement, Los Angeles County Metropolitan Transportation Authority, Los Angeles, California, September 1994, pages 4-3.17 and 4-3.18.

4.4 COMMUNITIES/NEIGHBORHOODS

4.4.1 Affected Environment

4.4.1.1 Regional Population and Demographics (1990 and 2020 Projections)

Los Angeles County, with a 1990 population of over 8.8 million, is the most populous county in California (Table 4.4-1). It contains 30 percent of the state's population, and the majority of residents in the six-county region included in the Southern California Association of Governments. By 2020, the County and the region are expected to grow by nearly 30 percent. During the same period, the number of housing units in the County will increase from approximately 3.0 million to 4.2 million, thereby augmenting population density.

TABLE 4.4-1
DEMOGRAPHIC SUMMARY FOR THE LOS ANGELES REGION AND THE CORRIDOR STUDY AREA

Demographic Area	Total Population		Population Density		Populations 6 – 18 years		Populations 65 years +	
	1990[1]	2020[2]/ % Increase	1990[1]	2020[2]	1990[1]	2020[2]	1990[1]	2020[2]
SCAG Region	14,531,529	20,768,041 (30.0%)	1,521	2,174	2,509,030	NA	1,584,540	NA
Los Angeles County	8,863,164	12,237,247 (27.6%)	2,240	3,093	1,586,022	NA	860,587	NA
Project Study Area[3, 4]	103,289	128,585 (25.2%)	15,791	19,483	21,716	NA	8,499	NA

Notes:
1. U. S. Census of Population and Housing, 1990. Data based upon blocks, which are the smallest tabulated area measurement.
2. SCAG TAZ Population and Employment Projection Data, 2020. Data based upon U. S. Census full or partial tracts that are based upon aggregated blocks.
3. The Project Study Area extends east from Union Station to Beverly Blvd. just east of Atlantic and is confined to the area one-half mile on either side of the alignment.
4. The Project Study Area and its associated nine stations excluded 1990 U. S. Census block groups 207400-1, 206000-2, and 207100-5 from demographic analysis due to the presence of jail facilities.

4.4.1.2 Corridor Population and Demographics (1990 and 2020 Projections)

For this SEIS/SEIR, the Eastside Corridor extends from Union Station to the eastern terminal at Beverly/Atlantic and is confined to a half-mile strip on either side of the alignment. In 1990 the corridor (study area) had 103,289 residents living in an area with a population density over seven times that of the County. Table 4.4-1 indicates that 21 percent of corridor residents are between six and 18 years compared with 17.8 percent for the county as a whole. The senior population in the study area is similar to the County percentage of approximately nine percent. By 2020, the population of the study area is expected to increase to 128,585, a gain of 25 percent. This increase is similar to the growth rate anticipated for Los Angeles County and is expected to occur with or without the implementation of the light rail line. Similarly, population densities in the corridor will increase from 15,791 to 19,483 residents per square mile (Figure 4.4-1).

FIGURE 4.4-1
COMPARATIVE 1990 AND 2020 POPULATION DENSITY
FOR THE CORRIDOR, LOS ANGELES COUNTY, AND THE SCAG REGION

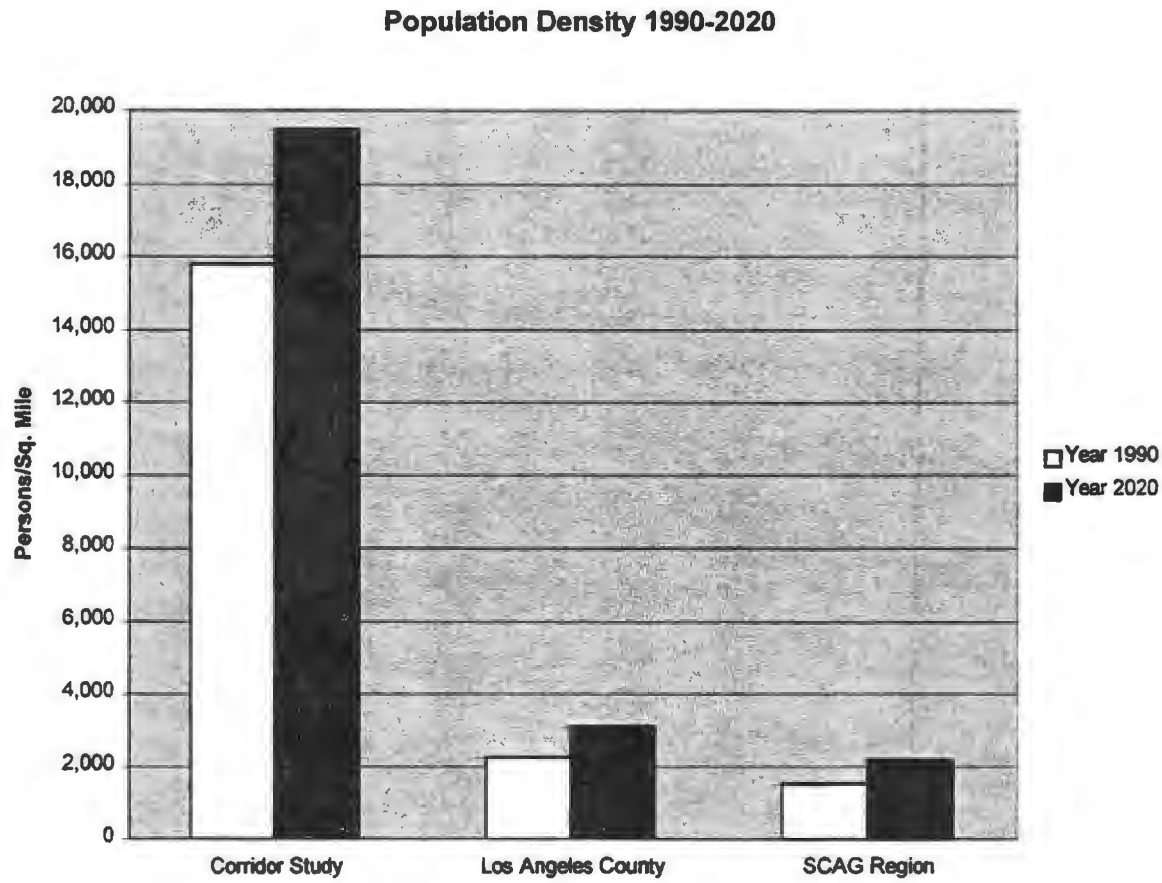


Table 4.4-2 presents 1990 and 2020 data for the area within a half-mile of each proposed light rail station location. The table indicates that the greatest concentration of area residents is located in the middle portion of the corridor between 1st/Boyle and 3rd/Rowan. In this segment, over 15,000 people reside within one-half mile of each proposed station location. The area surrounding the 1st/Soto Station has the largest and densest population of all station locations. By 2020, the number of residents in this area will have increased from 21,426 (1990 data) to 28,981, a 26 percent gain. This rate of increase appears to be typical for most station areas along the alignment except for Union Station and 1st/Alameda, which, due to redevelopment plans, are expected to grow by 71 percent and 330 percent, respectively, and 1st/Utah and 1st/Boyle, which will decrease in population.

4.4.1.3 Corridor Socio-Economic Characteristics

As indicated in Table 4.4-3, the study area is nearly 97 percent minority, principally of Hispanic descent. The distribution of minority populations occurs fairly evenly throughout the corridor (Figure 4.4-2). Although the concentration of minority populations is not unusual in Los Angeles County, the percentage of the total population that is minority is substantially higher in the corridor than in the county as a whole (97 percent compared with 59 percent).

TABLE 4.4-2
DEMOGRAPHIC SUMMARY FOR A 1/2 MILE RADIUS AROUND LRT STATIONS

Proposed Station[1,2]	Total Population		Population Density		Populations 6 – 18 years		Populations 65 years +	
	1990[3]	2020[4] (% Increase)	1990[3]	2020[4]	1990[3]	2020[4]	1990	2020
Union Station	8,147	11,467 (71.0%)	4,274	14,515	821	N/A	426	N/A
1st/Alameda	3,154	10,395 (330%)	5,257	13,327	78	N/A	634	N/A
1st/Utah	11,358	8,946 (-27.0%)	14,945	11,469	2,906	N/A	928	N/A
1st/Boyle	16,214	15,598 (-3.9%)	21,057	19,744	3,903	N/A	1,295	N/A
1st/Soto	21,426	28,981 (26.1%)	27,826	37,155	4,807	N/A	1,590	N/A
1st/Lorena	15,098	20,256 (25.5%)	19,356	25,969	3,466	N/A	1,275	N/A
3rd/Rowan	15,479	18,473 (16.2%)	19,594	23,384	3,724	N/A	1,199	N/A
3rd/Mednik	10,129	11,416 (11.3%)	12,986	14,636	2,419	N/A	959	N/A
Beverly/Atlantic	8,133	10,556 (23.0%)	10,295	13,533	1,667	N/A	955	N/A

Notes:

1. The project study area and its associated nine stations excluded 1990 U. S. Census block groups 207400-1, 206000-2, and 207100-5 from demographic analysis due to the presence of jail facilities.
2. Information for stations is confined to a one-half mile radius surrounding the proposed station locations.
3. U. S. Census of Population and Housing, 1990. Data based upon blocks, which are the smallest tabulated area measurement.
4. SCAG TAZ Population and Employment Projection Data, 2020. Data based upon U. S. Census full or partial tracts that are based upon aggregated blocks.

Similarly, the percentage of low-income households (refer to Section 4.4.2, Methodology for Evaluation for definition of low income) in the corridor is over twice the percentage for the County (26.0 percent compared with 11.9 percent). The greatest concentration of low-income households is in the western portion of the corridor around Union Station, 1st/Utah, and 1st/Boyle. In these locations, low-income households comprise over 30 percent of total households, reaching 50 to 70 percent in certain census tracts. This percentage declines to 17 percent in the area surrounding Beverly/Atlantic, the eastern terminal for the light rail alignment (Figure 4.4-3).

Compared with the county's high percentage of car ownership (only 11 percent of households are without a car), 30 percent of corridor households do not own automobiles. The percentage of zero-auto households increases to over 70 percent surrounding the proposed 1st/Alameda Station (Figure 4.4-4). Further east, the percentage of zero-auto households drops dramatically. For example, in the area surrounding the proposed Beverly/Atlantic Station, only 16 percent of total households are without cars. In spite of the relatively low rate of car ownership in the corridor, only 26 percent of the working population use public transportation to get to work, which may be an indication of unmet transit demand. The highest percentage of transit use is by residents who live in the western portion of the corridor, between Union Station and 1st/Soto.

The census data indicates that the corridor is characterized primarily as low income, minority, and transit dependent, containing one of the most densely populated sections of Los Angeles County. These demographic characteristics may be particularly favorable, in terms of ridership potential, to the success of proposed fixed guideway investments.

TABLE 4.4-3
DEMOGRAPHIC SUMMARY OF SOCIO-ECONOMIC CHARACTERISTICS FOR THE PROJECT STUDY AREA AND FOR A 1/2 MILE RADIUS AROUND LRT STATIONS

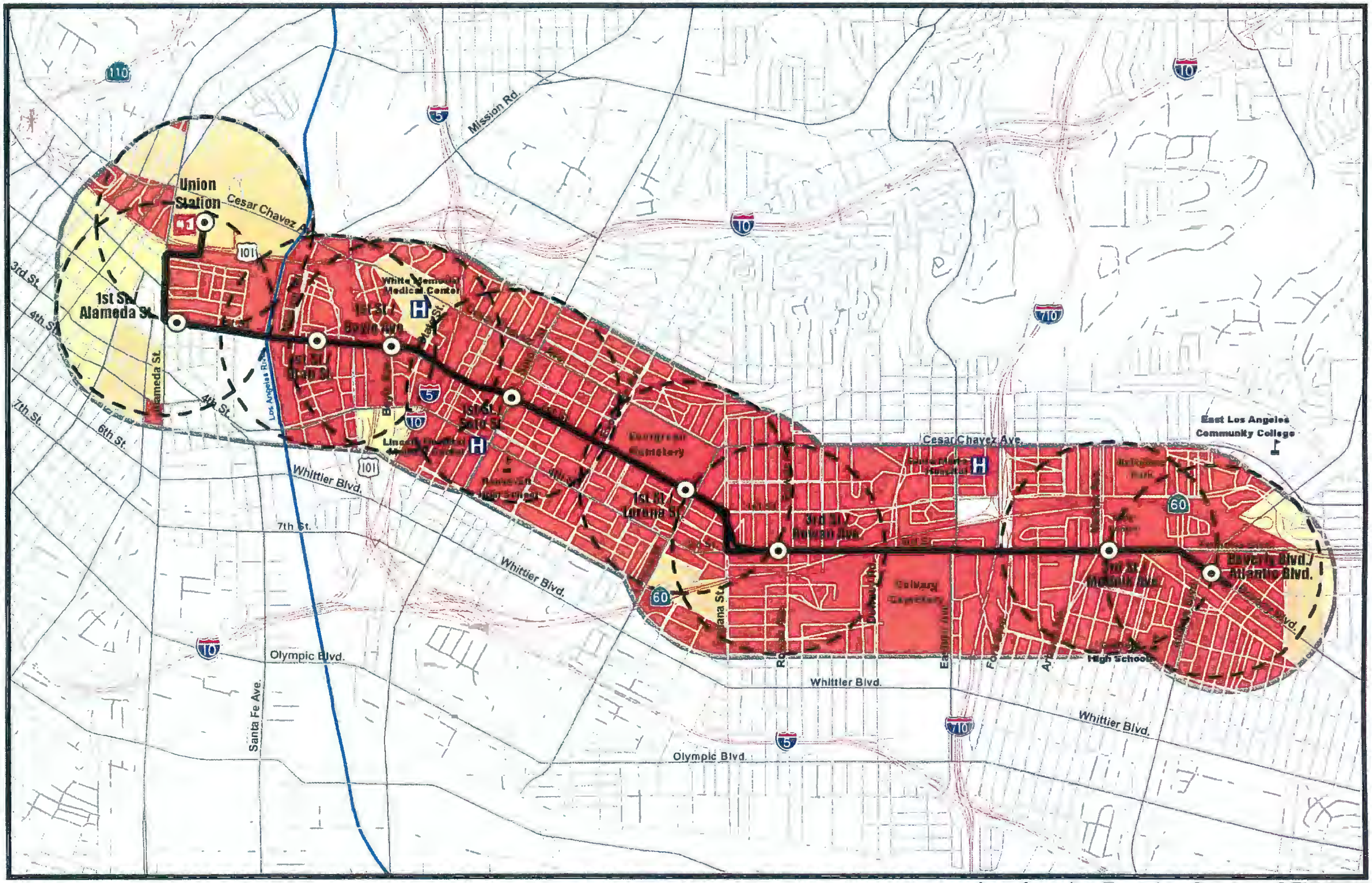
Demographic Area	Minority Population[1]		Low-Income Households[1]		Workers 16 and Older Using Public Transportation[1]		Zero-Car Households[1]	
	No.	% of Total Pop.	No.	% of Total House-holds	No.	% of Workers 16 and Older	No.	% of Total Residen-tial Units
Los Angeles County	5,228,442	59.0	355,295	11.9	267,210	6.5	333,562	11.2
Project Study Area[2,3]	99,971	96.7	28,717	26.0	6,890	19.9	7,365	30.1
Union Station	7,356	86.5	309	37.1	270	32.2	570	60.5
1st/Alameda	4,204	80.6	328	26.0	300	26.0	942	70.6
1st/Utah	11,270	97.0	1,131	38.1	1,011	28.2	1,167	38.8
1st/Boyle	16,921	97.6	1,343	32.9	1,672	27.6	1,591	36.3
1st/Soto	21,100	98.7	1,410	27.1	2.208	27.0	1,818	34.8
1st/Lorena	14,541	99.1	828	23.4	937	18.5	744	22.7
3rd/Rowan	15,199	99.2	932	26.0	982	19.2	892	26.2
3rd/Mednik	10,049	98.5	572	23.0	332	9.4	546	21.5
Beverly/Atlantic	7,723	95.8	397	17.1	254	8.2	376	16.4

Notes:
1. U. S. Census of Population and Housing, 1990. Data based upon blocks. which are the smallest tabulated area measurement.
2. The Project Study Area extends east from Union Station to Beverly Blvd just east of Atlantic and is confined to the area one-half mile on either side of the alignment.
3. The Project Study Area and its associated nine stations excluded 1990 U. S. Census block groups 207400-1, 206000-2, and 207100-5 from demographic analysis due to the presence of jail facilities.

4.4.1.4 Corridor Housing Characteristics

In 1990, over 25,000 households existed in the study area (refer to Table 4.3-2 in the Land Acquisition/Displacement section). This number is expected to increase to over 40,000 units in 2020, or a 39 percent rate of growth from 1990 to 2020. This rate of new housing construction is almost ten percent greater than Los Angeles County as a whole. Yet the growth is not expected to occur uniformly throughout the corridor. Although the highest number of households are within a half-mile of proposed station locations at 1st/Boyle and 1st/Soto, the largest rates of housing development are expected to occur in less-populated areas close to the Central Business District, around Union Station and 1st/Alameda. By 2020, the area surrounding the 1st/Alameda Station is projected to surpass 1st/Soto as the area along the light rail alignment containing the greatest number of housing units.

Currently, the demand for housing in the study area exceeds the supply. Less than one percent of total units are vacant. As in many low-income communities, average household size is greater than the countywide average. Nearly 75 percent of housing units in the corridor are rentals, compared with 52 percent for the County as a whole. Home ownership is particularly rare in the segment between Union Station and 1st/Boyle. Less than 12 percent of households own their home. The median value of houses in the study area is approximately half the value of those countywide (refer to Table 4.3-2 in the Land Acquisition/Displacement section). Although housing values increase in the eastern portion of the corridor, they still do not approach the median value of housing in the County. Rental prices are also less expensive in the corridor than in the County and do not vary substantially throughout the corridor.



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

Eastside Corridor Transit Consultants

Legend

- Stations
- LRT Alignment
- 1/2 Mile Buffer
- Project Study Area
- Highway
- Primary Road
- Secondary Road

Percent Minority

- 0-59 (59.0% Avg. La Co.)
- 60-86 (86.6% Avg. MIS Study Area)
- 87-92
- 93-100 (96.7% Avg. Project Study Area)

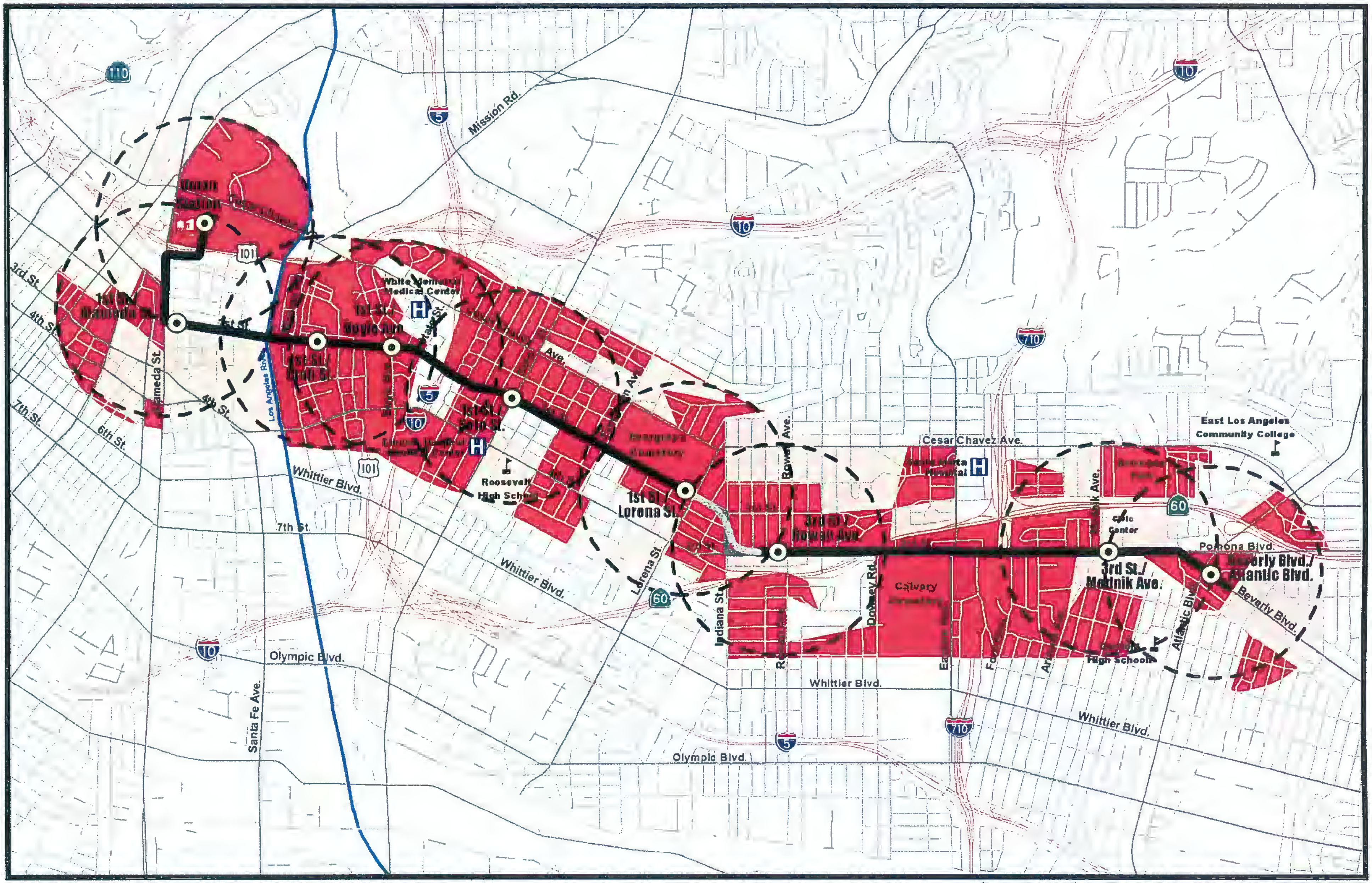
Note: Highways, primary, and secondary roads by Thomas Bros. Maps through a conditional use from MTA 1997. Demographic information from the 1990 Census of Population and Housing, U. S. Department of Commerce Economic and Statistics Administration.

November 2000

Los Angeles Eastside Corridor SEIS/SEIR

Minority Population

Figure 4.4-2



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

Eastside Corridor Transit Consultants

Legend

- Stations
- LRT Alignment
- LRT Build Alt. Options
- Project Study Area
- 1/2 Mile Buffer
- Highway
- Primary Road
- Secondary Road

Low-Income
- 0-11 (11.9% Avg. La Co.)
- 12-20 (15.8% Avg. MIS Study Area)
- 21-50 (26.0% Avg. Project Study Area)
- 51-70

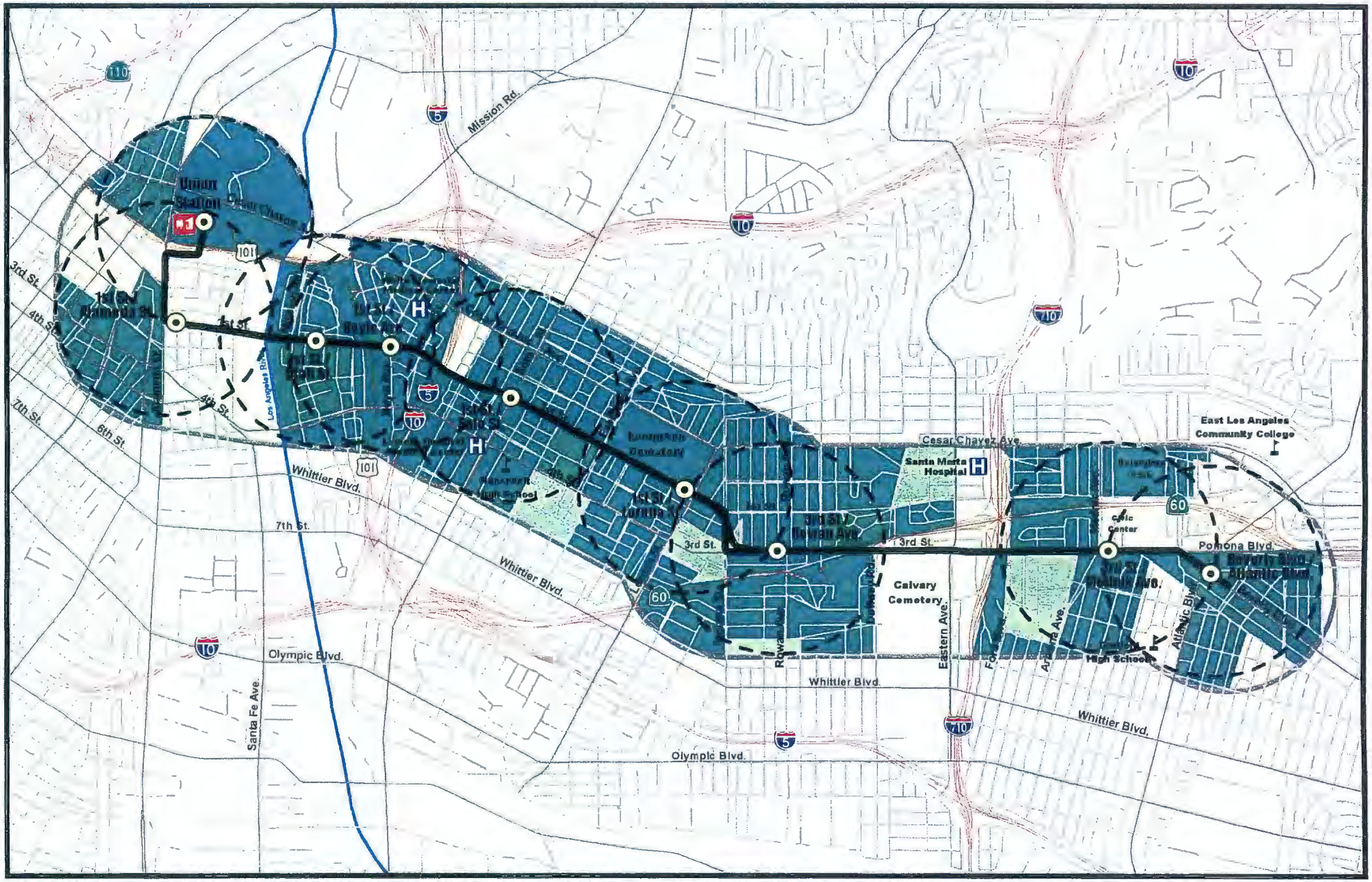
Note: Highways, primary, and secondary roads by Thomas Bros. Maps through a conditional use from MTA 1997. Demographic information from the 1990 Census of Population and Housing, U. S. Department of Commerce Economic and Statistics Administration.

November 2000

Los Angeles Eastside Corridor SEIS/SEIR

Low Income Population

Figure 4.4-3



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

Eastside Corridor Transit Consultants

Legend

- Stations
- LRT Alignment
- 1/2 Mile Buffer
- Project Study Area
- Highway
- Primary Road
- Secondary Road

Percent Zero Car Households
- 0-11 (11.2% Avg. La Co.)
- 12-15 (15.5% Avg. MIS Study Area)
- 16-49 (30.1% Avg. Project Study Area)
- 50-100

Note: Highways, primary, and secondary roads by Thomas Bros. Maps through a conditional use from MTA 1997. Demographic information from the 1990 Census of Population and Housing, U. S. Department of Commerce Economic and Statistics Administration.

November 2000

Los Angeles Eastside Corridor SEIS/SEIR

Zero Car Households

Figure 4.4-4

4.4.1.5 Neighborhoods

The study area traverses or is adjacent to several districts or communities as defined by the City and County of Los Angeles in their adopted community plan areas. The identified communities included Central City and Central City North located west of the Los Angeles River; the Boyle Heights community located east of the Los Angeles River to the Los Angeles City and County boundary at Indiana Street; and the East Los Angeles community located east of Indiana Street to about one-quarter mile east of Beverly and Atlantic Boulevards (refer to Figure 4.1-1)

Central City

Central City is the generic term used to identify the greater downtown community planning area composed of several distinct sub-districts of which the Civic Center, Little Tokyo community, and Central City East sub-districts abut the proposed LRT alignment on the west side of Alameda Street. The Civic Center sub-district includes the El Pueblo State Historic Park, the birthplace of the City of Los Angeles, located just north of the Hollywood Freeway and west of Alameda Street and Union Station. Olvera Street, which was enhanced as a Mexican marketplace in 1932, contains 13 historic structures dating from 1818 to 1926. Over the past ten years, the El Pueblo area has undergone considerable improvements including seismic retrofit, building restoration, and public improvements. South of the Hollywood Freeway to First Street is the concentration of City, County, and Federal buildings that comprise the downtown Civic Center.

The Little Tokyo community, which lies west of Alameda Street between 1st and 3rd Streets, was the primary location for Japanese immigrants at the beginning of the 21st century. The population that resides in the Little Tokyo community is primarily minority (80%) with approximately one-half considered low income. Most residents (70%) do not own automobiles and are heavily dependent on public transportation. The Little Tokyo Redevelopment Project served as a catalyst for community revitalization (refer to Section 4.1, *Land Use and Development*).

Central City North

Central City North, which extends from Alameda Street east to the Los Angeles River, is one of the City's oldest industrial areas. This area has remained largely industrial with some large vacant parcels, public support facilities for the Department of Water and Power and the Los Angeles Unified School District, and some Little Tokyo related facilities such as temples, mortuary, and the Maryknoll School.

Boyle Heights

Boyle Heights, encompassing approximately six square miles between the Los Angeles River and Indiana Street, served as a primary port of entry for Molokan Russians, Jews, Armenians, Chinese, Japanese, and Mexican peoples around 1900. Today the ethnic composition of the community is primarily Hispanic. A range of 23% to 42% of existing families are considered low income; about 27% are transit dependent; and a range of 22% to 38% do not own an automobile.

The 1940's and 1950's saw the introduction and construction of four public housing projects in Boyle Heights. In total they represented 1,800 apartment units and over 11,000 residents. Over the past 20 years, a variety of revitalization programs have been implemented to address the physical deterioration of existing structures. Some of these are on-going such as the housing rehabilitation program administered through the Community Redevelopment Agency; the former Commercial Area Revitalization Program along Cesar Chavez Avenue; the Los Angeles Neighborhood Initiative Program along 1st Street; and the current Urban Revitalization Demonstration Program of the greater Pico-Aliso public housing project. More recently, in 1999, the City of Los Angeles adopted the Adelante Eastside Redevelopment Project (refer to Section 4.1, Land Use and Development).

East Los Angeles

The unincorporated East Los Angeles community is approximately eight square miles in size located between Indiana Street on the west and the incorporated cities of Monterey Park and Montebello on the east. Although East Los Angeles abuts the Boyle Heights community and presently shares similar social and demographic characteristics, its historical context is very different. The housing boom of the 1920's generated the development of East Los Angeles, which was largely settled by persons of European background, particularly in the area between 3rd Street on the north and Whittier Boulevard on the south.

Current demographics indicate that approximately 95% of the population is minority and predominantly of Mexican descent in the East Los Angeles community. About one-quarter of the families are considered low income. Over the past 20 years, very few efforts have been attempted to address the need of rehabilitating the existing housing stock in East Los Angeles, although some new affordable housing and senior citizen housing has been developed, as have public improvements, including streetscape enhancements, including the famous Whittier Archway and Latino Walk of Fame along the commercial corridor of Whittier Boulevard. In the near future, a major revitalization effort is also scheduled for the East Los Angeles Civic Center complex at 3rd Street and Mednik Avenue.

4.4.2 Methodology for Impact Evaluation

The assessment of potential community/neighborhood impacts focuses on the following issues:

- The effect of the alternatives on the relationship of neighborhoods within the study area and the region;
- The effect of the alternatives within the neighborhoods; and
- The effect of the alternatives on the immediate vicinity of the station locations.

An impact would be considered significant under CEQA if an alternative induced substantial growth, if it would displace a large number of residents or businesses, or if it would substantially alter the location, distribution, density, or growth rate of population of an area in a manner inconsistent with public policy. Disruption of neighborhood access or isolation of a portion of a neighborhood from the remainder of the neighborhood would also constitute a significant impact. Impacts could be temporary (produced during construction) or long-term (produced by light rail operation).

The demographic information utilized in this analysis is based on the 1990 Census data since this is the most recent data available. A Geographic Information System (GIS) was used to collect and map data by census block for the entire study area as well as for areas within a half-mile of the stations. The analysis considers the number of persons served within a half-mile of each of the individual station areas. Where station areas are located less than one mile apart, the individual station data includes double counting where the half-mile radii of each station overlap. The total of persons served has been adjusted to account for the overlap and does not double-count.

In addition to total population and population density, data was collected for minority and low-income populations and on numbers of zero-car households. The latter criterion is reflective of the extent of transit-dependence within the corridor. The percentages for the County for these statistics were also used as a comparison to determine areas of high concentrations of such workers and zero-car households within the study area. Housing characteristics, such as average household size, vacancy rate, and percent owner-occupied, were also compared with countywide data.

Staff at the U.S. Census Bureau was consulted to determine the appropriate definition for poverty status. They indicated that the statistic, "Ratio of Income in 1989 to Poverty Level" should be used. This statistic was derived by the Census by testing the income of each household against the appropriate poverty threshold (48 thresholds were used based on household size and number of members under 18 years) to determine the poverty status of that household. Several ranges of ratios are reported. All households below a ratio of 1.0 are considered to be in poverty. Note that 1989 income was used since it was the last full year prior to the 1990 Census. Using this statistic, it was determined that low-income households account for 11.9 percent of the households within the County. Therefore, any locations within the study area with higher percentages than the County's were considered low-income areas.

4.4.3 Impacts

4.4.3.1 No-Build Alternative

The No-Build Alternative would not induce growth nor would it displace or substantially alter the distribution of the population in the study area. Neighborhood cohesion and access also would not be affected. However, the No-Build Alternative would not offer study area residents enhanced mobility, regional connectivity, and accessibility provided by the LRT Build Alternative.

4.4.3.2 LRT Build Alternative

Regional and Corridor Population and Demographics

Projected growth (2020) for the corridor and for Los Angeles County are similar, approximately 25 percent. The growth is expected to occur with or without the implementation of the light rail line. By permitting infill development that is compatible with the surrounding communities (as established in local community plans), the number of new businesses and residences that could be accommodated at station locations would not be expected to substantially increase the population or alter its distribution in the study area. Therefore, no growth-inducing or adverse cumulative impacts are anticipated. The degree to which the projected population and housing growth would be accommodated at LRT stations is discussed in Section 4.1, Land Use and Development. The effect of project-related housing displacement on the corridor housing stock is described in Section 4.3, *Land Acquisition/Displacement*.

Corridor Socio-Economic Characteristics

The corridor is populated primarily by minority residents, most of whom live within walking distance of the proposed light rail stations (refer to Table 4.4-3). Over 6,000 low-income households, most without automobiles, are within one-half mile of the stations. The LRT Build Alternative would provide new transit connections and increased mobility for these transit-dependent residents. Light rail would produce beneficial impacts on the community without substantially altering the existing socio-economic characteristics of the corridor. No adverse impacts are expected.

Corridor Housing Characteristics

Construction of new housing is expected to occur in the corridor with or without the implementation of light rail. Since the corridor east of the Los Angeles River is essentially built-out, new development would occur on vacant parcels or in redevelopment areas. City and County of Los Angeles land use and economic development policies could promote transit-oriented development and encourage new housing to be constructed around light rail stations (refer to Section 4.1, *Land Use and Development*). The new development would not substantially alter the density or character of the neighborhood. Although the placement of stations may influence the market for surrounding commercial and residential property, the LRT Build Alternative by itself is not expected to sufficiently change market and other conditions necessary to cause significant changes in neighborhoods under CEQA.

Neighborhoods

By fostering a closer linkage among East Los Angeles communities, the light rail line may serve to unify and enhance the cohesiveness of study area neighborhoods that were previously divided by construction of the freeway system. Study area businesses would benefit from improved access for their patrons and could market their goods and services to a larger area. Community facilities may also capture a larger service area because of the light rail line. Beneficial cumulative impacts may result from other transportation and transit projects planned for the region.

Adverse impacts on neighborhood traffic and pedestrian circulation and curb parking, described in Chapter 3, can be mitigated with the exception of several traffic intersections as discussed in Chapter 3. This would occur regardless of which option is selected for implementation.

The noise and vibration analysis concludes that ground-borne noise and vibration impacts on many residences and businesses immediately adjacent to the alignment will be created by light rail operation. For Options 1 and 2, a total of 66 structures would be affected by ground-borne noise; for Option 3, 98 structures would be affected. Option 3 would produce ground-borne vibration impacts on fewer structures (56) than Options 1 and 2 (95). Displacement of residences and businesses would also vary among the options. For Options 1 and 3, 13 units and 9 businesses would be displaced compared with 32 units and 14 businesses for Option 2. All options would alter the historic setting for Mariachi Plaza and at 1st/Soto by removal of buildings to accommodate proposed subway stations at these locations.

Significance of Impacts

The LRT Build Alternative would produce beneficial mobility impacts for the community, especially for transit-dependent populations. However, neighborhoods would be subjected to traffic, parking, pedestrian circulation, noise, vibration, displacement, and historic resource impacts that are significant.

4.4.4 Mitigation

For a complete list of mitigation measures that relate to the aforementioned transportation, pedestrian circulation, noise/vibration, displacement, and cultural resource impacts that may affect study area neighborhoods, refer to the respective technical analyses in Chapters 3 and 4.

Note also that MTA intends to fund Community Linkages Studies to develop pedestrian and bicyclist plans to link neighborhoods with stations along the corridor. This is discussed in more detail in Chapter 3.

4.4.4.1 Significance of Impacts Remaining after Mitigation

One impact on neighborhoods, worsening of conditions at several traffic intersections under all options, cannot be mitigated. All other potential impacts on neighborhoods resulting from the operation of the LRT Build Alternative can be mitigated to a level that is less than significant.

4.5 EQUITY AND ENVIRONMENTAL JUSTICE CONSIDERATIONS

4.5.1 Affected Environment

4.5.1.1 Introduction

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President Clinton on February 11, 1994, requires that federal agencies consider and address disproportionately high adverse environmental effects of proposed federal projects on the health and environment of minority and low-income populations to the greatest extent practicable by law. The Executive Order requires that each federal agency shall:

- Make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations (Subsection 1-101);
- Conduct its programs, policies and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying person (including populations) the benefits of, or subjecting persons (including populations) to discrimination under such programs, policies and activities because of their race, color or national origin (Subsection 2-2); and
- Work to ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public {Subsection 5-5(c)].

The U.S. Department of Transportation has issued guidance on complying with Executive Order 12898 during the environmental review process. In addition to complying with the Executive Order, the Department of Transportation is committed to Title VI of the Civil Rights Act, which provides that no person in the United States shall, on the grounds of race, color or national origin, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving federal financial assistance.[4]

On April 21, 1997, President Clinton signed Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, which directs federal agencies to identify and assess environmental health risks and safety risks that may disproportionately affect children. Health and safety risks are defined as risks that are attributable to products or substances that a child is likely to come in contact with or ingest. Although no guidelines have been published to date, this environmental document has evaluated the anticipated impacts by looking at impacts of the alternatives that may disproportionately affect concentrations of children in the study area.

Executive Orders 12898 and 13045 as well as guidance from the U.S. Department of Transportation encourages wherever possible the use of existing requirements and procedures to accomplish the goals of the Executive Orders. The Environmental Justice analysis presented in this document uses the aforementioned guidelines in accordance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) framework. The analysis identifies the beneficial and adverse impacts on minority and low-income populations in the Eastside Corridor if the LRT Build Alternative were implemented. In accordance with the provisions of Subsection 5-5 (c) of Executive Order 12898, a discussion and identification of the public involvement activities that have fostered and

[4] Federal Highway Administration, Federal Transit Administration, Interim Region 9 Guidance: *Addressing Environmental Justice in the Environmental Impact Statement*; May 9, 1997.

encouraged input from minority and low-income communities in the formulation and analysis of corridor alternatives is also included.

FTA will make the final determination whether adverse impacts fall disproportionately on minority and low-income populations. FTA will make this determination after having reviewed the Final SEIS/SEIR, the alternatives considered, public comments and testimony, and the public involvement process itself. If adverse impacts of the project fall disproportionately on minority and low-income populations, additional mitigation measures beyond those already identified may be required. If strategies cannot be taken to adequately minimize these impacts, then selection of an alternative with less adverse impacts may need to be considered.

The Environmental Justice analysis and the FTA determination for this project do not reduce or diminish previous commitments made by MTA to redress grievances submitted by the Bus Riders Union to the U.S District Court for the Central District of California. The Consent Decree, ordered by the Court in October 1996, identified specific actions to be taken by MTA over a ten-year period to improve transit quality and maintain fare levels (with the exception of Consumer Price Index adjustments) for the transit dependent population in Los Angeles County. Specific actions, such as the purchase and placement of new buses on overcrowded routes, establishment of new routes, and the improvement of passenger amenities, will continue as authorized in the Consent Decree.

4.5.1.2 Study Area Demographics

Of the total study area population of 103,289, 96.7 percent of the population living in the corridor, according to the 1990 U.S. Census data, is considered minority (refer to Table 4.4-3 in *Communities/Neighborhoods*). Minorities include all people of the following origins: Black; American Indian, Eskimo, or Aleut; Asian or Pacific Islander; other races; White Hispanic; Black Hispanic; American Indian, Eskimo, or Aleut Hispanic; Asian or Pacific Islander Hispanic; and other race Hispanic. People of Hispanic origin are the largest minority living within the study area. With the exception of areas west and south of the proposed 1st/Alameda Station and areas to the east and north of 3rd/Eastern, the high proportion of minorities occurs throughout the study area.

In the study area, 26 percent of total households were below the poverty level, compared with 11.9 percent for the county as a whole (refer to Table 4.4-3 in *Communities/Neighborhoods*). With the exception of four scattered pockets in Boyle Heights (near 1st/State, 1st/Soto, 1st/Evergreen, and 3rd/Lorena), and three small areas in East Los Angeles (3rd/Downey, 1st/Eastern, and Atlantic south of Beverly), the distribution of low income households in the study area is consistently well above the countywide average.

An indicator often used to determine extent of transit dependence is the number of zero-car households, or occupied housing units with no available vehicles. Within the study area, 30 percent of households do not have access to a car, compared with 11.2 percent for the county as a whole (refer to Table 4.4-3 in *Communities/Neighborhoods*). The lack of access to automobiles increases to 50 to 100 percent of all households in sections of the Central City and Boyle Heights neighborhoods and also one section in East Los Angeles.

4.5.1.3 Major Issues of the Eastside Communities

After World War II, the Boyle Heights and East Los Angeles communities were subjected to 30 years of freeway construction as a result of implementing the current regional freeway network. Five freeways traverse these communities, mostly through residential areas, resulting in impacts on neighborhood cohesiveness, pedestrian and traffic circulation impacts, visual, and noise impacts on nearby residences, schools, parks, and other public facilities. In addition, the area has been exposed to increases in automobile and truck traffic due to the location of freeway on- and off-ramps and the East Los Angeles freeway interchange.

It has been estimated that about 2,900 housing units were removed and 10,000 persons were displaced as a result of the freeway construction in the Boyle Heights community alone. Because the freeways were built prior to enactment of NEPA and CEQA, no environmental impact documentation was prepared for any of these freeway projects. Current provisions for relocation benefits to displaced persons were non-existent. These issues are of major concern to both current and former residents of the Boyle Heights and East Los Angeles communities, who bore the burden of the major transportation investments without receiving the benefits of improved mobility and enhanced regional connections.

4.5.1.4 Public Involvement Program

Opportunities for public participation in the Los Angeles Eastside Corridor Study have been provided by the MTA since the initiation of the study in July 1999. A series of community meetings have been held within the affected neighborhoods of Boyle Heights, East Los Angeles, Montebello, and Pico Rivera. These meetings occurred at locations most accessible to area residents, including the Resurrection Parish Hall, Saint Alphonsus School Auditorium, Centro Maravilla Community Service Center, and the Montebello Council Chambers. The meetings have had interpreters available, as needed, to translate the proceedings into Spanish.

Initially, three community scoping meetings were held in August and September 1999 at locations in Boyle Heights, East Los Angeles, and Montebello. The purpose of the scoping meetings was to solicit input regarding the range of alternatives and transit modes being considered, the study area, and major social, economic, or environmental issues related to the alternatives.

A second round of public meetings was held in October 1999 in Boyle Heights, East Los Angeles, and along Whittier Boulevard in the East Los Angeles commercial core district. Focus meetings were held in the City of Montebello and the City of Pico Rivera the third week of November 1999 to discuss the alternative routes and the impacts along their commercial corridors.

A third round of public meetings was convened in early January 2000. The meetings were held in Boyle Heights, Little Tokyo Arts District, East Los Angeles, and Montebello. The purpose was to present the findings of the comparison of the alternatives and to again solicit public input prior to the presentation of the findings to the MTA Board of Directors and their selection of a preferred alternative(s) to be carried forward for further evaluation in the Draft SEIS/SEIR. Since January, additional community meetings have been held in various parts of the corridor.

A complete list of community and agency meetings and the number of people attending is presented in Chapter 6, *Coordination and Consultation*.

4.5.2 Methodology for Impact Evaluation

For this evaluation, definitions of minority and low-income areas were established based on guidance provided by the Council on Environmental Quality (CEQ). CEQ's *Environmental Justice Guidance Under the National Environmental Policy Act*, December 10, 1997, states, "Minority populations should be identified where either (a) the minority population of the affected area exceeds 50 percent or (b) the population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis." The CEQ further states that "The selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood, a census tract, or other similar unit that is chosen so as to not artificially dilute or inflate the affected minority population."

For this analysis, Los Angeles County was selected as the unit of geographic analysis for comparison. The U.S. Census Bureau provided the definition of minority populations to be used to identify locations within the study area with higher percentages of minority populations than the County's (refer to Section 4.5.1.2, *Study Area Demographics*). Staff at the Census Bureau advised use of the statistic, "Ratio of Income in 1989 to Poverty Level" to indicate low-income populations. This statistic was derived by testing the income of each household against the appropriate poverty threshold (48 thresholds were used based on household size and number of members under 18 years) to determine the poverty status of that household. All households below a ratio of 1.0 were considered to be in poverty. Using this statistic, it was determined that low-income households account for 11.9 percent of the households within the County. Locations within the study area with higher percentages of low-income households than the County's were considered low-income areas. Data was also collected on numbers of zero-car households, an indicator of the transit dependent population in the corridor.

In determining whether a project will have "disproportionately high adverse environmental effects," a number of factors were considered including its potential adverse impacts; mitigation and enhancement measures that will be incorporated into the project; and off-setting benefits. Adverse impacts were examined in these critical areas: 1) property acquisition and displacements; 2) transportation; 3) air quality; 4) noise and vibration; 5) community facilities/parklands; 6) hazardous materials; and 7) construction impacts. To estimate the extent of the benefits derived from the LRT Build Alternative, the following criteria were employed:

- Equity
- Daily transit trips/mobility
- Travel time savings
- Regional connectivity
- Economic revitalization
- Employment opportunities

Equity was examined by comparing regional transportation investments with the benefits of those investments relative to the study area. To assess transit mobility, regional connectivity, and accessibility, computer modeling was used to estimate the daily person trips, transit trips, and transit mode share within the corridor for 2020, the planning horizon year. The results for the LRT Build Alternative were compared with the No-Build Alternative. Although these measures apply to the entire corridor, they can also be used as an indicator of transit mobility and accessibility within minority and low-income areas since much of the corridor fits these definitions. Land use data as well as economic and fiscal projections were examined to determine the potential for economic revitalization and increased employment resulting from the LRT Build Alternative.

In accordance with Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, a determination of whether the potential for contact with hazardous products or substances used in the construction or operation of the LRT Build Alternative or whether other impacts would disproportionately affect children in the study area was made.

The evaluation summarizes the beneficial and adverse impacts for the LRT Build Alternative, including the efforts to date to solicit input from the public in considering the alternatives. A preliminary determination whether adverse impacts will fall disproportionately on minority and low-income populations is made at the end of the evaluation. After reviewing the Final SEIS/SEIR, FTA will decide if they concur with this determination.

4.5.3 Potential Beneficial Impacts

4.5.3.1 No-Build Alternative

The No-Build Alternative would not offer study area residents enhanced mobility, regional connectivity, and accessibility provided by the LRT Build Alternative.

4.5.3.2 LRT Build Alternative

Equity

Indicators of transit dependence, such as low-income households and zero-auto households, are nearly three times higher than for Los Angeles County as a whole. The need for and reliance on transit has not been balanced by regional public transportation investments that would benefit this transit dependent community. For example, MTA rail services extend to Western Avenue and to North Hollywood, to Norwalk and El Segundo, to Long Beach and ultimately to Pasadena. Metrolink serves suburban destinations in all directions. Yet, no major investment in transit service, either bus or rail, has been made in the Eastside Corridor. A concerted effort to extend the Metro Red Line to the corridor was suspended in 1998. In addition, the corridor has borne the disproportionate effects of a regional freeway system that has cut through its neighborhoods to reach suburban destinations. Implementing LRT service in the corridor would help restore the balance of regional capital transportation expenditures as well as compensate for the adverse impacts that previous transportation planning decisions have caused.

Mobility/Transit Travel Times/Regional Connectivity

The LRT Build Alternative is expected to increase the number of daily transit trips compared with the current bus service offered by the No-Build Alternative and reduce travel times. Travel times between the corridor and major travel destinations, such as Hollywood, Wilshire Boulevard, Downtown Los Angeles, and Pasadena, would decrease with the LRT Build Alternative. For two representative trip origins in the corridor, 1st/Soto and 3rd/Mednik, travel times for the LRT Build Alternative could be reduced by as much as 16 percent over the No-Build Alternative for various regional destinations (Table 4.5-1). This increase indicates the value of quality transit service in attracting riders. It also indicates that light rail service offers improved access for area residents to local destinations as well as to the regional rail and bus system and, therefore, to regional destinations. The LRT Build Alternative also would serve many educational and community centers in the corridor, enhancing mobility for young adults and school age children.

TABLE 4.5-1
REGIONAL TRANSIT TRAVEL TIMES (IN MINUTES) FROM SELECTED ORIGINS IN THE EASTSIDE CORRIDOR

Trip Origin	Hollywood/Highland		Wilshire/ Fairfax		1st/Hill		Fair Oaks/Colorado	
	No-Build	LRT	No-Build	LRT	No-Build	LRT	No-Build	LRT
1st/Soto	62	53	70	60	26	24	67	55
3rd/Mednik	67	60	75	67	39	32	47	45

Economic Revitalization

The LRT Build Alternative includes eight new stations as well as the current Union Station. With proper incentives and with favorable market conditions, developers may consider the merits of constructing housing and commercial developments that are oriented to the light rail stations and that take advantage of the new light rail service. Station areas that have vacant land resulting from right-of-way acquisition for the suspended Metro Red Line project or for the construction of the LRT Build Alternative can be developed, in accordance with City and County of Los Angeles planning and redevelopment policies and Community Plans, to benefit the surrounding neighborhoods. In a corridor that has an extremely low vacancy rate and a great demand for affordable housing, such development could provide needed housing and space for retail and social service uses. The new development could offer larger units for families with children, helping to meet a dire need in the community. In addition, landscape treatments along the light rail line could enhance the urban design of the community, making opportunities for development more attractive.

Employment Opportunities

The LRT Build Alternative is anticipated to generate approximately 47,000 (Options 1 and 2) to 54,000 (Option 3) new construction jobs and, within the first 14 years of operation, over 1,000 permanent jobs to operate and maintain the LRT line. In addition, MTA is formulating a local hiring policy for the corridor that will be reviewed by the Eastside Corridor Review Advisory Committee. MTA will provide resources to train people in the community, as needed, to employ as many local residents as possible in the construction and operation jobs generated by the Eastside Corridor project. In addition, it is MTA's policy to ensure that a job development and training commitment is provided by all proposers and bidders seeking to conduct business with the MTA. MTA also currently offers a series of programs designed to encourage minority and women-owned businesses to participate in the construction and operation of new transportation projects.

4.5.4 Adverse Impacts and Mitigation Measures

4.5.4.1 No-Build Alternative

The No-Build Alternative would maintain the existing transportation system in the corridor and, as a result, would not address the transportation deficiencies experienced by area residents or correct the imbalance of transit expenditures that have benefited other portions of the region without providing similar improvements in the corridor. In addition, the No-Build Alternative could not compensate for the burdens imposed on the area by the construction of the regional freeway and railroad systems that traverse the corridor.

4.5.4.2 LRT Build Alternative

The LRT Build Alternative would produce construction and operation impacts throughout the corridor. Because the transportation improvements are being done in a largely minority and low-income area, the construction and operation impacts will fall almost exclusively on corridor residents. Construction and operation impacts on children would have the greatest likelihood to occur at schools during daytime hours. Key impacts of concern include residential displacements, pedestrian circulation and safety, noise, vibration, parklands, hazardous materials, and air quality. The impacts and associated mitigation measures for these areas are described below.

Acquisitions and Displacements

Construction of light rail facilities and acquisition of property for construction staging areas would displace 52 residents and nine businesses for Options 1 and 3, increasing to 128 residents and 14 businesses for Option 2. Displacements would affect the historic setting of Mariachi Plaza and 1st/Soto for all three options. Historic structures along Indiana Street, including three residences, one commercial structure, and the Department of Water and Power facility, would be removed under Option 2. The displacements, although not extensive, represent affordable housing units and businesses that are often neighborhood establishments serving the local population. The displacements would fall largely on low income and minority residents. Families with children probably constitute a large percentage of these displaced residents. The Boyle Heights Community Plan includes a policy to conserve and improve existing sound housing for low and moderate income families. To address the intent of the policy, MTA would reconfigure the remaining land acquired for the project in the vicinity of the residential losses so that it would be made available for neighborhood commercial and medium-density residential uses, as designated in that plan. Federal and state statutes require the agency responsible for the displacements to finance acceptable, equivalent replacement housing and business relocation. However, the low vacancy rate in the study area and the limited availability of affordable replacement housing has prompted MTA to provide additional assistance (refer to Section 4.3.4, *Land Acquisition/Displacement and Relocation*). The project will result in the relocation of several businesses. MTA will provide the funds needed for job training for those persons unable to find a new job as a result of the relocations. As noted in Section 4.5.3.2, MTA will also provide resources to train people in the community, as needed, to employ as many local residents as possible in the construction and operation jobs that will be generated by the Eastside Corridor project.

Traffic Circulation and Pedestrian Safety

Adverse impacts on neighborhood traffic and pedestrian circulation and curb parking, described in Chapter 3, can be mitigated with the exception of the worsening of traffic conditions at several traffic intersections under all options. Refer to Chapter 3.0, *Transportation*, and Sections 4.14.4, *Safety and Security*, and 4.16.4, *Community Facilities/Parklands*, for mitigation measures that relate to traffic, parking, and pedestrian circulation impacts.

Construction activities would temporarily interfere with normal traffic flow, causing some lanes and streets to be closed to vehicles for various durations of time. However, these temporary lane closures are not expected to restrict access to schools located along or near 1st Street. For Options 1 and 2, there would be temporary curb parking restrictions along Indiana Street by Ramona High School. Although most temporary construction-related impacts can be mitigated, certain locations may experience traffic experience traffic and parking impacts that cannot be fully mitigated (refer to Section 4.19.2, *Construction Period Impacts and Mitigation*).

Noise and Vibration

At-grade and subway operation are not expected to generate noise and vibration impacts to schools or other community facilities except for potential ground-borne vibration impacts to the Veterans Clinic, the Geffen Museum, and the Japanese American National Museum. Since these facilities are regional, the impacts would not necessarily fall primarily on minority or low-income residents or children. If, after follow-on analysis during final design, ground-borne vibration is found to exceed the FTA standards, mitigation measures, described in Section 4.8, *Noise and Vibration*, will be incorporated into the project design. Construction activities may also produce temporary noise and vibration impacts. Although it is expected that construction-generated noise and vibration can be mitigated, it is possible that, at certain locations, temporary impacts may still occur, even with mitigation.

Parklands

Parklands bordering the proposed alignment and construction staging areas, such as Pecan Park and Belvedere Park, may undergo temporary noise, vibration, visual, air quality, and circulation impacts due to construction activities. The use of Mariachi Plaza would be temporarily disrupted by excavation and finishing work on the eastern end of the plaza for the 1st/Boyle subway station. The section of Mariachi Plaza de Los Angeles between Boyle Avenue and 1st Street would be closed during the three to four year station and tunnel construction period. Curb parking may be temporarily restricted on 1st Street, which could reduce access to Pecan Park, LANI Park, and Mariachi Plaza. However, MTA is committed to maintaining access to these parks throughout the construction period. The historic setting of Mariachi Plaza would be affected by removing the Ranch Market located across the street from the Plaza, a significant impact without mitigation. These impacts would fall primarily on minority and low-income residents in the Boyle Heights community. Refer to Sections 4.15.4, *Historic/Archaeological/Paleontological Resources*, and 4.16.4, *Community Facilities/Parklands*, for mitigation measures that relate to the aforementioned impacts.

Air Quality

Temporary air quality impacts may be generated by construction activities that would fall largely on area residents. Refer to Section 4.7.4, *Air Quality*, for appropriate mitigation measures.

Hazardous Materials

Hazardous materials may be present in construction areas, including tunnel segments and staging areas. Standard procedures for addressing the storage and removal of hazardous materials from construction areas would prevent local residents, particularly children, from being exposed to or ingesting hazardous materials. Standard procedures for safe storage and transportation of hazardous materials are presented in Section 4.10, *Hazardous Materials*.

4.5.5 Conclusion

Adverse impacts from the LRT Build Alternative would fall primarily on low income and minority populations since they represent the primary population groups residing in the corridor. The potential long-term impacts for the LRT Build Alternative could be mitigated with the exception of traffic impacts at 14 intersections in the study area under all options. Although most temporary construction-related impacts can be mitigated, certain locations may experience traffic, parking, air quality, noise, and vibration impacts that cannot be fully mitigated.

In view of the considerable project benefits and local support for implementing the LRT Build Alternative, the impacts would not be disproportionate to the mobility, regional connectivity, equity, and economic gains this alternative could offer. In addition, the LRT Build Alternative, with proper mitigation, would not increase the risk to children's health or safety that is attributable to products or substances that a child is likely to come in contact with or ingest. Public input related to project benefits and impacts has been solicited throughout the study, attracting over 1,000 community members at numerous public meetings held throughout the corridor.

4.6 VISUAL AND AESTHETICS

4.6.1 Affected Environment

4.6.1.1 Regional Context

The Eastside Corridor is located in a dense urban area, with slightly rolling topography. The Los Angeles River divides the regional visual study area in two: west of the river, which includes Union Station, Central City, and Little Tokyo; and east of the river, which includes Boyle Heights and East Los Angeles. The numerous freeways that cross this area also tend to divide the area, especially the large "canyon" created by US 101 where it separates the Central City/Little Tokyo areas from the Union Station area.

4.6.1.2 Viewshed

The viewshed for the Eastside Corridor defines the actual study area for visual analysis. This viewshed answers the basic question of "from where would the project be visible?" In some areas, due to the rolling topography, there are wider areas visible, especially when looking down streets. An example of this is the long view available when looking west on 1st Street towards the Central Business District. Elsewhere, flat topography and existing development and landscaping narrow the views available to just those immediately adjacent to the roadway.

4.6.1.3 Applicable Policies

The City of Los Angeles *Citywide General Plan Framework* includes an Urban Form and Neighborhood Design chapter that encourages the incorporation of small-scaled public open spaces within transit-oriented development, both as plazas and small parks associated with transit stations, and as areas of public access in private joint development at transit stations. In addition, the *City of Los Angeles Land Use/Transportation Policy* provides the framework to guide future development around transit stations. The framework identifies prototypical stations that could be applicable to the LRT Build Alternative:

- **Major Urban Center Prototype** geared for an intensely developed urban area characterized typically by diverse land uses, high-rise buildings, high population density, automobile and pedestrian congestions, insufficiency of parks and open space, diverse social and demographic characteristics, buildings of varying age and physical condition, and intensive concentrations of employment; and
- **Neighborhood Center Prototype** suitable for commercial and residential mixed land uses characterized by commercial, educational, entertainment, or other activities that cater to the surrounding residential community.

Community plans in the study area with applicable urban design guidelines include:

- The *Central City Community Plan*, which focuses on three themes – preserving/enhancing open space; preserving and referencing historical heritage; and creating a pedestrian-friendly environment;
- The *Central City North Community Plan* includes an objective that encourages the preservation and enhancement of the varied and distinctive character of the community and its landmarks;
- The *Los Angeles Civic Center Shared Facilities and Enhancement Plan* includes streetscape and development standards applicable to the Central City area, which can be used to enhance the physical environment of the Civic Center;
- The *Boyle Heights Community Plan* states that the unique character of community streets should be maintained and enhanced by improved design characteristics such as street trees, landscaped median strips, traffic islands, and special paving; and

- The *East Los Angeles Community Plan* establishes a framework of goals, policies, and programs designed to provide guidance to those making decisions affecting the allocation of resources and the pattern, density, and character of development in East Los Angeles. The plan envisions a community that would remain substantially as it is today, but with objectionable uses removed from residential neighborhoods. The plan calls for community-wide standards that regulate the size, heights, location, density, and signage of structures and other uses.

The Los Angeles County Metropolitan Transportation Authority has a policy that recognizes that the inclusion of art in the design of public spaces creates a more inviting environment and contributes a positive experience for the system's riders. In concert with this policy, MTA has established the Public Art Program:

- To enhance the everyday act of commuting and expand the public experience of art through the commissioning of the highest-quality art in pubic spaces;
- To enrich the rail transit system for both residents and visitors by creating a unique visual identity for each station through works of art that contribute to a sense of community identity and pride;
- To heighten public awareness of the unique cultural and ethnic resources of the communities surrounding the stations;
- To foster the creation of a wide variety of visual art, conceived in any medium or material
- To foster the creation of art that is integrated into the design of each site and to foster collaborations between artists and architects in the creation of stations;
- To ensure the equitable distribution of commissions among artists of both genders, as well as among artists of diverse cultural heritage, and to express commitment to artists of diverse cultural heritage; and
- To express commitment to artists residing in California by restricting the program to California artists, with the exception of a limited number of international competitions.

4.6.1.4 Viewers

Different types of viewers have different perceptions of the visual environment. Perceptions vary with the familiarity, sense of ownership, and activity of the viewer. The viewers in the Eastside Corridor viewshed range from residents to office workers, and retail and industrial employees.

4.6.1.5 Visual Resources in the Corridor

Important visual resources include important views, places where visual quality is important to the use of the property, and recognized historical architecture. Below are the important visual resources within the Eastside Corridor viewshed (refer to Section 4.16, *Community Facilities/Parklands*, for Figures 4.16-1 and 4.16-2 that indicate the locations of these visual resources).

- Union Station
- 1st Street Bridge over the Los Angeles River
- Evergreen Cemetery
- Pecan Park
- Mariachi Plaza (Figure 4.6-1)
- Calvary Cemetery
- Serbian Cemetery
- Our Lady of Lourdes Catholic Church
- East Los Angeles Civic Center and Belvedere Park

Mariachi Plaza, as viewed from 1st Street, looking west.

Station entrances: As viewed from 1st Street, looking east. The subway entrance would be where the grocery store is now.

Murals

Throughout the Eastside Corridor viewshed, there are numerous murals, painted on building facades and other structures. These murals are important visual resources commissioned by private businesses, public agencies, religious organizations, parents, and community groups, or self-sponsored by the artists themselves. Much of the wall art has been created since 1960. At least 250 murals are located in the neighborhoods of Boyle Heights, Lincoln Heights, City Terrace, and East Los Angeles.

Skyline Views

In the western portion of the Eastside Corridor viewshed, west of the Los Angeles River, there are views of the downtown skyline. East of the river, views of the skyline are limited to upper levels of buildings.

4.6.2 Methodology for Impact Evaluation

Visual analysis considers such existing conditions as the area that can view the LRT Build Alternative, the viewers within these areas, the quality of the existing visual environment, and policies from local jurisdictions applicable to the project site.

To analyze potential long-term (permanent) visual impacts, the physical changes that would be visible are considered. How these physical changes would affect the visual quality is also considered. The type of viewers and their sensitivity to these visual changes are then considered. Special attention is given to visual changes that would occur in the view of important visual resources, such as historic resources, cultural facilities, and important views. Compatibility with visual policies is also considered. For this analysis, the LRT Build Alternative is assumed to be compatible with policies that have been adopted or approved by MTA, unless project plans specifically demonstrate that the alternative is not compatible. Short-term (construction) impacts include those visual impacts that would only occur during the construction period, such as demolition, excavation, and construction staging.

For this analysis, significant visual impacts under CEQA would occur in the following circumstances:

- **Policy Impacts:** If the project would conflict with applicable policies related to vista protection, scenic resource protection, conflict with adopted design criteria, or conflict with other visual policies of local or regional agencies;
- **Important Visual Resources Impacts:** If the project would substantially alter or obstruct existing public views of important visual resources;
- **Impacts Affecting Use:** If the project would change the existing visual quality or character in such a way that use of adjacent land is adversely affected;
- **Light or Glare Impacts:** If the project would result in light or glare in the project vicinity in such a way that it causes a hazard or nuisance;
- **Shade or Shadow Impacts:** If the project would adversely affect uses of adjacent land by the introduction of shade or shadow patterns; or
- **Historical Resources Impacts:** If the project would result in indirect impacts on properties that are listed in the National Register of Historic Places or the state Office of Historic Preservation register.

4.6.3 Impacts

4.6.3.1 No-Build Alternative

There would be no impacts on visual resources under the No-Build Alternative because this alternative only includes improvements to the transportation network that have already been approved and funded. Since no new capital improvements would occur, this alternative would produce no changes to the visual environment within the study area.

4.6.3.2 LRT Build Alternative

Table 4.6-1 lists the physical changes that would be visible within the viewshed of the LRT Build Alternative. Potential impacts are briefly described below according to the type of change. More detailed information regarding visual impacts is presented in the *Visual and Aesthetics Technical Report* (MTA, Los Angeles, December 2000).

Aerial Structure

One aerial structure would be constructed to carry the LRT from the Union Station platform across US 101 towards Alameda Street. On the Union Station side, the visual impact would be minimal because the structure would be at a similar elevation to the existing platforms. To the motorists on US 101, viewing this structure would be similar to other nearby structures crossing the freeway. Viewed from industrial land, parking lots, and the jail to the south of the freeway, the structure would not be obtrusive. Therefore, the visual impact of the aerial structure would be less than significant.

Street Widening

Widening of Alameda Street would remove portions of parking lots, street trees and landscaping. However, the visual impacts resulting from the removal and replacement would be minimal. In addition, removal or remodeling of the service station would have a minimal visual impact in this commercial area.

Widening of the Indiana Street right-of-way (under Option 2 only) would require removal of several structures, including residences, representing at least the first row of structures along the road. This would expose back and side yards to view from passing motorists, guideway riders, and properties on the east side of Indiana Street, including Ramona High School. The impacts of right-of-way widening on Indiana Street would result in a significant visual impact.

Street-level Trackwork and Overhead Catenary System

Tracks for the LRT would be installed in the existing streets, mostly within the center of the street (several streets in the project area historically had rail service in the center of the street). This trackwork would not result in visual impacts. The catenary system would have significant visual impacts in some locations, such as on the 1st Street Bridge, which has been determined to be eligible for the National Register of Historic Places, and in narrow rights-of-way near residential areas. In these areas the visual clutter created by the wires and their supports would be significant.

Historically, the 1st Street Bridge carried an electrically powered rail system, which included overhead catenary wires. This system was removed approximately 35 years ago. Thus, to replace the catenary system on the bridge would not represent a significant impact to the historical nature of the bridge, but would add to the more recent urban clutter (including the existing overhead transmission lines), a significant impact. In addition, catenary wires in residential areas may add to the visual clutter of existing telephone, electrical, and cable television wires. This would be especially significant in narrow roadway areas with adjacent homes along Indiana Street and in some locations on 1st and 3rd Streets.

TABLE 4.6-1
VISIBLE PHYSICAL CHANGES

Type of Change	Description	Location(s)
Aerial structure	1,000-foot-long structure approximately 25 feet high at highest point, including foundations, support columns, girders, and deck slabs.	♦ Near Union Station, crossing US 101
Street widening	Widening of street beyond current rights-of-way	♦ Alameda St. (may require removal/remodel of existing service station) ♦ Indiana St. (Option 2 only) (will require removal of several residences/businesses)
Street-level trackwork;	Within streets for aboveground portions; requires conversion of one general-purpose lane in each direction; includes track bed, track slab, rail, fasteners, and infill concrete.	♦ Alameda St., 1st St. west of Clarence St. ♦ 1st St. east of Lorena St. (except in Option 3) ♦ Indiana St., between 1st St. and 3rd St. (except Option 3) ♦ 3rd St., between Indiana St. and Beverly Blvd. (for Option 3, between Hicks Ave. and Beverly Blvd.)
Overhead catenary system	Wires, support poles, brackets, and other components	♦ Beverly Blvd., between 3rd St. and Via Campo
Portals	Entrances to underground sections; include a U-shaped trench with protective railing at the transition points from street-level to underground sections.	♦ 1st St., near Gless St. ♦ 1st St., near Lorena St. (except in Option 3) ♦ 3rd Street, near Hicks Ave. (Option 3 only)
Street-level stations	High-floor, 270-foot-long platforms and station amenities, including canopies, fare-vending equipment, station furniture, ramps, landscaping, signage, crosswalks, lighting, etc.	♦ 1st St. near Alameda St. ♦ 1st St. near Utah St. ♦ 3rd St. near Rowan Ave. ♦ 1st St. near Lorena St. (except Option 3) ♦ 3rd St. near Mednik Ave. ♦ Beverly Blvd. near Atlantic Blvd.
Subway station entrances	Includes elevators, escalators, stairs, landscaping, railing, signage, lighting, etc.	♦ 1st St. near Bailey St. (1st/Boyle Station), in northwest quadrant (existing grocery store to be removed) ♦ 1st St. at Soto St., in southwest quadrant (existing residences/businesses to be removed) ♦ 1st St. at Lorena St. (Option 3 only), in northeast quadrant of 1st/Lorena intersection (vacant lot)
U-section station	Station located in the portal; otherwise similar to street-level station.	♦ 1st St. near Lorena St. (except Option 3)
Removal of parking	On-street parking would be removed and sidewalk on west side of Indiana St. made two feet narrower.	♦ Indiana St. (Option 1 only)
New parking facility	Removal of Mobil service station and construction of an approximate 100-space parking lot.	♦ Southwest corner of Beverly and Atlantic Blvd.
Traction power substations	Electrical power substations, one-story enclosures on a concrete foundation, attached to electrical distribution lines (either aerially or underground), approximately 11 feet by 25 feet on a leveled site no smaller than 40 feet by 55 feet, with a perimeter fence at least 14 feet outside the enclosure.	♦ Near the 1st/Alameda Station (in parking lot) ♦ Near the 1st/Lorena Station (in vacant lot) ♦ Near the SR-60/3rd St. interchange (existing vacant commercial building to be removed) ♦ Off 3rd St. at Woods Ave. (in parking lot)

Portals

Portals are the locations where the LRT goes from above ground to underground. Because the portals take advantage of existing topographic changes, the extent of this U-section would be limited. Therefore, the portals would not result in significant visual impacts.

Street-level Stations

The street-level stations would generally result in minimal visual impacts. Most are located in commercial areas. Even for those with residential land uses nearby, the relatively open nature of the stations would prevent significant visual impacts.

Subway Station Entrances

The 1st/Boyle Station would be accessed from an entrance at the current location of a grocery store. Removal of the structure would continue to open up this area and make it appear less densely developed. While the addition of open space represented by the ground-level portion of the transit station would be a benefit for the majority of the surrounding areas, unless it was carefully designed, the lack of an enclosing element would have a significant negative visual impact on Mariachi Plaza (refer to Section 4.15, *Historic/Archaeological/Paleontological Resources*).

The 1st/Soto Station would be entered from an entrance at the southwest quadrant of the 1st/Soto Streets intersection. Several buildings at this urban intersection would be removed, including residences and businesses. This would represent a significant change in the dense urban character of this intersection, especially with the loss of sidewalk-side businesses, resulting in a significant visual impact.

The 1st/Lorena Station (Option 3 only) would be entered from the vacant land in the northeast quadrant of the 1st/Lorena intersection. Views of the station entrance would be primarily from adjacent commercial uses, and from Evergreen Cemetery. The station entrance would not result in significant visual impacts.

U-section Station

Under Option 1 or 2, the 1st/Lorena Station would be located within the eastern portal at 1st and Lorena Streets. Visual impacts related to this station would be minimal, similar to those of the portal itself, described above.

Removal of Parking/Narrowing of Sidewalks

Under Option 1 only, parking would be removed along Indiana Street and the sidewalk width would be reduced by two feet on the west side of the street in order to accommodate the LRT. The removal of this parking alone would be a positive visual impact, but if the removal of parking made adjacent land uses unusable or less desirable, especially the single-family residences on this street, the adjacent properties could visually deteriorate. In addition, reduction of sidewalk width in this area would be a potentially significant visual impact because the area has a great deal of pedestrian traffic related to the residences, commercial and institutional land uses, and, especially, related to Ramona High School.

New Parking Lot

In the vicinity of the Beverly/Atlantic Station a new parking lot would be created for the nearby street-level station. To provide this parking lot, an existing Mobil station would be removed. This is a commercial area, so the visual impacts would be minimal.

Traction Power Substation

Traction power substations house high-voltage switch gear, transformers, rectifiers, breakers, and other related equipment for providing electric power to LRT vehicles. Substations take two forms, either an aboveground facility in a small, metal-clad building, or an underground facility located within the subway stations. The substation near the 1st/Alameda Station would be located within an existing parking lot on the south side of 1st Street, at Rose Street. Because this is a commercial area with few sensitive viewers, this substation would not result in visual impacts. Similarly, the substation near the 1st/Lorena Station would be in a commercial area and, therefore, would not produce visual impacts.

Another aboveground substation would be located on the small, triangular parcel of land bordered by 3rd Street on the south, SR-60 on the northwest, and Sunol Drive on the east. This site would be visible from the extreme northwest corner of Calvary Cemetery. Construction of a new building in place of the existing structure, which is not well maintained, would be a positive visual impact. A substation located south of 3rd Street at Woods Avenue in a utility company parking lot would not result in significant visual impacts because the site is in a commercial/industrial area.

Visual Impacts on Important Visual Resources

The physical changes to the visual and aesthetic environment of important visual resources in the study area are as follows:

- **Union Station** building and courtyards would be visually separated from the LRT platforms and would, therefore, not produce significant visual or aesthetic impacts on the historic station.
- **1st Street Bridge** (refer to *Street-level Trackwork* and *Overhead Catenary System* discussions).
- **Pecan Park** would be adjacent to the western portal for the subway portion of the LRT Build Alternative. The portal would not result in significant visual impacts.
- **Mariachi Plaza** (refer to *Subway Station Entrances* discussion).
- **Evergreen Cemetery** has large trees along the 1st Street side of the cemetery, and the trees would screen most of the views of the LRT catenary system, resulting in minimal visual impacts.
- **Our Lady of Lourdes Catholic Church** is set back from 3rd Street and a lawn in front of it. Because of this relatively spacious streetscape, there would be less than significant visual impacts related to placing the station and the catenary system within view of the church under any LRT option.
- **Calvary Cemetery** would border the LRT alignment and a substation on 3rd Street. The visual impacts related to the catenary system, trackwork, and substation would be relatively minor due to the distance of most viewers.
- **Serbian Cemetery** is partially screened from view from 3rd Street so that the impacts of the catenary system and trackwork would be minor.
- **East Los Angeles Civic Center and Belvedere Park** would have the catenary system, trackwork, and the 3rd/Mednik Station located immediately in front of the main Civic Center building. Although these physical changes would be visible from the grounds, the street is relatively wide and there is considerable open space on either side of the street. As a result, visual impacts on either facility would be less than significant.

Murals

None of the murals in the Eastside Corridor would be acquired for the LRT Build Alternative, nor would they be blocked from view by project elements. Therefore, there would be no visual impacts on existing murals or public art.

Skyline Views

In the western end of the project, generally west of the Los Angeles River, there are views of the Los Angeles skyline. Because none of the structures proposed by the LRT Build Alternative would block views of the skyline, visual impacts on these views would be minimal.

Consistency with Visual Resource Policies

Table 4.6-2 indicates whether the LRT Build Alternative is consistent with the urban design policies of the appropriate local jurisdictions. As presented in the table, the LRT Build Alternative would be consistent with applicable visual resource policies with appropriate mitigation.

Light, Glare, Shade, and Shadow

The LRT Build Alternative would not add new light sources in areas that are currently dark. In most areas, it would not result in headlight glare into sensitive uses because the guideway would be in the middle of the streets. At one location, however, under one of the alternatives, glare issues would arise. In Option 1, guideway vehicles traveling west on 3rd Street and turning north on Indiana Street would shine their headlamps into the adjacent residential land uses. This would be a significant impact. (Under Option 2, the residences would be acquired. Under Option 3, this turn would be made underground.) The only major change to shade and shadows would occur where the elevated structure crosses US 101, near Union Station. This would be a minor impact because the motorist that would view this shadow would only do so momentarily, while passing under it on the freeway.

Significance of Impacts

Most visual impacts resulting from implementation of the LRT Build Alternative would be part of the urban landscape and would not significantly alter views or change the visual landscape. However, significant visual impacts would be expected on the 1st Street Bridge, Mariachi Plaza, 1st/Soto, and along Indiana Street under Option 2. Potentially significant impacts would be expected along Indiana Street under Option 1.

4.6.4 Mitigation

4.6.4.1 Historic 1st Street Bridge

To reduce significant visual impacts from the placement of the catenary system, including supports and catenary wires, on the 1st Street Bridge, a span-wire catenary system would be utilized to avoid the need for additional mid-street supports. This method would allow the wires to blend into the view and reduce the visual impacts to less than significant.

4.6.4.2 Visual Clutter in Residential Areas

To reduce visual clutter in narrow residential areas resulting from existing wires and the LRT catenary system, MTA will work with utility providers to consolidate wiring or to underground wiring where possible. Although some clutter would remain, there would not be a net increase in the amount of clutter, thereby reducing impacts to less than significant.

TABLE 4.6-2
CONSISTENCY WITH VISUAL POLICIES

Agency	Policy	Consistent? Yes/No	Comments
City of Los Angeles (citywide)	Area around transit stations should be designed to support commercial/residential development to support that transit system (*Citywide General Plan Framework*).	Yes	The LRT Build Alternative would be designed to allow nearby development and to be visually compatible with surrounding development.
	Encourage incorporation of small-scaled public open spaces within transit-oriented development, both as plazas and small parks and as areas of public access in private joint development at transit stations (*Citywide General Plan Framework*).	Yes	The street-level stations would not utilize new right-of-way, so they would neither provide nor preclude use of adjacent areas for open space/recreational space. There is existing open space or vacant land available for use as open space/recreation at the Union Station, 1st/Alameda Station, and 1st/Lorena Station. The 1st/Boyle Station would create new "open space" by removing an existing building and constructing a subway entrance plaza. Under Option 3, the 1st/Lorena Station entrance would be placed in a vacant parcel, with opportunity to use the remainder as open space/recreation.
City of Los Angeles (citywide) and MTA	Create pedestrian-oriented environment in context of an enhanced urban environment (*Land Use/Transportation Policy*).	No (Yes, with mitigation proposed in Section 4.6.4)[1]	Pedestrian environment would be affected in several locations, including along Indiana Street and in the Soto Street area.
	Develop and apply urban design standards to ensure the development of a high-quality and safe and secure urban environment (*Land Use/Transportation Policy*).	Unknown (Yes, with mitigation proposed in Section 4.6.4)[1]	Project plans not developed to enough detail to determine.
	Provide open space and recreational space around transit station areas (*Land Use/Transportation Policy*).	Yes	See discussion of open space around transit stations above.
	Reflect the unique cultural and physical identity of each community (*Land Use/Transportation Policy*).	Unknown (Yes, with mitigation proposed in Section 4.6.4)[1]	Project plans not developed to enough detail to determine.
	Urban design guidelines for transit stations, including landscaping, public art, enhanced pedestrian environment, adequate walkway widths, set-asides for public open space, and conservation of historic character and structures (*Land Use/Transportation Policy*).	Unknown (Yes, with mitigation proposed in Section 4.6.4)[1]	Project plans not developed to enough detail to determine.
	Transit Station Area Prototypes are offered to guide development of Major Urban Center Transit Stations and Neighborhood Center Transit Stations (*Land Use/Transportation Policy*).	Unknown (Yes, with mitigation proposed in Section 4.6.4)[1]	Project plans not developed to enough detail to determine.
City of Los Angeles (Central City North)	Encourage the preservation and enhancement of varied and distinctive character of the community and its landmarks (*Central City North Community Plan*).	Yes	The LRT Build Alternative would not result in visual impacts within the Central City North community.

TABLE 4.6-2 (continued)
CONSISTENCY WITH VISUAL POLICIES

Agency	Policy	Consistent? Yes/No	Comments
City of Los Angeles (Central City)	Improve Central City's competitiveness as location for offices, business, retail, industry by maintaining safe, clean, attractive, and lively environment (*Central City Community Plan*).	Yes	The LRT Build Alternative would not result in visual impacts within the Central City community.
	Numerous policies related to improving the pedestrian environment. (*Central City Community Plan*).	Yes	Pedestrian environment would not be significantly affected in the Central City area.
	Establish urban design guidelines and set up preservation priorities that strike a balance between historic preservation and new development (*Central City Community Plan*).	Yes	The LRT Build Alternative would not result in impacts on historic resources in the Center City community.
City of Los Angeles (Boyle Heights)	It is the city's policy that the unique character of community streets should be maintained and enhanced by improved design characteristics such as street trees, landscaped median strips, traffic islands, and special paving (*Boyle Heights Community Plan*).	No (Yes, with mitigation proposed in Section 4.6.4)[1]	The placement of the guideway in the center lanes of 1st Street would preclude landscape medians and traffic islands.
County of Los Angeles (East LA)	Retain the single-family residential lifestyle of the community (*East Los Angeles Community Plan*).	Yes	The LRT Build Alternative would not affect adjacent land uses. For the most part, stations are located within existing commercial or institutional land use areas.
	Encourage high standards of development and improve aesthetics qualities of the community (*East Los Angeles Community Plan*).	Unknown (Yes, with mitigation proposed in Section 4.6.4)[1]	Project plans not developed to enough detail to determine.
	Maintain and enhance the quality of healthy and stable residential neighborhoods (*East Los Angeles Community Plan*).	Yes	The LRT Build Alternative would not affect adjacent land uses. For the most part, stations are located within existing commercial or institutional land use areas.
	Provide new development that is compatible with and complements existing uses (*East Los Angeles Community Plan*).	Unknown (Yes, with mitigation proposed in Section 4.6.4)[1]	Project plans not developed to enough detail to determine.
	Improve the image of the major corridors by use of landscaping, lighting, graphics, and/or other streetscape treatments (*East Los Angeles Community Plan*).	Unknown (Yes, with mitigation proposed in Section 4.6.4)[1]	Project plans not developed to enough detail to determine.
Los Angeles County MTA	Required allocation of 0.5 percent of construction cost for creation of original art works.	Yes	This required MTA program would be incorporated into the project.

[1]Per mitigation detailed in Section 4.6.4, MTA will create station-specific conceptual master plans that will include landscaping and artwork consistent with the surrounding neighborhood character. The development of the plans will be conducted with substantive community input. MTA's design guidelines for transit stations, including landscaping, public art, enhanced pedestrian environment, adequate walkway widths, set-asides for public open space, and conservation of historical character and structures will be implemented and will ensure a safe and secure urban environment. It is MTA's intent to ensure that the project would be designed with consideration of various local agencies' visual resource policies.

4.6.4.3 Mariachi Plaza and 1st/Soto Historic Settings

The use of landscape materials, fencing, archways, or other "edge" treatments in these station locations would be incorporated into the transit plaza design to reduce visual impacts to less than significant (refer to Section 4.15, *Historic/Archaeological/Paleontological Resources*).

4.6.4.4 Removal of Parking and Narrowing of Sidewalk (Option 1 only)
Indiana Street Widening (Option 2 only)

To mitigate visual impacts on Indiana Street related to Options 1 and 2, MTA would use acquired parcels to provide a small amount of open space and to allow widened or meandering sidewalks adjacent to the new parking areas, compensating for the narrower sidewalk (Option 1) and for screening vegetation or walls to prevent views from the street into the newly exposed properties (Option 2). Such mitigation would reduce the visual impacts to less than significant.

4.6.4.5 Quality of Urban Environment Around Transit Stations

To ensure that a high-quality and safe and secure urban environment is provided in the transit station areas, MTA's urban design standards will be incorporated into the station-specific conceptual master plans, including landscaping and artwork consistent with the surrounding neighborhood character, and consistent with MTA's Transit Station Area Prototypes. This mitigation will reduce visual impacts at transit stations to less than significant.

4.6.4.6 Streetscapes

In order to support the urban design goals of the *Boyle Heights Community Plan* and the *East Los Angeles Community Plan*, MTA would work with the City and County of Los Angeles to replace any streetscape features removed by the LRT Build Alternative in the same or similar locations. This would reduce potential visual impacts to the street environments to less than significant.

4.6.4.7 Indiana Street Glare Impacts

To shield properties against glare from headlamps on Indiana Street (an impact associated with Option 1 only), landscaping or other screening material will be planted in the path of the headlamps. This would reduce impacts to less than significant.

4.6.4.8 Metro Art Program

Public Art

As part of the process of designing the stations, artists will be hired to participate from the earliest stages of design. Reports that were previously prepared by Metro Art working with the Eastside Community Advisory Group will be presented to the design team. As needed, these will be updated and supplemented to reflect the new project area and impacted neighborhoods. These reports will assist the design team in adhering to FTA policy (Circular 9400.1A), which states:

> ". . . To create facilities that are integral components of communities, information about the character, makeup, and history of the neighborhood should be developed and local residents and businesses could be involved in generating ideas for the project..."

A budget will be established for public art, which will be based on a percentage of the hard costs (construction costs) for the project. Again, as directed by the FTA (Circular 9400.1A), "Funds spent on the art component of the project should be appropriate to the overall costs of the transit project and adequate to have an impact. MTA's policy is to spend one half of one percent of hard costs on public art. FTA also recommends that the agency "provide adequate administrative and technical support."

Artwork and artist ideas will be presented as part of the overall design. Fabrication of art elements and their future conservation will be the responsibility of Metro Art. Metro Art will ensure that the community continues to participate and is educated about the artwork and design before, during, and after the construction process.

Design Excellence

Following policies established by FTA for design and art in transit projects (Circular 9400.1A), MTA commits to the idea that:

> ". . . Good design and art can improve the appearance and safety of a facility, give vibrancy to its public spaces, and make patrons feel welcome. Good design and art will also contribute to the goal that transit facilities help to create livable communities. . . ."

Graphics and Wayfinding

The quality of graphic signage and wayfinding within the system and within the adjacent neighborhood greatly affects the ease and comfort with which patrons will use the system. Station names, station identification, directional signage, logos, maps, and informational signage will adhere to the MTA Graphics Standards. The guiding principals for the standards are to simplify Metro signage systems in a way that makes sense for patrons, using uniformity in text styles, a rational hierarchy of sign sizes, clear directional arrows, etc.

4.6.4.9 Significance of Impacts Remaining After Mitigation

By applying the aforementioned mitigations, all visual impacts would be reduced to an insignificant level.

4.7 AIR QUALITY

4.7.1 Affected Environment

4.7.1.1 Regulatory Setting

Air quality in the United States is governed by the Federal Clean Air Act (CAA) and is administered by the United States Environmental Protection Agency (USEPA). In addition to being subject to the requirements of the CAA, air quality in California is also governed by the more stringent regulations under the California Clean Air Act (CCAA).

The CCAA, as amended in 1992, requires all air districts in the State to endeavor to achieve and maintain State Ambient Air Quality Standards. The CCAA is administered statewide by the California Air Resources Board (CARB). The State of California has also established ambient air quality standards, known as the California Ambient Air Quality Standard (CAAQS). These standards are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles. California has established a statewide agency (CARB) to regulate mobile air pollution sources (such as motor vehicles). CARB also oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county level. The CCAA is administered by CARB at the state level and by the Air Quality Management Districts at the regional level.

U.S. Environmental Protection Agency

The USEPA is responsible for establishing the national ambient air quality standards and enforcing the Clean Air Act. It also regulates emission sources under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. The USEPA has jurisdiction over emission sources outside state waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in states other than California.

California Air Resources Board

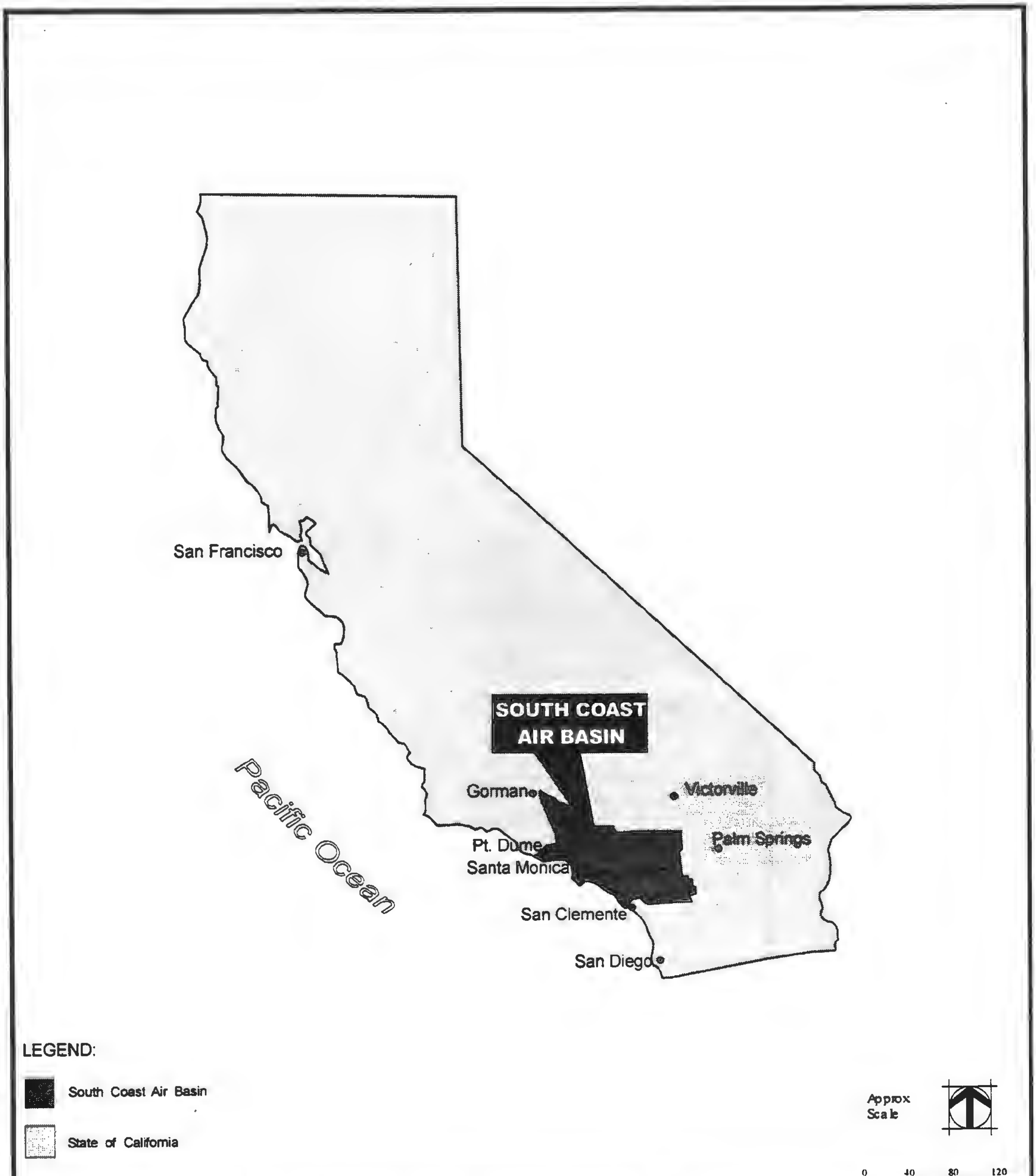
CARB, which became part of the California Environmental Protection Agency (CalEPA) in 1991, is responsible for ensuring implementation of the California Clean Air Act, meeting state requirements of the federal Clean Air Act, and establishing state ambient air quality standards. It is also responsible for setting emission standards for vehicles sold in California and for other emission sources such as consumer products and certain off-road equipment.

Nonattainment and State Implementation Plans

On the basis of regional monitoring data, the Los Angeles County portion of the South Coast Air Basin (Figure 4.7-1) has been designated as a non-attainment area for ozone, carbon monoxide, and suspended particulates (PM_{10}), but is as an attainment area for nitrogen oxide and sulfur dioxide.[5]

CARB will designate an area as non-attainment for a pollutant if air quality data show that a State standard for a pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a State standard, and are not used as a basis for designating areas as non-attainment.

[5] California Air Resources Board: Proposed Amendments to the Designation Criteria and Amendments to the Area Designations for State Ambient Air Quality Standards and Proposed Maps of the Area Designations for the State and National Ambient Air Quality Standards, August 1998.



SOURCE: California Air Resources Board, State and Local Air Monitoring Network Plan, October 1998

Los Angeles Eastside Corridor SEIS/SEIR

South Coast Air Basin

Figure 4.7-1

Federal clean air laws require areas with unhealthy levels of ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and inhaleable particulate matter to develop plans, known as State Implementation Plans (SIPs), describing how they will attain national ambient air quality standards (NAAQS). The 1990 amendments to the federal Clean Air Act set new deadlines for attainment based on the severity of the pollution problem and launched a comprehensive planning process for attaining the NAAQS.

South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD) was created by the 1977 Lewis Air Quality Management Act, which merged four county air pollution control agencies into one regional district to better address the issue of improving air quality in Southern California. Under the act, the SCAQMD is the agency principally responsible for comprehensive air pollution control in the Basin, including monitoring air quality and planning, implementing, and enforcing programs designed to attain and maintain state and federal ambient air quality standards in the district.

The SCAQMD has jurisdiction over a 10,743 square mile area, commonly referred to as the South Coast Air Basin (SCAB). This area includes all of Orange County, Los Angeles County, except for the Antelope Valley, the non-desert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County.

Air Quality Management Plan

Within the project area, the SCAQMD and the Southern California Association of Governments (SCAG) have responsibility for preparing the Air Quality Management Plan (AQMP), which address federal and state Clean Air Act requirements. The AQMP details goals, policies, and programs for improving air quality and establishes thresholds for daily operation emissions. Environmental review of individual projects within the region must demonstrate that daily construction and operational emissions thresholds as established by the SCAQMD would not be exceeded, nor would the number or severity of existing air quality violations.

The 1997 Draft Air Quality Management Plan has been prepared to reflect the requirements of the 1990 Clean Air Act Amendments and is consistent with the approaches taken in the 1994 AQMP. The Plan is expected to replace, in part or in whole, many of the proposed measures set forth in the SIP and anticipates the attainment of all criteria pollutants by 2010.

National and State Ambient Air Quality Standards

As required by the Clean Air Act, National Ambient Air Quality Standards (NAAQS) have been established for six major air pollutants: carbon monoxide, nitrogen oxides, ozone, particulate matter (PM_{10} and $PM_{2.5}$), sulfur oxides and lead. The State of California has also established ambient air quality standards, known as the California Ambient Air Quality Standards (CAAQS). These standards are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles. The state and national standards are presented in Table 4.7-1. Because the CAAQS are more stringent than the NAAQS, they are used as the comparative standard in the analysis contained in this report.

TABLE 4.7-1
STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Period	California Standard	Federal Standards	
			Primary	**Secondary**
Ozone (O_3)	1 hour	0.09 ppm (180 μg/m^3)	0.12 ppm (235 μg/m^3)	Same as Primary Standard
	8 hour	--	0.08 ppm (157 μg/m^3	
Respirable Particulate Matter (PM_{10})	Annual Geometric Mean	30 μg/m^3	--	Same as Primary Standard
	24 hour	50 μg/m^3	150 μg/m^3	
	Annual Arithmetic Mean	--	50 μg/m^3	--
Fine Particulate Matter ($PM_{2.5}$)	24 hour	No Separate Standard	65 μg/m^3	Same as Primary Standard
	Annual Arithmetic Mean		15 μg/m^3	
Carbon Monoxide(CO)	8 hour	9.0 (10 mg/m3)	9.0 (10 mg/m3)	None
	1 hour	20 ppm (23 mg/m3)	35 ppm (40 mg/m3)	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	--	0.053 ppm (100 μg/m^3)	Same as Primary Standard
	1 hour	0.25 ppm (470 μg/m^3)	--	
Sulfur dioxide (SO_2)	Annual Arithmetic Mean	--	0.03 ppm (80 μg/m^3)	--
	24 hour	0.04 ppm (105 μg/m^3)	0.14 ppm (365 μg/m^3)	--
	3 hour	--	--	0.5 ppm (1300 μg/m^3)
	1 hour	0.25 ppm (655 μg/m^3)	--	--
Lead	30 day average	1.5 μg/m^3	--	--
	Calendar Quarter	--	1.5 μg/m^3	Same as Primary Standard
Visibility Reducing Particulates	8 hour (10 am to 6 pm, PST)	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer - visibility of ten miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent.	No Federal Standards	
Sulfates	24 hour	25 μg/m^3		
Hydrogen Sulfide	1 hour	0.03 ppm (42 μg/m^3)		

Source: California Air Resources Board, Federal and State Air Quality Standards 1999 (1/25/99)

4.7.1.2 Study Area Setting

Regional Setting and Climate

The SCAB is an area of high air pollution potential due to its climate and topography. The Basin experiences warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. In addition, the mountains and hills within the area contribute to the variation of rainfall, temperature, and winds throughout the region. The region experiences frequent temperature inversions. Temperature inversions prevent air close to the ground from mixing with the air above it. As a result, air pollutants are trapped near the ground. During the summer, an upper layer of warm air mass forms over the cool marine layer, preventing air pollutants from dispersing upward. In addition, hydrocarbons and nitrogen dioxide react under strong sunlight, creating smog. Light, daytime winds, predominantly from the west, further aggravate the condition by driving the air pollutants inland, toward the mountains.

Pollutants and Effects

Air quality studies generally focus on five pollutants that are most commonly measured and regulated:

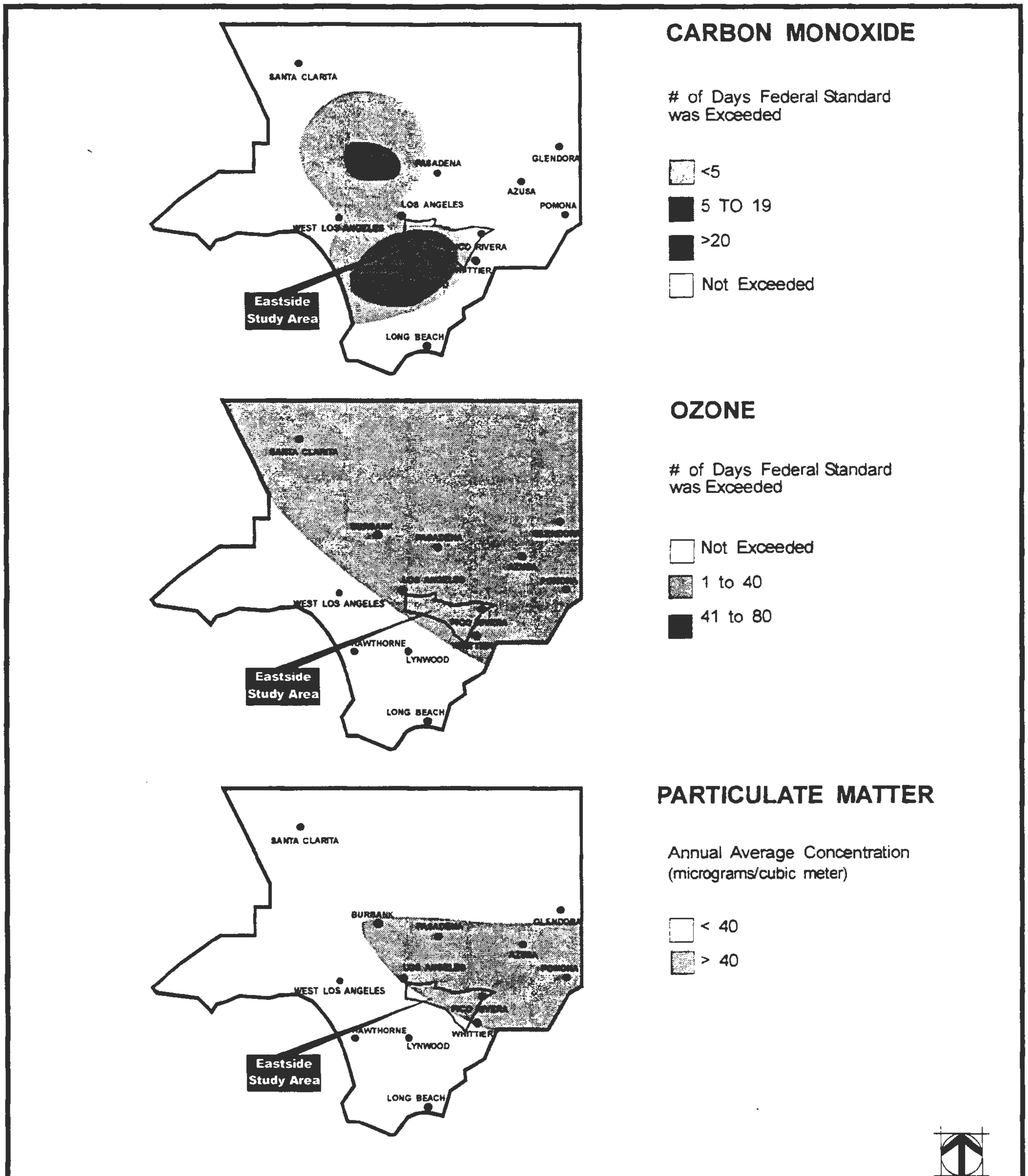
- **Carbon monoxide** (CO), a colorless gas, interferes with the transfer of oxygen to the brain. It is emitted by motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. Automobile exhausts release most of the CO in urban areas.
- **Ozone** (O_3), a colorless toxic gas, interferes with the transfer of oxygen to the brain. It forms in the atmosphere through a chemical reaction between reactive organic compounds and nitrogen oxides (NO_x), which are emitted from industrial sources and from automobiles. Substantial O_3 formation generally requires a stable atmosphere with strong sunlight.
- **Nitrogen Dioxide** (NO_2), a brownish gas, can cause breathing difficulties at high concentrations. It is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as nitrogen oxides (NO_x) and are major contributors to ozone formation.
- **Suspended Particulate Matter** (PM_{10}), refers to particulate matter less than 10 microns in diameter, about one/seventh the thickness of a human hair. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter also forms when industry and gases emitted from motor vehicles undergo chemical reactions in the atmosphere. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract.
- **Sulfur Oxides**, primarily sulfur dioxide (SO_2), which is an irritant gas that attacks the throat and lungs, is a product of high-sulfur fuel combustion. The main sources of SO_2 are coal and oil used in power stations, industry and for domestic heating. Industrial chemical manufacturing is another source of SO_2.

Local Setting

The SCAQMD monitors air quality conditions at 37 locations throughout the SCAB. For the purposes of this report, data from the Downtown Los Angeles and Pico Rivera monitoring stations were used to characterize existing conditions in the vicinity of the study area, and to establish a baseline for estimating future conditions both with and without the LRT Build Alternative. A summary of the data recorded at these stations is presented in Table 4.7-2 and graphically portrayed in Figure 4.7-2 for existing levels of carbon monoxide, ozone, and particulate matter.

Sensitive Receptors

The California Air Resources Board has identified children under 14, the elderly over 65, athletes, and



SOURCE: For Carbon Monoxide and Particulate Matter: South Coast Air Quality Management District Website, 1996; for Ozone: South Coast Air Quality Management District Website, 1997

Los Angeles Eastside Corridor SEIS/SEIR

Carbon Monoxide, Ozone, and Particulate Matter Levels

Figure 4.7-2

Eastside Corridor Transit Consultants

TABLE 4.7-2
AIR QUALITY SUMMARY FOR STUDY AREA MONITORING STATIONS, 1997-1999

Pollutant	Federal and State Standard	Los Angeles-North Main Street			Pico Rivera		
		1997	1998	1999	1997	1998	1999
Carbon Monoxide (CO)	Maximum 8-hr concentration (ppm) Days > 9.5 ppm (federal 8-hr. standard) Days > 9 ppm (state 8-hr. standard)	7.80 0 0	6.18 0 0	6.37 0 0	6.10 0 0	6.07 0 0	5.50 0 0
Ozone (O^3)	Maximum 1-hr Concentration (ppm) Maximum 8-hr. Concentration (ppm) Days > 0.12 ppm (federal 1-hr. standard) Days > 0.08 ppm (federal 8-hr. standard) Days 0.09 ppm (state 1-hr. standard)	0.120 0.092 0 3 6	0.148 0.111 5 9 17	0.128 0.108 1 2 13	0.133 0.101 6 7 18	0.183 0.112 10 12 31	0.119 0.085 0 2 6
Nitrogen Dioxide (NO^2)	Maximum 1-hr Concentration (ppm) Days > 0.09 ppm (state 1-hr. standard)	0.198 0	0.170 0	0.212 0	0.149 0	0.140 0	0.155 0
Sulfur Dioxide (SO^2)	Maximum 24-hr Concentration (ppm) Days > 0.14 ppm (federal 24-hr standard) Days > 0.05 ppm (state 24-hr. standard)	0.011 0 0	0.006 0 0	0.010 0 0	n/a	n/a	n/a
Suspended Particulates (PM^{10})	Maximum 24-hr. concentration (g/m³) Calculated > 150 g/m³ (federal 24-hr standard) Calculated > 50 g/m³ (state 24-hr standard)	102.0 0 90	80.0 0 66	88.0 0 114	n/a	n/a	n/a

Note: n/a = pollutant not monitored

Source: California Air Quality Data Summaries 1997-1999, California Air Resources Board, www.arb.ca.gov/adam

people with cardiovascular and chronic respiratory diseases as the most likely to be affected by air pollution. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include hospitals, daycare facilities, elder care facilities, elementary schools, and parks.

4.7.2 Methodology for Impact Evaluation

4.7.2.1 Analysis Methodology

The following calculation methods and estimation models were utilized in ascertaining air quality impacts: SCAQMD construction emissions calculation formulas, the CARB Motor Vehicle Emission Inventory 7G (MVEI7G) emissions model, the Caltrans EMFAC emissions factor model, and the USEPA CAL3QHC dispersion model software. This air quality analysis is consistent with procedures described in the SCAQMD CEQA Handbook (1993 edition).

4.7.2.2 Impact Evaluation Criteria

A project would have a significant impact if its daily construction and/or operation emissions were to exceed significance thresholds for carbon monoxide (CO), reactive organic gas (ROG), nitrogen oxides (NO_X), sulfur oxides (SO_X) or particulates (PM_{10}) as established by the SCAQMD. Significance thresholds appear in Table 4.7-3. In addition, a project would have a significant impact if it were to cause any criteria pollutant concentration to exceed the (CAAQS) at any sensitive receptor location.

TABLE 4.7-3 SCAQMD DAILY EMISSIONS THRESHOLDS [1]		
Criteria Pollutant	**Construction**	**Operations**
Carbon Monoxide (CO)	550	550
Reactive Organic Gas (ROG)	75	55
Nitrogen Oxides (NO_X)	100	55
Sulfur Oxides (SO_X)	150	150
Particulates (PM_{10})	150	150

[1] Expressed in pounds per day. The LRT Build Alternative does not contain lead, hydrogen sulfide, or sulfate emissions sources; therefore, emissions and concentrations related to these pollutants were not analyzed in this report.
Source: South Coast Air Quality Management District

A Federal air quality standard for $PM_{2.5}$ was adopted in 1997. Presently, no methodologies for determining impacts relating to $PM_{2.5}$ have been developed. In addition, no strategies or mitigation programs for this pollutant have been developed or adopted by federal, state, or regional agencies. Currently, this standard is not enforceable, but may be reinstated in the future. Thus, this air quality analysis does not analyze $PM_{2.5}$.

4.7.2.3 Conformity Analysis

The Code of Federal Regulations (CFR) 40 Part 51 establishes conformity measures for the Federal or State Implementation Plan. Under CFR 40 Part 51, should criteria pollutants emitted by the proposed project exceed the amounts listed in Table 4.7-4 when compared to future no project conditions, a conformity analysis would be required.

TABLE 4.7-4 CFR 40 Part 51 – Conformity Criteria	
Pollutant	**Tons per Year (increase over no project conditions)**
Ozone (O_3)	10
Carbon Monoxide (CO)	100
Reactive Organic Gas (ROG)	10
Nitrogen Oxides (NO_X)	10
Particulates (PM_{10})	70

Source: United States Environmental Protection Agency, CFR 40 Part 51

4.7.3 Impacts

4.7.3.1 No-Build Alternative

Burden Emissions

There is a direct relationship between vehicle miles of travel (VMT) and air pollution. In urbanized regions, such as the Los Angeles Metropolitan area, mobile emissions are the primary source of air pollution. Transportation projects that significantly increase or decrease regional VMT will also significantly degrade or improve regional air quality. Criteria pollutant emissions were estimated for the

No-Build Alternative using estimated VMT and emission factor data.[6] Results, which are used as a baseline to compare with the LRT Build Alternative, are presented below in Table 4.7-5.

Carbon Monoxide Hot Spot Analysis

Within the urban setting, vehicle exhaust is the main source of CO. Therefore, the highest concentrations of CO are found within close proximity to busy intersections. To provide a worst-case simulation of CO concentrations within the study area, the CO concentration at sidewalk locations adjacent to 15 study intersections that operate at LOS E and F and, therefore, have a higher concentration of air pollutants were modeled and compared to ambient air quality standards. The analysis found that no CO concentrations are anticipated to exceed the State 1-hour or 8-hour standard of 20 ppm or 9 ppm, respectively, under the No-Build Alternative (more detailed information regarding this analysis can be found in the *Air Quality Technical Report*, MTA, Los Angeles, Ca., December, 2000).

4.7.3.2 LRT Build Alternative

The discussion of impacts includes all three options in the vicinity of Ramona High School. Since none of the options would materially affect regional VMT or local circulation patterns, there would be no discernable differences in the impacts for any of the options.

Burden Emissions

Criteria pollutant emissions were estimated for the LRT Build Alternative using estimated VMT and emission factor data.[7] Results are presented in Table 4.7-5.

TABLE 4.7-5
CRITERIA POLLUTANT EMISSIONS COMPARISON

Project Alternative	Annual VMT (millions)			Criteria Pollutant Emissions (tons per year)			
	Passenger Vehicles	Urban Bus	Commuter Rail/Diesel	CO	NO_X	ROG	PM_{10}
No-Build	143,772	154.0	3.8	499,458	72,421	28,072	3,194
LRT	143,755	155.3	3.8	499,401	72,421	26,071	3,194
Change	-17	+1.3	0	-57	0	-1	0
Source: Terry A. Hayes Associates							

When compared to the No-Build Alternative, the annual regional VMT is anticipated to decrease by approximately 16 million under the LRT Build Alternative, reducing CO and ROG by 57 tons and one ton per year, respectively. NO_X and PM_{10} emissions reductions would be negligible.

Emergency Burden Emissions

In the unlikely event of a subway fire (subway is designed for low flammability), emergency fans would emit toxic fumes in areas designed to be away from residents or other occupied spaces. Vent shafts are

[6] Regional VMT for the No-Build and LRT Build Alternatives were estimated using the LACMTA transportation model.
[7] Regional VMT for the No-Build and LRT Build Alternatives were estimated using the LACMTA transportation model.

located in plazas and in one place (1st/Lorena) in a raised median in the center of 1st Street. During final design the ventilation shafts will be designed to ensure safe separation distances by use of landscaping, hardsurfaces, or signage.

Carbon Monoxide Hot Spot Analysis

Table 4.7-6 compares the 1- and 8-hour CO concentrations at the 15 study intersections for the LRT Build Alternative and the No-Build Alternative. As indicated in the table, the LRT Build Alternative would not exceed the State 1-hour or 8-hour CO standard of 20 ppm or 9 ppm, respectively.

TABLE 4.7-6
WORST-CASE CO CONCENTRATIONS – LRT BUILD ALTERNATIVE [1]

Intersection	1-Hour Concentration		8-Hour Concentration	
	No-Build	LRT Build	No-Build	LRT Build
Mednik/Cesar Chavez	6.7	6.7	4.7	4.7
Atlantic/Cesar Chavez	7.0	7.5	4.9	5.2
Alameda/Temple	6.8	6.6	4.8	4.6
Alameda/1st Street	7.5	7.1	5.2	5.0
Vignes/1st Street	6.0	5.8	4.2	4.1
Mission/1st Street	6.1	6.2	4.3	4.3
Lorena/1st Street	6.0	5.9	4.2	4.1
Indiana/1st Street	5.9	5.7	4.1	4.0
Atlantic/1st Street	6.7	7.3	4.7	5.1
Indiana/3rd Street	6.2	6.1	4.3	4.3
Eastern/3rd Street	6.6	6.4	4.6	4.5
Ford/3rd Street	6.5	6.2	4.5	4.3
Mednik/3rd Street	6.9	6.4	4.8	4.5
Atlantic/Pomona	7.0	7.1	4.9	5.0
Atlantic/Beverly	6.8	6.9	4.9	4.8
State Standard	20.0		9.0	

[1] Expressed in parts per million.
Note: Includes the background concentration of 4.5 ppm and 3.2 ppm for the 1- and 8-hour averaging period, respectively.
Source: Terry A. Hayes Associates

Significance of Impacts

Beneficial air quality impacts are anticipated from the LRT Build Alternative.

4.7.4 Mitigation

The LRT Build Alternative is anticipated to have a beneficial affect on regional air quality; no mitigation measures are required.

4.7.5 Conformity Analysis

The Regional Transportation Plan (RTP) is a 20-year transportation plan for six counties within the Southern California region (Ventura, Los Angeles, Orange, San Bernardino, Riverside, and Imperial counties). The RTP provides long-term solutions to the region's transportation needs under a framework that meets mobility, air quality regulations, and other regional goals. The RTP is a critical document for projects to qualify for future federal, state, and local funding sources. The Southern California Association of Governments (SCAG) revises the RTP every three years. The last updated plan was adopted by SCAG in April 1998, and reflects changes in regional demographics, environmental factors, land-use forecasts, technology, and sub-regional planning. The LRT Build Alternative is included in the RTP.

As detailed in Section 4.7.3, criteria pollutants emitted by the proposed project would not exceed the amounts previously listed in Table 4.7-4, when compared to future no project conditions. Thus, under CFR 40 Part 51, the proposed project does not require a conformity analysis.

4.8 NOISE AND VIBRATION

4.8.1 Affected Environment

Prior to performing an analysis of the future noise and vibration levels associated with the LRT Build Alternative, it was necessary to establish the existing baseline noise levels along the corridor. This was accomplished by performing a series of measurements at representative locations along the corridor. Ambient vibration levels were not measured as part of this study. FTA Vibration Impact Criteria (discussed in Section 4.8.2.2) were used to identify locations where potential impacts may occur based on existing land use activities. If needed, these locations would be surveyed for ambient vibration levels at a later time as part of final engineering design.

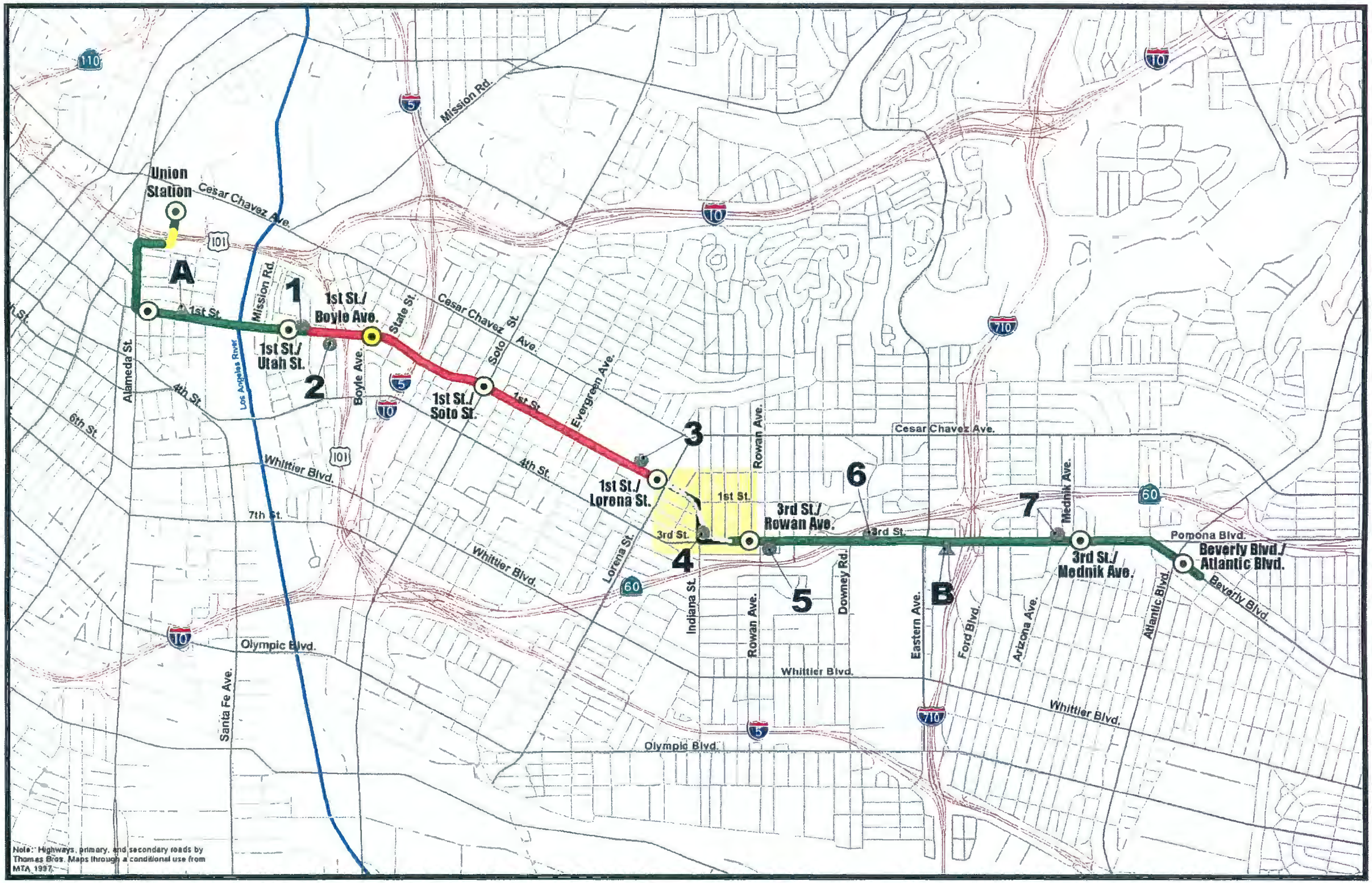
Noise measurements were taken at nine noise-sensitive locations along the corridor (Table 4.8-1). These locations were deemed to be a good representation of all noise-sensitive land uses along the project corridor. Seven long-term (24-hour) noise readings and two short-term (15-minute) measurements readings were taken, and their locations are shown in Figure 4.8-1.

TABLE 4.8-1
NOISE MEASUREMENT LOCATIONS

Site I.D.	Site Description	Measured Ldn (dBA)	Measured Peak-Hour Leq (dBA)
Long-term (24-Hour) Noise Measurement Locations			
1	L.A. Housing Authority	72	73
2	Pecan Park	75	75
3	Evergreen Cemetery	68	67
4	Ramona High School (Indiana Street)	70	68
5	Our Lady of Lourdes School	71	69
6	Guadalupe Church	72	71
7	Casa Telacu Apartments	65	64
Short-term (15-Minute) Noise Measurement Locations			
Site I.D.	**Site Description**	**Adjusted Ldn (dBA)[1]**	**Adjusted Peak-Hour Leq (dBA)[1]**
A	L.A. Hompa Hongwanji Betsuin Buddhist Temple	67	68
B	Single-Family Homes, 3rd Street at I-710	74	73

[1]Each 15-minute sample is compared to the closest 24-hour sample at the same hour of the day. The 15-minute samples are then adjusted relative to the 24-hour samples in order to develop a peak Leq and Ldn for each of the 15-minute measurement locations.

The highest levels were recorded at Pecan Park located along 1st Street near the US 101 Freeway, while the lowest levels were noted at Casa Telacu Apartments on 3rd Street at Dangler Avenue near the eastern end of the planned alignment. Section 4.8.2 provides further information regarding the noise descriptors used in the measurements.



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

Los Angeles Eastside Corridor SEIS/SEIR

LEGEND

- Stations
- At Grade
- Tunnel
- Elevated
- Options Area
- Highway
- Primary Road
- Secondary Road
- 15-Minute Noise Measurement Locations
- 24-Hour Noise Measurement Locations

Eastside Corridor Transit Consultants

Noise Measurement Locations

Figure 4.8-1

4.8.2 Methodology for Impact Evaluation

This section presents the methods used to estimate noise and vibration levels and the criteria used to assess impacts.

4.8.2.1 Noise

Noise Impact Criteria

The FTA Noise Impact Criteria are divided into three groups, which place noise sensitive land uses into the following three categories:

- Category 1: Buildings or parks, where quiet is an essential element of their purpose.
- Category 2: Residences and buildings where people normally sleep. This includes residences, hospitals, and hotels where nighttime sensitivity is assumed to be of utmost importance.
- Category 3: Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, churches, parks, certain historical sites, and recreational facilities.

The Day-Night Equivalent Sound Level (Ldn) is used to characterize noise exposure for residential areas (Category 2) and maximum 1-hour Leq is used for other noise sensitive land uses, such as school buildings (Categories 1 and 3) during the period that the facility is in use. The Leq (or equivalent noise level) is the level of a constant sound level in dBA, which in a given situation and time period, has the same sound energy as does the time-varying sound over the same period. One-hour equivalent noise levels measured every hour over a continuous 24-hour period are sometimes used to calculate a composite 24-hour noise exposure measure, or Ldn, which applies a 10-dBA penalty to nighttime sound levels between the hours of 10:00 PM and 7:00 AM to account for the increased noise-sensitivity of people during sleeping hours. Use of Leq and Ldn is appropriate for transportation noise analysis because these levels are sensitive to both the frequency of occurrence and duration of noise events, including rail and bus operations, which may be characterized by infrequent noise. Typical Ldn noise levels are presented in Figure 4.8-2.

There are two levels of impact included in the FTA criteria, as shown in Figure 4.8-3. The interpretation of these two levels of impact are summarized below:

- Severe: Severe noise impacts are considered "significant" as this term is used in the National Environmental Policy Act (NEPA) and implementing regulations. Noise mitigation will normally be specified for severe impact areas unless there is no practical method of mitigating the noise.
- Impact (Moderate): In this range, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation. These other factors can include the predicted increase over existing noise levels, the types and number of noise-sensitive land uses affected, existing outdoor-indoor sound insulation, and the cost effectiveness of mitigating noise to more acceptable levels. For purposes of clarification, this impact category will be referred to as moderate impact to better differentiate from severe impact.

The noise impact criteria for transit operations are summarized in Table 4.8-2. The first column shows the existing noise exposure, and the remaining columns show how much additional noise exposure from the transit project is necessary to cause either a moderate or severe impact. The future noise exposure would be the combination of the existing noise exposure and the additional noise exposure caused by the LRT Build Alternative.

FIGURE 4.8-2
TYPICAL Ldns

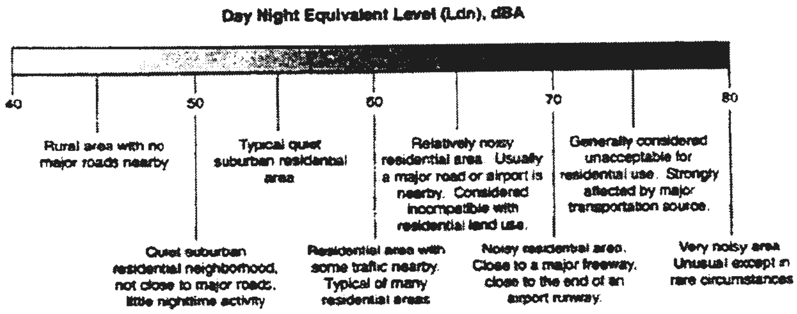
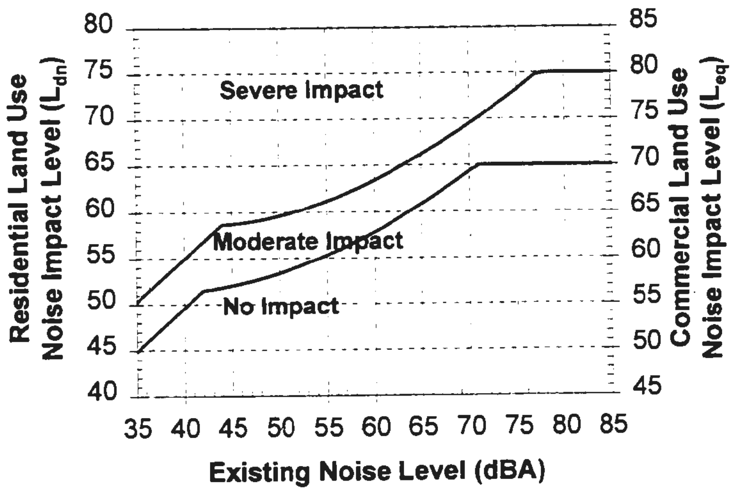


FIGURE 4.8-3
NOISE IMPACT CRITERIA FOR TRANSIT PROJECTS



Source: *Transit Noise and Vibration Impact Assessment*, FTA, April 1995.

FIGURE 4.8-4
TYPICAL LEVELS OF GROUND-BORNE VIBRATION

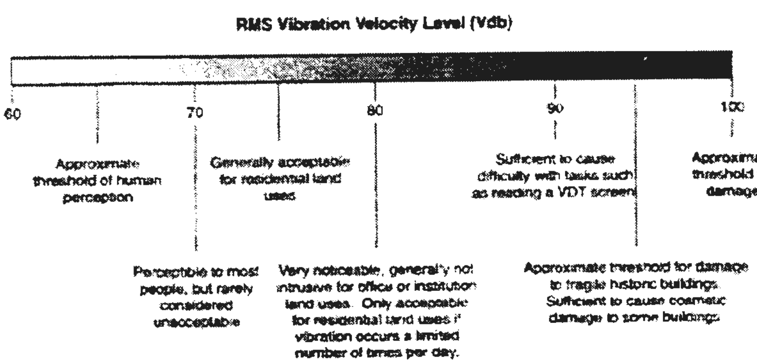


TABLE 4.8-2
FTA NOISE IMPACT CRITERIA

Existing Noise Exposure Leq or Ldn [1]	Project Noise Exposure Impact Thresholds, Ldn. or Leq [1] (Noise levels in dBA)			
	Category 1 or 2 Sites		Category 3 Sites	
	Moderate Impact	Severe Impact	Moderate Impact	Severe Impact
<43	Amb.+10	Amb.+15	Amb.+15	Amb.+20
43-44	52	<58	57	<63
45	52	<58	57	<63
46-47	53	<59	58	<64
48	53	<59	58	<64
49-50	54	<59	59	<64
51	54	<60	59	<65
52-53	55	<60	60	<65
54	55	<61	60	<66
55	56	<61	61	<66
56	56	<62	61	<67
57-58	57	<62	62	<67
59-60	58	<63	63	<68
61-62	59	<64	64	<69
63	60	<65	65	<70
64	61	<65	66	<70
65	61	<66	66	<71
66	62	<67	67	<72
67	63	<67	68	<72
68	63	<68	68	<73
69	64	<69	69	<74
70	65	<69	70	<74
71	66	<70	71	<75
72-73	66	<71	71	<76
74	66	<72	71	<77
75	66	<73	71	<78
76-77	66	<74	71	<79
>77	66	<75	71	<80

[1] Ldn is used for land uses where nighttime sensitivity is a factor; Daytime Leq is used for land use involving only daytime activities.
Source: *Transit Noise and Vibration Impact Assessment*, FTA, April 1995.

Noise Assessment Methodology

Noise impact from transit operations is a function of the transit vehicle, speed, and the number of vehicles in the daytime and nighttime hours, and the distance of the alignment from sensitive receptors. Type of track and number of cars per train are also important. Initial service would likely operate with 2-car consists, and the ultimate configuration would likely be 3-car consists. For the LRT vehicle, the interaction of the vehicle wheels with the guideway, propulsion system, and ancillary equipment (i.e. ventilation and air-conditioner fans) are the major sources of noise. The FTA Detailed Noise Analysis procedure was used to develop the projections of impact and the recommended mitigation measures for Eastside Corridor transit operations. The operating assumptions, speed, headways, and train schedule used to predict future LRT noise levels are presented in the separate *Noise and Vibration Technical Report*, prepared for the Eastside Corridor, which is included herein by reference.

Regarding traffic noise, there is less than a one percent change in both projected vehicle miles traveled (VMT) and vehicle hours traveled (VHT) for the entire project corridor, between the 2020 No-Build and

LRT Build Alternatives. Therefore, there will be very minimal, if any, changes in traffic noise between the two alternatives. No further traffic noise analysis was prepared.

4.8.2.2 Ground-Borne Noise and Vibration

Ground-Borne Noise and Vibration Impact Criteria

The FTA has developed the impact criteria shown in Table 4.8-3 for acceptable levels of ground-borne noise and vibration. Some buildings, such as concert halls, TV and recording studios, and theaters, can be very sensitive to vibration, but they do not fit into any of the three land use categories shown in the table. Because of the sensitivity of these buildings, they usually warrant special attention during the environmental assessment of a transit project. Criteria for acceptable levels for various types of special buildings are also presented in Table 4.8-3.

TABLE 4.8-3
FTA GROUND-BORNE VIBRATION and NOISE IMPACT CRITERIA

Land Use Category	Ground-Borne Vibration Impact Levels (VdB re 1 micro inch/sec)		Ground-Borne Noise Impact Levels (dB re 20 micro pascals)	
	Frequent Events[1]	Infrequent Events[2]	Frequent Events[1]	Infrequent Events[2]
Category 1: Buildings where low ambient vibration is essential for interior operations.	65 VdB[3]	65 VdB[3]	–[4]	–[4]
Category 2: Residences and buildings where people normally sleep.	72 VdB	80 VdB	35 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	83 VdB	40 dBA	48 dBA
Special Buildings and Facilities[5]				
Concert Halls	65 VdB	65 VdB	25 dBA	25 dBA
TV Studios	65 VdB	65 VdB	25 dBA	25 dBA
Recording Studios	65 VdB	65 VdB	25 dBA	25 dBA
Auditoriums	72 VdB	80 VdB	30 dBA	38 dBA
Theaters	72 VdB	80 VdB	35 dBA	43 dBA

[1]"Frequent Events" is defined as more than 70 vibration events per day.
[2]"Infrequent Events" is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems.
[3]This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC system and stiffened floors.
[4]Vibration-sensitive equipment is not sensitive to ground-borne noise.
[5]If the building will rarely be occupied when the trains are operating, there is no need to consider impact.
Source: *Transit Noise and Vibration Impact Assessment*, FTA, April 1995.

Ground-borne vibration consists of oscillatory waves that propagate from the source through the ground to adjacent buildings. On steel-wheel steel-rail train systems, ground-borne vibration is created by the interaction of the steel wheels rolling on the steel rails. Although the vibration is sometimes noticeable outdoors, it is almost exclusively an indoor problem. Ground-vibration is of such a low level that, for this project, there is almost no possibility of structural damage to buildings near the route. The low-frequency noise is caused by sound being radiated from vibrating room surfaces and is referred to as ground-borne noise. Ground-borne vibration and ground-borne noise are really the same phenomenon, yet they only differ in the manner in which the building occupants perceive them. As noted, the vibration from trains is almost never of sufficient amplitude to cause even minor cosmetic damage to buildings. The primary concern is that the vibration and radiated noise can be intrusive and annoying to building occupants. Factors that influence the amplitudes of ground-borne vibration include vehicle suspension parameters, condition of the wheels and rails, type of track, track support system, type of building foundation, and the properties of the soil and rock layers that the vibration propagates through. Use of continuously welded rail eliminates wheel impacts at rail joints and results in significantly lower vibration levels than with jointed track.

Train vibration is virtually always characterized in terms of the root-mean-square (RMS) amplitude. RMS is a widely used but sometimes confusing method of characterizing vibration and other oscillating phenomena. It represents the average energy over a short time interval; typically, a one-second interval is used to evaluate human response to vibration. RMS vibration velocity is considered the best available measure of potential human annoyance from ground-borne vibration. Figure 4.8-4 gives a general idea of human and building response to different levels of vibration. Existing background building vibration is usually in the range of 40 to 50 VdB, which is well below the range of human perception. Although the perceptibility threshold is about 65 VdB, human response to vibration is usually not significant unless the RMS vibration velocity level exceeds 70 VdB, a typical vibration level 50 feet from a rapid transit or light rail system. Buses and trucks rarely create vibration that exceeds 70 VdB unless there are large bumps or potholes in the road.

Ground-borne Noise and Vibration Assessment Methodology

Impacts were assessed based on the procedure outlined in the FTA manual, *Transit Noise and Vibration Impact Assessment*. It uses generalized data to develop a curve of vibration level as a function of distance from the track. The vibration levels at specific buildings are estimated by reading values from the curve and applying adjustments to account for factors such as vehicle technology, guideway system, vehicle speed, type of building, and track and wheel condition. This level of general assessment deals only with the overall vibration velocity level and the A-weighted sound level for ground-borne noise and does not consider frequency spectrum. For a complete description of the vibration analysis methods, see the *Noise and Vibration Technical Report,* which is included herein by reference.

4.8.2.3 CEQA Significance Impact Criteria

Under CEQA, a substantial noise increase may result in a significant adverse environmental effect and, if it does, it must be mitigated or identified as a noise impact for which it is likely that no, or only partial, abatement measures are available. Specific economic, social, environmental, legal, and technological conditions may make additional noise mitigation measures infeasible. For the purposes of this study, a severe noise impact, as defined by FTA and shown in Table 4.8-2 and Figure 4.8-3, is used to determine the significance of the proposed project. The FTA vibration criteria presented in Table 4.8-3 will be used as the significance impact criteria for ground-borne noise and vibration.

4.8.2.4 APTA Noise Guidelines

Although the Eastside Corridor LRT project uses FTA criteria for analysis of normal LRT operations, the American Public Transit Association (APTA) guidelines included in the MTA's Systemwide Design Criteria, Section 2, will be used for airborne noise from transit ancillary facilities such as traction power substations (TPSS), fan shafts, and emergency power generators. The criteria are based on maximum noise levels or Lmax. Wheel squeal on tight radius curves of less than 400 feet is also assessed using APTA criteria. APTA guidelines, as a single event passby noise level, are more appropriate to assessing the loudness and tonal content characteristics of wheel squeal. The Ldn, used by FTA to evaluate normal transit operations, cannot account for the short term annoyance normally associated with wheel squeal. The criteria are discussed in Section 4.8.3.

4.8.3 <u>Impacts</u>

4.8.3.1 No-Build Alternative

The principal transportation-related source of future noise levels under the No-Build Alternative would be traffic movements on the local arterials in the project area. In general, it would require a doubling of the traffic activity for the noise levels to increase by 3 dBA, which is the point at which most listeners detect the change. Traffic levels are not expected to experience such an increase between now and 2020. Therefore, no noise impacts are anticipated. Although all rubber tire transit vehicles and vehicular traffic can cause ground-borne vibration, the vibration is not usually perceptible because of the vibration isolation. Therefore, vibration impacts are also not anticipated.

4.8.3.2 LRT Build Alternative

Noise

Table 4.8-4 displays anticipated project-related noise levels at the 48 sensitive receptor locations shown in Figures 4.8-5 through 4.8-7. The buildings listed in the table represent those structures that are adjoining the at-grade section of the alignment. Where the alignment is located in an underground subway section, airborne noise levels from train operations would not be audible. Potential noise impacts at each location have been identified as: no impact, moderate impact, or severe impact, in accordance with FTA Noise Impact Criteria.

Options

Table 4.8-5 provides a summary of the noise impacts under each option being considered in the vicinity of Ramona High School. No severe impacts have been identified for any of the options. Options 1 and 2 would have the same impacts with two-car operation. These options would be similar with three-car operation except that, under Option 2, four fewer single-family homes and four fewer multi-family residences would be impacted on Indiana Street.

Under Option 3, 14 fewer single-family residences on 1st Street between Fresno and Indiana Streets and four fewer single-family homes and four fewer multi-family homes on Indiana Street would be impacted than under Option 1 regardless of whether the alternative would operate with two or three cars.

Wheel Squeal

In general, sections of track with tight curves potentially can create a nuisance noise condition referred to as wheel squeal. The sliding or rubbing of the steel wheels of the LRT cars across the head of the steel rail causes wheel squeal. Wheel squeal impacts could occur along tight curves in the track with radii of less than 400 feet. In addition, there are other factors affecting the potential for wheel squeal, including: speed of the LRT train; rail vehicle truck geometry and rigidity; the conditions of the wheels and tracks; wheel damping technology; and contact-surface frictional characteristics. The maximum single-event noise level (L_{max}) for wheel squeal associated with the passby of an LRT vehicle would be in the range of 80 dBA at 100 feet to 94 dBA at 25 feet. This data is based on recent measurements taken of the Tri-Met Eastside and Westside LRT lines. At distances of less than 100 feet from the centerline of track, the APTA maximum passby guideline of 80 dBA would be exceeded for multi-family residential land uses in the project area. The following five locations along the proposed LRT alignment, sections of track with a radius curve of less than 200 feet, are where there is the most potential for wheel squeal to occur:

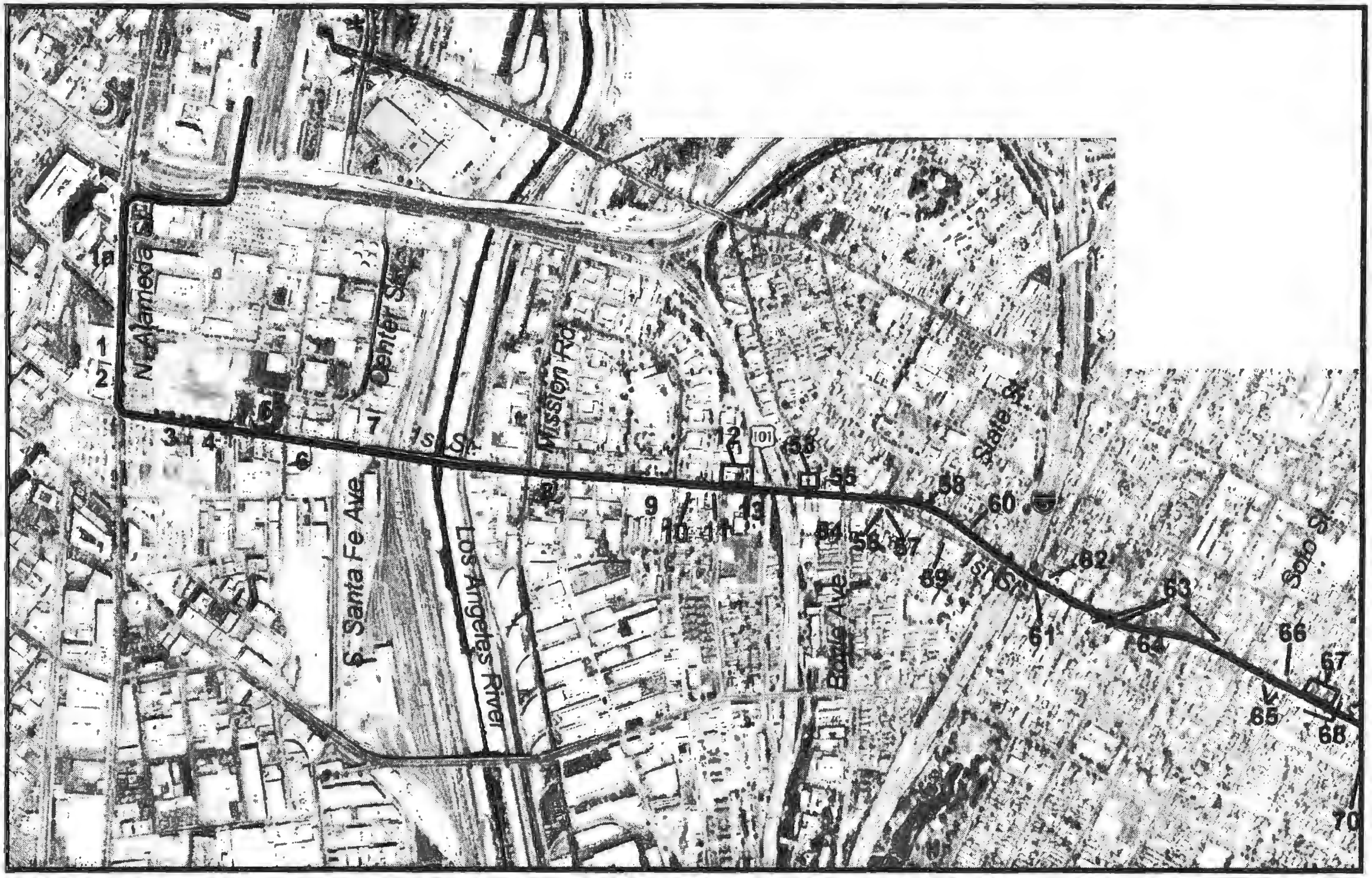
TABLE 4.8-4
PROJECT NOISE LEVELS AT BUILDING STRUCTURES ALONG THE ALIGNMENT

Receiver	Street that Alignment Follows	Type of Building Structure	Number of Buildings	FTA Noise Sensitive Category (1,2,3)	Train Speed (mph)	Distance of Trackwork to Receiver (feet)	Existing Noise Level[1] (dBA)	2-Car LRT Train		3-Car LRT Train	
								Project Generated Noise[1] (dBA)	FTA Level of Noise Impact	Project Generated Noise[1] (dBA)	FTA Level of Noise Impact
1a	Alameda	Veterans Clinic	1	3	30	30	73	66	no impact	68	no impact
1	Alameda	Geffen Museum	1	3	30	30	73	66	no impact	68	no impact
2	Alameda	Japanese American National Museum	1	3	30	30	73	66	no impact	68	no impact
3	1st Street	Residential/Commercial Mix	1	2	30	35	71	66	**moderate**	68	**moderate**
4	1st Street	Residential/Commercial Mix	1	2	30	40	70	65	**moderate**	67	**moderate**
5	1st Street	Hompa Hongwanji Buddhist Temple	1	3	30	90	68	58	no impact	60	no impact
6	1st Street	Residential/Commercial Mix	1	2	30	40	70	65	**moderate**	67	**moderate**
7	1st Street	Residential/Commercial Mix	1	2	30	40	70	65	**moderate**	67	**moderate**
8	1st Street	Multiple Family Residence	1	2	30	35	74	66	**moderate**	68	**moderate**
9	1st Street	Future Telacu Pico Aliso Housing	1	2	30	50	72	64	no impact	65	no impact
10	1st Street	Residential/Commercial Mix	1	2	30	40	73	65	no impact	67	**moderate**
11	1st Street	Multiple Family Residence	1	2	30	40	73	65	no impact	67	**moderate**
12	1st Street	Single Family Homes	5	2	30	45	76	64	no impact	66	**moderate**
12a	1st Street	Utah Elementary School	1	3	30	200	69	55	no impact	56	no impact
13	1st Street	Pecan Park	1	3	30	50	75	62	no impact	64	no impact
18a	1st Street	Evergreen Cemetery	1	3	35	40	69	65	no impact	66	no impact
19	1st Street	Single Family Homes	8	2	35	45	68	66	**moderate**	67	**moderate**
20	1st Street	Single Family Homes	6	2	35	55	68	64	**moderate**	66	**moderate**
21	Indiana Street	Multiple Family Residence	4	2	35	30	72	68	**moderate**[2]	70	**moderate**
22	Indiana Street	Single Family Homes	4	2	35	30	72	68	**moderate**[2]	70	**moderate**
23	Indiana Street	Ramona High School	1	3	35	45	68	64	no impact	66	no impact
26	3rd Street	LA Music and Art School	1	3	35	60	69	62	no impact	64	no impact
27	3rd Street	Multiple Family Residence	1	2	35	50	72	65	no impact	67	**moderate**
28	3rd Street	Single Family Homes	12	2	35	60	71	64	no impact	65	no impact
29	3rd Street	Multiple Family Residence	9	2	35	50	72	65	no impact	67	**moderate**
30	3rd Street	Paraiso Spanish Congregation	1	3	35	75	68	60	no impact	62	no impact
31	3rd Street	Single Family Homes	1	2	35	50	72	65	no impact	67	**moderate**

TABLE 4.8-4 (Cont'd)
PROJECT NOISE LEVELS AT BUILDING STRUCTURES ALONG THE ALIGNMENT

Receiver	Street that Alignment Follows	Type of Building Structure	Number of Buildings	FTA Noise Sensitive Category (1,2,3)	Train Speed (mph)	Distance of Trackwork to Receiver (feet)	Existing Noise Level[1] (dBA)	2-Car LRT Train: Project Generated Noise[1] (dBA)	2-Car LRT Train: FTA Level of Noise Impact	3-Car LRT Train: Project Generated Noise[1] (dBA)	3-Car LRT Train: FTA Level of Noise Impact
32	3rd Street	Our Lady of Lourdes Church	1	3	35	60	69	62	no impact	64	no impact
33	3rd Street	Residential/Commercial Mix	1	2	35	45	73	66	**moderate**	67	**moderate**
34	3rd Street	Multiple Family Residence	1	2	35	50	72	65	no impact	67	**moderate**
35	3rd Street	Multiple Family Residence	6	2	35	45	75	66	**moderate**	67	**moderate**
36	3rd Street	Multiple Family Residence	2	2	35	80	72	62	no impact	64	no impact
37	3rd Street	Guadalupe Church	1	3	35	85	71	60	no impact	61	no impact
38	3rd Street	Multiple Family Residence	4	2	35	50	74	65	no impact	67	**moderate**
39	3rd Street	Single Family Homes	6	2	35	50	74	65	no impact	67	**moderate**
40	3rd Street	Calvary Cemetery	1	3	35	50	73	63	no impact	65	no impact
41	3rd Street	Serbian Cemetery	1	3	35	50	73	63	no impact	65	no impact
42	3rd Street	Single Family Homes	1	2	35	50	74	65	no impact	67	**moderate**
43	3rd Street	Multiple Family Residence	2	2	35	60	73	64	no impact	65	no impact
44	3rd Street	Single Family Homes	1	2	35	35	70	67	**moderate**	69	**moderate**
45	3rd Street	Single Family Homes	2	2	35	100	66	60	no impact	62	**moderate**
46	3rd Street	Casa Telacu Apartments	1	2	35	90	65	57	no impact	59	no impact
47	3rd Street	Multiple Family Residence	2	2	35	45	69	66	**moderate**	67	**moderate**
48	3rd Street	Single Family Homes	2	2	35	60	68	64	**moderate**	65	**moderate**
49	3rd Street	Sala Evangelica	1	3	35	85	65	60	no impact	61	no impact
50	3rd Street	Griffith Junior High School	1	3	35	280	60	52	no impact	54	no impact
51	3rd Street	Iglesia El Siloe	1	3	35	50	68	63	no impact	65	no impact
52	3rd Street	East L.A. Library, Belvedere Park, Sheriff's Station	3	3	35	70	66	61	no impact	63	no impact

Shaded Boxes = These receptors are not included in the Extended Subway Option
[1] Category 3 = Leq; Category 1&2 = Ldn. Existing noise levels are estimated based on levels obtained at nearby measurement locations.
[2] These receptors are not impacted under the Indiana Street Acquire Additional Right of Way option for a 2-car LRT.



Legend

0 0.09 0.18 0.27 0.36 Miles

— LRT Alignment

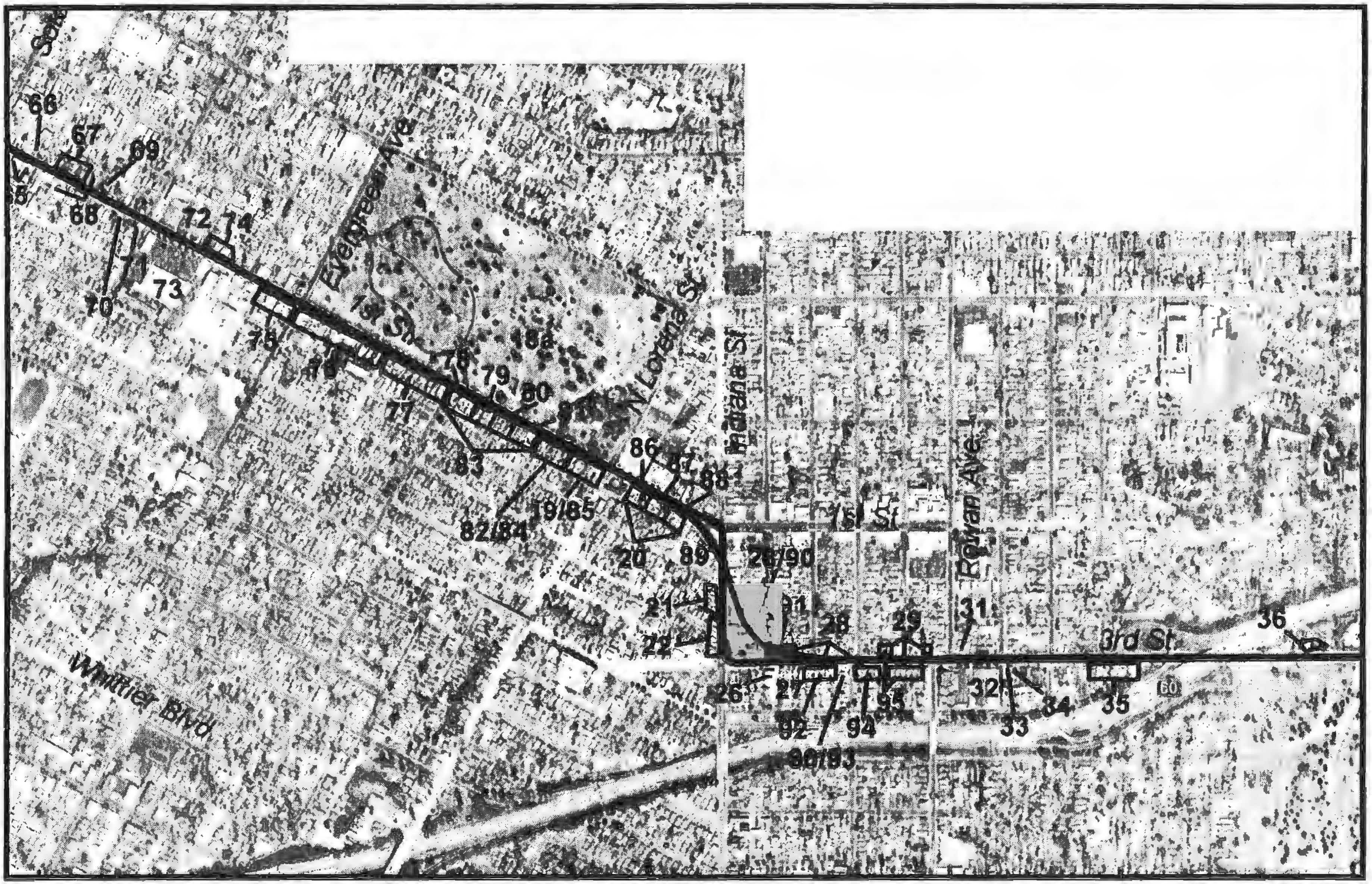
Eastside Corridor
Transit Consultants

November 2000

Los Angeles Eastside Corridor SEIS/SEIR

Noise and Vibration Receiver Locations

Figure 4.8-5



Legend

0 0.09 0.18 0.27 0.36 Miles

LRT Alignment

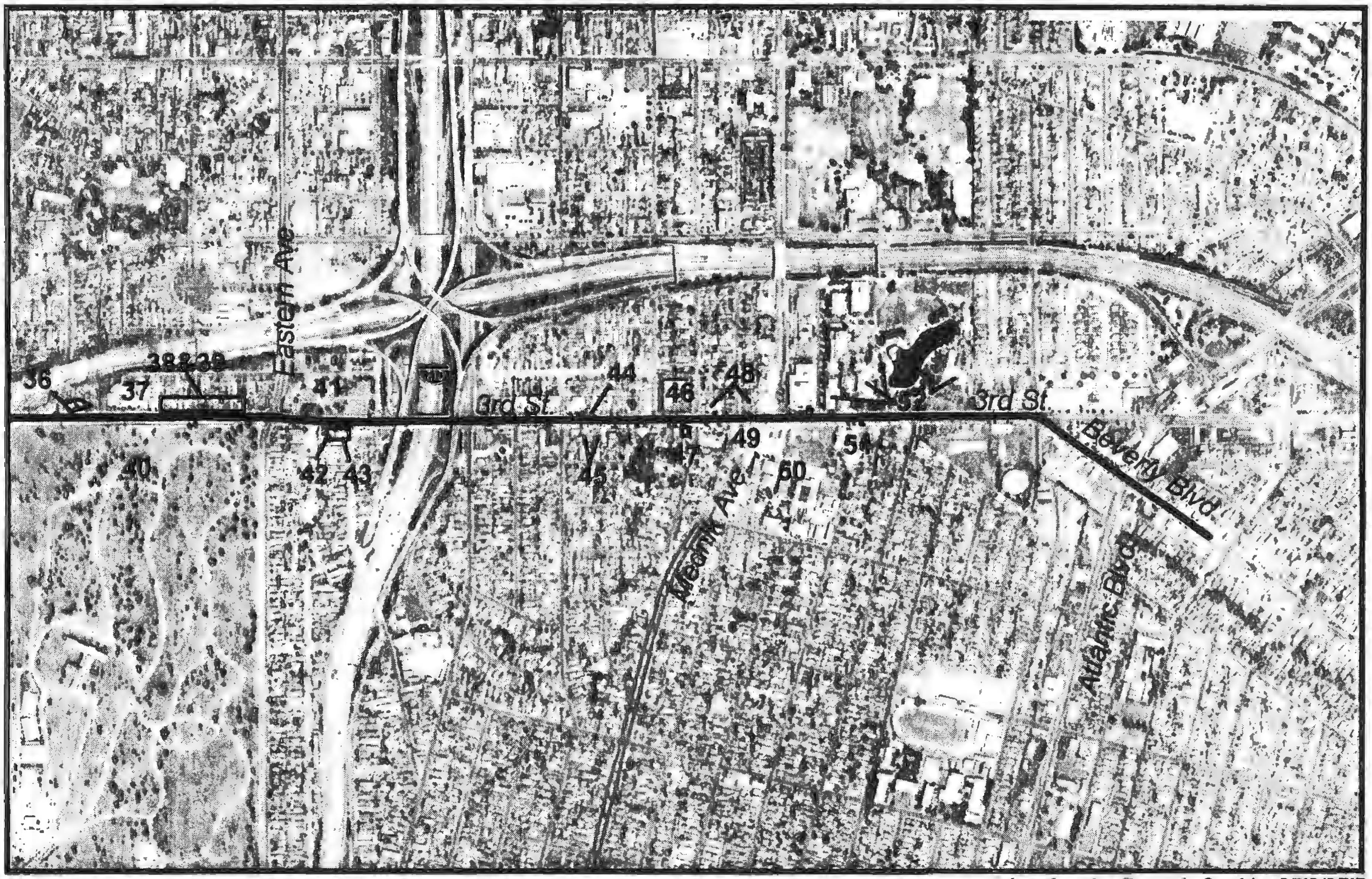
Los Angeles Eastside Corridor SEIS/SEIR

Noise and Vibration Receiver Locations

Figure 4.8-6

Eastside Corridor Transit Consultants

November 2000



Legend

0 0.09 0.18 0.27 0.36 Miles

LRT Alignment

Eastside Corridor
Transit Consultants

November 2000

Los Angeles Eastside Corridor SEIS/SEIR

Noise and Vibration Receiver Locations

Figure 4.8-7

TABLE 4.8-5
SUMMARY OF NOISE-IMPACTED STRUCTURES
(WITHOUT MITIGATION)

Level of Impact	Type of Impacted Structures	Option 1 (Indiana Street Remove Parking)		Option 2 (Indiana Street Acquire Additional ROW)		Option 3 (Extended Subway)	
		2-Car	3-Car	2-Car	3-Car	2-Car	3-Car
Moderate Impact	Single-Family Homes	21	36	17	36	3	18
	Multiple-Family Residences	13	29	9	29	9	24
	Residential/Commercial Mix	5	6	5	6	5	6
	Other	0	0	0	0	0	0
	Total:	**39**	**71**	**31**	**71**	**17**	**48**
Severe Impact	Single-Family Homes	0	0	0	0	0	0
	Multiple-Family Residences	0	0	0	0	0	0
	Residential/Commercial Mix	0	0	0	0	0	0
	Other	0	0	0	0	0	0
	Total:	**0**	**0**	**0**	**0**	**0**	**0**

- Hewitt Street at Commercial Street
- Commercial Street at Alameda Street
- Alameda Street at 1st Street
- 1st Street at Indiana Street
- Indiana Street at 3rd Street

The land uses at the first three track locations are industrial and commercial. At the last two locations (1st and Indiana Streets and 3rd and Indiana Streets) the land use is commercial and residential.

Vent Shafts, Traction Power Substations, and Emergency Power Generator

Vent shafts are planned at the following locations: 1st/Boyle subway station, 1st/Soto subway station, 1st/Lorena subway station (Option 3 only), and 1st/Lorena at-grade station (Options 1 and 2 only). Potential noise levels at these locations will be from the passby of underground trains transmitting through the vent shaft to the street and the testing and operation of the emergency ventilation fans. Four traction power substations (TPSS) are planned at the following locations: 1st/Alameda Station (in a nearby parking lot); 1st/Lorena Station (on property currently owned by MTA); near the SR 60/3rd Street interchange; and off 3rd Street near Woods Avenue in a parking lot. Refer to Appendices E and F for specific locations. In addition, an emergency power generator will be provided at the maintenance and storage facility. All of these ancillary facilities will be designed to control noise levels from these sources to the noise guidelines required by the MTA Systemwide Design Criteria. The criteria for the emergency power generator and exhaust fans are 55 dBA and 50 dBA for commercial and high-density residential areas, respectively. The design goals for transformer noise should be 5 dBA less due to the tonal components of this noise source. The criteria for the passby of underground trains transmitting through the vent shaft to the street are 65 dBA and 60 dBA for commercial and high-density residential areas, respectively. Emergency power generator equipment noise shall be tested during the time of day when existing ambient noise is at its maximum level. Equipment testing shall be limited to a maximum period of ten minutes once a week or less. During times of periodic testing, the emergency power generator equipment shall be limited to no more than 10 dBA sound level above the levels noted above at a distance of 50 feet from the generator or at the nearest building or occupied area, whichever is closer. No adverse impacts are anticipated since the facilities will be designed to comply with the MTA Systemwide Design Criteria.

Ground-Borne Noise and Vibration

Table 4.8-6 shows the projected ground-borne vibration levels for those building structures along the at-grade section of the alignment. Table 4.8-7 presents the projected ground-borne noise and vibration levels for those building structures along the underground subway section of the alignment. Ground-borne noise impacts are limited to the underground subway segments. Vibration impacts would be limited to interior land use activities and would not be perceptible for outdoor land uses such as parks and recreation facilities. The building receivers that are listed in Tables 4.8-6 and 4.8-7 are shown on Figures 4.8-5 through 4.8-7.

TABLE 4.8-6
GROUND-BORNE VIBRATION ANALYSIS: STREET-RUNNING SEGMENTS

Site No.	Street Location	Type of Building Structures	Number of Buildings	Distance to Track (feet)	Train Speed (mph)	FTA Vibration Criteria (VdB)	Predicted Vibration Levels (VdB)[1]
1a	Alameda	Veterans Clinic	1	30	30	75	76
1	Alameda	Geffen Museum	1	30	30	75	76
2	Alameda	Japanese American National Museum	1	30	30	75	76
3	1st Street	Residential/Commercial Mix	1	35	30	72	76
4	1st Street	Residential/Commercial Mix	1	40	30	72	72
5	1st Street	Hompa Hongwanji Buddhist Temple	1	90	30	75	63
6	1st Street	Residential/Commercial Mix	1	40	30	72	72
7	1st Street	Residential/Commercial Mix	1	40	30	72	72
8	1st Street	Multiple Family Residence	1	35	30	72	**81**
9	1st Street	Future Telacu Pico Aliso Housing	1	50	30	72	69
10	1st Street	Residential/Commercial Mix	1	40	30	72	**77**
11	1st Street	Multiple Family Residence	1	40	30	72	**77**
12	1st Street	Single Family Homes	5	45	30	72	**77**
12a	1st Street	Utah Elementary School	1	200	30	75	53
13	1st Street	Pecan Park	1	50	30	N/A	N/A
18a	1st Street	Evergreen Cemetery	1	45	35	N/A	N/A
19	1st Street	Single Family Homes	8	45	35	72	**78**
20	1st Street	Single Family Homes	6	55	35	72	**75**
21	Indiana Street	Multiple Family Residence	4	30	35	72	**82**
22	Indiana Street	Single Family Homes	4	30	35	72	**82**
23	Indiana Street	Ramona High School	1	45	35	75	73
26	3rd Street	LA Music and Art School	1	60	35	75	70
27	3rd Street	Multiple Family Residence	1	50	35	72	**75**
28	3rd Street	Single Family Homes	12	60	35	72	**75**
29	3rd Street	Multiple Family Residence	8	50	35	72	**75**
30	3rd Street	Paraiso Spanish Congregation	1	75	35	75	64
31	3rd Street	Single Family Homes	1	50	35	72	**75**
32	3rd Street	Our Lady of Lourdes Church/School	1	60	35	75	70
33	3rd Street	Residential/Commercial Mix	1	45	35	72	**78**
34	3rd Street	Multiple Family Residence	1	50	35	72	**75**
35	3rd Street	Multiple Family Residence	6	45	35	72	**78**
36	3rd Street	Multiple Family Residence	2	80	35	72	69
37	3rd Street	Guadalupe Church	1	85	35	75	64
38	3rd Street	Multiple Family Residence	4	50	35	72	**75**
39	3rd Street	Single Family Homes	6	50	35	72	**75**
40	3rd Street	Calvary Cemetery	1	50	35	N/A	N/A
41	3rd Street	Serbian Cemetery	1	50	35	N/A	N/A
42	3rd Street	Single Family Homes	1	50	35	72	**75**
43	3rd Street	Multiple Family Residence	2	60	35	72	**75**
44	3rd Street	Single Family Homes	1	35	35	72	**82**
45	3rd Street	Single Family Homes	2	100	35	72	65
46	3rd Street	Casa Telacu Apartments	1	90	35	72	69
47	3rd Street	Multiple Family Residence	2	45	35	72	**78**
48	3rd Street	Single Family Homes	2	60	35	72	**75**
49	3rd Street	Sala Evangelica	1	85	35	75	64
50	3rd Street	Griffith Junior High School	1	280	35	75	<52
51	3rd Street	Iglesia El Siloe	1	50	35	75	70
52	3rd Street	East L.A. Library, Belvedere Park, Sheriff's Station	3	70	35	75	70

Shaded Boxes = Sites that would be bypassed under Extended Subway Option.
[1]*Boldface numbers indicate impacts.*

TABLE 4.8-7
GROUND-BORNE NOISE AND VIBRATION ANALYSIS: UNDERGROUND SEGMENTS

Site No.	Street Location	Type of Building Structures	Number of Buildings	Depth to Top of Rail (feet)	Train Speed (mph)	FTA Ground-Borne Vibration Criteria (VdB)	Predicted Vibration Levels (VdB)[1]	FTA Ground-Borne Noise Criteria (dBA)	Predicted Noise Levels (dBA)[1]
53	US 101 Freeway	Multiple Family Residence	3	60	55	72	71	35	**36**
54	US 101 Freeway	Multiple Family Residence	1	60	55	72	71	35	**36**
55	US 101 Freeway	Residential/Commercial	1	64	55	72	71	35	**36**
56	Boyle Avenue	Residential/Commercial	1	65	55	72	71	35	**36**
57	Boyle Avenue	Mixed Use	1	65	55	72	71	35	**36**
58	Boyle Avenue	Single Family Homes	1	62	55	72	71	35	**36**
59	Boyle Avenue	Multiple Family Residence	1	60	55	72	71	35	**36**
60	Boyle Street	Pentecostal Church	1	60	55	75	66	40	31
61	I-5 Freeway	Multiple Family Residence	1	60	55	72	71	35	**36**
62	I-5 Freeway	Mixed Use	1	60	55	72	71	35	**36**
63	I-5 Freeway	Mixed Use	3	65	55	72	71	35	**36**
64	I-5 Freeway	Ben Franklin Library	1	67	55	75	66	40	31
65	Soto Street	Mixed Use	2	65	55	72	71	35	**36**
66	Soto Street	Single Family Homes	1	65	55	72	71	35	**36**
67	Mathews Street	Single Family Homes	6	65	55	72	71	35	**36**
68	Mathews Street	Mixed Use	2	68	55	72	71	35	**36**
69	Fickett Street	Multiple Family Residence	1	73	55	72	71	35	**36**
70	Fickett Street	Multiple Family Residence	1	77	55	72	65	35	30
71	Fickett Street	Single Family Homes	1	80	55	72	65	35	30
72	Mott Street	Konko Church	1	83	55	75	60	40	25
73	Mott Street	1st Street School	1	80	55	75	60	40	25
74	Mott Street	Multiple Family Residence	3	82	55	72	65	35	30
75	Mott Street	Single Family Homes	3	70	55	72	71	35	**36**
76	Evergreen	Multiple Family Residence	5	55	55	72	71	35	**36**
77	Evergreen	Single Family Homes	10	66	55	72	71	35	**36**
78	Fresno Street	Single Family Homes	5	60	55	72	71	35	**36**
79	Fresno Street	Single Family Homes	3	50	55	72	71	35	**36**
80	Fresno Street	Single Family Homes	3	45	55	72	74	35	**39**
81	Fresno Street	Single Family Homes	5	35	55	72	**78**	35	**43**
82	Fresno Street	Single Family Homes	6	30	55	72	**78**	35	**43**
Option 3 – Extended Subway (up to Fresno Street same as above)									
83	Fresno Street	Single Family Homes	16	70	55	72	71	35	**36**
84	Concord Street	Single Family Homes	5	70	55	72	71	35	**36**
85	Concord Street	Single Family Homes	6	55	55	72	71	35	**36**
86	Lorena Street	Single Family Homes	1	50	55	72	71	35	**36**
87	Lorena Street	Single Family Homes	3	55	55	72	71	35	**36**
88	Lorena Street	Single Family Homes	2	60	55	72	71	35	**36**
89	Indiana Street	Iglesia Evangelica	1	73	55	75	66	40	31
90	Indiana Street	Ramona High School	1	70	55	75	66	40	31
91	Indiana Street	Single Family Homes	3	65	55	72	71	35	**36**
92	Indiana Street	Single Family Homes	6	45	55	72	74	35	**39**
93	Indiana Street	Paraiso Spanish Congregation	1	40	55	75	69	40	34
94	Pitman	Single Family Homes	4	30	55	72	**78**	35	**43**
95	Pitman	Multiple Family Residence	8	25	55	72	**83**	35	**48**

[1]Boldface numbers indicate impacts.

Options

A summary of the buildings impacted under each option is presented in Table 4.8-8. Ground-borne noise and vibration impacts of Options 1 and 2 are the same. Vibration impacts of Option 3 are similar to Options 1 and 2 with the exception of the following structures which will not be impacted under Option 3: 28 single-family homes between Fresno Street and Indiana Street, four single-family-homes and four multi-family residences on Indiana Street, and two single-family-homes and one multi-family residence on 3rd Street.

Ground-borne noise impacts under Option 3 are similar to Options 1 and 2 with the exception of six single-family homes on 1st Street, between Fresno Street and Concord Street, which will not be impacted under Option 3. However, the following additional structures, not affected under Options 1 and 2, would be impacted under Option 3: 1) 11 single-family homes on 1st Street between Concord and Lorena Streets; 2) six single-family homes on 1st Street between Lorena and Indiana Streets; and 3) 13 single-family homes and 8 multi-family homes on 3rd Street between Alma and Rowan Streets.

As presented in Table 4.8-8, there are 95 structures that would exceed the FTA vibration criteria for Options 1 and 2 and 56 structures for Option 3. At those structures where exceedance of the FTA criteria was 5 VdB or less, more detailed study would be required to confirm these impacts and the need for mitigation. During preliminary engineering and as part of the Final EIS, transfer mobility tests will be conducted at these locations to determine the effects of local geology on ground attenuation. Measurements will also be made to determine the force density levels of the LRT vehicles that will be used for this project. Exceedances of the FTA vibration criteria of more than 5 VdB would be considered an impact that will require mitigation. Ground-borne noise impacts are limited to the underground subway segments of the project. As presented in Table 4.8-8, there are 98 structures that would exceed the FTA criteria for Option 3, Extended Subway, and 66 structures for Options 2 and 3.

Significance of Impacts

With regard to noise, there are no structures that are severely impacted under the LRT Build Alternative and each of the three options. Under CEQA, the projected future noise levels of the LRT operations would not be considered a significant impact. Exceedances of the FTA vibration criteria of more than 5 VdB would be considered an impact that will require mitigation. All exceedances of the FTA ground-borne noise and vibration impacts are considered significant under CEQA and would require either further study in accordance with FTA methodologies to confirm the impact or mitigation to meet FTA criteria.

4.8.4 <u>Mitigation</u>

There are several operational measures that can be taken to assure that noise and vibration levels related to light rail operation remain at the levels projected in the analysis. Table 4.8-9 provides a list of measures that could be performed on a regular basis and the benefit that each of the measures will provide. Purchasing quiet light rail vehicles is another important step in minimizing noise impacts.

4.8.4.1 Noise

LRT Operations

For severe impacts, noise mitigation is always recommended, whether it is sound-absorptive trackside noise barriers or sound insulation for the impacted structures. For moderate noise impacts, noise mitigation is recommended when deemed cost-effective and feasible. Noise mitigation for moderately impacted structures is normally in the form of sound-absorptive trackside noise barriers. No severe impacts have been predicted for any of the LRT Build Alternatives. As for the moderate noise impacts, trackside noise barriers are not feasible since the LRT alignment runs in the street when at grade. Trackside noise barriers in the street would interfere with traffic and pedestrian movements. For this reason, no noise mitigation has been recommended for any of the LRT Build Alternative options.

TABLE 4.8-8
SUMMARY OF GROUND-BORNE NOISE AND VIBRATION IMPACTS (WITHOUT MITIGATION)

Type of Impact	Type of Impacted Structures	Option 1 (Indiana Street Remove Parking)	Option 2 (Indiana Street Acquire Additional ROW)	Option 3 (Extended Subway)
Ground-Borne Vibration	Single-Family Homes	60	60	26
	Multiple-Family Residences	29	29	24
	Residential/Commercial Mix	3	3	3
	Other	3	3	3
	Total:	**95**	**95**	**56**
Ground-Borne Noise	Single-Family Homes	43	43	67
	Multiple-Family Residences	12	12	20
	Residential/Commercial Mix	11	11	11
	Other	0	0	0
	Total:	**66**	**66**	**98**

TABLE 4.8-9
OPERATIONAL MITIGATION MEASURES

Operational Measure	System Benefit
Rail Grinding and Replacement	As rails wear, both noise levels from light rail by-passes and vibration levels can increase. By grinding down or replacing worn rail, noise and vibration levels will remain at the initial operating levels. Rail grinding or replacement is normally performed every three to five years.
Wheel Truing and Replacement	Wheel truing is a method of grinding down flat spots (commonly called "wheel flats") on the light rail's wheels. Flat spots occur primarily because of hard braking. When flat spots occur they can cause increases in both the noise and vibration levels produced by the light rail vehicles.
Vehicle Maintenance	Vehicle maintenance includes performing scheduled and general maintenance on items such as air conditioning units, bearings, wheel skirts, and other mechanical units on the light rail vehicles. Keeping the mechanical system on the light rail vehicles in top condition will also help to control noise and vibration levels.
Operator Training	Operators will be trained to maintain light rail travel speeds at those speeds given in the operation plan and to avoid "hard-braking" whenever possible. As stated, "hard-braking" can cause wheel flats and may also damage track. Furthermore, by training operators to identify potential wheel flats and other mechanical problems with the trains, proper maintenance can be performed in a more timely manner.

Wheel Squeal

The potential for wheel squeal has been identified at those locations where the trackwork has a radius curve of less than 200 feet. Since it is only possible to anticipate, but not to predict the occurrence of wheel squeal, mitigation measures should be immediately available to treat a potential problem as soon as pre-revenue system operations begins. These measures for controlling wheel squeal include:

- Dry-stick friction modifiers. Apply friction modifiers on the wheel tread or directly on the running surface of the rail.

- Lubrication. Wayside lubrication applied to the rail gauge face and wheel flange.
- Optimize rail and wheel profiles. It is often possible to reduce levels of wheel squeal through modifications to the rail and wheel profiles.

Ancillary Facilities

Mitigation measures for the abatement of noise levels from the vent shafts, TPSS, and emergency power generator will be determined during preliminary and final design. Noise control measures used to meet the MTA Systemwide Noise Criteria for ancillary facilities will include locating these facilities in non-sensitive commercial or industrial areas, fully enclosing emergency power generating equipment and TPSS in masonry structures with sound-rated doors or gates, high grade engine exhaust mufflers for diesel engine generators, and providing sound attenuation on all ventilation openings of any ancillary facility buildings.

4.8.4.2 Ground-Borne Noise and Vibration

Vibration impacts will be mitigated to the FTA criteria using one of the trackwork design measures described below, in addition to the operation mitigation measures presented in Table 4.8-9. The actual form of mitigation would be selected during final design.

- Rubber booted rail for embedded track;
- High resilience (soft) direct 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.

4.8.4.3 Significance of Impacts Remaining After Mitigation

There are no severe noise impacts that would occur under the LRT Build Alternative or any of the three options. Mitigation measures for moderate noise impacts would not be feasible because the alignment will be operating in a shared right-of-way with traffic vehicles. Therefore, noise mitigation measures for this project are related to ancillary equipment, and wheel squeal. It is expected, that during final engineering, when more information is known on the design of the project, noise impacts related to these activities could be fully mitigated to a level of no significance. Vibration impacts, both ground-borne noise and vibration, would be fully mitigated to a level of no significance during final design.

4.9 GEOLOGIC AND SEISMIC CONDITIONS

4.9.1 Affected Environment

This section summarizes the geologic setting and the general topographic, geologic materials, groundwater features, and faults and seismic characteristics of the study area.

4.9.1.1 Geologic Setting

The study area is located in the north-central portion of the Los Angeles Coastal Plain. The coastal plain is an alluviated lowland area that is bounded on the north by the Santa Monica Mountains and the Elysian, Repetto, and Puente Hills; and on the east and southeast by the Santa Ana Mountains and the San Joaquin Hills. A deep structural basin underlies the coastal plain. Parts of the basin have undergone deposition of sediments since late Cretaceous time and continuous marine deposition and subsidence of the basin have been ongoing since middle Miocene time. Numerous oil fields are located in the basin and within the study area.

The study area is located along the southern flank of the Elysian and Repetto Hills and generally traverses a dissected Pleistocene age terrace in an east-west direction. The Los Angeles River traverses the LRT Build Alternative. Younger Holocene age (within the last 11,000 years) alluvial deposits are present in the vicinity of the river.

Regionally, the study area is in the Peninsular Ranges geomorphic province, which is characterized by northwest-trending mountain ranges separated by sediment-floored valleys (Yerkes et al., 1965). The northwest trend is further indicated by the dominant geologic structural features of the province, which include northwest to west-northwest trending faults and fault zones such as the Newport-Inglewood fault zone and the Whittier fault zone.

The study area is underlain by the Elysian Park Thrust, which is generally accepted as the source of the 1987 Whittier Narrows earthquake. This thrust fault is a concealed, deep thrust fault that, in part, expresses itself at the surface as the Elysian Park Hills and the Repetto Hills and results in active folding along the trace of the Coyote Pass Escarpment. The escarpment is a gentle south-facing and east-west trending topographic feature northeast of downtown Los Angeles (Woodward-Clyde Consultants, Seih, 1997, 1998). The result of the fault investigations along the Coyote Pass Escarpment performed for the project indicate that this structure is active, resulting in monoclinal folding and deformation of the near-surface alluvial deposits and the underlying Fernando Formation and Puente Formation bedrock.

4.9.1.2 Topography

The Los Angeles Coastal Plain slopes gently southward toward the ocean. The gently sloping topography is interrupted by the Palos Verdes Peninsula in the southwest, a northwest-trending series of low-lying hills (associated with the Newport-Inglewood fault zone) in the west, and the Coyote Hills in the northeastern portion of the coastal plain, respectively. Along the LRT Build Alternative, the topography generally slopes gently to the south or south-southwest. The exception is in the area between the Los Angeles River and Atlantic Boulevard where the topography consists of low-lying hills.

4.9.1.3 Geologic Materials

The LRT Build Alternative traverses the physiographic features known as the Downey Plain (west of the Los Angeles River) and the Montebello Plain (east of that river) and numerous river and stream drainages. The Downey and Montebello Plains are mantled by Pleistocene age terrace and alluvial deposits and form an alluvial fan originating from the Repetto and Merced Hills. These hills are comprised of sedimentary bedrock of the Pliocene age Fernando Formation. The bedrock that underlies the LRT Build Alternative consists of the Fernando Formation and the older Miocene age Puente Formation. The numerous river and stream drainages that are traversed by the alignment dissect the Downey Plain and the Montebello Plain and include the Los Angeles River. These drainages are in-filled with Holocene age alluvial deposits. Locally, artificial fills mantle the Pleistocene age terrace deposits and Holocene age alluvial deposits.

4.9.1.4 Groundwater

Groundwater levels beneath the LRT Build Alternative vary along the alignment. Groundwater levels in the eastern portion of the alignment, east of Lorena Street, have been historically greater than 50 feet beneath the existing ground surface. In the study area, west of Lorena Street, groundwater levels have been previously documented in geotechnical reports by GeoTransit Consultants (1995, 1996a, 1996b, 1996c, 1996d). Based on available information, groundwater levels in the area of 1st and Lorena Streets are approximately 80 to 100 feet beneath the existing ground surface. The groundwater levels become locally shallower to the west. Groundwater levels in the vicinity of the intersections of 1st Street/Boyle Avenue and Chavez Avenue/Soto Street (near the LRT Build Alternative) have been documented between approximately 30 to 83 feet beneath the existing ground surface. Groundwater levels west of the Los Angeles River, between Union Station on the north and 1st Street on the south, are reportedly 30 to 45 feet beneath the existing ground surface.

Perched groundwater conditions were observed in previous MTA studies and will likely be locally present along portions of the LRT Build Alternative alignment. Also, groundwater levels in the area west of Lorena Street are known to have significant historic fluctuations. Recorded groundwater level fluctuations are on the order of 12 feet in one month, 69 feet in one year, and 183 feet in 10 years (GeoTransit Consultants, 1995, 1996a, 1996b, 19996c, 1996d). Additional information about groundwater and aquifers in the study area can be found in Section 4.11.1.2.

4.9.1.5 Subsurface Gases

Based on maps from the California Division of Oil and Gas, the LRT Build Alternative will traverse two existing oil fields. Also, based on available publications and subsurface information from previous geotechnical investigations in the vicinity of the proposed tunnel segment, there is documented subsurface methane and hydrogen sulfide gases, as well as free oil and tar, and petroliferous bedrock in the area between Union Station and the Los Angeles River. Further discussion of subsurface gases is included in Section 4.10.

4.9.1.6 Corrosivity

Based on results of chemical testing performed as part of the previous investigations for the suspended Metro Red Line project (GeoTransit Consultants, 1996a, 1996b, 1996c, 1996d), subsurface materials along the LRT Build Alternative are classified as corrosive to severely corrosive to metals and moderately deleterious to concrete.

4.9.1.7 Faults and Seismicity

The numerous faults in Southern California include active, potentially active, and inactive faults. The criteria for these major groups are based on criteria developed by the California Division of Mines and Geology (CDMG) for the Alquist-Priolo Earthquake Fault Zoning Program (Hart, 1997). By definition, an active fault is one that has had surface displacement within Holocene time (about the last 11,000 years). A potentially active fault is a fault that has demonstrated surface displacement of Quaternary age deposits (last 1.6 million years). Inactive faults have not moved in the last 1.6 million years. A list of nearby active and potentially active faults and the distance in miles between the LRT Build Alternative and the nearest point on the fault, the maximum magnitude, and the slip rate for the fault is listed in Table 4.9-1.

Figure 4.9-1 shows the locations of major faults and earthquake epicenters in southern California. Several earthquakes of moderate[8] to major magnitude have occurred within the last 65 years that have produced significant ground shaking in the vicinity of the study area. The earliest of these was the March 10, 1933 magnitude 6.4 Long Beach earthquake. The epicenter of this earthquake was located about 26 miles south-southeast of the proposed alignment. The epicenter of the February 9, 1971, San Fernando earthquake, magnitude 6.6, was about 26 miles north-northwest of the LRT Build Alternative. Surface rupture occurred on various strands of the San Fernando fault zone as a result of this earthquake, including the Tujunga and Sylmar faults. The magnitude 5.9 Whittier Narrows earthquake occurred on October 1, 1987, on a previously unrecognized fault, now believed to be the Elysian Park Thrust. The earthquake epicenter was located about 2.4 miles north of the proposed alignment. The Sierra Madre earthquake occurred on June 28, 1991, along the Sierra Madre fault zone. The epicenter of the magnitude 5.8 earthquake was located in the San Gabriel Mountains about 17 miles north-northeast of the alignment.

On June 28, 1992, two major earthquakes occurred east of Los Angeles. A magnitude 7.5 earthquake occurred in the High Desert region and is known as the Landers earthquake. The epicenter was located about 91 miles east-northeast of the LRT Build Alternative. The second event occurred near Big Bear Lake and had a magnitude of 6.6; the epicenter was about 71 miles east-northeast of the LRT Build Alternative. On January 17, 1994, a magnitude 6.7 Northridge earthquake occurred on a previously unknown blind thrust fault that is now known as the Northridge Thrust. The Northridge Thrust is located beneath the majority of the San Fernando Valley and is considered to be the eastern extension of the active Oakridge fault. The epicenter of the Northridge earthquake was located about 20 miles northwest of the LRT Build Alternative. Most recently, the magnitude 7.1 Hector Mine earthquake occurred on October 16, 1999. The earthquake is believed to have occurred on the Lavic Lake fault, previously thought to have been inactive.

4.9.2 Methodology for Impact Evaluation

Categories of potential geotechnical impacts are set forth by the California Environmental Quality Act (CEQA), the California Public Resources Code, and State CEQA Guidelines. Potential impacts associated with geotechnical considerations have been identified from a review of available published and unpublished geotechnical literature pertinent to the proposed project. These include, but are not limited to: the safety elements of the general plans for the City and County of Los Angeles, and the Cities of Commerce and Montebello aerial photographs; Official Alquist-Priolo Earthquake Fault Zone Maps; Official Seismic Hazard Zone Maps; geologic and topographic maps and other publications by the California Division of Mines and Geology, U.S. Geological Survey, and California Division of Oil and Gas; Wildcat Oil and Gas Maps; and available geotechnical reports pertinent to the project.

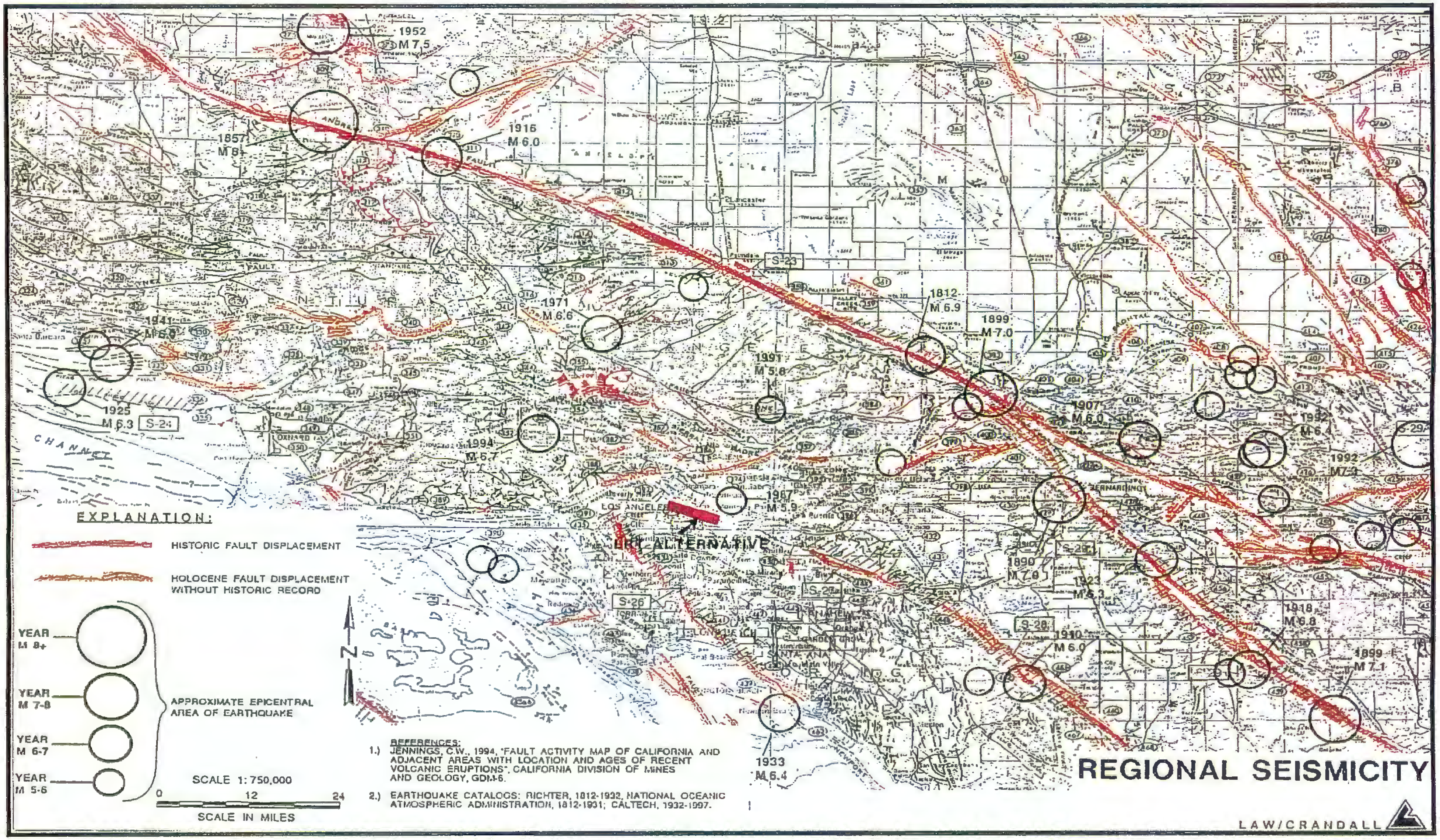
The analysis of potential geologic and seismic impacts along the project alignment was determined specifically from: 1) the Los Angeles County Seismic Safety Element (1990); 2) the City of Los Angeles Safety Element (1996); 3) the Seismic Hazard Zone Maps published by the California Division of Mines and Geology (1999); 4) Alquist-Priolo Earthquake Fault Zone Maps; and 5) reports prepared for the MTA for the suspended Metro Red Line project and other Law/Crandall projects in the vicinity.

[8] Moderate earthquakes are those with magnitudes of 6.0 to 6.9; major earthquakes are those with magnitudes of 7.0 to 7.9; great earthquakes are those with magnitudes of 8.0 or greater (California Division of Mines and Geology, 1986).

TABLE 4.9-1
MAJOR NAMED FAULTS CONSIDERED TO BE ACTIVE[1] OR POTENTIALLY ACTIVE[1] IN SOUTHERN CALIFORNIA

Fault (in alphabetical order)	Maximum Magnitude[2]	Fault Type[6]	Slip Rate (mm/r.)	Approximate Distance From LRT Build Alternative (Miles)	Direction From Alternative
Considered Active:					
Anacapa-Dume	7.3	RO	3.0	26	WSW
Compton-Los Alamitos Thrust	6.8	RO	1.5	4.4	SW
Cucamonga	7.0	RO	5.0	24	NE
Elsinore (Glen Ivy Segment)	6.8	SS	5.0	24	ESE
Elysian Park Thrust	6.7	RO	1.5	0.0	—
Hollywood	6.4	RO	1.0	4.5	NNW
Malibu Coast	6.7	RO	0.3	24	W
Newport-Inglewood Zone	6.9	SS	1.0	6.2	SW
Northridge Thrust	6.9	RO	1.5	15.5	NW
Oak Ridge	6.9	RO	4.0	38	NW
Palos Verdes	7.1	SS	3.0	17.5	SW
Raymond	6.5	RO	0.5	4.7	N
San Andreas (Southern Segment)	7.4	SS	24.0	33	NE
San Cayetano	6.8	RO	6.0	40	NW
San Fernando	6.7	RO	2.0	16	NW
San Gabriel	7.0	SS	1.0	17	N
San Jacinto (San Bernardino Segment)	6.7	SS	12.0	38	NE
Santa Monica	6.6	RO	1.0	9.2	W
Sierra Madre	7.0	RO	3.0	11.0	NE
Simi-Santa Rosa	6.7	RO	1.0	31	NW
Verdugo	6.7	RO	0.5	7.0	N
Whittier	6.8	SS	2.5	1.8	NNE
Considered Potentially Active:					
Fault (in alphabetical order)	**Maximum Magnitude**	**Fault Type[6]**	**Slip Rate (mm/yr.)**	**Approximate Distance From LRT Build Alternative (Miles)**	**Direction From Alternative**
Charnock	6.5[1]	SS	0.1	11.0	SW
Chino-Central Avenue	6.7[2]	NO	1.0	19.0	E
Clamshell-Sawpit	6.5[2]	RO	0.5	12.5	NNE
Coyote Pass	6.7[5]	RO	0.1	0.2	N
Duarte	6.7[1]	RO	0.1	11.5	NE
Holser	6.5[2]	RO	0.4	35	NW
Indian Hill	6.6[3]	RO	0.1	14.0	NE
Los Alamitos	6.2[5]	SS	0.1	11.0	SSW
MacArthur Park	5.7[4]	RO	3.0	0.8	WSW
Northidge Hills	6.6[5]	SS	1.2	17.5	NW
Norwalk	6.7[1]	RO	0.1	5.2	SSW
Overland	6.0[1]	SS	0.1	9.5	SW
San Jose	6.5[2]	RO	0.5	14.5	NE
Santa Cruz Island	6.8[2]	RO	1.0	57	W
Santa Susana	6.6[2]	RO	5.0	24	NW

[1]Slemmons, 1979. [6]SS=Strike Slip NO=Normal Oblique RO=Reverse Oblique
[2]CDMG, 1996.
[3]Mark, 1977.
[4]Hummon et al., 1994
[5]Wesnousky, 1986.



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Regional Seismicity

Figure 4.9-1

The determination of significance was based on guidelines established by CEQA. Per Section 15358 of the CEQA Guidelines, a significant geotechnical impact on the environment is defined as a substantial or potentially substantial adverse change in the physical environment due to the LRT Build Alternative. A significant impact on the project is defined as one having a substantial or potentially substantial adverse effect on the LRT Build Alternative.

4.9.3 Impacts

4.9.3.1 No-Build Alternative

No impacts are anticipated as a result of the No-Build Alternative.

4.9.3.2 LRT Build Alternative

Potential operational impacts are discussed below, generally in order of significance.

Corrosivity

As discussed in Section 4.9.1, subsurface materials along the LRT Build Alternative are classified as corrosive to severely corrosive to metals and moderately deleterious to concrete. The corrosivity of subsurface materials is anticipated to have a potentially significant impact under CEQA on the LRT Build Alternative, depending on materials selected for construction of underground segments.

Groundwater

Shallow and perched groundwater may be encountered above design elevations for tunnels and underground stations, creating hydrostatic pressure on tunnel sections and station walls and floors below the groundwater table. Groundwater is anticipated to have a potentially significant impact under CEQA on the LRT Build Alternative.

Ground Shaking

Significant ground shaking could occur along the proposed alignment as a result of earthquakes on any of the documented or undocumented nearby active or potentially active faults. The Seismic Shaking Hazard Map of California (CDMG, 1999) indicates the estimated peak ground acceleration with a 10 percent probability of being exceeded in 50 years in the study area ranges from 0.4g to 0.6g. The location of the LRT Build Alternative in 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.

MTA Design Criteria (Rail and Transit Design Criteria and Standards, 1996) requires that for important structures such as the LRT Build Alternative, special earthquake protection criteria be followed. "The guiding philosophy of earthquake design for the Metro Rail projects is to provide a high level of assurance that the overall system will continue to operate during and after an Operating Design Earthquake (ODE)." Operating procedures assume safe shut down and inspection before returning to operation. "Further, the system design will provide a high level of assurance that public safety will be maintained during and after a Maximum Design Earthquake (MDE)." The ODE is defined as the earthquake event with a 40 percent probability of exceedance in 100 years, which corresponds to an average recurrence interval of 200 years. Such an event can reasonably be expected to occur during the 100-year facility design life. The MDE is defined as the earthquake event with a 5 percent probability of exceedance in 100 years, which corresponds to an average recurrence interval of 2000 years.

areas underlain by geologic materials

Investigations for the suspended Metro Red Line project provided site specific
design criteria were

4.0: Affected Environment and Environmental Consequences
Geologic and Seismic Conditions

such as sand and gravel that might be considered mineral resources, and which could be used as construction aggregate. However, these materials have not been previously mined in the area of the proposed alternative because of the low mineral value of these materials and their location within fully urbanized areas. Therefore, mining these materials is considered uneconomical. There is a potential for re-use of the excavated materials from the tunnels for fills.

The LRT Build Alternative is not within, and does not traverse, a currently established Alquist-Priolo Earthquake Fault Zone for surface fault rupture hazards. The nearest Alquist-Priolo Earthquake Fault Zone, established for the East Montebello Hills fault, is located 1.8 miles to the north of the LRT Build Alternative. Based on the available geologic data, active or potentially active faults with the potential for surface fault rupture are not known to be located within the study area. The potential for surface fault rupture due to fault plane displacement propagating to the surface across the planned LRT alignment during the design life of the project is considered low.

According to the Los Angeles County Seismic Safety Element (1990) and the City of Los Angeles Safety Element (1996), the LRT Build Alternative is not within an area identified as having a potential for slope instability. Additionally, the LRT Build Alternative is not located within an area identified as having a potential for seismic slope instability (California Division of Mines and Geology, 1999). There are no known landslides near the alignment, nor is it in the path of any known or potential landslides. The alignment of the LRT Build Alternative is also not within an area known to be susceptible to subsidence due to the withdrawal of fluids (petroleum or groundwater) or peat oxidation.

According to the City of Los Angeles Safety Element (1996) and the Los Angeles County Seismic Safety Element (1990), a portion of the LRT Build Alternative in the western portion of the alignment is located within a potential inundation area (potential flood area) for an earthquake-induced dam failure from Hansen, Whittier Narrows, and Sepulveda Dams, and from Garvey Reservoir. The area is from Alameda and Banning Streets to 1st and Utah Streets. However, the referenced dams and reservoirs, as well as others in California, are continually monitored by various governmental agencies (such as the State of California Division of Safety of Dams and the U.S. Army Corps of Engineers) to guard against the threat of dam failure. The possibility of a dam failure during an earthquake has been addressed by the California Division of Mines and Geology in the earthquake planning scenarios for a magnitude 8.3 earthquake on the San Andreas Fault zone (Davis et al., 1982) and a magnitude 7.0 earthquake on the Newport-Inglewood fault zone (Toppozada et al., 1988). As stated in both reports, catastrophic failure of a major dam as a result of an earthquake is regarded as unlikely.

Current design and construction practices and ongoing programs of review, modification, or total reconstruction of existing dams are intended to ensure that all dams are capable of withstanding a maximum credible earthquake (MCE) on a nearby fault. The MCE is defined as an event with a ten percent probability of exceedance in 100 years, which corresponds to a 950-year average recurrence interval. Therefore, inundation is not anticipated to have a significant impact under CEQA on the LRT Build Alternative. Furthermore, because the distance to the nearest retention structure is over ¾ mile, the LRT Build Alternative is not anticipated to impact these retaining structures nor influence their potential for causing inundation.

LRT Build Alternative Options

The impacts of the three options being evaluated in the vicinity of Indiana Street between Lorena and 3rd Streets would be similar, with the possible exception of the Extended Subway Option (Option 3). With respect to geologic hazards, the Extended Subway Option extends the underground section of the LRT Build Alternative approximately 3,000 feet, adding an underground station at 1st and Lorena Streets. However, based on borings in the vicinity of the Extended Subway Option, geologic conditions are anticipated to be similar to those encountered at 1st and Lorena. Impacts from operations for tunnels and stations in the extended subway segment will be similar to those described for the tunneled section between Boyle Avenue and Lorena Street.

Significance of Impacts

Corrosivity, groundwater, ground shaking, ground deformation, liquefaction, seisimically-induced settlement, and subsurface gases are anticipated to have a potentially significant impact under CEQA on the LRT Build Alternative. Significant long-term impacts are not anticipated with regard to existing landforms, loss of mineral resources, potential for surface fault rupture, slope instability, subsidence, and inundation.

4.9.4 Mitigation

Measures to address corrosivity, groundwater, and seismically induced settlement issues would include:

- Concrete resistant to moderate sulfate exposure and corrosion protection for metals will be used for underground structures in areas where corrosive groundwater or soil could potentially cause deterioration of tunnel liners and station walls.
- Tunnel liners and station walls and floors below groundwater will be designed for hydrostatic pressures and to minimize water leakage.
- Appropriate mitigation measures, such as soil improvement and/or special foundation systems, will be implemented in the final design for areas deemed susceptible to seismically-induced settlement

The ground shaking hazard is common in Southern California, and structural elements will be designed to resist or accommodate appropriate site-specific ground motions. For the Metro Red Line suspended project, site-specific studies were undertaken to determine the anticipated ground displacement (racking displacement) due to the MDE and ODE ground motions. A ground displacement due to MDE ground motions of about three to four inches over the 60-foot station depth was used for the design of underground stations, and a displacement of about 1.3 inches was used for the 20-foot tunnel diameter. Similarly, the design of the LRT Build Alternative will incorporate mitigation measures for the anticipated site-specific ground displacement.

Operational elements of the existing Red Line system are also designed to detect and respond automatically during earthquakes. If sensors detect ground shaking over a prescribed acceleration, trains are directed to the stations. An un-interruptible power supply (UPS) is in place such that, in the event of an earthquake and the local (DWP) supply is interrupted, the subway lighting and ventilation systems will operate for several hours. Back-up power generators can be activated if power is lost beyond this time.

The potential for future movement along the trend of the Coyote Pass escarpment may need to be considered in the design and construction of the portion of the proposed tunnel segment and station in the area near 1st and Soto Streets. Should investigations during final design determine that special considerations are needed for this area, the design will comply with standards set forth in the MTA Design Criteria and Standards, using the MDE and ODE criteria described in Section 4.9.3.2. The final investigations will evaluate the estimated amount of ground deformation anticipated to occur during those design events. For the suspended Metro Red Line project alignment, previous designs for tunnels crossing the escarpment used steel liners for added ductility. Similar considerations may be made in the design and construction of any proposed tunnel segment across the Coyote Pass Escarpment (GeoTransit Consultants, 1996a).

If soils subject to liquefaction are encountered, more conservative site preparation and foundation design measures will be taken if necessary, in accordance with "Supplemental Criteria for Seismic Design of Underground Structures" (Metro Rail Transit Consultants, 1984). This document calls for special assessment and subsequent design if liquefaction potential is identified in site-specific geotechnical reports. Depending on the specific conditions encountered, such special measures could include compaction of soils or alternative ground improvement methods; permanent lowering of the water table or raising of the alignment grade; special foundations such as pilings or additional underpinnings; and lowering of tunnel alignment below liquefiable soils into denser underlying soils.

A barrier system similar to that designed for the suspended Metro Red Line project or the existing Red Line System would provide the primary protection from hazardous gases during operations. Further discussion of hazardous subsurface gases and liner design is contained in Section 4.10.

4.9.4.1 Significance of Impacts Remaining After Mitigation

The mitigation measures would reduce impacts to less than significant.

4.10 HAZARDOUS MATERIALS

4.10.1 Affected Environment

4.10.1.1 Regulatory Setting

Hazardous substances are defined as substances, materials or waste, the exposure to which results, or may result, in adverse effects on health or safety. This generally includes substances defined as hazardous substances under the federal Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and under Sections 25316 and 25317 of the California Health and Safety Code, which identifies substances, materials, or waste requiring hazardous substance removal, including petroleum and petroleum by-products, waste oil, crude oil, and natural gas. Other pertinent regulations include the Resource Conservation and Recovery Act, the Clean Water Act, and any Department of Transportation standards.

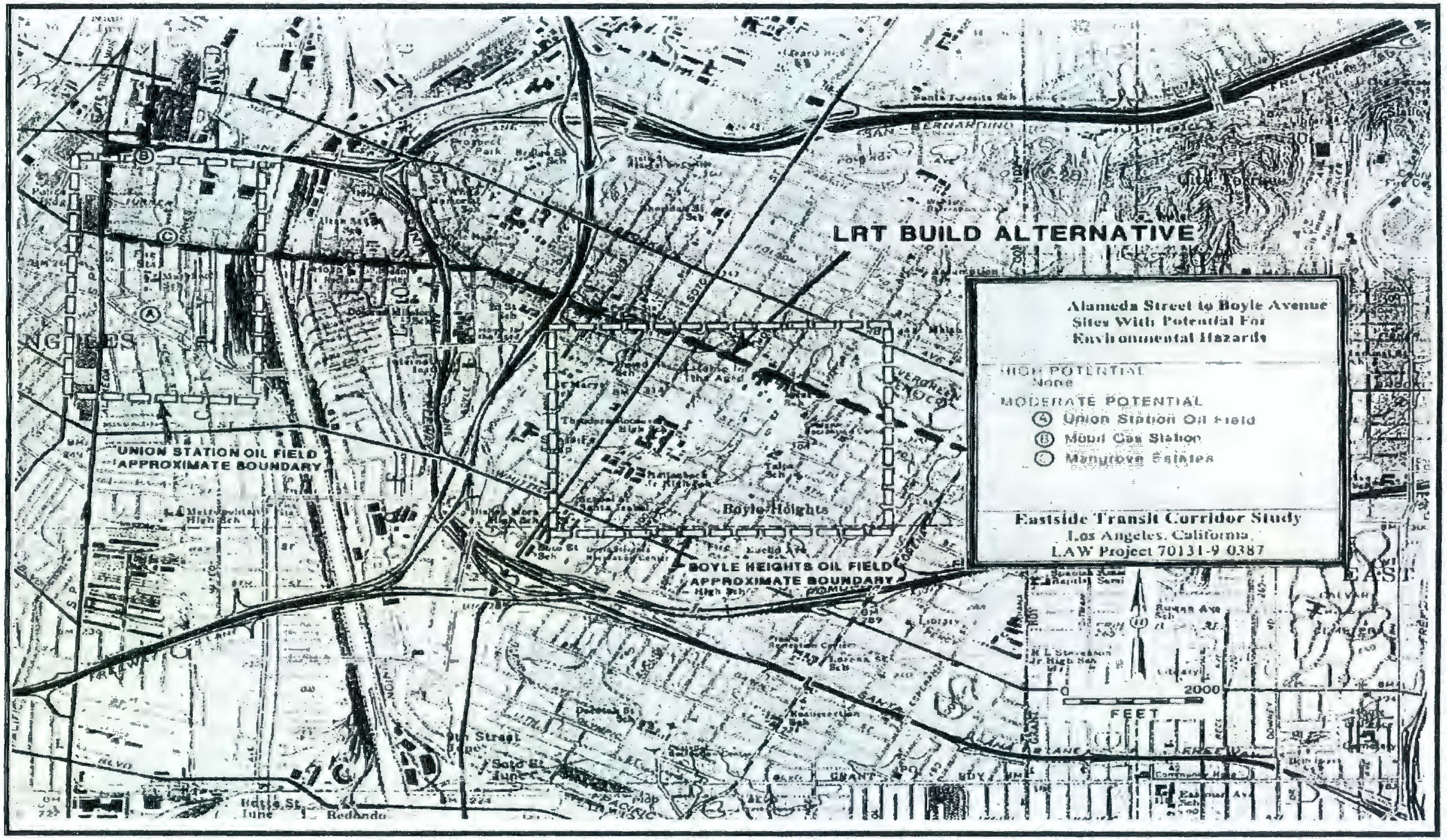
4.10.1.2 Study Area Setting

The LRT Build Alternative traverses urbanized areas containing small commercial buildings, parking lots, gasoline stations, and interspersed residential developments. The potential for encountering pre-existing hazardous waste materials is present during any construction project, particularly within an urban area. In general, there is low to high potential for encountering hazardous substances along the LRT Build Alternative. The factors for determining this potential are discussed in Section 4.10.2. The historical oil field maps, topographic maps, previous reports, and aerial photographs that were examined detailed numerous areas of oil field activity, commercial/residential development, and areas of hydrogen sulfide and methane gas (probably derived from petroleum producing geologic formations) occurring at potentially explosive and lethal levels. The most recent investigations for the suspended Metro Red Line project found that hydrogen sulfide occurred in a dissolved phase in groundwater and accumulated to hazardous levels only when allowed to accumulate within confined air spaces such as gas sampling wells.

Figures 4-10.1 through 4-10.3 and the following discussion present the former oil fields and sources of potential hazardous substances by project segment that were identified through the regulatory search.

Union Station to Boyle Avenue

Government buildings, parking lots, and a gasoline station are located along Alameda Street between Union Station and 1st Street. A portion of the LRT Build Alternative in this segment will be elevated to pass over US 101. The Division of Oil and Gas maps, historical topographic maps, aerial photographs, and previous reports indicate that portions of the active former Union Station oil field and a former coal gasification plant are located along this segment. Small office buildings, warehouses, automotive service stations, the concrete-lined Los Angeles River channel and interspersed residential neighborhoods are located along 1st Street between Alameda Street and Boyle Avenue. The tunnel section of the LRT Build Alternative begins near the intersection of 1st and Clarence Streets.



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Sites with Potential for Environmental Hazards
LRT Build Alternative
from Alameda Street to Boyle Avenue

Eastside Corridor
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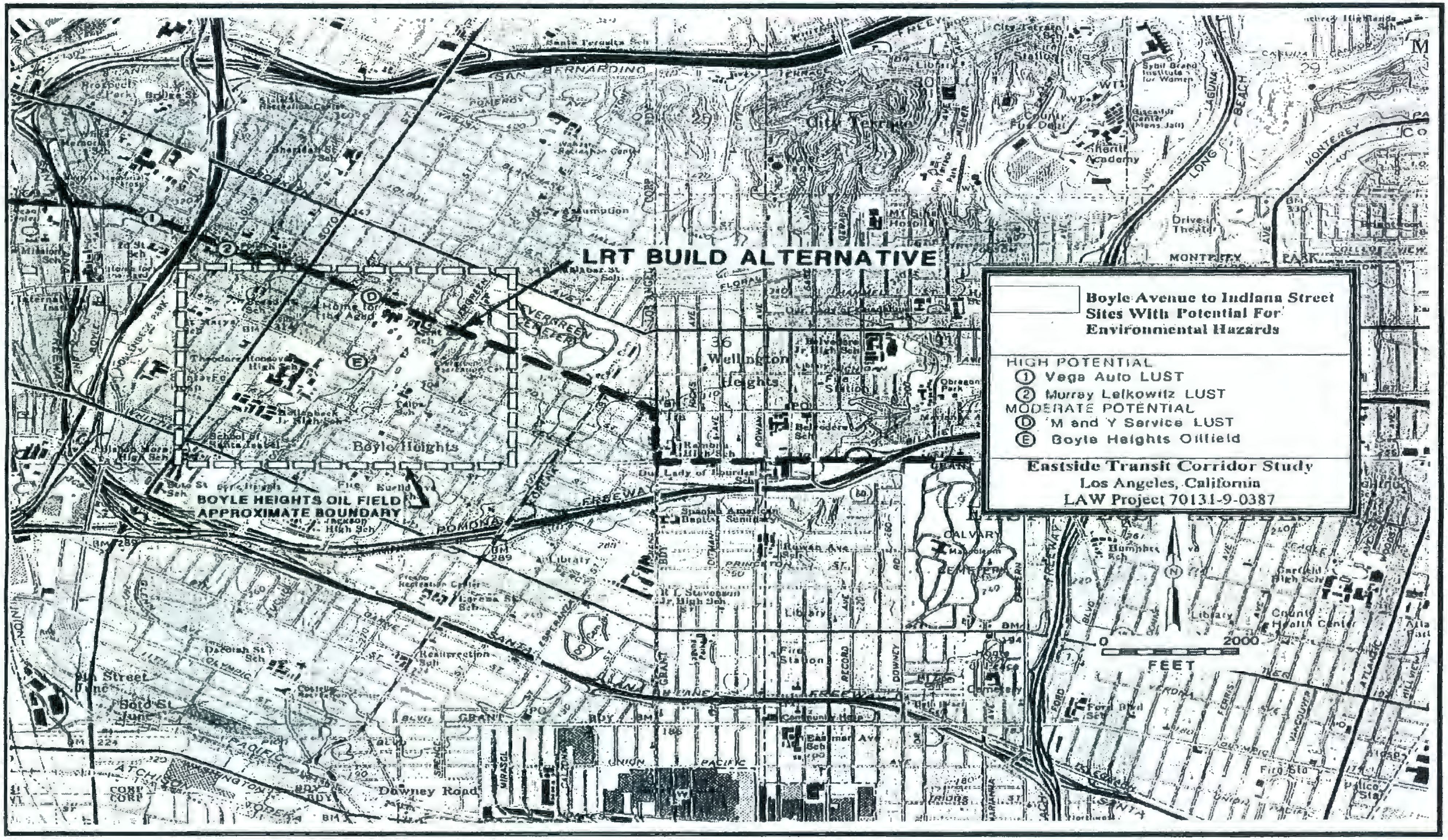
Figure 4.10-1



Los Angeles Eastside Corridor SEIS/SEIR

Sites with Potential for Environmental Hazards LRT Build Alternative from Boyle Avenue to Indiana Street

Figure 4.10-2

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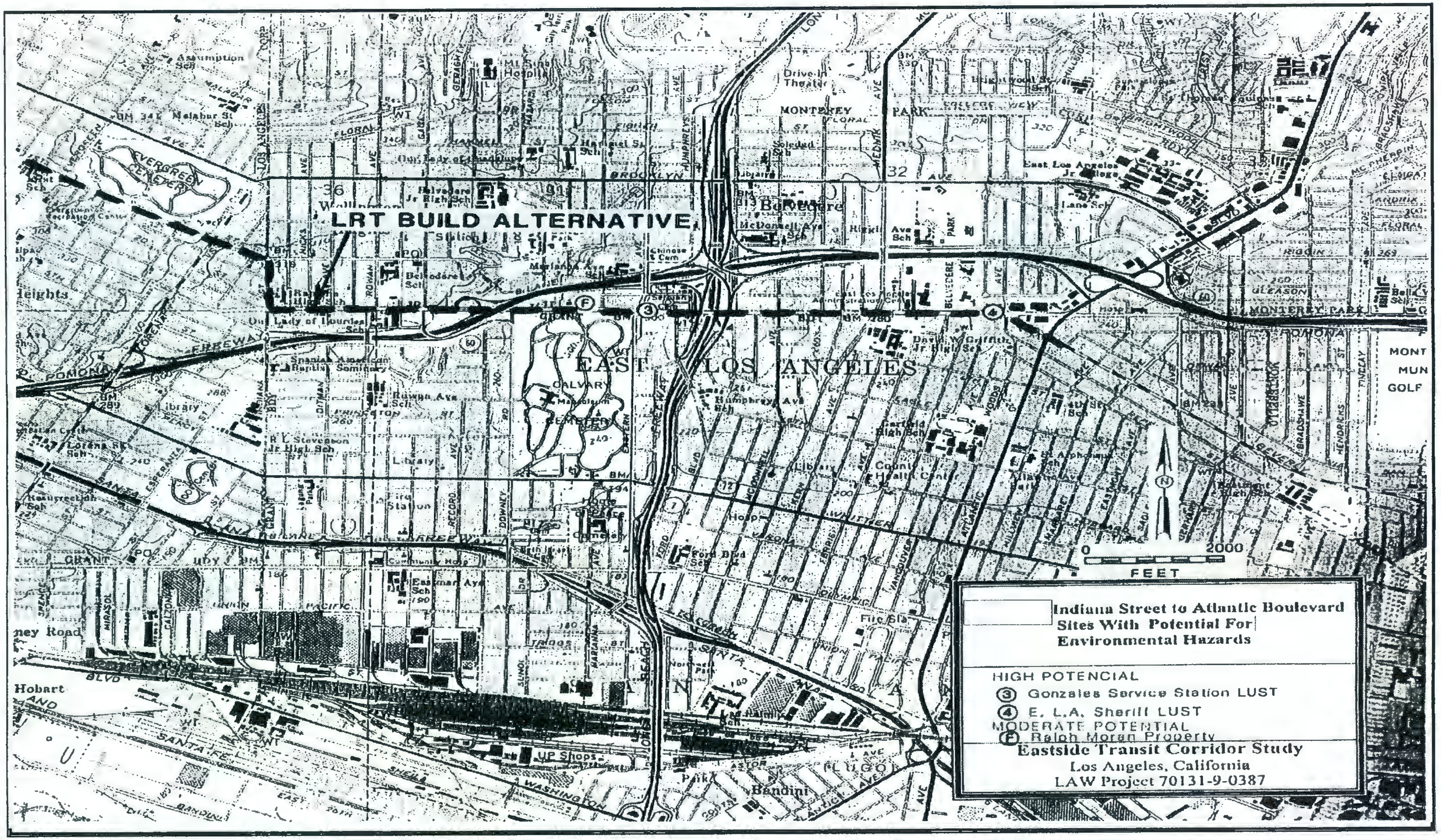


Los Angeles Eastside Corridor SEIS/SEIR

Sites with Potential for Environmental Hazards
LRT Build Alternative
from Indiana Street to Atlantic Boulevard

Figure 4.10-3

Eastside Corridor
Transit Consultants

Boyle Avenue to Indiana Street

Small commercial buildings, gasoline stations, automotive service stations, and interspersed residential neighborhoods are located in this segment of the LRT Build Alternative. A large cemetery is located north of 1st Street between Evergreen Avenue and Lorena Street. The tunnel portion of the project is included in this segment. The tunnel section will be constructed below 1st Street between Clarence and Lorena Streets (Options 1 and 2). For Option 3 the LRT Build Alternative extends the tunnel approximately 3,000 feet eastward to 3rd Street, passing under the Ramona High School site and residential and commercial properties between Lorena and 3rd Streets. The California Division of Oil and Gas and Munger Oil Field maps as well as historical topographic maps indicate that portions of the inactive Boyle Heights oil field are included in this segment of the LRT Build Alternative (Figure 4.10-2).

Indiana Street to Atlantic Boulevard

Small commercial buildings, gasoline stations, automotive service stations, and interspersed residential neighborhoods are located in this segment. The California Division of Oil and Gas and Munger Oil Field maps as well as historical topographic maps and aerial photographs do not indicate known oil field operations in this segment.

4.10.2 Methodology for Impact Evaluation

The methods used to identify existing hazardous substances included a field reconnaissance of the LRT Build Alternative route and a review of the following:

- Federal, State, and County regulatory databases,
- Historical aerial photographs,
- Portions of previous reports prepared for the suspended Metro Red Line Project alignment,
- Historic oil field maps, and
- Area topographic maps.

Refer to the *Hazardous Materials Technical Report* that was prepared for this project for the comprehensive list of sources that were reviewed. No specific regulatory agency files were viewed to determine the status of the listed sites. Such files will be reviewed during subsequent design phases of the project. The regulatory databases reviewed included:

- National Priorities List (NPL) of the U.S. Environmental Protection Agency;
- Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS);
- Emergency Response Notification System (ERNS);
- Resource Conservation and Recovery Information System (RCRIS) including transport, storage, and disposal (TSD) facilities;
- California Department of Health Bond Expenditure Plan (BEP) for Hazardous Substance Clean-up;
- California Environmental Protection Agency and the Department of Toxic Substances (CAL-SITES);
- California Regional Water Quality Control Board, Leaking Underground Storage Tank (LUST) Listings; and
- Underground Storage Tank (UST) Listings.

Potential impacts are defined as the potential exposure of human health and/or wildlife to hazardous waste or naturally occurring petroleum compounds by project activities or an increase in the likelihood of hazardous substance or petroleum compound migration. The operational and construction activities are most likely to encounter pre-existing hazardous substances where subsurface construction activity will be required near:

- Known formerly active oil fields, or
- Areas with known historic soil and groundwater contamination, gasoline stations, auto repair facilities, dry cleaners, and commercial manufacturing, or shipping facilities.

To assist in identifying the potential impacts, each contaminated or potentially contaminated site that was identified with respect to its proximity to the LRT Build Alternative was classified as high, moderate, or low based on its potential for detrimental environmental impacts. The classification of each site is based on type of operation, proximity to the alignment, anticipated hydrogeologic gradient, field observations, and historical and regulatory information. In general, the classification criteria is:

- High – sites with known or probable soil/groundwater contamination (e.g. LUSTs), and sites where remediation is incomplete or undocumented.
- Moderate – sites with identified or potential soil contamination (e.g. LUSTs), remediation is in progress, or groundwater contamination that does not appear to be migrating.
- Low – sites that have completed remediation or have historically utilized only small amounts of known contaminants (e.g., Resource Conservation and Recovery Act Information System [RCRIS] small quantity generators or underground storage tanks).

4.10.3 Impacts

4.10.3.1 No-Build Alternative

No impacts are anticipated as a result of the No-Build Alternative.

4.10.3.2 LRT Build Alternative

Potential impacts along the LRT Build Alternative would include migration of subsurface gases into the tunneled portions of the alignment and migration of future soil contamination. These impacts, without mitigation, could be potentially significant under CEQA. At grade or elevated portions of the alignment will generally not be impacted by soil or groundwater contamination during operations. It is not likely hazardous materials will be placed on the tracks as the alignment is located in a major arterial street subject to public view.

Previous investigations did not indicate significant concentrations of hydrogen sulfide gas along the tunnel section of the LRT Build Alternative as the tunnel portion is east of the Los Angeles River. The investigations did indicate that potentially hazardous quantities of methane gas are present (quantities greater than 1% to 20% of Lower Explosive Limit [LEL]) in portions of the LRT Build Alternative crossing the Boyle Heights oil field, east of the Los Angeles River. The LEL for methane is a concentration of approximately five percent by volume, i.e., a concentration in air that would be potentially explosive. Therefore, for the LRT Build Alternative, the potential for encountering hazardous concentrations of methane gas is considered moderate to high, while the potential for encountering hydrogen sulfide gas is low. There is a low probability that methane or hydrogen sulfide gas may seep into the tunnel and underground stations creating hazardous conditions during the operation of the LRT Build Alternative.

LRT Build Alternative Options

Conditions along the suspended Metro Red Line project alignment from Union Station to 1st and Lorena Streets were explored extensively. The planned tunnel section associated with the Extended Subway Option (Option 3) that extends east of 1st and Lorena Streets and transitions across Indiana Street to 3rd Street has a slightly different alignment than the tunnel alignment previously explored for the suspended Metro Red Line project. However, based on borings in the immediate vicinity of the Extended Subway Option tunnel (GeoTransit Consultants, 1996a) and a previous investigation by Law/Crandall for Ramona High School (LeRoy Crandall & Associates, 1975), subsurface conditions with respect to encountering subsurface gases are anticipated to be similar to those encountered at 1st and Lorena Streets. Sites having a potential for man-made hazardous materials are identified in the hazardous materials discussion contained in Section 4.19, *Construction Impacts*.

Significance of Impacts

Migration of subsurface gases into the tunneled portions of the alignment and migration of future soil contamination could be potentially significant under CEQA.

4.10.4 Mitigation

As with the operating Metro Red Line System (where tunnels have been constructed and presently operate in the presence of subsurface gas, primarily methane), tunnels and stations for the LRT Build Alternative would be designed to prevent gas intrusion where gases may be present. In addition, the tunnels and stations would be mechanically ventilated to exhaust and dilute potential contaminants. The following measures would be used to mitigate the seepage of hazardous gases during operation within the underground segments:

4.10.4.1 Monitoring

To detect and identify hazardous gases, the following measures would be implemented:

- Installation of automatic gas detection systems, including discrete sensors throughout the system, to allow early detection of infiltrating hazardous gases. Alert levels would be set well below dangerous concentrations.
- Emergency ventilation systems would automatically activate upon gas detection at alert levels.
- Installation of audible and visible alarm systems would alert employees when gases are detected.

4.10.4.2 Ventilation

Ventilation systems similar to those provided in the operating Metro Red Line System would:

- Provide an adequately sized ventilation system to prevent accumulation of hazardous gases.
- Provide an auxiliary ventilation system to rapidly evacuate hazardous gases.
- Prepare and implement a ventilation plan to provide adequate fresh airflow into the tunnels.

4.10.4.3 Gas Barriers

A barrier system, which includes use of bolted, gasketed, pre-cast tunnel liners, similar to that designed for the suspended Metro Red Line project or the existing Red Line System would provide the primary protection from hazardous gases during operations. This type of system has been found to be effective in minimizing migration of hazardous gases. Refer to the separate *Hazardous Materials Technical Report* that was prepared for the Eastside Corridor for additional information about the effectiveness of this system. Actual concentrations of methane are reported to be less than ten ppm (a factor of 1,000 less than the gas concentration used in a test program for the system) for the areas east of the Los Angeles River, and concentrations of hydrogen sulfide, likewise reported to be less than one ppm. Thus, expected concentrations in the tunnel would be expected to be less than detectable. Additionally, natural ventilation, ventilation created by train movements, and ventilation fans will be provided in the stations and tunnels to mitigate migration of hazardous gases during operation.

4.10.4.4 Safety and Security

A comprehensive health and safety and emergency response plan would be developed to meet the City and County of Los Angeles standards, and would be coordinated with the City and County Fire Departments. MTA Fire Life Safety Committee, composed of members from the Los Angeles City and County Fire Departments, as well as MTA safety specialists, would approve the plan. At a minimum, the plan would address air monitoring, health risk assessment, refuge centers or tunnel cross passages, escape routes, communication, and training.

4.10.4.5 Significance of Impacts Remaining After Mitigation

The mitigation measures would reduce impacts to less than significant.

4.11 WATER RESOURCES

4.11.1 Affected Environment

4.11.1.1 Regulatory Setting

There are several Federal and State laws and regulations that provide for the protection of water and water-related resources. The following is a listing of the applicable laws and the agencies responsible for protection of the water resources.

Federal

The United States Army Corps of Engineers (COE) under Section 404 of the Clean Water Act is responsible for a permit program for the discharges of dredged or fill material into waters of the U.S. The current plans for the Los Angeles Eastside Corridor does not call for discharge of any dredged or fill material into the Los Angeles River.

State

The State Water Resources Control Board, under Section 402 of the Clean Water Act, establishes a permitting system for the discharge of any pollutant (except for dredge or fill) into the waters of the United States. The permit is also called the National Pollution Discharge Elimination System (NPDES) permit. In California, the Regional Water Quality Control Board (RWQCB) oversees the permitting process. The jurisdiction of the RWQCB relative to the NPDES permits extends to "waters of the U.S." which is defined as: (1) navigable waters, (2) tributaries of navigable waters, and (3) wetlands. Potential project impacts on the Los Angeles River may include construction activities related to seismic strengthening of existing roadway bridges, and the discharge from dewatering activities related to structures or below ground rail construction.

The California Department of Fish and Game (CDFG) under Sections 1601 through 1603 of the California Fish and Game Code requires agencies to notify the CDFG of "...any project which will divert, obstruct or change the natural flow of bed, channel or bank of any river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit, or will use material from the streambed designated by the department..." Seismic retrofitting of the bridge may occur for the 1st Street Bridge over the Los Angeles River. Such activity may classify the project as being within the CDFG's jurisdiction regarding Section 1601. If required, MTA will work in cooperation with the CDFG to obtain project clearances.

Local

The Los Angeles River is designed and owned by the COE and maintained by the County of Los Angeles. No further flood control permitting activity is required with the City of Los Angeles regarding the river crossing, although any construction on the 1st Street Bridge would require a Public Works Permit from the City's Department of Public Works. MTA will work in cooperation with the regulating agencies and will obtain any required permits prior to construction. Because the Los Angeles River is maintained by the County, any activity in the waterway would require a permit from the County's Department of Public Works. The project would not require the placement of additional bridge piers into the waterway.

4.11.1.2 Study Area Setting

Surface Water

General Watershed Conditions

The Los Angeles River, which runs from north to south along the western portion of the project area, is the only major surface water feature in the project area. The area adjacent to the river is densely populated with residential, commercial, and industrial development. Surface runoff has increased as a consequence of the impervious surfaces related to the development. Peak runoff rates for the coastal plain areas have also increased due to elimination of natural ponding areas and improved hydraulic efficiency of water carriers such as streets and storm drain systems.

The topography of the coastal plain is gradually sloped from the foothills of the San Gabriel Mountains to the Pacific Ocean with a few exceptions of rising hills and depressed areas. Ground elevations range from 10,000 feet in the San Gabriel Mountains, to 330 feet near the Arroyo Seco confluence, to mean sea level at the mouth of the Los Angeles River. The average annual rainfall ranges from 13.8 inches at the ocean to 28.2 inches in the San Gabriel Mountains. Two prominent hill formations are located in the lower reach of the Los Angeles River watershed, the Dominguez Hills on the west side of the river about four miles north of the coast (elevation 200 feet), and Signal Hill in the city of Long Beach (elevation 110 feet).

The soil is considered alluvial and varies from coarse sand and gravel to silty clay and gravel or clay. The land is generally well drained with relatively few perched water or artesian areas. Large deposits are present along the coast. Extensive pumping for oil has caused land subsidence in the lower reach. The Los Angeles River is a flood control facility emptying into the Pacific Ocean. It was not constructed to serve as conveyance for domestic water supplies. Percolation and water recharge basins are located along portions of the river, generally upstream of the Los Angeles Eastside Corridor study area.

Los Angeles River

The Los Angeles River originates at the western end of the San Fernando Valley in Southern California. The channel extends through the heart of Los Angeles County by flowing east to Glendale where it turns and flows south to the Pacific Ocean. The river is part of a network of dams, reservoirs, debris collection basins, and spreading grounds built (beginning in the late 1930s) by the Los Angeles County Flood Control Department (LACFCD) and the COE to minimize the flooding in the county. Through the project area, the channel has a concrete bottom and sides. The channel is trapezoidal with an additional smaller trapezoidal low flow channel. At the top of the banks the channel is approximately 250 feet wide and 25 to 30 feet deep. The low flow channel is 28 feet wide. The river flow is partially regulated by the Sepulveda, Pacoima, Big Tejunga, Hansen, and Devil's Gate dams and by several spreading grounds, reservoirs, and debris basins located along the length of the river. The river is also subject to flow diversions from Big Tejunga Creek, Arroyo Seco, and other domestic and irrigation diversions. The portion of the river that is located in the Los Angeles Eastside Corridor study area extends from Cesar Chavez Avenue on the north to Washington Boulevard on the south, just east of Union Station. The study area is considered in the middle reach of the Los Angeles River (the reach between U.S. Highway 101 and the confluence with the Rio Hondo River).

Floodplains

The floodplain of the Los Angeles River is extensively studied and mapped in the recent Federal Emergency Management Agency (FEMA) Flood Insurance Study for the City of Los Angeles, dated May

4, 1999. Figure 4.11-1 displays the existing defined 100-year floodplain for the Los Angeles River as presented in the current Flood Insurance Studies. The Los Angeles River basin has a long history of flooding which has caused extensive property damage and loss of lives. The major storms include January 1914, 1934, 1943, and 1956, February 1978 and 1980, and March 1938 and 1983. As previously mentioned, the portion of the river located in the study area is considered in the middle reach of the Los Angeles River. The channel capacity of the middle reach can safely convey the 100-year flow within the channel banks.

The upper reach of the Los Angeles River, the reach immediately upstream of the Los Angeles Eastside Corridor study reach, is not certified to adequately handle the 100-year flood. Overbank areas are susceptible to flooding caused by overtopping and failure of levee structures. Water escaping the channel in the left overbank of the upper reach may result from levee failure between the Santa Fe Railroad crossing and the Broadway Street Bridge immediately north of the study area. As identified on the current FEMA floodplain mapping, the 100-year flow in the Los Angeles River is fully contained in the channel at the 1st Street Bridge.

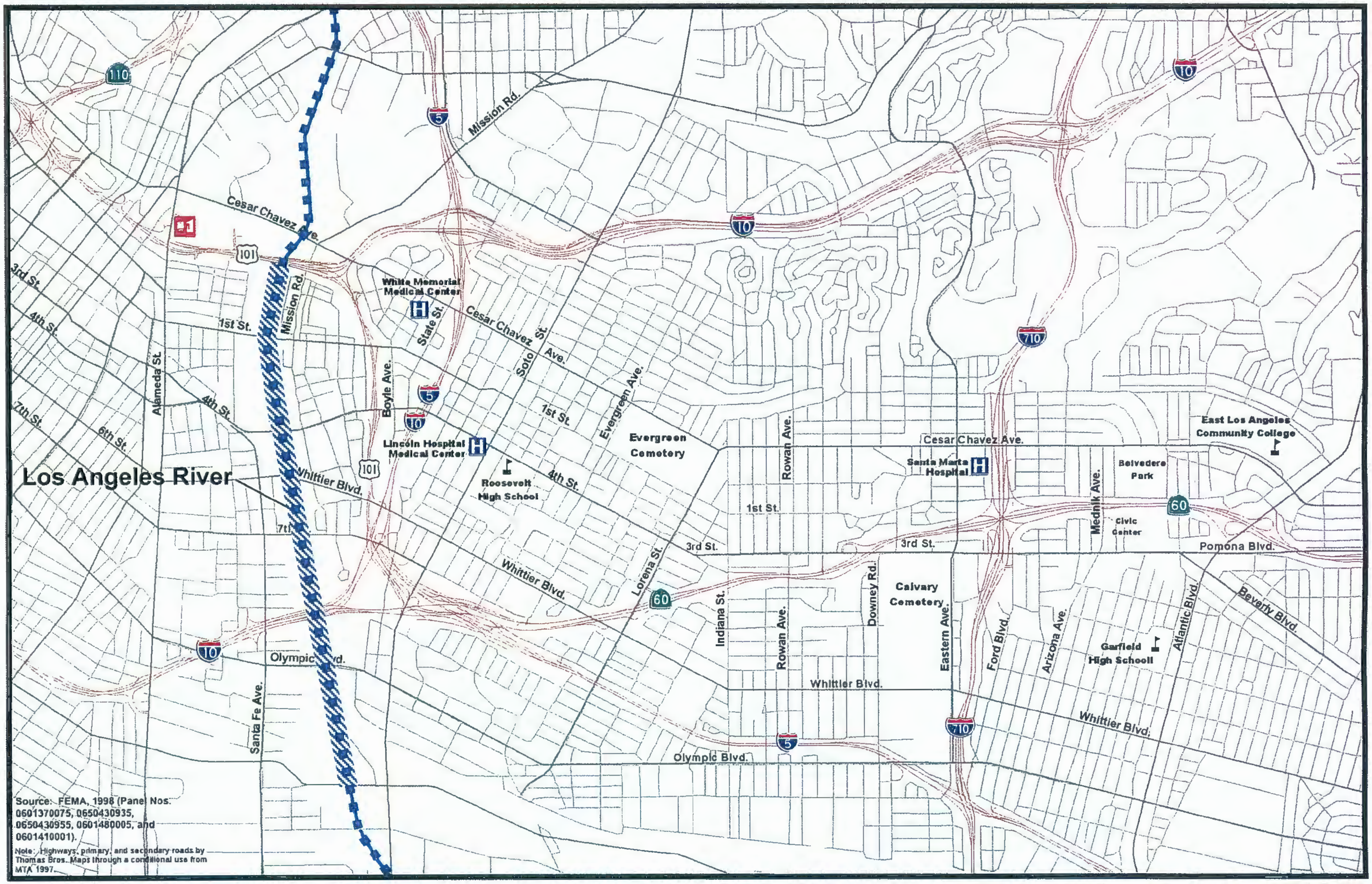
Groundwater

The LRT Build Alternative alignment is located in the Los Angeles Forebay groundwater area of the Central Basin along the Coastal Plain of Los Angeles County. The forebay area extends generally in a fan pattern around the Los Angeles River. The study area is underlain by the Lakewood and San Pedro (lowest) formations. The Lakewood formation is exposed on the surface of the La Brea and Montebello plains and extends underneath the recent alluvium on the Downey Plain. The aquifer in the formation, which consists of sand, sandy clay, clay, and gravel, ranges in thickness from 0 to 100 feet and extends to depths of 100 to 375 feet (up to 250 feet below sea level). This formation, which includes the Exposition, Gardena, and Gage aquifers, ranges from 0 to more than 220 feet thick in the southern part of the area. The Gage aquifer is the basal member of the Lakewood formation and rests on the underlying San Pedro formation.

The San Pedro formation is the lowest formation in the Los Angeles Forebay area. The aquifers of the San Pedro formation consist of various amounts of sand, sandy clay, clay, gravel and gravelly sand that range in thickness of 0 to 430 feet and extends to depths of 475 to 1600 feet (up to 1440 feet below sea level). This formation, which contains the Hollydale, Jefferson, Lynwood, Silverado, and Sunnyside aquifers, is about 1,050 feet thick in the Los Angeles Forebay area. The Silverado aquifer is found throughout most of the Los Angeles Forebay area and is the most significant aquifer for public water supply. This aquifer is protected from contamination from the surface by overlying low permeable strata.

The Coastal Plain of the Los Angeles County groundwater supply is consumed mainly by municipal users for drinking water and moderately by industrial and irrigation (limited use) purposes. The storage capacity of the Coastal Plain is estimated to be 31,730,000 acre-feet with a useable capacity of 2,363,000 acre-feet. Injection barriers, which consist of injection water wells along the Coastal Plain of Los Angeles County, are used by the local water agencies to control the seawater intrusion created by an overdrawn water table. This process of injecting surface water not only prevents seawater intrusion, but also contributes to the fresh water supply in the basin and thereby mitigates overdraft of water supplies.

Groundwater aquifers would be expected to be approximately 150 to 200 feet below the ground surface. Surface water sources can also contribute to the groundwater level as revealed by well data in the vicinity of the Los Angeles River. Additional information about groundwater levels can be found in Section 4.9.1.4.



0 0.25 0.5 Miles

0 0.25 0.5 0.75 1 Kilometers

LEGEND

100-year Floodplain

Water Resource

Eastside Corridor Transit Consultants

Los Angeles Eastside Corridor SEIS/SEIR

Water Resources and Floodplain

Figure 4.11-1

4.11.2 Methodology for Impact Evaluation

4.11.2.1 Surface Water

Construction and operational impacts on surface waters were assessed with regards to degradation of water quality and changes in surface water flow. Effects on future water quality, both with and without implementation of the LRT Build Alternative, have been estimated based on the potential for runoff surface water resources and the types of pollutants anticipated. Anticipated impacts have been compared to applicable water quality standards. The LRT Build Alternative would have a significant impact under CEQA on surface water resources if:

- Uncontrolled runoff from project facilities results in substantive erosion and subsequent sedimentation of downstream water bodies.
- Altered drainage patterns cause the reduction of existing vegetation.
- The project results in changes in water quality that could have human health and safety impacts.

4.11.2.2 Floodplains

An assessment of floodplains has been performed to determine the impacts of the LRT Build Alternative on identified floodplains by overlaying the project on floodplain maps and identifying areas of floodplain encroachment. An analysis has been performed on the anticipated changes in drainage patterns, potential for flooding, and structures that could be affected. The proposed alignments would have significant impacts under CEQA on floodplains if the project results in flood hazards on other properties.

The 1998 FEMA Flood Insurance Study for the Los Angeles River was reviewed to determine the boundaries of the 100-year floodplain relative to the location of the LRT Build Alternative alignment. The conceptual plans for the LRT Build Alternative were also reviewed to determine if the planned design would have any effect on the floodplain. The plans were evaluated with respect to the floodplain issues defined in Federal Regulation 23 CFR 650A to determine if potential impacts are possible.

4.11.2.3 Groundwater

Under CEQA, the proposed alternatives would have significant impacts on groundwater resources if the project:

- Results in a net deficit in aquifer volume or reduction in the local groundwater table.
- Significantly reduces the area available for aquifer recharge.
- Results in changes in groundwater quality that could have human health and safety impacts.

4.11.3 Impacts

4.11.3.1 No-Build Alternative

The No-Build Alternative assumes that no improvements would be made to the Los Angeles Eastside Corridor study area beyond those already planned and approved. There would be no operation activities related to the Los Angeles Eastside Corridor project, and would therefore not affect or be affected by surface waters, floodplains, or groundwater.

4.11.3.2 LRT Build Alternative

For the purpose of this section, the three separate LRT Build Alternatives (Indiana Street Remove Parking Option [Option 1], Indiana Street Acquire Additional Right-of-Way Option [Option 2], and Extended Subway Option [Option 3]) have been referred to collectively as the LRT Build Alternative. Water impacts are assumed to be exactly the same for these three options unless otherwise noted.

Surface Water

The introduction of new impervious surfaces resulting from stations and maintenance areas would increase runoff and associated contaminants, potentially resulting in some degradation of downstream water quality. Pollutants associated with transit projects include oil and grease. The highest concentration of these pollutants would be greatest following the first substantial rainfall of the season because long dry periods common to Southern California allow greater accumulation of compounds on paved surfaces than during periods of more frequent rainfall. Given that the LRT Build Alternative would run primarily with the rights-of-way of existing streets, runoff would be collected by the storm sewer system already in place along these streets.

The Los Angeles River is the only major waterway within the LRT Build Alternative impact area. At the Los Angeles River, the LRT facility would utilize the 1st Street Bridge to cross the river. No new bridges are planned as part of the LRT Build Alternative.

The effect on water quality for the LRT Build Alternative would be minor because the watershed within the project corridor is urban. Since the area is urban, most of the alignment would be built on existing impervious surfaces and would not significantly alter surface water drainage patterns. The amount of impervious surfaces and additional runoff would be small compared to the region as a whole. However, surface water impacts could be potentially significant on water quality, human health, or safety unless measures are taken to control runoff.

Floodplains

FEMA has defined the 100-year floodplain for the Los Angeles River as illustrated in Figure 4.11-1. The floodplain issues, discussed below for the LRT Build Alternative, are defined in Federal Regulation 23 CFR 650A as important for the consideration of impacts on floodplains.

<u>Is the action a significant longitudinal encroachment?</u> No. A significant encroachment is an encroachment and any direct support of likely base floodplain development that would involve construction or flood-related impacts. The LRT Build Alternative would not be considered a longitudinal encroachment on the 100-year floodplain of the Los Angeles River. No fill will be placed in, or encroachment made to, an existing floodplain. No emergency vehicle access or evacuation routes would be affected, and no natural or beneficial floodplain values would be impacted. The transit improvements that are a part of this alternative would not significantly increase the existing depth or limits of flooding.

<u>Are the risks associated with the action significant?</u> No. Risk is defined as the consequences associated with the probability of flooding attributable to an encroachment. The transit improvements that are a part of this alternative would not significantly increase the existing depth or limits of flooding. The transit facility would utilize the existing 1st Street Bridge over the Los Angeles River.

<u>Will the action support probable incompatible floodplain development?</u> No. The project is consistent with local and regional land use and transportation planning. The defined floodplain for the Los Angeles River within the study area is predominantly within the defined, improved channel.

Is the action a significant floodplain encroachment? No. A significant encroachment is a highway encroachment and any direct support of likely base floodplain development. At the Los Angeles River crossing, the transit facility would utilize an existing bridge over the waterway. No fill would be placed in, or encroachment made to, the existing floodplain, nor emergency vehicle access affected, nor impact natural or beneficial floodplain values. The transit facility would not significantly increase the existing depth or limits of flooding.

Are non-routine measures required to minimize floodplain impacts associated with the action? No. There are no identified significant impacts on the floodplain. No non-routine measures are required.

Are there significant impacts on natural and beneficial floodplain values? No. For the LRT Build Alternative, no significant impacts are anticipated on natural and beneficial floodplain values. Such values include, but are not limited to: fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

Are non-routine measures required to restore and preserve the natural and beneficial floodplain values impacted by the action? No. No non-routine measures are required to restore or preserve the floodplain values.

Groundwater

The principal engineering problems encountered in tunneling and excavation are often related to groundwater. Groundwater entering an excavation can impede operations and reduce the strength of surrounding soils. The LRT Build Alternative involves an underground section under 1st Street from the U.S. Highway 101 to Lorena Street (for all LRT Build Alternative options). The Extended Subway Option (Option 3) would carry the subway section further east, under Ramona High School, emerging on 3rd Street near Ditman Avenue. None of the subway sections are within the Los Angeles River 100-year floodplain.

No impacts would occur on groundwater levels or quality that is used for consumption by municipal, industrial, and irrigation purposes. During the operations phase, groundwater dewatering activities and subsequent discharge may occur. During operation, any water leaks into the tunnel would be pumped out by sump pumps as described in the mitigation measures discussion of Section 4.9.2.13. Therefore no residual impacts on groundwater are anticipated. Refer to Section 4.9 for additional information regarding impacts on groundwater during operation.

Significance of Impacts

The LRT Build Alternative would have potentially significant impacts during operations on surface waters and groundwater and no impact on floodplain.

4.11.4 Mitigation

During the operation of the system, water that may enter in tunnel structures and surface runoff from impervious areas will be treated before being discharged into the drainage system, and would therefore have no adverse impact on surface waters. Treatment methods will include the use of oil/water separators with siltation basins.

No above ground or underground facilities would be located within the Los Angeles River 100-year floodplain. The LRT Build Alternative would utilize the existing 1st Street Bridge to cross the river. No mitigation related to floodplains is required.

In the event that discharge is expected, the proposed project would require preparation of a Report of Waste Discharge (ROWD), required by the State Water Resources Control Board (SWRCB) for any type of discharge affecting groundwater. This would ensure that any project-related discharges are regulated and therefore would not impact local groundwater.

Prior to excavation and construction, negotiations with the California Department of Water Resources (CDWR) and the Water Replenishment District of Southern California (WRD) would be initiated regarding water rights and pumping assessment. It is expected that coordination with CDWR and WRD would provide sufficient oversight to prevent environmental impacts due to over-withdrawing groundwater from the project area.

4.11.4.1 Significance of Impacts Remaining After Mitigation

The mitigation measures would reduce impacts on surface waters and groundwater to less than significant.

4.12 NATURAL RESOURCES AND ECOSYSTEMS

4.12.1 Affected Environment

4.12.1.1 Regulatory Setting

Environmental laws governing biological resources relevant to the proposed project are summarized below.

Federal

Federal Endangered Species Act (FESA). Species listed as endangered and threatened by the U.S. Fish and Wildlife Service (USFWS) under this act are protected under this legislation. No species currently listed by FESA are expected to be affected directly or indirectly by the proposed project. Thus, although the project is a federal action under the National Environmental Policy Act (NEPA), no consultation with the USFWS under Section 7 of the FESA would be required.

California Endangered Species Act (CESA). This act was designed after FESA and is intended to provide additional protection to endangered and threatened species in California. No "take" of a species as defined per CESA would occur during construction or operation of the proposed project.

Migratory Bird Treaty Act (MBTA). The MBTA, first enacted in 1916, prohibits any person to: "pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase . . ." any migratory bird. It is illegal under MBTA to directly kill, or destroy a nest of, nearly any bird species, not just endangered species. Activities that result in removal or destruction of an active nest (a nest with eggs or young being attended by one or more adults) would violate the MBTA. Removal of unoccupied nests, or bird mortality resulting indirectly, would not represent violations of the MBTA. However, if nesting birds are present during construction, such as under bridges, and construction activities were allowed to result in destruction of such nests, these activities may violate the MBTA.

Section 404 of the U.S. Clean Water Act. The objective of the Clean Water Act of 1977 is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Section 404 of the Act regulates activities that result in discharge of dredged, fill, or excavated material into "waters of the United States." This generally includes any waterway, intermittent stream, man-made wetland, or reservoir. Projects that include physical modification of a "water of the United States" must generally comply with Section 404 which is under the jurisdiction of the U.S. Army Corps of Engineers (Corps). Impacts on streambeds are calculated in terms of the area that would be modified between "mean high water" marks of the streambed.

State

California Fish and Game Code Sections 1600 through 1607. California Department of Fish and Game (CDFG) oversees streambeds and their associated habitats pursuant to Sections 1600 to 1607 of the code, which manages activities that would "substantially change" the " . . . bed, channel, or bank of any river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource, or from which these resources derive benefit." In addition to complying with Section 404 of the Clean Water Act, any modification of streambed habitat may require a Streambed Alteration Agreement from CDFG.

California Fish and Game Code Sections 4150 through 4154. CDFG's regulations address how nongame mammals may be taken. Nongame mammals include all mammals occurring naturally in California that are not game mammals, fully protected mammals, or fur-bearing mammals. These sections allow CDFG to enter into cooperative agreements with agencies of the state or the United States for the purpose of controlling nongame mammals.

California Code of Regulations, Title 14, Natural Resources. Under the provisions of Section 251.1, Harassment of Animals, no person is allowed to harass any game or nongame bird or mammal or fur-bearing mammal, except as otherwise authorized by regulations (such as under Section 4150 through 4154, above.) Harassment is defined as an intentional act that disrupts an animal's normal behavior patterns, which includes breeding, feeding, or sheltering. This regulation would require the project to avoid construction work on bridges if roosting bats or nesting birds are present or sign cooperative agreements with CDFG under the California Fish and Game Code Sections 4150 through 4154.

4.12.1.2 Study Area Setting

Vegetation

The Eastside Corridor is located within a highly developed setting limiting vegetation to mainly ruderal and ornamental plant species. The majority of plant species found during the survey were non-native. Landscaped areas were dominated by exotic ornamental species such as date palm (*Phoenix* sp.), bamboo (*Bambusa* sp.), pine (*Pinus* sp.), ficus (*Ficus* sp.), eucalyptus (*Eucalyptus* sp.), fan palm (*Washingtonia* sp.), magnolia (*Magnolia grandiflora*), dracaena (*Dracaena* sp.), and oleander (*Nerium oleander)*. Non-landscaped areas capable of supporting vegetation were dominated by invasive weedy species including black mustard (*Brassica nigra*), yellow star thistle (*Centaurea solstitialis),* and wild oats (*Avena fatua*). Sycamore (*Platanus racemosa)*, a native species, was found within a landscaped site north of 1st Street.

Sensitive Plants

Prior to the survey, the most recent records of the California Natural Diversity Data Base (CNDDB) (2000) and the California Native Plant Society's Electronic Inventory (CNPSEI) (1999) were reviewed regarding the potential presence of threatened, endangered, candidate, or other sensitive species within the study area. The results of the record searches and a characterization of suitable habitat are found on Table 4.12-1. As shown, eight sensitive plant species have the potential to occur in the vicinity of the Los Angeles Eastside Corridor. However, due to the highly developed nature along the corridor, suitable habitat for these species is not present.

Wildlife

No native mammals were observed during the site visit. The corridor runs through a highly developed area. Mammals that may utilize portions of the proposed corridor include the California ground squirrel (*Spermophilus beecheyi*), opossum (*Didelphis virginiana*), and raccoon (*Procyon lotor*). No amphibians or reptiles were observed during the survey. Reptiles that may utilize portions of the proposed corridor include the western fence lizard (Sceloporus occidentalis). Because of the highly disturbed nature of the Los Angeles Eastside Corridor, it is unlikely that any amphibians would occur along its length. Avian species comprised the majority of wildlife species observed onsite. Seven avian species were observed during the site visit including house finch (*Carpodacus mexicanus*), rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), American crow (*Corvus brachyrhynchos)*, and Brewer's blackbird (*Euphagus cyanocephalus)*.

Sensitive Wildlife Species

Prior to the survey, a record search was conducted using a current version of the CNDDB for information on sensitive wildlife species known to occur in the vicinity of the project area. The USFWS, U.S. Forest Service (USFS), and CDFG sensitive wildlife lists were also referenced. Sensitive wildlife species include all federal and state endangered and threatened species, former federal candidate species, and California Species of Special Concern. The results of the record searches and a characterization of suitable habitat are found on Table 4.12-2. As noted, five sensitive wildlife species have the potential to occur in the vicinity of the Los Angeles Eastside Corridor. Suitable habitat for any of the above listed wildlife species does not occur in or adjacent to the project corridor. Therefore, potential for occurrence is low.

Jurisdictional Waters

One Corps/CDFG jurisdictional water body was encountered during the survey. The Los Angeles River crosses under the corridor along 1st Street in the western portion of the study area. This portion of the river has been highly modified to fit an urban setting. The stream bottom and banks consist of paved concrete, supporting no streamside vegetation. The Los Angeles River flows on a perennial basis and is fed substantially by urban runoff and treated waste water. No other features falling under the jurisdiction of the Corps or CDFG were detected during the survey. Storm drains are situated along the city streets on which the proposed project has been designed. These drains are not Corps/CDFG jurisdictional but do potentially flow into such jurisdictional waters.

The Los Angeles County Department of Public Works was contacted to determine if the Master Plan for the Los Angeles River, completed in 1996, identified wetland restoration projects. Additional information about wetland restoration was provided by the California Coastal Conservancy, which is currently working with several non-governmental agencies and community groups to implement wetland and open space projects along the Los Angeles River. North of I-10 along the Los Angeles River, several wetland restoration projects are being planned at the following locations: the mouth of Arroyo Seco, Chinatown Yard, and Taylor Yard (Kroll, 1999). Wetland restoration is also being planned north of I-10 along an abandoned rail spur that apparently used a former streambed to traverse Hazard Park west of Soto Street (Woods, 1999).

4.12.2 Methodology for Impact Evaluation

4.12.2.1 Biological Resources

Prior to conducting biological reconnaissance surveys, a literature review was performed to review previous studies of biological resources in the area and to determine whether there were existing records of sensitive species and habitats at or within the vicinity of the project site. The CNDDB and the CNPSEI were reviewed for information in the project area. Physical characteristics of the project site were noted during the field surveys conducted on May 18, 2000. Attributes recorded included existing land use onsite and in adjacent areas, slope and aspect, topographical characteristics, and existing disturbances. A plant and wildlife species list was compiled and vegetation communities were described.

Prior to the survey, the most recent records of the following sources were reviewed to establish the potential presence of threatened, endangered, candidate, or other sensitive species in the study area:

- The California Natural Diversity Database (CNDDB 2000, Hollywood, El Monte, Los Angeles); and
- The California Native Plant Society's Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPSEI 1999, Hollywood, El Monte, Los Angeles).

TABLE 4.12-1
SENSITIVE PLANT SPECIES POTENTIALLY OCCURRING ALONG THE LOS ANGELES EASTSIDE CORRIDOR

Common Name *Scientific Name*	Status	PFO	Habitat	Comments
Davidson's saltbush *Atriplex serenana* var. *davidsonii*	CNPS 1B	L	Typically occurs in coastal bluff scrub and coastal scrub communities with alkali soils.	Due to the highly developed nature along the proposed corridor, suitable habitat for this species is not present.
Santa Barbara morning-glory *Calystegia sepium* ssp. *binghamiae*	CNPS 1B	L	Typically occurs in coastal marshes and wetland areas.	Due to the highly developed nature along the proposed corridor, suitable habitat for this species is not present.
Parish's gooseberry *Ribes divarcatum* var. *parishii*	CNPS 1B FSOC	L	Typically occurs in riparian woodlands.	Due to the highly developed nature along the proposed corridor, suitable habitat for this species is not present.
Brand's phacelia *Phacelia stellaris*	CNPS 1B	L	Typically occurs in coastal scrub and coastal dunes habitats. This species prefers open areas within the above habitats.	Due to the highly developed nature along the proposed corridor, suitable habitat for this species is not present.
Southern skullcap *Scutellaria bolanderi* ssp. *austromontana*	CNPS 1B	L	Typically occurs in chaparral, cismontane woodlands, and lower montane coniferous forests. It is mainly found in gravelly soils located on stream banks.	Due to the highly developed nature along the proposed corridor, suitable habitat for this species is not present.
Plummer's mariposa lily *Calochortus plummerae*	CNPS 1B FSOC	L	Typically occurs in various habitats including coastal scrub, chaparral, valley and foothill grasslands, cismontane woodlands, and lower montane coniferous forests.	Due to the highly developed nature along the proposed corridor, suitable habitat for this species is not present.
Braunton's milk-vetch *Astragalus brauntonii*	CNPS 1B FE	L	Typically occurs in various habitats including coniferous forests, chaparral, coastal scrub, and valley and foothill grasslands.	Due to the highly developed nature along the proposed corridor, suitable habitat for this species is not present.
Los Angeles sunflower *Helianthus nuttallii* ssp. *parishii*	CNPS 1A FSOC	L	Typically occurs in coastal and freshwater marshes and wetlands.	Due to the highly developed nature along the proposed corridor, suitable habitat for this species is not present.

Status Codes

Federal
FE = Federally listed; Endangered
FT = Federally listed; Threatened
FSOC = Federal Species of Concern

State
ST = State listed; Threatened
SE = State listed; Endangered
CSC = California Species of Special Concern

CNPS = California Native Plant Society Listed
List 1A = plants presumed extinct in California and elsewhere.
List 1B = plants that are considered rare, threatened or endangered in California and elsewhere.

Potential for Occurrence (PFO)

L = **Low potential for occurrence** - No recent or historical records exist of the species occurring in the project area or its immediate vicinity (within approximately 5 miles) and the diagnostic habitat requirements strongly associated with the species do not occur in the project area or its immediate vicinity.
M = **Moderate potential for occurrence** - Either a historical record exists of the species in the project area or its immediate vicinity or the diagnostic habitat requirements associated with the species do occur in the project area or its immediate vicinity.
H = **High potential for occurrence** - Both a historical record exists of the species in the project area or its immediate vicinity and the diagnostic habitat requirements strongly associated with the species do occur in the project area or its immediate vicinity.
P = **Species present** - The species was observed in the project area at the time of the survey.

Sources: California Natural Diversity Data Base, 2000; California Native Plant Society Electronic Inventory, 1999.

TABLE 4.12-2
SENSITIVE WILDLIFE SPECIES POTENTIALLY OCCURRING ALONG THE LOS ANGELES EASTSIDE CORRIDOR

Common Name *Scientific Name*	Status	PFO	Habitat	Comments
REPTILES — CLASS REPTILIA				
WATER TURTLES — EMYDIDAE				
southwestern pond turtle *Clemmys marmorata pallida*	FSOC	L	Typically occurs in aquatic habitats that contain suitable basking sites. Found within woodlands, grasslands, and open forests.	Due to the highly developed nature along the proposed corridor, suitable habitat for this species is not present.
IGUANID LIZARDS — IGUANIDAE				
San Diego horned lizard *Phrynosoma coronatum blainvillei*	FSOC, CSC	L	Typically occurs in coastal sage scrub, open chaparral, riparian woodland, annual grassland habitats that support adequate invertebrate prey species.	Due to the highly developed nature along the proposed corridor, suitable habitat for this species is not present.
BIRDS — CLASS AVES				
KINGLETS, GNATCATCHERS, BABBLERS — MUSCICAPIDAE				
coastal California gnatcatcher *Polioptila californica californica*	FT, CSC	L	Typically occurs in coastal sage scrub vegetation on mesas, arid hillsides, and in washes. It nests almost exclusively in California sagebrush.	Due to the highly developed nature along the proposed corridor, suitable habitat for this species is not present.
CUCKOOS, ANIS — CUCULIDAE				
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	SE	L	This species is a riparian forest nester. It is typically found along the broad, lower flood-bottoms of larger river systems. Also prefers thickets of willow mixed with cottonwood.	Due to the highly developed nature along the proposed corridor, suitable habitat for this species is not present.
VIREOS — VIREONIDAE				
least Bell's vireo *Vireo bellii pusillus*	FE, SE	L	Typically occurs in moist thickets and riparian areas dominated by willows and mulefat.	Due to the highly developed nature along the proposed corridor, suitable habitat for this species is not present.

Status Codes

Federal
FE = Federally listed; Endangered
FT = Federally listed; Threatened
FSOC = Federal Species of Concern

State
ST = State listed; Threatened
SE = State listed; Endangered

CSC = California Species of Special Concern
– Taxa that are biologically rare, very restricted in distribution, declining throughout their range, or at a critical stage in their life cycle when residing in California.
– Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California.
– Taxa closely associated with a habitat that is declining in California (e.g., wetlands, riparian, old growth forest).

Potential for Occurrence (PFO)

L = **Low potential for occurrence** - No recent or historical records exist of the species occurring in the project area or its immediate vicinity (within approximately 5 miles) and the diagnostic habitat requirements strongly associated with the species do not occur in the project area or its immediate vicinity.
M = **Moderate potential for occurrence** - Either a historical record exists of the species in the project area or its immediate vicinity or the diagnostic habitat requirements associated with the species do occur in the project area or its immediate vicinity.
H = **High potential for occurrence** - Both a historical record exists of the species in the project area or its immediate vicinity and the diagnostic habitat requirements strongly associated with the species do occur in the project area or its immediate vicinity.
P = **Species present** - The species was observed in the project area at the time of the survey.

Source: California Natural Diversity Data Base, 2000

Based on the database searches and the field surveys, a list of sensitive wildlife species potentially inhabiting the project area was developed. The potential for each species to inhabit the project area was assessed.

Impacts on biological resources were analyzed with respect to CEQA guidelines, which were recently revised to include a checklist (Appendix G of the guidelines) of environmental effects that may be considered significant. In order to determine the level of project impacts on biological resources under CEQA, the checklist includes several questions, presented in the impacts section, which are answered with respect to the LRT Build Alternative with one of the following possible checklist answers: significant impact, potentially significant unless mitigation included, less than significant impact, or no impact.

4.12.2.2 Jurisdictional Waters

The project site was examined on May 18, 2000 to determine the limits of (1) Corps jurisdiction pursuant to Section 404 of the Clean Water Act, and (2) CDFG jurisdiction pursuant to Division 2, Chapter 6, Section 1603 of the Fish and Game Code. Prior to beginning the field delineation USGS topographic maps were examined to determine the locations of potential areas of Corps/CDFG jurisdiction. Suspected jurisdictional areas were field checked for the presence of definable channels and/or wetland vegetation, soils and hydrology.

4.12.3 IMPACTS

4.12.3.1 No-Build Alternative

There would be no impacts on vegetation, wildlife, or jurisdictional waters because this alternative only includes improvements to the transportation network that have already been approved and funded. No capital improvements are included under this alternative and would therefore not result in any changes to biological resources within the Los Angeles Eastside Corridor study area.

4.12.3.2 LRT Build Alternative

Impacts were analyzed with respect to CEQA guidelines as discussed in the methodology section. The results of the evaluation are presented in Table 4.12-3.

Vegetation and Wildlife

No sensitive plant communities or suitable habitat for sensitive plants or wildlife occurs within the Los Angeles Eastside Corridor. Therefore, development of this alternative, including the three options in the vicinity of Indiana Street, is not expected to adversely affect any sensitive plants and plant communities.

Jurisdictional Waters

The LRT Build Alternative traverses urban areas in Los Angeles County where urban development has often eliminated wetlands and associated natural vegetation and wildlife habitat. The study corridor is contained in existing public, particularly street, rights-of-way or in tunnel. Operation of the LRT Build Alternative, including the three options in the vicinity of Indiana Street, is not expected to have an effect on any Corps or CDFG jurisdictional waters because the LRT would be built on an existing bridge over the Los Angeles River. As a result, jurisdictional waters would not be affected by project implementation. If, during the later stages of design, it is determined that bridge widening or additional piers may be required, then impacts on jurisdictional waters are likely and possible conflict with the

Migratory Bird Treaty Act unless suitable mitigation is adopted by MTA (MTA will undertake such mitigation if the design proves it necessary).

Significance of Impacts

The LRT Build Alternative would have no impact with regard to all of the criteria listed above.

4.12.4 Mitigation

No mitigation is required for operational impacts of the LRT Build Alternative on vegetation, wildlife, or jurisdictional waters.

TABLE 4.12-3
BIOLOGICAL IMPACTS FACTORS CONSIDERED
LRT BUILD ALTERNATIVE

Criterion	Significance of Impact
Sensitive and Special Status Species. Would the project have a significant adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or CDFG or USFWS?	No impact
Riparian Habitat and Other Sensitive Natural Communities. Would the project have a significant adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFG or USFWS?	No impact
Wetlands. Would the project have a significant adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrologic interruption, or other means?	No impact
Waters of the United States. Section 404 of the Clean Water Act addresses "waters of the United States," which is a broader category than wetlands. All wetlands are waters of the United States, but a water of the United States may or may not be a wetland. CEQA Guidelines do not specifically address waters of the United States. The one waterway in the study area is concrete-lined, and therefore does not contain sensitive biological resources.	No impact
Movement of Species. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	No impact
Conflict with Local Policies or Ordinances. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	No impact
Conflict with Conservation Plans. Would the project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional or state habitat conservation plan?	No impact
Conflict with Migratory Bird Treaty Act. CEQA guidelines do not specifically address the MBTA, which is discussed in Section 4.12.1.	No impact

4.13 ENERGY

4.13.1 Affected Environment

California's overall energy consumption continues to be dominated by transportation, which is growing faster than the population. Since 1973, the number of vehicles within the state has increased by 75 percent. Although the average fuel economy of these vehicles has improved, the fuel savings achieved are less noticeable due to an increase in the number of miles traveled (California Energy Commission, 2000). Currently, California's 17 million automobiles consume more than 13 billion gallons of gasoline, making California the third largest consumer of gasoline in the world (California Energy Commission, 2000).

The number of vehicle miles traveled (VMT) is directly related to energy use and is the main contributor to air quality pollutants in the SCAG (Southern California Association of Governments) region. Vehicle miles of travel are also important in determining the demand for infrastructure improvements. SCAG estimates the VMT for the agency's transportation plans. Their data shows a 19 percent increase in daily VMT between 1994 and 1997, from 283 million to 337 million miles (SCAG, 2000). This equates to a daily energy use of approximately 304,000 barrels of crude oil in 1994 to over 351,000 barrels of crude oil in 1997 (PBQD, 2000).

4.13.2 Methodology for Impact Evaluation

The analysis estimates the total amount of energy expected to be consumed in the region in 2020 by each of the alternatives. The direct (operational) energy impacts were assessed using the following methodology.

Direct energy consumption involves energy used by the operation of vehicles (automobile, truck, bus, or train) within the region. In assessing the direct energy impact, consideration was given to the following factors:

- Annual vehicle miles traveled (VMT) for automobiles, trucks, buses, LRT, and commuter rail vehicles
- Variation of fuel consumption rates by vehicle type.

The direct energy analysis for each alternative was based on projected year 2020 regional traffic volumes and total VMT. The 2020 daily traffic volumes for the region were provided by the MTA model and annualized using a factor of 315 days per year. The VMT fuel consumption method utilized for this project is outlined in the *Technical Guidance on Section 5309 New Starts Criteria* (FTA, 1999). Energy consumption factors for the various modes identified in Table 4.13-1 were developed by Oak Ridge Laboratory and published in the 1996 *Transportation Energy Book: Edition 16.*

Direct energy, measured in British thermal units, BTUs[9], was converted to the equivalent barrels of crude oil for comparison of alternatives. The change in annual BTUs was also calculated for the LRT Build Alternative vs. the No-Build Alternative.

[9] One BTU is the quantity of energy necessary to raise one pound of water one degree Fahrenheit.

TABLE 4.13-1 ENERGY CONSUMPTION FACTORS	
Mode	**Factor**
Passenger Vehicles (auto, van, light truck)	6,233 BTU/Vehicle Mile
Heavy Truck	22,046 BTU/Vehicle Mile
Transit Bus (all vehicle types)[1]	41,655 BTU/Vehicle Mile
Rail (light or heavy)	77,739 BTU/Vehicle Mile
Commuter Rail (Metrolink)	100,000 BTU/Vehicle Mile

[1]FTA recommends utilizing a transit bus energy consumption factor of 41,655 BTUs/VMT for all bus types (including alternative fueled buses). Sufficient data has not been available to develop consumption factors for alternative fuels such as CNG (compressed natural gas), LNG (liquefied natural gas), and others.

Source: Oak Ridge Laboratory, 1996.

4.13.3 Impacts

Potential energy consumption of the LRT Build Alternative was compared to the No-Build Alternative in order to assess the impacts within the Los Angeles Eastside Corridor. The annual energy savings are expressed in British thermal units (BTUs).

The determination of California Environmental Quality Act (CEQA) importance for energy resources has until now been based on the criteria in Appendix G of CEQA: *Will the proposal use fuel, water, or energy in a wasteful manner?* On January 1, 1999, Appendix G was replaced by new guidelines implementing revisions to CEQA made by the legislature in 1992. While there are now no energy-specific criteria within the amended guidelines, one related to mineral resources would apply:

- Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the state?

4.13.3.1 No-Build Alternative

Under the No-Build Alternative, the annual 2020 VMT for automobiles within the region is forecast to be 138.02 billion miles, 5.75 billion miles for trucks, 235.8 million miles for buses, about 10 million miles for LRT, and 4.89 million miles for commuter rail. The annual VMT for automobiles and trucks would be slightly higher than for the LRT Build Alternative resulting in higher energy usage for these modes. The VMT for buses and rail, however, would be lower than for the LRT Build Alternative. Given the VMT and vehicle fuel consumption on an annual basis, vehicles operating within the region are anticipated to consume approximately 172.096 million barrels of oil or approximately 998,161 billion BTUs (Table 4.13-2). As shown in Table 4.13-2, the No-Build Alternative would have lower operational energy consumption compared to the LRT Build Alternative.

Significance of Impacts

While the No-Build Alternative would have lower overall operational energy consumption compared to the LRT Build Alternative, it would have a higher consumption of fossil fuels due to a higher VMT of automobiles and trucks. Fossil fuels will continue to be of future value to the region and the residents of the state. As discussed above, California obtains almost half of its crude oil supply from inside the state and the rest from Alaska.

TABLE 4.13-2
ANNUAL 2020 OPERATIONAL ENERGY CONSUMPTION

	No-Build Alternative	LRT Build Alternative
Vehicle Miles Traveled (VMT)		
Daily Auto and Truck VMT	425,828,072	425,778,055
Annual Auto VMT (billions)	*138.02*	*138.01*
Annual Truck VMT (billions)	*5.75*	*5.75*
Daily Bus VMT	696,380	712,132
Annual Bus VMT	*235,821,535*	*241,329,646*
Daily LRT VMT	29,955	31,742
Annual LRT VMT	*9,985,940*	*10,574,707*
Daily Commuter Rail VMT	14,639	14,639
Annual Commuter Rail VMT	*4,894,084*	*4,894,084*
Energy Consumption (BTUs)[1] (billions)		
Annual Auto BTUs[1]	860,288	860,187
Annual Truck BTUs[1]	126,784	126,769
Annual Bus BTUs[1]	9,823	10,052
Annual LRT BTUs[1]	776	822
Annual Commuter Rail BTUs[1]	489	489
TOTAL ANNUAL DIRECT BTUs (billions[2])	**998,161**	**998,320**
TOTAL ANNUAL BARRELS OF OIL[3]	**172,096,668**	**172,124,128**
CHANGE IN BTUs vs. NO-BUILD (billions[2])	**N/A**	**159**
CHANGE IN BARRELS vs. NO-BUILD	**N/A**	**27,460**

[1]One British thermal unit (BTU) is the quantity of energy necessary to raise one pound of water one degree Fahrenheit.
[2]Rounded.
[3]One barrel of crude oil is equal to 5.8 million BTUs.

Sources: Vehicle Miles Traveled (PBQD, 2000); Energy Consumption Factors (Oak Ridge National Laboratory, 1996)

4.13.3.2 LRT Build Alternative

The LRT Build Alternative includes three options in the vicinity of Indiana Street (Indiana Street Remove Parking Option [Option 1], Indiana Street Acquire Additional Right-of-Way Option [Option 2], and Extended Subway Option [Option 3]). For the purpose of the energy impact analysis, all three options would result in the same operational impacts and are therefore discussed as one alternative, the LRT Build Alternative.

Under the LRT Build Alternative, the 2020 annual VMT for automobiles within the region is forecast to be 138.01 billion miles, 5.75 billion miles for trucks, 241.3 million miles for buses, 10.6 million miles for LRT, and 4.89 million miles for commuter rail. For the LRT Build Alternative, the daily VMT for automobiles and trucks is about 50,000 miles less than the No-Build Alternative, while the VMT for buses and rail is considerably higher (15,000 miles for buses and 1,800 miles for LRT). Given the VMT and vehicle fuel consumption on an annual basis, vehicles operating within the region are anticipated to consume approximately 172.124 million barrels of oil or approximately 998,320 billion BTUs. Overall, the LRT Build Alternative would have a slightly higher annual operational energy consumption (about 27,460 barrels of crude oil) compared to the No-Build Alternative.

Table 4.13-3 shows a breakdown of energy use in Kilowatt hours (Kwh) with and without the stations and maintenance and storage facility. Stations for the LRT Build Alternative would use approximately 1.4 billion BTUs (112,378 Kwh or 241.4 barrels of oil) annually during the operation of the project (this is based on eight stations multiplied by 175,000,000 BTUs, using FTA's *Technical Guidance on Section 5309 New Starts Criteria*, July 1999). The maintenance and storage facility would use approximately 8.7 billion BTUs (698,346 Kwh, 1,500 barrels of oil) annually during the operation of the project (Caltrans Division of Engineering Services, Office of Transportation Laboratory, *Energy and Transportation Systems*, Table G-3, July 1983).

TABLE 4.13-3
ANNUAL 2020 ENERGY CONSUMPTION (Kwh) FOR SPECIFIC FACILITIES

Alternative	Energy Without Stations	LRT Stations	Maintenance and Storage Facility	Total
No-Build	62,313,130	N/A	N//A	62,313,130
LRT Build	65,987,088	112,378	698,346	66,797,812

MTA is hopeful that bus fuel economy will improve in the future with the introduction of composite fiber (lighter weight) buses, in which case, energy consumption would decrease for this mode across both alternatives. In addition, if the LRT Build Alternative were constructed and ridership grew (as has been the case with the Blue Line), MTA anticipates that increased auto diversion to transit would result in an energy savings for this alternative. Given that automobile ownership in the Eastside Corridor is relatively low, as compared to other areas where the average income is higher, any future extensions of the LRT eastward through areas of higher automobile ownership may result in a higher diversion to transit and additional energy savings.

Significance of Impacts

While the LRT Build Alternative would result in slightly greater energy consumption than the No-Build Alternative during operation, it would not result in a significant impact to the availability of fossil fuels or electricity within the region or the state given the current and projected available resources.

4.13.4 Mitigation

As can be seen in Table 4.13-2, both the No-Build and LRT Build Alternatives are relatively equal in energy consumption. The LRT Build Alternative is only slightly higher in energy consumption. Under the LRT Build Alternative, schedule coordination and modal interface between LRT, commuter rail, and local buses would be optimized to conserve energy. Furthermore, every aspect of station design would be reviewed to minimize lighting, heating, ventilating, and air conditioning loads. Passenger areas within stations would be designed so that lights can be turned off during off-service hours. The track layout would be designed to minimize non-revenue vehicle movements. All major facilities would have electric meters to monitor energy consumption and conservation.

4.14 SAFETY AND SECURITY

4.14.1 Affected Environment

4.14.1.1 Existing MTA Safety and Security Program

MTA operates a bus, light rail, and heavy rail subway service for daily passenger boarding, and owns railroad right-of-way over which Metrolink trains are currently operating. Security services for MTA's customers, employees, and facilities are currently provided by the Los Angeles Police Department Transit Police Service Bureau and the Los Angeles County Sheriff's Department Transit Police Services Bureau. Both special officers and deputies are assigned to MTA to provide law enforcement services. Sheriff's special officers have limited peace officer powers. They provide field response to minor incidents involving MTA vehicles, as well as regular patrols of MTA property. The Sheriff's Department also provides special enforcement deputies, who work both in uniform and plain clothes, depending on the type of enforcement conducted.

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

4.14.1.2 Existing Police Services in the Corridor

The Los Angeles Police Department handles police duties and activities in the City of Los Angeles portion of the corridor. The Los Angeles Police Department Hollenbeck Police Station is located at the intersection of 1st Street and St. Louis Street that is two blocks west of the proposed 1st/Soto Station. In addition, Parker Center, the Los Angeles Police Department headquarters and central administration facility, is located at 1st Street and Los Angeles Street, approximately one quarter mile west of the proposed 1st/Alameda Station.

The Los Angeles Sheriffs Department handles police duties and activities in the County of Los Angeles portion of the corridor. The Sheriff Department's East Los Angeles Station is located at the intersection of 3rd Street and La Verne Avenue adjacent to the East Los Angeles Community Center, and approximately one half mile from the eastern terminus of the LRT route.

4.14.1.3 Existing Fire and Emergency Services in the Corridor

Fire suppression and emergency services in the City of Los Angeles portion of the corridor are handled by the City fire station located at the intersection of Cesar Chavez Avenue and Britannia Street. Fire suppression and emergency services in the County of Los Angeles portion of the corridor are handled by the County fire station located on Sheriff Road east of Eastern Avenue. In the event of a fire occurring at the boundary of the City and the County, the two departments are working on a common communications frequency to facilitate joint operations.

4.14.2 Methodology For Impact Evaluation

4.14.2.1 Accidents and Safety Issues

Input on safety and security issues has been obtained from MTA staff members who have developed considerable expertise in dealing with many of the safety and security impacts expected to result from construction and operation of light rail on the surface and in subway. In addition, input from the community through the scoping process raised concerns about pedestrian and transit patron safety and the safety of LRT operation. The major concern was the presence of light rail trains operating on city streets, particularly the number of trains running during weekday peak hours.

In response to these concerns, an estimate of the possible number of light rail accidents that might be expected in the corridor was made using data from the MTA Operations Safety department report *Summary of Metro Blue Line Train/Vehicle and Train/Pedestrian Accidents (7/90-09/99)* dated October 29, 1999. Based on the data presented in the report, the average number of on-street accidents per year per mile for fiscal years 1993 to 1999 was approximately 4.0 per mile. For fiscal year 1999 only, the accident rate was approximately 5.1 per mile. The vast majority of the accidents were auto conflicts with LRT vehicles. Only five percent of the accidents involved pedestrians.

For safety impacts that have been identified for the LRT Build Alternative, MTA project design features are analyzed to determine which safety enhancement measures could be included in the project design to mitigate any significant impacts under CEQA. MTA Rail Transit Design Criteria and Standards, Fire/Life Safety Criteria, Volume IX, would be used to develop these design features.

4.14.2.2 Security and Crime Prevention Issues

The analysis of security issues focuses on the potential for violent crimes, property theft, fare evasion, and vandalism. This analysis reviews project design features in the context of MTA procedures and prior experience of other rail systems to assess impacts. FTA and Los Angeles County crime data related to light rail operations are examined. Most crimes on existing MTA LRT lines appear to be thefts, especially auto thefts, near stations or parking areas. For the existing light rail system operating within the County of Los Angeles, 67 thefts, 69 auto thefts, ten burglaries, and two arsons were reported in 1999, a rate that is four percent lower than the previous year.

4.14.2.3 Fire Services and Emergency Response

Station and track design (access, layout, exits, alarms, evacuation) and operational procedures (interagency agreement, training, evacuation) are pertinent to the effectiveness and timeliness of emergency response.

4.14.3 Impacts

4.14.3.1 No-Build Alternative

The No-Build Alternative would maintain the current MTA routes and service in the corridor, and, therefore, would not have an immediate impact on public safety or accidents.

4.14.3.2 LRT Build Alternative

Accidents and Safety Issues

Since the vast majority of the accidents on existing LRT lines operating in Los Angeles County were private vehicle conflicts with the LRT vehicles, estimates for potential LRT and automobile accidents were prepared. Using the aforementioned methodology, it is estimated that 15 to 20 LRT accidents would occur per year in the corridor. However, this number may be reduced since LRT would operate in subway through the densest portion of the corridor.

Safety risks also include train derailments and subway evacuation in case of emergency. It is MTA's experience that accidents with LRT vehicles running at the speed of existing traffic within street rights-of-ways occur so infrequently that there is no significant impact. Earthquake, fire or other potential disasters may occur during the expected life of the LRT line. Any such safety risk to the public is considered a significant impact.

Security and Crime Prevention Issues

Operation of the LRT Build Alternative can be expected to concentrate people around stations and parking facilities as well as the LRT vehicles themselves. The potential for car thefts, robberies, vandalism, loitering and other crimes exists. If measures were not taken to create a safe, protected environment for LRT patrons and other citizens, the potential for criminal activity around station areas and in vehicles would be significant.

Fire Services and Emergency Response

LRT vehicles would contain a state-of-the-art communication system to enhance response time by fire, police, and emergency services. As a result, patrons of the system should not face a negative impact from delays in arrival of emergency assistance. However, the possibility of delaying an emergency vehicle responding to a call elsewhere must be considered a potentially significant impact.

Significance of Impacts

Safety features would be included in the design of LRT vehicles, station areas, and other facilities. Safety risk remains a consideration that could generate significant impacts.

4.14.4 Mitigation

4.14.4.1 Accidents and Safety Issues

To diminish the risk of collisions between light rail vehicles and automobiles on the street portion of the system, MTA will work with the City and County traffic control departments. Automobile movements across the LRT tracks will be minimized. It is anticipated that at streets other than major thoroughfares, movements across the tracks, including left turns, will not be allowed. This measure may also reduce the number of auto/auto accidents that would otherwise occur mid-block and at non-signalized intersections. At major intersections, left turns will be permitted and controlled, where appropriate, with green arrows. Consideration will also be given to installing turn restriction gates so that turns can only be made when the gate is up.

In addition, pedestrians would be discouraged from crossing at mid-block on major roads by concentrating crossings at major intersections. This could help minimize pedestrian accidents with autos as well as with trains. Station platforms will be designed to reduce the risk of injury for persons waiting for trains. At Ramona High, Utah Elementary, Our Lady of Lourdes, and Griffith Middle Schools, MTA will consider providing a crossing guard during daily arrival and dismissal times if requested by the school administrators for as long as their presence is requested. MTA will also provide at no charge to the Los Angeles Unified School District an instructional rail safety program with materials to all affected schools in the study area. The program will cover safety issues relative to both construction and operation of the LRT project.

Other mitigation measures that could minimize potential operations safety and accident impacts are:

- Design adequate storage pocket length for cars waiting to make a left turn;
- Consider programmed visibility train signals that are not visible to cars making left turns and are visible only to train operators;
- Consider photo enforcement camera equipment;
- Consider train preemption or train priority signal system;
- Consider alignment, grade, horizontal and vertical curves to minimize or eliminate any visibility and/or operational problems;
- Consider pedestrian gates, crosswalks, stand behind the line markings, etc. Provide for an entire safe path from stations to sidewalks for pedestrians and patrons;
- Consider alignment, grade, horizontal and vertical curves to minimize or eliminate any visibility and/or operational problems; and
- Consider active warning devices for pedestrians.

In addition, during preliminary engineering, MTA will study the following light rail vehicle options to determine their ability to increase light rail vehicle safety. If it is determined that these measures would be feasible, they will be incorporated into the vehicle's design:

- Provision of front and rear safety fenders to minimize or prevent the potential for pedestrian contact with the vehicle coupler and/or the potential to fall under the vehicle;
- Addition of metal toe guards around the vehicle wheel trucks to prevent passengers or others from possibly placing their feet beneath the vehicle's wheels; and
- Provision of a hinged lower skirting for the light rail vehicle to minimize the potential for an individual to fall under the vehicle between the wheel sets.

With the inclusion of these mitigation measures, safety impacts related to on-street operations will not be significant.

For subway operation, the MTA Fire Life Safety Committee has developed the following safety-related design criteria for the proposed LRT subway stations:

- Fire alarm protection within the station area;
- Minimum of two fire emergency routes from each station;
- Emergency station ventilation and lighting;
- Communication systems between adjoining fire agencies; and
- A methane detection system for each station.

For underground construction, building construction for underground stations shall not be less than Type I Construction as defined in the Uniform Building Code (UBC). Enclosure of patron use stairways, escalators, and protection of floor openings are not required within areas of the public occupancy. Stations having more than two levels below-grade or more than 80 feet to the lowest occupied level from grade will require protected level separation or other protection features to provide safe egress to the exits.

In public occupancy areas, fire separations will be provided and maintained. Station public occupancy will be separated from station ancillary occupancy by minimum two-hour fire rated construction barrier. The only exception is that a maximum of two station agents, supervisors, or information booths may be located within station public occupancy areas when constructed of approved noncombustible materials and limited in floor area to 100 square feet.

With mitigation, these subway-related safety impacts would be reduced to an insignificant level.

4.14.4.2 Security and Crime Prevention Issues

Increased policing, well-placed lighting, and clear visibility of the station area from the street and sidewalk would substantially minimize criminal activity at LRT stations. Large concentrations of people and street level activity around stations may actually decrease crime rates. MTA would involve the LAPD and the County Sheriff in the planning and design of stations and parking facilities to improve station area security.

Consideration will be given to procuring one agency to provide on-board security for the LRT vehicles. While the LAPD or County Sheriff can cover the areas around stations and park-and-ride facilities, contracting for security with a single agency has proven to be an efficient method of patrolling LRT vehicles that cross jurisdictional boundaries.

With a design that gives high importance to security and safety, and good communications between public safety agencies, the safety and security implications of LRT operation can be mitigated to a less than significant level.

4.14.4.3 Fire Services and Emergency Response

During the project design phase, all public safety agencies will have input on street modifications or access limitations for emergency vehicles resulting from LRT operation. A combination of proper facility design, operating equipment, hardware, procedures and software subsystems would reduce potential fire and emergency service response impacts to a less than significant level.

4.14.4.4 Significance of Impacts Remaining after Mitigation

With proper mitigation, the aforementioned safety and security impacts would be reduced to an insignificant level.

4.15 HISTORIC/ARCHAEOLOGICAL/PALEONTOLOGICAL RESOURCES

This analysis identifies and compares the extent to which the No-Build and LRT Build Alternatives will affect historic, archaeological, and paleontological resources.

4.15.1 Affected Environment

4.15.1.1 Historic/Archaeological Resources

Regulatory Setting

Regulations that address potential effects on historic, archaeological, and paleontological resources include Section 106 of the National Historic Preservation Act (NHPA), Section 4(f) of the Department of Transportation Act, and the California Environmental Quality Act (CEQA). Each of these acts as they pertain to cultural resources is briefly described below.

National Historic Preservation Act

Section 106 of the National Historic Preservation Act of 1966, as amended through 1992 (16 U.S.C. Section 470), and 36 CFR Part 800 requires that federal agencies take into account the effect of carrying out federally funded, assisted, or licensed projects on resources identified as included in, or determined eligible for, the National Register of Historic Places (NRHP), and, if a project adversely affects those characteristics qualifying a resource for inclusion on the NRHP Register, feasible alternatives are investigated.

The Section 106 review process follows these steps: 1) determine that the Section 106 provisions apply to the undertaking or proposed action; 2) determine whether the undertaking has the potential to create effects; 3) define the Area of Potential Effects (APE); 4) identify historic, archaeological and cultural resources, and evaluate their significance to determine eligibility for listing in the National Register; 5) Coordinate Section 106 with other reviews such as NEPA and Section 4(f); 6) apply the criteria of effect and adverse effect to determine impacts on identified resources; 7) consult with the State Historic Preservation Officer (SHPO) and other interested persons, agencies, and tribes to agree on appropriate mitigation measures; 8) execute a Memorandum of Agreement (MOA) with the SHPO that specifies the mitigations and identifies those responsible for carrying out the specific measures; and 9) obtain the comments and acceptance of the Advisory Council for Historic Preservation.

This section summarizes the results of the completion of the first six steps. The final three steps will be completed prior to the conclusion of the environmental process and the issuance of the Record of Decision.

When evaluating a property against *National Register* criteria (Criteria of Effect), significance is defined as the importance of a property to the history, architecture, archaeology, engineering, or culture of a community, a State, or the nation. In order for a property to be considered eligible for inclusion on the *National Register*, it must meet at least one of four specific criteria (A through D) for evaluation identified in 36 CFR Part 60 of the NHPA, and certain other conditions. The *National Register* criteria for evaluation are defined below.

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design setting, materials, workmanship, feeling and association, and that are: A) associated with events that have made significant contributions to the broad pattern of our history; or B) that are associated with lives of persons significant in our past; or C) that embody the distinctive characteristics of type, period or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or D) that have yielded or may be likely to yield information important in prehistory or history.

California Environmental Quality Act

In September 1992, Section 21084 of CEQA was amended to categorize projects that may cause substantial adverse changes in the significance of historical resources as projects that may have significant effects on the environment and, therefore, are not exempt from CEQA. Historic resources were defined as any resource listed, or determined to be eligible for listing, in the California Register of Historical Resources (California Register). According to CEQA, Section 21084.1 of the Public Resources Code, historical resources listed in the California Register that are determined eligible for listing in the National Register or included in local registers of historical resources, are presumed to be historically or culturally significant.

Section 4(f) of the Department of Transportation Act of 1966

Section 4(f) was established in order to limit the circumstances where protected lands and historic site areas can be used for transportation purposes. In this discussion, "historic site areas" refers to those areas where a historic structure is located and/or where a group of historic structures is located. This applies to those guidelines presented by the National Historic Preservation Act of 1966, and observes the guidance of the SHPO. Since the Eastside Project may affect historic structures either visually, partially or completely, a Section 4(f) evaluation is required. Specific Section 4(f) issues are discussed in detail within the SDEIS/SDEIR.

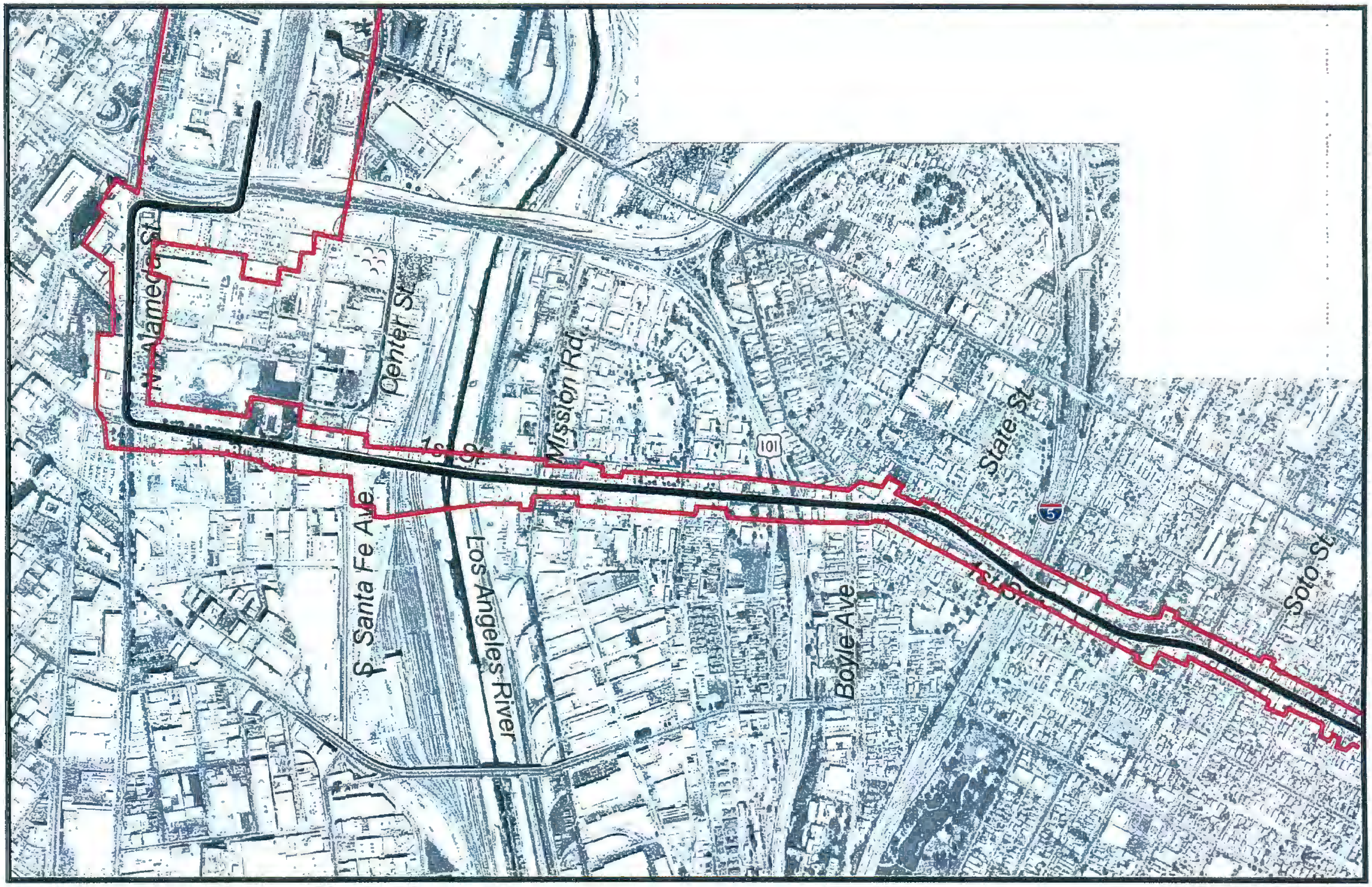
Area of Potential Effects

The APE (Figures 4.15-1 through 4.15-3) includes the immediate properties along each side of the roadway proposed to accommodate the system and those properties, which have an unobstructed view of the alignment. The APE includes properties directly affected by project construction or right-of-way acquisition, as well as properties that may be indirectly affected by visual or noise/vibration impacts. For the subway segment the APE includes properties, which lie directly over the alignment and properties adjacent to the properties over the alignment. The APE was defined to satisfy the requirements of Section 106 of the NHPA and CEQA.

Properties Identified within the APE

Historic resources within the APE were identified by: 1) obtaining the Historic Properties Directory for each City from the State Office of Historic Preservation; 2) contacting local jurisdictions for current inventories of identified historic resources within the APE; 3) utilizing GIS and assessor parcel data regarding building construction dates and property ownership information; and 4) conducting a windshield/reconnaissance survey of the APE to identify potentially eligible historic properties.

The approach used to conduct this analysis began with the identification of known historic resources within the APE. The standard reference material used to identify architectural/historic and archaeological resources is listed in the *Cultural Resources Technical Report*, which is included herein by reference. A field survey was conducted to provide a preliminary evaluation of resources that have not been previously recorded, and to map the identified resources relative to the proposed alignments. All historic buildings and structures that, from the windshield survey appear to possess characteristics that may warrant evaluation, have been recorded for this work effort. Properties that meet the age criteria, but do not



Legend

0 0.1 0.2 0.3 0.4 Miles

LRT Alignment
Area of Potential Effects

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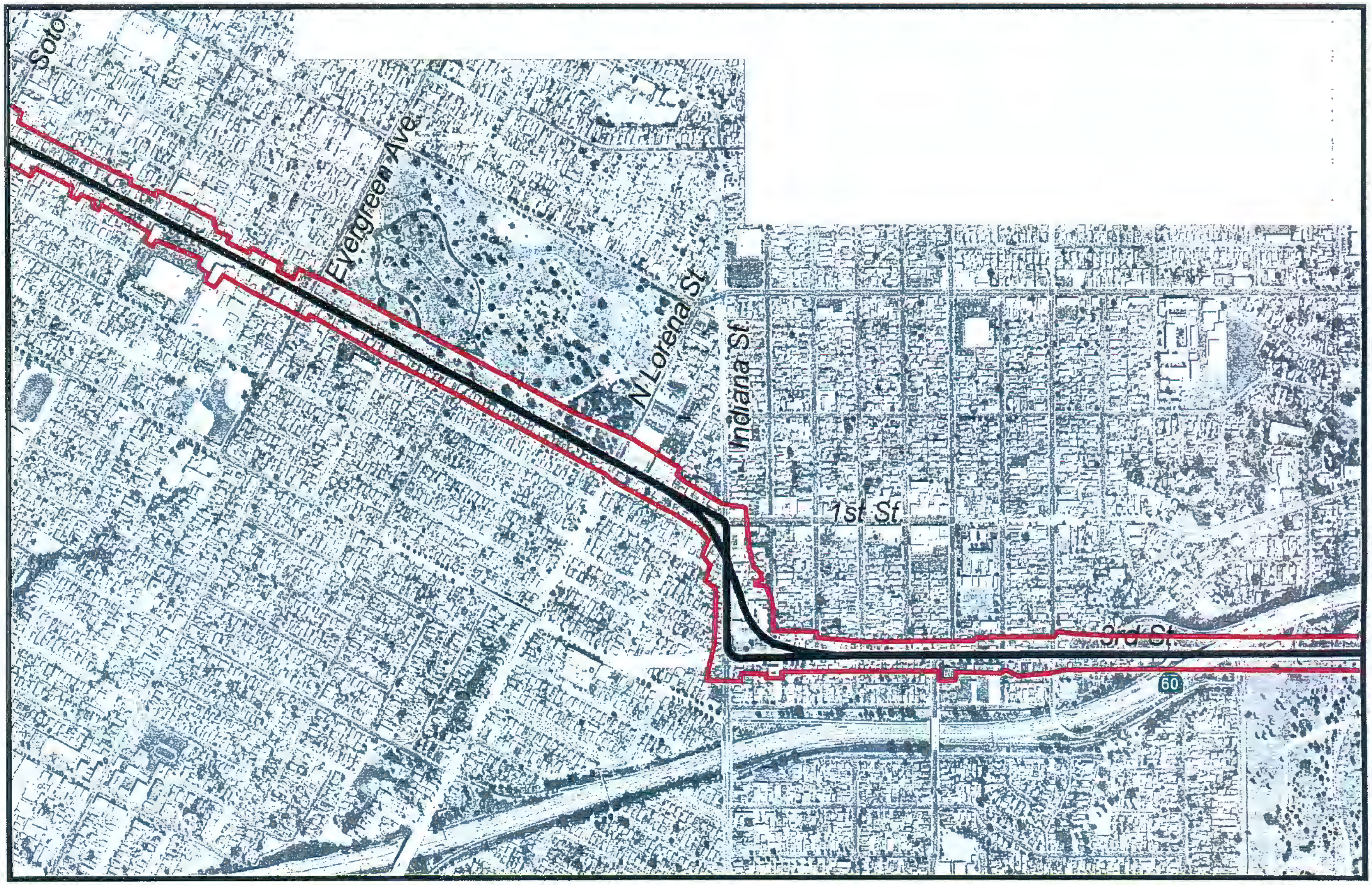
Area of Potential Effects

Figure 4.15-1



Legend

0 0.09 0.18 0.27 0.36 Miles

LRT Alignment

Area of Potential Effects

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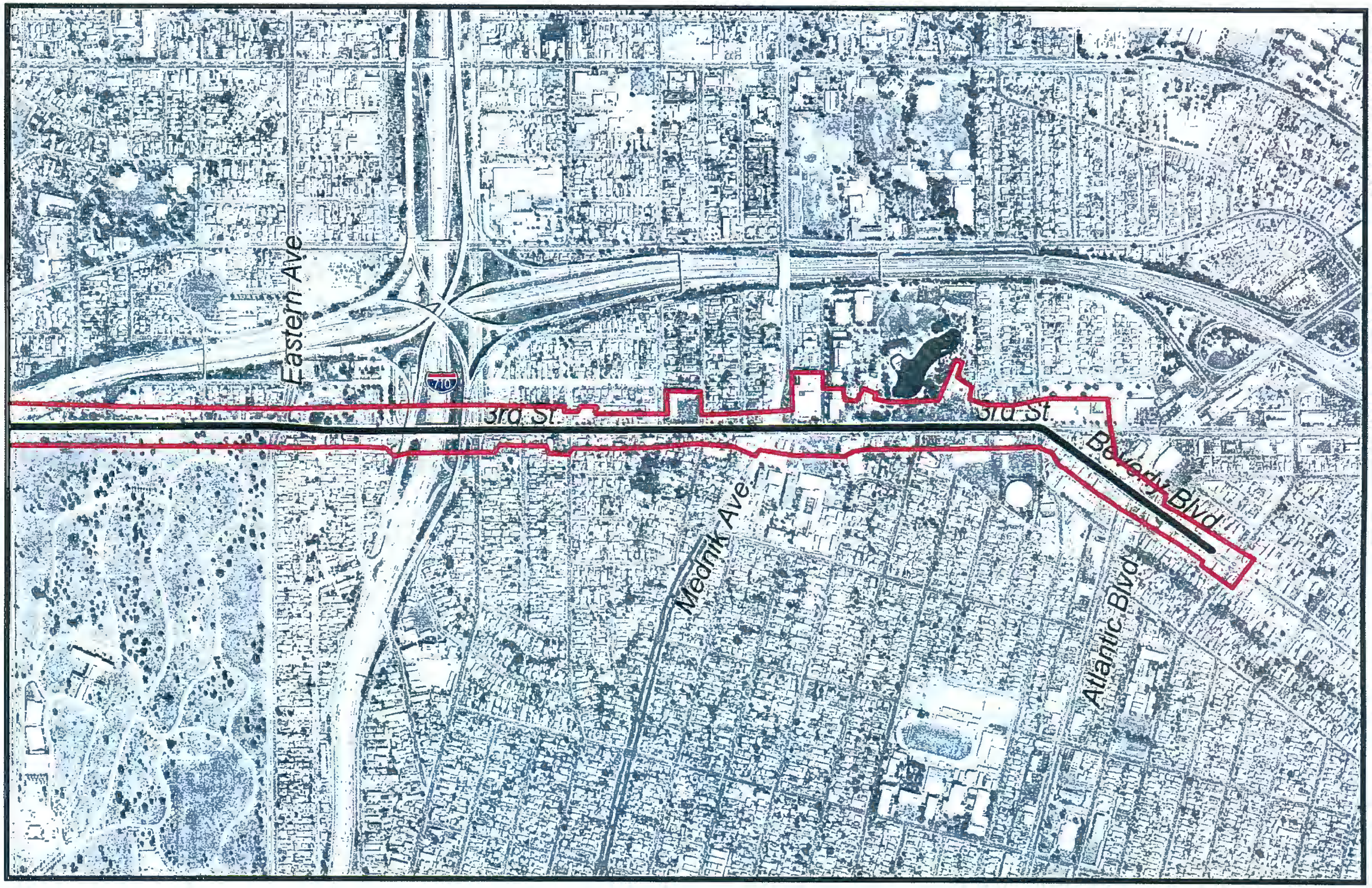
Area of Potential Effects

Figure 4.15-2



Legend

0 0.09 0.18 0.27 0.36 Miles

LRT Alignment
Area of Potential Effects

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Area of Potential Effects

Figure 4.15-3

possess visual characteristics that appear important/significant have been considered and are included in this analysis. Final Determinations of Eligibility and Finding of Effect will be made through consultation with the State Historic Preservation Officer (SHPO).

Table 4.15-1 presents a summary of 398 cultural resources within the APE. Those that are listed, are eligible, potentially eligible, or determined to be ineligible for the NRHP are identified by category below. A complete list of cultural resources in the study area is presented in the *Cultural Resources Technical Report.*

TABLE 4.15-1
SUMMARY OF SITE TYPES

Site Type	Number Present
Archaeological Sites	3
Murals[1]	12
Buildings Potentially Eligible[1]	157
Buildings Potentially Ineligible[1]	226

[1]Potentially eligible or ineligible for listing on the National Register of Historic Places.

<u>Recorded Archaeological Sites Determined Eligible for the National Register</u>
- CA-LAN-1575H; Historic Chinatown

<u>Recorded Archaeological Sites</u>
- CA-LAN-887H; La Placita: Zanja Madre foundations and historical deposits
- CA-LAN-7H; Native American and Chinese historic deposits

<u>Historic Property Listed on the National Register</u>
- Union Station (800 North Alameda)

<u>Historic Properties Determined Eligible for the National Register</u>
- 1st Street Viaduct (900 E. 1st Street)
- Landers Restaurant (1853 E. 1st Street)
- Residence (1814 Pennsylvania Avenue)

<u>Historic Properties Potentially Eligible for the National Register</u>
- Mt. Pleasant Hotel (103-105 N. Boyle Avenue)
- Commercial Structure (2415-2417 E. 1st Street)
- Commercial/Residence (2504-2508 E. 1st Street)
- Residence (2507-2509 E. 1st Street)
- Evergreen Cemetery (City of Los Angeles Historic Cultural Monument #496)
- Our Lady of Lourdes Church and School (772 3rd Street)
- Residence (3886 3rd Street)
- New Calvary Cemetery (4201 E. Whittier Boulevard)
- 2 murals (1315 E. 1st Street and Santuria de Guadalupe Church)
- 1 stone curbing (E. 1st Street between Alameda and Hewitt)
- Mariachi Plaza (1st/Boyle)
- 1st Street School (2820 E. 1st Street)
- Mount Carmel Missionary Baptist Church (3064 E. 1st Street)

- Department of Water and Power Station 23 (123 S. Indiana Street)
- Serbian Cemetery (4355 3rd Street)
- 6 industrial sites
- 1 commercial/industrial site
- 47 commercial structures
- 3 commercial/residential structures
- 72 residences

Historic Property Not Eligible for the National Register but Eligible for State or Local Register Listing
- Residence (4219 E. 3rd Street)

Historic Property Determined Ineligible for the National Register
- George B. Kellick Block (1832 E. 1st Street)
- Kellan Residence (1913 E. 1st Street)
- Los Palomas Hotel (2201 E. 1st Street)
- Residence (2601-2603 E. 1st Street)
- George Hollis House (3310 E. 1st Street)
- Patrick Dooley House (3318 E. 1st Street)
- Mural (3425 E. 1st Street)

In addition, three murals (at 1323 E. 1st Street, 1504 E. 1st Street, and 1516 E. 1st Street), which are potentially ineligible for the NRHP, are listed with the Los Angeles Mural Conservancy. A fourth mural, at 2200 E. 1st Street, has not been evaluated for the NRHP.

Historical Background

Prehistoric settlement in the Los Angeles basin appears to have been patterned in relation to environmental attributes that favored subsistence practices and may represent either villages or temporary/seasonal camps of special functions. Native American inland sites were often distributed near springs or seeps, or in proximity to oak groves. Other sites, many undocumented, were located to take advantage of desirable faunal, mineral, wild plant and seed resources. With the arrival of the Spaniards and formation of the missions, the area was soon depopulated.

Los Angeles was established near the Los Angeles River in 1769. The settlement was close to a ford and a place to ascend the bluffs on the east side of the river, the direction of Mission San Gabriel. The core of the settlement was on the lower river terraces, with the lowest terraces and floodplain serving as fields. As time passed, settlement spread upslope and westward away from the periodic flooding.

The archaeological record of California history is extensive throughout the area along the river. Earlier excavation documented one section of *Zanja 3*, part of the first Los Angeles water delivery system (Cultural Resource Group 1987). The complexity of the archaeological record is seen in La Placita (CA-LAN-887H), a stratified site between Alameda Street and the Plaza area (Costello and Wilcoxon [1978]) and in adjacent historic Chinatown (Greenwood 1996). Borings made at the northwest corner of Temple and Alameda produced architectural remains of a mill, late nineteenth century domestic artifacts, and refuse bone (Padon 1986).

After the achievement of California statehood in 1850, the city continued to develop around the early core. The street grid was expanded as new tracts were surveyed and bridges were built across the river. The heart of the city continued to move upslope, both east and west, and former vineyards on the river terraces were subdivided for homes and businesses. Industries such as meat packing, gas generation, and brickyards were relegated to the lowlands along the river, which came to be known as "the Flats." The architectural (and potential archaeological) history of the study area reflects patterns of urban growth and maturation. The area of the Flats is the most intensively utilized, with documented multiple occupations. Remnants of several waves of construction are present at and below the surface.

By the 1880s, suburban development began on the bluffs above the river. New housing tracts were served by street railways, and business establishments followed along transportation corridors (refer to Section 4.4.1.5, *Communities/Neighborhoods* for more information about historic settlement patterns in the corridor). While evidence of early land use and cultural patterns has become part of the architectural and archaeological record, many land use and cultural patterns established by the 1880s have persisted. An example of such a pattern is commercial development along east-west arteries serving adjacent residential neighborhoods. Development of a transportation node on the flats and the two main waves of construction on the Boyle Heights bluffs, the 1880s through the 1890s and the 1920s, are visible in numerous structures.

The study area illustrates the strong American pattern of single-family detached dwellings prevalent through the middle of the twentieth century, nearly always of wood frame construction. These residences reflect trends in style, seen in the Queen Anne style of the 1890s, the Craftsman bungalows of the early twentieth century, the pre-World War II Mission Revival and other revival styles, and the Frank Lloyd Wright-influenced ranch style of the post-war period. Commercial architecture shows differences from dwellings; historic enterprises in the study area were frequently constructed of brick, often two stories in height. Unlike dwellings, which were set back from the street behind a fence demarcating the property, commercial structures were built to meet the property lines, with the entry on the main street. Commercial architecture can demonstrate the material correlates of marketing and consumer behavior.

Mural artwork, although used since the study area was settled by Spanish speakers, has in recent decades become an important element of the urban landscape. Some outstanding examples of mural artwork have already been lost, reinforcing the importance to the community and the special value of those murals that survived. Documented dates span more than 20 years, indicating that this is a tradition that speaks to the residents of the area and for which they have affinity and special concern.

Since the founding of the pueblo, the multicultural composition of the population, changing with patterns of migration and immigration, has left an impression on the city and its surroundings. The evidence is both visible, in the form of structures and wall art, and obscured, in the subsurface archaeological remains. The potential for discovery of subsurface historical remains is high from the area of Union Station to the foot of the Boyle Heights bluffs, is less along 1st Street from the Los Angeles River to the city boundary at Indiana Street, and decreases further along 3rd Street east to the end of the corridor.

4.15.1.2 Paleontological Resources

Regulatory Setting

Paleontologic resources, including fossil remains, associated specimen data and corresponding geologic and geographic site data, fossil sites, and the fossil-bearing stratigraphic rock units, are a limited, nonrenewable, and very sensitive scientific and educational resource and, particularly with regard to fossil sites, are afforded protection under the following federal and state environmental legislation, as indicated below.

- National Environmental Policy Act of 1969 (NEPA) (P.L. 91-190; 31 Stat. 852, 42 U.S.C. 4321-4327). Requires that important natural aspects of our national heritage be considered in assessing the environmental consequences of a proposed project.

- Archaeological and Historic Data Preservation Act of 1974 (P.L. 86-253, as amended by P.L. 93-291; 88 Stat. 174, U.S.C. 469). Provides for the survey, recovery, and preservation of significant paleontologic data when such data might be destroyed or lost due to a federal, federally licensed, or federally funded project.

- California Environmental Quality Act of 1970 (CEQA) (13 Public Resources Code: 21000 *et seq.*). Requires that public agencies and private interests identify the environmental consequences of their proposed projects on any object or site of significance to the scientific annals of California (Division I, Public Resources Code: 5020.1 [b]).

- Guidelines for the Implementation of CEQA, as amended March 29, 1999 (Title 14, Chapter 3, California Code of Regulations: 15000 *et seq.*). Define procedures, types of activities, persons, and public agencies required to comply with CEQA, and include definitions of significant impacts on a fossil site (Section 15023, Appendix G [5.c]).

- Public Resources Code, Section 5097.5 (Stats. 1965, c. 1136, p. 2792). Defines any unauthorized disturbance or removal of a fossil site or remains on public land as a misdemeanor.

- Public Resources Code, Section 30244. Requires reasonable mitigation of adverse environmental impacts that result from development of public land and that affect paleontologic resources.

Paleontological Setting

Although no previously recorded fossil site has been documented in the study area, there exists a moderate to high potential to encounter fossil remains at previously unrecorded fossil sites by construction-related earth-moving activities where these activities will disturb previously undisturbed rock strata. At or near the surface, the younger alluvium probably is too young to contain remains old enough to be considered fossilized and, therefore, there probably is only a low potential for any fossil remains or previously unrecorded fossil site being encountered by shallow earth-moving activities in areas underlain by this rock unit.

East of Highway 101, the study area is underlain by older alluvium, except along some of the passes and in the eastern end of the study area (refer to Section 4.9, *Geologic and Seismic Conditions* for more information about soils in the study area). In other sections of Los Angeles outside the study area, the older alluvium has yielded fossilized bones and teeth representing a diversity of continental vertebrate species, including extinct late Pleistocene (Ice Age) land mammals species, at a number of previously recorded fossil sites (including La Brea tar pits) west of downtown Los Angeles and in the Hollywood area (Hay, 1927; Jefferson, 1991a, -b; Lander, 1994, in press; Miller, 1971). Some of these fossil remains were recovered at newly discovered fossil sites encountered by tunneling under Hollywood and Wilshire Boulevards during construction of the Metro Red Line tunnels. One of these fossil sites, which yielded extinct bison remains, was encountered by tunneling immediately west of Union Station during construction of the Metro Red Line tunnel between Union Station and the Tom Bradley/Civic Center Station (Lander, in press).

4.15.2 Methodology for Impact Evaluation

Archaeological/Historic Resources

The methods for describing cultural resources included a literature search and a field check. The detailed written sources consulted for this research were: the National Register of Historic Places; the prehistoric and historic site files at the South Central Coastal Archaeological Information Center at the UCLA Cotsen Institute of Archaeology (now at California State University, Fullerton); the list of historic properties and Form 523s on file at the California Office of Historic Preservation; the guide to historic landmarks of California; and previous environmental research for the suspended Metro Red Line project and other investigations. In addition, historic USGS quadrangles, fire insurance maps, and other historical maps and documents were examined.

Although research has identified known archaeological sites in the study area, construction remains, refuse deposits, wells, privies, or other features, which have not previously been visible or recorded, are often encountered during construction activities. The project route crosses areas that were settled before any environmental requirements for cultural resource recording, and there are relatively few official site records. To formally address the possibility of encountering subsurface cultural resources, the Section 106 process utilizes a Memorandum of Agreement (MOA) that stipulates the steps that must be taken if an archaeological site is discovered during construction (refer to Section 4.15.4 below).

Known resources and potentially sensitive areas were tentatively identified before a field inspection. A brief survey by an architectural historian resulted in the preliminary identification of historic standing structures and an estimation of their integrity. Those with integrity, both residential and commercial, were noted as significant or potentially significant. Those so modified as to have lost integrity were noted and may or may not be significant based on other criteria such as association or values to the community. The results of the field survey were tabulated by address. The inventory was revised frequently in response to changes in the alignment and construction methods. The year 1950 was used as the cutoff date for considering historic properties. One of the criteria for the National Register is that the property must be 50 years old or of exceptional significance. Many historic properties along the corridor have already been judged significant or potentially significant by the federal, state, or city authorities.

For the analysis of historic properties, an adverse effect occurs if there is:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;
- Neglect of a property which causes its deterioration; and
- Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

The agency official may propose a finding of no adverse effect if the undertaking is modified or conditions are imposed to avoid adverse effects (36 CFR 800.5 (b)). If avoidance is not possible, then the agency official shall consult further to resolve the adverse effect pursuant to 36 CFR 800.6.

Paleontological Resources

Geologic maps, cross sections, and reports covering the Los Angeles Eastside Corridor study area were reviewed to determine the stratigraphic rock units underlying the study area. Surficial geological mapping of the study area is provided by Dibblee (1989). An archival search was conducted at the Natural History Museum of Los Angeles County (LACM) Vertebrate Paleontology Section (VP) to determine the locations of previously recorded fossil sites in each rock unit in and near the study area, as well as the taxa represented by the fossil remains recovered at these sites.

The potential for fossil remains being uncovered at previously unrecorded fossil sites that might be encountered by construction-related earth-moving activities, if any, for each alternative in previously undisturbed strata was assessed. This assessment is based on the type of construction (subway, aerial, at-grade) to be implemented for the LRT Build Alternative, the depths at which earth-moving activities will occur, and the paleontologic productivity of the stratigraphic rock unit in which these activities will occur.

4.15.3 <u>Impacts</u>

4.15.3.1 No-Build Alternative

There would be no construction related impacts on cultural resources because this alternative only includes improvements to the transportation network that have already been approved and have environmental clearance. No capital improvements are included under this alternative, and it would therefore not result in any changes to historic properties within the study area.

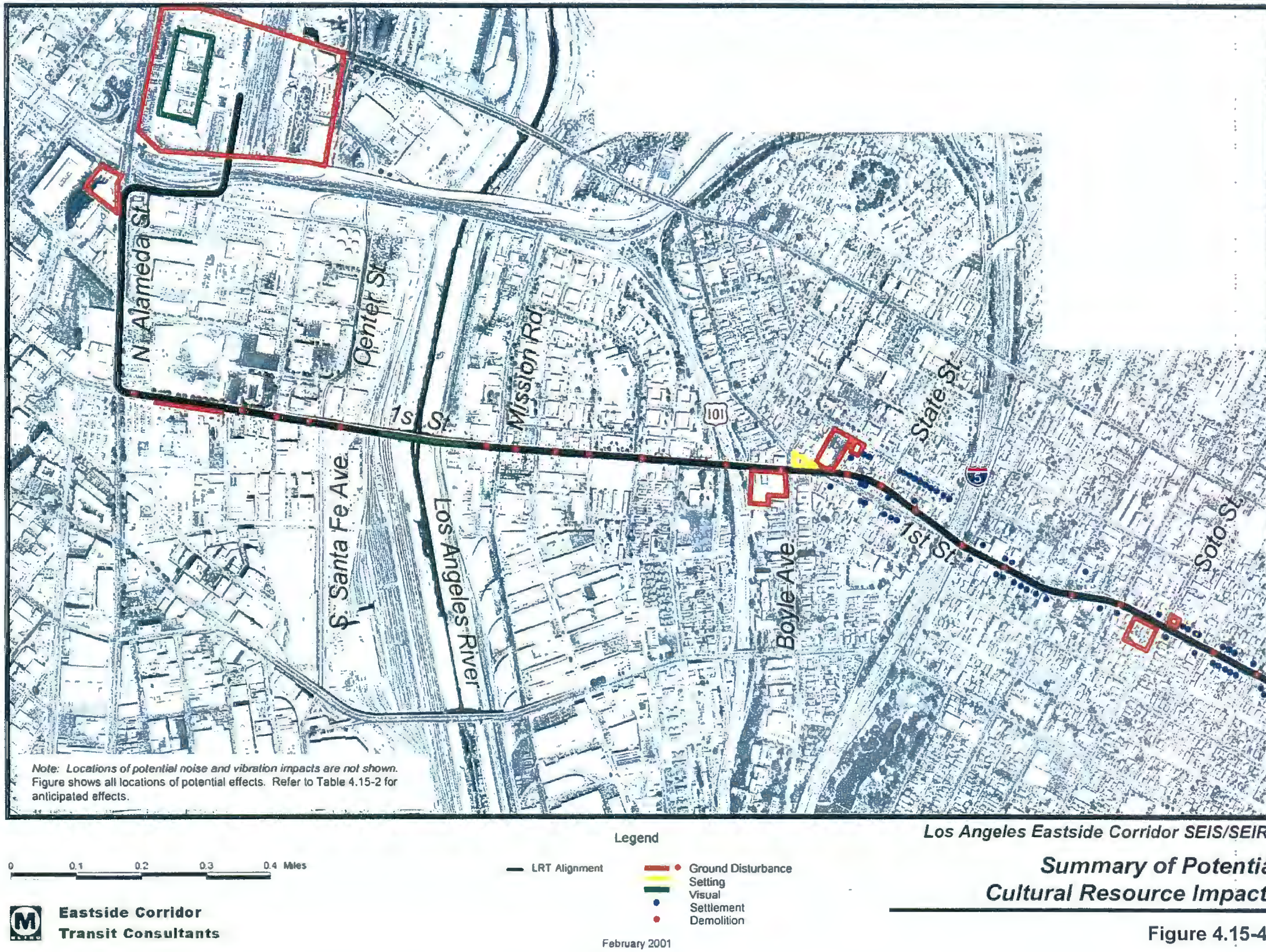
4.15.3.2 LRT Build Alternative

Table 4.15-2 and Figures 4.15-4 through 4.15-6 summarize impacts on cultural resources.

Archaeological Resources

Any disturbance of the ground surface has the potential to impact archaeological resources, whether this results from permanent change such as excavation for a station or tunnel entrance, or only temporary use for parking, storage or lay-down yards. Potential archaeological impacts could occur during construction of the LRT Build Alternative at the following locations:

- At the intersection of Alameda and 1st Streets, earthmoving could potentially remove or destroy archaeological remains below the roadbed and parking lot at the northeast corner of 1st/Alameda.
- The industrial area of the Flats, from Union Station to the foot of the Boyle Heights bluffs near the Los Angeles River.
- The beginning of the LRT alignment and the station platform at Union Station are on historic Chinatown, archaeological site CA-LAN-1575H.
- The alignment along Alameda Street will abut archaeological site CA-LAN-887H, historical site La Placita. Although the site is recorded only on the west side of Alameda, other remains have since been discovered on the east side of the street.
- Cut and cover activities between Gless and Pecan Streets as well as construction of the 1st/Utah Station could remove or destroy buried rails and other cultural remains.



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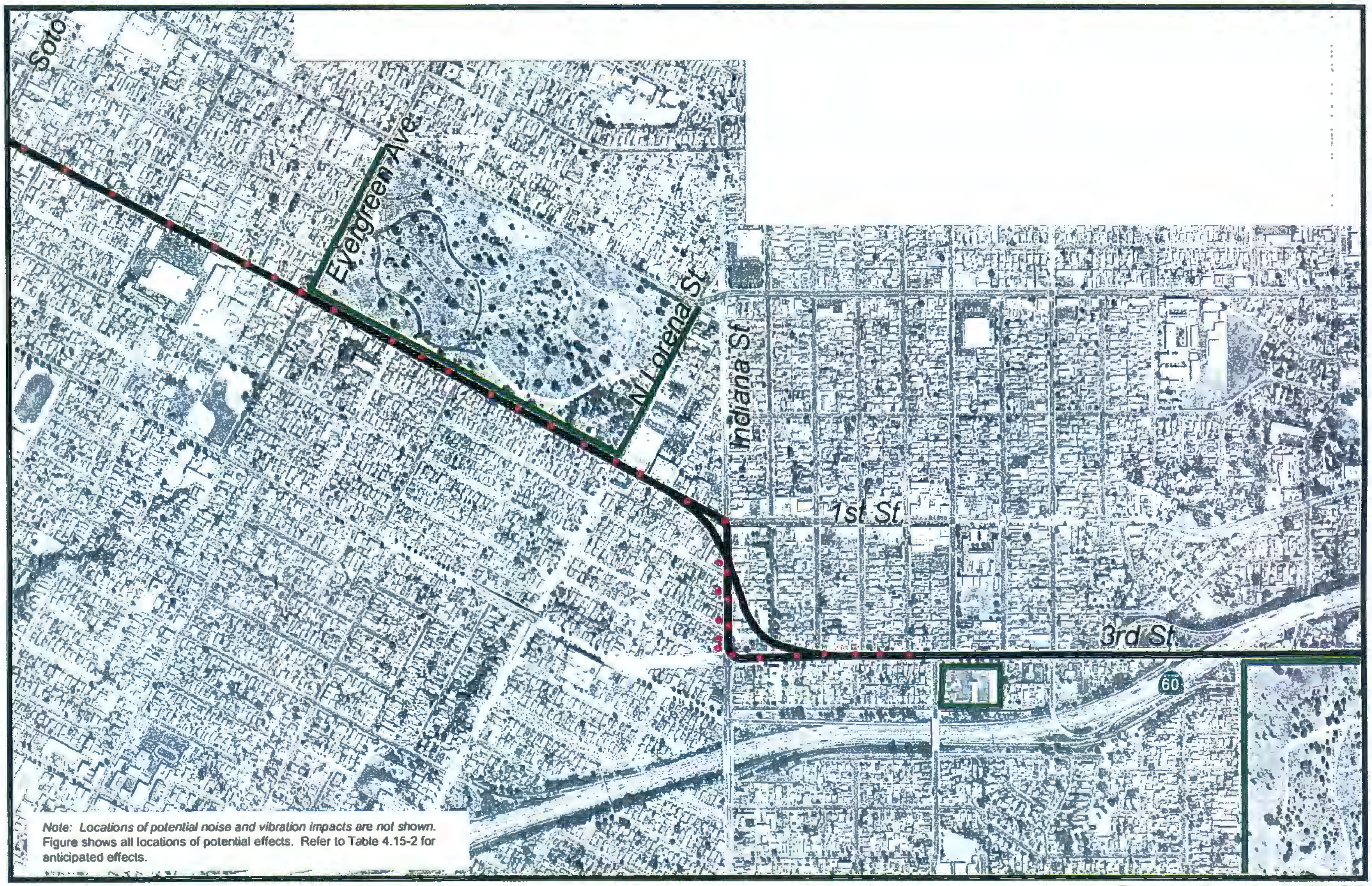
Summary of Potential Cultural Resource Impacts

Figure 4.15-4



Legend

0 0.09 0.18 0.27 0.36 Miles

- LRT Alignment
- Ground Disturbance
- Setting
- Visual
- Settlement
- Demolition

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Summary of Potential Cultural Resource Impacts

Figure 4.15-5

Legend

0 0.09 0.18 0.27 0.36 Miles

LRT Alignment
Ground Disturbance
Setting
Visual
Settlement
Demolition

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Summary of Potential Cultural Resource Impacts

Figure 4.15-6

- Construction activities for the 1st/Boyle Station here have the potential to encounter buried remains.
- Construction near 1st/Soto Station could potentially reveal buried remains since this area has historically been a major neighborhood shopping location throughout the 20th century.

The tunnel itself will be at a sufficient depth that it will not directly impact cultural resources. However, any excavation near the surface and settlement has the potential to affect buried remains and/or standing structures. Further connections of the tunnel to the surface, such as air shafts or emergency exits, and new or relocated utilities will require close attention. The potential impacts with all three options in the vicinity of Ramona High School are expected to be similar.

TABLE 4.15-2
SUMMARY OF IMPACTS ON CULTURAL RESOURCES

Location/Activity	Resource[1]	Type of Impact	Type of Effect
Summary of Potential Archaeological Impacts			
Known Archaeological Sites			
Aerial Structure	Archaeological Site, CA-LAN-1575H (Determined Eligible)	Ground Disturbance	Unknown
Alameda/101 Fwy	Archaeological Site CA-LAN-887H	Ground Disturbance	Unknown
1st/Alameda, including the Station	Possible Prehistoric/Historical Remains (stone curbing and historic rail track)	Ground Disturbance	Unknown
Areas of High Archaeological Sensitivity			
1st Street at Alameda to Rowan	Historic Transportation	Ground Disturbance	Unknown
1st Street/Utah Station	Historic Transportation	Ground Disturbance	Unknown
Cut and cover between Gless and Pecan Streets	Historic Transportation	Ground Disturbance	Unknown
1st/Boyle, MTA property, southwest corner	Historical Resources	Ground Disturbance	Unknown
1st/Boyle, MTA property, northeast corner	Historical Resources	Ground Disturbance	Unknown
1st/Bailey Street, MTA property on northwest corner	Historical Resources	Ground Disturbance	Unknown
Bailey/Pennsylvania, MTA property on southeast corner	Historical Resources	Ground Disturbance	Unknown
1st/Soto, property acquisition on southwest corner	Historical Resources	Ground Disturbance	Unknown
1st/Soto, property acquisition on northeast corner	Historical Resources	Ground Disturbance	Unknown
Tunnel/Surface Connections	Historical Resources	Ground Disturbance	Unknown
Summary of Potential Architectural/Historic Property Impacts			
Union Station	Historic Structure (NR)	Visual	No Effect
1st Street Viaduct	Historic Bridge (Determined Eligible to the NR)	Visual	No Effect
Mariachi Plaza	Historic Property PE	Alter Setting	Adverse
Tunnel Alignment between Boyle and Lorena	Historic Structures (60 residences/commercial) PE	Settlement	No Effect

TABLE 4.15-2 SUMMARY OF IMPACTS ON CULTURAL RESOURCES			
Location/Activity	**Resource[1]**	**Type of Impact**	**Type of Effect**
LRT at grade alignment; LRT Tunnel Segment; Extended Subway Option	Unknown number of structures	Noise and Vibration During Construction	No Effect
LRT at grade alignment	17 Structures (1 industrial, 3 commercial, 1 church, and 12 residences	Noise During LRT Operation	No Effect
LRT Tunnel Segment	13 Structures (all residences)	Noise During LRT Operation	No Effect
LRT at grade alignment	5 Structures (3 commercial, 1 industrial, and 1 residence) and 1 stone curbing location	Vibration During LRT Operation	No Effect
Tunnel Segment	7 commercial and 28 residences	Vibration During LRT Operation	No Effect
Extended Subway Option	16 residences	Vibration During LRT Operation	No Effect
1st/Soto	Historic Structures (3 residences and 3 commercial) PE	Alteration of Historic Setting	Adverse
Evergreen Cemetery	Historic Property PE Historic-Cultural Monument, No. 496	Visual	No Effect
Our Lady of Lourdes Catholic Church	Historic Structure PE Church at 3772 3rd Street	Visual	No Effect
Serbian Cemetery	Historic Property PE Cemetery at 4355 3rd Street	Visual	No Effect
Murals	Cultural Property (various locations) PE	Visual	No Effect
Indiana Street Options (both archaeological and structures)			
Location/Activity	Resource	Type of Impact	Type of Effect
Option 1, remove parking[2]	Historic Structures/ Historical Resources PE	None	None
Option 2, property acquisition. Remove structures	Historic Structures/Historical Resources, 5 structures including 123 S. Indiana Street (DWP Station 23) PE	Demolition	Adverse
Option 3, tunnel [2]	Historical Resources	Ground Disturbance	Probably None

[1]PE=Potentially eligible to the NRHP.
[2]Options 1 and 3 have no adverse effect on the five historic structures.

Significance of Impacts

These impacts on archaeological resources are potentially significant.

Architectural/Historic Resources

The impacts of the LRT Build Alternative and its three options would be the same except as otherwise noted.

Property Acquisition Impacts on Architectural Resources

A standing commercial structure on 1st Street near Bailey Street, the Ranch Market, which was previously acquired by MTA for the suspended Red Line Extension project and would be demolished to construct the portal entrance and construction staging area for the 1st/Boyle Station, appears to have lost architectural integrity. However, it contributes to the historic setting of Mariachi Plaza. Similarly, the station footprint and areas proposed for a portal entrance, construction easement, and construction staging area at 1st/Soto will affect the historic setting of the six historic structures in the immediate area that are potentially eligible to the NRHP. This intersection, like 1st and Boyle Streets, has historically been a major neighborhood shopping precinct and the visual impact of the station should also be considered. The specific concern is that the removal of adjacent or nearby non-eligible structures would change the character of the "street edge" and constitute an alteration of their historic setting with changes in the streetscape.

Along Indiana Street, Option 2 would require widening the street, affecting five standing structures that appear to have architectural integrity and are potentially eligible for listing in the National Register of Historic Places. In this scenario, all five structures would be demolished and, if found significant, their loss could result in an adverse effect.

Street Level Trackwork and Overhead Catenary System

Rail lines and overhead trolley wires were a part of the historic streetscape along 1st Street as far east as Rowan Street. Removal of the rail lines and surviving elements of the overhead catenary system would destroy the integrity of these historical resources.

Settlement Impacts

Some of the standing structures, which appear to retain integrity, and are potentially eligible to the National Register, along 1st Street in the vicinity of the tunnel easement between Boyle and Lorena streets, could also be subject to settlement impacts. Commercial structures along 1st Street in the area between Boyle and Lorena, many of them appearing to have architectural integrity, are also set close to the tunnel easement. They could be susceptible to damage from settlement impacts during and after construction, a potentially significant impact.

Visual Impacts

Visual resources include important views, places where visual quality is important to the use of the property, and recognized historical resources. The LRT line would pass the following historic resources:

- Union Station
- 1st Viaduct
- Mariachi Plaza
- Evergreen Cemetery
- Our Lady of Lourdes Church
- Serbian Cemetery
- Murals

None of these resources is expected to have their visual setting compromised as a result of the LRT Build Alternative with the exception of Mariachi Plaza (refer to the discussion in Property Acquisition Impacts on Architectural Resources above and Section 4.6, *Visual and Aesthetics*).

Noise and Vibration Impacts on Cultural Resources

The results of the vibration and noise study, that was conducted for the operation of the LRT Build Alternative, does not indicate any adverse effects on cultural resources that would diminish the integrity of the property's significant historic features. Noise and vibration impacts from LRT construction would require mitigation to meet the Los Angeles CEQA Noise Thresholds and the MTA specified limits. In addition, all construction activities within 200 feet of a historic building or cultural resource structure will have to meet the vibration limits and monitoring requirements presented in Section 4.8, *Noise and Vibration.*

Significance of Impacts

Many of the impacts on historic and architectural resources are potentially significant.

Paleontological Resources

Potentially significant impacts on paleontologic resources could result from construction of the LRT Build Alternative in those parts of the study area where earth-moving activities would be conducted in previously undisturbed strata. These activities would occur primarily in the tunnel segment between Clarence Street and Lorena Street under Options 1 and 2, and between Clarence Street and 3rd Street/Hicks Avenue under Option 3. They would also occur in the aerial segment in the area of Highway 101 adjacent to Union Station.

Impacts include a moderate to high potential for the loss of paleontologic resources, including fossil remains, associated specimen data and corresponding geologic and geographic site data, and previously unrecorded fossil sites, in areas underlain by older alluvium and, at depth, by younger alluvium. Unauthorized fossil collecting by construction workers also might result in the loss of additional fossil remains and associated data. Under Option 3, more fossil-bearing strata will be encountered by extending the subway an additional 0.6 miles.

No potentially significant impact on paleontologic resources are expected in the at-grade segments of the study area unless earth-moving activities occur in previously undisturbed strata in the older alluvium and, at depths greater than five feet below grade in the younger alluvium. This depth often is one at which remains old enough to be considered fossilized are first encountered in areas underlain by younger alluvium.

Significance of Impacts

Many of the construction-related impacts on paleontological resources are potentially significant.

4.15.4 Mitigation

MTA is in the Section 106 process that will lead to the formulation of a Memorandum of Agreement regarding any effects on archaeological or historic resources that are determined to be adverse. The MOA will specify mitigation measures and otherwise resolve impacts.

4.15.4.1 Archaeological

In the event that archaeological and buried historic sites are encountered, work would be halted in the immediate vicinity and site evaluation would take place. Evaluation of the site is often accomplished through test level excavation designed to determine the horizontal and vertical extent of the site, and to characterize the content of the site. If the site is determined to be potentially eligible for listing on the National Register, and project plans cannot be altered to avoid impacting the site, then an adverse effect would result pursuant to 36 CFR 800.5 (d) (2). In this scenario, it would be necessary to implement a MOA with the State Historic Preservation Officer and the U.S. Department of the Interior to resolve the adverse effect. The MOA shall include a provision for monitoring, a mechanism for reporting its implementation, and provisions for annual report and review. More detail about other elements of the MOA is presented in the *Cultural Resources Technical Report*.

Under CEQA, significant archaeological sites can be mitigated to a level of less than significant impact through the preparation and implementation of a data recovery plan.

Significance of Impacts Remaining after Mitigation

With proper mitigation, impacts on archaeological resources would be less than significant.

4.15.4.2 Architectural/Historic

Ground Surface Settlement Resulting from Tunneling

To limit surface settlement to acceptable levels, pressure-face Tunnel Boring Machines (TBMs), and pre-cast, bolted, gasketed lining systems were proposed for the suspended Metro Red Line project. The pressure-face TBM technology maintains positive fluid or soil pressure on the tunnel face, which decreases the potential for soil movement and surface settlement. Where conditions warrant, for example, shallow tunnels directly below sensitive structures or utilities, additional methods to reduce settlement would be specified. Such methods could include permeation grouting to improve the ground prior to tunneling; compaction grouting as the tunnel is excavated; or underpinning the structure's foundation. More detailed information regarding mitigation of potential settlement impacts is presented in Section 4.19.2, *Potential Construction Period Impacts and Mitigation*.

During construction, instrumentation, e.g., ground surface, and building monitoring programs, will be in place to measure movements and provide information to the contractor on tunneling performance as well as to document that the settlement specifications are met. If measurements indicate settlement limits will be exceeded, the contractor will be required to change or add methods and/or procedures to comply with those limits. Application of these measures will result in a less than significant effect under CEQA.

Visual

The placement of the catenary system on the historic 1st Street Viaduct (bridge over the Los Angeles River) would not result in a visual impact if the catenary supports were designed to mimic the historic street lamp supports located on the outer edge of the bridge. Second, because the 1st Street Viaduct was once used for an earlier street rail system, references to this predecessor of the LRT Build Alternative can be made in the style of the catenary supports. Either of these methods would reduce the visual impacts on the bridge to a less than significant degree.

Noise and Vibration

For potential construction-related impacts, the contractor will be responsible for the protection of vibration sensitive historic buildings or cultural resource structures that are within 200 feet of any construction activity. The maximum peak particle vibration (PPV) velocity level, in any direction, at any of these structures should not exceed 0.12 inches/second for any length of time as recommended by FTA guidance for extremely fragile historic buildings. The contractor will be required to perform periodic vibration monitoring at the closest structure to any construction activities using approved seismographs. If at any time the construction activity exceeds this level, that activity will immediately be halted until such time as an alternative construction method can be used that would result in lower vibration levels. Application of these measures will result in a less than significant effect under CEQA.

As stated in Section 4.8.2.2 of the *Noise and Vibration* discussion, ground-borne vibration for any type of train operation would rarely be high enough to cause building damage, even minor cosmetic damage. However, the only real concern is that the vibration may be intrusive to building occupants. A total of 56 potentially eligible structures would be affected by vibration during LRT operation (45 residences, 10 commercial buildings, and 1 industrial building). For more information related to possible mitigation strategies if occupants of historic resources were affected by train operation, refer to Section 4.8, *Noise and Vibration.*

Architectural Documentation for Changes in Historic Setting

Alteration of the setting at Mariachi Plaza is expected to be an adverse effect. One possible mitigation measure would be to recreate a façade that duplicates the mass and visual characteristics of an historic building. This would restore the overall sense of space that characterizes the plaza and gives it its focus. This measure will reduce impacts to a level that is less than significant and under Section 106 to a no adverse effect. Similarly, six historic resources near 1st/Soto may be affected by alteration of their historic setting via changes in the streetscape. MTA has stipulated that it assumes that the resources are eligible to the National Register and would enter into a MOA to resolve adverse effects once it is determined that the resources are eligible. For those resources affected by alteration of their streetscape setting, MTA has agreed to replace the street edge by temporary relocation and replacement of the original buildings, or construction of new buildings or facades that would retain the historic street edge and result in a finding of no adverse effect.

In addition, MTA would conduct a comprehensive documentation of the affected structures as they currently exist. The documentation would be performed prior to the commencement of any alteration, grading, and/or change in setting for buildings determined eligible for listing in the NRHP. The documentation would be consistent with Historic American Buildings Survey (HABS) standards and involve consultation with the State Historic Preservation Officer and National Park Service. The HABS process is generally applied to specific buildings, but may also apply to streetscapes.

The same mitigation strategies would apply to the southwest corner of 1st/Soto, which is proposed for a subway station entrance and construction staging area. The 1st/Soto Station would require removal of existing structures, altering the historic setting for three nearby commercial structures, which would be otherwise unaffected by the project. Similarly, property acquisition to construct a vent shaft on the northeast corner would affect the historic setting for three adjacent residences. The specific concern is that the removal of adjacent or nearby non-eligible structures would change the character of the "street edge" and constitute an alteration of their historic setting via changes in the streetscape.

An alternative to acquiring the northeast corner is to seek a variance from the Los Angeles Department of Transportation to allow the vent shaft to be placed in the sidewalk on the southwest corner. For the southwest corner, one alternative would be to purchase only the Guadalajara Auto Sales property for the subway station portal and provide either a smaller construction staging area at this location or an alternative site for construction staging. The Guadalajara Auto Sales currently is a void in the streetscape and a change in its use would not constitute an alteration of the historic setting on adjacent or nearby eligible properties.

Significance of Impacts Remaining after Mitigation

With proper mitigation, all potential impacts to historic properties would be reduced to an insignificant level.

4.15.4.3 Paleontological Resources

The following mitigation measures will reduce the potentially significant (including cumulative) construction impacts on the paleontologic resources to an insignificant level by allowing for the recovery of fossil remains and associated data that might be uncovered by earth-moving activities in the tunnel and aerial segments. These measures will ensure project compliance with mitigation measures stipulated in the MTA Specifications Section 01170 and with Society of Vertebrate Paleontology (SVP, 1995, 1996) standard measures for mitigating construction-related impacts on paleontologic resources and for the museum repository acceptance of a mitigation program fossil collection.

- Prior to any earth-moving activity in the study area, the MTA will retain the services of a vertebrate paleontologist approved by the Natural History Museum of Los Angeles County Vertebrate Paleontology Section (LACMVP) to manage a paleontologic resource impact mitigation program in support of earth-moving activities associated with construction of the Eastside Corridor.
- The paleontologist will develop a storage agreement with the LACMVP regarding permanent storage and maintenance of any vertebrate fossil remains recovered as a result of the mitigation program.
- The paleontologist or his/her designated representative will present an environmental awareness training session to construction workers regarding the appropriate procedures to be implemented if fossil remains are uncovered by earth-moving activities, particularly tunneling and/or when mitigation program personnel are not on site.
- A paleontologic construction monitor will monitor earth-moving activities in areas underlain by older alluvium and those extending beyond five feet in younger alluvium. Monitoring will include the inspection of strata freshly exposed by these activities and will allow for the recovery of larger fossil remains uncovered by the activities. Although tunneling will not be monitored because of the confined working space and safety concerns, tunneling debris will be inspected for larger fossil remains if an earth pressure balance TBM is used. In areas underlain by younger alluvium, monitoring will not begin until earth-moving activities have reached a depth five feet below grade.
- The monitor will recover fossil remains uncovered by earth-moving activities.
- The monitor or a paleontologic technician will recover and process rock samples to allow for the recovery of smaller fossil remains. The total weight of all samples recovered from each rock unit and subsequently processed will not exceed 6,000 pounds (12,000 pounds combined total for older and younger alluvium).
- The monitor will have the authority to temporarily divert any earth-moving activity around a newly discovered fossil site or a sampling site until the fossil remains or a rock sample have been recovered and the earth-moving activity has been allowed to proceed through the site by the monitor.
- The monitor will record associated specimen/sample data (taxon, element) and corresponding geologic (stratigraphic rock unit, stratigraphic level, lithology) and geographic site data (location, depth), and will plot site locations on maps of the study area.
- All identifiable fossil remains will be fully treated. Treatment will include preparation of the remains by a paleontologic technician to the point of identification; identification to the lowest taxonomic level possible by knowledgeable paleontologists; curating and cataloguing the remains, plotting fossil site locations on maps of the study area, and entry of associated specimen data and corresponding geologic and geographic site data into appropriate computerized data bases by the technician; and placement of the remains in the appropriate museum repository fossil collection for permanent storage and maintenance. Any vertebrate and invertebrate fossil remains will be placed in the LACMVP and LACM Invertebrate Paleontology Section (IP), respectively. Fossil plant remains will be placed in the University of California Museum of Paleontology (UCMP). Associated data will be archived at the appropriate museum repository, where the data, along with the fossil remains, will be made available for future study by qualified scientific investigators.

- The paleontologist will prepare a comprehensive final report of results and findings that describes study area geology/stratigraphy, summarizes field and laboratory methods used, includes a faunal list and an inventory of curated/catalogued fossil remains, evaluates the scientific importance of the remains, and discusses the relationship of any newly recorded fossil site in the study area to relevant fossil sites previously recorded from other areas.

Significance of Impacts Remaining After Mitigation

With these mitigation measures, earth-moving activities associated with construction of the LRT Build Alternative could result in beneficial effects, including the recovery of scientifically highly important fossil remains that would not even have been exposed without the project and, therefore, would not have been available for future study. However, significant impacts on the paleontologic resources of the study area could remain after mitigation. If implemented, drilling using the slurry displacement method for cast-in-place caissons or the impact driving of piles for the aerial guideway column foundations in the aerial segment, and the use of a slurry TBM in the tunnel segment will destroy any fossil remains and associated data.

4.16 COMMUNITY FACILITIES/PARKLANDS

4.16.1 Affected Environment

A variety of parks and community type facilities exist in or near the proposed LRT alignment in the study area. Community facilities and parklands within one-half mile distance north and south of the LRT alignment are identified in this section. The types of facilities noted include neighborhood and community parks, cemeteries, schools, hospitals, public facilities, such as libraries, fire and police stations, and other community facilities such as churches, youth centers, and museums. The facilities and their locations are identified in Tables 4.16-1 through 4.16-5 and displayed in Figures 4.16-1 and 4.16-2.

4.16.1.1 Parks and Recreation Facilities

A total of eleven parks and recreation facilities are in the study area; one is designated as a State Historic Park. The El Pueblo de Los Angeles State Historic Park is located in the City of Los Angeles along Alameda Street, just north of the Hollywood Freeway.

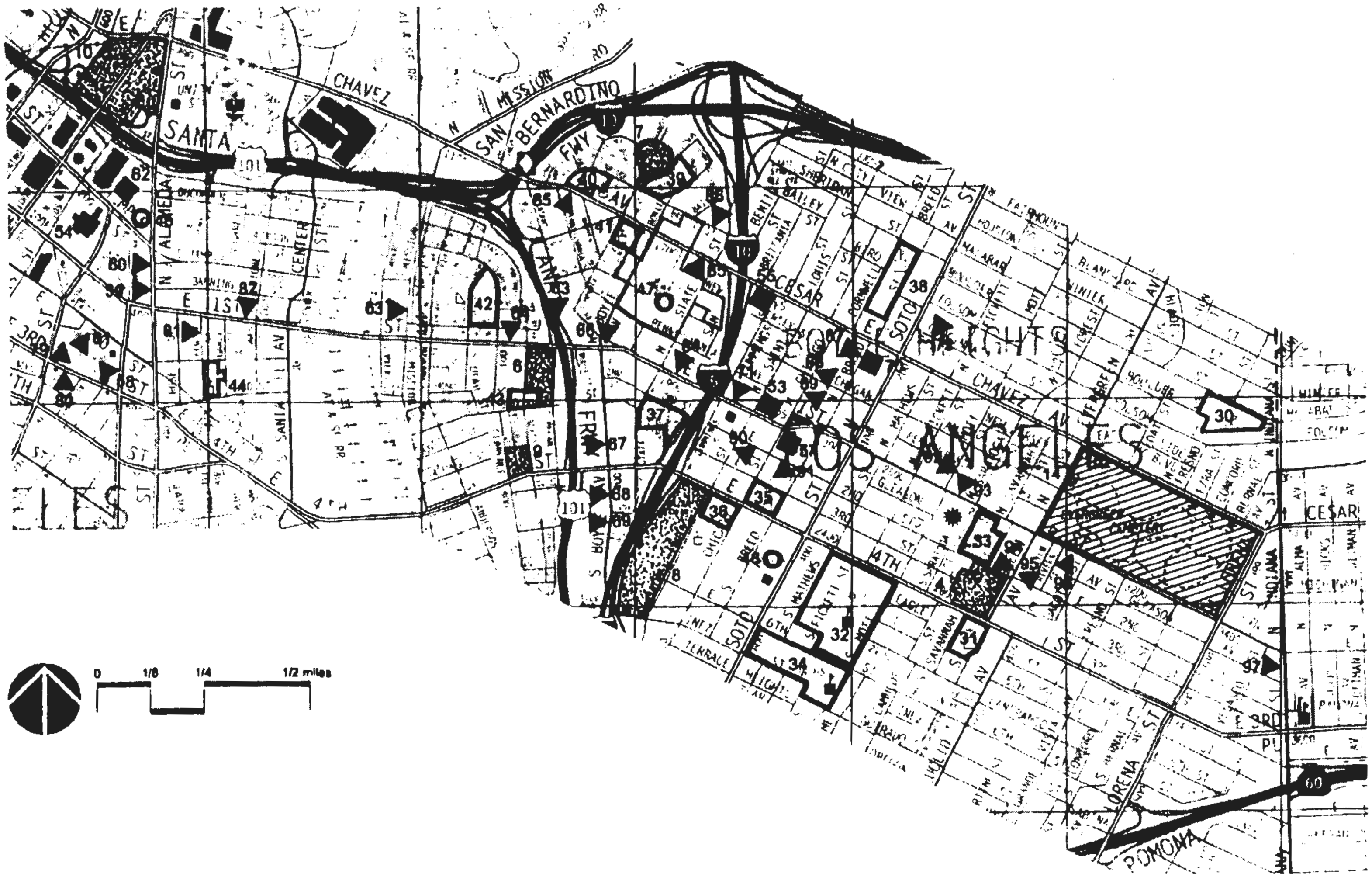
With the exception of Mariachi Plaza and LANI Park, all parks and recreation facilities located in the City of Los Angeles are under the jurisdiction of the City's Department of Recreation and Parks. Mariachi Plaza is owned by MTA; however, the City's Department of Recreation and Parks, assisted by the Boyle Heights Chamber of Commerce, maintains the facility. LANI Park, a traffic island that has been beautified and converted into open space as part of the Los Angeles Neighborhood Initiative (LANI), is under the jurisdiction of the Department of Public Works. Parks located in the unincorporated communities of East Los Angeles are under the jurisdiction of the County of Los Angeles Department of Parks and Recreation.

Three of the eight parks and recreation facilities in the study area are located within the City of Los Angeles immediately adjacent to the LRT alignment along 1st Street. These include Pecan Park, Mariachi Plaza, and LANI Park. One of the three parks in the community of East Los Angeles, Belvedere Park, is located adjacent to the alignment along 3rd Street. This park, which extends to the north side of the Pomona Freeway, is part of the East Los Angeles Civic Center.

**TABLE 4.16-1
PARKS AND RECREATION FACILITIES
WITHIN 0.5 MILE OF LRT ALIGNMENT**

No.[1]	Facility	Location	City/Community
1	Belvedere Park	3rd Street & La Verne Avenue	East Los Angeles
2	Atlantic Park	Atlantic Boulevard & 6th Street	East Los Angeles
3	Obregon Park	1st Street & Sunol Avenue	East Los Angeles
4	Evergreen Park	4th Street & Evergreen Avenue	Boyle Heights
5	LANI Park	1st Street & Chicago Street	Boyle Heights
6	Pecan Park	1st Street & Pecan Street	Boyle Heights
7	Prospect Park	Bridge Street & Enchandia Street	Boyle Heights
8	Hollenbeck Park	4th Street & Saint Louis Street	Boyle Heights
9	Aliso Pico Rec. Center	4th Street & Clarence Street	Boyle Heights
10	El Pueblo De Los Angeles State Historic Park	Alameda Street & Cesar Chavez Avenue	Central City
66	Mariachi Plaza	1st Street & Boyle Avenue	Boyle Heights

[1]No. corresponds to numbers shown in Figures 4.16-1and 4.16-2.



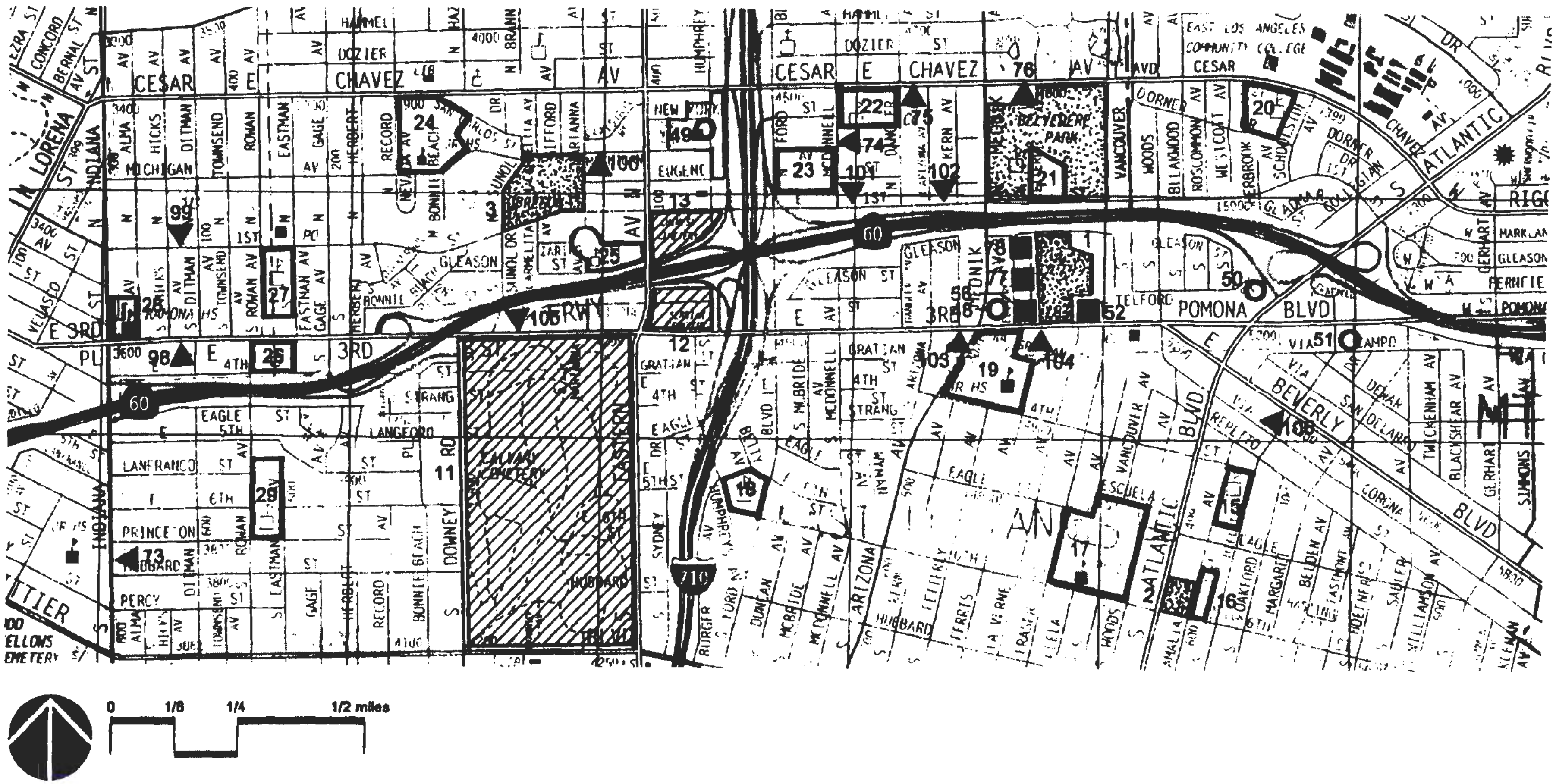
Source: Thomas Brothers, 2000; Barrio Planners, 2000).

Los Angeles Eastside Corridor SEIS/SEIR

Eastside Corridor Transit Consultants

Community Facilities/Parklands Central City, Central City North, Boyle Heights

Figure 4.16-1



Source: Thomas Brothers, 2000; Barrio Planners, 2000).

Los Angeles Eastside Corridor SEIS/SEIR

Community Facilities/Parklands East Los Angeles

Figure 4.16-2

Eastside Corridor Transit Consultants

4.16.1.2 Cemeteries

There are four cemeteries (Table 4.16-2) in the study area. Calvary Cemetery and Serbian Cemetery in the East Los Angeles Community and Evergreen Cemetery in Boyle Heights are located immediately adjacent to the proposed alignment.

TABLE 4.16-2
CEMETERIES
WITHIN 0.5 MILE OF LRT ALIGNMENT

No.[1]	Facility	Location	City/Community
11	Calvary Cemetery	3rd Street & Eastern Avenue	East Los Angeles
12	Serbian Cemetery	3rd Street & Eastern Avenue	East Los Angeles
13	Chinese Cemetery	1st Street & Eastern Avenue	East Los Angeles
14	Evergreen Cemetery	1st Street & Evergreen Avenue	Boyle Heights

[1]No. corresponds to numbers shown in Figures 4.16-1 and 4.16-2.

4.16.1.3 Schools

A total of thirty schools (Table 4.16-3) including public elementary, intermediate, and high schools, and several parochial schools are located in the study area. The Los Angeles Unified School District has jurisdiction over public schools located in communities within the City of Los Angeles and the unincorporated community of East Los Angeles. In the East Los Angeles community, Griffith Intermediate School, Ramona High School, Belvedere School, and Our Lady of Lourdes Church and School are all located adjacent to or near the LRT alignment. Option 3 (Extended Subway) would place the LRT alignment underground between Lorena and Hicks, thus passing under Ramona High School. In Boyle Heights, Utah School is in close proximity of the alignment, and First Street School is adjacent to the subway segment of the project.

4.16.1.4 Hospitals/Clinics

There are three hospitals and four clinics (Table 4.16-4) located within a 0.5-mile distance of the proposed LRT alignment. White Memorial Medical Center, with approximately 310 beds, is located within 400 feet of the proposed 1st Street alignment and the 1st/Boyle Station in the Boyle Heights community. The Roybal Comprehensive Health Center is located adjacent to the 3rd Street alignment and proposed 3rd Street/Mednik Station in the East Los Angeles community. The Veterans Clinic is located in the Central City at Temple and Alameda Streets, next to the Alameda Street alignment.

4.16.1.5 Law Enforcement

The Los Angeles Police Department provides law enforcement services in the City of Los Angeles. Two facilities (Table 4.16-5) are in the study area, including Parker Center Headquarters in the Central City and the Hollenbeck Police Station, which is located on 1st Street in Boyle Heights. The Los Angeles County Sheriff's Department, which provides law enforcement services in the East Los Angeles community; is located along the 3rd Street portion of the alignment.

TABLE 4.16-3
SCHOOLS
WITHIN 0.5 MILE OF LRT ALIGNMENT

No.[1]	Facility	Location	City/Community
15	Fourth Street School	4th Street & Amalia Avenue	East Los Angeles
16	Saint Alphonsus School	6th Street & Amalia Avenue	East Los Angeles
17	Garfield High School	6th Street & Woods Avenue	East Los Angeles
18	Humphreys Avenue School	6th Street & Humphreys Avenue	East Los Angeles
19	Griffith Junior High School	3rd Street & Arizona Avenue	East Los Angeles
20	Lane School	Cesar E. Chavez Avenue & Westcott Avenue	Monterey Park
21	Morris Hamasaki School	1st Street & Mednik Aenue	East Los Angeles
22	Brooklyn Avenue School	Cesar E. Chavez Avenue & McDonnel Avenue	East Los Angeles
23	A. Perez Special Ed. Center	1st Street & Ford Blvd.	East Los Angeles
24	Belvedere Intermediate School	Cesar E. Chavez Avenue & Record Avenue	East Los Angeles
25	Marianna Avenue School	Gleason Avenue & Marianna Avenue	East Los Angeles
26	Our Lady of Lourdes School	3rd Street & Rowan Avenue	East Los Angeles
27	Belvedere School	1st Street & Rowan Avenue	East Los Angeles
28	Ramona High School	3rd & Indiana Streets	East Los Angeles
29	Rowan Avenue School	6th Street & Rowan Avenue	East Los Angeles
30	Malabar Street School	Malabar Street & Fresno Street	Boyle Heights
31	Our Lady of Talpa School	4th Street & Evergreen Avenue	Boyle Heights
32	Roosevelt High School	4th & Mott Streets	Boyle Heights
33	First Street School	1st & Savannah Streets	Boyle Heights
34	Hollenbeck Intermediate School	6th & Soto Streets	Boyle Heights
35	Breed Street School	4th & Breed Streets	Boyle Heights
36	St. Mary's School	4th & Chicago Streets	Boyle Heights
37	Second Street School	2nd & State Streets	Boyle Heights
38	Sheridan Street School	Sheridan & Breed Streets	Boyle Heights
39	Bridge Street School	Bridge & Enchandia Streets	Boyle Heights
40	San Antonio De Padua School	Cesar E. Chavez Avenue & Bridge Street	Boyle Heights
41	Seventh Day Adventist School	Cesar E. Chavez Avenue & Enchandia Street	Boyle Heights
42	Utah Street School	Clarence Street & Via Las Vegas	Boyle Heights
43	Dolores Mission School	3rd Street & Gless Street	Boyle Heights
44	Maryknoll School	Hewitt & 2nd Streets	Central City North

[1]No. corresponds to numbers shown in Figures 4.16-1 and 4.16-2.

TABLE 4.16-4
HOSPITALS/CLINICS
WITHIN 0.5 MILE OF LRT ALIGNMENT

No.[1]	Facility	Location	City/Community
45	Veterans Clinic	Alameda & Temple Streets	Central City
46	Lincoln Hospital	Soto Street (South of 4th Street)	Boyle Heights
47	White Memorial Medical Center	Cesar E. Chavez & Boyle Avenues	Boyle Heights
48	Roybal Health Center	3rd Street & Fetterly Avenue	East Los Angeles
49	Santa Marta Hospital	New York Street & Humphreys Avenue	East Los Angeles
50	Kaiser Clinic	5220 E. Teleford Street	East Los Angeles
51	Alta Med Health Services	5425 E. Pomona Avenue	East Los Angeles

[1]No. corresponds to numbers shown in Figures 4.16-1 and 4.16-2.

TABLE 4.16-5
COMMUNITY FACILITIES
WITHIN 0.5 MILE OF LRT ALIGNMENT

No.[1]	Facility	Location	City/Community
	Law Enforcement		
52	ELA Sheriffs Station	3rd Street & La Verene Avenue	East Los Angeles
53	Hollenbeck Police Station	1st Street & St. Louis Street	Boyle Heights
54	Parker Center	1st Street & Los Angeles Street	Central City
	Fire Protection		
55	Fire Station #2	Cesar Chavez Avenue & Britania Street	Boyle Heights
	Libraries		
56	ELA Library	3rd Street & Fetterly Avenue	East Los Angeles
57	Benjamin Franklin Library	1st Street & Chicago Street	Boyle Heights
58	Little Tokyo Library	1st Street & Crocker Avenue	Little Tokyo
	Places of Worship		
79	Union Church	4th & San Pedro Streets	Little Tokyo
80	Jodoshin Temple	Boyd Street & Omar Street	Little Tokyo
81	Zenshuji Soto Mission	Hewitt Street (South of 1st Street0	Central City-North
82	Hompa Hongwanji Buddhist Temple	1st & Vignes Streets	Central City North
83	Our Lady of Queen of Martyrs	1339 Pleasant Avenue	Boyle Heights
84	Pentecostal Church	1917 E. 1st Street	Boyle Heights
85	Seventh Day Adventist	Cesar Chavez Avenue & State Street	Boyle Heights
86	Spanish Seventh Day Adventist	1815 Bridge Street	Boyle Heights
87	Talmud Torah Temple	247 N. Breed Street	Boyle Heights
88	Tenrikyo So. Pacific Church	219 N. Chicago Street	Boyle Heights
89	Iglesia Bautista Unida	2923 E. 2nd Street	Boyle Heights
90	Calvary Baptist Church	206 S. St. Louis Street	Boyle Heights
91	Church of the Nazarene	213 S. Breed Street	Boyle Heights
92	Rissho Kosei-Kai Buddhist Church	118 N. Mott Street	Boyle Heights
93	Konko Church	2924 E. 1st Street	Boyle Heights
94	Evergreen Baptist Church	2923 E. 2nd Street	Boyle Heights
95	Free Methodist Church	3012 E. 2nd Street	Boyle Heights
96	Mt. Carmel Baptist Church	3064 E. 1st Street	Boyle Heights
97	Iglesia Evangelica	3501 Gleason Avenue	Boyle Heights
98	Paraiso Spanish Congregation	3684 E. 3rd Street	East Los Angeles
99	La Trinidad Methodist Church	3565 E. 1st Street	East Los Angeles
100	Baptist Church	Michigan & Marianna Avenues	East Los Angeles
101	Pius X Church	1st Street & McDonnel Avenue	East Los Angeles
102	La Luz Del Mundo	1st Street & Arizona Avenue	East Los Angeles
103	Sala Evangelica	3rd Street & Arizona Avenue	East Los Angeles
104	Iglesia El Siloe	3rd Street & Arizona Avenue	East Los Angeles
105	Guadalupe Church	3rd Street (East of Fetterly Avenue)	East Los Angeles
106	Iglesia Cristiana Ejercito de Salvacion	Beverly Blvd. & Hillview Avenue	East Los Angeles
	Other Community Facilities		
59	Japanese American National Museum	1st & Alameda Street	Little Tokyo
60	Geffen Contemporary Museum	Alameda Street (North of 1st Street)	Little Tokyo
61	Japanese American Cultural Center	San Pedro & Azuza Streets	Little Tokyo
62	Roybal Center & Federal Building	Temple & Los Angeles Streets	Central City
63	St. Elizabeth Day Nursery	Mission Road (North of 1st Street)	Boyle Heights
64	Aliso Pico Multipurpose Center	1st & Clarence Streets	Boyle Heights
65	CYO Brown Stone House Teen Club	Cesar Chavez & Pennsylvannia Avenues	Boyle Heights
66	(refer to Table 4.16-1)		

**TABLE 4.16-5 (Continued)
COMMUNITY FACILITIES
WITHIN 0.5 MILE OF LRT ALIGNMENT**

No.[1]	Facility	Location	City/Community
67	Japanese Retirement Home	325 S. Boyle Avenue	Boyle Heights
68	International Institute	435 S. Boyle Avenue	Boyle Heights
69	PUENTE Learning Center	South Boyle Avenue	Boyle Heights
70	Social Security Office	240 N. Breed Street	Boyle Heights
71	Hollenbeck Youth Center	1st Street (West of St. Louis Street)	Boyle Heights
72	Variety Boys & Girls Club	Cincinnati Street (East of Soto Street)	Boyle Heights
73	Plaza Community Center	648 S. Indiana Street	East Los Angeles
74	Eastside Boys & Girls	N. McDonnel & Michigan Avenues	East Los Angeles
75	Maravilla Service Center	Cesar Chavez & N. Dangler Avenues	East Los Angeles
76	Centrode Ninos	Cesar Chavez Avenue (East of Mednik Avenue)	East Los Angeles
77	ELA Municpal Courts	Fetterly Avenue (North of 3rd Street)	East Los Angeles
78	Probation Department	Fetterly Avenue (North of 3rd Street)	East Los Angeles

[1]No. corresponds to numbers shown in Figures 4.16-1 and 4.16-2.

4.16.1.6 Fire Protection

There is only one fire station located in the study area. Fire Station 2, in Boyle Heights, is located at Cesar Chavez Avenue and Britannia Street. In the East Los Angeles community, all existing fire stations are located beyond the half-mile distance.

4.16.1.7 Libraries

Of the three libraries located within one-half mile of the alignment, two are adjacent to the alignment. The East Los Angeles Library is on 3rd Street and Fetterly Avenue, and the Benjamin Franklin Library in Boyle Heights is located on 1st Street at Chicago.

4.16.1.8 Places of Worship

Of the twenty-eight places of worship identified in the study area, those that are located adjacent to the proposed alignment include the Hompa Hongwanji Buddhist Temple in Central City North; Pentacostal Church, Konko Church, and Mt. Carmel Baptist Church on 1st Street in Boyle Heights; and Pariaso Spanish Congregation, Sala Evangelica, Iglesia Cristina Ejercito de Salvacion, Iglesia El Siloe, and Guadalupe Church on 3rd Street in East Los Angeles.

4.16.1.9 Other Community Facilities

Also within one-half mile of the alignment are twenty other types of community facilities. These facilities range from child care centers to museums. Four of these facilities are located immediately adjacent to the proposed alignment including the Japanese American National Museum and Geffen Contemporary Museum both located near 1st and Alameda Streets, and the Aliso Pico Multipurpose Center and Hollenbeck Youth Center located on 1st Street in Boyle Heights.

4.16.2 Methodology For Impact Evaluation

Significant impacts on community services and facilities would result if construction or operation of the LRT Build Alternative displaced or altered a community facility, restricted access to that facility, or hindered the operation or services offered at the facility. Similarly, parks and recreational facilities would be significantly affected if they were altered or displaced or if their use or function were diminished. Parklands as well as cultural and recreational facilities are subject to guidelines established by Section 4(f) of the U.S. Department of Transportation Act (USC 1653 (f)). Use of parkland or recreational property for the implementation of the LRT Build Alternative would be a significant impact, requiring consultation with the U.S Department of Transportation, U.S. Department of the Interior, State Department of Parks and Recreation, and the Los Angeles City and County departments that have jurisdiction over parks and recreational facilities in the corridor. An assessment of the project pursuant to Section 4(f) appears in Section 4.17, *Section 4(f) Evaluation*.

In addition, community facilities, parklands, and recreational facilities may be significantly affected by the noise and vibration from construction activities or from operation of light rail vehicles. Community, parklands, and recreational facilities within one-half mile of the proposed LRT facilities, including the tunnel alignment, or construction staging areas were considered to determine whether light rail operation would produce significant noise and vibration impacts on these facilities. Construction activities could also produce temporary, but significant, air quality and traffic and transportation impacts at these facilities. The potential for significant construction impacts on these facilities increases as the distance between that facility and the light rail facility decreases. In addition to distance, a number of factors could affect the level of impact, including construction requirements for the tunnel and stations, structural characteristics of the community or recreational facility, and the schedule and level of activity at the facility. Recognizing the highly variable potential for significant impacts under CEQA, a conservative estimate of 350 feet from a light rail construction site or staging area was used to identify facilities that may be subject to some level of impacts.

4.16.3 Impacts

4.16.3.1 No-Build Alternative

The No-Build Alternative would not alter or displace community and recreational facilities or parklands in the corridor or hinder or disrupt activities at these facilities. However, the No-Build Alternative would not provide any beneficial effects, in terms of improved access to community and recreational facilities and services, to corridor residents.

4.16.3.2 LRT Build Alternative

Parks and Recreation Facilities

Increased access to park and recreational facilities would be a beneficial impact of the LRT Build Alternative. However, adverse impacts may also occur. At Mariachi Plaza, potential noise and vibration impacts from a vent shaft and emergency ventilation fans, located across the street from the Plaza, would be attenuated through design of these facilities. Noise and vibration due to LRT operation in the subway is not expected to affect the use of either Mariachi Plaza or LANI Park.

The LRT Build Alternative would eliminate curb parking at the portal location on 1st Street adjacent to Pecan Park. Since excess parking capacity exists along the streets surrounding the park, this would not be a significant impact (refer to Chapter 3). No long-term noise, vibration, or visual impacts are expected at Pecan or Belvedere Parks, but the historic setting of Mariachi Plaza would be affected by removing the Ranch Market located across the street from the Plaza, a significant impact without mitigation (refer to Section 4.15.4 for mitigation measures that would reduce this impact to an insignificant level).

Cemeteries

For Options 1 and 2, a subway portal would be located at 1st/Lorena bordering Evergreen Cemetery. Although curb parking would be eliminated adjacent to the portal location, it is not expected to affect access to the cemetery. None of the cemeteries would be adversely affected by the LRT Build Alternative.

Schools

Increased access to educational facilities would be a benefit of the LRT Build Alternative. Most schools are not located adjacent to the alignment and, therefore, would not be affected by LRT operation. The noise and vibration analysis conducted for the LRT Build Alternative indicated that there would be no impacts on any of the schools situated along the alignment (refer to Section 4.8, *Noise and Vibration*). In addition, the visual setting and the historic integrity of First Street School, Ramona High, and Our Lady of Lourdes School would not be affected by light rail. Traffic and pedestrian circulation at school sites would be maintained except for Option 1. In Option 1, curb parking would be displaced in the vicinity of Ramona High School.

For schools that are located near the alignment, the safety and security of the students crossing is a concern of the Los Angeles Unified School District. Mitigation measures that would reduce potential safety and security impacts at light rail stations and pedestrian crossings at near area schools are described in Section 4.14, *Safety and Security*.

Hospitals/Clinics

Increased access to corridor medical facilities would be a beneficial impact of the LRT Build Alternative. Potential vibration impacts are anticipated at the Veterans Clinic on Alameda Street. Although the ground-borne vibration impacts are well within 5 Vdb of the FTA threshold, any exceedance would be considered a significant impact under CEQA. More detailed study of the effects of local geology on ground-borne vibration will occur during Preliminary Engineering to confirm the results of the vibration analysis. If, after follow-on analysis, ground-borne vibration is found to exceed the FTA standard, mitigation measures, discussed in Section 4.8, *Noise and Vibration,* will be incorporated into the project design to reduce the vibration impacts to an insignificant level.

Libraries

The LRT Build Alternative would provide improved access to community libraries, a beneficial impact. The noise, vibration, and visual analysis have determined that light rail operation would not affect Ben Franklin Library, located along the subway alignment, and the East Los Angeles Library and the Little Tokyo Library, located near at-grade segments of the alignment (refer to Sections 4.6, *Visual and Aesthetics* and 4.8, *Noise and Vibration*).

Places of Worship

The LRT Build Alternative would provide improved access to places of worship, a beneficial impact. The technical analysis has determined that the visual setting and the historic nature of these structures would not be affected by LRT operation nor would parking and pedestrian circulation be affected near these places of worship (refer to Sections 4.6, *Visual and Aesthetics*; 4.8, *Noise and Vibration*; and Chapter 3, *Transportation*).

Other Community Facilities

The LRT Build Alternative would provide improved access to many other community facilities, a beneficial impact. None of the youth and child care centers, judicial facilities, senior centers, and other community facilities located within one-half mile of the LRT alignment would be adversely affected by light rail operation. Although curb parking would be removed in front of the Aliso Pico Multipurpose Center near the portal location on 1st/Gless, excess parking capacity exists on the surrounding streets the removal of curb parking at this location would not be a significant impact.

According to the noise and vibration technical analysis, ground-borne vibration impacts are predicted for the Geffen Museum and the Japanese American National Museum, which are located along Alameda Street, a potentially significant impact. Although the ground-borne vibration impacts are well within 5 Vdb of the FTA threshold, any exceedance would be considered a significant impact under CEQA. More detailed study of the effects of local geology on ground-borne vibration will occur during Preliminary Engineering to confirm the results of the vibration analysis. If, after follow-on analysis, ground-borne vibration is found to exceed the FTA standard, mitigation measures, described in Section 4.8, *Noise and Vibration,* will be incorporated into the project design to reduce the vibration impacts to an insignificant level.

Significance of Impacts

The LRT Build Alternative would produce beneficial impacts for the community by improving access to parklands and other community facilities. However, other impacts on parklands and community facilities, such as vibration, curb parking, and historic resource impacts, are potentially significant.

4.16.4 Mitigation

To mitigate the impacts related to schools, MTA will:

- Inform the Los Angeles Unified School District and private institutions along the light rail alignment of changes to MTA bus routes, school bus routes, and pedestrian crossings prior to construction;
- Work with LADOT, LAPD, and the County Sheriff to implement mutually agreed upon measures, such as posting of clearly marked signs, pavement markings, lighting as well as implementing rail safety instructional programs, to enhance the safety of pedestrians, particularly in the vicinity of schools, crossing the LRT alignment;
- Provide a crossing guard during arrival and dismissal times at Ramona High School, Griffith Middle School, Utah Elementary School, and Our Lady of Lourdes School if requested by the LAUSD or Our Lady of Lourdes School for as long as their presence is requested; and
- Purchase a parcel of land for surface off-street parking in order to relieve the high utilization of on-street parking demand on Indiana Street if Option 1 were selected. MTA is committed to providing the resources necessary to construct replacement parking.
- Allocate resources for the planning and implementation of safe routes to schools and transit stops.

Other mitigation measures that pertain to vibration, cultural resource, and safety and security impacts are presented in Sections 4.8, *Noise and Vibration*, 4.14, *Safety and Security*, and 4.15, *Historic/Archaeological/Paleontological Resources*.

4.16.4.1 Significance of Impacts Remaining after Mitigation

Mitigation measures would reduce impacts on parklands and community facilities to an insignificant level.

4.17 SECTION 4(f) EVALUATION

4.17.1 Regulatory Setting

Federal funds will be used to help finance this transit project. Section 4(f) of the Department of Transportation Act of 1966, as amended (49 U.S.C. 303), states that federal funds cannot be used for any "program or project which requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance as determined by the Federal, State, or local officials having jurisdiction thereof, or any land from an historic site of national, State, or local significance as determined by such officials unless (1) there is no feasible and prudent alternative to the use of such lands, and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use." The word "use" refers to either a direct or a constructive use of the property. A direct use occurs when land is permanently incorporated into a transportation facility or a partial or full acquisition or easement of the property is required. Constructive use occurs when the project's proximity impacts are so severe that the activities, features, or attributes that qualify a resource for protection under 4(f) are substantially impaired. Typically, a constructive use of a resource would involve permanent and severe noise, vibration, visual, or access impacts. As outlined in Subsection 23 CFR 771.135 (p)(4), a constructive use of a protected resource occurs under any of the following situations:

- Predicted noise level increase, attributable to the proposed project, substantially interferes with the use and enjoyment of a noise-sensitive facility of a resource.
- Proximity of the proposed project substantially impairs the aesthetic features or attributes of a resource, where such features or attributes are considered important contributing elements to the value of the resource.
- Restricted access, which substantially diminishes the utility of a publicly owned park, recreation area, or historic site.
- Vibration associated with the proposed project impairs the use of a resource.
- Ecological intrusion of the proposed project diminishes the value of wildlife habitat in a wildlife or waterfowl refuge adjacent to the project.
- Substantial interference with the access to a wildlife or waterfowl refuge when such access is necessary for established wildlife migration or critical life cycle processes.

The following sections evaluate park, archaeological and historic resources as they relate to Section 4(f). After reviewing the 4(f) evaluation, FTA may determine that: 1) there is no prudent or feasible alternative to using 4(f) properties in this section; and 2) the project includes all possible planning to minimize harm to parks, recreation areas, wildlife and waterfowl refuges and historic sites resulting from the use. With this determination, Section 4(f) permits the Secretary of Transportation to approve a project for federal funding participation or other federal undertaking that requires the use of publicly owned land from a park; recreation area; wildlife and waterfowl refuge of national, State, or local significance; or any land from a historic site of national, State, or local significance. FTA is consulting with U.S. Department of Interior and the State Historic Preservation Officer (SHPO) regarding Section 4(f) properties.

4.17.2 Section 4(f) Properties

This section describes the Section 4(f) properties that would be affected by the LRT Build Alternative. No such properties would be affected by the No-Build Alternative. Parklands and recreational facilities, archaeological sites, and historic properties that would be affected by the LRT Build Alternative are identified below. For these properties, a description and the significance of the affected property and the application of Section 4(f) criteria for use are presented. Alternatives that would avoid use, measures to minimize harm, and coordination with the appropriate agencies are also described.

4.17.2.1 Parks and Recreation Property

Eleven parks and recreational facilities are located in the study area (refer to Section 4.16, Community Facilities/Parklands). Of these, four (Pecan, LANI, and Belvedere Parks and Mariachi Plaza) are adjacent to the proposed LRT alignment. The LRT Build Alternative would include an easement for a subway section under LANI Park. Given the depth of the subway, the absence of any noise, vibration or visual impacts at the surface and that no alteration of the surface would occur, this is not considered a "use" within the intent of Section 4(f). Similarly, no long-term impacts would occur at Pecan and Belvedere Parks. However, construction of a subway station at Mariachi Plaza would require permanent modification to the park setting, which would be considered a "use" as described below.

Mariachi Plaza

Description and Significance of Affected Property

Mariachi Plaza is a 15,000 square-foot triangular plaza, bordered on the south by 1st Street, on the west by Boyle Avenue, and on the northeast by an alleyway that connects 1st Street with Pleasant Avenue. The Plaza, which contains a gazebo where mariachi bands perform regularly, is owned by MTA. However, the City's Department of Recreation and Parks, assisted by the Boyle Heights Chamber of Commerce, maintains the facility.

Mariachi Plaza is a relatively modern, mid-1990's, monument important to the community, and the area where it stands is the center of an early crossroads at the top of the bluffs that might hold cultural remains. A review of Sanborn maps revealed that this area was used as open space during the late 19th and early 20th centuries. Low-level buildings were constructed along the bordering streets, visually enclosing the Plaza. During the 20th century, the open space was encroached upon by private businesses, which were acquired and removed by MTA as part of the suspended Metro Red Line Extension project in the 1990's. The improvements to Mariachi Plaza, including the gazebo structure, have been subsequently installed by MTA.

Application of Section 4(f) Criteria for Use

Mariachi Plaza has been determined to be potentially eligible for listing in the National Register of Historic Places (NRHP). In addition, because it is a publicly owned property that is open for public use, and its major use is recreation, it is also a resource that is protected under Section 4(f). Construction of the proposed subway station at 1st/Boyle may temporarily disrupt use of the open space by musicians and local residents. In addition, access may be temporarily restricted on 1st Street during deck installation and removal. The section of street, Mariachi Plaza de Los Angeles, between Boyle Avenue and 1st Street would be closed for the duration of station and tunnel construction (estimated three to four years).

The station, located under 1st Street along side Mariachi Plaza, would not require space from or permanently use the Plaza. However, the entrance to the subway station and station vent shaft would be sited on property already owned by MTA across the street from Mariachi Plaza. The property contains the Ranch Market, which would be demolished to provide space for the station entrance. Over time, the Ranch Market has been altered substantially so that the building's historic integrity has been compromised, and the building is not eligible for listing in the NRHP. Nevertheless, its removal would create a spatial and visual void in the line of buildings which frame Mariachi Plaza on the northeast, thereby altering the historic setting for Mariachi Plaza.

Alternatives that Would Avoid Use

Initially, MTA examined the opportunity to place the station entrance plaza and vent shaft for the 1st/Boyle subway station in Mariachi Plaza. By locating the subway entrance in the Plaza, no buildings surrounding the Plaza would be demolished. However, the small Plaza would be substantially altered by this use. To avoid this impact on Mariachi Plaza, MTA moved the station entrance outside the Plaza allowing it to remain sufficiently close to provide direct access to the subway station under 1st Street at Boyle Avenue.

Measures to Minimize Harm

During construction, MTA will maintain access to Mariachi Plaza. If the need arises to close access to 1st Street and Boyle Avenue to install and remove decking, it will be done during non-peak hours. MTA will publicize that local businesses and the mariachi performers will continue during construction. If a majority of mariachis thinks that the conditions at Mariachi Plaza are not suitable for performing during construction, MTA will provide an alternative location and publicize the temporary location with signs at Mariachi Plaza. An alternative location that has been identified as a possible site for relocation is the nearby LANI Park at 1st and Chicago Streets.

After construction is completed, MTA will restore and expand Mariachi Plaza and provide a façade, mural, or building that can re-create the feeling of intimacy and fill the spatial and visual void created by the demolition of the Ranch Market. During final design, MTA will develop a community linkages program for this station (as well as others) that will include extensive public involvement in the design for the improvements to the station area that includes Mariachi Plaza. A similar program was carried out for the 1st/Boyle Station proposed under the suspended Metro Red Line project. An architect and artist worked together and developed a design for the station that took into consideration the needs of the community and the characteristics of the surrounding environment. MTA's design guidelines for transit stations, including landscaping, public art, enhanced pedestrian environment, adequate walkway widths, set-asides for public open space, and construction of historical character and structures will be implemented.

Coordination with Other Agencies

MTA is working with FTA and SHPO to determine agreed-upon mitigation measures that will minimize the impacts on Mariachi Plaza. The measures will be developed after consideration of all public input that is received during the circulation period of the Draft SEIS/SEIR.

4.17.2.2 Archaeological Resources

In accordance with Section 4(f), Sections 106 and 110 of the National Historic Preservation Act, Executive Order 11593 and the guidelines promulgated by the Advisory Council on Historic Preservation (ACHP), MTA has undertaken an extensive search for cultural resources that could be affected by the LRT Build Alternative. MTA has determined that three known archaeological sites and 11 areas of high archaeological sensitivity exist in the Area of Potential Effects (See Section 4.15, *Historic/Archaeological/Paleontological Resources*). Of these, one, Historic Chinatown (CA-LAN-1575H), has been determined eligible for the NRHP. All of the identified sites and areas of high archaeological sensitivity may have "use" under Section 4(f) guidelines.

Description and Significance of Affected Properties

In the vicinity of the intersection of Alameda and 1st Streets is an area where cut stone curbs, rather than poured concrete, suggest that undisturbed remains, e.g., historic track, are present below the surface. The highest likelihood of subsurface resource disturbance is in the industrial area of the Flats, from Union Station to the foot of the Boyle Heights bluffs near the Los Angeles River. At Union Station lies archaeological site CA-LAN-1575H. Nearby along the 101 Freeway may be subsurface remains, although none has been recorded to date because this area was intensively developed in the nineteenth century obscuring the surface. Along Alameda Street south of the 101 Freeway is archaeological site CA-LAN-887H, historical site La Placita. Although the site is recorded only on the west side of Alameda, other remains have since been discovered on the east side of the street.

Beneath 1st/Utah, 1st/Gless, and 1st/Boyle are likely sites for transportation features such as rails from earlier public transportation. These features could potentially be found almost anywhere along 1st and Indiana Streets since the former P Line electric cars operated along these streets. The corner of Bailey and Pennsylvania Streets has the potential for buried domestic remains since this was a residential neighborhood. Buried remains may lie beneath 1st/Soto since this area has historically been a major neighborhood shopping location.

Application of Section 4(f) Use Criteria

One of the archaeological sites, Historic Chinatown (CA-LAN-1575H), has been determined eligible for listing on the NRHP. The other two aforementioned archaeological sites are potentially eligible. LRT construction activities such as earthmoving eastward along 1st Street as far as the river and along Alameda Street would likely encounter unrecorded archaeological remains, as would any earthmoving along Alameda Street. Buried rail could be revealed by station construction at 1st/Utah, at the 1st/Gless portal location, at the 1st/Boyle and 1st/Soto subway stations, and the eastern portal locations (1st/Lorena for Options 1 and 2 and 3rd/Hicks for Option 3).

Alternatives that Would Avoid Use

Alternative LRT alignments that would shift construction activities from the streets where archaeological sites have been recorded or where buried remains may be found would traverse private property. Alternatives to this might include constructing the alignment on another major east-west street. However, the other major streets in the study area also previously contained rail routes of the Los Angeles Railway. The B Line was on Brooklyn Avenue (now Chavez Avenue); the F Line was on 4th St.; and the R Line was on 7th St. and also on Whittier Boulevard in the eastern portion of the study area. Therefore, historic transit features would also likely be found on any of the other streets. Features of the historic rail found during construction could be donated to a museum as has been done on previous MTA projects. If the rail alignment were to be placed outside of the street rights-of-way to avoid the historic rail routes, this would require acquisition of many private properties. Demolishing many historic properties to accommodate the LRT Build Alternative as well as the neighborhood disruption it would cause would be an adverse impact. In addition, by avoiding the Union Station area, interface with the regional system could not occur, obviating a primary project goal.

Measures that Would Minimize Harm

In the event that archaeological and buried historic sites are encountered, evaluation of the site is often accomplished through test level excavation designed to determine the horizontal and vertical extent of the site, and to characterize the content of the site. In recognition of this possibility for the LRT Build Alternative, MTA could follow terms similar to those stipulated in the previously adopted *Identification*

Study and Treatment Plan for the suspended Metro Red Line East Side Extension FEIS/FEIR (1994) and in the Memorandum of Agreement (MOA) authorized by the Department of the Interior (September 12, 1994) in consultation with the ACHP and SHPO.

A MOA is the preferred mechanism for implementing Section 106 where alternatives under consideration consist of corridors, or where access to properties is restricted. A phased approach may be used to conduct identification and evaluation of historic properties if it is specifically provided for in a MOA. The MOA may use standard treatments established by the Advisory Council on Historic Preservation under 36 CFR 800.14(d). The process would establish the likely presence of historic properties within the area of potential effects for each alternative through background research, consultation, and an appropriate level of field investigation, taking into account the number of alternatives under consideration, the magnitude of the undertaking and its likely effects, and the views of SHPO. As specific aspects or locations of an alternative are refined or access is gained, the identification and evaluation of historic properties proceeds in accordance with Sections 36 CFR 800.4(b) (1) and (c) which provide for further research, survey, and testing for significance.

When identification efforts, in accordance with 36 CFR 800.4, indicate that historic properties are likely to be discovered during implementation of an undertaking, the MOA shall include a process to resolve any adverse effects upon resources discovered during the project construction (36 CFR 800.13 (a)). The MOA shall include a provision for monitoring and a mechanism for reporting its implementation (36 CFR 800.6 (c) (4)).

Other elements of the MOA shall provide that:

- Areas subject to physical disturbance by the undertaking are subjected to intensive archaeological study in accordance with a study plan developed in consultation with the SHPO, and submitted in draft to the SHPO for at least 30 days of review and comment; and
- If the study indicates the existence of archaeological resources, MTA will review the potential impact on such resources with SHPO. MTA has a wide variety of choices for mitigation measures and will determine them in consultation with the SHPO.

Prior to the initiation of each construction contract, a pre-construction meeting would be held with all resident engineers, inspectors, contractors' representatives and foremen to review the procedures to be followed regarding the presence of archaeological and/or paleontological monitors, collecting of artifacts, reporting discoveries, and communications. When archaeological evidence is observed, work will be halted in that immediate vicinity and the procedures set forth in the MOA and Treatment Plan will be followed.

Coordination with Other Agencies

MTA is working with FTA and SHPO to determine agreed-upon mitigation measures that will be identified in a Memorandum of Agreement to minimize the impacts on archaeological sites. The measures will be developed after consideration of all public input that is received during the circulation period of the Draft SEIS/SEIR.

4.17.2.3 Historic Properties

MTA has identified 157 buildings that are potentially eligible for inclusion in the NRHP (See Section 4.15, *Historic/Archaeological/Paleontological Resources*). When a determination is made under Section 106 of the National Historic Preservation Act that an adverse effect to a historic property occurs, this would be considered a use under Section 4(f). The historic properties discussed below would be used, or with further study, may need to be used by the LRT Build Alternative. The sections that follow describe the property, the proposed use for the LRT Build Alternative, the feasibility and prudence of alternatives that avoid Section 4(f) involvement, and the measures to mitigate project-related impacts on these historic properties.

1st and Soto Streets Altered Historic Setting

Description and Significance of Affected Properties

This intersection of 1st and Soto Streets, like 1st and Boyle, has historically been a major neighborhood shopping precinct[10]. Six historic structures that are potentially eligible to the NRHP are in the immediate vicinity. Three commercial structures stand near the southwest corner of the intersection and three residential structures are located immediately to the east of the northeast corner.

Application of Section 4(f) Use Criteria

The southwest corner of 1st/Soto is proposed for a subway station entrance and construction staging area, removing existing structures and altering the historic setting for three nearby commercial structures, which remain in their present locations. Similarly, property acquisition to construct a vent shaft on the northeast corner would affect the historic setting for three adjacent residences by removing adjacent or nearby non-eligible structures and, thereby, changing the character of the "street edge" and constitute an alteration of their historic setting with changes in the streetscape.

Alternatives that Would Avoid Use

An alternative to acquiring the northeast corner is to seek a variance from the Los Angeles Department of Transportation to allow the vent shaft to be placed in the sidewalk on the southwest corner. For the southwest corner, one alternative would be to purchase only the Guadalajara Auto Sales property for the subway station portal and provide either a smaller construction staging area at this location or an alternative site for construction staging. The loss of the used automobile dealership property has not been identified as a concern from an historic setting perspective because it does not contribute to the character of the "street edge." The property that was previously purchased by MTA for the Chavez/Soto Station as part of the suspended Metro Red Line project could be used as an alternative site for construction staging. However, the commercial district at Chavez/Soto and the residences along Soto Street between Chavez Avenue and 1st Street may be adversely affected by the movement of trucks hauling equipment and materials between the two sites. Another alternative would be to provide the additional construction staging on 1st Street. This would require closure of half of the street to traffic during the entire construction period, creating serious implications on traffic movement.

Measures that Would Minimize Harm

MTA would replace the street edge by temporary relocation and replacement of the original buildings, or construction of new buildings or facades that would retain the historic street edge. The pedestrian environment will be re-established at the 1st/Soto Station transit plaza so that the linear sidewalk element along 1st Street is re-created. This can be accomplished through the use of such edge elements as landscaping, street furniture, planters, etc., but the preferable method would be to re-establish a pedestrian-oriented commercial element into the plaza, either with permanent retail facilities or with

[10] *Cultural Resources Technical Report*, Eastside Corridor Transit Consultants and Greenwood and Associates, December, 2000.

portable commercial uses such as kiosks or carts. No matter where the vent shaft is located, it would be designed to blend in with the historic character of the surroundings.

Where the historic setting is being altered, a principal mitigation measure is a comprehensive documentation of structures in the affected area. The documentation would be performed for buildings determined eligible for listing in the NRHP prior to the commencement of any alteration, grading, and/or change in setting. The documentation would be consistent with Historic American Buildings Survey (HABS) standards and involve consultation with SHPO and National Park Service. The HABS process is generally applied to specific buildings, but may also apply to streetscapes.

The HABS program is administered and directed by the National Park Service. The goal is the documentation of America's architectural heritage of historic buildings, structures, sites, and objects. "The stock of which diminishes daily at an alarming rate . . . if the great number of our antique buildings must disappear . . . they should not pass into unrecorded oblivion" (Burns 1989:3). HABS documents enter the collections of the Library of Congress, where they are available for use by scholars, researchers, preservationists, architects, engineers, and others interested in preserving and understanding historic properties. HABS reports utilize the Secretary of the Interior's *Standards for Architectural and Engineering Documentation*, which are linked to the Secretary's *Guidelines* for Architectural and Engineering Documentation and the HABS/HAER Procedures Manual for more specific guidance and technical information.

Coordination with Other Agencies

MTA is working with FTA and SHPO to determine agreed-upon mitigation measures that will minimize the impacts on the historic setting at 1st/Soto. The measures will be developed after consideration of all public input that is received during the circulation period of the Draft SEIS/SEIR.

Indiana Street between 1st and 3rd Streets Removal of Historic Properties (Option 2 only)

Description and Significance of Affected Properties

Five standing structures that appear to have architectural integrity and are potentially eligible for listing in the NRHP are located on the west side of Indiana Street between 1st and 3rd Streets. The five structures include three residences, a commercial (fast-food restaurant) building, and a Department of Water and Power (DWP) building. Along 3rd Street, there are relatively few standing structures that appear to have architectural integrity.

Application of Section 4(f) Use Criteria

For Option 2 only, widening Indiana Street on the west side would maintain curb parking between 1st and 3rd Streets. If this option were implemented, all five structures potentially eligible for listing in the NRHP would be demolished and, if found significant, their loss would be an adverse effect.

Alternatives that Would Avoid Use

MTA has developed two alternatives that would obviate the need to acquire and demolish five historic structures on the west side of Indiana Street. The first alternative (Option 1) would install LRT track in both directions on Indiana Street but maintain the existing street width. In this scenario, curb parking would be displaced but the structures along Indiana Street would be retained. Option 3 would avoid placing LRT tracks on Indiana Street by extending the subway from 1st/Lorena under Indiana Street and

Ramona High School to a portal at 3rd/Hicks. In this scenario, the current street configuration would be maintained, and no historic properties would be affected in this segment.

Measures that Would Minimize Harm

If Option 2 were selected and the five historic properties on the west side of Indiana Street were demolished, MTA would prepare a comprehensive documentation of structures as they currently exist if the buildings are determined eligible for listing on the NRHP. The documentation would be performed prior to the commencement of any alteration, grading, and/or change in setting. The documentation would be consistent with Historic American Buildings Survey (HABS) standards and involve consultation with SHPO and National Park Service. The HABS process is generally applied to specific buildings, but may also apply to streetscapes.

Coordination with Other Agencies

MTA is working with FTA and SHPO to determine if an alternative to Option 2 can be implemented in accordance with project goals and objectives and with the support of the affected community. The determination will be made after due consideration of the public input that is received during the circulation period of the Draft SEIS/SEIR.

Potential Construction Noise and Vibration

It is possible that historic properties that are adjacent to the LRT alignment or above the subway may be subject to noise and vibration impacts from construction of the LRT Build Alternative. The final determination of construction noise and vibration impacts will depend on the equipment and activities used by the contractor to construct this project. To ensure that potential short-term noise and vibration impacts will be addressed, the contractor will be responsible for preparing a Noise and Vibration Control Plan that will identify all potential impacts that may occur during construction and provide adequate mitigation measures to clearly demonstrate that the noise and vibration criteria and limits presented in Section 4.8, *Noise and Vibration* will be achieved. The Noise and Vibration Control Plan will identify mitigation to meet the Los Angeles CEQA Noise Limits and the MTA specified limits, including, if necessary, monitoring all construction activities within 200 feet of a historic structure to ensure vibration standards are not being exceeded.

4.18 UTILITIES

4.18.1 Affected Environment

Utility lines are located underneath or immediately adjacent, parallel to and across the roadways in the study area. Utility providers include municipal agencies, special utility districts, and private companies providing electricity, water, wastewater and stormwater collection, natural gas, steam, telecommunications, and cable television services. A summary of some of the utility providers by municipality is presented in Table 4.18-1.

Electric power is provided by the Los Angeles Department of Water and Power (LADWP) within the City of Los Angeles and by Southern California Edison (SCE) for the remainder of the study area. The deregulation of the industry in the California market increased competition in the marketplace, which would benefit the utility users like MTA in the negotiation of favorable utility rates for new rail starts.

Telephone lines in urban areas are typically located within street rights-of-way, above ground on utility poles, and underground in newer areas. Other smaller utilities often share these underground trenches or duct banks. Several private companies maintain fiber optic cables and/or provide long distance/cable television and other telecommunications services in Los Angeles County.

TABLE 4.18-1
MAJOR UTILITY PROVIDERS

Municipality	Providers
City of Los Angeles	Los Angeles Department of Water and Power Pacific Bell Southern California Gas Company Los Angeles City Public Works Department, Sanitation Bureau Los Angeles County Flood Control District
Los Angeles County	Pacific Bell Southern California Edison Southern California Gas Company California Water Service Los Angeles County Sanitation District Los Angeles County Flood Control District

4.18.2 Methodology for Impact Evaluation

Impacts on public services were evaluated for the operational and construction phase of the LRT Build Alternative. Operational impacts include: 1) public utility facilities to be relocated, or 2) facilities impaired as a result of the other impacts such as vibration, safety, or access. Construction impacts occur if the delivery of services provided by public utility facilities would be interrupted or substantially diminished for a prolonged period of time.

Impacts on utilities from LRT operation would result if an additional demand upon utilities were to exceed existing or planned capacity and, therefore, require substantial infrastructure improvements. Substantial interface with the existing utility infrastructure systems or a prolonged disruption of utility services resulting from construction would constitute an adverse impact.

To catalog public services and utilities along the alignment extensive field surveys will be performed as part of the preliminary and final engineering design. The data accumulated will be mapped and tabulated and potential impacts will be identified, using the criteria and considerations identified in MTA's System Design Criteria and Standards, Volumes 1 through 4.

4.18.3 Impacts

4.18.3.1 No-Build Alternative

The No-Build Alternative would maintain the current utility service in the corridor, and therefore would not have an immediate impact on public infrastructure.

4.18.3.2 LRT Build Alternative

No significant impacts on natural gas, telephone and telecommunications, cable television, water supply, wastewater, streambeds or solid waste collection and disposal services would be expected during LRT operations. Significant service disruptions to utility customers during LRT repair and maintenance operations are not expected as result of the sufficient capacity and strategies to provide additional service as the LRT line becomes operational.

MTA will work with utility providers to minimize any potential service interruptions and to conserve resources by:

- Complying with applicable utility policies and strategies as specified in the adopted operational comprehensive plans of the City of Los Angeles and the County of Los Angeles, including those provisions related to levels of service, conservation strategies and coordination of service provisions;
- Incorporating City of Los Angeles, County of Los Angeles and California State energy code, building code, fire code, MTA's Design Criteria and Standards (Volumes I through IV), and other applicable requirements into all design aspects of the system, stations, maintenance facility and parking areas;
- Developing methods including cathodic protection to reduce the effect of stray currents. Where necessary and possible, install devices to reduce the impact of stray current between the traction power system and the utilities facilities, or replace particularly metallic utility infrastructure with nonmetallic materials; and
- Coordinating with affected water utilities and local fire departments to ensure that water use, especially at the maintenance facility and subway section, does not compromise flow required for fire protection.

In addition, the LRT line will be located so that access to utilities for maintenance and repair could be maintained. If necessary, manholes, pipes, vaults and other access points may have to be relocated.

Significance of the Impacts

The strategies to accommodate the LRT line and to avoid interference with normal utility operations ensure that no significant impacts will occur.

4.18.4 Mitigation

No mitigations are required since significant impacts to utilities are not expected as a result of LRT operation.

4.19 CONSTRUCTION IMPACTS

4.19.1 Construction Methods

The construction of the Los Angeles Eastside Corridor LRT project will employ conventional construction techniques and equipment used in the Southern California region. Major project elements include construction of guideway and trackwork, at-grade station platforms, underground stations and tunnels, a new bridge across U.S. 101 to Union Station, and installation of specialty system work such as traction power, communications and signaling. All work will conform to industry specifications and standards. The equipment used in construction would include graders, dozers, cranes, cement mixers, flat bed trucks, dump trucks to haul dirt, tunnel boring machines, and rail mounted cars to transport spoil material within the tunnel. Spoil materials would be hauled away from the work sites by trucks to approved disposal sites.

Traffic detours and truck routes would be required during construction. Where construction would affect existing streets, traffic control measures would be implemented to help mitigate the negative effects of construction while maintaining reasonable construction progress. This may involve partial or full street closures, partial sidewalk closures, and suggested detour routes. Traffic management plans will be prepared during subsequent design phases in coordination with the agencies involved to minimize disruption to traffic during construction. For tunnel construction, haul routes to disposal sites would be predetermined by agreement with local authorities before construction. They would follow streets and highways forming the safest or shortest route with the least adverse effect on traffic, residences, and businesses.

The various work activities to be performed over an estimated four-to five-year construction period will include the following facility and system items:

- Construction of a bridge and elevated approach sections near Union Station (including foundations, support columns, girders, and deck slabs). This construction will be either "cast-in-place," partially precast, steel or a combination of these depending on the final design and the preferred approach of the construction contractor.
- Construction of retaining walls for approaches to the bridge, portal structures and shallow trenches.
- Construction of 1.8 miles of tunnels and underground stations (Options 1 and 2) or 2.4 miles underground if the Extended Subway Option (Option 3) is constructed.
- Construction of portal structures, cut and cover tunnel sections, and underground stations.
- Relocation of existing utilities at stations, portals and where in conflict with in-street guideway construction.
- Construction of Eastside Corridor LRT high floor station platforms on street level locations using typical "cast-in-place" construction methods.
- Construction of underground duct banks for electrical power feeds and for signaling/communications systems.
- Construction of surface drainage systems and subdrainage.
- Construction of traction power substations with electrical power feeds.
- Construction of overhead catenary pole foundations or alternative power distribution support systems.
- Construction of a parking facility near the Beverly/Atlantic Station.
- Installation of traffic signal and train control improvements.
- Installation of overhead catenary wires, support brackets, feeder cables, and other components or alternative power distribution systems.

- Installation of trackwork complete with preparation of track bed, track slab, rail, fasteners, and infill concrete in street level areas, and with direct fixation fasteners on the aerial guideway and 1st Street bridge.
- Construction of station finishes, such as canopies, fare vending equipment, station furniture, ramps, elevators, escalators, landscaping, and all other amenities necessary for a functional station.
- Conducting subsystem and system testing.
- Conducting simulated revenue operation test runs and final commissioning of the system.

More detailed information related to the LRT at-grade and subway construction activities and schedule are provided below.

4.19.1.1 Required Construction Areas and Easements

Construction of the underground stations and portal access to tunnels will require the use of existing MTA property at the 1st/Boyle and 1st/Lorena sites, and additional properties at the 1st/Soto and 1st/Boyle sites. Temporary easements, typically a portion of the sidewalk, will be required at the portals to allow a single lane of traffic in each direction during construction. Access to residences and businesses (during business hours) will be maintained during construction.

For street level LRT sections, the street area alongside the station and track areas, supplemented by adjacent off-street areas, would be used for construction staging and for equipment and material storage.

4.19.1.2 General Construction Scenario

The LRT Build Alternative would be constructed during an approximate 48-54 month period. Surface streets would be impacted for approximately 24 months. LRT construction would begin simultaneously at several locations along the selected route to accommodate areas requiring lengthy construction times, such as the tunnels, underground stations, and aerial segments, and to bring the various segments to completion at approximately the same time.

Many contractors specializing in various methods of construction would be working on the project for the overall length of the construction period. The physical construction would involve the method that is most suitable for each segment of the project. A representative sequence of construction is shown in Table 4.19-1. Many of the project elements would be constructed in parallel instead of sequentially.

4.19.1.3 Surface Construction

Utility Relocation and Street Closures

Prior to beginning construction it would be necessary to relocate, modify or protect in place all utilities and underground structures, which would conflict with excavations for street level trackwork, subways, bridge and station structures. Shallow utilities, such as maintenance holes or pull boxes, which would interfere with guideway excavation work, will require relocation. The utilities would be modified and moved away from the proposed facilities.

Surface Trackwork

For most of the alignment, the LRT tracks will be centered in the street right-of-way. The reader is referred to Chapter 2.0 for illustrations of representative LRT right-of-way cross-sections. Mountable curbs will be constructed to discourage vehicular traffic from driving on the tracks. At-grade sections are to be located primarily along Alameda, 1st, 3rd, and Beverly. After any required utility relocation, rough grading would be completed within the streets, followed by trackbed excavation, and track slab placement for support of the rails. Duct banks would be installed during this time to carry communication and signaling conduits.

TABLE 4.19-1
TYPICAL SEQUENCE OF CONSTRUCTION ACTIVITIES

Activity	Tasks	Average Time Required (months)
1. Survey	Locate utilities, establish ROW and project control points and centerlines, and relocate survey monuments.	4 - 6
2. Site Preparation	Relocate utilities and clear and grub ROW (demolition), establish detours and haul routes, erect safety devices and mobilize special construction equipment, prepare construction equipment yards and stockpile materials.	12 – 18
3.Heavy Construction	Construction of tunnels, aerial structures (includes bridge to Union Station). street guideways including trackbed, subway stations and portals, trenches, piles, piers and columns and disposal of excess material. Refinish roadways and sidewalks.	24 – 54
4.Medium Construction	Lay track, construct surface stations, drainage, backfill and pave streets.	12 – 24
5. Light Construction	Finish work, install all system elements (electrical, signals, and communication) landscaping, signing and striping, close detours, clean-up and test system.	6 – 12
6. Pre-revenue Service	Testing of communications, signaling, and ventilation systems, training of operators and maintenance personnel	3 - 5
7. Open Project		

Minor cross streets and alleyways may also be temporarily closed but access to adjacent properties will be maintained. Major cross streets would require partial closure, half of the street at a time, while relocating utilities if required for surface stations and constructing the light rail trackbed. Depending on allowable working hours, full blocks may require closures during excavation, preparation of subgrade, and track foundations placement. Where streets are not fully closed, two-way traffic would be allowed on half of the street. After the trackbed is constructed across a local street and the roadway is restored to its permanent condition, vehicles can resume original traffic patterns.

Rails would be brought to the sites by truck, and local storage areas will be necessary for short-term storage and to facilitate placement of rails in smaller (e.g., one city block) sections. Equipment used for construction of the surface tracks (and surface stations) would be similar to what is required for relocation of the utilities with the addition of track-laying equipment, paving machines, concrete mixers and concrete finishers.

Trench, Retaining Wall and Fill Construction

Some trenching and filling would be constructed under and between the I-710 and SR-60 freeways to minimize the rail grade. Relatively small retaining walls (estimated to be less than five feet) will be necessary to retain these sections. The excess material would be excavated using bulldozers, earthmovers, and front-end loaders, and tractor-trailer rigs. Excess material would be transported to approved disposal sites.

At-Grade Stations

All stations could be constructed simultaneously with the various segments of the system. At-grade stations on the LRT would be constructed approximately one mile apart from each other. These stations would be constructed from standard building materials, such as brick, concrete, steel and heavy plastic, which are durable and resistant to vandalism. The stations would be similar to the existing Long Beach Blue Line stations and proposed Pasadena Blue Line stations. The reader is referred to Chapter 2.0 for illustrations of typical station cross-sections.

Parking Facilities

Two parking facilities would be provided near the Beverly/Atlantic Station providing a total of about 200 spaces. Construction of the parking lot would involve subgrade preparation of the parking area, paving, and striping. Concrete curbs, lighting, driveways, and sidewalks would be re-constructed as necessary, as well as planting the appropriate landscaping. Equipment used for construction of the parking facility would include diamond saws, pavement breakers, jackhammers, compressors, concrete pumping equipment, paving machines, dump trucks, front-end loaders, etc.

Bridge Construction

Aerial structures (bridge and elevated approach section) required for the LRT project would be constructed as the initial portion of the project from Union Station to beyond the US-101 freeway. Lower elevation portions of the bridge approach structures could be constructed on retained fills. The overall length of the elevated portion is expected to be about 1,000 feet. A 1,000-foot bridge could require as much as 18 months to complete. Typical construction methods for the bridge would involve several phases of work: foundation construction, installation of columns, and setting in place of concrete girders or steel trusses.

Construction of the column foundations could begin at the same time that the utilities are relocated, providing the utilities do not directly impact the foundation locations. Once the foundations are in place, the columns would be constructed. It may be possible to conduct most of the column construction and girder placement during late night hours to minimize disruptions on the freeway and local streets. Traffic will not be allowed to pass under the structure during form and concrete placement, and temporary lane closures would be necessary during these periods.

Equipment used for construction of the aerial guideway would include drill rigs/augers, cranes, pile drivers, jackhammers, compressors, concrete pumping equipment, dump trucks, front-end loaders, paving machines, and large tractor-trailer rigs to carry girders and miscellaneous tools.

4.19.1.4 Underground Construction

Pre-construction activities would include building assessments (pre-construction evaluation of existing structures along the alignment) and preparation of worksite traffic control plans. During preliminary and final design of the project, subsurface (geotechnical) investigations would be undertaken to evaluate soil, groundwater, seismic, and environmental conditions along the alignment. The geologic conditions will influence design and construction methods specified for stations and tunnels as well as foundations. The studies are discussed in more detail in Section 4.9.2, *Construction Period Impacts and Mitigation*.

The stations as well as the portals would be constructed by cut-and-cover and open cut methods. The depths of the stations would be as required to allow for utilities, access to the station's center station platform, structure thickness, and for cover over the tunnels extending from the stations. Conceptual design depths range from about 50 to 60 feet. Station widths are about 60 feet to include the trackways and the center platforms. Portals are designed for accommodation of the twin tracks, station widths, traffic flow around the portals, and existing topography.

Underground Utilities

Subject to other constraints, the underground stations have been located to avoid to the extent possible conflicts with the space occupied by utilities. In certain instances, the positioning of the station or the location of station entrances and vent shafts would require that conflicting utilities be relocated to clear the way for the station structures. Utilities, such as high-pressure water mains and gas lines, which could represent a potential hazard during cut-and-cover and open-cut station construction and that are not to be permanently relocated away from the work site, would be removed temporarily to prevent accidental damage to the utilities, to construction personnel and to the adjoining community. Buried utilities, with the possible exception of sewers, are generally found within several feet of the street surface. They can be reinforced, if necessary, and supported by hanging from deck beams.

Station Excavation - Initial Support

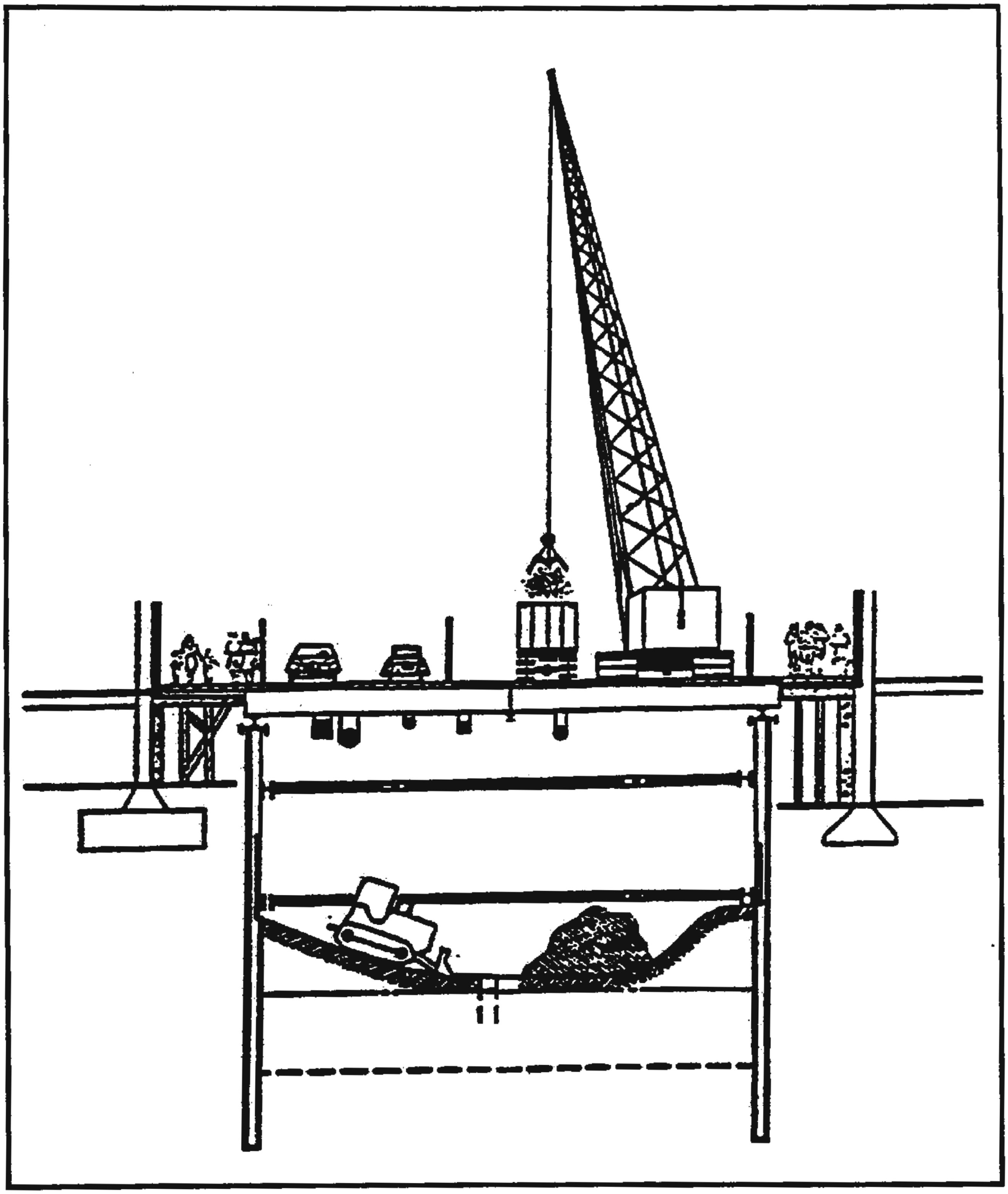
If the building assessments indicate the necessity to protect nearby structures, the first step in construction of an underground station is to support the foundations of buildings adjacent to the station excavation. This is done by underpinning (additional foundations placed under the building), or by other means such as soil grouting. In lieu of underpinning or grouting, or in combination with grouting, the support of adjacent structures is commonly accomplished by use of excavation support systems, which in conjunction with proper excavation and bracing procedures, serve as building protection.

The excavation's initial support systems could include reinforced concrete drilled-in-place piles, soldier piles and lagging, and tied-back excavations. Initial support allows support of the ground while soil is removed from the excavation and for the temporary duration of tunneling and other work in the shaft. Final support includes the concrete slabs, walls, and walkways for the stations. If movement (typically on the order of one-half to one inch) is detected, the contractor will be required to take action to control it.

Prior to installation of the ground support system, dewatering is likely to be required at the underground station sites to temporarily lower the groundwater level below the station excavation depth or to an impermeable soil layer. This facilitates installation of the piles, improves soil stability, and allows excavation in dry conditions. Groundwater is pumped from wells installed around the perimeter of the excavation. If contaminated water is encountered, it is treated at the site or hauled to a treatment facility. At the completion of the stations, pumping is discontinued and groundwater levels return to their natural level.

To install the soldier piles and lagging for the support of the excavation, it is necessary to auger out the holes for the placement of the piles. This process is shown in Figure 4.19-1. The pre-drilling of holes is necessary to eliminate pile driving and reduce project noise levels that would otherwise occur with pile driving. The contractor would occupy one side of the street to install one line of soldier piles while the other side would remain open for traffic circulation. The equipment required for installation of the soldier piles includes drill rigs, concrete trucks, cranes, and dump trucks.

After installation of soldier piles on both sides of the street for the underground stations, the contractor would proceed with installation of deck beams, installation of the deck and excavation and bracing as



Los Angeles Eastside Corridor SEIS/SEIR

Excavation and Bracing

Figure 4.19-2

Eastside Corridor
Transit Consultants

TABLE 4.19-2 ESTIMATED AMOUNTS OF EXCAVATED MATERIALS FOR STATION AND CUT AND COVER CONSTRUCTION			
Station	**Estimated Cubic Yards[1]**	**Estimated Maximum Number of Daily Truck Trips[2]**	**Estimated Number of Total Truck Loads[3]**
1st /Boyle[3]	141,000	45	7,100
1st /Soto	60,000	20	3,000
East Portal	17,000	20	1,100
1st/Lorena Station (Extended Subway Option)	60,000	20	3,000

Notes:
[1]This column includes an estimated 1.3 expansion factor for the soil due to excavation and handling.
[2]It has been assumed that each truck could haul up to 20 cubic yards.
[3]Includes adjacent cut and cover stations and west portal.

Tunnel Construction

The 1st Street tunnels would be constructed from the portal west of the US 101 Freeway and ending at the 1st/Lorena Street cut-and-cover section, a tunneling distance of about 1.4 miles for each tunnel, which excludes the 1st/Soto Station and cut and cover section lengths. Tunnel boring machine(s) (TBM) would be lowered into the shaft by a crane and would mine from the shaft along the alignment from the 1st/Boyle Street excavation to 1st/Lorena (Figure 4.19-3). It is anticipated that the 1st/Soto Station would be excavated prior to the arrival of the TBMs, allowing the machines to be transported through the excavation and resume mining east of the extended excavation. An alternative second sequencing option could be to drive the tunnels the entire distance from 1st/Boyle to 1st/Lorena, and follow with the station excavation.

Tunnel driving operations consist of a series of activities. The TBM is advanced a small distance (typically 4 to 6 feet) by means of hydraulic jacks, which react against the previously installed tunnel lining ring. Tunnel lining rings are typically pre-cast concrete segments bolted together in place. Elastomeric gaskets are placed at segment joints to prevent groundwater inflows during and after construction. The machine is advanced and the process is repeated until the entire length of tunnel has been excavated.

Excavated material (muck) is taken to the rear of the TBM and deposited on a conveyor belt. The conveyor belt drops the muck into mine cars, which are then taken back to the shaft by a locomotive operating on temporary rail tracks laid or fastened to the bottom of the tunnel. At the shaft, the mine cars are lifted out by a crane or hoist and the material is put into trucks for off-site disposal or temporarily stockpiled for later disposal. Table 4.19-3 presents the estimated amount of excavated materials and number of daily truck trips required for the tunnel construction.

Ground Surface Settlement Resulting from Tunneling

Geologic conditions for most of the alignment are sands, clays and gravels, which in tunneling terms are described as "soft ground," as opposed to solid rock, known as "hard ground." During tunneling, some ground loss will occur, producing surface settlement. The amount of settlement measured at the surface will be a function of the tunnel depth, size, tunneling techniques, and geology.

TABLE 4.19-3 ESTIMATED AMOUNTS OF EXCAVATED MATERIALS FROM TUNNEL CONSTRUCTION		
Tunnel Section	**Estimated Total Cubic Yards[1]**	**Estimated Maximum Number of Daily Truck Trips[2]**
1st/Boyle to 1st/Soto	105,000	40-80
1st/Soto to East Portal	150,000	40-80
Extended Subway Option	67,700	40-80

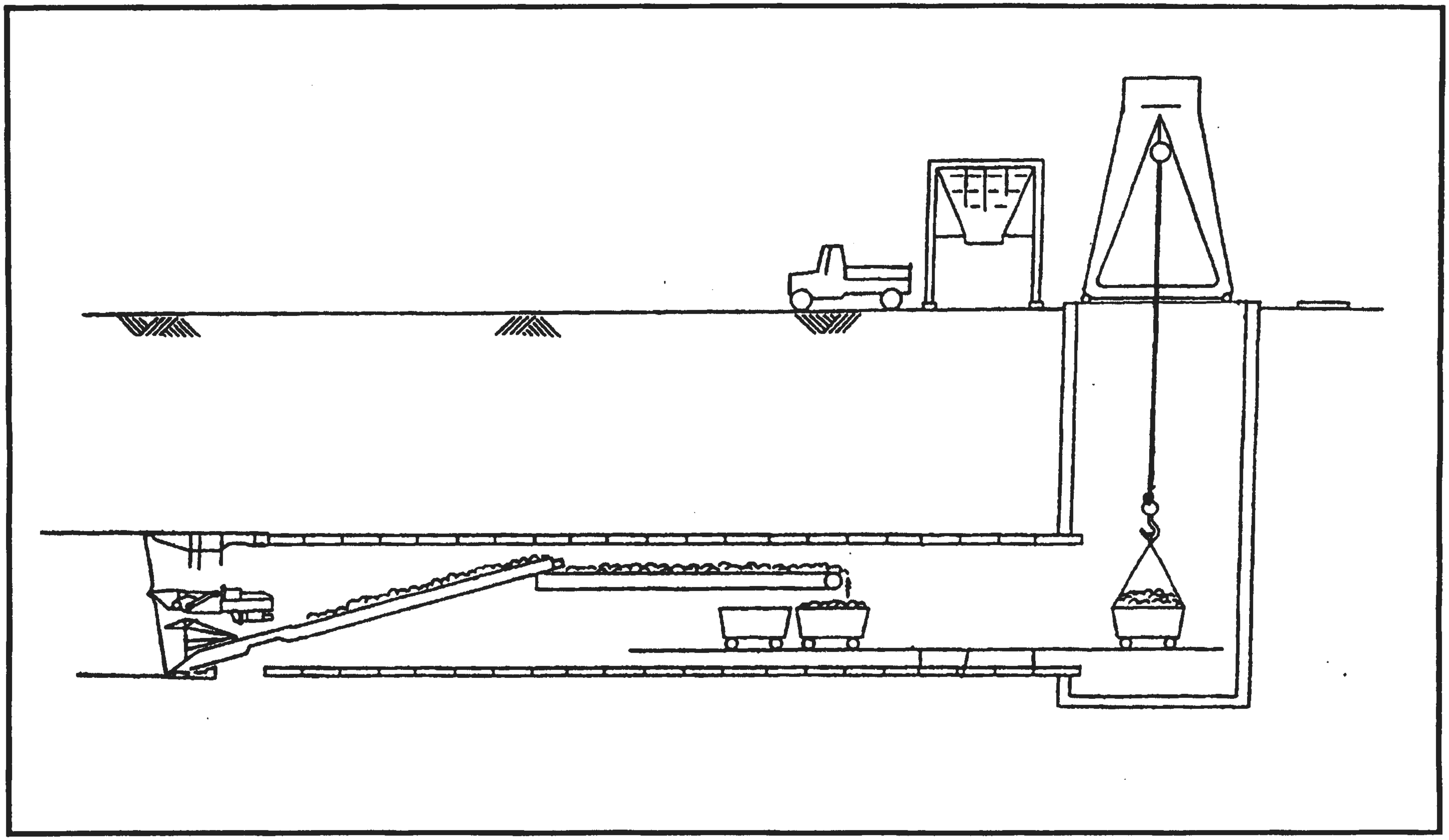
Notes:
[1]This column includes an estimated 1.3 expansion factor for the soil due to handling.
[2]It has been assumed that each truck could haul up to 20 cubic yards, range of number of daily trips doubles depending if one or two tunnels are mined simultaneously.

To reduce surface settlement and the potential for ground loss and soil instability (sloughing, caving) at the tunnel face, pressure-face TBMs and pre-cast, bolted, gasketed lining systems would be employed. In combination with the face pressure, grout is installed immediately behind the TBM between the installed precast concrete liners (tunnel rings) and the ground. The pressure-face TBM can tunnel below the groundwater table without requiring dewatering or lowering of the groundwater table.

Where conditions warrant, for example, shallow tunnels directly below sensitive structures or utilities, additional methods to reduce settlement would be specified. These could include:

- Permeation grouting to improve the ground prior to tunneling: Chemical (sodium silicate) or cement grouts are injected into the ground to fill voids between soil particles – typically sandy soils - and provide greater strength and stand-up time for the soil. This grout can be placed through pipes from the surface before the tunnel reaches the grouted area, from pits or shafts adjacent to the grouted area, or in some instances from the tunnel face. In this latter case, the tunneling machine must be stopped for a period of time to drill grout placement pipes, install grout, and allow the grout to set. The permeation grouting method has been used successfully for the Metro Red Line in instances where the tunnel passed under potentially sensitive or important structures such as the US 101 freeway (downtown, Hollywood and at Universal City).
- Compaction grouting as the tunnel is excavated: This method involves injection of a stiff "grout," typically sand with small amounts of cement, above the tunnel crown as the tunnel advances. The grout densifies soil above the tunnel crown and replaces some of the lost ground, and thereby preventing settlement from propagating to the surface. This method was used in several instances for the Metro Red Line project in the Downtown Los Angeles area and along portions of Hollywood Boulevard.
- Underpinning: Underpinning involves re-supporting the structure's foundation on ground that will not be influenced by the tunneling. This may not be feasible where the structure is directly over the tunnel.

For both compaction and permeation grouting, surface preparation is likely to be required (removal of landscaping etc.) to allow space for drilling equipment, installation of grout pipes, and injection of grout. In cases where large structures are directly over the tunnel, access into the building or basement, where basements exist, could be required for grouting operations, and use of the building could be limited during the grouting operations. After grouting is completed, the area is restored to its existing condition.



Los Angeles Eastside Corridor SEIS/SEIR

Earth Pressure Balance Tunnel Boring Machine

Figure 4.19-3

Mined (non-TBM) Excavated Tunnels

Because of the long TBM set-up times, the relatively short tunnel section west of the 1st /Boyle Station extending to the cut and cover and portal section could be constructed by non-TBM mining methods such as the sequential excavation and support method. Cut and cover techniques are also an option, but would be more disruptive to surface traffic. Sequential excavation and support methods call for the ground to be excavated in small areas and supported with shotcrete and steel supports. After the crown (roof) area is excavated and supported, the larger area of the tunnel is completed. Whereas TBMs can only excavate a fixed (circular) shape, the sequential method permits a tunnel of any shape. This construction technique is useful in areas where the tunnel shape or size needs to change, such as where the single bore tunnel from the portal separates into two tunnels to allow the center platform station.

Ventilation Shafts and Emergency Exits

The subway or tunnel segment of the LRT Build Alternative includes a number of ventilation and emergency exit areas for the subway segment in the vicinity of the subway stations. The locations for emergency exits and exhausts on MTA property and public rights-of-way (sidewalks or street) are shown in Appendix E. In Appendix E, Drawing No. D-002 shows the locations for the area around the 1st/Boyle subway station; Drawing No. D-003 shows the locations around the 1st/Soto subway station; Drawing No. D-004 shows the emergency exhaust location for the 1st/Lorena at-grade station area; and Drawing No. D-011 shows the locations around the 1st/Lorena subway station for the extended subway option.

The stations will house emergency ventilation fan shafts as well as separate emergency exit shafts at both ends of the stations. Ventilation fans are used for extracting smoke from the tunnels and stairs for evacuation in the event of an emergency – such as a fire in the underground areas. The exact location of these facilities would be determined during the final design. These shafts are constructed as extensions of the station excavation, using cut and cover construction methods.

The two-level vent structure is generally a 45-foot-wide, approximately 70-foot-deep concrete box at two ends of the station, joining openings in the top of the tunnels to a vertical shaft penetrating the ground in a convenient location. Ventilation fans and their control equipment, as well as the emergency exit stairs, would be housed in this horizontal concrete box. The area of the shaft will be dependent on the height of the box. Where shafts vent at ground level the area is typically about 400 sq. ft. reducing to about half this area where towers are provided. Minimum tower height would be about ten feet. In some cases vent structures are incorporated with other structures and the height may be adjusted to match or compliment the structure. Since these fans are operated only for emergencies and for maintenance, noise is not considered a significant impact.

It is assumed that each subway station at each end will have two exit hatches connected to emergency stairs. Each exit hatch is about 6 feet wide. Currently most of these hatches and gratings are shown at the station entrance plazas or right-of-way to be acquired for the construction staging areas. During the preliminary engineering design phase, further coordination with the City of Los Angeles will be required to determine if some or all of these hatches and gratings could be located within the public right-of-way. This may require variances from City codes.

4.19.2 Construction Period Impacts and Mitigation

This section discusses the potential impacts during construction and includes mitigation measures that would minimize adverse effects that cannot be avoided. The evaluation focuses on the LRT Build Alternative. There would be no construction-related activities associated with the No-Build Alternative because this alternative only includes improvements to the transportation network that have already been approved and funded. No capital improvements are included under this alternative and would therefore not result in any construction-related impacts within the Los Angeles Eastside Corridor study area. However, it should be noted that the No-Build Alternative would not provide short-term benefits, such as construction and residual employment, associated with the LRT Build Alternative. With regard to the three alignment options (Options 1, 2, and 3) being considered in the vicinity of Indiana Street near Ramona High School, the impacts evaluated would be similar unless otherwise stated in the following discussion.

4.19.2.1 Transit

Impacts

During construction of the LRT system, it may be necessary for traffic lanes to be temporarily closed. Night closures of several blocks on certain streets may also be required. Pre-construction activities that include the relocation of utilities and the construction of the trackway and stations would require the temporary closure of lanes on Commercial Street, Alameda Street, 1st Street, Indiana Street, 3rd Street, and Beverly Boulevard. When traffic lanes are closed during the day, transit bus service would be maintained where feasible. Travel times may be increased due to the potential for increased traffic congestion due to construction activities and lane closures. During night closures of entire street blocks, transit bus service may be affected, and buses would be re-routed. Bus stops may also need to be temporarily relocated due to construction in some areas.

Significance of Impacts

Although these impacts may be temporary, they would be significant under CEQA.

Mitigation

Mitigation plans will be developed by MTA working closely with the City, the County, and the affected transit operators. Bus lines that would be affected by lane closures due to construction activities would continue to operate where feasible in the remaining traffic lanes. Bus stops that would be affected by sidewalk construction would be temporarily relocated, and construction activities would be phased to consider the maintenance of bus service and to minimize disruption. During periods at night when entire blocks may be closed to traffic, bus lines would be re-routed to adjacent streets in a manner that minimizes the inconvenience to bus passengers. If a block is closed that includes a bus stop, the bus stop would be temporarily relocated to the portion of the street segment that is still open to bus service.

Significance of Impacts Remaining After Mitigation

After the implementation of the aforementioned mitigation measures, there would continue to be potentially significant impacts during construction due to the possibility of increased transit travel times.

4.19.2.2 Traffic

Impacts

Construction of the LRT would temporarily interfere with the normal traffic flow, causing some lanes and streets to be closed to vehicles for various durations. At least one street, the section of Mariachi Plaza de Los Angeles between Boyle Avenue and 1st Street, would be closed for the duration of station and tunnel construction (estimated 3 to 4 years). It is possible that in some instances, block-long sections of streets would be closed temporarily for utility relocation, guideway and station construction, and laying rail.

For street level LRT sections, the street area within and alongside the station areas, supplemented by adjacent off-street areas, would be used for construction staging and for equipment and material storage. In general, some areas under the LRT elevated section near Union Station could be used as a construction staging area and equipment and materials storage area. The minimum construction area or "footprint" required would be the width of the structure plus a temporary 20-foot construction easement on at least one side of the guideway. Haul and delivery truck routes will affect residents and commuters along the alignment. Tunnel spoil hauling, rail and catenary deliveries, and general construction traffic will affect traffic patterns as well. In addition to affecting traffic patterns, there may be slight physical damage to the roads from haul trucks.

<u>Significance of Impacts</u>

The impacts during construction would be considered significant under CEQA.

Mitigation

During final design, site and street specific Worksite Traffic Control Plans will be developed in cooperation with the City of Los Angeles Department of Transportation (LADOT) and Los Angeles County to accommodate required pedestrian and traffic movements. To the extent practical, traffic lanes will be maintained in both directions, particularly during peak traffic hours. Access to homes and businesses will be maintained throughout the construction period.

In some cases, specific construction techniques may be utilized that minimize the construction envelopes such as the use of segmental construction, which minimizes the need for extensive falsework on the ground. At least one traffic lane in each direction in addition to pedestrian access will be maintained during construction. Designated haul routes and hauling hours for trucks will be identified during final design in cooperation with LADOT and the County of Los Angeles. These routes will be situated to minimize noise, vibration, and other possible impacts. The haul routes would be advertised to inform the public of their locations. If the haul trucks cause slight physical damage to the roads during construction, the roads will be treated, as necessary.

<u>Significance of Impacts Remaining After Mitigation</u>

After the implementation of the aforementioned mitigation measures, there would continue to be potentially significant traffic impacts, although they would be temporary.

4.19.2.3 Parking

Impacts

It may be necessary to prohibit curb parking when traffic lanes are closed due to construction activities. During sidewalk construction along 1st Street, parking would be prohibited. Along other streets that are wider, such as 3rd Street and Beverly Boulevard, it may not be necessary to temporarily prohibit parking. Indiana Street, under Options 1 and 2, would have temporary parking prohibitions during construction between 1st and 3rd Streets.

Significance of Impacts

The impacts during construction would be considered significant under CEQA.

Mitigation

MTA is committed to providing replacement parking during pre-construction and construction activities. A parking mitigation plan will be developed with the City and the County prior to construction to minimize impacts on curb parking. It may be possible to sequence construction activities so that multiple blocks of on-street parking are not temporarily removed at one time. This would make various on-street parking spaces available in an area under construction for a period of time. Some of the parking mitigation measures outlined in the parking discussion in Chapter 3.0, *Transportation*, could be developed early so that they may be utilized during the period of construction. For example, the MTA-owned parcel near 1st and Lorena Streets may be utilized for replacement parking during construction. The park-and-ride facility proposed for development near Beverly and Atlantic Boulevards could also be developed in time to provide for replacement parking for on-street spaces that may be removed during construction. With regard to construction employee vehicles, MTA will approve parking locations for construction sites. Workers will not be allowed to park on the streets.

Significance of Impacts Remaining After Mitigation

After the implementation of the aforementioned mitigation measures, there would continue to be potentially significant parking impacts, although they would be temporary.

4.19.2.4 Other Modes

Impacts

Pedestrian access to adjoining properties would be maintained during construction, although in some instances, at subway station locations, portions of the sidewalks may be closed temporarily for decking construction. Temporary night sidewalk closures may be necessary in some locations. Some existing crosswalks may be temporarily closed. Lane and street closures could inhibit bicycle traffic flow during construction.

Significance of Impacts

Although temporary, the impacts during construction on pedestrian and bicycle movement would be considered significant under CEQA.

Mitigation

Special facilities, such as handrails, fences, and walkways would be provided for the safety of pedestrians in areas where construction activities would impact sidewalk areas. If crosswalks are temporarily closed, pedestrians would be directed to use one that is in close proximity to the one being temporarily closed. Several adjacent crosswalks would not be closed at the same time to allow for pedestrian movement across the streets. Appropriate signage will be provided to alert and inform pedestrians of construction areas and temporary changes to their walking routes. Bicyclists would be encouraged through signage in the area to ride with caution in the streets, ride with caution on sidewalks, or choose other routes during construction activities. During final design, site and street specific Worksite Traffic Control Plans would be developed in cooperation with LADOT and Los Angeles County to accommodate required pedestrian and bicycle movements.

Significance of Impacts Remaining After Mitigation

After implementation of the aforementioned mitigation measures, there would continue to be potentially significant impacts on pedestrian circulation and bicycle movement, although they would be temporary.

4.19.2.5 Land Use and Development

Impacts

Compatibility with Local Plans and Policies

Short-term impacts associated with construction would include community disruptions from noise, dust, and traffic congestion caused by construction equipment and activities. Access to local facilities, services, and residences could be obstructed during the short-term. Although these impacts would not be permanent, they would not generally support goals and policies for improving the study area. Similarly, congestion around construction staging areas could interfere with plans and policies intended to attract new businesses and residents to the area. These impacts would conclude when construction of the LRT Build Alternative is complete. While there would be short-term impacts, the long-term benefits would further goals and policies within the study area.

Compatibility with Redevelopment Areas/Specialized Zones

Construction activities also would not generally be compatible with objectives for redevelopment zones and specialized zones, especially where construction efforts are concentrated such as around construction staging areas. Community disruptions during construction may delay potential revitalization efforts until construction activities are near completion. When completed, the proposed LRT construction would likely support, and perhaps reinforce, goals for redevelopment as indicated in the discussion of operational impacts in Section 4.1.

Impacts of Stations and Ancillary Facilities

Station construction for the proposed LRT Build Alternative may result in concentrations of activity in these areas and would potentially result in similar disruptive impacts as identified above. Construction activity may also be concentrated in and around Indiana Street in relation to each of the potential options, with Option 3 potentially resulting in the longest duration of such activity. Upon completion, station areas in particular would likely support future redevelopment efforts since businesses and residents are attracted to these areas.

Significance of Impacts

Although these impacts may be temporary, they would be significant under CEQA.

Mitigation

The LRT Build Alternative would be built in stages thereby diminishing the overall impact of construction activity on land use. MTA will coordinate with local businesses and residents to provide advanced notification of traffic detours and delays, and potential utility disruptions associated with construction. Measures to reduce noise and dust are identified in Sections 4.19.2.6, *Air Quality* and 4.19.2.7, *Noise and Vibration*. Mitigation measures would reduce short-term land use impacts to less than significant.

Significance of Impacts Remaining After Mitigation

After the implementation of the aforementioned mitigation measures, temporary land use impacts would be reduced to an insignificant level.

4.19.2.6 Air Quality

Impacts

The proposed LRT Build Alternative would generate pollutant emissions from the following construction activities: 1) the demolition of existing structures, 2) excavation related to cut-and-cover and tunneling operations, 3) welding related to continuously welded rail (CWR) operations, 4) mobile emissions related to construction worker travel to and from project sites, 5) mobile emissions related to the delivery and hauling of construction supplies and debris to and from project sites, and 6) stationary emissions related to fuel consumption by on-site construction equipment.

Table 4.19-4 presents the estimated worst-case daily emissions associated with each construction phase. As indicated in the table, NO_X and PM_{10} emissions are anticipated to exceed SCAQMD significance thresholds during the construction period. Short-term dust nuisance impacts would also occur as a result of construction activity. The primary zone of dust deposition impact is generally less than 100 feet from the source.[11] Since there would be no differences in any of the three options in the vicinity of Ramona High School that would materially affect the alignment, construction duration, nature of construction activities, construction worker or haul-truck VMT, or construction equipment requirements, there would be no discernible differences in the impacts between any of the options.

[11] EPA, AP-42, Section 13.2-2

TABLE 4.19-4
DAILY CONSTRUCTION EMISSIONS [1]

Construction Phase	Duration [2]	CO	ROG	NO_X	SO_X	PM_{10}
SCAQMD Threshold		**550**	**75**	**100**	**150**	**150**
Underground Excavation	14	43	7	69	5	603
Tunnel Boring	12	58	9	85	6	1,068
Finish Stations and Tunnels	15	37	6	41	3	26
Continuously Welded Rail Operations	26	44	14	99	11	12
At-Grade Platforms and Rail Installation	26	54	10	76	5	493
Simultaneous Excavation and Tunnel Boring [3]	6	101	16	154	11	1,671
Simultaneous CWR and Rail Installation [4]	26	98	24	175	16	505
Potential Threshold Violation?		**No**	**No**	**Yes**	**No**	**Yes**

[1] Expressed in pounds per day. Daily emissions were derived using the applicable emission factors and formulas found in the *SCAQMD CEQA Handbook*, Appendix to Chapter 9.
[2] Expressed in months.
[3] Worst-case construction emissions are anticipated to occur during simultaneous excavation and tunnel boring activities.
[4] Worst-case NO_X emissions are anticipated to occur during simultaneous CWR and rail installation activities.
Source: Terry A. Hayes Associates

Although the construction period will last about four to five years, air quality impacts would still be localized and short-term. This is because construction equipment, and, therefore, air quality impacts, would move throughout the six-mile project alignment area. Thus, impacts on individual receptor locations within the area that may be affected by the proposed project would be short-term. Furthermore, because of the nature of construction activity and the phased construction schedule, some days will experience a higher level of construction activity (which in turn generates a higher level of emissions), while others will not.

Significance of Impacts

Air quality impacts during construction are potentially significant.

Mitigation

The contract will require specific stipulations that the contractor must follow to meet criteria included in MTA's Systems Design Criteria and Standards, Volumes I through IV, to minimize adverse affects during construction. The following measures are options available to mitigate construction-related air quality impacts:

- **Diesel Equipment Usage**. Minimize use of on-site diesel construction equipment, particularly unnecessary idling.
- **Electric Powered Equipment**. Where feasible replace diesel equipment with electrically powered machinery.
- **Diesel Equipment Maintenance**. Construction contracts should explicitly stipulate that all diesel power equipment should be properly tuned and maintained.
- **Equipment Emissions**. Construction equipment will be shut off to reduce idling when not in direct use. Diesel engines, motors, or equipment should be located as far away as possible from existing residential areas. Low sulfur fuel should be used for construction equipment.
- **Location of Staging Areas**. If required, haul truck staging areas should be approved by the Los Angeles Department of Transportation. When feasible, haul trucks will be staged in non-residential areas away from school buildings and playgrounds. MTA will approve employee parking locations

for construction sites. Construction workers will not be allowed to park on streets.

- **Site Watering**. Site wetting shall occur often enough to maintain a ten percent surface soil moisture content throughout any site grading or excavation activity. All unpaved parking or staging areas and all on-site stockpiles of debris, dirt, or rusty material shall be covered or watered in accordance with SCAQMD Rule 403.
- **Truck Covering**. Require all trucks hauling dirt, sand, soil, or other loose substances and building materials to be covered.
- **Street Sweeping**. Utilize street sweeping equipment at site access points and all adjacent streets used by haul trucks or vehicles that have been on site in compliance with SCAQMD Rule 403.
- **Fugitive Dust Control**. Maintain a fugitive dust control program consistent with the provisions of SCAQMD Rules 403 and 1186 for any grading or earthwork activity that may be required.
- **Phasing**. To the extent feasible, phase construction activities to minimize concurrent dust generating activities within a 2,500-foot radius of shaft site locations.
- **Suspend Operations**. Suspend grading operations during first and second stage smog alerts, and during high winds, i.e., greater than 25 miles per hour.

In addition, MTA will implement a sidewalk and window cleaning program during construction, if needed, to reduce impacts caused by dust generated during the construction.

Implementations of the above-mentioned mitigation measures are anticipated to result in a significant reduction in airborne particulate (PM_{10}) emissions; however, reductions in CO, ROG, NO_X, and SO_X emissions would be negligible. The estimated PM_{10} emissions reduction for each major construction phase is presented in Table 4.19-5.

TABLE 4.19-5
CONSTRUCTION PHASE DAILY PM_{10} EMISSIONS [1]

	Without Mitigation	With Mitigation	Net Benefit
Underground Excavation	603	116	-487
Tunnel Boring	1.068	202	-866
Finish Stations and Tunnels	26	26	0
Continuously Welded Rail Operations	12	12	0
At-Grade Platforms and Rail Installation	493	181	-315
Simultaneous Excavation and Tunnel Boring	1,671	319	-1,353
Simultaneous CWR and Rail Installation	505	193	-315

[1] Expressed in pounds per day.
Source: Terry A. Hayes Associates

As indicated above, even with application of best available control measures, PM_{10} emissions are anticipated to exceed the SCAQMD significance threshold of 150 ppd during the tunnel boring and at-grade platforms and rail installation construction phases. Similarly, NO_X emissions are anticipated to exceed the SCAQMD significance threshold of 100 ppd during periods of simultaneous excavation and tunnel boring operations. These short-term air quality impacts would be significant and unavoidable. Dust nuisance impacts are also anticipated to remain after application of best available control measures, although to a lesser extent. During preliminary engineering, MTA will continue to investigate alternative techniques to reduce temporary air quality impacts.

Significance of Impacts Remaining After Mitigation

Although mitigation would be provided to the greatest extent feasible, short-term PM_{10} and NO_x emissions and dust nuisance impacts generated by construction activities would remain significant after mitigation.

4.19.2.7 Noise and Vibration

Impacts

Construction Noise and Vibration Criteria

The criteria for assessing noise and vibration impacts for construction are based on the City of Los Angeles, Draft L.A. CEQA Thresholds Guide and the MTA Baseline Specifications Section 01565, Construction Noise and Vibration Control. The noise and vibration limits specified by Section 01565 are based on eliminating or minimizing noise and vibration generated by construction activities. The criteria can be found in the separate *Noise and Vibration Technical Report* that was prepared for the Los Angeles Eastside Corridor.

Vibration, as it is related to risk of building damage, is generally assessed in terms of peak particle velocity (PPV). PPV is the appropriate metric for evaluating the potential of building damage and is often used in monitoring blasting and construction vibration since it relates to the stresses that are experienced by buildings. PPV is typically a factor of 1.7 to 6 times greater than root mean square (rms) vibration velocity. As discussed in Section 4.8, rms vibration velocity is used to assess potential human annoyance from vibration. A factor of four has been used to relate the building damage criteria used to approximate rms vibration velocity levels, which are used by FTA to define the vibration generated by LRT operations. The criteria levels, presented in Table 4.19-6 would be used to judge the potential risk of damage to historic buildings or cultural resource structures during construction of the project. The criteria are based on research to date on structural building, architectural building, and historic buildings and cultural resource structures damage. These levels are significantly greater than the FTA vibration criteria of 72 to 75 VdB for LRT operations and are also greater than the maximum vibration levels projected from the LRT operations at any structure along the alignment.

TABLE 4.19-6
DAMAGE RISK VIBRATION CRITERIA

	Peak Particle Velocity (in./sec)	RMS Velocity – VdB (re: 1 micro inch/sec)
Structural Building Damage	2.0	120
Architectural Building Damage	0.5	108
Damage Risk to Historic Buildings and Cultural Resource Structures	0.12 to 0.20	95 to 100

Note: Peak particle velocity (PPV) is assumed to be four times greater than root mean square (rms) vibration velocity.

Construction Noise Levels

Noise impacts from construction will differ for the at-grade and the underground section of the project. At-grade construction noise will be generated by heavy equipment (such as bulldozers, backhoes, haul trucks, scrapers, loaders, cranes, and paving machines) used during major construction periods as close as 25 feet to existing structures along the alignment. Most of the underground tunnel activities will not be audible at street level. Support equipment for the excavation and tunneling would be located at street level and could include ventilation fans, compressors, electric generator sets, and a concrete batch plant. Construction of a tunnel vent shaft would include equipment at street level such as a crane, excavator, loader, and haul trucks. Construction activities at each of the tunnel portals could potentially affect nearby noise sensitive receivers. Tunnel excavation material will be removed and stock-piled at one of the portals. Haul trucks, used to remove the excavated material, would be a potential source of noise along city streets. LADOT and Los Angeles County are responsible for selecting the haul routes; however, MTA will work with the agencies to develop a plan to avoid impacting residential areas, schools, and playgrounds as much as possible.

Construction Vibration Levels

Common vibration producing equipment used during at-grade construction activities include, pile drivers, jackhammers, pavement breakers, hoe rams, augur drills, bulldozers and backhoes. There is not expected to be pile driving during construction of this project. Pavement breaking and soil compaction will probably be the activities that produce the highest level of vibration. The other potential vibration source would be the demolition of existing buildings or structures that will be required under the LRT Build Alternative and all three of its options.

Equipment used for underground construction, such as a tunnel boring machine and mine trains would generate vibration levels that could result in audible ground-borne noise levels in residential buildings at the surface. The operation of the mine trains would be the major source of underground construction vibration since it will operate continuously during the excavation, mining, and finishing of the tunnel. Since underground construction is expected to occur continuously over a 24-hour day, there is the potential for these operations, particularly the mine trains, to be audible during the nighttime sleep hours when background noise levels inside the residential buildings are very low.

The most recent transit tunneling project in Los Angeles, the Metro Red Line Project, used a driven-shield TBM for the mining work. A ground vibration study of the mining operations was conducted to estimate construction vibration both from actual excavation of the tunnel and from the trains used to haul mine spoils out of the tunnel. Similar effects from the mining operations for the LRT Build Alternative would be expected. The primary conclusions of the study are:

- Vibration from the tunnel excavation will rarely be a significant problem in adjacent communities, although the vibration can be sufficient to cause several hours of intrusive low level ground-borne vibration at residential buildings above the tunnel.
- Although well below any damage thresholds, vibration from mine trains has the potential of causing intrusive ground-borne noise inside buildings above the tunnel.

Significance of Impacts

The noise and vibration impacts during construction would be significant.

Mitigation

Noise and vibration impacts from construction of the LRT project will require mitigation to meet the Los Angeles CEQA Noise Thresholds and the MTA specified limits. In addition, all construction activities within 200 feet of a historic building or cultural resource structure will have to meet the vibration limits previously discussed. The final determination of construction noise and vibration impacts will depend on the equipment and activities used by the contractor to construct this project. Since this information on means and methods of construction is not available now, noise mitigation is presented as typical noise control measures which have been used on other similar construction projects.

The Draft CEQA Thresholds Guide and MTA construction specifications define several possible mitigation measures for construction noise. They include the following:

- Use noise control devices, such as equipment mufflers, enclosures, and barriers. Natural and artificial barriers such as ground elevation changes and existing buildings can shield construction noise. Stage construction operations as far from noise sensitive uses as possible;
- Avoid residential areas when planning haul truck routes;
- Maintain all sound-reducing devices and restrictions throughout the construction period;
- Replace noisy equipment with quieter equipment (for example, a vibratory pile driver instead of a conventional pile driver and rubber-tired equipment rather than track equipment); and
- Change the timing and/or sequence of the noisiest construction operations to avoid sensitive times of the day.

MTA Baseline Specifications Section 01565, *Construction Noise and Vibration Control* requires that the contractor shall:

- Hire or retain the services of an Acoustical Engineer to be responsible for preparing and overseeing the implementation of the Noise Control and Monitoring Plans;
- Prepare a Noise Control Plan that includes an inventory of construction equipment used during daytime and nighttime hours, estimate of projected construction noise levels, and locations and types of noise abatement measures that may be required to meet the specified noise limits;
- In the case of nighttime construction, the contractor will comply with the provisions of the nighttime noise variance issued by the Los Angeles Police Department;
- Conduct periodic noise measurement in accordance with an approved Noise Monitoring Plan, specifying monitoring locations, equipment, procedures, and schedule of measurements and reporting methods to be used; and
- During nighttime hours, use equipment at the surface of the construction site that, operating under full load, is certified to meet the specified lower noise level limits than standard equipment.

The Los Angeles Unified School District (LAUSD) has expressed concern about potential noise and vibration impacts on schools in the vicinity of the construction. During construction the contractor will be required to implement mandatory mitigation measures to reduce potential noise and vibration impacts on nearby schools including: Utah Elementary, First Street, Our Lady of Lourdes, Ramona High, and Griffith Middle Schools. These measures will be based on maintaining acceptable interior noise levels within the school classrooms and occupied spaces. MTA will develop this criteria in coordination with LAUSD and individual school administrators. MTA will require the contractor to prepare noise and vibration control plans to meet these criteria and will also require the contractor to adhere to a plan to monitor the construction noise and vibration levels to ensure compliance.

If vibration levels at residences located above the subway segment disrupt daytime activities or nighttime sleep, MTA will provide hotel accommodations for those residents during the short time that the equipment is expected to tunnel underneath their residences. The contractor will be responsible for the protection of vibration-sensitive historic buildings or cultural resource structures that are within 200 feet of any construction activity. These structures have been identified in Section 4.15. The maximum PPV level, in any direction, at any of these structures should not exceed 0.12 inches/second for any length of time. The contractor will be required to perform periodic vibration monitoring at the closest structure to any construction activities using approved seismographs. If at any time the construction activity exceeds this level, that activity will immediately be halted until such time as an alternative construction method can be used that would result in lower vibration levels.

Significance of Impacts Remaining After Mitigation

Although mitigation would be implemented to minimize the impacts, it is possible that the noise and/or vibration levels during construction at some locations still may not be reduced to the applicable criteria. Therefore, impacts remaining could be potentially significant.

4.19.2.8 Visual and Aesthetics

Impacts

Construction Staging Areas

Construction staging areas are located in areas that are primarily commercial. Mariachi Plaza is directly across the street from the 1st/Boyle Station, however, and it is possible that visual and other impacts (noise, traffic disruption, etc.) would lead to this plaza being temporarily unusable for its primary use as a bandstand for mariachi performances. This would be a significant impact, though not necessarily related to the visual impacts alone. Across from the 1st/Lorena construction staging area is Evergreen Cemetery. Residences are located diagonally across the intersection. There would be visual impacts from the construction staging, although they would not prevent use of either of these areas.

Demolition

Whether the widening on Alameda Street requires demolition of the service station at Alameda and Commercial Streets, or only remodeling, short-term visual impacts in this commercial/industrial/institutional area would be less than significant. Demolition of the single remaining structure on the south side of 1st Street, between the northbound US 101 off-ramp and Boyle Avenue, would not result in significant short-term visual impacts. The structure is already bordered by vacant land and the site is not near any sensitive viewers.

Mariachi Plaza is directly across the street from where the existing grocery store would be demolished to make way for the 1st/Boyle Station. It is possible that visual and other impacts (noise, traffic disruption, etc.) would lead to this plaza being unusable for its primary use as a bandstand for mariachi performances during demolition. This would be a significant temporary impact, though not necessarily related to the visual impacts alone. Demolition at the 1st/Soto Station entrance would result in less-than-significant short-term visual impacts on the adjacent uses. Several structures would be removed, some within view of sensitive viewers (residents), but the visual impacts from this demolition would not prevent the use of adjacent properties.

At the Indiana Street demolition site (Option 2), visual impacts on residential and recreational uses would be less than significant because they would not prevent use of adjacent properties. Demolition of the vacant commercial building at 3rd Street and Sunol Drive and the Mobil station at Atlantic and Beverly Boulevards would result in minimal visual impacts.

In addition, minor demolition would occur throughout the corridor, including removal of street trees, bus shelters, pavement demolition, reconstruction of Union Station, etc. None of these would result in significant visual impacts in the short term.

Excavation

Visual impacts at the 1st/Gless excavation site may combine with other impacts (such as noise) to prevent use of at least a portion of the adjacent Pecan Park. Because children are present at this location, the construction site would also be considered an attractive nuisance, with potential safety impacts related to the visibility of the site. These would be significant visual impacts. At the 1st/Boyle excavation site, the impacts related to construction, including visual, may prevent use of Mariachi Plaza, in a similar manner as discussed for the nearby construction staging area. This would also be a significant impact. At all other locations, visual impacts would be less than significant because they would not affect use of adjacent properties.

Significance of Impacts

Temporary visual impacts related to construction staging, demolition, and construction staging could be potentially significant.

Mitigation

Pecan Park

Short-term impacts on Pecan Park would include deterioration of views and nuisance impacts. To mitigate these impacts, solid, tamper-proof screening materials would be installed along the perimeter of the playground. Screening would allow full use of the playground and would thus reduce temporary visual impacts to less than significant. Security patrolling will be provided during the nighttime as needed.

Mariachi Plaza

To mitigate the short-term visual impacts at Mariachi Plaza related to the demolition of the adjacent grocery store, construction of the 1st/Boyle Station, and the use of the nearby construction staging area, the demolition and construction staging area would be screened and construction accelerated as much as possible. In addition, if required, a suitable and nearby alternative site for mariachi performances will be provided (refer to Section 4.16, *Community Facilities/Parklands*). Security patrolling will be provided during the nighttime as needed.

Significance of Impacts Remaining After Mitigation

With the incorporation of the aforementioned mitigation measures, short-term visual impacts would be reduced to less than significant.

4.19.2.9 Economic Activity

Impacts

Construction Employment

Table 4.19-7 presents the conceptual construction cost estimates and short-term jobs created for the LRT Build Alternative. Given that short-term employment is directly related to the construction cost of the alternative, the higher the construction cost, the higher the potential employment opportunities would be. Although it is likely that the majority of construction labor would come from Southern California and within Los Angeles County, recruiting short-term construction workers from within the corridor is a priority for MTA. The number of short-term employment opportunities throughout construction would be dependent on phasing. The data in Table 4.19-7 is for a project constructed at one time.

TABLE 4.19-7
ESTIMATED SHORT-TERM EMPLOYMENT–LRT BUILD ALTERNATIVE

LRT Build Alternative Option	Conceptual Construction Costs (1999 $millions)[1]	Estimated Direct Employment Generated[2]	Estimated Indirect Employment Generated[2]	Estimated Total Employment Generated[2]
LRT with Option 1	$586.5	19,824	27,038	***46,862***
LRT with Option 2	$589.1	19,912	27,158	***47,070***
LRT with Option 3	$684.0	23,119	31,532	***54,651***

Sources:
[1] Conceptual construction costs do not include right-of-way costs (PBQD, 2000).
[2] For each $100 million investment - 3,380 direct and 4,610 indirect jobs would be generated for new rail starts (APTA, 1983).

The LRT Build Alternative with Option 3 would generate approximately 54,600 jobs throughout the period of construction. Options 1 and 2 would result in 46,800 and 47,000 jobs, respectively. Employment generated by construction of the LRT Build Alternative would be a beneficial impact. In light of other development projects planned for the corridor, this alternative would produce a cumulative benefit that would help offset employee displacements resulting from business acquisitions related to this project.

Fire/Police Services

Although construction of the project would require temporary closures and/or road blocking, and thus require fire and police units to possibly travel alternate routes for emergency response, no additional staff would be required for such temporary impacts. Furthermore, local fire and police staff and services would be affected minimally by the direct and indirect employment created by construction of the LRT Build Alternative. Standard coordination between MTA and City/County fire and police departments for construction times and locations will allow these services to anticipate changes in emergency response routes, and thus prevent the need for any new personnel and, thus, additional spending on these services. As no facilities would be affected, and only a minimal amount of fire and police employees would need to be hired in the study area, no significant impacts on fire/police services and costs are anticipated.

Fiscal Impacts

Construction of the LRT Build Alternative would not result in reduction of property tax revenue relative to the construction of the project. Business impacts could include reduced visibility of commercial signs and businesses. These construction impacts could in turn produce economic impacts to the commercial establishments. Businesses most likely to be affected would include those that depend on on-street parking or street access, which would be restricted during construction. Businesses that are sensitive to noise/vibration may also be affected by construction activities. These are potentially significant temporary impacts.

Temporary adverse effects on sales tax revenue from indirect construction impacts is not anticipated to be significant with existing tax revenue amounts being sufficient to continue the current level of social spending and governmental services. Sales tax revenues may actually increase within the local communities and the county due to higher employment activity and spending. In addition, no reduction of business license fees is expected.

Significance of Impacts

Certain construction-related economic impacts are significant under CEQA.

Mitigation

MTA will coordinate with local businesses and residents to provide advanced notification of traffic detours and delays, and potential utility disruptions associated with construction. In order to efficiently do this, a pre-construction survey will be performed which will include the following measures: Public affairs and construction staff from the MTA would contact and interview individual businesses, allowing for knowledge and understanding of how these businesses carry out their work. This survey would identify business usage, delivery, and shipping patterns and critical times of the day or year for business activities. This survey would aid MTA in developing Worksite Traffic Control plans and identifying alternative access routes to maintain access to all businesses and ensure that critical business activities are not disrupted.

Additional measures to notify the community of temporary fiscal impacts during construction may include:

- Use MTA's Public Affairs Department to identify community/businesses needs prior to and during the construction period;
- Provide the community and businesses with the name and telephone numbers of public affairs staff who will know important information pertaining to construction;
- Participate in local events in an effort to promote public awareness of the project;
- Notify property owners, residences, and businesses of major construction activities (e.g., utility relocation/disruption and milestones, re-routing of delivery trucks);
- Provide literature to the public;
- Provide presentations on the project;
- Respond to phone inquiries;
- Coordinate business outreach programs;
- Schedule promotional displays; and
- Participate in community committees.

In addition, MTA will provide support to those businesses most affected by the construction to implement promotions for their businesses. MTA will develop bilingual (English/Spanish and other languages as needed) advertisements for local print and radio for affected businesses. Appropriate signage will be developed and displayed by MTA to direct both pedestrian and vehicular traffic to businesses via alternate routes.

Station Area Advisory Committees (SAACs) are currently being formed for each of the 9 station areas in consultation with the local elected officials to ensure local public participation in both the construction and operation of the Los Angeles Eastside Corridor. MTA is establishing a formal working relationship with these committees as sub-committees of the Review Advisory Committee (RAC). Refer to Chapter 6.0 for more information about the RAC. The goal of each SAAC is to continue the public participation process by addressing specific station area concerns, such as impacts and mitigation measures during construction, as well as economic development opportunities, transit connections, and physical station plans. All components of station area planning will be presented to the community with opportunities for comment and review.

One or more Metro Field Offices will be staffed by MTA to address community issues and concerns that arise during construction. More information about the office(s) can be found in Section 4.19.2.10, *Neighborhoods*. Mitigation measures for pedestrian safety and access during construction are presented in Section 4.19.2.4, *Other Modes* and 4.19.2.19, *Safety and Security*. Specific measures to reduce temporary impacts from noise and dust are identified in Sections 4.19.2.6, *Air Quality* and 4.19.2.7, *Noise and Vibration*.

Significance of Impacts Remaining After Mitigation

After the implementation of the aforementioned mitigation measures, temporary economic and fiscal impacts would be reduced to an insignificant level.

4.19.2.10 Neighborhoods

Impacts

Light rail construction activities may also generate temporary visual, air quality, and circulation impacts. For example, motorists and pedestrians may on occasion be inconvenienced by traffic delays during the construction period. In addition, temporary removal of on-street parking and rerouting of buses, as well as traffic lane and sidewalk closures, may be necessary for movement of construction equipment. Operation of construction equipment and the use of mining cars to haul excavation from the tunnel may cause noise and vibration perceptible to adjacent residences and businesses. Operation of the tunnel boring machine is generally short-term in nature, lasting only a few days for the areas affected. Fugitive dust may result from operation of construction machines, excavation, and building demolition. These impacts are potentially significant.

Significance of Impacts

Certain construction-related neighborhood impacts are significant under CEQA.

Mitigation

Mitigation measures to reduce these impacts are presented in Sections 4.19.2.2, *Traffic*, 4.19.2.4 *Other Modes*, 4.19.2.7 *Noise and Vibration*, and 4.19.2.8 *Visual and Aesthetics*. In addition, MTA will provide the resources needed to open and maintain during construction one or more Metro Field Offices with staff who will be available to address community issues and concerns that arise. The field office(s) and MTA staff will serve multiple purposes that include:

- Provide the community and businesses with a physical location where information pertaining to construction can be exchanged;
- Enable MTA to better understand community/business needs during the construction period;
- Allow MTA to participate in local events in an effort to promote public awareness of the project;
- Manage construction-related matters pertaining to the public;
- Notify property owners, residences, and businesses of major construction activities (e.g., utility relocation/disruption and milestones, re-routing of delivery trucks);
- Provide literature to the public and press;
- Promote and provide presentations on the project via MTA's Speaker Bureau;
- Respond to phone inquiries;
- Coordinate business outreach programs;
- Schedule promotional displays; and

- Participate in community committees.

The Metro information offices will be open various days of the work week for the duration of the construction period. A schedule will be developed prior to construction.

In addition, site-specific mitigation programs will be developed, as needed, to handle unanticipated impacts that may occur in the stations or construction staging areas that have not been addressed elsewhere in this document. MTA will provide the resources necessary to employ a public affairs staff to develop such programs for residences and businesses that may be adversely impacted by the construction.

Significance of Impacts Remaining After Mitigation

After the implementation of mitigation measures, temporary neighborhood impacts (with the exception of transit, traffic, parking, and pedestrian and bicycle movements) would be reduced to an insignificant level. Impacts on the excepted categories would still be potentially significant after mitigation is applied.

4.19.2.11 Community Facilities/Parklands

Impacts

Parklands

Parklands bordering the proposed alignment and construction staging areas, such as Pecan Park and Belvedere Park, may undergo temporary noise, vibration, visual, air quality, and circulation impacts due to construction activities. The use of Mariachi Plaza would be temporarily disrupted by excavation and finishing work on the eastern end of the plaza for the 1st/Boyle subway station. The gazebo and adjacent area on the western portion of this facility would remain intact throughout construction. In addition, the street bordering the plaza on the north, Mariachi Plaza de Los Angeles, would be closed for the duration of station and subway construction (estimated three to four years). Curb parking may be temporarily restricted on 1st Street, which could reduce access to Pecan Park, LANI Park, and Mariachi Plaza although MTA is committed to maintaining access to these parks throughout the construction period. The impacts are potentially significant. The amount of differential settlement from the tunneling is not expected to cause structural or architectural damage to facilities at Pecan and Belvedere Parks or Mariachi Plaza. During construction, ground settlement will be monitored and steps will be taken to ensure no structural damage occurs at these sites.

Cemeteries

Access to Evergreen Cemetery at 1st/Fresno would not be affected by temporary lane closures and night street closures along 1st Street between Lorena and Fresno Streets since MTA is committed to maintaining access to cemeteries during construction. No significant impacts would occur.

Schools

Temporary noise, vibration, air quality, circulation, and safety impacts are possible at schools located adjacent to the LRT alignment, station locations, or construction staging areas. Construction activities would temporarily interfere with normal traffic flow, causing some lanes and streets to be closed to vehicles for various durations of time. However, these temporary lane closures are not expected to restrict access to schools located along or near 1st Street. For Options 1 and 2, there would be temporary curb parking restrictions along Indiana Street by Ramona High School.

Ground-borne noise and vibration generated by mine cars carrying excavated material tunneling machinery may affect school activities at First Street School, and, if Option 3 were implemented, Ramona High School for a several-day period. Ground settlement from tunneling is not expected to cause structural or architectural damage to the school facilities that lie adjacent to or above the subway. However, as a precautionary measure, structural surveys would be undertaken during final design to determine building condition.

Construction-related noise and vibration impacts on schools may occur along the at-grade portion of the alignment and may affect Griffith Middle School, particularly with construction of the 3rd/Mednik Station. Option 3 may produce noise, vibration, dust, and circulation impacts at our Lady of Lourdes, which fronts on the 3rd/Rowan Station. These impacts are potentially significant.

Hospitals/Clinics

Temporary noise, vibration, and air quality impacts may occur at the Veterans Clinic on Alameda Street and at the Roybal Health Center, which are along the LRT alignment due to construction activities. These impacts are potentially significant. Temporary lane closures are not expected to affect access to these health centers.

Libraries

The Ben Franklin Library, which is located adjacent to the tunnel alignment on 1st Street, may experience noise and vibration impacts during tunnel construction, a period of several days. The East Los Angeles Library would face the LRT alignment along 3rd Street, close to the proposed 3rd/Mednik Station. Temporary noise, vibration, and air quality impacts may result from at-grade construction activities. These impacts are potentially significant. Temporary lane closures are not expected to affect access to the libraries. No construction activities would occur at the Little Tokyo Library, which is further from the alignment.

Places of Worship

Construction of power substations across Rose Street from the Zenshuji Soto Mission and across Sunol Drive from Guadalupe Church may create temporary noise and vibration impacts. At-grade construction would occur on streets fronting Hompa Hongwanji Buddhist Temple, Our Lady of Lourdes Church, Guadalupe Church, Sala Evangelica, Iglesia El Siloe, and Iglesia Cristiana Ejercito de Salvacion producing temporary noise, vibration, and air quality impacts. Vibration impacts could result from tunnel construction under the Pentacostal Church and, in Option 3, Iglesia Evangelica. These impacts are potentially significant. Tunneling is not expected to cause structural or architectural damage to the Pentacostal Church or Iglesia Evangelica (under Option 3) due to differential settlement. Temporary lane closures are not expected to affect access to places of worship.

Other Community Facilities

The Japanese American Museum and the Geffen Contemporary Museum have non-entry sides facing Alameda Street. Traffic delays may be encountered at 1st/Alameda during construction. However, the museums' principal access points further to the west along 1st Street and Temple Street would not be restricted during construction and, therefore, would not be a significant impact.

St. Elizabeth Day Nursery is located north of 1st Street along Mission Road, removed from the effects of construction activities. Traffic delays due to construction of the subway portal at 1st/Gless Streets is not expected to disrupt access to the Aliso Pico Multipurpose Center. Short-term noise, vibration, and air quality impacts may affect use of the center. Noise and vibration impacts and possible settlement impacts from tunneling may also affect the Hollenbeck Youth Center, located on 1st Street west of St. Louis Street.

Significance of Impacts

Many of the construction-related impacts to parklands and community facilities are potentially significant impacts.

Mitigation

Mitigation measures to reduce these potentially significant temporary impacts to parklands and community facilities are presented in Sections 4.19.2.2, *Traffic* 4.19.2.3, *Parking,* 4.19.2.4, *Other Modes,* 4.19.2.7, *Noise and Vibration*, and 4.19.2.8, *Visual and Aesthetics.*

Significance of Impacts Remaining After Mitigation

Although most construction-related visual, transportation, noise, and vibration impacts on parklands and community facilities can be reduced to an insignificant level after mitigation, some impacts, though temporary, will remain significant (refer to the respective sections for more information).

4.19.2.12 Historic/Archaeological/Paleontological Resources

Refer to Section 4.15, *Historic/Archaeological/Paleontological Resources*, for a complete discussion of impacts during construction.

4.19.2.13 Geologic and Seismic

Impacts

Tunneling conditions along the suspended Metro Red Line project alignment from Union Station to 1st and Lorena Streets were explored extensively. The planned tunnel section associated with the Extended Subway Option (Option 3) that extends east of 1st and Lorena Streets and transitions across Indiana Street to 3rd Street has a slightly different alignment than the tunnel alignment previously explored for the suspended Metro Red Line project. However, based on borings in the immediate vicinity of the Extended Subway Option tunnel (GeoTransit Consultants, 1996a) and a previous investigation by Law/Crandall for Ramona High School (LeRoy Crandall & Associates, 1975), tunneling conditions are anticipated to be similar to those encountered at 1st and Lorena Streets.

Tunneling-Induced Ground Surface Settlement

Geologic conditions for much of the tunnel alignment are sands, clays, and gravels, which in tunneling terms are described as "soft ground." Based on the previous geotechnical investigations for the suspended Metro Red Line project, and available publications, the LRT Build Alternative tunnel sections have a potential for running ground conditions during construction. These conditions occur where poorly graded, poorly cemented sand and gravel exist in the presence of water. There is also a potential along the tunnel for slow raveling conditions in areas where silty sands and clayey sands are encountered during construction. Additionally, mixed face conditions (soil/bedrock interface) could be encountered in areas where bedrock might be shallow.

During tunneling, some "ground loss" will occur, resulting in surface settlement. The amount of ground loss and subsequent settlement measured at the surface will be a function of the tunnel depth, size, tunneling techniques, and geology. For previous Metro Red Line projects in similar geology as the LRT Build Alternative, surface settlement measured directly above the tunnel crown was typically less than one inch (Eisenstein et. al, 1995).

Building (or utility) damage from tunneling may result when there is differential settlement of the foundation, that is, a change in elevation of one foundation element relative to another. The degree of damage is dependent on the amount of such differential settlement, the buildings construction materials, quality of construction, and age. The amount of differential settlement expected for the LRT Build Alternative is not expected to cause structural or architectural damage. However, during final design, structural surveys and analyses would be completed, along with further geotechnical investigation in accordance with MTA's System Design Criteria and Standards Volumes I through IV, to determine the condition of existing buildings which are in proximity to the stations and tunnels, and to estimate the need for additional building protection. Therefore, ground surface settlement is anticipated to have a potentially significant impact under CEQA on the construction of the LRT Build Alternative.

Cut-and-Cover Excavation for Station Sites and Tunnels Adjacent to Portals

Based on the previous geotechnical investigations for the suspended Metro Red Line project, and available publications, poorly graded, poorly cemented sand and gravel may be encountered. Excessive sloughing and localized caving may occur in these soils when dry or when saturated, which may have a potentially significant impact under CEQA on the construction of the LRT Build Alternative.

Groundwater

Shallow and perched groundwater may be encountered above design tunnel and station elevations creating difficult working conditions and instability in mined tunnel sections and excavation walls and bottoms. Groundwater may have a potentially significant impact under CEQA on the construction of the LRT Build Alternative. Methods for handling groundwater during construction are addressed in the Sections 4.19.1, *Construction Methods* and 4.19.2.15, *Water Resources*. Methods for disposal of groundwater, should it be contaminated, are discussed in Section 4.19.2.14, *Hazardous Materials*.

LRT Build Alternative Options

With respect to geologic hazards, the Extended Subway Option extends the underground section of the LRT Build Alternative approximately 3,000 feet, adding an underground station at 1st and Lorena Streets. Based on borings in the vicinity of the Extended Subway Option, geologic conditions are anticipated to be similar to those encountered at 1st and Lorena. Impacts from operations for tunnels and stations in the extended subway will be similar to those described for the tunneled section between Boyle Avenue and Lorena Street.

Significance of Impacts

Ground surface settlement, excessive sloughing and localized caving in poorly graded, poorly cemented sand and gravel, and groundwater may have a potentially significant impact under CEQA on the construction of the LRT Build Alternative.

Mitigation

Tunneling-Induced Ground Surface Settlement

To further limit surface settlement to acceptable levels, pressure-face Tunnel Boring Machines (TBMs) and pre-cast, bolted, gasketed lining systems were proposed for the suspended Metro Red Line project and could also be used for construction of the LRT Build Alternative. The pressure-face TBM technology maintains positive fluid or soil pressure on the tunnel face, which decreases the potential for ground loss and soil instability (sloughing, caving) at the tunnel face, which in turn reduces soil movement and surface settlement. An additional benefit of the pressure-face TBM is the ability to tunnel below the groundwater table without requiring dewatering or lowering of the groundwater table. Where soil conditions are more favorable for tunneling, such as within the bedrock formations, pressure on the face may not be required. Where conditions warrant, for example, shallow tunnels directly below sensitive structures or utilities, additional methods to reduce settlement would be specified. These could include permeation grouting, compaction grouting, or underpinning. Further description of the tunneling machines and other methods to reduce settlement can be found in Section 4.19.1, *Construction Methods*.

Detailed geotechnical investigations, settlement analyses, and evaluation of the structures with respect to their condition and position relative to the LRT Build Alternative will be required during final design before the TBM type is recommended and additional protection measures, if any, are designed and specified. The studies would be conducted with consideration of the criteria specified in MTA's System Design Criteria and Standards Volumes I through IV.

In addition to the building condition evaluations and analyses described above, pre-construction surveys will be performed to document the existing conditions of buildings and cemeteries along the alignment before the tunneling begins. During construction, instrumentation, e.g., ground surface and building monitoring programs, will be in place to measure movements and provide information to the contractor on tunneling performance as well as to document that the settlement specifications are met. If measurements indicate settlement limits will be exceeded, the contractor will be required to change or add methods and/or procedures to comply with those limits. Construction work will be reassessed when settlements exceed action (warning) levels. Contractors will be required to modify construction methods if settlements exceed specified maximum levels.

Both action (warning) level and maximum allowable ground surface settlements are typically given in the project construction specifications. They may be specified as a maximum settlement at the ground surface over the centerline of the tunnel, or as measured near the tunnel crown by pre-installed ground instrumentation. For some structures and utilities, specific settlement limits are set based on the type of structure and any special procedures (such as grouting or underpinning) used. For the suspended Metro Red Line project, the action level for settlement five feet above the tunnel crown was 1.5 inches and two inches was the maximum allowable. Settlement limits similar to those used for the suspended project are anticipated for the LRT Build Alternative tunnel.

Cut-and-Cover Excavation for Station Sites and Tunnels Adjacent to Portals

If necessary, tunnel sections and excavation walls and bottoms will be stabilized during construction with specialized shoring and/or chemical grouting and dewatering.

Groundwater

Dewatering systems will likely be implemented for station construction extending below groundwater. Alternatively, the initial excavation support systems could be designed to prevent groundwater inflows if slurry walls, or other relatively impervious wall systems are used. Further discussion of the initial support systems is included in Section 4.19.1, *Construction Methods*.

If dewatering methods are used and depending on the site soil conditions and groundwater level at the time of construction, some surface settlement may be experienced. For the suspended Metro Red Line project, settlements at the 1st/Boyle excavation were predicted to be about ½ inch, and less than ½ inch at the 1st/Lorena site. These predictions corresponded to lowering the groundwater elevation about 35 feet at 1st/Boyle and about 20 feet at 1st/Lorena. Groundwater pumping rates were estimated to be in the range of 500 gallons per minute (gpm) for the initial lowering of the groundwater level and 300 gpm for maintaining the draw down during construction.

During construction, the MTA will monitor adjacent streets, sidewalks, and buildings for settlement and other movement. If movement is detected, the contractor will be required to take action to control it. Action levels to trigger additional measures to control settlement near station excavations are typically on the order of ½ inch to one inch, depending on the construction methods used and structures to be protected.

If contaminated water is encountered during dewatering, it will be treated at the site or hauled to a treatment facility. Any potential impact of dewatering on vegetation will be limited to the construction area and its immediate vicinity. Vegetation within the construction area will likely be sacrificed to facilitate construction. Mature vegetation in the immediate vicinity of the construction area with root systems drawing moisture from the capillary fringe above the groundwater table may be affected by dewatering, although this has not been observed at any of the previous Metro Rail station construction sites. If necessary, irrigation programs designed to mitigate this issue will be provided to the appropriate parties for implementation during dewatering. At the completion of the stations, pumping is discontinued, and groundwater levels return to their natural level. No permanent change in the groundwater level is anticipated as a result of dewatering during construction.

Significance of Impacts Remaining After Mitigation

Implementation of the mitigation measures would reduce geologic and seismic impacts to a less than significant level.

4.19.2.14 Hazardous Materials

Impacts

The construction activities (i.e., tunneling, foundation excavations) are most likely to encounter pre-existing hazardous substances where subsurface construction work will be required near the following locations:

- Within known oil fields,
- In areas with known historic soil and groundwater contamination, gasoline stations, auto repair facilities, dry cleaners and commercial manufacturing or shipping facilities, or
- In locations where buildings will be demolished and asbestos and/or lead may be present.

Some pre-existing hazardous substances such as natural gases and contaminated soil and groundwater may be encountered during construction through the locations discussed below. Impacts without mitigation could be potentially significant.

Union Station Oil Field (see Figure 4.10-1 in Section 4.10)

It is possible that some hazardous substances such as natural gases and petroleum contaminated soil and groundwater may be encountered during foundation excavations to support the elevated structure of the LRT Build Alternative. Hydrogen sulfide and methane gases were detected in the industrial area between 1st Street and US 101, to the north of the LRT Build Alternative right-of-way. Prior investigations (*Environmental Summary Report*, June 1998) indicated that hydrogen sulfide gas was found as a dissolved compound in groundwater in the industrial area north of 1st Street and west of the Los Angeles River. In two instances, when gas was allowed to accumulate in closed gas sampling wells, studies determined that hydrogen sulfide gas could evolve (off-gas) from groundwater to hazardous levels when exposed to air. Maximum concentrations of dissolved hydrogen sulfide in groundwater were found to be 200 mg/l. Methane gas was detected in a number of sampling wells at quantities above the LEL.

Petroleum-related hazardous substances in soils and groundwater could be encountered during excavations for surface guideway construction along existing streets. Based on findings of previous investigations, surface construction of the LRT, and the planned limited subsurface construction in this segment, it appears that the Union Station oil field may present a low to moderate potential concern to the LRT Build Alternative.

Boyle Heights Oil Field

The Boyle Heights oil field is located east of the Los Angeles River (See Figure 4.10-2 in Section 4.10). The 1998 *Environmental Summary Report* for the suspended Metro Red Line project indicated that significant concentrations of dissolved hydrogen sulfide are not expected in areas east of the Los Angeles River. However, based on previous investigations, methane gas appears to be present (1% to 20% LEL) in potentially hazardous concentrations in several areas, including 1st Street and Boyle Street, and near the former Boyle Heights oil field. Previous environmental reports do not have sufficient field data near the 1st Street and Soto Street area of the LRT Build Alternative to completely assess the environmental concerns.

Additional investigation is required to assess the subsurface conditions along the areas which are not coincident with the suspended Metro Red Line alignment. Investigations are planned for the Preliminary Engineering phase and are expected to be completed in February 2001. The investigations would be conducted as specified in MTA's System Design Criteria and Standard, Volumes I through IV.

Properties with Known or Potential Environmental Contamination

Based on the methodology for impact evaluation found in Section 4.10, a total of four properties were identified to be of high concern, six properties to be of moderate concern, and 24 properties to be of low concern. Each of the high and moderate concern properties are briefly discussed below by the segment in which they were noted, and their locations are displayed in Figures 4.10-1 through 4.10-3 in Section 4.10. The Environmental Data Resources (EDR) database listing is also indicated along with the name and address of the property of concern.

a. Properties with High Level of Concern—all properties are listed on the LUST database.

Segment 1: Union Station to Boyle Avenue—None.

Segment 2: Boyle Avenue to Indiana Boulevard

1. *Vega Auto Service at 1869 East 1st Street*—The facility is noted to have impacted area groundwater and the remediation program is in the design phase.

2. *Murray Lefkowitz at 2239 East 1st Street*—The facility is noted to have impacted soil only with no action taken.

Segment 3: Indiana Boulevard to Atlantic Boulevard

3. *Gonzales Service Station at 4302 East 3rd Street*—The facility is noted to have impacted soil only with no action taken.
4. *East Los Angeles Sheriff Department at 5019 3rd Street*—The facility is noted to have impacted soil only with no action taken.

b. Properties with Moderate Level of Concern

Segment 1: Union Station to Boyle Avenue

1. *Union Station Oil Field/ Former Gassification Plant*—This facility is listed as the Southern California (So-Cal) Gas Company-Aliso A Manufactured Gas Plant (MGP) bounded by Keller, Vignes, and US 101 in the CAL-SITE listings. A second portion of this facility (Aliso C) is noted as a CAL-SITE and COAL-GAS facility bound by Center, Commercial, Ducommun and Jackson Street. Union Station was noted on the CERCLIS list in relation to historic coal gassification in a prior report. H_2S gas and methane gas have been reported in the subsurface at this facility at levels beyond the Immediate Danger to Life and Health (IDLH) and LEL. The LRT segment in this area requires limited subsurface excavation and construction typically associated with a surface guideway.
2. *Mobil Gas Station* at 520 Alameda Street (at Commercial Street)–LUST (groundwater reported to be impacted. Regulatory closure of the site was granted with no further action required.)
3. *Mangrove Estates* at 617 East 1st Street–LUST (groundwater reported to be impacted. Regulatory closure of the site was granted with no further action required.)

Segment 2: Boyle Avenue to Indiana Boulevard

4. *M and Y Service Center at 2701 East 1st Street*—LUST. The facility is noted to have impacted area groundwater. Remedial action is complete or unnecessary.
5. *Boyle Heights Oil Field*: This area is noted in the CDOG maps as having been historically developed with oil and gas wells.

Segment 3: Indiana Boulevard to Atlantic Boulevard

6. *Ralph Moran Property* at 4247 East 3rd Street–LUST.

c. Properties with Low Level of Concern

The regulatory search identified 24 properties of low potential concern. A listing of these properties can be found in the separate *Hazardous Materials Technical Report* prepared for the Los Angeles Eastside Corridor. These properties are mostly auto service centers, dry cleaning facilities, and warehouses located along the LRT Build Alternative. These sites have completed remediation, have historically utilized only small amounts of known contaminants, are considered small quantity generators or own underground storage tanks. If construction were to be performed on these sites, further investigation would be needed at these properties to assess the environmental conditions.

LRT Build Alternative Options

Conditions along the suspended Metro Red Line project alignment from Union Station to 1st and Lorena Streets were explored extensively. The planned tunnel section associated with the Extended Subway Option (Option 3) that extends east of 1st and Lorena Streets and transitions across Indiana Street to 3rd Street has a slightly different alignment than the tunnel alignment previously explored for the suspended

Metro Red Line project. However, based on borings in the immediate vicinity of the Extended Subway Option tunnel (GeoTransit Consultants, 1996a) and a previous investigation by Law/Crandall for Ramona High School (LeRoy Crandall & Associates, 1975), tunneling conditions with respect to subsurface gases are anticipated to be good, similar to those encountered at 1st and Lorena Streets. Individual sites having a potential for man-made hazardous materials are identified above.

Significance of Impacts

The impacts of pre-existing hazardous substances that may be encountered during construction would be potentially significant.

Mitigation

Emergency response procedures will be developed in the unlikely event of a major hazardous materials release close to or within the vicinity of the proposed improvements. Construction and operations personnel will report to the appropriate regulatory agency any suspicious dumping or releases observed along the alignment. The MTA will coordinate with the California Department of Toxic Substance Control, State Water Resources Board, South Coast Air Quality Management District, and other agencies as appropriate to keep abreast of current RCRA notifications, hazardous materials spill reports, LUST reports, and results of any sampling conducted within the project vicinity.

Prior to construction, a comprehensive environmental investigation for portions of the LRT Build Alternative not previously investigated as part of the suspended Metro Red Line project will be conducted in accordance with the applicable Federal, state, and local regulations as well as those contained in MTA's System Design Criteria and Standards, Volumes I through IV.

Hazardous Subsurface Gases

During final design of the suspended Metro Red Line East Side Extension, the MTA identified several methods to mitigate exposure to hazardous gases during tunnel construction and deep excavations. These included both specialized excavation methods and gas or groundwater treatment methods.

Specialized tunnel excavation methods include the use of pressure-face TBMs and bolted, gasketed tunnel liners. The pressure-face (slurry shield) TBM provides a contained excavation system such that worker exposure to the excavated face and spoil is reduced or eliminated. The reader is referred to Section 4.19.2.1, *Construction Methods*, for additional information about the TBM. For further protection during tunnel construction and in deep excavations, continuous and automated gas monitoring would be maintained and additional ventilation provided if gas concentrations exceeded action/alert levels. Similar gas monitoring and ventilation systems have been used during the construction of the operating Metro Red Line system, which was constructed through former oil fields containing natural gases.

At station sites where gases are potentially present, previous designs for the suspended Metro Red Line East Side Extension used gas impermeable liners to reduce the probability of infiltration. These special High Density Polyethylene (HDPE) Liners are currently in place in Metro Red Line Segments 1, 2, and 3. Similar systems would be used for the LRT Build Alternative stations where the potential for gas seepage exists. The sections of HDPE are heat-welded to provide a continuous impermeable barrier.

Contaminated Water

Groundwater contamination encountered during subsurface construction activities may be treated on-site to acceptable local and state criteria and then discharged into the sanitary sewer or storm water system. If on-site treatment is not feasible due to the type and severity of the contamination identified, the contaminated groundwater may need to be disposed of by recycling in a permitted facility. During construction, the roles and responsibilities of the MTA and contractor relative to water pollution controls, including operations involving the segregation, treatment and disposal of contaminated groundwater derived from dewatering, tunneling operations and any liquid derived from muck separation will be addressed by the project specifications. For the suspended Metro Red Line project, the contractor was to be responsible for providing, operating and maintaining a water treatment unit (or units) to treat wastewater discharges to achieve the following effluent limitations:

- pH: between 5.5 to 11
- Dispersed oil and grease: <600 mg/L
- Floatable oil and grease: No visible sheen.

Solid residues from the contractor's water treatment operations will also be addressed in the contract specifications. The MTA will be responsible for any additional water treatment required to meet National Pollutant Discharge Elimination Standards (NPDES), including organic and inorganic constituents, and will provide, operate, and maintain a water treatment system (or systems) for this purpose.

Soil

Soils containing hazardous material could be disturbed by construction activities. Mitigation of the material would be required to conform to the applicable local, state, and federal requirements. Depending upon the amount of affected material encountered, the concentrations of hazardous constituents, and the type of hazardous constituents encountered during construction activities, the following options may be considered for mitigation:

- Removal and disposal – One mitigation option will be to identify, remove, and haul and dispose of the material in a licensed Class I, II or III disposal facility.
- Recycling – Impacted material may be treated and recycled at regulated recycling facilities.
- Combination – An off-site remediation facility could be used to remediate the waste material to a Class III standard and then dispose of it as clean fill at a Class III landfill.

Operations involving the segregation, handling, transportation and disposal of contaminated soil, hazardous substances, solid waste, USTs, oil and gas wells, and other environmentally related issues encountered during earthwork operations will be addressed in the project specifications. "Contaminated soil" is determined using a risk based assessment and is site specific. It depends on the distance the contamination is located from groundwater as well as other factors, but can be loosely defined as soil that exhibits any of the following characteristics:

- Greater than (>) 100 mg/kg Total Recoverable Petroleum Hydrocarbons (TRPH) per EPA Method 418.1; *or*
- >5 mg/kg Total Petroleum Hydrocarbons as gasoline (TPHg) per EPA Method 8015; *or*
- >50 mg/kg direct reading from a hand held Photoionization Detector (PID) calibrated to 100 ppm isobutylene per South Coast Air Quality Management District Rule 1166; *or*
- Any characteristic of Toxicity per Title 22 CCR §66699 (TTLC and STLC) or
- >10 micro gram/kg Polynuclear Aromatic Hydrocarbons per EPA Method 8270.

MTA, or its designated representative, will sample and analyze excavated soil, including tunnel muck, for the purpose of classifying material and determining disposal requirements. If excavated soil is suspected or known to be contaminated, MTA will direct the contractor to perform the following operations:

- Segregate and stockpile the material in a way that will facilitate measurement of the stockpile volume
- Spray the stockpile with water or an SCAQMD-approved vapor suppressant and to cover the stockpile with a heavy-duty plastic (e.g., Visqueen) to prevent exposure of the soil.

MTA may direct the contractor to load, transport, and unload contaminated soil and construction debris at an MTA-designated facility (i.e., a Class III landfill, a recycling facility or an unclassified waste management unit located within 30 miles of the project worksite). The contractor will provide qualified and trained personnel and personal protective equipment (PPE) to perform operations that require the disturbance of hazardous substances including, but not limited to, excavation, slurry/muck processing, segregation, stockpiling, loading and hauling.

Building Demolition

In locations where buildings will be demolished, asbestos and/or lead may be present and must be handled by specialty contractors licensed in asbestos and lead abatement.

Significance of Impacts Remaining After Mitigation

The mitigation measures would reduce impacts to less than significant.

4.19.2.15 Water Resources

Impacts

Surface Water

Potential surface water impacts resulting from construction would primarily be associated with sediment loadings on the storm water and/or surface water (Los Angeles River) systems. Sediment sources would include unstabilized, exposed soil at excavations, drainage from stockpiles of excavated materials, and dewatering activities.

Tunneling operations and cut-and-cover construction of stations would involve dewatering (removal of water from area soils) before and during construction. If warranted, when dewatering activities occur during construction, they would be limited to the immediate excavation area by using such methods as compressed air, cement or approved chemical grouting, freezing, slurry shields or earth pressure balance shields where local geologic or other constraints dictate, thus avoiding potential ground subsidence or differential settlement of adjacent structures. Moreover, by confining groundwater control activities to the immediate area of excavation, the proposed project would avoid potential adverse impacts on flora caused by a lowered water table. Water from dewatering would be discharged into the storm drain system, which, in turn, drains into the Los Angeles River.

The application of impervious surfaces resulting from facility paving and construction would increase runoff and associated contaminants (oil, grease) discharged to area storm water systems and surface waters. However, the additional amounts of the types of pollutants that would enter runoff would be negligible and would not constitute a significant environmental impact under CEQA.

With regard to erosion and sedimentation, subsurface tunneling activities would not cause any surface erosion. Minor surface erosion is possible at the station excavation sites where soil is exposed. The project is not expected to result in significant impacts related to erosion. Sedimentation of the Los

Angeles River resulting from dewatering activities is not expected to occur, since treatment would remove solids and suspended solids from the groundwater.

Floodplains

Construction in the Los Angeles River floodplain area is completely at-grade, and the existing 1st Street Bridge over the river would be used by the LRT alignment for crossing the river. Strengthening or addition of columns on the 1st Street Bridge would not be required; therefore there would be no impact on the floodplain.

Groundwater

There is a potential for contamination of groundwater that is used for consumption by municipal, industrial and irrigation purposes. This issue is further addressed in Section 4.9.2.14, *Hazardous Materials*. The principal engineering problems encountered in tunneling and excavation are often related to groundwater. Relatively shallow groundwater could be encountered during construction in younger and older alluvial sediments. Sediments in the vicinity of the 1st/Boyle Station are of this type and may require dewatering prior to and during the excavation of the station. Groundwater flows entering tunnels and surface excavations can be large, especially in areas of shallow groundwater where construction takes place below the water table. Inflows could be controlled by gravity flow to sump and pump systems, by direct pumping to lower the water table, or by other approved methods. Refer to Section 4.19.2.13, *Geologic and Seismic*, for additional information.

Significance of Impacts

There would be no impact on floodplains. Impacts on surface waters would not be significant. The impacts due to contamination of groundwater may be potentially significant.

Mitigation

Surface Water

A Notice of Intent (NOI), along with a NPDES permit application and detail plans, will be submitted to the RWQCB by MTA during the final design period and prior to construction activity. The NOI will discuss how soil disturbances associated with construction may affect storm water runoff. This permit will require the completion of a Storm Water Pollution Prevention Plan (SWPPP), and a Monitoring Program designed to check whether the measures identified in the SWPPP are adequate and properly implemented. The SWPPP for this permit will contain or identify pollutant sources, source controls, material inventory, preventative maintenance program, spill prevention and response program, employee training, facility inspections, record keeping, and elimination of non-storm water discharges. The plans will include provisions for construction process water to be treated and discharged to the Publicly Owned Treatment Works (POTW). Contaminated runoff from large paved areas such as parking lots and construction sites will be minimized through the installation of oil/water separators or siltation basins and trash filters. New standards, such as the standard urban stormwater mitigation plan, will be implemented into the project. The SWPPPs will be developed in coordination with the RWQCB. Mitigation measures are anticipated to reduce impacts on surface water quality to less than significant.

In the event that discharge is expected, the proposed project would require preparation of a Report of Waste Discharge (ROWD), required by the State Water Resources Control Board (SWRCB) for any type of discharge affecting surface water. This would ensure that any project-related discharges are regulated and therefore would not impact local surface water. Section 4.19.2.13, *Geologic and Seismic*, addresses mitigation relating to potential subsidence from tunnel and station construction.

Spoil from tunneling activities will be stored in the tunnel staging area and trucked to appropriate sites in order to minimize sedimentation. Spoil material will not be stored near water drainage facilities to prevent increased sedimentation in the drainage system. In addition, it is recommended that measures be adopted to prevent accumulation of large amounts of spoil material, and that spoil piles be kept low and/or graded to minimize erosion. Mitigation measures are anticipated to reduce sedimentation impacts to surface water quality to less than significant.

Floodplains

Mitigation of potential impacts on the Los Angeles River are not required because the alignment, which would cross the river on the existing 1st Street Bridge, poses little if any impact on the river. However, crossing the Los Angeles River will require consultation with the County and the COE.

Groundwater

Mitigation measures for dewatering and groundwater contamination are discussed in this section and in more detail in Sections 4.19.2.13, *Geology and Seismic* and 4.19.2.14, *Hazardous Materials*. Field pump tests will be performed in the areas that require pre-construction dewatering for tunnel and underground station construction to determine groundwater quality and to help design suitable dewatering systems and treatment systems, if required. Through the use of a pressure-face TBM, there is the ability to tunnel below the groundwater table without requiring dewatering or lowering the groundwater table.

Potential remedial options for contaminated groundwater include the use of hydrogen peroxide to treat hydrogen sulfide, filtration of colloidal sulfur or suspended solids, siltation basins, oil water separators and active carbon for removal of volatile organic compounds (VOCs). Treated water would then be discharged into a nearby storm drain. If perched contaminated groundwater is encountered along the Los Angeles Eastside Corridor, it will be profiled, drummed, and treated by an appropriate disposal facility. Mitigation measures in the event that contaminated groundwater may be encountered are anticipated to reduce impacts to less than significant.

Prior to excavation and construction, negotiations with the California Department of Water Resources (CDWR) and the Water Replenishment District of Southern California (WRD) would be initiated regarding water rights and pumping assessment. It is expected that coordination with CDWR and WRD would provide sufficient oversight to prevent environmental impacts due to over-withdrawing groundwater from the project area.

In the event that discharge is expected, the proposed project would require preparation of a Report of Waste Discharge (ROWD), required by the State Water Resources Control Board (SWRCB) for any type of discharge affecting groundwater. This would ensure that any project-related discharges are regulated and therefore would not impact local groundwater.

Significance of Impacts Remaining After Mitigation

The mitigation measures would reduce impacts to less than significant.

4.19.2.16 Natural Resources and Ecosystems

Impacts

No sensitive plant communities or suitable habitat for sensitive plants or wildlife species occurs within the Los Angeles Eastside Corridor. Therefore, construction of the LRT Build Alternative, including the three options in the vicinity of Indiana Street, is not expected to adversely affect any sensitive plants and plant communities. Construction activities along the Los Angeles Eastside Corridor are not expected to modify or affect any Corps or CDFG jurisdictional waters. An effort should be made to limit construction-related debris and sediment from entering nearby storm drains or the Los Angeles River.

Significance of Impacts

There would be no impacts on any sensitive plants or plant communities.

Mitigation

No mitigation is required for construction impacts of the LRT Build Alternative on vegetation, wildlife, or jurisdictional waters. However, if seismic retrofit work of the existing bridge structure over the Los Angeles River were to be included as part of project implementation, temporary construction impacts on jurisdictional waters may occur in the river channel immediately surrounding the existing bridge support piers. In this case, bridge retrofit work may be limited to the dry season in accordance with the Corps and CDFG permitting procedures. Resources that were temporarily affected would be returned to their original condition.

4.19.2.17 Utilities

Impacts

Construction of the trackway, stations, subway and other facilities would require relocating, abandoning or otherwise avoiding utilities. Some of the impacts may potentially be significant due to added costs, disruption of service or temporary loss of access. These include relocation of utility poles supporting overhead lines and street lights; relocation of underground utilities from the track zone, station areas, subway tunneling and maintenance facility site; and inspection, repairs and encasement of underground utilities at track crossings. In cases where utilities that occupy the right-of-way pose a safety hazard or conflict with construction activities, lines may be relocated before construction.

The approximate location of subsurface and overhead utility lines will be identified as part of preliminary engineering. Utilities include facilities belonging to government agencies, public utility corporations and privately owned companies for the provision of sewer, water, storm drain, gas, electrical, telephone, telegraph, cable television, street lighting, pipelines, alarm systems and parking meters.

Construction of the LRT Build Alternative will involve extensive renovation and construction in the streets along which the route travels. At the subway portion of the alignment, tunneling will occur. Underground utilities may be affected by these construction activities. Every effort will be made to cross utilities at 90 degrees and to position utilities that run longitudinally to the track a minimum of ten feet from the centerline of the track to the edge of the pipe. Additionally, tone wires will be attached to all non-metallic Centerline utilities pipes or casings and will be terminated within the right-of-way to help in field locating buried pipes. All abandoned pipes beneath the trackbed will be filled with sand or surry concrete and plugged.

Similar type requirements will be developed for the relocation of any affected overhead utilities. Those overhead utilities in conflict with train operations will be raised to provide the required separation to the overhead contact system.

There are three alignment options near Ramona High School. Option 1 continues the LRT around Ramona High School at-grade along the center of Indiana Street to 3rd Street and along 3rd Street to Beverly Boulevard. Option 2 shifts the alignment to the west side of Indiana Street. Option 3 continues the subway under Ramona High School. Options 1 and 3 will have no impacts on the utilities during the construction phase of these alignments. If Option 2 is chosen, the street lighting and power poles will need to be relocated before construction can begin.

Significance of Impacts

Many of the construction-related impacts on utilities are potentially significant impacts.

Mitigation

Impacts due to temporary utility service interruptions during construction will be minimized with careful scheduling and prior notification to affected properties. One or more of the following mitigation measures will be used to minimize the potential effects of disruption of utility service during project construction:

- Maintain and protect existing utilities in place during construction.
- Provide temporary connection for services that must be disconnected for extended periods of time.
- Maintain existing service as long as reasonably possible.
- Notify users well in advance of any anticipated service disruption and attempt to coordinate with the utility owner's convenient times for necessary service outages.
- Monitor the project's contractors as part of construction management/oversight and include terms in construction contracts that encourage contractors to actively seek to avoid accidental disruption of service.
- Coordinate the schedules of multiple utility rearrangements in order to minimize negative impacts on users.
- Develop a contingency plan for emergency repairs of any utilities unexpectedly found or that disintegrated because of age during excavations.
- Adjust portions of the alignment of station locations, where feasible, to prevent a major utility relocation.
- Comply with the City of Los Angeles, the County of Los Angeles, and the other cities on procedures for utility construction, inspection and operation.
- Use pipe and conduit support systems, trench sheeting and shoring and other precautionary measures during construction to minimize the potential for damage to exposed utilities.
- Work with the local solid waste vendors to investigate methods of minimizing construction and demolition waste, including recycling options.

Significance of Impacts Remaining After Mitigation

After the mitigation measures are adopted, the construction-related utility impacts would be reduced to a level that is less than significant.

4.19.2.18 Energy

Impacts

The LRT Build Alternative would result in the one-time, non-recoverable energy costs associated with subway tunneling, construction of trackwork, systems/equipment, transportation-related facilities (stations, maintenance facilities), and vehicles. Facility-related energy would account for energy consumed during the production of construction materials used in new construction and maintenance and construction of the LRT Build Alternative including structures. Short-term use of oil, gas, and electricity for construction would reduce the overall amount of fossil fuels used within the area, region, and state. Construction of the LRT Build Alternative would not result in a significant impact under CEQA to the availability of fossil fuels or electricity within the region or the state given the current and projected available resources.

Significance of Impacts

Impacts would not be significant.

Mitigation

No mitigation is required. However, through implementation of standard construction practices and techniques, fossil fuels and electricity would not be used in a wasteful or inefficient manner.

4.19.2.19 Safety and Security

Impacts

Accident and Safety Impacts

Construction of the LRT at-grade alignment and subway will require a number of activities that could impact public safety. These include:

- Intensive construction activity in the center of streets along the LRT route at the location of the stations where the alignment is at the level of the street;
- Shallow excavation and construction activity along the centerline of streets along the LRT route between stations to install track and power facilities;
- Activities at the location of staging and storage of construction equipment and materials;
- Movement of construction equipment and materials between staging and storage areas and the areas of construction.
- Heavy excavation activities at the portals and along the portion of the LRT route which is below the level of the street;
- Transport of debris from tunnel excavation along the haul route to the point that trucks enter the freeway and depart the community.

The impact of construction of the LRT system on public safety is significant.

Security and Crime Prevention

The potential adverse impacts on emergency response (medical, police, and fire) during construction relates to detours, street closures, increased traffic near emergency facilities and staging plans. Unless special provisions are in place prior to construction, these impacts could be potentially significant.

Construction equipment would be stored at construction sites and staging areas close to the LRT alignment. If such areas were not adequately secured, or became attractive nuisances, they could attract individuals who might steal equipment or create other difficulties. Such a result could be considered significant.

In order to prevent people from gaining access to construction sites and thus subjecting themselves to potential injury, a chain link fence would typically enclose the sites. Where this is not possible, holes, trenches or other potentially dangerous features would be barricaded. Where the construction activity would be adjacent to a sidewalk which cannot be closed, shields would be constructed to prevent falling objects from hitting pedestrians.

One result of almost any kind of construction operation is that people have a tendency to stop and observe. Cars passing the site would slow possibly resulting in a traffic hazard. If necessary, a screen shall be erected to separate the site from the public's view.

Fire Service and Emergency Response

Potential adverse impacts on emergency response (medical, police and fire) during construction may be caused by detours, street closures, increased traffic congestion and construction staging activities. Unless special provisions are in place prior to construction, these impacts could be considered significant.

Significance of Impacts

Many of the construction-related impacts on safety and security are potentially significant impacts.

Mitigation

Accident and Safety Impacts

Construction sites, especially those located in residential areas or near schools, would receive particular attention to ensure that the sites are not attractive to children. Review of final designs with local agencies that specialize in safety and security would ensure the inclusion of appropriate safety features in the project.

- Develop Worksite Traffic Control Plans in cooperation with the Los Angeles Department of Transportation (LADOT) and Los Angeles County Department of Public Works (DPW) to accommodate required pedestrian and traffic movements. LAUSD will be invited to participate as part of MTA's Third Party Coordination Group to develop the plans prior to approval by LADOT and DPW;
- Coordinate with the LAUSD and school administrators to ensure safe and convenient school pedestrian routes to schools are maintained, including the publication and distribution of school pedestrian route maps;
- Coordinate and notify the LAUSD, to the fullest extent possible, the scheduling planned for LRT construction. With regard to hauling scheduling, LADOT and DPW are responsible for determining haul routes and times. However, most of the excavated rock and soil materials from the tunneling

operation will be removed at the construction staging area near the intersection of 1st Street/Boyle Avenue. The haul trucks would be routed along the on- and off-ramps of the nearby US 101 freeway, and impacts on sensitive uses in the project area would, therefore, be minimized ;

- As part of the stipulations of the construction contract, the contractor will not allow construction vehicles to stage or park along streets bordering school sites unless they contain vehicle-mounted machinery actively in use as part of construction while the vehicle is parked. Vehicles used to transport construction workers will be required to park elsewhere. The adequacy of these provisions will be reviewed with the LAUSD School Traffic and Safety Department.
- Maintain access to community facilities affected by construction activities;
- Provide sufficient notices to forewarn children and parents when school pedestrian routes are affected;
- Notify the LAUSD of impending impacts on existing school bus routes;
- Inform the public, including LAUSD, of bus stops that are to be abandoned or changed during or after construction of the LRT line;
- Provide crossing guards in the vicinity of all construction sites and haul routes as warranted in accordance with criterion contained in the *California DOT Traffic Manual, Chapter 10-07.3, Warrants for Adult Crossing Guards*. Where the manual criterion does not warrant placement of crossing guards, the MTA may provide crossing guards during school hours on a site-specific basis considering the conditions and criterion stated in the manual. The MTA will provide crossing guards during school hours during construction, where related lane closures will divert traffic to residential streets utilized by elementary and middle school students;
- The construction contractor will be responsible for providing flag persons at construction sites, as needed, where construction activities compromise the safety of pedestrians and/or motorists while traveling to and from school;
- The contractor will be responsible for providing security at construction sites at a level that MTA determines to be appropriate. In addition to the strategies previously discussed, other measures could include: use of security patrols; installation of temporary fencing around material laydown, subway excavation, and station sites; and installation of appropriate signing and lighting as necessary.

Temporary fencing that may need to be installed will be of good quality, capable of supporting the accidental application of the weight of an adult without collapse or major deformation. Where major streets must be fenced, business owners will be offered the opportunity to request covered walkways in lieu of chain link type fencing. Where covered walkways or other solid surface fencing is installed, a program will be implemented to allow for artwork (e.g., by local students) on the surfaces. Where feasible and approved by local neighbors and businesses, chain link fences will be planted with vines to minimize visual impact during the construction period.

<u>Security and Crime Prevention</u>

For security at construction sites and staging areas, the following mitigation measures will be considered:

- The contractor will be responsible for providing barriers at subway excavation and material laydown sites, as needed, to minimize trespassing, vandalism, and short-cut attractions. The LRT surface-running sections will involve mostly shallow excavation in the street rights-of-way. For these areas, as well as at all construction sites as applicable, such measures as the following would be taken by the contractor to increase safety during construction; secure tools and small parts during non-work hours; cover small, but deep excavations with heavy metal plates during non-work hours; and maintain tidy work sites at all times.
- The contractor will be responsible for providing security at construction sites at a level that MTA determines to be appropriate. In addition to the strategies previously discussed, other measures could

include: use of security patrols; installation of temporary fencing around material laydown, subway excavation, and station sites; and installation of appropriate signing and lighting as necessary.

Fire Service and Emergency Response

The impact of construction of the LRT system on emergency services can be mitigated by use of best practices of the construction industry. Construction staging/detour plans for the LRT Build Alternative would be reviewed with the appropriate emergency service providers and medical facilities prior to construction. Notification of road and lane closures would be distributed with sufficient advance notice to ensure a minimum of service disruption. Requirements to maintain uninterrupted emergency vehicle access would be included in construction specifications. At the location of construction, proper control would be required from the contractor. All sites would have flag persons to control traffic speed and to warn of dangers.

Significance of Impacts Remaining After Mitigation

With mitigation, these impacts would not be significant.

4.20 MAINTENANCE AND STORAGE FACILITIES

4.20.1 Introduction

This section assesses the three maintenance and storage facility (M&SF) options (Red Line, West Bank, and East Bank) being considered for the LRT Build Alternative. A description of each site and the functions provided are presented in Chapter 2.0. The purpose of the assessment is to provide decision makers a tool to help determine which of the sites is preferable for development. A locally preferred alternative (LPA) for the M&SF site will be selected after public input is received during the Draft SEIS/SEIR circulation and comment period and prior to proceeding with the Final SEIS/SEIR. The Final SEIS/SEIR will include a more detailed analysis of the selected site.

The following categories of impacts were considered in the evaluation: (1) traffic; (2) parking; (3) land use and development; (4) economic and fiscal; (5) land acquisition/displacements/relocations; (6) communities/neighborhoods; (7) equity and environmental justice considerations; (8) visual; (9) air quality; (10) noise and vibration; (11) geologic and seismic conditions; (12) hazardous materials; (13) water resources; (14) natural resources and ecosystems; (15) energy; (16) safety and security; (17) historic/archaeological; (18) community facilities/parklands; (19) Section 4(f); and (20) utilities.

Table 4.20-1 summarizes the impacts of each option by indicating whether: "yes", adverse impacts would be expected to occur; "no", adverse impacts would not be expected to occur; and "maybe", a middle-ground in which the potential impacts are not clear at this time but, adverse impacts are possible. In the latter case, more detailed study is needed to determine whether impacts would occur. The following subsections discuss the factors considered in the determination of impacts for each category considered.

4.20.2 Option 1-Red Line Yard

Two alignment alternatives are being considered for the lead track. Both alternatives would use the same Red Line Yard site. The lead track for Option 1A would branch off the LRT Build Alternative alignment at Alameda/Ducommun Street and proceed east as a single track a distance of one block to Hewitt Street. At Hewitt Street, one single track would continue eastward along Ducommun, and another single track would proceed north along Hewitt Street to Commercial Street and then turn eastward. Both single tracks would continue eastward along Ducommun and Commercial Streets, respectively to a point east of Center Street. At that location, the tracks would turn south and then enter the Red Line Yard. Option 1B is similar to Option 1A, except that the single track that extends eastward along Ducommun Street (under Option 1A) would, instead, turn north at Center Street and then turn east on Commercial Street. Both tracks would turn south at a point east of Commercial Street and then enter the Red Line Yard. Refer to Chapter 2.0 for more detail. The assessment assumes that an additional M&SF building would be constructed, similar to that of the other options being considered, to perform the maintenance activities. However, it is possible that the existing Red Line facilities may be adequate to provide this function. The feasibility of using the existing facilities would be further explored during preliminary engineering, with consideration of MTA's Rail Transit Design Criteria and Standards, if this option is selected as the preferred alternative.

TABLE 4.20-1
SUMMARY OF POTENTIAL IMPACTS[1]
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.

4.20.2.1 Option 1A-Red Line Yard

Traffic. Yes. The lead tracks will use the middle of Ducommun Street as a single track for one block to Hewitt Street. At Hewitt Street, one single track will continue eastward along Ducommun, and another single track will proceed north along Hewitt Street and turn east on Commercial Street. Both single tracks will continue eastward along Ducommun and Commercial Streets to a point east of Center Street. At this point, the tracks turn south and merge into a single track to enter the M&SF. Refer to Chapter 2.0 for additional detail.

Ducommun Street is a two-lane, two-way, 35-foot wide local street with a 50-foot right-of-way. On-street metered parking is provided on the south side along the affected portion and on the north side east of Hewitt Street. With a 12-foot single track LRT right-of-way, approximately 23 feet will remain for two 11.5-foot traffic lanes. All curb parking will be eliminated, and right turn access (especially trucks) to and from driveways and intersecting streets will be constricted when turning to or from the 11.5-foot curb lane. Other streets, such as Commercial, will be similarly affected, and mitigation will be required. In addition, the single track on Commercial Street between Hewitt and Center Streets would present significant traffic conflicts with US 101 Freeway entrance ramp left turns from Commercial Street at Vignes Street. Caltrans and the City of Los Angeles are studying the widening of Commercial Street and US 101 Freeway interchange revisions, but no specific plan has been adopted. No LRT crossings or left turns to or from side streets and driveways will be permitted unless traffic signal control is provided. The alignment will also cut across the northeast corner of a Department of Water and Power (DWP) parking structure. Further, analysis utilizing MTA design criteria is required at the design phase to determine the impact on the structure and to quantify parking losses.

A three-way track junction at Alameda Street and 90-degree turns at Center Street will require special traffic control including additional Alameda Street and Center Street signals and stop bar setbacks to prevent traffic from blocking the LRT turning movement path. Lead track crossings of Vignes and Center Streets must be signalized to accommodate important street traffic movements, since these streets feed traffic to and under the US 101 Freeway, respectively.

East of Center Street, the lead tracks to the Red Line Yard are located off-street and would turn south to continue to the M&SF site. No traffic impacts are anticipated in this area. Vehicle access to the proposed LRT storage facility, located within the Metro Red Line shops and yard complex, is not expected to create a significant traffic impact.

Construction of the LRT lead tracks would temporarily interfere with normal traffic flow. In order to minimize construction impacts, some streets would be subject to partial lane and total nighttime closures. If needed, full closures would be scheduled during overnight hours as much as possible and coordinated with the appropriate agencies. Some of the major cross streets will require partial closure, half of the street at a time, while relocating utilities and constructing the light rail trackbed. Depending on allowable working hours, full blocks may require closures during excavation, preparation of subgrade, and track foundations placement. After the trackbed is constructed across a local street and the roadway is restored to its permanent condition, vehicles can resume original traffic patterns. During final design, site and street specific Worksite Traffic Control Plans would be developed in cooperation with LADOT to accommodate required pedestrian and traffic movements. These plans would be prepared using LADOT and MTA criteria. To the extent practical, traffic lanes will be maintained in both directions, particularly during peak traffic hours. Access to businesses will be maintained throughout the construction period. During utility relocation, it may be necessary to occupy additional traffic lanes at one time. It is possible that in some instances, block-long sections of streets would be closed temporarily for utility relocation and guideway construction. Pedestrian access (sidewalks) would remain open, although in some instances, portions of the sidewalks may be closed temporarily for decking construction. Temporary night sidewalk closures may be necessary in some locations for the delivery of oversized materials. Special facilities, such as handrails, fences, and walkways would be provided for the safety of pedestrians.

The major difference between this option and Option 1B is that the lead track for this option crosses Center Street at a ninety-degree angle, which results in significantly less traffic impacts than Option 1B.

Parking. Yes. All curb parking will be eliminated on both Ducommun and Commercial Streets. For street level LRT lead track sections, the on-street parking alongside the alignment, supplemented by adjacent off-street areas, would be used for construction staging and for equipment and material storage.

Land Use and Development. Maybe. The new rail alignment would result in displacing structure parking, which could potentially impact the required capacity for parking within the designated land use. Correspondence with the City of Los Angeles would be conducted if this option is selected as the preferred alternative. This option is located within the Central City North Community Plan area. The community plan land use designation for the M&SF site is "Heavy Industrial," as are all adjacent uses. The Los Angeles River is located to the east. The zoning designation for the site is "Heavy Industrial," which is allowed in the community plan land use category. Because the proposed M&SF is categorized as an electric railroad yard in terms of its land use, it is permitted by right in either the "Light Industrial" or "Heavy Industrial" zones. Surrounding zoning includes "Heavy Industrial" to north, south, and west. It is anticipated that there will be no conflicts between the M&SF site and its type of use with the surrounding community plan land use designations and zoning. All land in the rail alignment area is designated as "Heavy Industrial" by the Central City North Community Plan, and "Heavy Industrial" by the Los Angeles Zoning Code. The new rail use is anticipated to be fully compatible with the existing land use designation and zoning by right. The M&SF site and new rail alignment are not anticipated to physically divide an established community, or conflict with any conservation plans.

Coordination with the City of Los Angeles regarding parking displacements would help to identify the extent of potential impacts, as well as identify mitigation that could reduce impacts to a level of less than significant. Obtaining permits or other measures at the discretion of the City of Los Angeles may be required, and would allow for the project's land use if approved. If this site is selected as the preferred alternative, coordination with the City would be undertaken and the applicable permits would be obtained prior to construction.

Economic and Fiscal. No. The M&SF would create both short- and long-term employment, with the construction and operation of the facility. The construction and operation of the facility on the proposed site would not interfere with existing tax revenues or fire and police service performance objectives. Businesses along the corridor are not anticipated to suffer from lack of parking or space due to the new rail alignment, as they generally are industrial and do not heavily rely on streetside parking or access by general consumers for business success. A gas station at the Ducommun/Alameda intersection would be partially or fully acquired to accommodate the new rail alignment. This would not be considered a significant economic or fiscal impact, however because the loss in economic or fiscal resources would be negligible in comparison with regional revenue and spending. Thus, the option would not significantly reduce economic or fiscal resources.

Land Acquisition/Displacements/Relocations. Yes. The yard would not require additional land since it is already owned by MTA. However, the lead track will require acquisition of: (1) a small portion of a parking lot at Ducommun/Alameda; (2) a portion of a gas station property located at the same intersection (however, this gas station is already being partially or fully acquired to accommodate the new right-of-way on the east side of Alameda); (3) partial acquisition and reconstruction of a portion of a parking structure at Ducommun/Garvey; and (4) a small portion (on the southwest side) of the City of Los Angeles impound lot located adjacent to Center Street between Commercial and Ducommun. MTA would apply acquisition and relocation policies to comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and its amendments and with the State of California's revised Government Code Section 7260. The purposes of this legislation are to: 1) ensure consistent and fair treatment for owners of real property; 2) encourage and expedite acquisition by agreement in order to avoid litigation and relieve congestion in the courts; and 3) promote public confidence in public land acquisition. Each homeowner, renter, business or nonprofit organization displaced as a result of the project would be given advanced written notice and would be informed of the eligibility requirements for relocation assistance and payments. Additional information on acquisition and relocation policies may be found in Section 4.3.

Communities/Neighborhoods. No. The criteria considered include: (1) substantial growth inducement; (2) displacement of a large number of residents or businesses; (3) substantial alteration of location, distribution, density, or growth rate of population in a manner inconsistent with public policy; and (4) disruption of neighborhood access or isolation of a portion of a neighborhood. The construction and operation of a M&SF at this location would not result in adverse impacts with regard to the criteria evaluated. There would be no residential or business displacements. The project would not disrupt neighborhood access, nor would it isolate any portion of existing neighborhoods.

Equity and Environmental Justice Considerations. No. Minority populations and low-income households comprise a large proportion of the total population of the Eastside Corridor study area, which includes the location of the Red Line Yard (see Section 4.5 of the Draft SEIS/SEIR for general information about Executive Order (E.O.) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, and demographic data for the area). According to the E.O., factors to consider in determining whether a project will have "disproportionately high adverse environmental effects" on these populations include its potential adverse impacts; mitigation and enhancement measures that will be incorporated into the project; and off-setting benefits. Adverse impacts considered are property acquisition and displacements; circulation and air quality impacts; noise and vibration impacts; neighborhood and community facility impacts; Section 4(f) impacts; as well as construction impacts. Potential benefits could include improved transit mobility, access to transit, and travel time savings. Although it appears unlikely that selection of this site would result in disproportionately high adverse effects, MTA will make a recommendation to FTA as to whether such impacts would occur based on the impact/benefit analysis, and FTA will make the final determination, if this option is selected as the preferred site.

Option 1A will require acquisition of land; however, no businesses or residences would be displaced. Noise and vibration impacts and adverse effects on neighborhood and community facilities are not anticipated. There may be impacts on a Section 4(f) resource; however, further study will be required in accordance with Section 106 of the National Historic Preservation Act and Section 4(f) of the Department of Transportation Act to determine if adverse impacts would occur (refer to the Historic/Archaeological and Section 4(f) discussions for more information). Traffic, air quality, and noise and vibration impacts are possible during construction. However, these impacts would be temporary lasting as long as the construction period. There also would be traffic and parking impacts during operation (refer to the Traffic and Parking discussions for more information). The objective of the M&SF is to maintain continuous and safe LRT operations in the Eastside Corridor. As such, it is an integral part of the LRT system. As discussed in the Environmental Justice section of the Draft SEIS/SEIR, many residents in the corridor perceive the lack of quality transit service offered by MTA's rail systems to corridor residents as well as the disproportionate investment in the regional public transportation system as an imbalance that needs to be rectified. For these reasons, the LRT Build Alternative has considerable local support and is viewed by many as a means of mitigating past environmental "injustices" that corridor neighborhoods have experienced. The LRT Build Alternative is also expected to increase the number of daily transit trips compared with the current bus service offered by the No-Build Alternative. It will increase accessibility to the regional transit system and will decrease travel times to many popular destinations. The project will also generate both construction and long-term employment.

Visual. Maybe. The Red Line M&SF Yard site and "Alternative A" track alignment may result in adverse impacts on existing views. The M&SF site would be visually compatible with the adjacent Red Line operations, but the Alternative A track alignment would include partial displacement of some existing land uses, including a gas station (partial or full) and parking structure (partial). Mitigation may be required in order to make the M&SF visually compatible with surrounding uses. Such mitigation would reduce these visual impacts to less than significant.

Air Quality. Maybe. If this option is selected as the preferred alternative, further study will be required by the South Coast Air Quality Management District (SCAQMD) to determine air emissions from construction and from stationary and mobile operations. The California Air Resources Board (CARB) has designated this area as a national and state nonattainment area for carbon monoxide, ozone, and particulate matter smaller than or equal to ten microns (PM_{10}). Air emissions from construction activities include airborne dust from grading, demolition, and dirt handling, and gaseous emissions from heavy equipment, delivery and dirt hauling trucks, and employee vehicles. Stationary pollutant emission sources for the M&SF could include maintenance shops, car washers, painting facilities, and welding shops.

Further study is required by SCAQMD if this option is selected as the preferred alternative to determine if project activities would exceed SCAQMD CEQA significance thresholds. Air quality conformity analyses must be assessed to the satisfaction of the U.S. Environmental Protection Agency (EPA) regulations Sections 93.110 through 93.117, as well as Section 93.121. Further study is anticipated to identify the necessary construction and operational permits through SCAQMD, and to recognize the necessary mitigation to reduce potential construction and operational impacts to less than significant or to indicate impacts that cannot be mitigated. Examples of typical mitigation include: Selecting energy efficient construction equipment; regulating the duration and timing of construction equipment; utilizing electric instead of diesel and gasoline powered equipment where feasible; and utilizing precoated/natural colored building materials, water based or low volatile organic compound coating, and coating transfer or spray equipment with high transfer efficiency.

Noise and Vibration. No. Major sources of yard and shop noise include:

- Wheel squeal on curved sections of trackwork (steel wheel technologies)
- Clicks, thumps, and pings as wheels pass over joints and through switches
- Train rolling noise
- Transit car auxiliary equipment operations
- Coupling and uncoupling of cars
- Train horns
- Impact tools and machinery
- Shouting workmen
- Car washes
- Telephone or warning buzzers
- Public address announcements

FTA screening distance criteria (*Transit Noise and Vibration Impact Assessment*, FTA, April 1995) indicate impacts of a M&SF are possible if sensitive receptors are located within 1,000 feet when there are intervening buildings or 2,000 feet if there is an unobstructed view. No sensitive receptors are located within these distances, so the impacts of the M&SF itself would not likely result in adverse impacts. No sensitive receptors are located adjacent to the lead track alignment so no adverse impacts are anticipated as a result of the yard lead. During construction, the contractor will be required to meet the Los Angeles Noise Ordinance Limits and MTA specified limits that are presented in the Noise and Vibration section of the Draft SEIS/SEIR.

Geologic and Seismic Conditions. Maybe. The assessment considers potential impacts due to surface fault rupture, ground shaking, slope stability, seismic slope instability, liquefaction, tsunamis, inundation and seiches, flooding, and subsidence. Refer to Section 4.9, *Geologic and Seismic Conditions*, for definitions of these terms. Of the factors evaluated, liquefaction is the only category where impacts appear possible.

The Red Line Yard Taylor Yard and the lead track alignment are not within a currently established State of California Alquist-Priolo Earthquake Fault Zone for surface fault rupture hazards. Additionally, the sites are not within an area identified in the City of Los Angeles Safety Element (1996) or the County of Los Angeles Seismic Safety Element (1990) as having a potential for surface fault rupture. Based on the available geologic data, active or potentially active faults with the potential for surface fault rupture are not known to be located beneath the Red Line Yard site or the lead track alignment. The potential for surface fault rupture due to fault plane displacement propagating to the surface across the proposed Red Line Yard site or the lead track alignment during the design life of the proposed project is considered low. Additionally, the sites are not within an area of potential ground deformation associated with the Coyote Pass Escarpment

The Red Line Yard and the lead track alignment could be subject to significant ground shaking as a result of earthquakes on any of the documented or undocumented nearby active or potentially active faults. The Seismic Shaking Hazard Map of California (CDMG, 1999) indicates the estimated peak ground acceleration with a ten percent probability of being exceeded in 50 years in the study area ranges from 0.4g to 0.6g. The location of the site in relation to known active or potentially active faults indicates that the Red Line Yard and the lead track alignment are not exposed to a greater seismic risk than other sites in Southern California. The elements of the project would be designed in accordance with MTA's System Design Criteria and Standards, Volumes I through IV, and current building codes and standard engineering practices. This would reduce impacts to a level of insignificance.

The lead track alignment is within an area identified by the California Division of Mines and Geology (1999), the City of Los Angeles Safety Element (1996), and the County of Los Angeles Seismic Safety Element (1990) as having a potential for liquefaction. The M&SF site itself is not shown as being in such an area. Based on prior geotechnical investigations in the vicinity of the lead track alignment, the groundwater level is anticipated to be approximately 30 to 45 feet below existing grade. The subsurface materials below the groundwater level are anticipated to consist predominantly of dense sand and gravel with cobbles. Accordingly, the potential for liquefaction at the lead track is considered low. However, if this site were selected, a site-specific geotechnical investigation would be required to adequately evaluate the liquefaction potential. If soils subject to liquefaction are encountered at the site, mitigation measures to meet MTA's System Design Criteria and Standards, Volumes I through IV, would be taken to mitigate potential effects of liquefaction. Mitigation could consist of ground improvement. As an alternative, the foundations of proposed structures could be designed to accommodate anticipated liquefaction-induced settlement.

The Red Line Yard and lead track alignment are within an area identified by the County of Los Angeles Seismic Safety Element (1990) as having a potential for inundation resulting from a potential failure of Sepulveda Dam or Hanson Dam. However, the referenced dams are primarily flood control basins and are rarely at full capacity. Additionally, these dams are continually monitored by various governmental agencies (such as the State of California Division of Safety of Dams and the U.S. Army Corps of Engineers) to guard against the threat of dam failure. The possibility of a dam failure during an earthquake has been addressed by the California Division of Mines and Geology in the earthquake planning scenarios for a magnitude 8.3 earthquake on the San Andreas Fault zone (Davis et al., 1982) and a magnitude 7.0 earthquake on the Newport-Inglewood fault zone (Toppozada et al., 1988). As stated in both reports, catastrophic failure of a major dam as a result of an earthquake is regarded as unlikely. Current design and construction practices, and ongoing programs of review, modification, or total reconstruction of existing dams are intended to ensure that all dams are capable of withstanding a maximum credible earthquake (MCE) on a nearby fault. Therefore, inundation is not anticipated to have a significant impact under CEQA on the Red Line Yard site or the lead track alignment.

The relatively gently sloping and flat-lying topography at the sites preclude both stability problems and the potential for lurching (earth movement at right angles to a cliff or steep slope during ground shaking). The Red Line Yard is adjacent to the Los Angeles River Channel. However, the channel slopes are concrete-lined and are considered stable from a geotechnical standpoint. According to the Los Angeles County Seismic Safety Element (1990) and the City of Los Angeles Safety Element (1996), the sites are not within an area identified as having a potential for slope instability. Additionally, the sites are not located within an area identified as having a potential for seismic slope instability (California Division of

Mines and Geology, 1999). There are no known landslides near the Red Line Yard or the lead track alignment, nor are the sites in the path of any known or potential landslides. Therefore, slope instability is not anticipated to have a significant impact under CEQA.

Seiches are oscillations of the water surface in an enclosed or semi-enclosed body of water as a result of ground shaking. These waves can top dams or reservoirs and flood down-gradient areas. A review of topographic maps by the U. S. Geological Survey indicate there are no water retaining structures located immediately up-gradient of the Red Line Yard site or the lead track alignment. Any water that might over-top retention structures such as Hansen or Sepulveda Dams is not considered to be a potential hazard to any portion of the sites. This is because of the distance to these retention structures; any water that might over-top these retention structures would dissipate before significant flooding of the area of the Red Line Yard or the lead track alignment. Therefore, seiches are not anticipated to have a significant impact under CEQA on the sites.

The Red Line Yard and the lead track alignment are outside of any area identified as subject to tsunamis. No portion of the yard or lead track have been identified as being in areas subject to flooding as defined by the Federal Insurance Administration. Therefore, flooding is not anticipated to have a significant impact under CEQA. The yard and lead track are not within an area known to be susceptible to subsidence due to the withdrawal of fluids (petroleum or groundwater) or peat oxidation. Therefore, subsidence is not anticipated to have a significant impact under CEQA.

Hazardous Materials. Maybe. The Red Line Yard site is located on the west side of the Los Angeles River in a commercial and light industrial section of Los Angeles. The Red Line Yard site appears on the Underground Storage Tank (UST) and the HAZNET environmental regulatory database lists. However, the specific listings do not suggest that current operations at the site have adversely impacted the subsurface soils or ground water. The UST listing merely indicates that the site is or has previously been equipped with USTs and does not suggest that they have leaked. The HAZNET listing provides information on sites that were issued manifests for the generation, transportation, and disposal of hazardous waste. Several existing adjacent/nearby properties appear on these regulatory lists. Based on the regulatory listings for the Red Line Yard site, the potential for contamination is considered low.

The lead track for this option has a proposed route that generally follows surface streets located within a commercial and light industrial area. The corners of some properties also fall within the alignment of the proposed lead track route. Several adjacent properties through which this route is planned appear on environmental regulatory database lists. The potential that activities on these adjacent properties could have impacted the near-surface soils below the streets on the proposed lead track route is considered low.

Due to the lack of available historical information, further assessment of the Red Line Yard site would be conducted to characterize the type and extent of pollutants that may be encountered during construction, if this option is selected as the preferred site. The assessment would be done in conformance with applicable Federal, local, and state regulations as well as MTA's design criteria and standards. The main goal of the assessment would be to document whether remediation activities occurred at this facility prior to the construction/renovation for the Red Line trains. Regulatory file reviews of some adjacent properties may also be warranted. Additionally, a similar assessment would be conducted for the lead track alignment (primarily in locations where the track intercepts properties that appear on the regulatory database lists) if this option is selected as the preferred site. Impacts during construction are possible and are highly contingent upon the depth of excavation proposed for the alignment. Likewise, the potential for contamination is dependent upon this factor. Remediation activities, if necessary, would be conducted in accordance with all Federal, State and local regulatory requirements. Upon completion of any mitigation efforts, it is unlikely that significant impacts will remain that would affect proposed construction or operational activities for the proposed alignment.

Hazardous materials/chemicals used for maintenance activities during operation of the selected M&SF and lead track would be stored and disposed of in a manner consistent with regulatory requirements and standard industry housekeeping practices.

Water Resources. Maybe. Because the development of a large maintenance yard, parking, and other features would result in covering much of the sites with impermeable surfaces, surface water may increase and naturally drain to the Los Angeles River. Also, covering of the site could result in decreasing groundwater percolation. If this option is selected as the preferred alternative, further study in accordance with the criteria cited below will be conducted to determine the hydrology of the project and existing stormwater facilities and groundwater resources. Presently, the sites for the M&SF appear to naturally drain into the Los Angeles River and are entirely unpaved. The site is not within a 100-year flood plain (Flood Insurance Rate Map, Panel 060137 0075 D, FEMA, 1998). The lead track for this option would not create additional surface water runoff, be located within a 100-year flood plain, or significantly reduce groundwater percolation. If this option is selected as the preferred alternative, further study is anticipated to recognize the necessary mitigation to reduce potential impacts to less than significant. All further study would need to conform to MTA's Design Criteria and Standards, Federal Regulation 23 CFR 650A, and Section 402 of the Clean Water Act (National Pollutant Discharge Elimination System). It is anticipated that a Storm Water Prevention and Pollution Plan (SWPPP) would be devised for this option, if implemented. Furthermore, the implementation of percolation basins as mitigation is anticipated to reduce impacts on groundwater recharge.

Natural Resources and Ecosystems. No. There are no known sensitive or special status species on-site for the M&SF and rail locations (California Natural Diversity Data Base [CNNDB], California Department of Fish and Game [CDFG] 1998). Local plans do not identify this site as a sensitive natural community. Furthermore, the grounds are disturbed; there are no trees, and no signs of wetlands or natural waterways at the M&SF and rail locations. The option therefore is not anticipated to have a significant adverse effect on any species identified as sensitive or special status by any resource agencies. The project would also not conflict with local policies or ordinances, conservation plans, or the Migratory Bird Treaty Act, nor would it conflict with the movement of species.

Energy. Maybe. Construction of this alternative would result in the consumption of natural resources including building materials, fuels, and electricity. As discussed in Section 4.13 of the Draft SEIS/SEIR, construction of this option would not result in a significant impact to the availability of fossil fuels or electricity within the region or the state given the current and projected available resources. The M&SF would require a car wash and blowdown service and light-duty maintenance, all requiring municipal electricity and fuel-run generators. Also, there would be worker vehicles for transport to and around the site. Although this operation would result in reducing the use of fossil fuels by supporting the LRT Build Alternative of the Eastside Corridor project, it will require electricity and fuels for its services. Further analysis of construction-related and operational energy consumption for the M&SF will be conducted to determine its impact on energy resources if this site is selected as the preferred alternative. Mitigation options, including incorporation of energy-efficient M&SF facility design, using cold water for LRT car washes, and installing meters to monitor energy consumption and conservation, are anticipated to help minimize energy consumption.

Safety and Security. No. The safety and security of M&SF employees and others during construction and operations were considered. MTA will work with the City of Los Angeles Fire and Police Departments to develop a facility design and procedures and acquire appropriate operating equipment to enhance safety during operations. The facility would be designed to meet MTA's Fire/Life Safety criteria as stated in MTA's Rail Transit Design Criteria and Standards, Volume IX. The M&SF would be brightly lit in the evening hours for both security and safety purposes. To reduce the risk of others entering the site and possibly becoming injured, the site will have restricted access allowing only employees and others having business with the M&SF to enter the facility. During construction, the contractor will take appropriate measures (such as installing temporary fencing or hiring security guards) to provide security at the construction site, including the yard lead track. The contractor will also take appropriate measures such as the following to minimize the risk of hazards and crime by: securing tools and small parts during non-work hours; covering small, but deep excavations with heavy metal plates during non-work hours; and maintaining tidy work sites at all times.

Historic/Archaeological. Maybe. Archaeological Site CA-LAN-2563H (historical artifact deposit) is located to the west of the proposed Eastside Maintenance Facility, and may extend into the Area of Potential Effects (APE). If any new facilities, e.g., structures, are planned in this area, there is a potential for encountering archaeological remains. The known site has been evaluated and is eligible to the National Register of Historic Places under Criterion D (significant archaeological remains). Archaeological testing would be necessary to determine if subsurface archaeological materials extend into the proposed Eastside Facility. If elements of the site do extend into the APE, and a determination of adverse effect is made, then a Memorandum of Agreement between FTA, MTA, Advisory Council on Historic Preservation, and the State Historic Preservation Office (SHPO) would be developed in accordance with Section 106 of the National Historic Preservation Act which would determine the appropriate means to resolve the adverse effect. It is unlikely that the lead track would affect any cultural resources.

Community Facilities/Parklands. No. The Utah Street School and Hompa Hongwanji Buddhist Temple are the only two such facilities in the vicinity of the Red Line Yard. The school is about 2,000 feet, and the temple is approximately 1,400 feet, from the M&SF. Both would have obstructed views of the M&SF; therefore, according to the FTA screening distances criteria presented in the noise and vibration discussion, noise and vibration is unlikely to be an issue.

Section 4(f). Maybe. Sec. 4(f) of the Department of Transportation Act of 1966 states that federal funds cannot be used for any "program or project which requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance as determined by the Federal, State or local officials having jurisdiction thereof, or any land from an historic site of national, State, or local significance as determined by such officials unless (1) there is no feasible and prudent alternative to the use of such lands, and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge or historic site resulting from such use." Refer to Section 4.17 of the Draft SEIS/SEIR for more general information about Section 4(f). No parks or recreational areas would be affected. However, as noted in the Historic/Archaeological discussion, an archaeological site is located to the west of the proposed M&SF and could extend into the project area. If Option 1A is selected as the preferred alternative, additional studies, pursuant to Section 106 of the National Historic Preservation Act, would be conducted to determine if an adverse impact would occur on the archaeological site that has previously been determined eligible to the National Register. If adverse impacts under Section 106 would occur, then additional analysis would be required pursuant to Section 4(f) to determine if the impact would be a direct or constructive use. If so, an alternatives analysis would be undertaken to determine if feasible alternatives exist. If such alternatives exist, then that would become the preferred alternative. If none exist, then the project would need to include measures to minimize harm to Section 4(f) resources.

Utilities. Maybe. The Red Line Yard itself as well as the lead track alignment along the streets and other properties, as discussed in the Land Acquisition/Displacements/Relocations section, with their utility pipes, conduits, cables, lines, and poles would be impacted under the M&SF if Option 1A were selected as the preferred site. Construction of the M&SF would require relocating, abandoning, or otherwise avoiding some of this infrastructure. The project may require relocation of utility poles supporting overhead lines and street lights; relocation of underground utilities from the track zone and maintenance facility site; and inspection, repairs and encasement of underground utilities at track crossings. Construction of the project will be planned to avoid or minimize inconvenience to utility users. The locations of excavations and construction equipment movement in relation to subsurface utility lines will be identified during the planning, design, and construction phase of this project in conformance with MTA's System Design Criteria and Standards Volumes I through IV. Impacts on utilities at the Red Line Yard during M&SF operation would be minimal. MTA would work with utility providers to minimize any potential service interruptions during construction and to conserve resources during construction and operation.

4.20.2.2 Option 1B-Red Line Yard

Traffic. Yes. Traffic issues and impacts would be similar to those of Option 1A except that the lead track crossing of Center Street will have significantly more traffic impacts.

Parking. Yes. Same as all other options. See discussion under Option 1A.

Land Use and Development. Maybe. Although a different portion of the impound lot would be acquired for this alternative, this option is the same as Option 1A, and would also require coordination with the City of Los Angeles. Obtaining permits or other measures at the discretion of the City of Los Angeles may be required, and would allow for the project's land use if approved.

Economic and Fiscal. No. Although a different portion of the impound lot would be acquired for this alternative, this option is the same as Option 1A, and would also not significantly reduce economic or fiscal resources.

Land Acquisition/Displacements/Relocations. Yes. Acquisitions would be similar to those of Option 1A, except that a small portion (on the northwest side instead of the southwest side) of the City of Los Angeles' impound lot would be needed for the lead track. MTA would apply acquisition and relocation policies to comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and its amendments and with the State of California's revised Government Code Section 7260. Additional information on acquisition and relocation policies may be found in Section 4.3.

Communities/Neighborhoods. No. Same as Option 1A.

Equity and Environmental Justice Considerations. No. Same as Option 1A.

Visual. Maybe. Same as Option 1A.

Air Quality. Maybe. Same as all other options. See analysis under discussion of Option 1A.

Noise and Vibration. No. Same as Option 1A.

Geologic and Seismic Conditions. Maybe. Same as Option 1A.

Hazardous Materials. Maybe. Same as Option 1A.

Water Resources. Maybe. Same as Options 1A and 2. See analysis under discussion of Option 1A.

Natural Resources and Ecosystems. No. Same as all other options. See analysis under discussion of Option 1A.

Energy. Maybe. Same as all other options. See analysis under discussion of Option 1A.

Safety and Security. No. Same as all other options. See analysis under discussion of Option 1A.

Historic/Archaeological. Maybe. Same as Option 1A.

Community Facilities/Parklands. No. Same as Option 1A.

Section 4(f). Maybe. Same as Option 1A.

Utilities. Maybe. Same as all other options. See discussion under Option 1A.

4.20.3 Option 2-West Bank Yard

Two alignment alternatives are being considered for the lead track. Both alternatives would use the same West Bank Yard site. The lead track for Options 2A and 2B are similar to that described for Options 1A and 1B except that both Options 2A and 2B would continue east from Center Street into the Piper Technical Center. At this point, the tracks would turn north and merge into a single track and continue into the M&SF. Option 2B is similar to Option 2A except that the single track that extends eastward along Ducommun Street (under Option 2A) would, instead, turn north at Center Street and then turn east on Commercial Street to the eastern portion of the Piper Technical Center. It would then continue as under Option 2A into the M&SF. Refer to Chapter 2.0 for more detail.

4.20.3.1 Option 2A-West Bank Yard

Traffic. Yes. Traffic impacts would be similar to those of Option 1A, south of the US 101 Freeway. However, east of Center Street, the lead tracks to the West Bank Yard are located off-street and would turn north to cross under the 101 Freeway and Cesar Chavez Avenue. No major traffic impacts are anticipated in this area. If access to the yard follows the existing dirt roadway, vehicle access to the M&SF would be from Keller Street, east of the Piper Technical Center. Access road development would be constricted by the limited bay width opening (approximately 18 feet) under the Cesar Chavez Structure. Permanent public street access will need to be developed. The major difference between this option and Option 2B is that the lead track for this option crosses Center Street at a ninety-degree angle, which results in significantly less traffic impacts than Option 2B.

Parking. Yes. Same as all other options. See discussion under Option 1A.

Land Use and Development. Maybe. The new rail alignment would result in displacing parking, both on-street and structure parking, which could potentially impact the required capacity for parking within the designated land use. Such parking, especially in the structures, is usually anticipated in parking-to-area ratios with city zoning, and potential impacts may occur. Coordination with the City of Los Angeles would be undertaken if this option is selected as the preferred alternative. This option is located within the Central City North Community Plan area. The community plan land use designation for the M&SF site is "Heavy Industrial." The M&SF site is designated as "Heavy Industrial" by the community plan, as are adjacent parcels to the south and west. The adjacent land to the north is designated "Light Industrial," and the adjacent use to the east is the Los Angeles River. The zoning designation for the site is "Heavy Industrial," which is allowed in the community plan land use category. Because the proposed M&SF is categorized as an electric railroad yard in terms of its land use, it is permitted by right in either the "Light Industrial" or "Heavy Industrial" zones. Surrounding zoning includes "Heavy Industrial" to the south and west, and "Light Industrial" to the north. It is anticipated that there will be no conflicts between the

M&SF site and its type of use with the surrounding community plan land use designations and zoning. All land in the rail alignment area is designated as "Heavy Industrial" by the Central City North Community Plan, and "Heavy Industrial" by the Los Angeles Zoning Code. The new rail use is anticipated to be fully compatible with the existing land use designation and zoning by right. The M&SF site and new rail alignment are not anticipated to physically divide an established community, or conflict with any conservation plans. Coordination with City of Los Angeles regarding the proposed parking displacements would help to identify the extent of potential impacts, as well as identify mitigation that could reduce impacts to a level of less than significant. If this site is selected as the preferred alternative, coordination with the City would be undertaken and the applicable permits would be obtained prior to construction.

Economic and Fiscal. No. Same as Option 1A.

Land Acquisition/Displacements/Relocations. Yes. The yard will require acquisition of vacant land from the City of Los Angeles' Piper Technical Center and a small portion of the County Main Jail's parking lot. In addition, a portion of the Regional Rebuild Center would be required for Option 2A. However, this land is currently owned by the MTA. The lead track will require acquisition of: (1) a small portion of a parking lot at Ducommun/Alameda; (2) a portion of a gas station property located at the same intersection (however, this gas station is already being partially or fully acquired to accommodate the new right-of-way on the east side of Alameda); (3) partial acquisition and reconstruction of a portion of a parking structure at Ducommun/Garvey; and (4) a small portion (on the southwest side) of the City of Los Angeles impound lot located adjacent to Center Street between Commercial and Ducommun. MTA would apply acquisition and relocation policies to comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and its amendments and with the State of California's revised Government Code Section 7260. Additional information on acquisition and relocation policies may be found in Section 4.3.

Communities/Neighborhoods. No. Same as Option 1. See analysis under discussion of Option 1A.

Equity and Environmental Justice Considerations. No. Same as Option 1. See analysis under discussion of Option 1A.

Visual. Maybe. The West Bank M&SF Yard site and "Alternative A" track alignment may result in adverse impacts to existing views. The M&SF site and track alignment would be visible from surrounding multi-story buildings in the area. As part of this option, some existing land uses would be displaced, including a gas station (partial or full) and parking structure (partial) for the track alignment. Mitigation may be required in order to make the track alignment visually compatible with surrounding uses. Such mitigation would reduce the visual impacts to less than significant.

Air Quality. Maybe. Same as all other options. See analysis under discussion of Option 1A.

Noise and Vibration. No. FTA screening distance criteria indicate impacts of a M&SF are possible if sensitive receptors are located within 1,000 feet when there are intervening buildings or 2,000 feet if there is an unobstructed view. No sensitive receptors are located within these distances so the impacts of the M&SF itself would not likely result in adverse impacts. No sensitive receptors are located adjacent to the lead track alignment so no adverse impacts are anticipated as a result of the yard lead. During construction, the contractor will be required to meet the Los Angeles Noise Ordinance Limits and MTA specified limits that are presented in the Noise and Vibration section of the Draft SEIS/SEIR.

Geologic and Seismic Conditions. Maybe. Option 2A is the same as Option 1 with regard to no impacts anticipated due to surface fault rupture, ground shaking, slope instability, seismic slope instability, tsunamis, inundation and seiches, flooding, and subsidence. Refer to the evaluation of these issues under discussion of Option 1A. However, both the yard site and the lead track are within an area identified as having a potential for liquefaction. Based on prior geotechnical investigations in the vicinity of the M&SF site and the lead tracks, the groundwater level is anticipated to be approximately 30 to 45 feet below existing grade. The subsurface materials at the site below the groundwater level are anticipated to consist predominantly of dense sand and gravel. Accordingly, the potential for liquefaction at the site is considered low. A site-specific geotechnical investigation and mitigation options, as discussed under Option 1A, would be undertaken for the M&SF site and the lead track, if this site were selected.

Hazardous Materials. Maybe. The West Bank Yard site is located on the west side of the Los Angeles River in an area developed with commercial and light industrial buildings. The West Bank Yard site does not appear on environmental regulatory database lists. However, several existing adjacent/nearby properties appear on these regulatory lists. Additionally, some listed facilities that are no longer in existence may have been located within portions of the proposed West Bank Yard site. The risk potential for subsurface contamination at the West Bank Yard cannot be addressed based on available information. It is possible that soils at the West Bank Yard could be impacted from historical uses. As noted below, a more detailed site analysis characterizing the types of pollutants that may be encountered during construction will be conducted if this option is selected for implementation.

The lead track for this option has a proposed route that generally follows surface streets located within a commercial and light industrial area. The corners of some properties also fall within the alignment of the proposed lead track route. Several adjacent properties through which this route is planned appear on environmental regulatory database lists. The potential that activities on these adjacent properties could have impacted the near-surface soils below the streets on the proposed lead track route is considered low.

Due to the lack of available historical information, further assessment of the West Bank Yard site would be conducted in accordance with applicable Federal, state, and local agency criteria as well as MTA's design criteria and standards if this option is selected as a preferred site. Regulatory file reviews of some adjacent properties may also be warranted. Additional assessment would also be conducted for the lead track alignment (primarily in locations where the track intercepts properties that appear on the regulatory database lists). Impacts during construction are possible and are highly contingent upon the depth of excavation proposed for the alignment. Remediation activities, if necessary, would be conducted in accordance with all Federal, State and local regulatory requirements. Upon completion of any mitigation efforts, it is unlikely that significant impacts will remain that would affect proposed construction or operational activities for the proposed alignment.

Hazardous materials/chemicals used for maintenance activities during operation of the selected M&SF and lead track would be stored and disposed of in a manner consistent with regulatory requirements and standard industry housekeeping practices.

Water Resources. Maybe. Same as Option 1. See analysis under discussion of Alternative 1A.

Natural Resources and Ecosystems. No. Same as all other options. See analysis under discussion of Alternative 1A.

Energy. Maybe. Same as all other options. See analysis under discussion of Option 1A.

Safety and Security. No. Same as all other options. See analysis under discussion of Option 1A.

Historic/Archaeological. Maybe. Geologic boring logs for the MTA's Regional Rebuild Center suggest that archaeological materials are present immediately below the pavement. The archaeological component has not been evaluated for significance, but since it is believed to be associated with the earliest industrial complex in Los Angeles, it may meet the criteria for the National Register of Historic Places. Archaeological studies including excavation in accordance with Section 106 of the National Historic Preservation Act would be necessary to determine if cultural materials are present, if they retain integrity, and if they represent a significant archaeological resource. Determinations of Eligibility and Effect in accordance with Section 106 would be made if this option is selected as the preferred alternative. If the resource is determined to be significant, then a Memorandum of Agreement between FTA, MTA, the Advisory Council on Historic Preservation, and the State Historic Preservation Office (SHPO) would be developed pursuant to Section 106 which would determine the appropriate means to resolve the adverse effect. It is uncertain that the archaeological remains extend into the proposed project location. It is unlikely that the lead track will affect any cultural resources.

Community Facilities/Parklands. No. There are no such facilities in the vicinity of the West Bank Yard or lead track.

Section 4(f). Maybe. No parks or recreational areas would be affected. However, as noted in the Historic/Archaeological discussion, archaeological materials may be present immediately below the pavement of the West Bank Yard site in the vicinity of MTA's Regional Rebuild Center. If the studies discussed in the Historic/Archaeological section determine that the site is eligible for listing on the National Register and that an adverse effect would occur, then additional studies would need to be conducted in accordance with Section 4(f) of the Department of Transportation Act to determine if direct or constructive use impacts would occur if Option 2A is selected as the preferred site for an M&SF. If adverse impacts would occur, then an alternatives analysis pursuant to Section 4(f) would be undertaken during the NEPA process to determine if feasible alternatives exist. If such alternatives exist, then that would become the preferred alternative. If none exist, then the project would need to include measures to minimize harm to Section 4(f) resources.

Utilities. Maybe. Same as all other options. See discussion under Option 1A.

4.20.3.2 Option 2B-West Bank Yard

Traffic. Yes. Impacts would be similar to those of Option 2A except that under Option 2B, the single track that extends eastward along Ducommun Street turns north at Center Street and then east on Commercial Street to the eastern portion of the Piper Technical Center and on into the M&SF. The lead track crossing of Center Street will have significantly more traffic impacts than Option 2A.

Parking. Yes. Same as all other options. See discussion under Option 1A.

Land Use and Development. Maybe. Although a different portion of the impound lot would be acquired for this alternative, this option is the same as Option 2A, and would also require coordination with the City of Los Angeles. Obtaining permits or other measures at the discretion of the City of Los Angeles may be required, and would allow for the project's land use if approved.

Economic and Fiscal. No. Although a different portion of the impound lot would be acquired for this alternative, this option is the same as Option 2A, and would also not significantly reduce economic or fiscal resources. See discussion under Option 1A.

Land Acquisition/Displacements/Relocations. Yes. Acquisitions would be similar to those of Option 2A, except that a small portion (on the northwest side instead of the southwest side) of the City of Los Angeles' impound lot would be needed for the lead track. MTA would apply acquisition and relocation policies to comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of

1970 and its amendments and with the State of California's revised Government Code Section 7260. Additional information on acquisition and relocation policies may be found in Section 4.3.

Communities/Neighborhoods. No. Same as Options 1 and 2A. See analysis under discussion of Option 1A.

Equity and Environmental Justice Considerations. No. Same as Options 1 and 2A. See analysis under discussion of Option 1A.

Visual. Maybe. Same as Option 2A.

Air Quality. Maybe. Same as all other options. See analysis under discussion of Option 1A.

Noise and Vibration. No. Same as Option 2A.

Geologic and Seismic Conditions. Maybe. Same as Option 2A. See analysis under discussions of Options 1A and 2A.

Hazardous Materials. Maybe. Same as Option 2A.

Water Resources. Maybe. Same as Options 1 and 2A. See analysis under discussion of Alternative 1A.

Natural Resources and Ecosystems. No. Same as all other options. See analysis under discussion of Alternative 1A.

Energy. Maybe. Same as all other options. See analysis under discussion of Option 1A.

Safety and Security. No. Same as all other options. See analysis under discussion of Option 1A.

Historic/Archaeological. Maybe. Same as Option 2A.

Community Facilities/Parklands. No. Same as Option 2A.

Section 4(f). Maybe. Same as Option 2A.

Utilities. Maybe. Same as all other options. See analysis under discussion of Option 1A.

4.20.4 Option 3-East Bank Yard

Two alignment alternatives are being considered for the lead track. Both alternatives would use the same East Bank Yard site. The lead track for Options 3A and 3B are similar to that described for Options 2A and 2B except that both Options 3A and 3B would traverse north at grade through both the Piper Technical Center and a portion of the Regional Rebuild Center properties adjacent to the Los Angeles River and then would become aerial just north of Chavez Avenue to cross over to the east side of the river. Once it crosses the river, the alignment would continue east into the property for the East Bank Yard and then curve south becoming at grade again to enter the M&SF. Refer to Chapter 2.0 for more detail.

4.20.4.1 Option 3A-East Bank Yard

Traffic. Yes. Similar to Option 2A. Vehicle access to this storage facility site would be from Mission Road.

Parking. Yes. Same as all other options. See discussion under Option 1A.

Land Use and Development. Maybe. Because the proposed M&SF may not be permitted by right by the existing zoning, use of the site as a M&SF will require a discretionary decision by the City of Los Angeles, and possibly a change in zoning. The new rail alignment would result in displacing structure parking, which could potentially impact the required capacity for parking within the designated land use. Development of the M&SF would result in displacing several businesses. Correspondence with the City of Los Angeles would be undertaken for both of these issues if this option is selected as the preferred alternative. There is a potential for conflicting with the land use plans/policies of the Central City North Community Plan due to the proposed M&SF use. Further examination of the community plan land use policies is required, and discretionary review and/or permitting of the proposed use may be required. This option is located within the Central City North Community Plan area. The community plan land use designation for the M&SF site is "Limited Industrial." Adjacent parcels to the south and east are designated likewise, while land to the north is classified as "Heavy Industrial." The zoning designation for the site is "Limited Industrial," which is not necessarily allowed in the community plan land use category. Surrounding zoning includes "Light Industrial" to the south, "Limited Industrial" to the southeast and east, and "Heavy Industrial" to the north.

All land in the rail alignment area is designated as "Heavy Industrial" by the Central City North Community Plan, and "Heavy Industrial" by the Los Angeles Zoning Code. The new rail use is anticipated to be fully compatible with the existing land use designation and zoning by right. The M&SF site and new rail alignment are not anticipated to physically divide an established community, or conflict with any conservation plans.

Coordination with the City of Los Angeles regarding the parking displacements would help to identify the extent of potential impacts, as well as identify mitigation that could reduce impacts to a level of less than significant. Obtaining permits or other measures at the discretion of the City of Los Angeles may be required, and would allow for the project's land use if approved. If this site is selected as the preferred alternative, coordination with the City would be undertaken and the applicable permits would be obtained prior to construction.

Economic and Fiscal. Maybe. The M&SF would create both short- and long-term employment, with the construction and operation of the facility. The construction and operation of the facility on the proposed site would not interfere with fire and police service performance objectives. Portions of parking lots would be acquired; however none of these acquisitions would be considered a significant impact on economic and fiscal resources. Furthermore, although a gas station at the Ducommun/Alameda intersection would be partially acquired for the new rail alignment, the station will be partially or fully acquired to accommodate the new right-of-way on the east side of Alameda for the Eastside Corridor LRT Build Alternative. The facility, however, would require demolition of the existing structures on the property and displacement of the several businesses that operate there. Such displacements of small businesses may result in minor employment impacts and a reduction of City of Los Angeles and State tax revenue – such funds might be considered minimal when compared to Los Angeles revenue and spending. Although these business displacements seem negligible, further analysis to satisfy CEQ Guideline 15126.2 (fiscal impacts that would result in social impacts) for economic and fiscal resources will be conducted if this site is selected as the preferred alternative.

Land Acquisition/Displacements/Relocations. Yes. The yard would require acquisition of 9.9 acres of privately-owned property containing a large rock crushing and sand and gravel operation as well as auto salvage yards with buildings. The existing buildings would be demolished, and the several businesses that operate there would be displaced. Acquisitions to accommodate the lead track would be somewhat similar to that for Options 1 and 2 and include: (1) a small portion of a parking lot at Ducommun/Alameda; (2) a portion of a gas station property located at the same intersection (however, this gas station is already being partially or fully acquired to accommodate the new right-of-way on the east side of Alameda); (3) partial acquisition and reconstruction of a portion of a parking structure at Ducommun/Garvey; (4) a small portion (on the southwest side) of the City of Los Angeles impound lot located adjacent to Center Street between Commercial and Ducommun; and (5) vacant land from the City of Los Angeles' Piper Technical Center. In addition, Option 3A would require use of a portion of MTA's Regional Rebuild Center for the lead track alignment. MTA would apply acquisition and relocation policies to comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and its amendments and with the State of California's revised Government Code Section 7260. Additional information on acquisition and relocation policies may be found in Section 4.3.

Communities/Neighborhoods. No. The criteria considered include: (1) substantial growth inducement; (2) displacement of a large number of residents or businesses; (3) substantial alteration of location, distribution, density, or growth rate of population in a manner inconsistent with public policy; and (4) disruption of neighborhood access or isolation of a portion of a neighborhood. The construction and operation of a M&SF at this location would not result in adverse impacts with regard to the criteria evaluated. There would be no residential displacements; however, displacement of several businesses would occur, but the number displaced would not be large. The numbers of businesses and employees affected will be determined during the Final SEIS/SEIR if this option is selected as the preferred alternative. The project would not disrupt neighborhood access, nor would it isolate any portion of existing neighborhoods.

Equity and Environmental Justice Considerations. Maybe. Minority populations and low-income households comprise a large proportion of the total population of the Eastside Corridor study area, which includes the location of the East Bank Yard (see Section 4.5 of the Draft SEIS/SEIR for more information). Factors to consider in determining whether a project will have "disproportionately high adverse environmental effects" on these populations include its potential adverse impacts; mitigation and enhancement measures that will be incorporated into the project; and off-setting benefits. Adverse impacts considered are property acquisition and displacements; circulation and air quality impacts; noise and vibration impacts; neighborhood and community facility impacts; Section 4(f) impacts; as well as construction impacts. Potential benefits could include improved transit mobility, access to transit, and travel time savings. MTA will recommend to the FTA the findings as to whether disproportionately high adverse effects would occur, and FTA will make the final determination, if this option is selected as the preferred site.

Option 3A will require acquisition of land, and several businesses would be displaced. If the businesses relocate outside the study area, this may potentially adversely affect the local economy. Noise and vibration impacts and adverse effects on neighborhood and community facilities are not anticipated. There may be impacts on a Section 4(f) resource; however, further study will be required in accordance with Section 106 of the National Historic Preservation Act to determine if impacts would occur (refer to the Historic/Archaeological discussion for more information). Traffic, air quality, and noise and vibration impacts are possible during construction. However, these impacts would be temporary, lasting as long as the construction period. There would also be traffic and parking impacts during operation (refer to the Traffic and Parking discussions for more information). The objective of the M&SF is to maintain continuous and safe LRT operations in the Eastside Corridor. As such, it is an integral part of the LRT system. As discussed in the Environmental Justice section of the Draft SEIS/SEIR, many residents in the corridor perceive the lack of quality transit service offered by MTA's rail systems to corridor residents as well as the disproportionate investment in the regional public transportation system as an imbalance that needs to be rectified. For these reasons, the LRT Build Alternative has considerable local support and is viewed by many as a means of mitigating past environmental "injustices" that corridor neighborhoods have experienced. The LRT Build Alternative is also expected to increase the number of daily transit trips compared with the current bus service offered by the No-Build Alternative. It will increase accessibility to the regional transit system and will decrease travel times to many popular destinations. The project will also generate both construction and long-term employment.

Visual. Maybe. The East Bank M&SF Yard site and "Alternative A" track alignment may result in adverse impacts to existing views. The M&SF site would be located on property containing a rock crushing and gravel operation, auto salvage, and other buildings, visible from high-rise buildings in the area. Replacement of these operations and buildings with the yard would not be expected to result in adverse visual impacts. The Alternative A track alignment would include an aerial structure over the Los Angeles River. This may result in adverse visual impacts to existing views which may not be feasibly mitigated. As part of this option, some existing land uses would be displaced, including a gas station (partial or full) and parking structure (partial) for the track alignment. Mitigation may be required in order to make the track alignment visually compatible with surrounding uses. Such mitigation would reduce the visual impacts to less than significant.

Air Quality. Maybe. Same as all other options. See analysis under discussion of Option 1A.

Noise and Vibration. No. FTA screening distance criteria indicate impacts of a M&SF are possible if sensitive receptors are located within 1,000 feet when there are intervening buildings, or 2,000 feet if there is an unobstructed view. No sensitive receptors are located within these distances so it is unlikely that the M&SF itself would result in adverse impacts. No sensitive receptors are located adjacent to the lead track alignment so no adverse impacts are anticipated as a result of the yard lead. During construction, the contractor will be required to meet the Los Angeles Noise Ordinance Limits and MTA specified limits that are presented in the Noise and Vibration section of the Draft SEIS/SEIR.

Geologic and Seismic Conditions. Maybe. Same as Options 1 and 2 with regard to no impacts anticipated due to surface fault rupture, ground shaking, slope instability, seismic slope instability, tsunamis, inundation and seiches, and subsidence. Refer to the evaluation of these issues under the discussion of Option 1A. Like Option 2, Option 3A, East Bank Yard and its lead track alignment, are within an area identified by the same three sources cited for the other options as having a potential for liquefaction. The difference between this and the other options is the groundwater level below the lead track where it traverses the Los Angeles River. Within the river channel, the groundwater level is anticipated to be at or immediately below the bottom of the channel. The subsurface materials along the yard and its lead track alignment below the groundwater level are anticipated to consist predominantly of dense sand and gravel. Therefore, potential for liquefaction is considered low like the other options. As with the other options, a site-specific geotechnical investigation would be required in accordance with MTA's Rail Transit Design Criteria and Standards (Volumes I through IV) to evaluate the potential for liquefaction if this site is selected as the preferred alternative. Mitigation measures as stated for the other options would also apply to this option. The East Bank Yard, unlike the other options, has been identified as being in an area subject to 100-year flooding. Therefore, 100-year flooding could have a significant impact under CEQA on the East Bank Yard. The lead track alignment is not within an identified flood area (FEMA, 1998). Refer to the Water Resources discussion for additional information regarding potential flooding impacts.

Hazardous Materials. Maybe. As previously noted, the East Bank Yard site is located on the east side of the Los Angeles River in an area currently occupied by a rock/concrete crushing facility and several auto salvage yards. Access to the East Bank Yard site is via the West Bank Yard site. Some of the salvage yards and the crushing facility that occupy the proposed East Bank Yard site appear on environmental regulatory database lists. Two of these properties appear on the HAZNET list that provides information on sites that were issued manifests for the generation, transportation and disposal of hazardous waste. The other property appears on a site mitigation list related to a reported spill or complaint. No status information was provided in the regulatory database report for this property. Additionally, there are several existing adjacent/nearby properties that appear on these regulatory lists. Considering the current uses of the East Bank Yard, the potential for subsurface contamination is considered moderate to high.

Further assessment of the East Bank Yard site would be conducted in accordance with applicable Federal, state, and local regulations and MTA's Rail Transit Design Criteria and Standards, if this option is selected as the preferred site. The reason for further assessment is the lack of available historical information, existing operations on the proposed site and the proposed access path through the West Bank site (previously identified as requiring additional research). Regulatory file reviews of some adjacent properties may also be warranted.

The lead track for this option follows the same proposed route as Option 2A. The potential that activities on these adjacent properties could have impacted the near-surface soils below the streets on the proposed lead track route is considered low.

Additional assessment, as discussed above, would be conducted for the lead track alignment (primarily in locations where the track intercepts properties that appear on the regulatory database lists) if this option is selected as the preferred site. Impacts during construction are possible and are highly contingent upon the depth of excavation proposed for the alignment. Likewise, the potential for contamination is dependent upon this factor. Remediation activities, if necessary, would be conducted in accordance with all Federal, State, and local regulatory requirements. Upon completion of any mitigation efforts, it is unlikely that significant impacts will remain that would affect proposed construction or operational activities for the proposed alignment.

Hazardous materials/chemicals used for maintenance activities during operation of the selected M&SF and lead track would be stored and disposed of in a manner consistent with regulatory requirements and standard industry housekeeping practices.

Water Resources. Yes. Because the development of a large maintenance yard, parking, and other features would result in covering much of the site with impermeable surfaces, surface water may increase and naturally drain to the Los Angeles River. Also, covering of the site could result in decreasing groundwater percolation. There is a possibility that development of the site would require a Hydrologic Engineering Center (HEC-2) analysis and/or other flood studies because of its location in a pre-determined flood plain. If this option is selected as the preferred alternative, further study in conformance with the criteria cited below will be conducted to determine the hydrology of the project and existing stormwater facilities, groundwater resources, and potential for flooding. Whether the aerial structure would impede flow of the Los Angeles River would need to be determined by the Los Angeles County Flood Control District and/or U.S. Army Corps of Engineers (ACOE). Presently, the site for the M&SF appears to naturally drain into the Los Angeles River and is mostly covered by businesses and a debris pile. The site is within Zone "AE," (Flood Insurance Rate Map, Panel 060137 0075 D, FEMA, 1998) which has a pre-determined base flood elevation and is thus prone to 100-year flooding. The lead track for this option would not create additional surface water runoff, be located within a 100-year flood plain, or significantly reduce groundwater percolation.

If this option is selected as the preferred alternative, further study is anticipated to recognize the necessary mitigation to reduce potential flooding and surface water runoff impacts to less than significant. All further study would need to conform to MTA Design Criteria and Standards, Federal Regulation 23 CFR 650A, and Section 402 of the Clean Water Act (National Pollutant Discharge Elimination System). Also, coordination with the Los Angeles County Flood Control District and/or U.S. ACOE, and conformity with Section 404 of the Clean Water Act, is required for the aerial structure. It is anticipated that a Storm Water Prevention and Pollution Plan (SWPPP) would be devised for this option if implemented. Furthermore, the implementation of percolation basins as mitigation is anticipated to reduce impacts on groundwater recharge.

Natural Resources and Ecosystems. No. Same as all other options. See analysis under discussion of Option 1A.

Energy. Maybe. Same as all other options. See analysis under discussion of Option 1A.

Safety and Security. No. Same as all other options. See analysis under discussion of Option 1A.

Historic/Archaeological. Maybe. Portions of the Union Pacific Railroad pass through the proposed East Bank Yard and have been recorded as historical Archaeological Site No. 19-186110 (tracks and switches). If the site is significant, then crossing or modifying the track would either create an adverse visual effect or result in physical alteration of the site resulting in an adverse effect. The site has not been formally evaluated but the author of the record considered the site eligible under Criteria A (significant historical associations) and B (associations with significant persons) of the National Register of Historic Places. If this is correct, then a Memorandum of Agreement between FTA, MTA, Advisory Council on Historic Preservation, and the State Historic Preservation Office (SHPO) would be developed pursuant to Section 106 which would determine the appropriate means to resolve the adverse effect. Research and recordation would be necessary to determine eligibility to listing on the National Register and whether adverse impacts would occur pursuant to Section 106. It is unlikely that the lead track would affect any cultural resources.

Community Facilities/Parklands. No. There are no such facilities in the vicinity of the East Bank Yard or lead track.

Section 4(f). Maybe. No parks or recreational areas would be affected. However, as noted in the Historic/Archaeological discussion, portions of the Union Pacific Railroad pass through the proposed East Bank Yard and have been recorded as an historical archaeological site. Additional studies would need to be conducted to determine eligibility for listing on the National Register and whether an adverse impact would occur pursuant to Section 106 of the National Historic Preservation Act, if Option 3A is selected as the preferred site for an M&SF. If an adverse impact under Section 106 would occur, then further study under Section 4(f) would be required to determine if it is a direct or constructive use, and if so, an alternatives analysis would be undertaken to determine if feasible alternatives exist. If such alternatives exist, then that would become the preferred alternative. If none exist, then the project would need to include measures to minimize harm to Section 4(f) resources.

Utilities. Maybe. Same as all other options. See discussion under Option 1A.

4.20.4.2 Option 3B-East Bank Yard

Traffic. Yes. Similar to Options 1B and 2B in that the lead track crossing of Center Street will have significantly more traffic impacts than Options 1A, 2A, or 3A. Like Option 3A, vehicle access to this storage facility site would be from Mission Road.

Parking. Yes. Same as all other options. See discussion under Option 1A.

Land Use and Development. Maybe. Although a different portion of the impound lot would be acquired for this alternative, this option is the same as Option 3A, and would also require coordination with the City of Los Angeles. Obtaining permits or other measures at the discretion of the City of Los Angeles may be required, and would allow for the project's land use if approved.

Economic and Fiscal. Maybe. Although a different portion of the impound lot would be acquired for this alternative, this option is the same as Option 3A, and would need further analysis to satisfy CEQA Guideline 15126.2 (fiscal impacts that would result in indirect social impacts) for economic and fiscal resources if selected as the preferred alternative.

Land Acquisition/Displacements/Relocations. Yes. Acquisitions would be similar to those of Option 3A, except that a small portion (on the northwest side instead of the southwest side) of the City of Los Angeles' impound lot would be needed for the lead track. MTA would apply acquisition and relocation policies to comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and its amendments and with the State of California's revised Government Code Section 7260. Additional information on acquisition and relocation policies may be found in Section 4.3.

Communities/Neighborhoods. No. Same as Option 3A.

Equity and Environmental Justice Considerations. Maybe. Same as Option 3A.

Visual. Maybe. Same as Option 3A.

Air Quality. Maybe. Same as all other options. See analysis under discussion of Option 1A.

Noise and Vibration. No. Same as Option 3A.

Geologic and Seismic Conditions. Maybe. Same as Option 3A.

Hazardous Materials. Maybe. Same as Option 3A.

Water Resources. Yes. Although a different portion of the impound lot would be acquired for this alternative, this option is the same as Option 3A, and would require further study which would conform to MTA Design Criteria and Standards, Federal Regulation 23 CFR 650A, and Section 402 of the Clean Water Act (National Pollutant Discharge Elimination System) and coordination with the Los Angeles County Flood Control District and/or U.S. ACOE, and conformity with Section 404 of the Clean Water Act.

Natural Resources and Ecosystems. No. Same as all other options. See analysis under discussion of Option 1A.

Energy. Maybe. Same as all other options. See analysis under discussion of Option 1A.

Safety and Security. No. Same as all other options. See analysis under discussion of Option 1A.

Historic/Archaeological. Maybe. Same as Option 3A.

Community Facilities/Parklands. No. Same as Option 3A.

Section 4(f). Maybe. Same as Option 3A.

Utilities. Maybe. Same as Option 3A.

4.21 SUMMARY OF IMPACTS

4.21.1 Unavoidable Significant Adverse Impacts

No significant unavoidable adverse impacts under CEQA are expected to occur for the No-Build Alternative. The following environmental impacts may remain significant after mitigation is implemented for the LRT Build 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 the need for some residents to relocate outside of the corridor.
- There will be significant impacts on 14 traffic intersections in the study area. This issue is discussed in Chapter 3.0, *Transportation*.
- 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 sidewalk closures, total nighttime sidewalk closures, and traffic patterns due to movement of general construction traffic.
- Temporary air quality and noise and vibration impacts are also possible during construction.

4.21.2 Impacts Found Not to be Significant

The following impact areas were found not to be significant or are beneficial under CEQA and require no mitigation:

- Natural resources and ecosystems
- Economic and fiscal
- Air quality during operations
- Noise during operations
- Energy
- Floodplains

The following impact areas were found not to be significant after mitigation is implemented:

- Land use and development
- Property acquisition and displacement of businesses and residents, with the possible exception if residents cannot find adequate replacement housing within the corridor.
- Visual and aesthetics
- Vibration during operations
- Geologic/seismic issues
- Hazardous materials
- Water resources
- Safety and security
- Historic and archaeological resources
- Utilities

4.21.3 Cumulative Impacts

Cumulative impacts are the combined effects of independent projects and the Los Angeles Eastside Corridor project on the environment. A listing of recent and future development activity in the study area is provided in Section 4.1, *Land Use and Development*. Cumulative impacts refer to those effects that "...result from the incremental impact of a proposed action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (40 CFR 1508.7). Anticipated cumulative impacts are presented below.

4.21.3.1 Land Use and Development

Over the years, numerous freeways have been developed that cross the corridor, thus dividing the area and altering development patterns. The LRT Build Alternative would tend to integrate communities in the corridor and encourage transit-oriented development. The LRT Build Alternative would be compatible with local land use plans and policies and, as a result, would further local plan goals and policies within the study area. Construction activities would contribute to community disruptions resulting from other development projects in the area. This may result in a longer duration of noise and dust from construction, and greater traffic delays and traffic obstructions. The combined impact may heighten the perception of disruption experienced by the local community. These impacts may be concentrated in some locations at different times during construction but would diminish as the project concludes, and upon completion would no longer affect the community.

4.21.3.2 Economic and Fiscal Impacts

Over the years, the LRT Build Alternative would have long-term benefits for the communities it traverses and would further goals and policies for revitalization and investment within the study area. The fiscal benefits of operation would have a long-term impact for the communities. The loss of tax revenue would be offset by increased development near stations and along the LRT alignment. The LRT Build Alternative would not result in a cumulative adverse impact during operation and would be economically beneficial to its surrounding communities. Construction activities would contribute to community disruptions resulting from other development projects in the area. This may result in short-term economic impacts on local businesses, but would be temporary. Construction may result in overall beneficial impacts on tax revenues with increases in employment and spending that help offset any short-term economic impacts. Given that construction of the LRT Build Alternative would happen over a period of years and in different phases, impacts on fire and police services from this project and in conjunction with other development projects in the area may result in short-term cumulative impacts that would be less than significant due to advanced notices on traffic detours and closures.

4.21.3.3 Land Acquisition/Displacement and Relocation

Other properties in the corridor may be acquired and structures demolished as result of unrelated development projects. For example, between 1990 and 1993, 35 residential units and 11 businesses were demolished in Boyle Heights[12]. In the context of overall demolition activity in the corridor, including the limited number of residential and commercial displacements resulting from construction of the LRT Build Alternative, these displacements do not represent significant cumulative or growth-inducing impacts.

4.21.3.4 Communities/Neighborhoods

A number of residential, commercial, and community facility projects are being planned for 1st and 3rd Streets along the LRT alignment. If these projects occur simultaneously with light rail construction, without appropriate mitigation, potentially significant cumulative impacts could occur on the surrounding

[12] City of Los Angeles Building and Safety Department, 1994

neighborhoods. MTA will coordinate with other jurisdictions and agencies regarding the timing of construction activities for projects affected by or that may affect light rail construction.

4.21.3.5 Visual and Aesthetics

The addition of overhead wires related to the catenary system would contribute to existing and cumulative visual clutter in the vicinity of the Eastside Corridor. Otherwise, the project would not contribute to cumulative impacts.

4.21.3.6 Air Quality

The LRT Build Alternative would contribute to an increase in transit ridership, which would in fact reduce criteria pollutant emissions from transportation sources. While the cumulative effect of related projects may result in an overall increase in regional emissions and negative air quality impacts, the LRT Build Alternative would reduce the daily regional emissions of criteria pollutants. The LRT Build Alternative would have a beneficial cumulative effect on regional air quality.

4.21.3.7 Noise and Vibration

Noise levels in the corridor would be increased by the presence of the LRT Build Alternative since it would involve operating transit vehicles. Some of the other planned projects in the study area would also increase noise because they would result in increased travel. However, the LRT Build Alternative was not found to produce significant adverse impacts after mitigation. There are no known project locations where related projects would also produce noise increases. The project's level of increased noise after mitigation would not be significant because it would not involve violations of FTA's noise guidelines for severe impacts or ground-borne noise and vibration guidelines for impacts. However, the LRT Build Alternative would add to the ambient noise environment in a cumulative sense, although if projected transit patrons were traveling by private automobile, the likely increase in ambient noise would be greater.

4.21.3.8 Geologic and Seismic Conditions

Seismic hazards may be considered to be cumulative per CEQA. For example, liquefaction is the cumulative impact of shallow groundwater and ground shaking, and seismic settlement is the cumulative impact of loose soils and ground shaking. The geologic and seismic impacts will not be compounded by the LRT Build Alternative and future projects. The primary source of the hazards, the earthquake faults affecting the site, are not and will not be affected by past, current, or future projects. Even geologic impacts that could potentially be affected by projects are also unlikely to be adversely affected because the project area is already developed and densely populated. Future projects that could potentially have an effect on geologic impacts would have to be large-scale projects, such as the LRT Build Alternative, and as such would be required to demonstrate that existing impacts will not be compounded. Accordingly, no cumulative impacts due to multiple projects are anticipated.

4.21.3.9 Hazardous Materials

During operations, the LRT Build Alternative has the potential to affect or be affected by hazardous waste sites, both known and unknown. Other projects in the study area would also have this same potential. No adverse impacts will occur with proper mitigation; therefore, no cumulative impacts are expected. The cumulative impacts which relate to the proposed construction activities are comprised of those impacts from other projects which add to existing hazardous waste (installation of hazardous materials pipelines; facilities of hazardous waste generators; transfer, storage or disposal facilities, etc.); or impacts of the proposed construction activities which add to the amount of existing hazardous waste. The proposed construction activities are not likely to present a significant cumulative impact under CEQA if conducted in accordance with applicable hazardous waste laws, statutes and regulation in conjunction with use of sound hazardous material detection and management practices. Hazardous materials encountered during construction will be removed or treated in place, thus reducing the potential for cumulative impacts.

4.21.3.10 Water Resources

Planned and approved projects in conjunction with the LRT Build Alternative have the possibility of short-term construction-related impacts to surface waters and groundwater. These conditions may exist until the project is completed and/or permanent protective measures are established. All facilities will be constructed pursuant to guidance published in Sections 401, 402, and 404 of the Clean Water Act and will follow the most current guidance within the NPDES program. Best Management Practices (BMPs) will be incorporated, as appropriate.

4.21.3.11 Natural Resources and Ecosystems

The entire study area is entirely within developed portions of Los Angeles County. Because no unmitigated adverse impacts on the natural environment have been identified in this study, construction and operation of the project would not contribute to the cumulative loss of native trees, shrubs, and groundcover, or to the loss of wildlife habitat supported by such vegetation.

4.21.3.12 Energy

The energy conservation measures for the Los Angeles Eastside Corridor, as discussed in Section 4.13, also apply to the other rail transit, bus fleet, and fixed facilities that would serve the entire Los Angeles region. These area-wide conservation measures would conserve large quantities of energy throughout the regional transit network. In addition, the LRT Build Alternative, in coordination with other regional public transportation improvements, would help to reduce dependency on single-occupant vehicles (SOVs). This would in turn reduce fossil fuel energy consumption and improve roadway congestion. Construction of the LRT Build Alternative in combination with other construction projects occurring within the same period and within the region may result in a short-term increase in energy consumption. This would be a temporary effect and given the available energy resources available within the region and state, no significant impact is anticipated. Some of the materials needed to construct the project may not be manufactured within the region or state and would therefore not result in the use of local or statewide energy resources.

4.21.3.13 Safety and Security

The number of vehicular accidents may increase in the corridor due to the increased number of vehicles traveling to station locations and background growth. The potential cumulative effect of increased vehicle trips in the corridor may be counterbalanced by a slight mode shift away from autos toward public transportation. This latter effect could be argued to reduce cumulative accident potential, rather than add to it. The addition of new LRT stations would add to the number of locations in the corridor where crimes could occur. With proper surveillance, the likely number of increased crimes occurring at such locations is expected to be small. Even with planned development in the corridor, the magnitude of additional criminal activities is not expected to be significant on a cumulative basis. The LRT Build Alternative could cause a slight increase in demand for additional fire or police personnel. This increase, if it occurs, would be characterized as a cumulative impact, although the magnitude is not considered significant.

4.21.3.14 Historic/Archaeological/Paleontological Resources

All proposed and projected impacts to cultural resources from other projects within all jurisdictions crossed by the LRT alignment have been or will be mitigated through application of CEQA, NEPA, and Section 106 of the National Historic Preservation Act regulations. Therefore, the LRT Build Alternative will not cause a cumulative impact on cultural resources. Construction of this alternative, in combination with other projects in the study area, could contribute to a cumulative loss of fossil remains from the older and younger alluvium that potentially would have been available for future study, a potentially significant impact. However, the mitigation measures discussed in Section 4.15.4 would reduce impacts to an insignificant level.

4.21.3.15 Utilities

A number of other development projects are currently under construction, in the planning stages, or proposed within the vicinity or adjacent to the LRT Build Alternative. To minimize potential cumulative impacts associated with these projects, coordination of all projects with the utility service providers is critical to avoid any temporary or prolonged utility service outage. The utility companies and utility customers should consider planning any service upgrades now at the beginning of these urban renewal projects rather than trying to maintain a patch work utility infrastructure until all the proposed projects are completed. One option would be for MTA to create a third party arbitrator to facilitate resolution of any disagreements between MTA, major utility companies, and city agencies regarding any utility issues. The third party arbitrator would rule on utility issues that would affect the LRT Build Alternative project or other development project within the vicinity or adjacent to the LRT Build Alternative. With proper planning and scheduling, potential cumulative impacts would be reduced to a level that is less than significant.

4.21.4 Growth-Inducing Impacts

The LRT Build Alternative, combined with other projects in the area, would improve transportation service and could promote opportunities for new development. Station locations would be the most likely areas where future growth could occur. The proposed project alignment already has several transit-oriented characteristics and uses that provide a strong base for future LRT service, and existing local policies promote transit improvements in the area. Provision of the proposed project would be consistent with goals and policies for transit service and redevelopment and revitalization locally. However, much of the adjacent project area is currently developed which may limit opportunities for additional infill. To the extent that measures to promote revitalization efforts are successful, new growth resulting from the proposed project is likely to be directed to areas most suitable for more intense land uses and is likely to occur in the form of high density, multi-unit development. This is a beneficial impact as it helps the community realize their revitalization goals. With regard to the Central Business District and Union Station, the Los Angeles Community Redevelopment Agency (CRA)[13] has indicated that the Central Business District and Union Station would be minimally affected with respect to inducing further development because there are already several modes of transportation in the area, and a new one would have little additional effects. The Little Tokyo District, however, would benefit from moderate induced growth, as the LRT Build Alternative would help to centralize and organize development along the project corridor.

[13] Telephone conversation with Donald Spivack, Deputy Administrator, CRA, December 14, 2000.

4.21.5 Irreversible and Irretrievable Commitment of Resources

Construction of the LRT Build Alternative would involve irreversible and irretrievable commitments of resources. Fossil fuels would be used to power construction vehicles and equipment and in the manufacturing process for project components. Construction materials such as asphalt, cement, steel, lumber, and fabricated materials would be irreversibly committed to the rail line. Operation of the LRT Build Alternative would require the use of electricity for power but would also reduce vehicular energy consumption.

4.21.6 Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

The No-Build Alternative would not involve a short-term use of the environment but would allow long-term conditions to worsen, such as poor transit access, particularly for transit dependent portions of the population, and increased traffic congestion and associated air quality problems. The LRT Build Alternative would involve short-term uses of the environment during the project's construction period, such as the use of fuel and construction materials (as described in Section 4.21.5). However, these short-term adverse environmental effects and uses of resources would be outweighed by the project's long-term benefits, which include the following:

- Improved transit access to employment, commercial, and recreational centers served by the project;
- Better achievement of certain development objectives in most station areas;
- Decreased traffic congestion; and
- Improved air quality during operations.

4.21.7 Environmentally Superior Alternative

An environmentally superior alternative needs to be identified under CEQA. Although the No-Build and TSM Alternatives would involve fewer environmental impacts, they would not provide the desired levels of mobility and accessibility for this lower-income, transit-dependent and principally Hispanic community. The LRT Build Alternative would, on the other hand, provide access to a broader range of employment, shopping, educational, and cultural opportunities, consistent with the goals and objectives for the Eastside Corridor. It is likely that transit-oriented development districts would also be spurred by the project, and additional short-term (construction) and long-term employment would be generated.

The impacts of the other alternatives that were evaluated in the Re-Evaluation/Major Investment Study (refer to Chapter 2.0, *Alternatives Considered*, for more information) and the suspended Metro Red Line project vary by subject area for each alternative. Overall, none of these alternatives can be identified as necessarily superior in terms of environmental considerations. Even the suspended Metro Red Line project, which only extended 3.7 miles, instead of the approximate six-mile alignment of the LRT Build Alternative, involved more property acquisition and displacements.

5.0 FINANCIAL ANALYSIS AND COMPARISON OF ALTERNATIVES

5.1 FINANCIAL ANALYSIS

The cost of a transportation investment falls into two categories: capital costs, and operating and maintenance (O&M) costs. Capital costs are the start-up costs for the project, including the costs of guideway construction, vehicles, and any system facilities necessary before the project can begin operation. Operating and maintenance costs are the costs associated with the regular running of a new transportation facility. Costs such as labor, vehicle maintenance, and overall facility maintenance all fall into this category.

This section discusses both types of costs, presents the proposed capital financing plan, and then analyzes the Los Angeles County Metropolitan Transportation Authority (MTA's) ability to afford the alternatives.

5.1.1 Capital Cost Estimates

This section summarizes the capital cost estimates for the Light Rail Transit (LRT) Build Alternative and its three options along with a comparative capital cost estimate of the three Maintenance and Storage Facility (M&SF) options. The No-Build Alternative does not have any associated capital costs for comparative purposes as they are considered in the overall financial capability of the MTA with the LRT Build Alternative.

5.1.1.1 LRT Build Alternative

The same capital cost estimating approach as was used in the Re-Evaluation/Major Investment Study (MIS) was used for these estimates. The capital cost estimates were prepared with all costs expressed in 1999 dollars. Cost estimates are developed by identifying quantities on conceptual drawings and applying standardized rates. For guideways and/or alignment lengths, typical cross sections provided a basis for identifying costs on a linear foot basis. The alignment plans, typical cross sections, and station concepts are included in Appendix E. In other cases, unit costs were developed and applied on a per item basis to account for non-linear cost elements such as parking spaces, stations, vehicles, etc. In addition, capital costs for both additional buses (for the expanded bus services) and the LRT vehicles as well as an allowance for a maintenance and storage facility has been included.

The total capital cost includes allowances for Owner Controlled Insurance Program (OCIP), professional services (preliminary engineering, final design, design services during construction, agency costs, construction management, specialty subconsultants), at-grade yard leads, bridge retrofit, testing and pre-revenue operations, environmental mitigation, urban design allowance, and artwork. Additionally, contingency has been included for construction, vehicles, and Right-of-Way (ROW) & program implementation.

In addition, a tentative implementation schedule was needed in order to conduct the financial analyses as required by the Federal Transit Administration (FTA). The capital costs are also presented in year-of expenditure dollars. Year of expenditure dollars are important because they take into account inflation over the time of project development. The year of expenditure estimate is an estimate of the <u>actual</u> cost of the project and its options.

Table 5-1 presents the total capital costs (in millions of dollars) for each of the three options for the LRT Build Alternative in both 1999 dollars and in year of expenditure dollars. The year of expenditure capital costs vary between $715 million (LRT Option 1) and $855 million (LRT Option 3). The major difference in capital cost between the three options is that Option 3 has an additional 3000 feet of tunnel construction along with an additional underground station. Option 3 will also take an additional one to two years to complete construction and begin operations compared to Options 1 and 2. The difference between Option 1 and Option 2 is attributable to the additional right of way and relocation costs for acquiring the residents and businesses on the west side of Indiana Street between 1st and 3rd Streets. As will be discussed in the following sections, only Option 1 has funding identified and committed to it. The other two options do not have available funds to implement them.

TABLE 5-1
CAPITAL COST ESTIMATES (1999 $ AND YEAR OF EXPENDITURE $)

	1999 Dollars in Millions			Year of Expenditure Dollars in Millions		
Cost Category	**LRT Option 1**	**LRT Option 2**	**LRT Option 3**	**LRT Option 1**	**LRT Option 2**	**LRT Option 3**
Preliminary Engineering	$10.0	$10.0	$12.0	$10.4	$10.4	$12.7
Final Design	$24.0	$24.0	$28.1	$25.9	$26.1	$30.6
Right of Way	$38.0	$48.3	$38.0	$41.9	$53.9	$42.2
Construction	$401.9	$403.2	$487.3	$463.2	$476.2	$581.0
Vehicles	$90.0	$90.0	$90.0	$104.0	$105.3	$107.9
Contingency	$60.4	$63.3	$67.7	$69.2	$73.8	$80.1
Total Cost	**$624.3**	**$638.8**	**$723.1**	**$714.6**	**$745.7**	**$854.5**

5.1.1.2 Maintenance and Storage Facility Options

In Chapter 2 the three possible options for the Maintenance and Storage Facility (M&SF) are described and in Chapter 4.20 an initial comparative evaluation is presented that will allow for the selection of a locally preferred site that would be more detailed in Preliminary Engineering and the Final SEIS/SEIR. The capital cost estimates presented above have a placeholder amount of approximately $56 million in 1999$ for an M&SF Facility. On a comparative cost basis Option 1 – Red Line Yard is expected to cost $52 million; Option 2 – West Bank Yard approximately $49 million; and Option 3 – East Bank Yard approximately $73 million. Options 1 and 2 are generally within the current budget while Option 3 is outside the existing budget amount.

5.1.2 Operating and Maintenance Cost Estimates

This section summarizes the Operating and Maintenance (O&M) cost estimate for the LRT Build Alternative. The O&M costs were determined using the MTA's O&M cost model. This cost model was developed to estimate O&M costs for MTA's bus, Blue Line, Green Line, and Red Line operating modes, as well as support department costs related to operations.

The MTA O&M cost model estimates staffing requirements, labor costs, and non-labor expenses by transit mode (i.e., Motor Bus, Blue Line, Green Line, Red Line) and department within each mode. The model is calibrated to MTA's fiscal year (FY) 1998-99 Adopted Budget. Overhead costs are allocated to the transit modes based on the allocations made for MTA's Adopted Budget. The model uses operating characteristics (e.g., peak vehicles, number of stations, passengers) to determine future costs. As future operating plans change (e.g., new rail lines are constructed), costs change accordingly.

The model meets Federal Transit Administration (FTA) guidelines for estimating operating costs. These guidelines specify that:

- Costs are computed by estimating labor and materials needed to provide a given level of service, and then unit costs are applied to the estimated future labor and material cost items;
- Costs are calculated based on operating characteristics for each mode (e.g., Red Line train hours), rather than for all modes combined (e.g., systemwide passengers);
- Each reported labor and non-labor expense is calculated separately, which ensures that equations are mutually exclusive and cover all operating costs; and
- Most cost items are variable, meaning that cost estimates will change with projected changes in service.

The model calculates costs separately for each labor and non-labor item in MTA's FY 1999 budget. The driving variables used in the O&M cost model are presented in Table 5-2 below.

TABLE 5-2
OPERATING &MAINTENANCE (O&M) COST MODEL VARIABLES

Input Statistic	MTA Bus	Rail Modes
Annual Boardings (Unlinked Passengers)	X	X
Peak Vehicles	X	X
Active Fleet Vehicles	X	X
Operating Divisions	X	X
Annual Revenue Bus/Car Miles	X	X
Annual Revenue Bus/Train Hours	X	X
Contract Service Hours	X	
Route Miles		X
Elevated Stations	X	X
At-Grade Stations	X	X
Subway Stations	X	X
Total Stations		X
Automated Operation (Green Line)		X

For the No-Build and Eastside LRT Alternatives, O&M costs were calculated for the entire MTA system of bus, Red Line, Green Line and Blue Line service.

The costs were first estimated for the MTA's No-Build Alternative. The costs for the LRT Build Alternative were then estimated for the year 2020 in 1999 dollars. The LRT Build Alternative includes not only the operation and maintenance cost of the LRT service, but includes the cost of the enhanced bus system as described in Chapter 2.

The increase in annual operating and maintenance cost for the LRT Alternative over the No-Build Alternative is approximately $22.5 million in the year 2020 in 1999-dollar equivalents. Of the $22.5 million additional cost required for the Eastside Corridor project approximately $11 million would be spent on the LRT service and $11.5 million would be spent on supporting the increased bus services. There are basically no significant differences between the three LRT options that would affect the operating and maintenance costs. Conversely because of the location of the three Maintenance and Storage Facility options, there would not be any significant operating and maintenance cost differences.

5.1.3 The Project Finance Plan

The Eastside LRT project became a reality in July 2000 when the Governor and the California State Legislature approved the Traffic Congestion Relief Program. This program provided $236 million in State funds for the Eastside LRT project. At the same time the MTA developed a comprehensive financial program that would demonstrate that MTA could construct and operate the Eastside Corridor project as well as fixed guideway projects in the San Fernando Valley and Mid-City/Wilshire corridors. The financial program is described in more detail in the following section. The Eastside LRT project has a capital budget of $714.6 million as described above. Based on the financial analysis, an additional $44.9 million may be needed to fund interest payments due to the implementation schedule and the cash flow anticipated from the Federal government. This would bring the total Eastside LRT project cost to $759.5 million. Table 5-3 lists the anticipated source of capital funds and the expected amount as adopted by the MTA. No local funds are being used for the Eastside LRT project. Approximately 68.3 % of the funding is anticipated from Federal sources with the balance coming from State funded programs.

TABLE 5-3
PROPOSED FUNDING SOURCES AND AMOUNT FOR EASTSIDE LRT PROJECT

Source	Amount ($, millions)	Amount ($, millions)
Federal		**$518.3**
FTA Section 5309 New Starts	$402.3	
FTA Section 5309 Fixed Guideway Modernization	$38.9	
Congestion Relief and Air Quality (CMAQ)	$37.2	
Regional Surface Transportation Program (RSTP)	$39.9	
State/Local		**$241.2**
State Traffic Congestion Relief Program	$236.0	
State Regional Improvement Funds (AB 1012)	$5.2	
TOTAL		**$759.5**

5.1.4 Financial Capability to Build and Operate

MTA has used its financial forecasting model for Los Angeles County to assess the financial feasibility of the Eastside Corridor alternative. This financial model is the tool used to project all capital and operating costs and revenues for all transportation modes in Los Angeles County from FY 2000 through FY 2025.

In a document submitted to the FTA (Section 5309 submittal, July 2000), the MTA provided detailed analysis from the financial forecasting model to establish the ability to fund projects in the Mid-City/Westside, San Fernando Valley, and Eastside corridors of Los Angeles County. The No-Build scenario was modeled to provide a baseline for the build alternatives. Initial No-Build scenario financial results indicated significant but manageable operating shortfalls could occur in FY 06 through FY 09 if no further actions are taken by the MTA. A $438 million operating deficit, or 3.3% of the total MTA operating budget of $13.2 billion, was projected for the period FY 2000-2010. This deficit is expected to be largely addressed through a number of cost reduction strategies, which is projected to essentially balance the No-Build scenario to within 0.5% of the overall operating budget. This balanced plan provides a basis for analyzing the financial impacts of introducing the three corridor projects.

The model includes revenues from the State Traffic Congestion Relief Plan (AB 2928) and FTA 5309 New Starts funds which are expected to provide 80% of the capital funding needed for the capital costs of the corridors. The balance of the capital funding plan for these projects will come from committed flexible federal funds (Congestion Relief and Air Quality - CMAQ and Regional Surface Transportation Program - RSTP) and local half-cent sales tax funds. The funding plan for the projects is stable and reliable given the commitments of funding recently realized. The financial analysis indicates that funding is available to complete the Eastside LRT Alternative Option 1 so that operations can begin as soon as November 2006.

The combined impacts of the San Fernando Valley, Mid-City/Westside and Eastside projects lead to a projected operating deficit of $151.2 million for the FY 2004-FY 2010 period, if no further actions are taken to balance the operating plan. The most challenging shortfalls are projected to occur in FY 2007, FY 2008, and FY 2009.

MTA has established a Cost Reduction Team whose goal is to reduce bus and rail hourly operating costs. The strategies developed by the team will be phased-in beginning in FY 2005 to reduce hourly operating costs by one dollar per year for six years, for a total of six dollars per hour in 2010. This cost reduction plan will achieve the $151.2 million systemwide savings needed to ensure a balanced operating plan with the three corridor projects.

The twenty-year cash flows indicate that MTA has the financial capacity to build and operate the Eastside LRT project including the supporting bus operations while continuing the operation and maintenance of the entire regional transit system. Selection of an Eastside LRT Alternative Option which requires funding beyond the financial analysis outlined in the Section 5309 submittal would need to be integrated into the MTA's Long Range Plan, since it would commit funds that could otherwise be considered for other projects.

5.2 COMPARATIVE ANALYSIS OF ALTERNATIVES

This section provides a variety of measures to evaluate and compare the LRT Build Alternative to the No-Build Alternative. These measures are consistent with the FTA guidelines for assessing major investments. Enactment of the Transportation Equity Act for the 21st Century (TEA-21) in 1998 requires that FTA evaluate and rate candidate New Starts projects as the basis for approving projects for federal funding. Table 5-4 summarizes the indices included in this section.

TABLE 5-4
COMPARATIVE ANALYSIS OF ALTERNATIVES

Analysis Category	Measures
Effectiveness in Improving Mobility	Ridership
	Travel Time Comparison
	Travel Time Savings
Cost-Effectiveness	Annualized Cost per New Daily Transit Trip
Operating Efficiencies	Operating Cost per Passenger Mile
Equity	Discussion of Demographic Factors

Other analyses and discussion for FTA measures related to air quality and transit supportive land use can be found in Chapter 4. This chapter ends with a discussion of the trade-offs between the No-Build Alternative and the LRT Build Alternative and the LRT Build Alternative options.

5.2.1 Effectiveness in Improving Mobility

Various elements serve as indicators of improved mobility. Ridership describes the amount of people using the proposed project, as estimated through a transportation demand model. A travel time comparison provides an understanding of how the proposed project performs during an average transit trip between two points. Travel time savings assess the annual hours of time saved for both transit and automobile users as a result of the proposed project.

5.2.1.1 Ridership

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

Ridership has been estimated for the proposed project (LRT Build Alternative) through the MTA's travel simulation model, based on the forecast year 2020. Model runs were performed for the No-Build Alternative and the LRT Build Alternative Option 1. Even though the LRT Build Alternative Option 3 is about 30 seconds (compared to total travel time of 15 minutes) faster between Beverly and Atlantic Boulevards to Union Station, the additional access time to the new subway station at 1st and Lorena negates any increase in transit ridership for Option 3 over Options 1 and 2.

The implementation of the LRT Build Alternative, which includes the additional bus system improvements, would increase transit trips by over 9,700 per day or over 3 million transit trips annually compared to the No-Build Alternative. The estimated daily ridership in the forecast year 2020 on the Eastside segment of the light rail line from Union Station to Beverly and Atlantic Boulevards is over 15,000 per day. With the combination Eastside segment and the Pasadena Blue Line, the estimated daily ridership in the forecast year 2020 is over 42,000.

5.2.1.2 Travel Time Comparisons

In order to compare the LRT Build Alternative to the No-Build Alternative related to showing mobility improvements related to reducing travel times, two points along the proposed LRT line were compared to four different destination points in the Los Angeles area. The four destination points included downtown Hollywood (Hollywood/Highland); Wilshire and Fairfax; Downtown Los Angeles (1st/Hill); and Pasadena Downtown (Fair Oaks/Colorado). 1st/Soto and 3rd/Mednik were used as the beginning points for the transit trip comparisons. Table 5-5 presents these comparisons.

TABLE 5-5 TRANSIT TRAVEL TIMES (IN MINUTES) FROM SELECTED ORIGINS IN THE EASTSIDE CORRIDOR TO SELECTED DESTINATIONS								
Trip Origin	Hollywood/Highland		Wilshire/ Fairfax		1st/Hill		Fair Oaks/Colorado	
	No-Build	LRT	No-Build	LRT	No-Build	LRT	No-Build	LRT
1st/Soto	62	53	70	60	26	24	67	55
3rd/Mednik	67	60	75	67	39	32	47	45

All of the comparisons show improvement over the No-Build Alternative.

5.2.1.3 Travel Time Savings

This measure is defined as the total travel time savings that are expected to result from the LRT Build Alternative in the forecast year (2020), compared to the No-Build Alternative. This aggregate value includes travel time savings for people making trips on transit (both new and existing transit riders) as well as savings that accrue to people using competitive modes (automobile users). This measure is calculated using reported values from the MTA's transportation simulation model. It is expected that the LRT Build Alternative will save users over 400,000 hours in travel time in the forecast year (2020) over the No-Build Alternative.

5.2.2 Efficiency (Cost-Effectiveness)

Cost-effectiveness is a measure used to evaluate how the costs of a transit project (for both construction and operation) compare to the expected benefits (increased transit ridership).

The FTA's cost effectiveness criterion is measured by the incremental cost per incremental passenger in the forecast year. This measure is based on the annualized total capital investment and annual operating and maintenance (O&M) costs, divided by the change in annual transit system ridership, expressed as the following equation:

$$\text{Cost Effectiveness Index} = \frac{\Delta\text{Capital Cost} + \Delta\text{O\&M Cost}}{\Delta\text{Linked Transit Trips}}$$

The smaller the index, the more cost-effective the project alternative. To calculate the change in capital cost, project costs discussed in Section 5.1.1 were aggregated according to their assumed useful life and annualized accordingly, using FTA annualization factors shown in Table 5-6:

TABLE 5-6 LIFE CYCLE ASSUMPTIONS		
Project Element	Useful Life	Annualization Factor
Right-of-way	100 years	0.070
Structures, trackwork, signals, electrification	30 years	0.081
Rail vehicles	25 years	0.086
Buses	12 years	0.126
Source: Technical Guidance on Section 5309 New Starts Criteria, FTA, July 1999.		

Annual operating and maintenance costs were calculated using the approach described in Section 5.1.2. The change in transit trips for the forecast year 2020 was determined using the MTA travel forecasting model.

Table 5-7 summarizes the data used in the calculation of the cost-effectiveness index for the three options of the LRT Build Alternative, and the resulting incremental cost per incremental passenger is shown in Table 5-8.

TABLE 5-7
COST-EFFECTIVENESS CALCULATION: INCREMENTAL VALUES OVER NO-BUILD

LRT Build Alternative/Options	Annualized Capital Cost (millions)	Annual O&M Cost (millions)	Annual Linked Trips (millions)
LRT Build Alternative – Option 1	$51.45	$22.5	3.074
LRT Build Alternative – Option 2	$52.47	$22.5	3.074
LRT Build Alternative – Option 3	$59.44	$22.5	3.074

TABLE 5-8
COST-EFFECTIVENESS OF LRT BUILD ALTERNATIVE: ANNUALIZED COST PER NEW DAILY TRANSIT TRIP

LRT Build Alternative/Options	Over No-Build Alternative
LRT Build Alternative – Option 1	$24.02
LRT Build Alternative – Option 2	$24.35
LRT Build Alternative – Option 3	$26.61

Based on cost-effectiveness, LRT Build Alternative Options 1 and 2 are the most cost-effective. The substantial increase in total capital cost and annualized capital cost for LRT Build Alternative Option 3 does not provide enough operational and mobility benefits to make it more cost-effective than LRT Build Alternative Options 1 and 2.

The ridership projections are based on the 1998 adopted demographic projections by the regional metropolitan planning organization, the Southern California Association of Governments (SCAG). As such they are the official future demographic projections. However, they are believed to understate project ridership. Since the 1998 adopted demographic projections assume most of the future growth in Los Angeles County will occur on the outer edges of the county.

Model runs testing an alternative future demographic assumption assuming somewhat more in the existing urban areas of the county will be run in the 1st quarter of the year 2001. These model runs are expected to show higher ridership for the Eastside Corridor.

5.2.3 Operating Efficiency

The FTA uses a single measure for the Operating Efficiencies criterion, which is the change in operating cost per passenger mile for the entire regional transit system. The basic calculation involves dividing the system annual operating cost for transit service by the system annual passenger-miles projected for the year 2020. Calculation of the total transit operating costs is discussed under Section 5.1.2, (Operating and Maintenance Cost Estimates). System annual passenger-miles are produced from the MTA transportation model. The No-Build Alternative has an operating cost per passenger mile of $0.32. The LRT Build Alternative with the increases in service and usage produced the same overall system operating cost per passenger mile of $0.32. Therefore the LRT Build Alternative compared to the No-Build Alternative for this FTA measure shows no change.

5.2.4 Equity Considerations

Equity considerations generally fall into three interrelated classes: (1) the extent to which the transportation investments improve transportation service to various population segments (i.e., the extent to which transit improvements benefit the transit dependent); (2) the distribution of project costs across the population through the funding mechanisms used for the local contribution for construction and operation; and (3) the incidence of significant environmental impacts. In addition, Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that federal agencies consider and address disproportionately high adverse environmental effects of proposed federal projects on the health and environment of minority and low-income populations to the greatest extent practicable by law. Section 4.5 of this document discusses in detail the equity and environmental justice considerations for the Eastside Corridor and for the LRT Build Alternative. It discusses the study area demographics, the historic major issues of the Eastside Communities related to major infrastructure projects, and the extent of the public involvement program conducted as part of this planning process.

The No-Build Alternative would not offer the study area residents and businesses the enhanced mobility, regional connectivity, and accessibility provided by the LRT Build Alternative.

The LRT Build Alternative provides many benefits related to equity, mobility improvements, economic revitalization, employment opportunities, federal and state funds for construction, and additional local funds for the operating and maintenance costs of the LRT and expanded bus services, as discussed below. There are some potential impacts as identified in Section 4.5.4., but the benefits by far outweigh the impacts.

5.2.4.1 Equity

Indicators of transit dependence, such as low-income households and zero-auto households, are nearly three times higher than for Los Angeles County as a whole. The need for and reliance on transit has not been balanced by regional public transportation investments that would benefit this transit dependent community. For example, MTA rail services extend to Western Avenue and to North Hollywood, to Norwalk and El Segundo, to Long Beach and ultimately to Pasadena. Metrolink serves suburban destinations in all directions. Yet, no major investment in transit service, either bus or rail, has been made in the Eastside Corridor. A concerted effort to extend the Metro Red Line to the corridor was suspended in 1998 as discussed in Chapter 1. In addition, the corridor has borne the disproportionate effects of a regional freeway system that has cut through its neighborhoods to reach suburban destinations. Implementing LRT service in the corridor would help restore the balance of regional capital transportation expenditures as well as compensate for the adverse impacts that previous transportation planning decisions have caused.

5.2.4.2 Mobility/Transit Travel Times/Regional Connectivity

The LRT Build Alternative is expected to increase the number of daily transit trips compared with the current bus service offered by the No-Build Alternative and reduce travel times. Travel times between the corridor and major travel destinations, such as Hollywood, Wilshire Boulevard, Downtown Los Angeles, and Pasadena, would decrease with the LRT Build Alternative. (As discussed in Section 5.2.1 above). This increase indicates the value of quality transit service in attracting riders. It also indicates that light rail service offers improved access for area residents to local destinations as well as to the regional rail and bus system and, therefore, to regional destinations. The LRT Build Alternative also would serve many educational and community centers in the corridor, enhancing mobility for young adults and school age children.

5.2.4.3 Economic Revitalization

The LRT Build Alternative includes eight new stations as well as a station at Union Station. With proper incentives and with favorable market conditions, developers may consider the merits of constructing housing and commercial developments that are oriented to the light rail stations and that take advantage of the new light rail service. Station areas that have vacant land resulting from right-of-way acquisition for the suspended Metro Red Line project or for the construction of the LRT Build Alternative can be developed, in accordance with City and County of Los Angeles planning and redevelopment policies and Community Plans, to benefit the surrounding neighborhoods. In a corridor that has an extremely low vacancy rate and a great demand for affordable housing, such development could provide needed housing and space for retail and social service uses. The new development could offer larger units for families with children, helping to meet a dire need in the community. In addition, landscape treatments along the light rail line could enhance the urban design of the community, making opportunities for development more attractive.

5.2.4.4 Employment Opportunities

The LRT Build Alternative is anticipated to generate approximately 47,000 (Options 1 and 2) to 54,000 (Option 3) new construction jobs and, within the first 14 years of operation, over 1,000 permanent jobs to operate and maintain the LRT line and additional bus service. MTA also offers a series of programs designed to encourage minority and women-owned businesses to participate in the construction and operation of new transportation projects.

5.2.4.5 Project Funding

As discussed in Section 5.1.3, almost $760 million in Federal and State/Local funding has been anticipated for the LRT Build Alternative Option 1. The estimated $22.5 million in additional annual operating and maintenance funds will be provided from local MTA sales tax dedicated to transit uses.

5.2.5 Trade-Offs Between Alternatives

The following observations highlight key financial differences and the tradeoffs between the No-Build Alternative and the LRT Build Alternative and the LRT Build Alternative options relative to cost, performance, mobility, and impacts.

The tradeoff between the No-Build Alternative and the LRT Build Alternative is that the No-Build Alternative would involve fewer environmental impacts, but would not provide an enhanced level of mobility and accessibility to this lower-income, transit-dependent and principally Hispanic community. The LRT Build Alternative would, on the other hand, provide improved access to a broader range of employment, shopping, educational, and cultural opportunities, consistent with the goals and objectives outlined in Chapter 1 (Section 1.3.5) for the Eastside Corridor. The LRT Build Alternative will also provide improvements in air quality. The LRT Build Alternative will have some impacts and disruptions during construction but that is a consideration in the tradeoff between the No-Build Alternative and the LRT Build Alternative.

The tradeoffs between the LRT Build Alternatives Options 1, 2, and 3, involve funding availability to build each option, the relative cost-effectiveness, and the possible impacts.

From a mobility standpoint, as discussed in Section 5.2.1, LRT Build Alternative Option 1 provides the same level of improved mobility to the Eastside Corridor as the other two options. Even though the LRT Build Alternative Option 3 extends the tunnel section an additional 3000 feet, few additional riders would be attracted. This same level of improved mobility is obtained for a lower capital cost in LRT Build Alternative Option 1 than in LRT Build Alternative Options 2 and 3 as presented in Section 5.1.1 and Table 5-1. The capital cost requirements would be an additional $31 million for the LRT Build Alternative Option 2 and $140 million for LRT Build Alternative Option 3. No additional funding has been identified by MTA for either LRT Build Alternative Option 2 or Option 3.

As shown in Table 5-8 and Section 5.2.2, LRT Build Alternative Option 1 is the most cost-effective option based on FTA's cost effectiveness criterion. LRT Build Alternative Option 3 is over ten percent less cost-effective than LRT Build Alternative Option 1.

Related to equity, as discussed in Section 5.2.4, all the options provide additional investment and job opportunities to the Eastside Corridor while providing increased mobility and economic revitalization potential.

The transportation and environmental consequences are discussed in detail in Chapters 3 and 4. Relative to traffic and parking, all the options impact traffic operations at a number of intersections, while LRT Build Alternative Option 1 has the most number of on-street parking spaces removed compared to LRT Build Alternative Option 3 which has the least number removed.

One of the most significant tradeoffs between the LRT Build Alternative options is relative to the amount of land acquisition/displacement and relocations required. As discussed in Section 4.3, LRT Build Alternative Option 1 would acquire 4 multi-family and 9 single-family units (displacing 52 persons) and 9 businesses (displacing 15 employees). LRT Build Alternative Option 2, because of the proposed acquisitions along the west side of Indiana Street, would require the acquisition of 7 multi-family and 25 single-family units (displacing 128 persons) and 14 businesses (displacing 28 employees). LRT Build Alternative Option 3 would require the same acquisitions as Option 1 except that additional subsurface easements would be required between 1st/Lorena and 3rd/Hicks. In addition Option 3 would require tunneling under Ramona High School. The MTA has established a $2.6 million Affordable Housing Revolving Loan Fund Program to replenish the housing units MTA has acquired for the previous Metro Red Line Eastside Extension project. The MTA will add funding to its affordable housing revolving loan fund program at least in accordance with the formula used to arrive at the present funding level. This a critical tradeoff category because of the area's high housing demand and its low vacancy rate that may limit the availability of comparable replacement homes in the immediate area.

6.0 COORDINATION AND CONSULTATION

6.1 INTRODUCTION

A comprehensive eighteen-month outreach program was conducted to coordinate with and obtain input from public agencies, private interests, community organizations and the public at large during the Eastside Corridor Study Re-Evaluation/MIS and Draft SEIS/SEIR process. Community outreach efforts were held throughout the development of the initial study phase for the project. This chapter summarizes the coordination and consultation activities and approaches, organized as follows: (1) scoping meetings, (2) public participation, meetings and communication, (3) public notification of meetings, (4) Governmental, City and County participation, and (5) public review of the environmental document.

The objectives of the Re-Evaluation/MIS and SEIS/SEIR Coordination and Consultation Program for the Los Angeles Eastside Corridor are to:

- Obtain full and continuous public participation and involvement throughout the project.
- Assure that the process is open and fair.
- Assure that community concerns are incorporated into the project planning.
- Obtain full and continuous public involvement throughout the entire project process.
- Respond to local desires and comply with FTA requirements for public participation.
- Develop and continue a program for public participation and community involvement in the continuing phases of the project.
- Achieve consensus, to the maximum extent possible, on ongoing project development.

6.2 SCOPING MEETINGS

The scoping process began with the filing of the Notice of Intent (NOI) to prepare a Supplemental Environmental Impact Statement on August 13, 1999. A Notice of Preparation (NOP) for the SEIS/SEIR was prepared and distributed on August 11, 1999. Notices were also mailed to State, County, City, Federal and local agencies notifying them of the filing of the NOP/NOI. The scoping meeting process began with the first Elected Officials Meeting on July 20, 1999 and the first Community Ad-Hoc Meetings on July 21, 1999. MTA held three meetings with the Elected Officials Staff and met with eight elected officials. Throughout the scoping process MTA continued to meet with the MTA Review Advisory Committee to obtain their input on the study.

The Public Community Scoping Meetings began on August 24, 1999 at Resurrection Parish with almost 100 persons attending. The second was held on August 26, 1999 at Saint Alphonsus School Auditorium in East Los Angeles and was attended by 64 persons. The last was on September 2, 1999 at Montebello City Council Chambers and also was well attended with 99 community residents, business owners and legislative offices. Public comments were made and were submitted as part of the Re-Evaluation MIS report. An agency scoping meeting was also held on August 25, 1999 at the MTA offices. A total of 66 agency representatives were invited, and nine attended the meeting.

Overall, the scoping process had a high response from the community, its elected officials, and the business owners. The persons who attended the meeting were very interested in continuing with the process to see the outcome of the alternatives and the selection by the Board of the preferred alternative for the Eastside communities.

6.3 PUBLIC PARTICIPATION, MEETINGS, AND COMMUNICATION

Opportunities for public participation in the Los Angeles Eastside Corridor Study have been provided by the MTA since the initiation of the study in July 1999. Serious efforts have been made to conduct meetings within the affected neighborhoods of Boyle Heights, East Los Angeles, Montebello, Pico Rivera, and Whittier. These meetings were held at Resurrection Parish Hall, Saint Alphonsus School Auditorium, Centro Maravilla Community Service Center, and the Montebello Council Chambers. These locations were selected in order to make these meetings more accessible to the residents who would be most affected by the project. The distribution of 20,000 flyers was done by the local Churches bulletin, the Boyle Heights, East Los Angeles, Montebello, and Pico Rivera Chamber of Commerces, and the various community groups. Project fact sheets and meeting announcements have been published in both English and Spanish. The meetings have had interpreters available, as needed, to translate the proceedings into Spanish for those who do not speak fluent English. As previously mentioned, three community scoping meetings were held in August and September 1999 at locations in Boyle Heights, East Los Angeles, and Montebello. The purpose of the scoping meetings was to solicit input regarding the range of alternatives and transit modes being considered, the study area, and major social, economic, or environmental issues related to the alternatives.

A second round of public meetings was held in October in Boyle Heights, East Los Angeles and along Whittier Blvd. in the East Los Angeles commercial core district. Approximately 60 persons attended the meeting in Boyle Heights, 34 persons attended the meeting in East Los Angeles, and 50 persons attended the meeting on Whittier Boulevard. The purpose was to discuss the narrowed list of eight build alternatives and station locations being considered in the Re-Evaluation/MIS document and to solicit additional public input. Focus meetings were held in the City of Montebello and the City of Pico Rivera during the third week of November 1999 to discuss the alternative routes and the impacts along their commercial corridors. A third round of public meetings was convened in early January 2000. The meetings were held in Boyle Heights, Little Tokyo Arts District, East Los Angeles, and Montebello. The purpose was to present the findings of the comparison of the alternatives and to again solicit public input prior to the presentation of the findings to the MTA Board of Directors and their selection of a preferred alternative(s) to be carried forward for further evaluation in the Draft SEIS/SEIR. A fourth round of community meetings was held in the latter part of September 2000. The purpose of the meetings was to inform the community of the up and coming release of the Draft SEIS/SEIR document. A series of two meetings were held as well as a Review Advisory Committee meeting in October and November, and an open invitation to the community was extended at these meetings.

A Review Advisory Committee (RAC), comprised of local residents, business owners, elected official representatives, and community organizations meet on a monthly basis to discuss the progress of the study and to request input from its members. Focus meetings have also been held with individual community groups and organizations as well as with elected officials at various times since the inception of this study. The following is a list of all meetings conducted on the Re-Evaluation/MIS and SEIS/SEIR process with community organization, governmental agencies and public at large, as well as flyer distribution, newspaper notifications and mailing distribution amounts:

Community Scoping Meetings (First Round):

August 24, 1999	Boyle Heights (Resurrection Parish) Scoping Meeting (97 persons)
August 26, 1999	East Los Angeles (St. Alphonsus Parish) Scoping Meeting (64 persons)
September 2, 1999	Montebello/Pico Rivera Mont. Council Chambers) Scoping Meeting (99 persons)
Total	**260 persons attended scoping meetings**

Agency Scoping Meeting (First Round):

August 25, 1999	Agency Scoping Meeting at MTA (9 persons)
Total	**9 persons attended agency scoping meeting**

Community Meetings:

Second Round:	
October 20, 1999	Boyle Heights (Resurrection Parish) Community Meeting (60 persons)
October 21, 1999	Centro Maravilla Community Meeting (24 persons)
October 25, 1999	ELA Wells Fargo Bank Community Meeting (34 persons)
November 15, 1999	Montebello Focus Meeting (Council Chambers) (12 persons)
November 18, 1999	Pico Rivera Focus Meeting (Chamber of Commerce) (8 persons)
December 1, 1999	Community Meeting at MTA (41 persons)
Third Round:	
January 6, 2000	Boyle Heights (St. Mary's Parish) Community Meeting (50 persons)
January 10, 2000	ELA (Alibaba's Pizza Restaurant) Community Meeting (33 persons)
January 11, 2000	Little Tokyo (Japanese/American Museum) Community Meeting (33 persons)
January 13, 2000	Montebello/Pico Rivera (Council Chambers) Community Meeting (30 persons)
Fourth Round:	
September 28, 2000	Ramona High School (108 persons)
September 30, 2000	Chicago Plaza Councilman Pacheco's Field Office (54 persons)
October 18, 2000	Review Advisory Committee Mtg/Community Mtg (58 persons)
November 15, 2000	Review Advisory Committee Mtg/Community Mtg (80 persons)
Total	**625 persons attended community meetings**

Legislative and Elected Officials Meetings:

July 20, 1999	Elected Officials Meeting (9 offices)
July 27, 1999	Jamie De La Vega – City of LA Mayor's Office
July 28, 1999	Assemblymember Gloria Romero & John Longoria Dist Deputy
August 10, 1999	Enrique Gasca, Councilmember Calderon's Office
August 17, 1999	Elected Officials Meeting (9 offices)
August 19, 1999	Congresswoman Lucille Roybal-Allard & Kim Tachiki
August 19, 1999	Congresswoman Napolitano's Office & 6 various Cities (6 offices)
August 20, 1999	Senator Martha Escutia & William Sanchez
August 25, 1999	Congressman Xavier Becerra & Martha Saucedo
August 30, 1999	MTA Board Member Jose Legaspi
August 31, 1999	Elected Officials Meeting (8 offices)
September 14, 1999	Elected Officials Meeting (8 offices)
September 15, 1999	Paul Hernandez Meeting (staff to Supervisor Molina)
September 22, 1999	Assembly Speaker Antonio Villaraigosa meeting
October 4, 1999	Assemblymember Marco Firebaugh
October 5, 1999	Elected Officials Meeting (5 offices)
October 7, 1999	Supervisor Gloria Molina Briefing
October 7, 1999	CTC Commissioner Esteban Torres Briefing
October 19, 1999	Elected Officials Meeting (6 offices)
November 5, 1999	Councilman Nick Pacheco
November 5, 1999	Congresswoman Napolitano's Chief Deputy Ray Cordova
November 16, 1999	Elected Officials Meeting (8 offices)

December 13, 1999	MTA Board Member Jose Legaspi
December 14, 1999	Elected Officials Meeting (11 offices)
December 14, 1999	City of Whittier City Council Meeting
December 21, 1999	Carmen Martinez & Marco Cuevas, City of Pico Rivera
January 3, 2000	Supervisor Gloria Molina
January 5, 2000	Elected Officials Meeting (10 offices)
January 19, 2000	Supervisor Gloria Molina staff
January 19, 2000	So. El Monte, Rosemead & Montebello Councilmembers
January 21, 2000	CTC Commissioner Esteban Torres
January 25, 2000	Elected Officials Meeting (8 offices)
January 26, 2000	Supervisor Gloria Molina staff
February 2, 2000	Elected Officials Meeting (10 offices)
February 10, 2000	MTA Board Member Jamie De La Vega
March 28, 2000	Elected Officials Meeting (8 offices)
April 11, 2000	Elected Officials Meeting (7 offices)
May 30, 2000	Elected Officials Meeting (7 offices)
June 16, 2000	Briefing for Senator Solis Office
June 27, 2000	Elected Officials Meeting (8 offices)
September 12, 2000	Elected Officials Meeting (6 offices)
October 24, 2000	Elected Officials Meeting (4 offices)
Total	**42 meetings** **164 persons were briefed that are elected officials or staff persons to elected officials**

MTA Board Meetings

February 4, 2000	MTA Board Workshop to consider information related to the eight alternatives studied in the Re-Evaluation/MIS
February 24, 2000	MTA Board approval of Locally Preferred Alternative Route (Both LRT & BRT modes to be further considered)
June 22, 2000	MTA Board action to drop the BRT mode, the Locally Preferred Alternative to be studied is the LRT

Technical Advisory Committee Meetings:

October 6, 1999	TAC Meeting (17 persons)
January 10, 2000	TAC Meeting (12 persons)
April 26, 2000	TAC Meeting (15 persons)
July 12, 2000	TAC Meeting (14 persons)
September 13, 2000	TAC Meeting (24 persons)
December 13,2000	TAC Meeting (20 persons)
Total	**6 meetings with a total of 102 persons attending**

Community Ad-Hoc Meetings:

July 21, 1999	Review Advisory Committee Mtg at BH Senior Center (16 persons)
August 4, 1999	Review Advisory Committee Meeting at WMMC (15 persons)
August 10, 1999	Boyle Heights Chamber of Commerce (15 persons)
August 11, 1999	ELA Chamber of Commerce (15 persons)
August 11, 1999	Eastside Intercambios ELA Doctors Hospital (50 persons)
August 18, 1999	Whittier Blvd Merchants Association Ray Abboud (20 persons)
August 18, 1999	Plaza Community Center (7 persons)
August 18, 1999	Review Advisory Committee Meeting at WMMC (16 persons)

August 23, 1999	MTA Community Tour of modes of transportation (45 people)
September 1, 1999	Maravilla Community Advisory Committee Meeting (12 persons)
September 13, 1999	Deanery (16 priests)
September 22, 1999	Review Advisory Committee meeting @ WMMC (15 persons)
September 27, 1999	Little Tokyo Service Center meeting (40 persons)
September 29, 1999	ELA Chamber of Commerce meeting (50 persons)
September 30, 1999	Mothers of East Los Angeles (30 persons)
October 13, 1999	Review Advisory Committee meeting (22 persons)
October 16, 1999	Soledad Enrichment Group Church Notifications
October 20, 1999	Pico Rivera Chamber of Commerce (25 persons)
October 28, 1999	Little Tokyo Japanese American Cultural Com. Center (25 persons)
November 9, 1999	Boyle Heights Chamber of Commerce (18 persons)
November 9, 1999	Reverend Ochoa The Lords Vinyard Christian Church (1 person)
November 10, 1999	Whittier Boulevard Merchants Association (12 persons)
November 10, 1999	Hope Olmos – Rio Hondo College (1 person)
November 11, 1999	Montebello Chamber of Commerce (12 persons)
November 15, 1999	Advance – Steve Torres (7 persons)
November 24, 1999	Resurrection Parish (20 persons)
December 2, 1999	City of Whittier Transportation Commission (8 persons)
December 7, 1999	Resurrection Parish Meeting (20 persons)
December 8, 1999	AQMD Hispanic Council (20 persons)
December 13, 1999	Review Advisory Committee (22 persons)
January 5, 2000	City of LA Community Redevelopment Agency (2 persons)
January 6, 2000	Montebello Transportation Department (2 persons)
January 12, 2000	Review Advisory Committee Meeting (22 persons)
January 14, 2000	City of LA Department of Transportation (5 persons)
February 9, 2000	Review Advisory Committee Meeting (25 persons)
February 30, 2000	Eastside Intercambios (35 persons)
May 8, 2000	Los Angeles Unified School District
May 31, 2000	East Los Angeles Chamber of Commerce (55 persons)
June 5, 2000	Los Angeles Unified School District
July 12, 2000	Review Advisory Committee Meeting (25 persons)
July 25, 2000	Bus Tour of LRT Route and Blue Line (40 persons)
August 9, 2000	Los Angeles County Community Development Commission
August 23, 2000	Review Advisory Committee Meeting (24 persons)
September 20, 2000	Review Advisory Committee Meeting (38 persons)
September 25, 2000	Little Tokyo Advisory Committee
October 25, 2000	Community Redevelopment Agency Project Area Committee
Total	**46 Community Ad-Hoc committee meetings**

Flyers Distributions:

First Round Mtgs.	20,000 flyers
Second Round Mtgs	15,000 flyers
Montebello/Pico Rivera Mtgs	7,500 flyers
Third Round Mtgs	25,000 flyers
Fourth Round Mtgs	9,500 flyers
Total	**77,000 flyers distributed throughout the study area**

Mailing Distributions:

First Round Mtg:	570 notices
Second Round Mtgs.	600 notices
Third Round Mtgs.	650 notices
Fourth Round Mtgs	770 notices
RAC Notices	3,297 notices were mailed (239 persons attended meetings)
Total	**5,887 notices were mailed for community meetings**

Newspaper Notifications:

17 ads were placed in the following newpapers: LA Times, LA Opinion, Eastside Sun, Rafu Shimpo

Fourth Round and October/November RAC meetings: 12 ads were placed in the following newspapers; LA Times, LA Opinion, Eastside Sun, Rafu Shimpo, Downtown News

6.4 AGENCY COORDINATION AND GOVERNMENTAL OFFICES

The following is a list of the various Municipal Government Offices, Education Facilities, Political Offices, Community Organizations, and Local Business Owners who were informed of the Re-Evaluation/MIS and SEIS/SEIR process of the project:

Community Organizations

Resident Advisory Council
Boyle Heights Chamber of Commerce –Joe Coria
Montebello Chamber of Commerce
City of Commerce Chamber of Commerce
Pico Rivera Chamber of Commerce
East Los Angeles Chamber of Commerce
Proyecto Pastoral
Mothers of East Los Angeles – Mary Lou Trevis
East Los Angeles Community Corporation – Maria Cabildo
Boyle Heights Senior Center
Montebello Senior Center
Pico Rivera Senior Center
Centro Maravilla
East Los Angeles Community College
Aliso Village Resident Advisory Council
Pico Gardens Resident Advisory Council
Estrada Courts Resident Advisory Council
Plaza Community Center – Geri Zapata
Whittier Boulevard Merchants Association – Ray Abboud
San Gabriel District Deanery – Father Richard
More Advocates for Safe Housing (MASH) ELA organization – Martha Cooper
Neighborhood Watch Captains – Mary Lou Trevis, Chair
International Institute of Los Angeles
Soledad Enrichment Corporation
Latino Business Association – Hector Bareto
Impacto Pico Aliso Community Team Outreach
Instituto de Educacion Popular Del Sur de California
Boyle Heights Resident Homeowner Association
Community Rehabilitation Services, Inc.

Little Tokyo Service Center
Maravilla Community Advisory Committee
Advance – Steve Torres
ELA Skills Center
Los Angeles Conservancy
Abuelitos de Boyle Heights Community Organization
Minority Business Development Center – ELA Office
Jovenes Youth Organization
Salesian Youth Center
Sierra Club
Union y Fuerza
Community Redevelopment Agency Project Area Committee

Municipal Government Offices
City of Los Angeles Redevelopment Agency – Boyle Heights Field Office - Al Santillanes
City of Commerce Community Development Department
County of Los Angeles Community Development Commission – Carlos Jackson
City of Montebello Community Development Department
City of Pico Rivera Community Development Department
City of Commerce Transportation
City of Whittier Transportation Commission
City of Whittier Department of Transportation
City of Montebello Municipal Bus Transportation
City of Los Angeles Department of Transportation
City of Los Angeles Police Department – Bernard Parks – Hollenbeck Division
City of South El Monte Councilmembers
City of Rosemead Councilmembers
City of Monterey Park Councilmembers
Los Angeles County Sheriffs – Lee Baca – ELA Station – Capt. Tom Angel – Pico Rivera Station Capt. Juan Rodriguez
California Highway Patrol – ELA Station - Pete Ramos
City of Los Angeles Eastside Enterprise Zone – Margaret Gonzales
Southern California Air Quality Management Advisory Board

Educational Facilities
Montebello Unified School District
Pico Rivera Unified School District
Los Angeles Unified School District
Principal Roosevelt High School
Principal Garfield High School
Principal Montebello High School
Principal Schurr High School
Principal Ramona High School
Los Angeles County Librarian

Local Business Owners
White Memorial Medical Center
Mariachi Plaza Owners / Tenants
El Mercado Owners / Tenants
Cesar Chavez Commercial Strip owners
Montebello Business Owners –Commercial Strip

Whittier Boulevard Commercial Business owners
Maravilla Business Persons Association - Richard Alonzo
Los Angeles Neighborhood Initiatives – First Street

Political Officials
Congressman Xavier Becerra
Congressmember Lucille Roybal-Allard
Congressmember Grace Napolitano
U.S. Senator Dianne Feinstein
Senator Martha Escutia
Senator Richard Polanco
Senator Hilda Solis
Assemblyman Antonio Villaraigosa
Assemblyman Gil Cedillo
Assemblyman Marco Firebaugh
Assemblywoman Gloria Romero
Assemblyman Tom Calderon
Supervisor Gloria Molina
City of Los Angeles Councilman Nick Pacheco
City of Montebello Councilwoman Kathy Salazar
City of Montebello Councilwoman Mary Ann Saucedo
City of Pico Rivera Councilman Carlos Garcia

Review Advisory Committee

Felicitas Acosta	East Los Angeles Community Corporation
Joel Bloom	Bloom's General Store Los Angeles River Artist & Business Association
Anita Castellanos	First & Boyle Station Area Resident
Veronica Chairez	First & Boyle Station Area Resident
Renee Chavez	Mothers of East Los Angeles
Joseph Coria	White Memorial Medical Center
Nadine Diaz	CRA Adelante Project Area Committee
Victor Duran	Third Street & Mednik Station Area Business Owner
Rosa Marina Gabaldon	Boyle Heights Homeowner Assoc.
Jose L. Gomez	Brown Berets, Beverly & Atlantic Station Area
Ayako Hagihara	Little Tokyo Service Center
Dorothy (DJ) Hartshorn	Neighborhood Music School
Frances K. Hashimoto	Little Tokyo Business Association
Art Herrera	First & Lorena Station Area Resident
Jose Huizar	CRA Adelante Project Area Committee
Louis Martinez	Comite de Padres, Pro-Defensa del Estudiante, Comunidad e Igualdad de Derrechos
Carlos Montante	Boyle Heights Homeowner Association
Ron Mukai	Third Street & Mednik Station Area Business & Property Owner
Laura Padilla	Business Owner
Laura Pizana	First & Boyle Station Area Resident
Olga Salas	First & Boyle Station Area Resident
Rachael Santos	First & Lorena Station Area Resident
Albert H. Taira	First & Alameda Station Property Owner
Diana Tarango	First & Lorena Station Area Resident

Luigi Torres	King Taco Restaurant
Mary Lou Trevis	Mothers of East Los Angeles
Ross Valencia	Boyle Heights Homeowner Association
Jose Salomon	Beverly & Atlantic Business Owner
Silvia Viramontes	First & Boyle Station Area Resident
William Yang	Asian Business Association
Armando Ybarra	Third Street & Rowan Avenue Station Area
Richard Alonzo	Centro Maravilla Association
Laura Ramirez	Plaza Community Center
William Ramirez	Plaza Community Center

6.5 PUBLIC REVIEW OF THE ENVIRONMENTAL DOCUMENT

The Draft SEIS/SEIR will be released for a 45-day public comment period. A Notice of Availability will be published in the Federal Register and local newspapers. A Notice of Completion will also be sent to the State of California, Office of Planning and Research (State Clearinghouse). Copies of the document will be sent to affected and interested agencies. In addition, direct mailings to interested parties informing them of the availability of the document and public comment will occur, and copies of the document will be available in local libraries and at the offices of MTA. A list of parties receiving the Draft SEIS/SEIR is provided in Appendix B. During the public comment period, the MTA Board will conduct a formal public hearing. Two community meetings were held in September 2000 to inform the community of the possible release date of the Draft SEIS/SEIR. For the community meetings and the public hearing, MTA will provide flyer distributions and advertise in the newspaper as done for all other community meetings.

APPENDIX A

NOTICE OF PREPARATION AND NOTICE OF INTENT

NOTICE OF PREPARATION
FOR
EASTSIDE TRANSIT CORRIDOR

RE-EVALUATION MAJOR INVESTMENT STUDY AND SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT/ SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

DATE: August 10, 1999

TO: All Interested Agencies, Organizations, and Individuals

FROM: Los Angeles County Metropolitan Transportation Authority
Steven Brye, Project Manager (telephone number 213-922-3078)
One Gateway Plaza, Los Angeles, CA 90012

The Los Angeles County Metropolitan Transportation Authority (MTA) will be the lead agency in the preparation of a Supplemental Environmental Impact Report (SEIR) in accordance with the California Environmental Quality Act (CEQA). Its purpose is to address the social, economic, or environmental issues associated with proposed transit improvements to the Eastside communities within the Los Angeles metropolitan area. In accordance with the National Environmental Policy Act (NEPA), a separate Re-Evaluation Major Investment Study (MIS) will be prepared and a Supplemental Environmental Impact Statement (SEIS) will be prepared as a joint document with the SEIR. The Federal Transit Administration (FTA) is the lead agency for the SEIS.

The purpose of this Notice of Preparation (NOP) is to notify agencies, organizations, and individuals that the MTA plans to prepare a Re-Evaluation MIS and an SEIR/SEIS and to request input on the environmental analysis to be performed. From public agencies, we are requesting comments on the scope and content of the environmental information which is germane to each agency's statutory responsibilities in connection with the proposed project. We are also requesting interested individuals' or organizations' view on the scope of the environmental document.

A description of the proposed alternatives to be analyzed in the Re-Evaluation MIS and the SEIR/SEIS, location, and the probable environmental effects is contained within this NOP.

Comments should be submitted to:

Mr. Steven Brye, Project Manager, Los Angeles County Metropolitan Transportation Authority, One Gateway Plaza, Los Angeles, California 90012, or by fax to (213) 922-3005.

<u>Comments are due no later than Friday, September 10, 1999.</u>

BACKGROUND

The MTA has considered extension of the Los Angeles Rail Rapid Transit Project (Metro Red Line) to the Eastside communities for many years. The1994 Los Angeles Eastside Extension Final EIS/EIR led to the adoption of a Locally Preferred Alternative to extend the Metro Red Line as a subway for 6.8 miles into the Eastside communities. The initial phase (3.7 miles) of the Eastside heavy rail subway project continued into Final Design and right-of-way acquisition activities assuming the funding was available to construct the project, and MTA entered into a Full Funding Grant Agreement for the initial phase with FTA in December 1994. Subsequently, an evaluation of the current local funding available for the Eastside project and other rail projects in Los Angeles County led to a suspension of work in May 1998. Voters also approved a new County law in November 1998 that restricts the use of Proposition A and C sales tax revenues for "new subways". The MTA was directed to study viable and effective options for all parts of Los Angeles County, with an emphasis on the corridors in which rail lines project development efforts had been suspended. As a result, MTA has decided to undertake this current study that will involve an in-depth review of fixed guideway and other modal alternatives (rail and bus) that could lead to a project that is affordable, meets corridor mobility and related needs and goals, and is acceptable to the community. The Eastside community is one of the most transit-dependent and transit-oriented communities in Los Angeles County. Many of the highest MTA and Montebello Transit ridership bus routes are there. The commercial and shopping areas on Cesar Chavez Avenue, 1st Street and Whittier Boulevard are not only important to the community but serve the needs of a much larger area. The two colleges (California State University at Los Angeles and the East Los Angeles Community College) in the study area are important to the cultural and educational needs of the Eastside and require quality public transit accessibility.

A Re-Evaluation Major Investment Study (MIS) will initially be prepared to evaluate several rail and/or bus mode and alignment options. The MIS/Draft SEIS/SEIR and the conceptual engineering for the project will be prepared simultaneously. Following FTA approval, Preliminary Engineering would be conducted during preparation of the Final SEIS/SEIR. The impacts of these initial alternatives will be evaluated on a corridor-level basis. The most feasible alternatives coming out of the initial evaluation will then be assessed in the Draft SEIS/SEIR. The Draft SEIS/SEIR/conceptual engineering process will assess the social, economic, and environmental impacts of the proposed alternatives at a project-level while refining their design to minimize and mitigate any adverse impacts. After its publication, the Draft SEIS/SEIR will be available for public and agency review and comment, and a public hearing will be held. On the basis of the Draft SEIS/SEIR and comments received, MTA will select a preferred alternative to carry forward into the Final SEIS/SEIR. The Final SEIS/SEIR will be based on information resulting from Preliminary Engineering.

PROJECT STUDY AREA and ALTERNATIVES

The Eastside Transit Corridor study area is a major travel corridor in the Los Angeles region as identified in the previous environmental documents referenced in the Background above. For this Re-Evaluation MIS, a study area has been defined that includes that portion of East Los Angeles bounded by the Los Angeles Central Business District on the west (Alameda Avenue, Union Station), Interstate 10 (San Bernardino Freeway, to the I-710) and State Route 60 (Pomona Freeway, I-710 to I-605) on the north, I-605 (San Gabriel River Freeway) on the east, and Interstate 5 (Santa Ana Freeway) on the south. LACMTA and FTA are interested in comments as to the possible need to extend the boundaries of this corridor study area to consider longer range transportation needs. The western part of the Los Angeles Central Business District (to the I-110 Harbor Freeway) may be considered a part of the study area depending on the extent of the alternatives considered west of Union Station and Alameda Avenue.

The alternatives proposed for initial evaluation in the Re-Evaluation MIS include:

1) Exclusive busway alternatives between Union Station and Whittier/Atlantic via 1st St., Lorena, Whittier or other alternative arterials that would be at-grade or elevated.

2) Light rail alternatives between Union Station and Whittier/Atlantic via 1st St., Lorena, Whittier or other alternative arterials that would be at-grade or elevated.

3) A Heavy Rail alternative from Union Station to Chavez/Soto without a Little Toyko station.

4) The Heavy Rail LPA initial operating segment (IOS- 2, 3.7 miles) from Union Station to 1st/Lorena as identified in the Final *Los Angeles Eastside Corridor EIS/EIR*, May 1994 and the FTA Record of Decision, December 1994 and is the currently suspended Locally Preferred Alternative project.

5) The Heavy Rail Locally Preferred Alternative (LPA) from Union Station to Whittier/Atlantic. This 6.8-mile alternative consists of a heavy rail subway that would follow the alignment identified in the Final *Los Angeles Eastside Corridor EIS/EIR*, May 1994 and the FTA Record of Decision, December 1994.

6) A Transportation Demand Management (TDM)/Transportation System Management (TSM) Alternative.

7) A No Build Alternative, which involves no change to transportation services or facilities in the corridor beyond already committed projects.

Other alignment alternatives involving rail or bus will also be developed in the early stages of the study based on public/agency comments. The attached map graphically portrays the study area.

PROBABLE EFFECTS OF THE PROJECT

FTA and MTA will evaluate all significant environmental, social, and economic impacts of the alternatives to be analyzed in the SEIR/SEIS. Among the primary transit issues to be evaluated are the expected increase in transit ridership, the expected increase in mobility for the corridor's transit dependent, the support of the region's air quality goals, the capital outlays needed to construct the project, the cost of operating and maintaining the facilities created by the project, and the financial impacts on the funding agencies. Potentially affected environmental and social resources proposed for analysis include land use and neighborhood impacts, residential and business displacements and relocations, traffic and parking impacts near stations, traffic circulation, visual impacts, impacts on cultural and archaeological resources, and noise and vibration impacts. Impacts on air and water quality, groundwater, hazardous waste sites, and water resources will also be covered. The impacts will be evaluated both for the construction period and for the long-term period of operation. Measures to mitigate significant adverse impacts will be considered.

Published in the Federal Register on Friday, August 13, 1999

DEPARTMENT OF TRANSPORTATION
Federal Transit Administration
Supplemental Environmental Impact Statement on the Los Angeles Eastside Transit Corridor

AGENCY: Federal Transit Administration, DOT

ACTION: Notice of intent to prepare a Supplemental Environmental Impact Statement

SUMMARY: The Federal Transit Administration (FTA), as Federal lead agency, and the Los Angeles County Metropolitan Transportation Authority (MTA) intend to prepare a Re-Evaluation Major Investment Study (MIS) and a Supplemental Environmental Impact Statement (SEIS) in accordance with the National Environmental Policy Act of 1969 (NEPA) on a proposal by MTA to provide additional transit service to the Eastside communities within the Los Angeles metropolitan area. In addition to NEPA, the proposed project is subject to compliance with the California Environmental Quality Act (CEQA); therefore, a joint SEIS/Supplemental Environmental Impact Report (SEIR) will be prepared.

The Re-Evaluation MIS and the SEIS/SEIR will consider the following alternatives: 1) Exclusive busway alternatives between Union Station and Whittier/Atlantic via 1st St., Lorena, Whittier or other alternative arterial roadways that would be at-grade or elevated. 2) Light rail alternatives between Union Station and Whittier/Atlantic via 1st St., Lorena, Whittier or other alternative arterial roadways that would be at-grade or elevated. 3) A Heavy Rail alternative from Union Station to Chavez/Soto without a Little Tokyo station. 4) The Heavy Rail LPA initial operating segment (IOS-2, 3.7 miles) from Union Station to 1st/Lorena as identified in the *Los Angeles Eastside Corridor Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/FEIR)*, May 1994 and the FTA Record of Decision, December 1994 and is the currently suspended Locally Preferred Alternative project. 5) The Heavy Rail Locally Preferred Alternative (LPA) from Union Station to Whittier/Atlantic. This 6.8-mile alternative consists of a heavy rail subway that would follow the alignment identified in the 1994 F*EIS/FEIR* and the FTA Record of Decision, December 1994. 6) A Transportation Demand Management (TDM)/Transportation System Management (TSM) Alternative. 7) A No Build Alternative, which involves no change to transportation services or facilities in the corridor beyond already committed projects. Potential new feasible alternatives generated through the scoping process will also be considered.

The results of the Re-Evaluation MIS process is intended to narrow the alternatives to be evaluated in detail in the SEIS/SEIR. Scoping will be accomplished through correspondence with interested persons, organizations, and Federal, State, and local agencies; three public scoping meetings; and one inter-agency scoping meeting.

DATES: Comment Due Date: Written comments on the scope of alternatives and impacts to be considered should be submitted by September 10, 1999. Written comments should be sent to Mr. Steven Brye, Los Angeles County Metropolitan Transportation Authority, One Gateway Plaza, Los Angeles, California 90012. Written comments may also be made at the public scoping meetings scheduled below.

Scoping meeting: The public scoping meetings will take place on the following days and locations at the time indicated:

1. Tuesday, August 24, 1999, 4:30 p.m. to 8 p.m. - Resurrection Parish Hall, 3324 E. Opal Street, Los Angeles, CA 90023
2. Thursday, August 26, 1999, 4:30 p.m. to 8 p.m. – St. Alphonsus School Auditorium, 552 S. Amalia, Los Angeles, CA 90022
3. Wednesday, September 2, 1999, 4:30 p.m. to 8 p.m. - Montebello City Hall, City Council Chamber, 1600 West Beverly Blvd., Montebello, CA 90640

A scoping meeting for governmental agencies will be held on Wednesday, August 25, 1999, 9 a.m. to 11 a.m. – Los Angeles County MTA, 1 Gateway Plaza, 3rd Floor Board Room, Los Angeles, CA 90012.

People with special needs should contact Steven Brye at MTA at the address below or by calling (213) 922-3078. The selected locations are accessible to people with disabilities.

The scoping meetings will be held in an "open-house" format, and representatives will be available to discuss the project throughout the time periods given. Informational displays and written material will also be available throughout the time periods given.

ADDRESSES: Written comments should be sent to Mr. Steven Brye, Los Angeles County Metropolitan Transportation Authority, One Gateway Plaza, Los Angeles, California 90012. Written comments may also be made at the scoping meetings. See DATES above for meeting locations.

FOR FURTHER INFORMATION CONTACT: Mr. Robert Hom, Director, Program Development, FTA Region IX, 201 Mission St, Suite 2210, San Francisco, CA 94105-1831. Phone: (415) 744-3133.

SUPPLEMENTARY INFORMATION:

I. Scoping

FTA and MTA invite interested individuals, organizations, and Federal, State, and local agencies to participate in defining the alternatives to be evaluated in the Re-Evaluation Major Investment Study (MIS) and the SEIS/SEIR and identifying any significant social, economic, or environmental issues related to the alternatives. An information packet describing the purpose of the project, the location, the proposed alternatives, and the impact areas to be evaluated is being mailed to affected Federal, State, and local agencies. Others may request the scoping materials by contacting Mr. Steven Brye, Los Angeles County Metropolitan Transportation Authority, One Gateway Plaza, Los Angeles, California 90012, (213) 922-3078. Scoping comments may be made in writing at the public scoping meeting. See the DATES section above for the location and time. During scoping, comments should focus on identifying specific social, economic, or environmental impacts to be evaluated and suggesting alternatives that are less costly or less environmentally damaging while meeting the identified mobility needs. Scoping is not the appropriate time to indicate a preference for a particular alternative. Comments on preferences should be communicated after the Re-Evaluation MIS and the Supplemental Draft EIS/EIR has been completed. If you wish to be placed on the mailing list to receive further information as the project develops, contact: Mr. Steven Brye, Los Angeles County Metropolitan Transportation Authority, One Gateway Plaza, Los Angeles, California 90012, (213) 922-3078.

II. Description of the Study Area and Project Need

The Eastside Transit Corridor study area is a major travel corridor in the Los Angeles region as identified in the previous environmental documents referenced in the Summary above. For this Re-Evaluation MIS, the study area has been defined that includes that portion of East Los Angeles bounded by the Los Angeles Central Business District on the west (Alameda Avenue, Union Station), Interstate 10 (San Bernardino Freeway, to the I-710) and State Route 60 (Pomona Freeway, I-710 to I-605) on the north, I-605 (San Gabriel River Freeway) on the east, and Interstate 5 (Santa Ana Freeway) on the south. MTA and FTA are interested in comments as to the possible need to extend the boundaries of this corridor study area to consider longer range transportation needs. The western part of the Los Angeles Central Business District (to the I-110 Harbor Freeway) may be considered a part of the study area depending on the extent of the alternatives considered west of Union Station and Alameda Avenue.

The MTA has considered extension of the Los Angeles Rail Rapid Transit Project (Metro Red Line) to the Eastside communities for many years. The most recent study led to the adoption of a Locally Preferred Alternative to extend the Metro Red Line as a subway for 6.8 miles into the Eastside communities. The initial phase (3.7 miles) of the Eastside heavy rail subway project continued into Final Design and right-of-way acquisition activities assuming the funding was available to construct the project, and MTA entered into a Full Funding Grant Agreement for the initial phase with FTA in December 1994. Subsequently, an evaluation of the current local funding available for the Eastside project and other rail projects in Los Angeles County led to a suspension of work in May 1998. Voters also approved a new County law in November 1998 that restricts the use of Proposition A and C sales tax revenues for "new subways". The MTA was directed to study viable and effective options for all parts of Los Angeles County, with an emphasis on the corridors in which rail project development efforts had been suspended. As a result, MTA has decided to undertake this current study that will involve an in-depth review of fixed guideway and other modal alternatives (rail and bus) that could lead to a project that is affordable, meets corridor mobility and related needs and goals, and is acceptable to the community. The Eastside community is one of the most transit-dependent and transit-oriented communities in Los Angeles County. Many of the highest MTA and Montebello Transit ridership bus routes are there. The commercial and shopping areas on Cesar Chavez Avenue, 1st Street and Whittier Boulevard are not only important to the community but serve the needs of a much larger area. The two colleges (California State University at Los Angeles and the East Los Angeles Community College) in the study area are important to the cultural and educational needs of the Eastside and require quality public transit accessibility.

III. Alternatives

The alternatives proposed for initial consideration in the Re-Evaluation Major Investment Study (see FTA Procedures below) include: 1) Exclusive busway alternatives between Union Station and Whittier/Atlantic via 1st St., Lorena, Whittier or other alternative arterial roadways that would be at-grade or elevated. 2) Light rail alternatives between Union Station and Whittier/Atlantic via 1st St., Lorena, Whittier or other alternative arterial roadways that would be at-grade or elevated. 3) A Heavy Rail alternative from Union Station to Chavez/Soto without a Little Tokyo station. 4) The Heavy Rail LPA initial operating segment (IOS-2, 3.7 miles) from Union Station to 1st/Lorena as identified in the 1994 *FEIS/FEIR* and the FTA Record of Decision, December 1994 and is the currently suspended Locally Preferred Alternative project. 5) The Heavy Rail Locally Preferred Alternative (LPA) from Union Station to Whittier/Atlantic. This 6.8-mile alternative consists of a heavy rail subway that would follow the alignment identified in the 1994 *FEIS/FEIR* and the FTA Record of Decision, December 1994. 6) A Transportation Demand Management (TDM)/Transportation System Management (TSM) Alternative. 7) A No Build Alternative, which involves no change to transportation services or facilities in the corridor beyond already committed projects.

Other alignment alternatives involving rail or bus may be developed in the scoping process in the early stages of the study.

IV. Probable Effects

FTA and MTA will evaluate significant environmental, social, and economic impacts of the alternatives to be analyzed in the SEIS/SEIR. Among the primary transit issues to be evaluated are the expected increase in transit ridership, the expected increase in mobility for the corridor's transit dependent, the support of the region's air quality goals, the capital outlays needed to construct the project, the cost of operating and maintaining the facilities created by the project, and the financial impacts on the funding agencies. Potentially affected environmental and social resources proposed for analysis include land use and neighborhood impacts, residential and business displacements and relocations, traffic and parking impacts near stations, traffic circulation, visual impacts, impacts on cultural and archaeological resources, and noise and vibration impacts. Impacts on air and water quality, groundwater, hazardous waste sites, and water resources will also be covered. The impacts will be evaluated both for the construction period and for the long-term period of operation. Measures to mitigate adverse impacts will be considered.

V. FTA Procedures

A Re-Evaluation Major Investment Study (MIS) will initially be prepared to evaluate several rail and bus mode and alignment options. The MIS/Draft SEIS/SEIR and the conceptual engineering for the project will be prepared simultaneously. Following FTA approval, Preliminary Engineering would be conducted during preparation of the Final SEIS/SEIR. The impacts of these initial alternatives will be evaluated on a corridor-level basis during the Re-Evaluation/MIS and SEIS/SEIR scoping phase. The alternatives coming out of this initial evaluation will then be assessed in the Draft SEIS/SEIR. The Draft SEIS/SEIR/conceptual engineering process will assess the social, economic, and environmental impacts of the proposed alternatives at a project-level while refining their design to minimize and mitigate any adverse impacts. After its publication, the Draft SEIS/SEIR will be available for public and agency review and comment, and a public hearing will be held. On the basis of the Draft SEIS/SEIR and comments received, MTA will select a preferred alternative to carry forward into the Final SEIS/SEIR. The Final SEIS/SEIR will be based on information resulting from Preliminary Engineering.

Issued: August 9, 1999
Leslie Rogers,
Regional Administrator, Federal Transit Administration, Region IX.

APPENDIX B

DISTRIBUTION LIST

Mailing Distribution List Draft SEIS/SEIR
February 20, 2001

FEDERAL AGENCIES
Advisory Council on Historic Preservation, Executive Director (Washington, D.C.)
Office of Management and Budget (Washington, D.C.)
U.S. Army Corps of Engineers, Colonel Robert Davis (Washington, D.C.)
U.S. Army Corps of Engineer, District Engineer (Los Angeles)
US Department of Agriculture Office of Secretary (Washington, D.C.)
U.S. Department of Commerce
  National Oceanic and Atmospheric Administration
  Office of the Secretary (Newport Beach)
U.S. Department of Energy, Office of Environment Compliance, Director
U.S. Department of Environmental Affairs
U.S. Department of Health and Human Services (Washington, D.C.)
U.S. Department of Housing & Urban Development, Environmental Clearance Officer (Washington, D.C.)
U.S. Department of Housing & Urban Development, Environmental Clearance Officer (San Francisco)
U.S. Department of Interior
  Office of the Secretary (Washington, D.C.)
  Director of Environment Project Review
  U.S. Fish & Wildlife Services, Jaime Rappaport, Director (Carlsbad, CA)
  U.S. Fish & Wildlife Services, Ken Berg, Field Supervisor (Carlsbad, CA)
  National Parks Service
U.S. Department of Transportation
  Office of the Secretary (Washington, D.C.)
  AWP 600 FAA Western Pacific Region, Manager Airports Division
  Federal Aviation Administration
  Federal Highway Administration, Region 9
  Federal Railroad Administration Office of Policy & Plans
  Federal Transit Administration Region 9, Leslie Rogers
  Federal Transit Administration Region 9, Robert Hom
  Federal Transit Administration, Ray Tellis
  Federal Transportation Agency / Federal Highway Administration Metro Office, Sandra Balmir
  Federal Transit Administration / Federal Highway Administration Metro Office, Ervin Poka
  U.S. Coast Guard (Long Beach)
U.S. Environmental Protection Agency, Deanna Wieman (San Francisco)
U.S. Environmental Protection Agency (Washington, D.C.)
U.S. Federal Emergency Management Agency # 9, Regional Director

STATE AGENCIES
Air Resources Board California Environmental Protection Agency, Dr. Alan Lloyd, Chairman (Sacramento)
California Air Resources Board, Michael Denny, Executive Director
California Coastal Commission, Elizabeth Fachs
California Department of Fish & Game Environment Service Division, William Tippets
California Department of Fish & Game, Director
California Department of Heath Services, Diana M. Bonta, RN.DR.PH.P
California Department of Fish & Game Environment Service Division, Robert C. Hight, Director
California Department of General Services, Mike Cortney, Assistant Deputy Director
California Department of Park & Recreation, Carl Drake, Director
California Energy Commission, Keneth Smith, Acting Director

California Highway Patrol, Chief Helmik
California Highway Patrol, Pete Ramos
California Native Plant Society, Allen Barns, Executive Director
California Regional Quality Control Board Los Angeles Region, Scott Dawson
California State Building Southern California Public Utilities Commission, Maxine Harrison-
Acting Commission Representative
California Transportation Commission , Robert Chung, Deputy Director Mass Transportation
California Transportation Commission, Robert I. Remen, Executive Director
California Wildlife Conservation, Jon Schmiht, Executive Director
California Department of Food & Agriculture, William Lyons Jr. Secretary
California Department of Transportation District 7, Dan Lasiewicz
California Department of Transportation Transit Rail, Lisa Cooke
California Department of Transportation Transit Rail, Maria Aranguiz
California Department of Transportation, Division of Aeronautics, Gary Cappy
California Department of Transportation, Division of Aeronautics Marlin Beckwith
California Department of Transportation, Environmental Planning Branch, Ron Kesinski, Office Chief
Department of Conservation, Steve Arthur, Chief Dept Dir.
Department of Parks Superintendent
Integrated Waste Management Board, Ralph Chandler, Executive Director
Museum of Vertebrate Zoology, Dr. Wake, Director
Native American Heritage Commission, Larry Myers, Executive Secretary
Office of Historic Preservation, Hans Kretzberg
Public Utilities Commission, Wesley Franklin, Executive Director
State Clearinghouse Office of Planning & Research, Terry Roberts, Senior Planner
State Dept of Housing & Community Development, Judy Nevis, Acting Director
State Lands Commission, Betty Silva
State Resources Agency, Nadell Gayon
State Water Resources Control Board, Walt Pettit, Executive Director

COUNTY AGENCIES
Administrative Offices
Agricultural Commissioner
Community Development Commission, Eduardo Hernandez
Community Development Commission, Carlos Jackson
Community Development Commission, Elvia Delgadillo, Senior Project Manager
County Clerk
County Sheriffs Department, Sheriff Lee Baca
Department of Public Works & Floor Control, Harry W. Stone, Director
Department of Public Works, Ann Meiners, Programs Development Division
Department of Public Works, Jennifer Tiffin
Department of Public Works, John Huang, P.E.
Department of Public Works, Jose Pou
Department of Regional Planning, Dave Cowardin
Department of Regional Planning, Esther Ibarra
Department of Regional Planning, Leonard Erlanger
East Los Angeles Sheriffs Department, Captain Tom Angel
Fire Department, Fire Chief P. Michael Freeman
Health Services Department
Pico Rivera Sheriffs Department, Captain Rodriguez

LOCAL AGENCIES
CITY OF LOS ANGELES
Administrative Offices
Bureau of Engineering, Vitaly B. Troyan, Director
Bureau of Street Lighting, Jonathan L. Levy, Director
Bureau of Street Services, Angelica Hernandez
Bureau of Street Services, Victor Osugi
Bureau of Street Trees, Gregory L. Scott, Director
City Attorney
City Clerk
Community Development Department
Community Redevelopment Agency, Al Santillanes, Project Manager
Community Redevelopment Agency, Jeff Carpenter
Community Redevelopment Agency, Parker Anderson, Director
Community Redevelopment Agency, Rodolfo Bocanegra
Cultural Affairs Department
Department of Building & Safety, Andrew Adelman, General Manager
Department of Recreation & Parks, Jackie M. Tatum, General Manager
Department of Transportation, David Rzepinski
Department of Transportation, Farhad Zaltash
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Department of Transportation, James Okasaki
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Department of Transportation, Mortesa Delpasana
Department of Transportation, Phil Aker
Department of Transportation, Sean Skehan
Department of Transportation, Susan Bok
Department of Water & Power
Department of Public Works, Robert La France
Eastside Enterprise Zone, David Eder
Eastside Enterprise Zone, Margaret Gonzales
Environmental Affairs Department
Environmental Affairs Department
Fire Department
General Services Department
Hollenbeck Police Station, Captain Moselle
Housing Authority, James Bochon
Housing Department
Planning Department, Con Howe, Director
Planning Department, Daniel Scott
Planning Department, Kevin Keller
Planning Department, Loretta Rosas
Planning Department, Michael Davies
Planning Department, Patricia A. Diefenderfer
Planning Department, Phil Bacerra
Police Department, Chief Bernard Parks

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Community Development, Justin Mc Carthy
Community Development, Raymond Ramirez, Asst. Director
Parks & Recreation Department, Jim Jimenez, Director
Public Services Department, Robert Sepulveda, Director
Transportation Department, Dan Gomez, Director

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City Attorney
City Manager, Julio J. Fuentes
Community Development
Public Services
Redevelopment

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Economic Community Development, Linda Puyan, Asst. City Admin.
Economic Development Analyst, John Bazua
Economic Development, Didacus Ramos
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Planning Department, Tonya Pace
Public Works Department, Steve Blancart, Asst City Admin
Transportation Department, Jack Gabig, Director
Transportation Department, Katheryn Engel, Manager

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Economic Development, Kelvin Tainatongo
Park & Recreation Department, Larry Reihm, Director
Public Works Department, Ron Merry, Director
Transportation Department, Amy Ho, Manager

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City Manager, Dennis Courtemarche
Community Development, David Hertzing, Director
Park & Recs Department, Cindy Lu Gans, Director
Public Works Department, Enrique Acevedo, Director
City Administration Asst., Carmen Martinez
Redevelopment Agency, Ann Negendank, Director
Sheriffs Department, Captain Juan Rodriguez

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Parks & Recreation Department, Mike Mendez, Director
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Public Works Department, John Price, Director
Transportation Department, Margarita Trejo, Supervisor
Public Works Department, Robert Garcia, Asst Civil Eng.
Office of Inter-governmental Relations, Thaddeus Mc Cormack, Admin.

CITY OF WHITTIER
Public Works Department, David Mochizuki, Director
Transportation Department, Joe Dyer, Asst Director
City Manager, Tom Mauk
Community Development, Ann Ybarra, Manager
Parks & Recreation Department, Hideo Hamano, Director

CITY OF NORWALK
Transportation Department, Jim Parker

AGENCIES
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Hill International, Inc., Terry W. Esteb, Project Director
Interstate 5 Consortium Cities Joint Power Authority, Ralph Webb
Los Angeles County Office of Education East Los Angeles
Metropolitan Water Dist, Water Resources & Env., Robbie Saltz, Director
San Gabriel Valley Council of Governments, Brent Cardwell
San Gabriel Valley Council of Governments, Nicolas Conway, Executive Director
Southern California Association of Governments, Jim Gosnell
Southern California Association of Governments, Michelle Glickert, Associate Planner
Southern California Association of Governments, Planning & Technical Advancement, Katheryn Higgins
Southern California Association of Governments, Von Loveland
Southern California Regional Rail Authority Metrolink, David Solow, Executive Director
The Nature Conservancy, Steve Mc Cormick, Director

LOS ANGELES UNIFIED SCHOOL DISTRICT
Belmont High School
Belvedere Elementary School, Robert G. Quihuis, Principal
Breed Street Elementary School
Brooklyn Elementary School
Castelar Elementary School
Environmental Section, Joan Friedman
Environmental Section, Ray Dippel
First Street Elementary School, Judith Wisotsky Leff, Principal
Fourth Street Elementary School
Garfield High School
Griffith Middle School, Mark Nagayama, Teacher
Griffith Middle School, Raul Perez Salcido, Principal
Hamasaki Elementary School
Humphreys Elementary School
Los Angeles Unified School Board Superintendant, Roy Romer

Los Angeles Unified School District, Estela R. Herman
Los Angeles Unified School District, Lupe Pramo
Marianna Avenue Elementary School, Lee White, Principal
Nightingale Middle School
Ramona High School, Sherry Petrie Breskin, Principal
Roosevelt High School, Henry Ronquillo, Principal
Rowan Elementary School
School Board Member Takosfsky's Office, Enrique Juarez
School Safety, Ann Altierri
Second Street Elementary School
Stevenson Middle School
Superintendent District F, Richard Alonzo
Superintendent District H, Bonnie Rubio
Superintendent District H, Peggy Selma
Traffic Safety, Joe Nardulli
Utah Street Children's Center, Bettie Holmes, Principal
Utah Street Elementary School, Elsa M. Lonon, Principal

EDUCATIONAL FACILITIES
Dolores Mission School
East Los Angeles Community College
East Los Angeles Occupational Center
East Los Angeles Skill Center
LA County office of Education East Los Angeles
Montebello High School
Montebello Unified School District
Pico Rivera Unified School District
Puente Learning Center
Rio Hondo Community College
Shurr High School

GOVERNOR, U.S., SENATORS AND U.S. CONGRESSMEN
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Lieutenant General Cruz Bustamante
U.S. Senator Barbara Boxer
    Sam Chapman, Chief of Staff
    Malena Avila
U.S. Senator Dianne Feinestein
    Jim Lazarus, State Director
    Guillermo Gonzales
U.S. Congresswoman Hilda Solis (District #31)
    Frank Molina
U.S. Congresswoman Napolitano (District #34)
    Scott Lines
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    Kim Tachiki
U.S. Congressman Xavier Becerra (District #30)
    Michael Nielson
    Gayle Greenberg

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  William Sanchez
State Senator Richard Polanco (District #22)
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State Assemblymember Jackie Goldberg (District #45)
  Jim Bickhart
State Assemblymember Gilbert Cedillo (District #46)
  Laura Avila
  Iris Miranda
Assemblymember Marco Firebaugh (District #50)
  Jose Sigala
Assemblymember Gloria Romero (District #49)
  Linda Luna
Assemblymember Tom Calderon (District #58)
  Gary Mann

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  Alvin Parra
  Nicole Englund
Supervisor Yvonne Brathwaite Burke (District #2)
Supervisor Don Knabe (District #3)
  Fred Guido
Supervisor Zev Yaroslavsky (District #4)
Supervisor Michael Antonovich (District #5)

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  Jaime de la Vega
City of Los Angeles Council Member District 1 Mike Hernandez
City of Los Angeles Council Member District 2 Joel Wachs
City of Los Angeles Council Member District 3 Laura Chick
City of Los Angeles Council Member District 4 John Ferraro
City of Los Angeles Council Member District 5 Michael Feuer
City of Los Angeles Council Member District 6 Ruth Galanter
City of Los Angeles Council Member District 7 Alex Padilla
City of Los Angeles Council Member District 8 Mark Ridley-Thomas
City of Los Angeles Council Member District 9 Rita Walters
City of Los Angeles Council Member District 10 Nate Holden
City of Los Angeles Council Member District 11 Cindy Miscikowski
City of Los Angeles Council Member District 12 Hal Bernson
City of Los Angeles Council Member District 13
City of Los Angeles Council Member District 14 Nick Pacheco
  Dan Farkas
  Sonia Jimenez
City of Los Angeles Council Member District 15 Rudy Svorinich

CITY OF COMMERCE
Mayor, Raquel Arriaga
Mayor Pro Tem, Sylvia Munoz
Councilmember Lela R. Leon
Councilmember Hugo A. Argumedo
Councilmember Rosalina G. Lopez

CITY OF ALHAMBRA
Mayor, Paul L. Talbot
Vice Mayor, Daniel R. Arguello
Councilmember Talmage Burke
Councilmember Efren Moreno
Councilmember Mark Paulson

CITY OF MONTEBELLO
Mayor Mary Anne Saucedo
Mayor Pro Tem William Molinari
Councilmember Norma Lopez-Reid
Councilmember William Molinari
Councilmember Cathy Salazar
Councilmember Edward Vasquez

CITY OF MONTEREY PARK
Mayor Benjamin "Frank" Venti
Councilmember Francisco Alonzo
Councilmember Fred Balderrama
Councilmember Judy Chu
Councilmember Rita Valenzuela

CITY OF PICO RIVERA
Mayor Garth Gardner
Councilmember Carlos Garcia
Councilmember Pete Ramirez
Councilmember Beatrice Proo
Councilmember Gregory Salcido

CITY OF SANTA FE SPRINGS
Mayor Betty Putnam
Mayor Pro Tem Luis Gonzalez
Councilmember Jim Burton
Councilmember Ronald Kernes
Councilmember George Minneham

CITY OF WHITTIER
Mayor Allan Zolnekoff
Mayor Pro Tem David Butler
Councilmember Bob Henderson
Councilmember Greg Norback
Councilmember Owen Newcomer

PUBLIC LIBRARIES
Anthony Quinn Library
Benjamin Franklin Library
City Terrace Public Library
Commerce Public Library
East Los Angeles Public Library
El Camino Library
Little Tokyo Library
Los Angeles Central Library

LOCAL MEDIA
News Media
97.5 FM Super Estrella
KNX-AM Radio
790 KABC
KTNQ Radio 1020 AM
KWKW Spanish Radio
KPFK Radio
La Opinion Editorial
Los Angeles Times
Eastern Group Publications, Inc.
WAVE Newspaper
Downtown News
KCBS Channel 2
KNBC Channel 4
KTLA Channel 5
KABC Channel 7
KCAL Channel 9
FOX Channel 11
KCOP Channel 13
KWHY Channel 22
KCET Channel 28
KMEX Channel 34
KVEA Channel 52

INTERESTED ORGANIZATIONS
Abuelitos de Boyle Heights
ADVANCE
Archdiocese of Los Angeles
Boyle Heights Chamber of Commerce
Boyle Heights Homeowners Association
Boyle Heights Senior Center
Centro Maravilla Service Center
CHAROCDC
Children's Museum of Los Angeles - Candace Barrell
City Terrace Coordinating Council
Community and Human Resource Agency
Community Redevelopment Agency Advisory Council
Community Service Organization Alcohol Service Program

Community Rehabilitation Service
East Los Angeles Chamber of Commerce
East Los Angeles Rehabilitation Center
East Los Angeles YMCA
Eastmont Community Center
ELA Minority Business Development Center
Environmental Defense
Family Center Santa Fe Springs
Hollenbeck Youth Center
Humphrey's MASH Organization
IDEPSCA
Instituto de Educacion Popular California
Inter-Community Child Guidance Center – Whittier
International Institute of Los Angeles
Japanese American National Museum - Nancy Arana
LA Center for Law and Justice
LA Family Housing Corp Homeless Service Center
LAFLA
LARABA
Latin Business Association
Latino Urban Forum
League of Women Voters
Legal Aid Foundation
Lincoln Heights Chamber of Commerce
Little Tokyo Lions
Little Tokyo Service Center
Los Angeles County Chicano Employees Assistance
Los Angeles Family Housing Corporation
Los Angeles Family Housing Corporation
Los Angeles Neighborhood Initiative
Madres del Este de Los Angeles
Maravilla Business Persons Association
Maravilla Community Advisory Committee
Mexican American Grocers Association
Mexican American Opportunity Foundation
Montebello Chamber of Commerce
Montebello Senior Center
Mothers of East Los Angeles
Neighborhood Watch Captain, Mary Lou Trevis
PACE Development
Pico Aliso Resident Advisory Council
Pico Rivera Chamber of Commerce
Pico Rivera Senior Citizen
Plaza Community Center
Plaza Family Preservation
Proyecto Pastoral
Salesian Boys and Girls Club
San Gabriel Valley Hispanic Chamber of Commerce
Santa Fe Springs Neighborhood Center

Santa Marta Hospital
Self Help Graphics
Society of Hispanic Professional Engineers
Soledad Enrichment Action Program
Southern California Transit
Southern California Transit Authority
Southwest Voter Registration
TELACU
Union y Fuerza
USC Center for Religion and Civic Culture
USC University Hospital
White Memorial Medical Center
Whittier Area Family Violence Prevention Council
Whittier Boulevard Merchants Association

MTA REVIEW ADVISORY COMMITTEE

Felicitas Acosta	1st/Boyle
Richard Alonzo	3rd/Mednik
Joel Bloom	Little Tokyo
Anita Castellanos	1st/Boyle
Veronica Chairez	1st/Boyle
Renee Chavez	1st/Boyle
Joseph Coria	1st/Boyle
Nadine Diaz	1st/Lorena
Victor Duran	3rd/Mednik
Rosa Marina Gabaldon	Boyle Heights Neighborhood Organization
Jose L. Gomez	Beverly/Atlantic
Ayako Hagihara	Little Tokyo
Dorothy Hartshorn	1st/Boyle
Frances K. Hashimoto	Little Tokyo
Art Herrera	1st/Lorena
Jose Huizar	CRA Adelante Project Area Committee
Louis Martinez	1st/Lorena
Carlos Montante	Boyle Heights Neighborhood Organization
Ron Mukai	3rd/Mednik
Laura Padilla	3rd/Mednik
Laura Pizana	1st/Boyle
Laura Ramirez	Plaza Community Center Board Member
William Ramirez	Plaza Community Center Board Member
Olga Salas	1st/Boyle
Rachael Santos	1st/Lorena
Albert H. Tiara	Little Tokyo
Diana Tarango	3rd/Rowan
Luigi Torres	3rd/Mednik
Mary Lou Trevis	Mothers of East Los Angeles
Ross Valencia	Boyle Heights Neighborhood Organization
Jose Salomon	Beverly/Atlantic
Silvia Viramontes	1st/Boyle
William Yang	Little Tokyo
Armando Ybarra	3rd/Mednik

RELIGIOUS INSTITUTIONS

All Saints Church
Apostolic Church
Assumption Church
Bethesda Tabernacle Church
Boyle Heights Latin American Church
Brotherhood Tenrikyo Church
Calvary baptist Church
Capilla la Luz
Church of God of Prophecy
Church of Jesus Christ of LDS
Christian Council of Hispanic
Community Baptist Church
Dolores Mission Church
East Los Angeles SDA Church
Ebenezer Asambleas de Dios
El Comino Church
First Baptist Church-Commerce
Iglesia Bautista-Resurreccion
Iglesia Bautista Unida
Iglesia Christiana de LA
Iglesia de Dios
La Puerta Abierta Church
Los Angeles Central Korean Church
Mexican Evangelical Memorial
Minesterio Sol de Justicia
Mission MI Fuente de Salvacion
Our Lady of Guadalupe (Hammel)
Our Lady of Guadalupe (Rose Hills)
Our Lady of Guadalupe (Sanctuary)
Our Lady of Solitude
Our Lady of Talpa
Our Lady of Victory Church
Our Lady Queen of Martyrs
Praise Chapel
Primera Inglesia Bautista
Resurrection Parish
Rissho Kosei-Kai of La Church
Rosa de Saron
Sacred Heart Church
San Antonio de Padua Church & School
San Francisco Church
Santa Isabel Church
Santa Teresita
St. Alphonsus Church
St. Lucy's Church
St. Mary's Church
St. Marcellinus Church

Seventh-Day Aventist
Spanish American Seventh-Day
Tenrikyo Mission Headquarters
Tenrikyo Southern Pac Church
United Mexican Baptist Church Incoporated
Universal Church of God
Victory Outreach
White Memorial Seventh-Day Adventist

APPENDIX C

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APPENDIX D

LIST OF PREPARERS

Federal Transit Administration
Ray Suyks, Region 9, San Francisco
Ervin Poka, Metropolitan Office, Los Angeles
A. Joseph Ossi, Headquarters, Washington, D.C.

Los Angeles County Metropolitan Transportation Authority

Transportation Development and Implementation
Diego Cardoso, Project Director
Steven Brye, Project Manager
Robert Calix, Public Affairs
Robin Blair, Urban Design and Transit Linkages
Walt Davis, Traffic Analysis
James Rojas, Urban Design
Dolores Roybal, Transportation Planner
Joanna Cucchi, Technical Review
Art Cueto, Technical Review
David Sena, Technical Review
Adrian Alvarez, Technical Review

Transportation Demand Modelling
Dr. Chausie Chu, Director Systems Analysis and Research
Rena Lum, Transportation Planning Manager
Stewart Chesler, Transportation Planning Manager
Maryam Ershagi, System Analysts
Armineh Saint, Transportation Planning Manager
John Stesney, Transportation Planning Manager

Service Planning/ Operations
Martha Butler, Transportation Planning Manager
Scott Holmes, Transportation Planning Manager

Construction
Dennis Mori, Deputy Executive Officer
Girish Roy, Engineering Project Manager
Rick Wilson, Project Control Manager
John Higgins, 3rd Parth Administration
Lee Agee, Rail Activation Manager
David Hewitt, Transportation Project Manager

Environmental Compliance
Stan Barankiewicz, Environmental Services Manager
James Sowell, Environmental Compliance Manager
Andre Villasenor, Environmental Specialist

MTA Tunnel Advisory Panel
Dr. Dan Eisenstein
Dr. Geoff Martin

Safety
Tom Eng, Safety Certification Manager
John Tripp, Battalion Chief-Metro Rail Coordinator
Michael Littleton, Battalion Chief-Los Angeles Fire Department
Vijay Khawani, Operations & Maintenance Systems/Safety Manager

Real Estate
John Furby, Real Estate Officer

Parsons Brinckerhoff Quade and Douglas, Inc.

Thomas Jenkins	Project Manager/Engineer
Lorenzo Sanchez	Engineer
Armando Solis	Engineer
Clint Herrera	Engineer
Myrna Valdez	Alternatives development
Amanda Elioff	Geotechnical analysis
David Freytag	Energy, land use, water resources, biological resources, and employment
George Vail	Demographic analysis, GIS analysis, and graphics
Donna McCormick	Visual analysis
Bill Feulner	Graphics
Bill Boynton	GIS analysis and graphics
Derek Ross	Energy, population, employment, and graphics
Steven Wolf	Noise and vibration analysis
Ed Tadross	Noise and vibration analysis, water resources, energy
Mark Brown	Parking, traffic, transit and other modes analysis, purpose and need
Fred Pearson	Parking, traffic, and other modes analysis, purpose and need
Farid Naguib	Parking, traffic, and other modes analysis
Bill Davidson	Travel demand forecasting
Dawn McKinstry	Travel demand forecasting
Tracey Quinton	Travel demand forecasting
Herb Higginbotham	Travel demand forecasting
Nicole Boulanger	Travel demand forecasting

Jenkins/Gales & Martinez

Earl Gales, Jr.	Project Director
Terry Marcellus	Project Planner
Bob Hulse	Project Engineer
Vali Nitu	CADD Operator
Eric Mangaccat	CADD Operator
Edgar Zelaya	Public Involvement
Scott Forbes	Engineer

Barrio Planners, Inc.

Raul Escobedo	Planning, urban design, land use and development, residential and business displacement analysis, parklands and community facilities identification, neighborhoods and communities identification, public involvement
Frank Villalobos	Planning, urban design, public involvement
Luzmaria Chavez	Public involvement
William Villalobos	Urban design
Chris Baffo	Urban design
Jennifer Villalobos	Urban design
Adriana T. Saltikov	Urban design

S. R. Beard & Associates, L.L.C.

Steven Beard	Environmental Project Manager
Jerri Horst	Environmental Coordinator
Mark Weisman	Environmental justice, community facilities and parklands, residential and business displacements, Section 4(f), and communities/neighborhoods analyses

Kaku Associates

Dick Kaku	Traffic analysis
Bryan Mayeda	Traffic analysis

Law Crandall

Carl Kim	Geotechnical analysis
Marty Hudson	Geotechnical analysis
Bill Obraitas	Hazardous substances analysis
Razmik Gozalians	Hazardous substances analysis

Terry Hayes Associates

Keith Cooper	Air quality analysis

Roberta S. Greenwood and Associates

Judith Rasson	Cultural resource analysis
John Foster	Cultural resource analysis

Paleo Environmental Associates

Bruce Lander, Ph.D.	Paleontologic resource analysis

Kal Krishnan Consulting Services

Ron Anderson	Capital cost estimates

Associated Engineers

Jim Imbiorski	Engineering mapping

Brand Farrar & Buxbaum

Amy Freilich	Legal analysis

The Chambers Group

Don Mitchell	Biological resources
Chris Blandford	Biological resources

APPENDIX E

PLAN AND PROFILE DRAWINGS OF THE LRT BUILD ALTERNATIVE, NOVEMBER 1, 2000

(Separate attachment)

APPENDIX F

PROPOSED PROPERTY ACQUISITIONS AND EASEMENTS FOR THE LRT BUILD ALTERNATIVE, SEPTEMBER 11, 2000

(Separate attachment)