

Los Angeles Eastside Corridor



Draft Supplemental Environmental Impact Statement/ Draft Subsequent Environmental Impact Report

Executive Summary

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U.S. Department of Transportation
Federal Transit Administration

Los Angeles County Metropolitan Transportation Authority



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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.

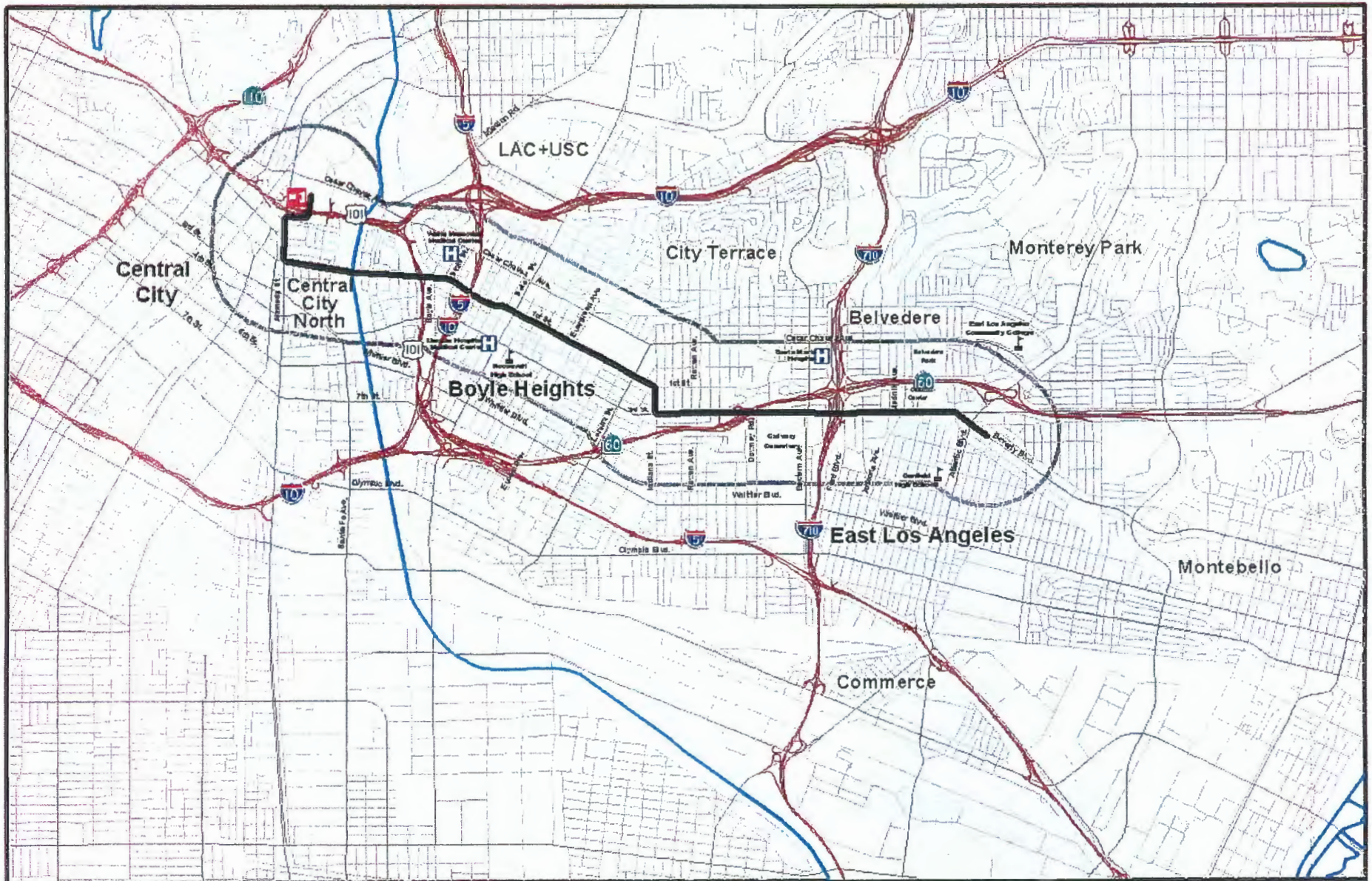
In 1994, the Metro Red Line Eastern Extension was selected as the Locally Preferred Alternative, and final design was begun on this project. The project was to be an extension of the heavy-rail Red Line subway system from Union Station to Whittier and Atlantic Boulevards through Boyle Heights and East 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

M Eastside Corridor
Transit Consultants

Note: Highways, primary, and secondary roads by Thomas
Bro. Map! through conditions 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.

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

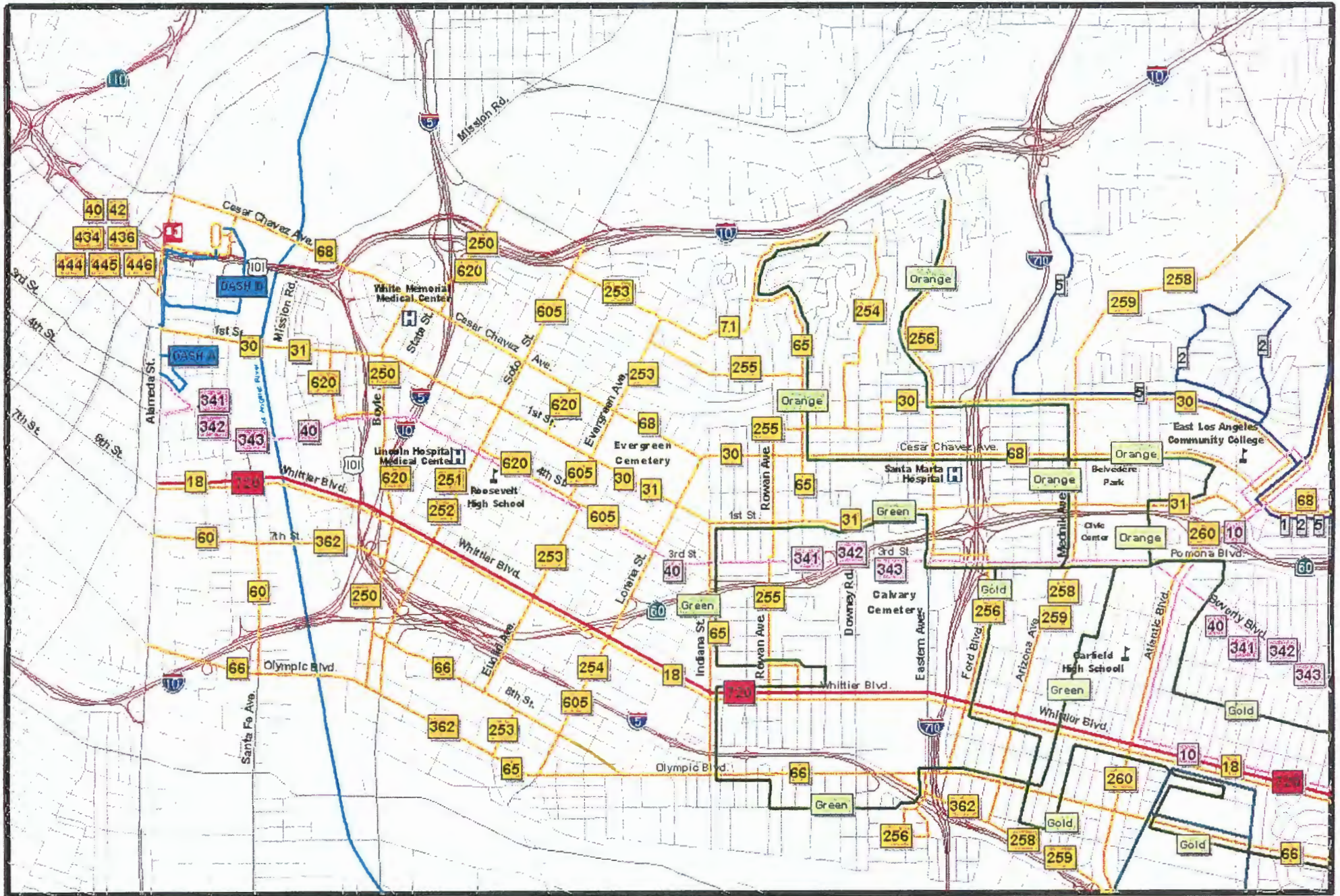
S.3.3.1 No-Build Alternative

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

**TABLE S-3
FREQUENCY OF WEEKDAY BUS TRANSIT SERVICE (IN MINUTES)**

Operator	Route	Destinations	Existing		No-Build		LRT Build		
			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 - 1 st /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 S-4
FREQUENCY OF WEEKDAY RAIL TRANSIT SERVICE (IN MINUTES)**

Operator	Route	Destinations	Existing		No-Build		LRT Build	
			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

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.

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.

S.3.3.2 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 S-3).

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 and discussed below. 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 also four proposed traction power substations along the six-mile route. They are located near the 1st/Alameda station in a parking lot, near the 1st/Lorena station on property owned by the MTA, near the SR60/3rd Street interchange on 3rd Street, and off 3rd Street near Woods Avenue in a parking lot. 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.

Bus Service

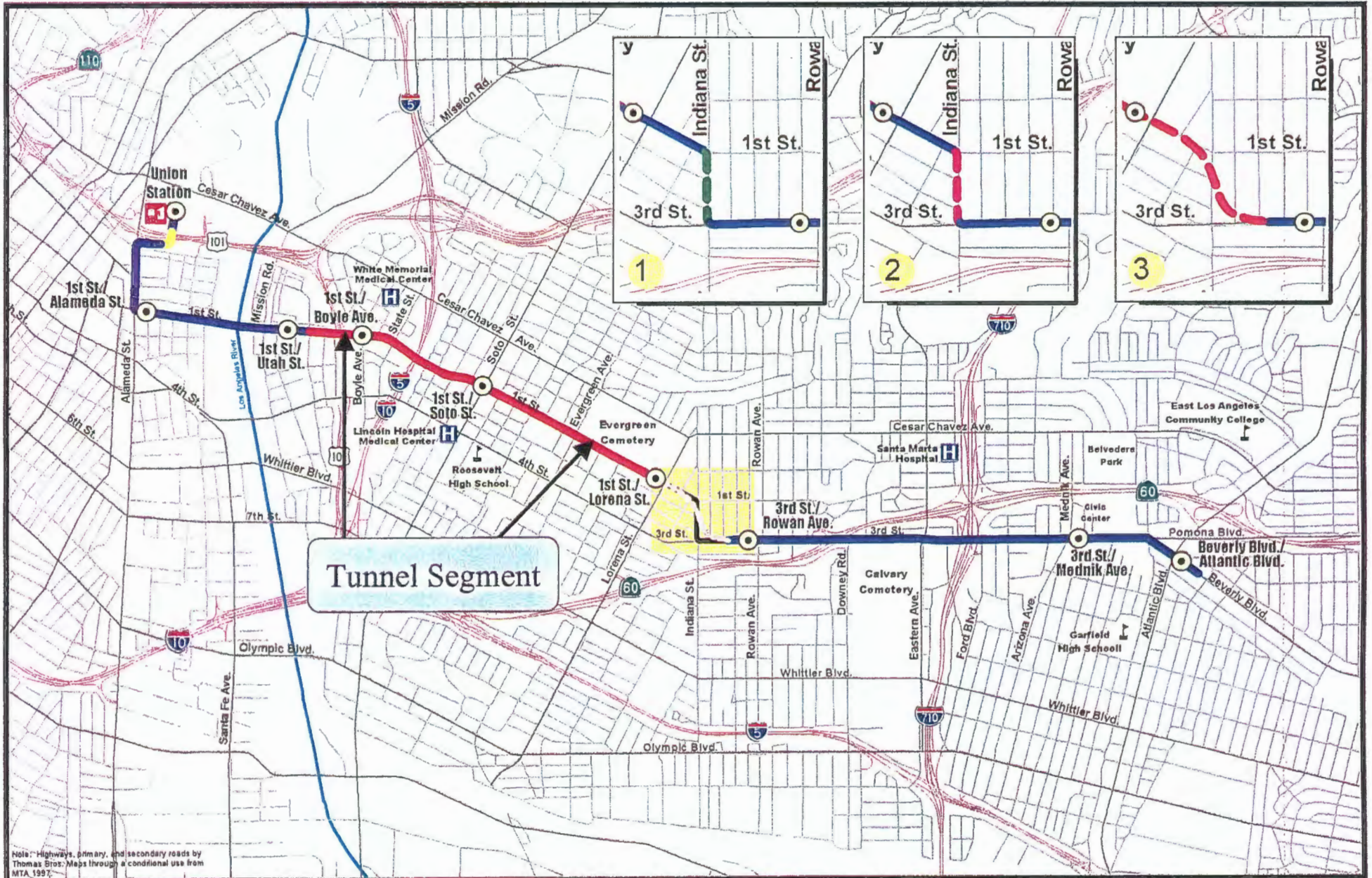
As a major component of implementing Light Rail Transit service in the Eastside Corridor, MTA has designed a corresponding increase in feeder bus and increased service to existing routes that would serve the LRT stations. Table S-3 shows the increase in service frequency as well as the addition of two routes (31A and 258A) expressly recommended to support the LRT Build Alternative. Increases in service are proposed for all 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.

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 S-4 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:

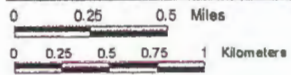
- ◆ MTA Line 65 to 3rd/Rowan Station via 3rd Street and Rowan Avenue
- ◆ MTA Line 530 to 1st/Soto Station via Soto and 1st Street
- ◆ MTA Line 620 to 1st/Utah Station via Utah Street
- ◆ Monterey Park Lines 1, 2 and 5 to Beverly/Atlantic Station via Atlantic Boulevard

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



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

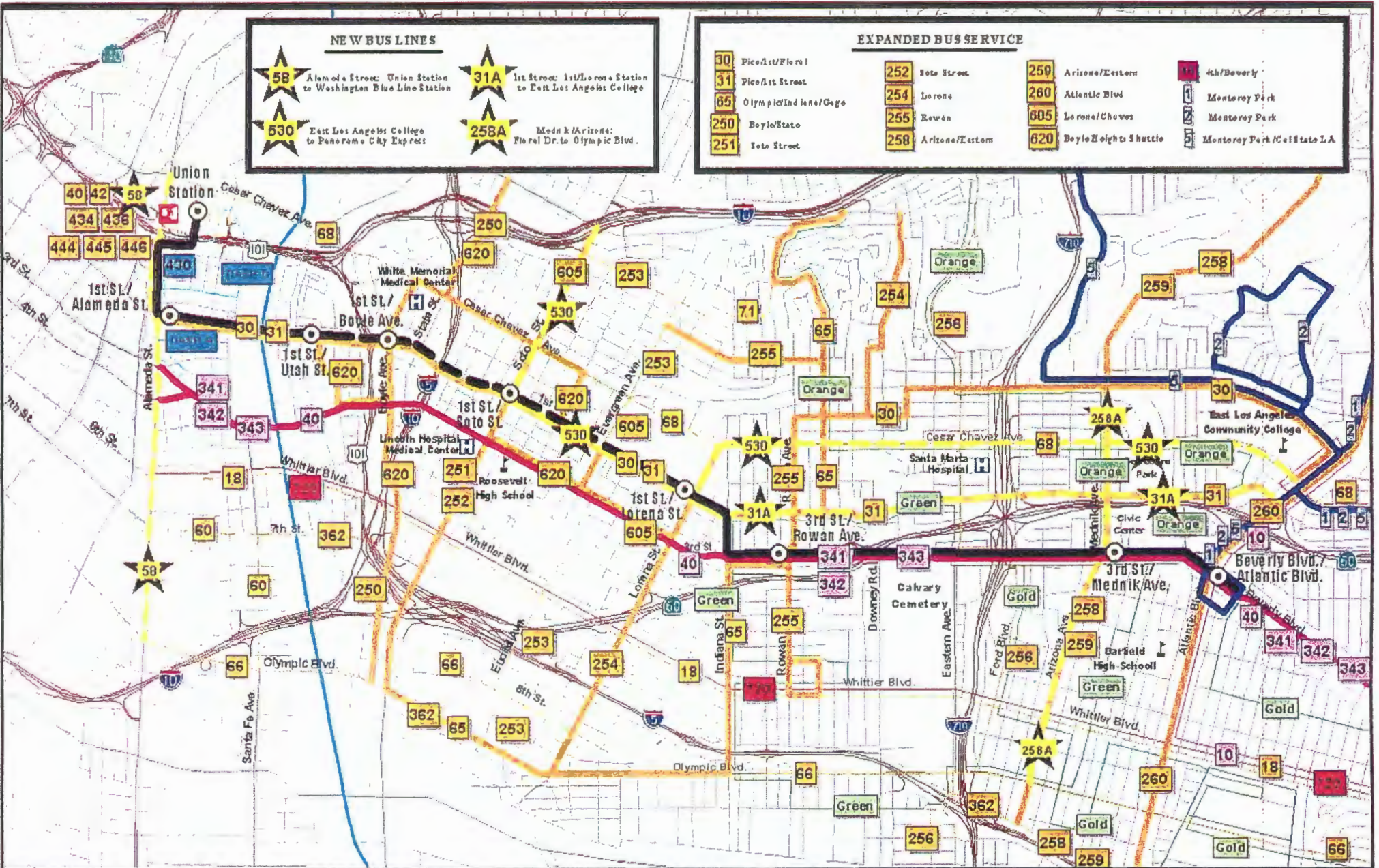


LEGEND

- 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

Los Angeles Eastside Corridor SEIS/SEIR

LRT Build Alternative



NEW BUS LINES	
58	Alameda Street: Union Station to Washington Blue Line Station
31A	1st Street: 1st/Lorena Station to East Los Angeles College
530	East Los Angeles College to Panoram City Express
258A	Mednik/Arizona: Floral Dr. to Olympic Blvd.

EXPANDED BUS SERVICE							
30	Pico/1st/Floral	252	Vote Street	259	Arizona/Eastern	40	4th/Beverly
31	Pico/1st Street	254	Lorena	260	Atlantic Blvd	10	Monterey Park
65	Olympic/Indiana/Cage	255	Rowan	605	Lorena/Chaves	12	Monterey Park
250	Boyle/State	258	Arizona/Eastern	620	Boyle Heights Shuttle	15	Monterey Park/California L.A.
251	Vote Street						

Eastside Corridor Transit Consultants



- LRT Alignment
- MTA Routes
- Metro Rapid Route
- Montebello Routes

LEGEND

- Monterey Park Routes
- LADOT Routes
- LA County Shuttle Routes
- Commerce (All Routes)

Los Angeles Eastside Corridor SEIS/SEIR

Modified Bus Route System With the LRT System

Year 2020

Figure S-4

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 S-5 shows the interface of bus lines at each station (except Union Station) along the alignment of the LRT Build Alternative.

Station	Operator	Line	Destinations
1 st /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
1 st /Utah	MTA	30 / 31	Mid City – East LA College
		620 (reroute)	LAC+USC – Boyle Heights
1 st /Boyle	MTA	30 / 31	Mid City – East LA College
		250	LAC+USC – Boyle/Olympic
		620	LAC+USC – Boyle Heights
1 st /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

Station	Operator	Line	Destinations
1 st /Lorena	MTA	30 / 31/31A 254 530 (reroute)	Mid City – East LA College LAC+USC – Willowbrook Panorama City – East LA College
3 rd /Rowan	Montebello MTA	40 65 (reroute) 255	Downtown LA – Whittier Downtown LA – CSULA Montecito Heights – East Los Angeles
3 rd /Mednik	Los Angeles County Montebello MTA	Gold Green Orange 40 258/258A 259	East Los Angeles East Los Angeles East Los Angeles – City Terrace – CSULA Downtown LA – Whittier El Sereno – South Gate Alhambra – South Gate
Beverly/Atlantic	Montebello Monterey Park MTA	10 40 341, 342, 343 1 (reroute) 2 (reroute) 5 (reroute) 260	East LA College – Pico Rivera Downtown LA – Whittier Downtown LA – Montebello Express Monterey Park Monterey Park Monterey Park – CSULA Altadena – Compton
Source: 1999-2000 MTA, Montebello, Monterey Park, Los Angeles County, and Commerce bus timetables; Parsons Brinckerhoff.			

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.

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 S-6 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 S-6
OPERATING PLAN – LRT BUILD ALTERNATIVE**

Station (A)	Station (B)	Options 1 and 2		Option 3	
		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	3 rd /Mednik	1.4	15.6	1.4	15.0
3 rd /Mednik	3 rd /Rowan	3.2	14.2	3.2	13.6
3 rd /Rowan	1 st /Lorena	2.0	11.0	1.4	10.4
1 st /Lorena	1 st /Soto	1.7	9.0	1.7	9.0
1 st /Soto	1 st /Boyle	1.3	7.3	1.3	7.3
1 st /Boyle	1 st /Utah	1.2	6.0	1.2	6.0
1 st /Utah	1 st /Alameda	2.1	4.8	2.1	4.8
1 st /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.

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.

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.

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.

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 S-5 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

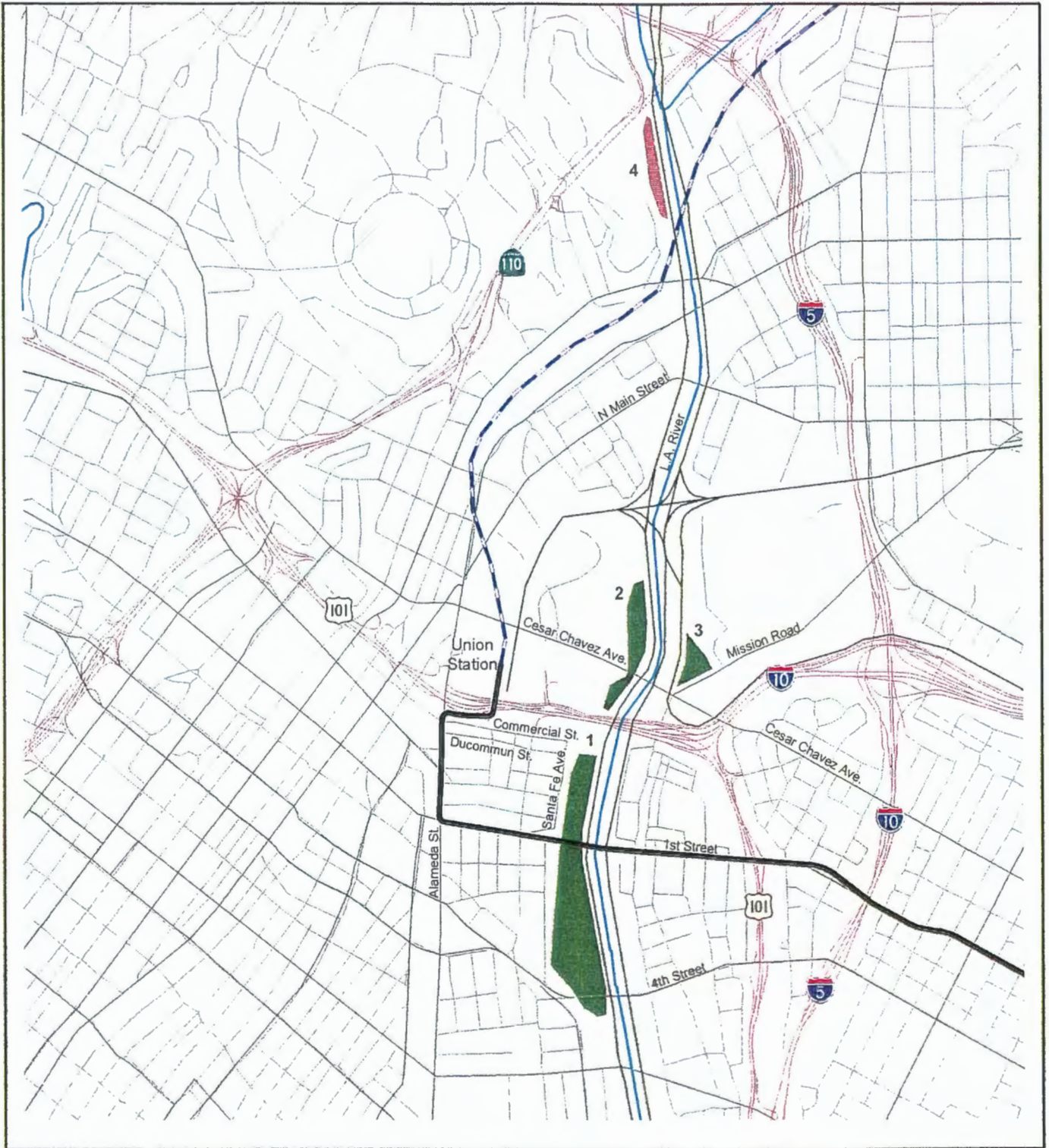
The purpose of the facility would be to perform routine maintenance and light repairs. All heavy repairs would require transporting the vehicles to the existing LRT repair facility located along the Long Beach Blue Line or else sending out components. The vehicles will be transported by lowbody flatbed 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 catenary and poles for the LRT. No additional rail would need to be constructed. No existing structures would be displaced.

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. The northern portion of the site (north of Macy Street or Chavez Avenue Bridge) is owned by MTA, and most of



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Transit Consultants

- 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)

LEGEND

- Pasadena Blue Line (PBL)
- Eastside Line (Extension of Pasadena Blue Line)
- Highway
- Primary Road
- Secondary Road
- Railroad



December 2000

Alternative Sites for Eastside Light Rail Maintenance and Storage Facility

Figure S-5

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.

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.

S.4 SUMMARY OF ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATIONS

Table S-7 summarizes by subject area the potential environmental impacts for the LRT Build Alternative along with its three transition options between 1st Street and 3rd Street (near Indiana Street). The mitigation measures are summarized in the table, and levels of significance for the potential environmental impacts under the California Environmental Quality Act (CEQA) are identified for both before and after the application of these mitigation measures.

A detailed discussion of these impacts, mitigation measures, and levels of significance under CEQA can be found in Chapters 3 and 4 of the Draft SEIS/SEIR.

Related to the Maintenance and Storage Facilities site options, Table S-8 summarizes the potential impacts of each site under consideration. The purpose of this assessment, as presented in Section 4.20 of the Draft SEIS/SEIR, is to provide decision makers a tool to help determine which of the sites is preferable for development. A 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.

**TABLE S-7
SUMMARY OF IMPACTS**

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

**TABLE S-7
SUMMARY OF IMPACTS**

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

**TABLE S-7
SUMMARY OF IMPACTS**

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

**TABLE S-7
SUMMARY OF IMPACTS**

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

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
	and temporary impacts during construction.			during construction and operations.
	VISUAL AND AESTHETICS			
No-Build	No impacts anticipated.			
LRT Build All options	<ul style="list-style-type: none"> Trackwork and catenary system would add to visual clutter already experienced in the vicinity of the 1st St. Bridge. 	Significant	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Demolition of a market adjacent to Mariachi Plaza would adversely affect the enclosing element of Mariachi Plaza. 	Significant	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> LRT vehicles traveling west on 3rd and then turning north on Indiana would shine their headlamps into adjacent residential areas. 	Significant	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Moderate noise impacts anticipated on 36 single-family, 29 multi-family, and 6 residential/commercial mixed units totaling 71 receptors. No severe impacts anticipated. <u>Ground-borne noise impacts</u> anticipated on 43 single-family, 12 multi-family, and 11 residential/commercial mixed units totaling 66 receptors. <u>Vibration impacts</u> anticipated on 60 single-family, 29 multi-family, and 3 residential/commercial mixed units, 2 museums, 	Noise- Not significant Ground-borne noise and vibration- Significant	<ul style="list-style-type: none"> 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 Significance	Mitigation Measures	CEQA Significance After Mitigation ²
Option 3	<ul style="list-style-type: none"> ◆ 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. <u>Ground-borne noise impacts</u> anticipated on 67 single-family, 20 multi-family, and 11 residential/commercial mixed units totaling 98 receptors. <u>Vibration impacts</u> anticipated on 26 single-family, 24 multi-family, and 3 residential/commercial mixed units, 2 museums, and the Veterans Clinic totaling 56 receptors. 		<p>fixation fasteners for embedded track and in underground subway tunnels; ballast mat for ballast and tie track; floating slab trackwork for either embedded or direct fixation track; and spring-loaded switch frogs or high resilience direct fixation fasteners for areas where impacts may be caused by cross-overs and switches.</p>	
GEOLOGIC/SEISMIC CONDITIONS				
No-Build	No impacts anticipated.			
LRT Build	<ul style="list-style-type: none"> ◆ Subsurface materials are predominantly corrosive to severely corrosive to metals and moderately deleterious to concrete. ◆ Shallow and perched groundwater may be encountered above design tunnel and station elevations. ◆ Project would be subject to significant ground motions during an earthquake. However, its relation to known active or potentially active faults indicates that the alignment is not exposed to a greater seismic risk than other sites in southern California. ◆ The Coyote Pass Escarpment is immediately adjacent to and parallels alignment in the vicinity of 1st/Soto. ◆ Local zones of potentially liquefiable layers may exist within and below tunnel envelope. ◆ Portions of alignment near the Los Angeles River and other localized areas may be subject to seismically-induced settlement due to densification of loose to medium-dense granular soils. 	<p>Potentially significant</p> <p>Potentially significant</p> <p>Potentially significant</p> <p>Potentially significant</p> <p>Potentially significant</p> <p>Potentially significant</p>	<ul style="list-style-type: none"> ◆ Use concrete resistant to moderate sulfate exposure and corrosion protection for metals where needed. ◆ Design tunnel liners and station walls and floors below groundwater for hydrostatic pressure. ◆ Structural elements will be designed to resist appropriate site-specific ground motions. ◆ Added ductility or other measures will be used in the design, if needed. ◆ Previous investigations in the vicinity reveal that potential for liquefaction is low to very low. Mitigation, such as soil improvement and/or special foundation systems, will be used if liquefiable soils are encountered. ◆ Soil improvement and/or special foundation systems will be used if needed. 	<p>Less than significant</p> <p>Less than significant</p> <p>Less than significant</p> <p>Less than significant</p> <p>Less than significant</p> <p>Less than significant</p>
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 Significance	Mitigation Measures	CEQA Significance After Mitigation ²
	WATER RESOURCES			
No-Build	No impacts anticipated.			
LRT Build	<ul style="list-style-type: none"> ◆ 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. ◆ Floodplain-No above or underground facilities would be located within the 100-year floodplain. ◆ Ground water-Dewatering activities and subsequent discharge may occur during operations. 	<p>Potentially significant</p> <p>No impact</p> <p>Potentially significant</p>	<ul style="list-style-type: none"> ◆ Any water entering tunnel structures and surface runoff from impervious areas will be treated before being discharged into the drainage system. Treatment methods will include oil/water separators with siltation basins. The appropriate permits will be acquired as needed. ◆ Any leaks into the tunnel would be pumped with a sump pump. The appropriate permits would be obtained as required. 	<p>Less than significant</p> <p>Less than significant</p>
	NATURAL RESOURCES AND ECOSYSTEMS			
No-Build	No impacts anticipated.			
LRT Build	No impacts anticipated.	No impact	None required.	N/A
	ENERGY			
No-Build	2020 annual energy consumption=172,096,668 barrels of oil	Not significant	None required.	
LRT Build	2020 annual energy consumption=172,124,128 barrels of oil	Not significant	None required. However, measures would be incorporated into the design of the LRT system to conserve energy.	N/A
	SAFETY AND SECURITY			
No-Build	No impacts anticipated.	N/A	N/A	N/A
LRT Build	<ul style="list-style-type: none"> ◆ There is a potential for collisions between LRT vehicles and automobiles and pedestrians. ◆ Patron safety could be an issue in the LRT vehicles and stations especially in the subway segment. ◆ Car thefts, robberies, vandalism, loitering, and other crimes have the potential to occur around stations and parking facilities and in the LRT vehicles. 	<p>Potentially significant</p> <p>Potentially significant</p> <p>Potentially significant</p>	<ul style="list-style-type: none"> ◆ MTA will work with the City and County traffic control depts. and also LAUSD to develop measures to minimize risks. A wide range of options are available and are discussed in the Safety and Security section of the Draft SEIS/SEIR. ◆ Underground stations will include fire alarm protection; minimum of 2 fire emergency routes; emergency ventilation and lighting; communications system between adjoining fire agencies; fire separations in public occupancy areas; and methane detection system for each station. ◆ MTA will work with the LAPD and the County Sheriff to establish plans similar to those in existence on other Metro rail lines. 	<p>Less than significant</p> <p>Less than significant</p> <p>Less than significant</p>

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
	<ul style="list-style-type: none"> ◆ Emergency vehicles may be delayed responding to an emergency not involving the LRT system. ◆ Emergency vehicles may be delayed responding to an emergency involving the LRT system. 	<p>Potentially significant</p> <p>Potentially Significant</p>	<p>Options include increased policing, and well-placed lighting and clear visibility of the station area from the street and sidewalk. Also, possibly procure one agency for the entire alignment, as done on existing Blue Line, to provide on-board security for the rail cars.</p> <ul style="list-style-type: none"> ◆ The LRT is in a tunnel in streets portions of the corridor; therefore, no effect is anticipated in those areas. ◆ MTA will work with all public safety agencies to ensure their concerns are addressed on planned changes in street or vehicle access. ◆ The facility will be designed with appropriate operating equipment, hardware, procedures and software subsystems to provide for protection of life and property. 	<p>Less than significant</p> <p>Less than significant</p> <p>Less than significant</p>
	<p>HISTORIC/ARCHAEOLOGICAL/PALEONTOLOGICAL RESOURCES</p>			
<p>No-Build</p>	<p>No impacts anticipated.</p>			
<p>LRT Build All options</p>	<ul style="list-style-type: none"> ◆ Ground disturbance during construction has an unknown effect on 3 known archaeological sites and 10 areas of high archaeological sensitivity. 	<p>Potentially significant</p>	<ul style="list-style-type: none"> ◆ 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. 	<p>Less than significant</p>
<p>All options</p>	<ul style="list-style-type: none"> ◆ 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. 	<p>Potentially significant</p>	<ul style="list-style-type: none"> ◆ 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. 	<p>Less than significant</p>
<p>All options</p>	<ul style="list-style-type: none"> ◆ 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. 	<p>Potentially significant</p>	<p>Measures would be taken to replicate the historic setting.</p>	

**TABLE S-7
SUMMARY OF IMPACTS**

Alternative ¹	Potential Environmental Impacts	CEQA Determination of Significance	Mitigation Measures	CEQA Significance After Mitigation ²
Option 2	<ul style="list-style-type: none"> Demolition of 5 buildings on Indiana St. will result in an adverse effect (preliminary determination). 	Potentially significant	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Paleontological resources could be disturbed in the tunnel portions of the alignment and also in the aerial segment near US 101. 	Potentially significant	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> More fossil-bearing strata may be encountered than under the other options because of the additional 0.6 miles of tunnel. 	Potentially significant	<ul style="list-style-type: none"> 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 All options	<ul style="list-style-type: none"> Increased access to nearby community facilities/parklands Potential noise and vibration impacts due to vent shaft and emergency ventilation fans near Mariachi Plaza will be attenuated through proper design. 	Beneficial Not significant	None required. None required.	N/A N/A
All options	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Students crossing LRT alignment to get to and from nearby schools has a potential for safety concerns. 	Potentially significant	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Parking losses near Ramona High School. 	Significant	<ul style="list-style-type: none"> MTA is committed to implementing a parking plan to replace parking. 	Less than significant

**TABLE S-7
SUMMARY OF IMPACTS**

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

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

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

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

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

S.5 FINANCIAL ANALYSIS AND EVALUATION

S.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.

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 \$)**

Cost Category	1999 Dollars in Millions			Year of Expenditure Dollars in Millions		
	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.

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.

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-off; 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.

Trip Origin	Hollywood/Highland		Wilshire/ Fairfax		1 st /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
3 rd /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:

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.

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

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.