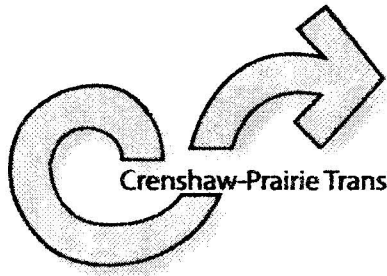
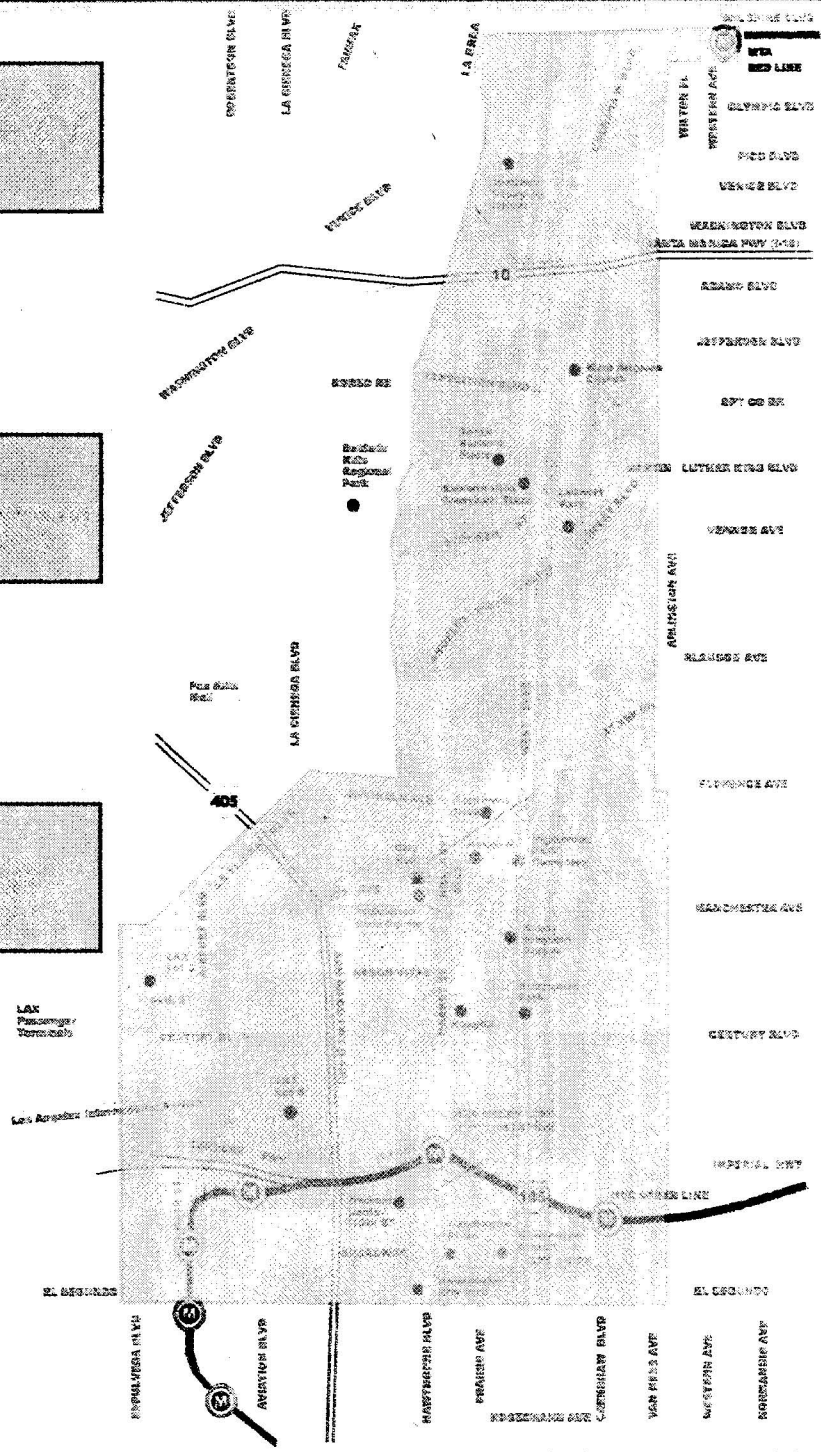


Final

Major Investment Study

January 2003



Crenshaw-Prairie Transit Corridor

Los Angeles County Metropolitan Transportation Authority

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**CRENSHAW-PRAIRIE CORRIDOR
MAJOR INVESTMENT STUDY**

Final Report

Prepared for the:

Los Angeles County Metropolitan
Transportation Authority

By:

KORVE/RAW, A Joint Venture

January 2003

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**Crenshaw-Prairie Corridor
Major Investment Study**

EXECUTIVE SUMMARY

S.0 EXECUTIVE SUMMARY

The Los Angeles County Metropolitan Transportation Authority (LACMTA) has undertaken a Major Investment Study (MIS) for the Crenshaw-Prairie Corridor, a north-south oriented travel corridor that covers portions of four cities – Los Angeles, Inglewood, Hawthorne and El Segundo. The purpose of the Crenshaw-Prairie Corridor MIS process was to conduct a thorough and comprehensive analysis of future transportation system improvements for this constrained and congested Corridor. The results of this MIS planning process are intended to assist decision makers in selecting the most effective solution, or phasing of solutions, to the transportation challenges identified in the Corridor within the context of local goals and objectives.

S.1 Purpose and Need

Over the past 35 years, the need for transportation improvements in the Crenshaw-Prairie Corridor has been established through a series of transportation plans and studies undertaken by the MTA and its predecessor agencies – the Southern California Rapid Transit District (SCRTD) and the Los Angeles County Transportation Commission (LACTC). Starting in 1967, the Crenshaw Corridor was included in the region's first rail system plan. In 1993, a *Preliminary Planning Study* was undertaken by MTA for the Crenshaw-Prairie Corridor that clearly identified the need for Corridor high-capacity transit system improvements. Completed in October 1994, the *Preliminary Planning Study* identified two viable transit service corridors with related modal options to be studied further. In 1996, MTA initiated the next phase of the corridor transportation planning process – a Crenshaw-Prairie Corridor Major Investment Study (MIS). In November 1997, changing MTA priorities called for the reconsideration of future improvements not already under construction, and a decision was made to defer completion of the MIS process and to instead prepare a Route Refinement Study (RRS) that would have a longer shelf life. The *Final Crenshaw-Prairie Corridor Route Refinement Study Report*, completed in December 2000, identified the need for and proposed a set of viable transportation alternatives for the Corridor.

Following the conclusion of the *Crenshaw-Prairie Route Refinement Study*, several new transportation services were implemented and studies completed which changed the planning and operational context of the Study Corridor. First, MTA discontinued consideration of the extension of Metro Red Line service to the vicinity of Venice and San Vicente Boulevards which had provided the northern terminus point for the rail alternatives considered in previous study efforts. Second, Metro Rapid service was successfully implemented on Wilshire and Whittier Boulevards from Santa Monica through Downtown Los Angeles and East Los Angeles to Montebello. Third, a *Mid-City/Westside Transit Corridor Major Investment Study* was completed and recommended the implementation of Bus Rapid Transit (BRT) service on Wilshire Boulevard and Light Rail Transit (LRT) service on the former Exposition Railroad right-of-way – providing new opportunities for interface with existing and future Crenshaw-Prairie Study Area transit services.

The Crenshaw-Prairie Corridor Major Investment Study (MIS) process was reinitiated in May 2001 with the overall objective to develop and assess a full range of transportation alternatives and identify a preferred strategy, or phasing of strategies, which addresses Corridor mobility needs and capacity requirements in the year 2025 and beyond, while being sensitive to community and environmental concerns.

Technical analysis completed in this MIS effort has clearly demonstrated that development of an effective multi-modal transportation network serving the Crenshaw-Prairie Corridor is necessary to meet the future mobility needs of residents and businesses by providing vital intra- and inter-corridor linkages and services. By the year 2025, the magnitude and nature of the Corridor's population, employment and transit dependency growth trends are projected to result in continuing transportation challenges in the

Corridor. All of the analytical efforts conducted for the Crenshaw-Prairie Corridor, including the previous study efforts and this MIS effort, strongly indicate the need for a significant investment for transit system improvements, as supported by the following key facts:

- **The Crenshaw-Prairie Corridor Houses a Major Set of Activity Centers and Destinations.**
As illustrated in Figure S.1, the Crenshaw-Prairie Corridor, covering portions of four cities (Los Angeles, Inglewood, Hawthorne and El Segundo), has a unique combination of regional and local destinations along with a diverse mix of single- and multi-family housing. This dense, mixed-use Study Area is home to a significant number of regional destinations including LAX and two entertainment venues – the Great Western Forum and Hollywood Park. It serves Corridor community civic centers located in Inglewood and Hawthorne, and a large number of shopping districts and centers including Koreatown, the Crenshaw District and Downtown Inglewood. The Corridor also has concentrations of office development along Wilshire Boulevard, in Downtown Inglewood and in El Segundo adjacent to the Metro Green Line.
- **The Corridor Has Weak Connections with the Regional Transportation System.**
The Study Area currently has weak connections to the regional transportation system, and there is no north-south high-capacity transportation connection within the Corridor, nor the western section of the regional transit system. This lack of transit infrastructure limits mobility and transportation choices. The Corridor's only available transit service – bus transit – is constrained in effectiveness and patron convenience by vehicular congestion. The lack of regional transportation system links will become more detrimental to future Corridor travel and economic development as Corridor population and employment continue to grow.

The Crenshaw-Prairie Corridor transportation improvement has the opportunity to play an important role in the regional transportation system by providing a missing service link. Currently, there is no north-south high-capacity connection west of Downtown Los Angeles and the I-110 Freeway – the Metro Blue Line is the only north-south connection in a growing network of east-west rail lines. A rail system connection operating on Crenshaw Boulevard would provide a much-needed second north-south link enhancing regional and Corridor connectivity, and lessening system operational impacts on the capacity at 7th/Metro Center.

- **Existing High Study Area Population and Employment Densities Support Transit.**
The Corridor's land use patterns result in high levels of residential and employment densities that are supportive of transit service. Current population densities within the Crenshaw-Prairie Corridor are approximately four times the average of the County's urbanized area. In the Mid-City subarea, the population density is more than five times the County's average. Reflecting the Corridor population densities, residential densities are also significantly higher than the urbanized area of the County. The Mid-City subarea has the highest residential density with more than five times the dwelling units per acre than the average of the County's urbanized area.

Employment densities within the Crenshaw-Prairie Corridor serve as indicators of the level of economic activity and strength within the Study Area, as well as its potential attractiveness as an employment destination and its future support for a high-capacity transit system. Based on the 2000 Census, the Corridor's employment density is over three times the urbanized Los Angeles County average. The highest employment densities within the Corridor occur in the LAX and Hawthorne subareas with densities ranging from more than five to ten times the County average.

- **The Study Area is forecast to Continue to Capture a Large Share of Regional Population and Employment Growth.**
By 2025, Crenshaw-Prairie Corridor population density was projected to increase by 47 percent – approximately eight times the growth forecast for the County's urbanized area. The Mid-City



**Crenshaw-Prairie Transportation Corridor
Major Investment Study**

**Figure S.1
Project Corridor and
Study Area**

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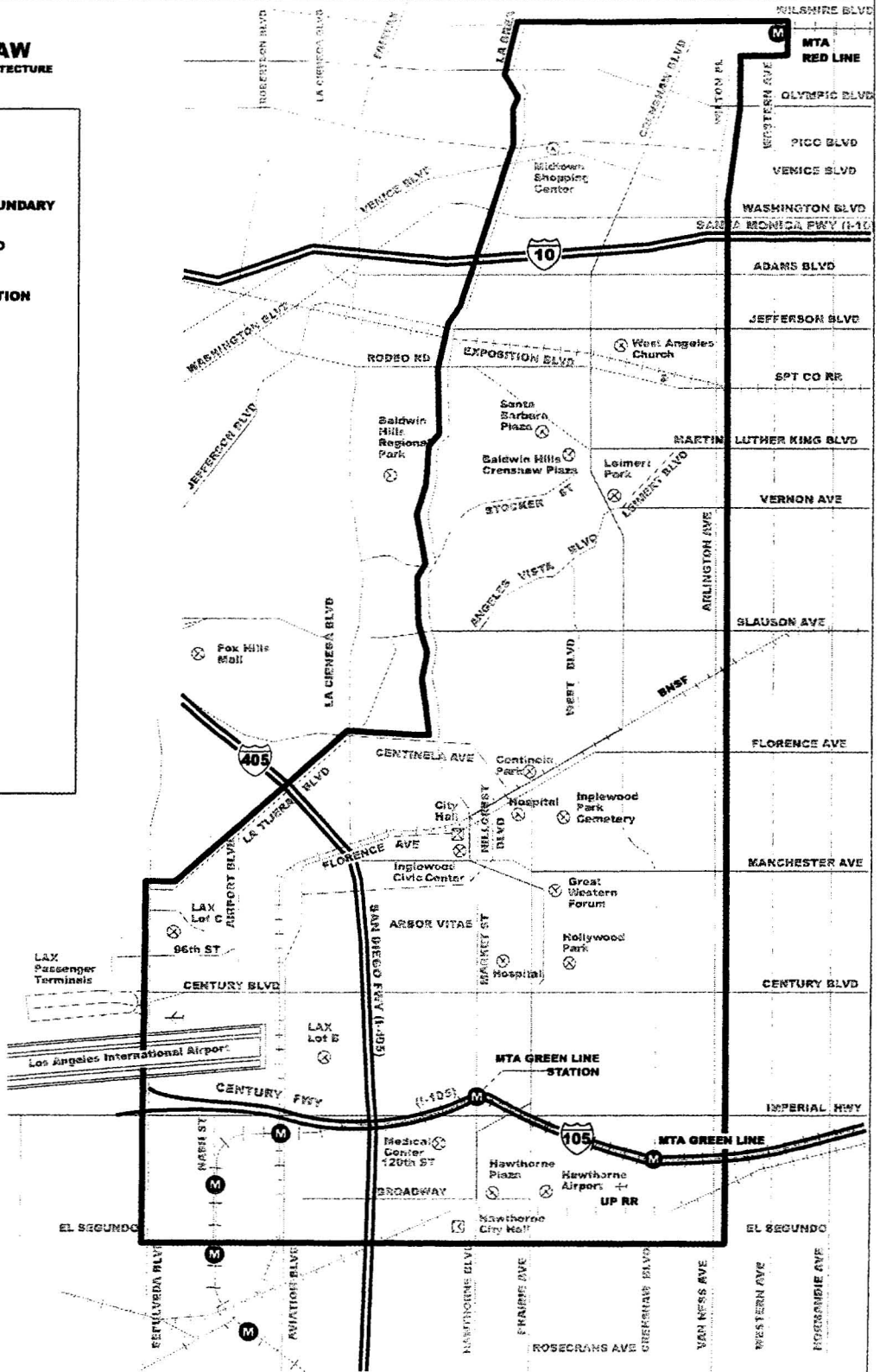
LEGEND

STUDY AREA BOUNDARY

**REGIONAL METRO
RAIL LINE**



METRO RAIL STATION



1/4 MI 1/2 MI

1 MI

2 MI

4 MI

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subarea was forecast to continue to be the densest portion of the Corridor with a population density of more than eleven times the urbanized County's density. Reflecting the forecast population change, the residential density was forecast to increase by 52 percent by year 2025. The Mid-City will continue to have a residential density more than ten times the urbanized County average.

Employment within the Corridor is expected to increase with a forecast 21 percent growth in jobs by the year 2025. All of the subareas, excluding LAX, will share in the job growth, with the Inglewood subarea forecast to have the most significant job growth with an increase in the current number of jobs by 86 percent. Corresponding to the Corridor's projected employment growth, the future employee density was forecast to be more than six times the estimated average density for the County's urbanized area. The highest and most significant employment density increase was forecast to occur in the Inglewood subarea. These future job projections do not reflect any LAX Master Plan revisions as these recommendations are currently being revised.

- **There is a Significant Transit Dependent Population in the Study Area.**
More than 49 percent of all Corridor households are designated as low income, with 56 percent identified as low income in the Crenshaw subarea. A Corridor-wide average of 16 percent of all households does not have access to an automobile, compared to eight percent in the County's urbanized area, with 19 percent having no auto access in the Crenshaw subarea. Forecasts show a growing transit-dependent population with a projected 55 percent increase in Corridor residents reliant on the Study Area's transit system.
- **There is a High Level of Transit Usage in the Study Area.**
The identified demographic indicators contribute to higher than average transit usage in the Crenshaw-Prairie Corridor. Currently, the County's urbanized area transit mode split is eight percent compared to 16 percent in the northern half of the Corridor and 11 percent in the southern portion. By the year 2015, estimates project a transit mode split increase to 27 percent in the northern portion of the Corridor – more than double the expected increase in the County's urbanized area to 11 percent. The transit mode split in the southern portion of the Corridor is forecast to increase to 16 percent – more than 50 percent higher than the countywide average.
- **The Current Corridor Transit System is Operating At-Capacity and with Slowing Speeds.**
Due to the Corridor's higher than average transit ridership – approximately double the mode split of the County's urbanized area. There is a high demand for and usage of the existing bus services. Also, bus service in the Crenshaw Corridor currently operates at 12.5 mph; MTA projections show an average system-wide bus operational speed of 10 mph in the year 2015.
- **There is a Demonstrated Need for Increased Corridor Transportation System Capacity.**
The MIS identified an increasing number of future trips with a forecast of more than 350,000 additional daily trips that will occur in the Corridor in the year 2015. Currently, 78 percent of the Corridor's freeway system operates at or below Level of Service (LOS) F during the morning peak period, with 92 percent of the system operating at or below LOS F in the evening peak period. During both peak periods, current travel demand exceeds the Corridor's arterial system capacity resulting in significant congestion and delay. Bus service in the Corridor is operating at- or over-capacity, and future projections show a significant increase in transit demand (55 percent) by the year 2015. The Corridor's congested freeway and arterial street system, as well as the heavily-utilized bus system, offer no additional capacity to accommodate the projected 19 percent increase in daily trips.

- **Corridor Residents Have Limited Travel Options.**
The ability to move quickly and efficiently in the Crenshaw-Prairie Corridor can also be expressed in terms of transportation system choice. Currently, Corridor travelers have a limited choice in travel options – auto or bus transit – circulating on the same congested street system. Existing traffic makes bus service slow and makes utilization undesirable to non-transit dependent residents. A multi-modal Corridor strategy and speed improvements to bus transit service would provide all local residents with more travel options.
- **The Region and the Corridor Have Continuing Air Quality Concerns**
The Corridor is located within the South Coast Air Basin – the airshed with the worst air quality in the nation. Mobile source emissions from vehicles are the single largest contributor to air quality problems in the basin. There is a demonstrated need to increase Crenshaw-Prairie Corridor transportation capacity to serve the forecast trip growth without increasing mobile source ozone emissions in this nonattainment area. Annual regional vehicle miles traveled (VMT) would decrease with implementation of both the BRT and LRT alternatives.

S.2 Alternatives Considered

During the first phase of the MIS process, an initial set of transportation alternatives was identified based on past study efforts and in consultation with the public, stakeholders, elected officials and city staff members. This set of options was screened through an evaluation and public outreach process to identify a Final Set of Alternatives of the most viable options to meet the identified goals and objectives for transportation improvements in the Study Corridor, which included the following five local goals identified by the Crenshaw-Prairie community:

1. Improve mobility within the Corridor.
2. Improve regional connections to and from the Corridor.
3. Meet the transportation needs of Corridor residents.
4. Act as a catalyst for economic development in the Corridor.
5. Stimulate revitalization of neighborhoods around station sites.

Based on the results of an extensive public and stakeholder outreach process and a fatal flaw level of technical and environmental analysis, a Final Set of Alternatives was identified for further conceptual level technical and environmental analysis. The Final Set of Alternatives for the Crenshaw-Prairie Corridor consisted of the No Build, Metro Rapid and two build alternatives – Bus Rapid Transit and Light Rail Transit.

No Build Alternative

The Corridor's No Build Alternative represented existing transit services, plus commitments outside of the Study Area as defined in MTA's adopted *2001 Long Range Transportation Plan*. The "no action" alternative was used as a baseline for assessing the effectiveness of the improvements proposed by each alternative. The transit network represented in the No Build Option included the existing alignments and operating schedules of the Metro Red, Blue and Green Lines, as well as the planned rail lines serving Pasadena, the Eastside, and the first phase of the Exposition LRT Line. Future year 2025 bus service was upgraded to represent a larger Countywide fleet size along with expansion of the Metro Rapid system.

Metro Rapid Alternative

The Metro Rapid Alternative evaluated added future transit improvements serving the Study Corridor as identified in MTA's adopted *2001 Long Range Transportation Plan*, the *Metro Rapid Five-Year Implementation Plan* (adopted by the MTA Board in September 2002), and this Study's initial screening process. This option included a grid plan of north-south and east-west Metro Rapid routes, and expanded



**Crenshaw-Prairie Transportation Corridor
Major Investment Study**

**Figure S.2
Baseline Alternative**

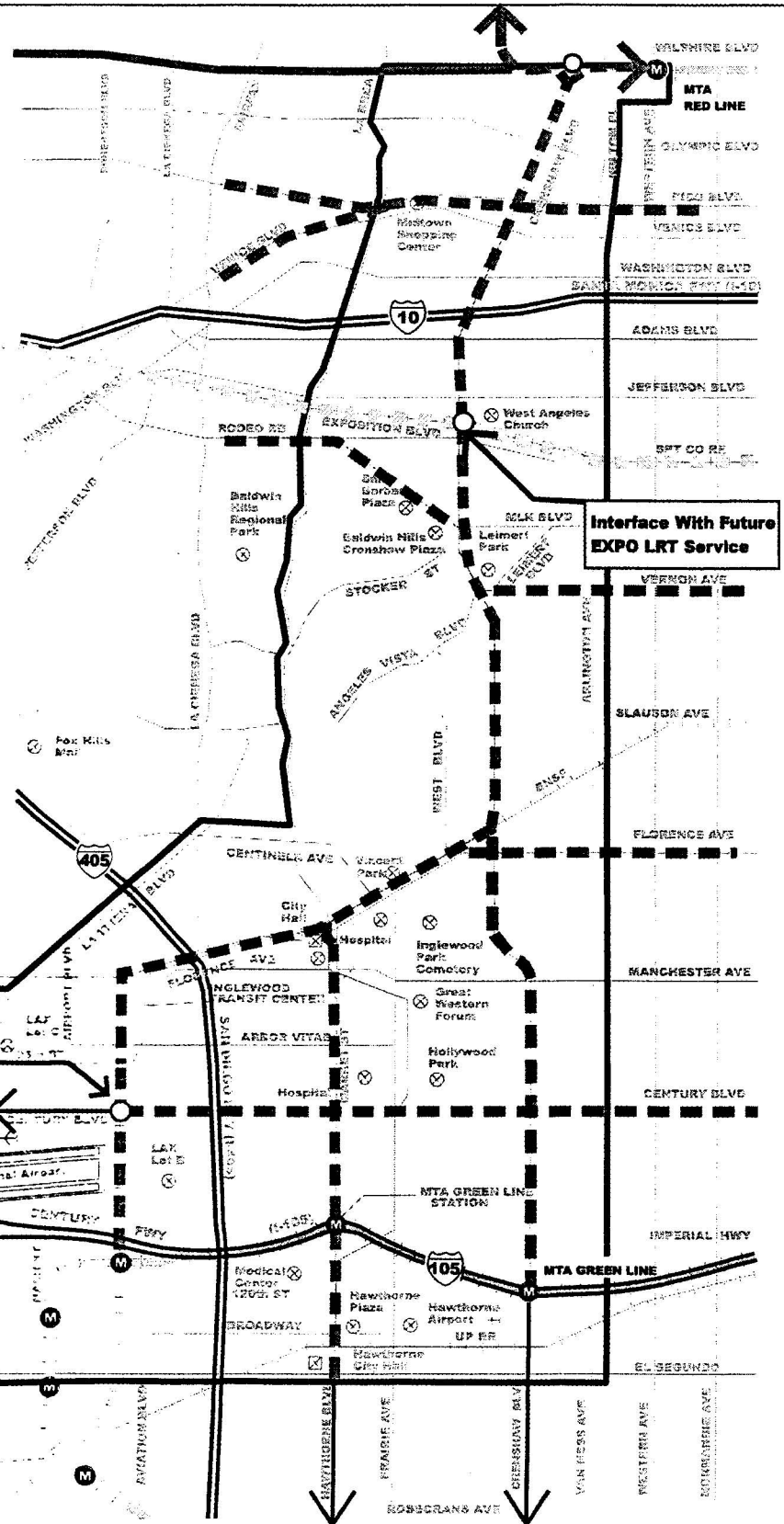
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**RAW
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LEGEND

- Study Area Boundary
- Regional Metro Rail Line
- Metro Rail Station
- Existing Metro Rapid Service
- Planned Future Metro Rapid Service (LRTP)
- Proposed Future Metro Rapid Service (MIS)
- Future LRT Service



Possible LAX International Transportation Center Interface With Future People Mover System



local circulator service. As presented in Figure S.2, Metro Rapid service was evaluated on the following Study Corridor service alignments:

1. ***Crenshaw/Rossmore/Metro Green Line*** – Operating south from the Metro Red Line Hollywood/Vine Station along Vine Street and then Rossmore Avenue to Wilshire Boulevard, south on Crenshaw Boulevard through Koreatown and the Crenshaw District to terminate at the Metro Green Line Crenshaw Station. This proposed service alignment would extend south beyond the Study Area boundaries to the South Bay Galleria.
2. ***Crenshaw/Wilshire-Western/Metro Green Line*** – Operating west from the Metro Red Line Wilshire/Western Station along Wilshire Boulevard, then south on Crenshaw Boulevard through Koreatown and the Crenshaw District where it would turn west on Florence Avenue through Downtown Inglewood and then south along Aviation Boulevard to interface with the proposed LAX Intermodal Transportation Center, and terminating at the Metro Green Line Aviation Station.
3. ***Florence/Hawthorne*** – Operating west on Florence Avenue from Downtown Los Angeles, turning south on La Brea Avenue in Downtown Inglewood, continuing on La Brea Avenue as it becomes Hawthorne Boulevard to interface with the Metro Green Line Hawthorne Station, and then terminate at El Segundo Boulevard in Downtown Hawthorne. This proposed service alignment would extend south beyond the Study Area boundaries to the South Bay Galleria.
4. ***Century*** – Operating west on Century Boulevard from southern Downtown Los Angeles to terminate at the proposed LAX Intermodal Transportation Center.
5. ***Vernon/La Cienega*** – Operating west on Vernon Avenue from southern Downtown Los Angeles, north on Crenshaw Boulevard to serve the Crenshaw District, west on Stocker Street and then north on La Cienega Boulevard.
6. ***Pico*** – Operating west on Pico Boulevard from Downtown Los Angeles to the Pico-Rimpau Transit Center located in the Mid-City area, and then continuing west on Pico Boulevard to West Los Angeles and Santa Monica.
7. ***Venice*** – Operating east on Venice Boulevard from Santa Monica and West Los Angeles to its termination at the Pico-Rimpau Transit Center located in the Mid-City area. Passengers wishing to travel further east to Downtown Los Angeles would transfer to the Pico Metro Rapid Line.

It should be noted that the MTA Board adopted a majority of the Metro Rapid lines discussed above and evaluated in this MIS effort in September 2002 as part of the *Metro Rapid Five-Year Implementation Plan* with the following changes:

- The Florence/Hawthorne Metro Rapid Line was broken into two implementation phases with Florence Avenue service falling within Phase IIA and Hawthorne Boulevard operations being initiated in Phase IIB.
- Venice Boulevard Metro Rapid service was deleted from consideration during the next five-year timeframe; service would continue to be provided by existing local and limited stop bus service.
- The adopted MTA Plan included Metro Rapid service on Manchester Boulevard, rather than along Century Boulevard, based on the existing heavy bus ridership along with the high number of destinations located along this service alignment.

Two future Metro Rapid lines studied in the Crenshaw-Prairie MIS were not included in the adopted *Metro Rapid Five-Year Implementation Plan*. Additional funding would need to be identified for the following two Corridor Metro Rapid lines not included in the adopted Metro Rapid Program:

- **Crenshaw/Wilshire-Western/Metro Green Line** – Designed to provide Corridor residents and regional travelers with no transfer service from the Metro Red Line Wilshire/Western Station through the Crenshaw District to LAX.
- **Century** – Planned to provide Corridor residents with direct access to employment destinations in the LAX area, and regional travelers with a direct connection to the proposed LAX Intermodal Center.

For the proposed local circulator service, two lines serving the Study Area, in addition to the Crenshaw DASH lines, were included in the Metro Rapid Alternative. The circulator lines were assumed at this level of analysis to serve: 1) the northern portion of the Corridor, and 2) the City of Inglewood. The exact routing will be determined with community input during any follow-on preliminary engineering phase.

Bus Rapid Transit Alternative

Bus Rapid Transit (BRT) was defined as bus service providing the full range of physical and operational attributes of Metro Rapid service with the addition of dedicated lane operations. This alternative would be operated by MTA under the service name of “Metro Rapid.” As presented in Figure S.3, BRT service was evaluated on the following Study Corridor service alignments:

1. **Crenshaw/LAX/Metro Green Line** – Operating south from Wilshire Boulevard Metro Rapid service on Crenshaw Boulevard through Koreatown and the Crenshaw District to the former BNSF Railroad right-of-way, along the right-of-way through Downtown Inglewood, then south to interface with the proposed LAX Intermodal Transportation Center, and terminating at the Metro Green Line Aviation Station.
2. **Crenshaw/Hawthorne** – Operating south from Wilshire Boulevard Metro Rapid service on Crenshaw Boulevard through Koreatown and the Crenshaw District to the former BNSF Railroad right-of-way, along the right-of-way to La Brea Avenue and south on La Brea Avenue through Downtown Inglewood, continuing south as La Brea Avenue becomes Hawthorne Boulevard, providing a transfer to the Metro Green Line at the Hawthorne Station, and terminating at El Segundo Boulevard in Downtown Hawthorne. This proposed service alignment would extend south beyond the Study Area boundaries to the South Bay Galleria.

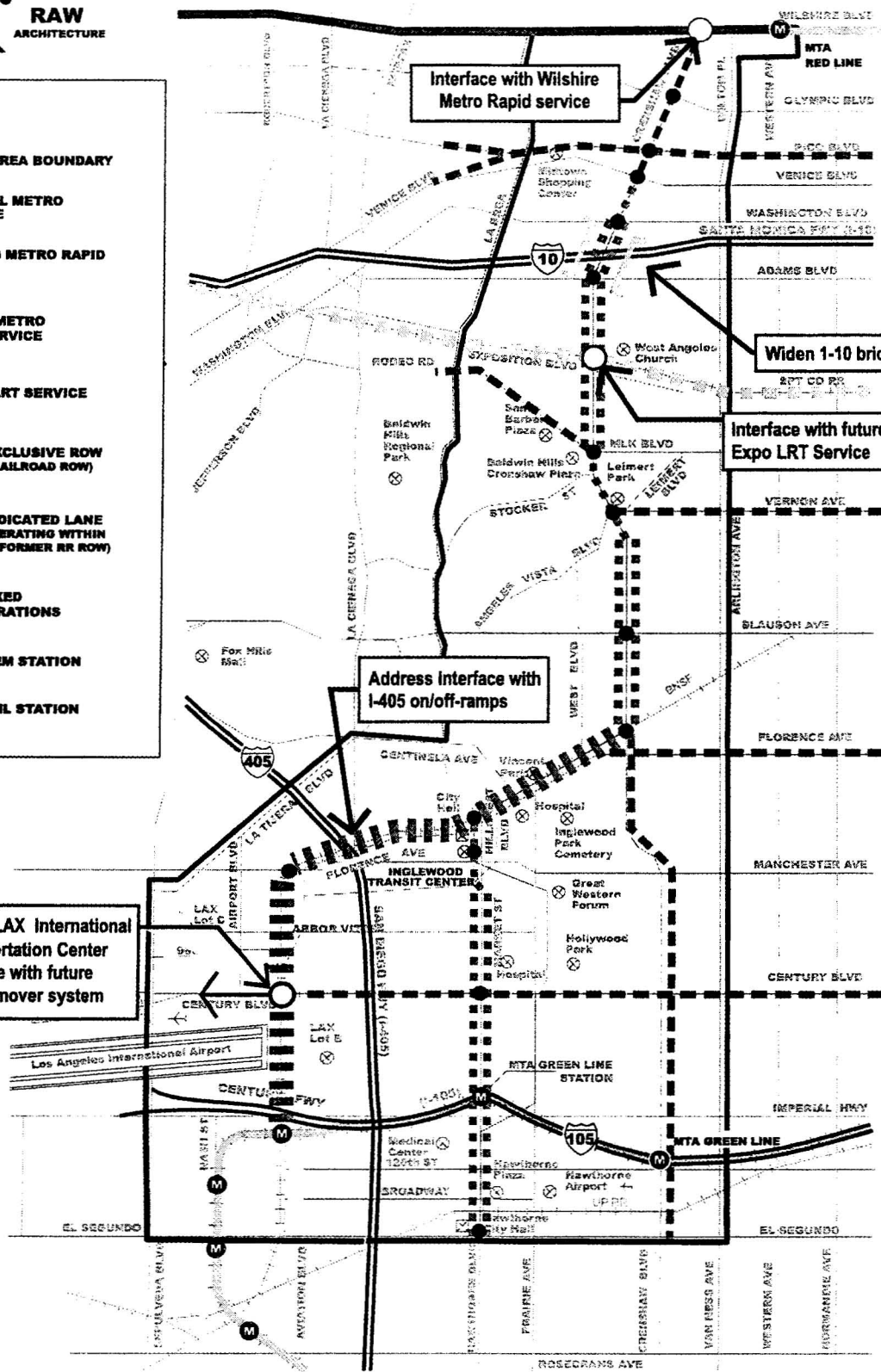
The Corridor BRT Alternative was evaluated as operating in three service configurations:

- **Mixed-flow operations** in constrained street locations;
- **Street dedicated lane operations** – peak period-only or 24-hour curbside dedicated lane operations where possible (median operations may be possible on Hawthorne Boulevard within the City of Hawthorne); and
- **Railroad right-of-way dedicated lane operations** on the former Burlington Northern-Santa Fe (BNSF) Railroad right-of-way now owned by the MTA.



LEGEND

- STUDY AREA BOUNDARY
- REGIONAL METRO RAIL LINE
- EXISTING METRO RAPID SERVICE
- FUTURE METRO RAPID SERVICE
- FUTURE LRT SERVICE
- BRT IN EXCLUSIVE ROW (FORMER RAILROAD ROW)
- BRT IN DEDICATED LANE (OPTION OPERATING WITHIN STREET OR FORMER RR ROW)
- BRT IN MIXED FLOW OPERATIONS
- BRT SYSTEM STATION
- METRO RAIL STATION



BRT service would operate in mixed-flow conditions with other vehicular traffic in the following sections of the Study Corridor:

- **Crenshaw Boulevard** – In the Northern and Mid-City sections between Wilshire and Washington Boulevards, and in the Crenshaw District between Martin Luther King, Jr. Boulevard and Vernon Avenue.
- **La Brea Avenue** – In Downtown Inglewood between the former BNSF Railroad right-of-way and Manchester Avenue.

A future decision to be made is whether the BRT dedicated lanes would operate only during peak periods or on a 24-hour basis. Peak period-only dedicated lane operations could be considered Phase I option with expansion to a longer timeframe with more analysis. This decision would be made based on more detailed analysis and working closely with the impacted city transportation departments – Los Angeles, Inglewood and Hawthorne, and possibly the County of Los Angeles. There would be no BRT impacts in the City of El Segundo.

Utilization of the former railroad right-of-way offers a unique opportunity for BRT service in the Crenshaw-Prairie Corridor by allowing 46 percent of the proposed Crenshaw/Metro Green Line Alignment Alternative to operate in a dedicated right-of-way minimizing traffic and parking impacts, while providing higher travel speeds for BRT patrons. Approximately 14 percent of the Crenshaw/Hawthorne Alignment Alternative would operate on the former railroad right-of-way.

Light Rail Transit (LRT) Alternative

Light Rail Transit (LRT) service, similar to the service currently operating on the Metro Blue and Green Lines, and under construction for the Pasadena and Eastside Gold Line, was studied for the Crenshaw-Prairie Corridor. As presented in Figure S.4, LRT service was evaluated on the following Study Corridor service alignments:

1. **Crenshaw/LAX/Metro Green Line** – Operating south from the future Exposition Light Rail Line in the median of Crenshaw Boulevard through the Crenshaw District to the former BNSF Railroad right-of-way, along the right-of-way through Downtown Inglewood, and then south to interface with the proposed LAX Intermodal Transportation Center and on to a direct service connection with the Metro Green Line at the Aviation Station.
2. **Crenshaw/Prairie/Hawthorne** – Operating south from the future Exposition Light Rail Line in the median of Crenshaw Boulevard through the Crenshaw District to the former BNSF Railroad right-of-way, along the right-of-way to Prairie Avenue and then south in the median of Prairie Avenue through Inglewood (past Daniel Freeman Hospital, the Forum and Hollywood Park) to approximately 111th Street and then west along the northside of the I-105 Freeway to accommodate a transfer to the Metro Green Line Hawthorne Station, south in the median of Hawthorne Boulevard and terminating at El Segundo Boulevard in Downtown Hawthorne.

During Initial Screening, extension of LRT service, either at-grade or in a subway configuration, north from the future Exposition LRT Line to Wilshire Boulevard connecting with a future Metro Red Line Wilshire/Crenshaw Station, was evaluated and removed from further consideration at this time due to significant environmental and operational impacts, which may be addressable in the future. In summary:

- **At-grade LRT operations** were precluded due to the severely constrained right-of-way width between Wilshire and Washington Boulevards which allows for only two travel lanes in each direction. While this is the same area where mixed-flow operations were proposed for the BRT

Alternative, there would be a greater resulting impact with LRT operations requiring an at-grade station along with tail or cross-over tracks to facilitate operations.

- **Subway LRT operations** were removed from consideration at this time due to concentrated subsurface hydrogen sulfite which precluded extension of the Metro Red Line south on Crenshaw Boulevard in the past. This issue may be resolvable in the future, but the technology currently does not exist to mitigate this major constraint.

Analysis was performed to evaluate ridership benefits and cost impacts of the future extension of Crenshaw LRT service north to Wilshire Boulevard. In addition, other future regional decisions would have an impact of the performance of the Crenshaw LRT Line. A conceptual analysis was performed considering extension of the Metro Red Line to a future Wilshire/Crenshaw Station, and extension of the Exposition LRT Line from its interim terminus within Culver City to its proposed western terminus within Santa Monica.

The Crenshaw-Prairie Corridor MIS effort evaluated an LRT alternative operating in a combination of the following five service configurations:

- **Dedicated median-running operations** within Corridor streets;
- **Mixed-flow operations** in constrained street locations;
- **Railroad right-of-way dedicated lane operations** on the former Burlington Northern-Santa Fe (BNSF) Railroad right-of-way now owned by the MTA in a primarily at-grade configuration with one grade separation proposed at Centinela Avenue;
- **Aerial operations** to interface with the Metro Green Line at the Aviation Station and the existing bridge crossing located at Century Boulevard/BNSF Railroad right-of-way;
- **Trench operations** along the railroad right-of-way at the end of the LAX runways approximately between 104th and 111th Streets.

LRT service would operate in mixed-flow conditions with other vehicular traffic in the following sections of the Study Corridor:

- **Crenshaw Boulevard** – In the Crenshaw District between Martin Luther King, Jr. Boulevard and Vernon Avenue; and
- **Prairie Avenue** – In Inglewood between the former BNSF Railroad right-of-way and 111th Street.

Utilization of the former railroad right-of-way offers a unique opportunity for LRT service in the Crenshaw-Prairie Corridor by allowing 63 percent of the proposed Crenshaw/Metro Green Line Alignment Alternative to operate in a dedicated right-of-way minimizing traffic and parking impacts, while providing higher travel speeds for LRT patrons. Approximately 17 percent of the Crenshaw/Hawthorne Alignment Alternative would operate on the former railroad right-of-way.

S.3 Evaluation Summary

The Final Set of Alternatives was evaluated through a conceptual technical and environmental setting analytical effort. This analysis was intended to provide the public and decision-makers with technical information to select the most viable transportation strategy, or phasing of strategies, which would serve



Crenshaw-Prairie Transportation Corridor Major Investment Study

Figure S.4

Light Rail Transit Alternative



LEGEND

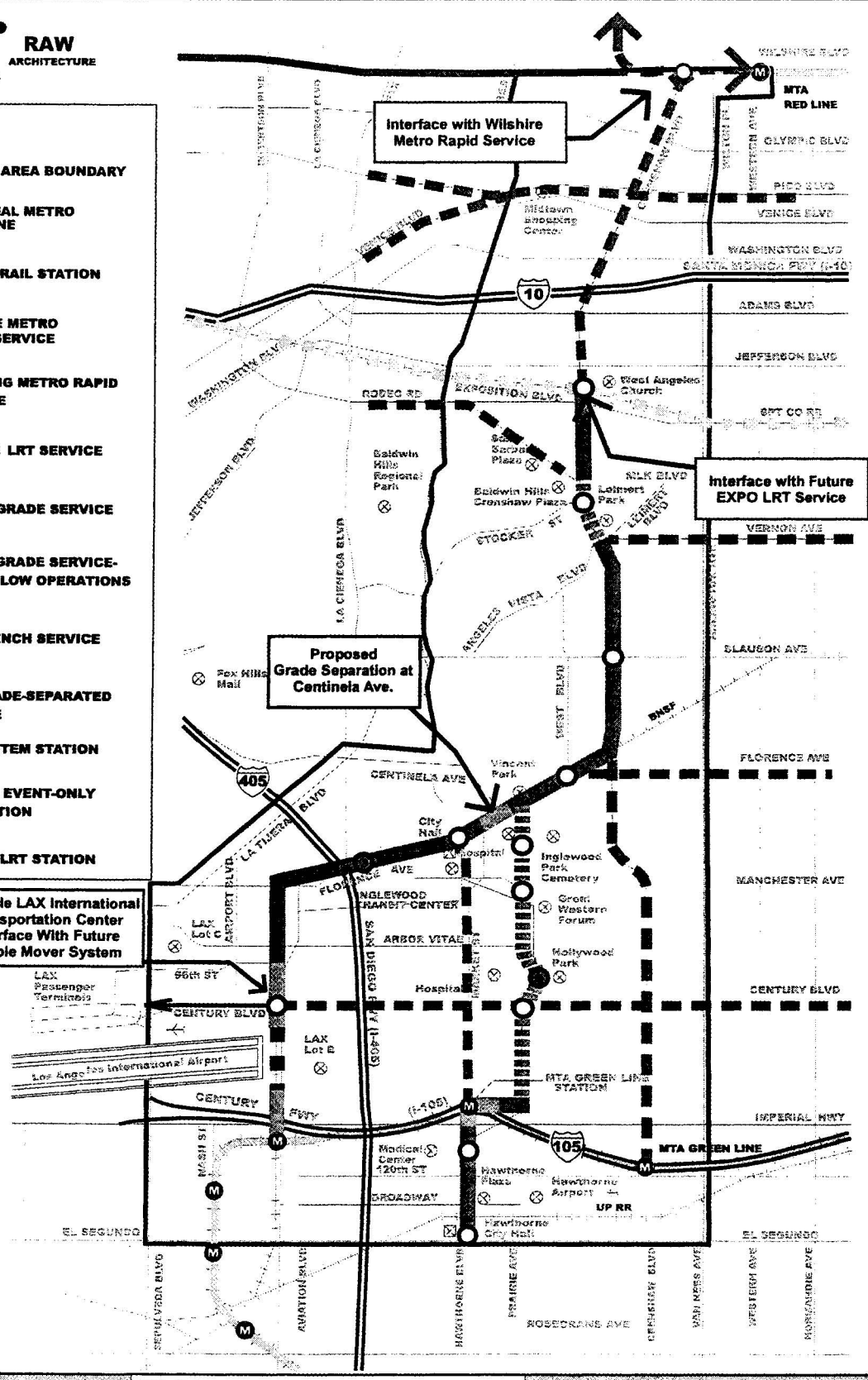
- STUDY AREA BOUNDARY
- REGIONAL METRO RAIL LINE
- METRO RAIL STATION
- FUTURE METRO RAPID SERVICE
- EXISTING METRO RAPID SERVICE
- FUTURE LRT SERVICE
- LRT AT-GRADE SERVICE
- LRT AT-GRADE SERVICE-MIXED FLOW OPERATIONS
- LRT TRENCH SERVICE
- LRT GRADE-SEPARATED SERVICE
- LRT SYSTEM STATION
- SPECIAL EVENT-ONLY LRT STATION
- FUTURE LRT STATION

Possible LAX International Transportation Center Interface With Future People Mover System

Interface with Wilshire Metro Rapid Service

Interface with Future EXPO LRT Service

Proposed Grade Separation at Centinela Ave.



Corridor mobility needs and capacity requirements in the year 2025 and beyond, while being sensitive to community, environmental and economic development concerns. A conceptual level of analysis identified a range of technical information for each of the MIS alternatives which is summarized below in Table S.1.

Table S.1: Summary of Technical Results

Alternative	Length (Miles)	Number of Stations	Daily Total Corridor Boardings	Daily New Riders Over No Build	Daily New Riders Over Metro Raid	Capital Cost (Millions)
Metro Rapid	28.2	TBD	37,000	13,400	--	\$17-28
BRT	13.5	19	46,900*	17,800	4,400	\$336-410
LRT	11.4	15	43,400*	21,800	8,400	\$775

* Corridor Boardings include the BRT or LRT line plus any continuous north-south Metro Rapid Service on Crenshaw Boulevard and Hawthorne Boulevard.

For the BRT Alternative, a range of conceptual level capital costs was identified for two project elements:

1. **Widening of the bridge over the I-10 Freeway to accommodate dedicated lane operations** – The on- and off-ramps at the current Crenshaw Boulevard crossing of the I-10 Freeway have been identified as possibly substandard and may require reengineering with associated property acquisition. The lower end of the range (\$2.9 million) identifies the cost to reconstruct the bridge to accommodate two additional travel lanes for dedicated BRT operations. The higher end of the range (\$40 million) begins to quantify the cost of a more extensive reconstruction of the ramps, along with possible associated property acquisition, and may be conservative.
2. **Conversion of the former BNSF Railroad right-of-way for bus operations** – The identified range of conceptual costs reflects three railroad right-of-way reuse options:
 - Freight rail operations removed permanently with conversion of the right-of-way solely to BRT operations;
 - Freight rail operations remain with BRT service operated through a temporal (time of day) separation agreement (e.g., BRT service would run 6:00 AM – 9:00 PM with freight rail operations between 9:01 PM – 5:59 AM); and
 - Freight rail operations retain full utilization of the right-of-way with BRT service operations occurring on adjacent Florence Avenue and Aviation Boulevard.

During any subsequent preliminary engineering efforts, system components and requirements would become more detailed in consultation with Caltrans, impacted jurisdictions and the BNSF Railroad as appropriate. Revised cost assessments would be prepared accordingly, and described in any subsequent future Environmental Impact Report/Environmental Impact Statement (EIR/EIS) efforts.

The above summary of technical results presents information about the alternatives on a system basis – that is each alternative represents two service branches forming a single system, but the decision may be made to implement only one service alignment of one or both of the alternatives. In summary, the BRT and LRT alternatives could be divided into the following two service branches:

- **Crenshaw/LAX/Metro Green Line** – Operating from Wilshire Boulevard (BRT) or the future Exposition LRT Line (LRT) south along Crenshaw Boulevard through Koreatown and the Crenshaw District to the former BNSF Railroad right-of-way, along the right-of-way through Downtown Inglewood, and then south to interface with the proposed LAX Intermodal Transportation Center and the Metro Green Line Aviation Station.
- **Crenshaw/Hawthorne** – Operating from Wilshire Boulevard (BRT) or the Exposition LRT Line (LRT) south along Crenshaw Boulevard to the former BNSF Railroad right-of-way. The BRT Alternative would then operate along the right-of-way to La Brea Avenue where it would turn south to run south along La Brea Avenue and then Hawthorne Boulevard. The LRT Alternative would operate along the right-of-way to Prairie Avenue where it would turn south to run in the median of Prairie Avenue, turning west to connect with the Metro Green Line Hawthorne Station and then turn south to operate in the median of Hawthorne Boulevard.

Under the BRT Alternative, either branch could be implemented as a first phase. Given the outstanding issue of freight rail operations on the BNSF Railroad right-of-way that may preclude BRT operations on an interim basis, a decision could be made to implement the Crenshaw/Hawthorne Branch first providing immediate BRT service south from Wilshire Boulevard to Koreatown, the Crenshaw District, Downtown Inglewood and Hawthorne, with connections with the Red Line in the north and the Green Line in the south. For the LRT Option, a decision could be made to proceed first with the Crenshaw/LAX/Metro Green Line Branch, while deferring implementation of the Crenshaw/Prairie/Hawthorne Branch. If the Crenshaw LRT Line is operated as a northern extension of the Metro Green Line, the Crenshaw/Metro Green Line Branch would provide a direct Green Line service connection from an existing system component (Y-connector) that was constructed to allow for the future northern extension of the Green Line.

In addition, an interim BRT System Alternative has been identified and conceptual capital cost developed. This alternative calls for BRT dedicated lane service during peak periods only with signage and striping improvements only made – no curb lane gutter and pavement improvements would be made. If this lower cost option appears viable, expansion to a 24-hour basis with pavement improvements could be made at a future time. This decision would be made based on more detailed analysis and working closely with the impacted city transportation departments – Los Angeles, Inglewood and Hawthorne, and possibly the County of Los Angeles. There would be no BRT impacts in the City of El Segundo.

Table S.2 below presents an overview of conceptual capital costs and related technical information for each service option of the BRT and LRT alternatives.

Table S.2: Detailed Summary of Technical Results

Alternative	Length (Miles)	Number of Stations	Daily Corridor Boardings	Capital Cost (Millions)	Notes
BRT System					
• Interim BRT System	11.0	16	--	\$1-7	Peak period-only dedicated lane operations
• Crenshaw/LAX/Metro Green Line Alignment	10.2	15	31,815	\$253-327	Without La Brea/Hawthorne BRT service
• Crenshaw/Hawthorne Alignment	11.0	16	29,850	\$248-300	Without railroad right-of-way to LAX service
LRT System					
• Crenshaw/LAX/Metro Green Line Alignment	7.0	8	38,455	\$476	Without Prairie/Hawthorne LRT service
• Crenshaw/Prairie/Hawthorne Alignment	8.5	12	24,045	\$578	Without railroad right-of-way to LAX service

Table S.3 presents an overview of the environmental and community impacts that would be expected with the implementation of each of the alternatives under study. The possible impacts fall primarily in the following categories:

Table S.3: Summary of Environmental and Community Impacts

Option	Environmental and Community Impacts	Traffic and Parking Impacts
Metro Rapid	<ul style="list-style-type: none"> • Noise and air pollution from increased bus service 	<ul style="list-style-type: none"> • Minor impacts on functioning of arterial system from increased bus service • Impacts to right turn movements • Some increased delay and congestion due to additional signal green time for buses • Possible impacts between increased number of transit vehicles and pedestrians/bicyclists
BRT	<ul style="list-style-type: none"> • Construction impacts: short-term traffic disruptions, noise and air pollution • Potential impacts to historically or culturally significant resources within the Crenshaw District • Noise and vibration from increased bus service • Potential air pollution “hot spots” at certain intersections • Limited acquisitions of property for dedicated bus lane space 	<ul style="list-style-type: none"> • Loss of travel lane in each direction between Crenshaw/Washington and Crenshaw/MLK, Crenshaw/Vernon and Crenshaw/Railroad right-of-way • Loss of travel lane in each direction on La Brea/Hawthorne between Manchester and I-105 Freeway • Loss of median in Hawthorne Boulevard or travel lane between I-105 Freeway and El Segundo Boulevard • Minor loss of peak period on-street parking on one or both sides at locations along Crenshaw Boulevard (20% of street) • Significant loss of peak period on-street parking on one or both sides at locations along La Brea/Hawthorne (76% of street) • Possible impacts between increased number of transit vehicles and pedestrians/bicyclists
LRT	<ul style="list-style-type: none"> • Construction impacts: short-term traffic disruptions, noise and air pollution • Potential impacts to historically or culturally significant resources within the Crenshaw District • Noise and vibration from train service • Potential air pollution “hot spots” at certain intersections • Limited acquisitions of property for required rail right-of-way space 	<ul style="list-style-type: none"> • Loss of travel lane in each direction between Crenshaw/Exposition and Crenshaw/MLK, Crenshaw/Vernon and Crenshaw/Railroad right-of-way • Loss of a travel lane in one direction on Prairie Avenue • Loss of median on Hawthorne Boulevard between I-105 Freeway and El Segundo Boulevard • Permanent loss of on-street parking on one or both sides at locations along Crenshaw (50%) • Permanent loss of on-street parking on one side at locations along Prairie Avenue (43%) • Possible impacts between increased number of transit vehicles and pedestrians/bicyclists • Need to prevent pedestrian crossing of LRT tracks except at designated, protected locations

Public meetings were held throughout the Study Corridor from July through October 2001. Feedback was received through public comment at these meetings, personal contacts with individual stakeholders, calls to the hot line, completion of surveys and letters written by stakeholder groups. Table S.4 provides a summary of the public comments received regarding the transit alternatives presented to the public during initial screening and final outreach.

Table S.4: Summary of Public Comments

Option	Public Comments
Metro Rapid	<p>Initial Screening:</p> <ul style="list-style-type: none"> • Implementation of Metro Rapid service was positively received by the Corridor communities. • Many community members made supportive comments about the existing Metro Rapid service, and were in favor of seeing this system expanded within the Study Corridor. • This alternative consistently ranked very high in the surveys and received many first place rankings from participants. Overall it was ranked second among the modal options presented.
BRT	<p>Initial Screening:</p> <ul style="list-style-type: none"> • The BRT Alternative was the most difficult for people to understand due to a lack of personal experience with this type of system. • This alternative consistently ranked third behind the LRT and Metro Rapid options. • Concerns with the BRT option included: impacts to traffic capacity and loss of curbside parking, potential property takes, construction impacts, and capital and operating costs. The community strongly felt that these impacts should be addressed with a comprehensive mitigation program developed in consultation with the public.
LRT	<p>Initial Screening:</p> <ul style="list-style-type: none"> • The LRT Alternative was favored by community members due to perceived high level of service frequency, speed and reliability. Another attractive factor was the ability to have direct connections with the regional rail system, thereby providing the best option for regional connectivity. Other positive comments received were that a rail system virtually cuts emissions and can operate at reduced costs when compared to buses. • The LRT Alternative was consistently ranked first or second by most individuals, and overall was the popular option. • Concerns with the LRT option included: impacts to traffic capacity and loss of curbside parking, potential property takes, construction and safety impacts, increased noise during operations and the higher cost to build. The community strongly felt that these impacts should be addressed with a comprehensive mitigation program developed in consultation with the public.
	<p>Final Outreach (conducted in December 2002)</p> <ul style="list-style-type: none"> • The public was receptive to the idea of implementing a Phased Transit Improvement approach along the corridor.

S.4 Findings and Next Steps

The Metro Rapid Alternative – with a north-south and east-west grid system of Corridor Metro Rapid service – attracts and serves a significant increase in total daily boardings and daily new transit riders. This proposed system of frequent, high-speed bus service routes was projected to attract approximately 28,000 additional daily boardings and 13,400 daily new transit riders over No Build conditions. At this time, the Metro Rapid Alternative appears to be the most viable and cost-effective alternative and should be implemented as quickly as possible.

The two proposed additional Metro Rapid Lines – not funded by the adopted *Five-Year Metro Rapid Program* – are forecast to attract and serve a substantial number of riders, particularly the proposed line operating from the Metro Red Line Wilshire-Western Station to LAX. The Century Boulevard Line is proposed to serve the proposed LAX Intermodal Center and when the location of that facility is finalized, should be considered. These two lines merit further evaluation for future implementation.

The need for streetscape improvements to enhance transit usage was identified frequently by the community and impacted public agencies and would further enhance the attraction for both transit-reliant and choice riders. An effort should be made to work with local jurisdictions to secure funding for related streetscape improvements.

The BRT and LRT alternatives are viable future options, as there is a demonstrated need for future high-capacity transit service operating in the Corridor in a dedicated right-of-way to ensure faster travel times that are more competitive with the private automobile. At this time, the analysis shows a significant level of ridership attracted to and served by each of these alternatives, but the number of riders is offset by the high cost for both of these alternatives. These alternatives should be considered further in the future.

In the near term, the implementation of Metro Rapid lines already approved by the MTA Board is expected to achieve significant benefits in this corridor. Incremental enhancements to improve the capacity and speed of these lines should be pursued. The primary enhancements would include: working with local jurisdictions to get peak hour bus only lanes; initiating discussions with BNSF for use of the R/R right-of-way; use of articulated buses; and enhanced Metro Rapid stops.

**Crenshaw-Prairie Corridor
Major Investment Study**

1.0 PURPOSE AND NEED

1.0 PURPOSE AND NEED FOR ACTION

The Los Angeles County Metropolitan Transportation Authority (MTA) has undertaken a Major Investment Study (MIS) for the Crenshaw-Prairie Corridor, a north-south oriented travel corridor that covers portions of four cities within Los Angeles County. The purpose of the Crenshaw-Prairie Corridor MIS process was to conduct a thorough and comprehensive analysis of future transportation system improvements for this constrained and congested Study Corridor. The results of this MIS planning process will assist decision makers in selecting the most effective transportation improvement strategy, or phasing of strategies, to the mobility problems identified in the Corridor in the context of local goals and objectives.

1.1 Corridor Description

The Crenshaw-Prairie Corridor is an approximately ten-mile long, north-south oriented corridor that covers portions of four cities – Los Angeles, Inglewood, Hawthorne and El Segundo. The Corridor runs from the Park Mile area of Los Angeles on the north, south to Downtown Hawthorne and west through Downtown Inglewood to the Los Angeles World Airport and El Segundo area. The Study Corridor boundaries have been expanded from those of previous study efforts to reflect a connection north to existing and future transit services on Wilshire Boulevard, and to evaluate possible impacts and benefits to the El Segundo area. As illustrated in Figure 1.1, the approximate limits of the Crenshaw-Prairie Corridor Study Area north from Florence Avenue are:

- Wilshire Boulevard in the north;
- Wilton Place/Arlington Avenue in the east; and
- La Brea Avenue in the west.

South from Florence Avenue the Study Area boundaries are:

- La Tijera Boulevard/Centinela Avenue in the northwest;
- Van Ness Avenue in the east;
- El Segundo Boulevard on the south; and
- Sepulveda Boulevard in the west.

The Corridor's key activity, employment and transportation destinations as shown in Figure 1.2 on a following page include:

- A major regional transportation facility with related employment destinations – Los Angeles World Airport;
- Two regional entertainment venues – the Great Western Forum and Hollywood Park;
- Two civic centers – Downtown Inglewood and Hawthorne;
- Three concentrations of major office development – Wilshire Boulevard, Downtown Inglewood and El Segundo;
- Four major shopping centers – the Mid-Town Shopping Center, Baldwin Hills/Crenshaw Plaza, Santa Barbara Plaza and the former Hawthorne Plaza;
- Two regional parks – Leimert Park and Edward Vincent Park;
- Three major hospitals – Daniel Freeman Memorial Hospital, Centinela Hospital and Robert F. Kennedy Medical Center;
- Two major churches – West Angeles Church and Faithful Central Bible Church (now housed in the Forum); and
- One air force base – the Los Angeles Air Force Base in El Segundo.

Major Crenshaw-Prairie Corridor transportation facilities include:

- Los Angeles World Airport – commonly known as LAX;
- Three freeways – the I-10/Santa Monica Freeway, the I-105/Century Freeway and the I-405 San Diego Freeway; and
- Three regional rail transit lines – the existing Metro Green and Metro Red Lines, and the future Exposition Light Rail Line.

The Crenshaw-Prairie Corridor Study Area contains the following seven major subareas as illustrated in Figure 1.3 on a following page:

- **Northern Area** – This portion of the Corridor extends south from Wilshire Boulevard to Olympic Boulevard. Metro Rapid Bus service currently operates along Wilshire Boulevard running west to Santa Monica and east to Whittier Boulevard serving East Los Angeles and Montebello. The Hancock Park residential neighborhood is located immediately north of Wilshire Boulevard. The Park Mile area along Wilshire Boulevard contains a mix of commercial uses including low- to mid-rise office buildings and apartment buildings, cultural resources such as the Ebell Theater, and the historic Wilshire United Methodist Church. Residential and local community commercial uses are located along Crenshaw Boulevard between Wilshire and Olympic Boulevards.
- **Mid-City Area** – This portion of the Corridor extends south from Olympic Boulevard to Adams Boulevard. A future regional bus interface facility is under construction in the Mid-City area that will serve MTA, Santa Monica, Culver City and Torrance Transit buses. This subarea is primarily single-family residential with some duplex development, and includes several historic neighborhoods including Country Club Park, Victoria Park, Lafayette Square and Longwood Heights. The Mid-City subarea contains the Mid-Town Shopping Center and some adjacent local commercial uses along Pico Boulevard. New commercial development, including several big box uses, is planned for the property at Pico-San Vicente Boulevards.
- **Crenshaw Area** – The next segment of the Corridor extends south between Adams Boulevard and Slauson Avenue. Major land uses in this subarea include the Baldwin Hills/Crenshaw Plaza Shopping Center and the Santa Barbara Plaza Shopping Center. This segment also contains the Leimert Park area, which in recent years has become a focal point of the African-American community in Los Angeles. In the Leimert Park area, Crenshaw Boulevard is lined with many restaurants, clubs and art galleries creating an active pedestrian environment. Stable residential neighborhoods are located on both sides of the commercially-active Crenshaw Boulevard.
- **Inglewood Area** – The Inglewood portion of the Corridor extends south along Crenshaw Boulevard from Slauson Avenue to south of Florence Avenue. This subarea contains the Inglewood Civic Center and adjacent commercial uses, as well as the Forum, Hollywood Park, the Daniel Freeman Memorial Hospital, the Centinela Hospital, Inglewood Park Cemetery and St. Mary's Academy. Market Street has been recently upgraded with streetscape improvements. The area south along Prairie Avenue is lined with a mix of residential, local retail uses and highway-oriented commercial development.
- **Hawthorne Area** – This segment of the Corridor extends south from Imperial Highway past the I-105/Century Freeway and Metro Green Line to Downtown Hawthorne. While this subarea is primarily residential, the Robert F. Kennedy Medical Center, Hawthorne Civic Center, the former Hawthorne Plaza and recent highway-oriented commercial retail development are located within the southern end of the Corridor.



**Crenshaw-Prairie Transportation Corridor
Major Investment Study**


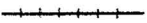

**Figure 1.1
Project Corridor and
Study Area**

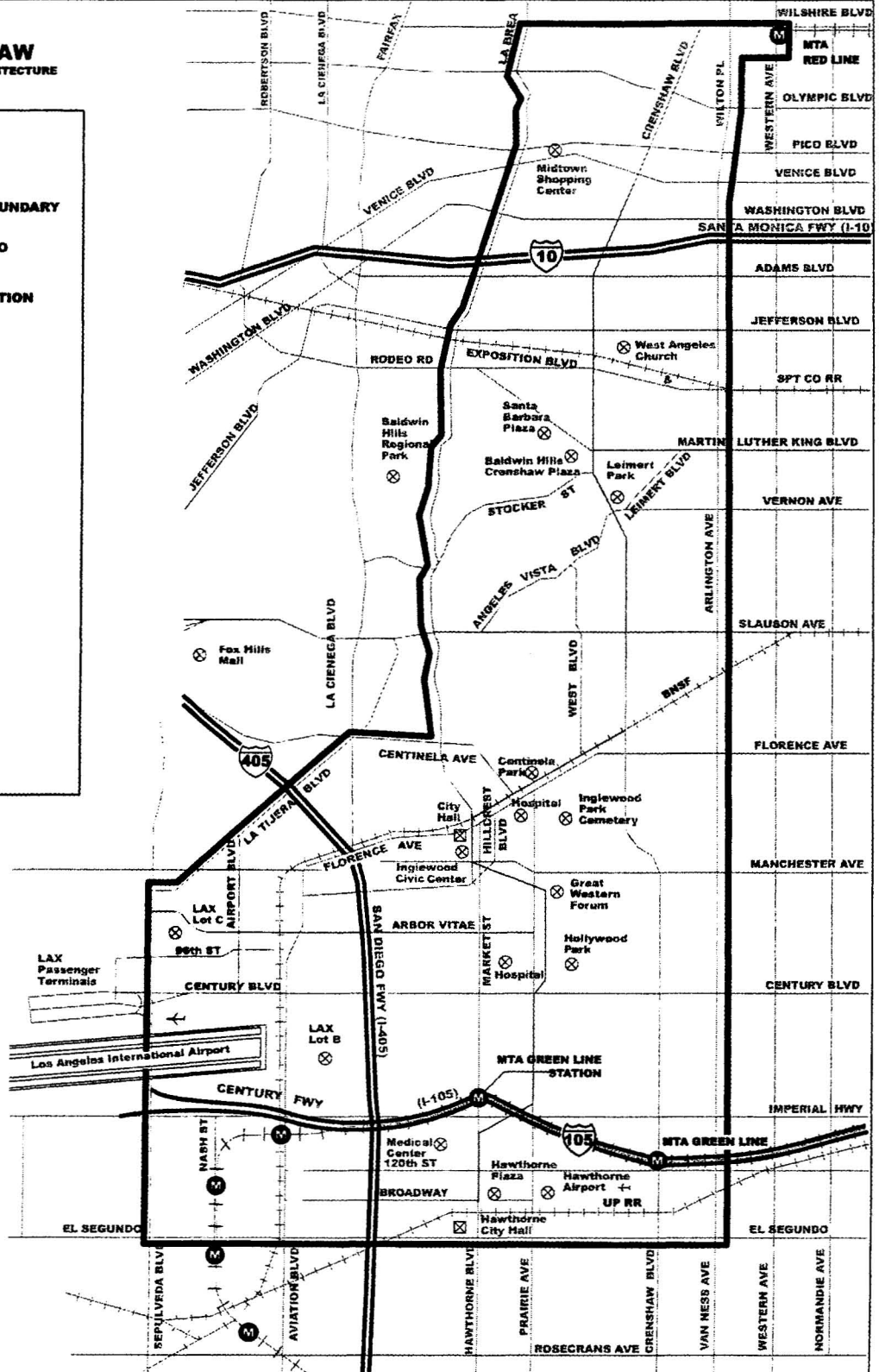
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ENGINEERING**



**RAW
ARCHITECTURE**

LEGEND

-  **STUDY AREA BOUNDARY**
-  **REGIONAL METRO RAIL LINE**
-  **METRO RAIL STATION**



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CR-FIGURE 22/0



Crenshaw-Prairie Transportation Corridor Major Investment Study

Figure 1.2

Key Activity Centers

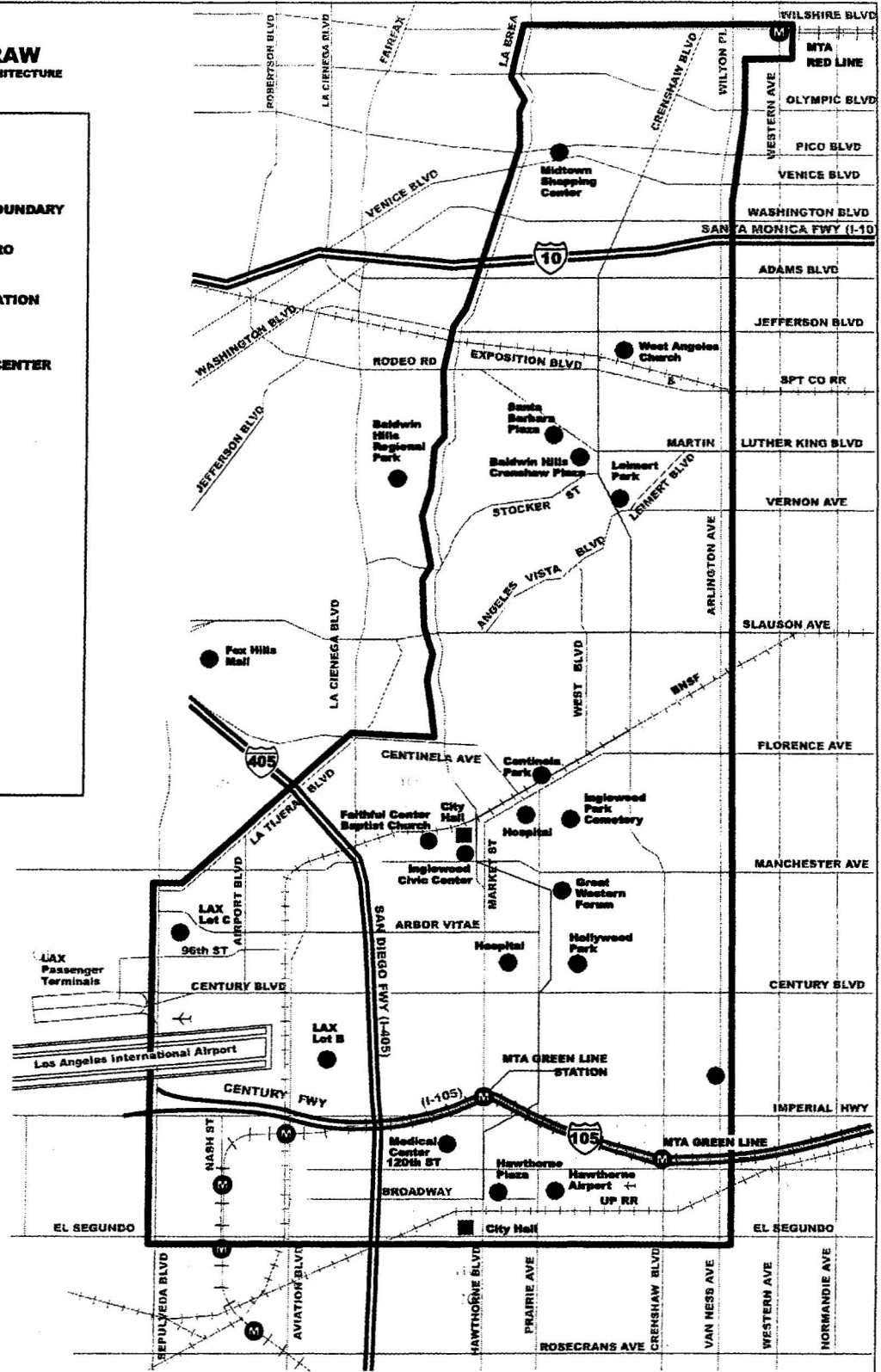
KORVE
ENGINEERING



RAW
ARCHITECTURE

LEGEND

- STUDY AREA BOUNDARY
- REGIONAL METRO RAIL LINE
- METRO RAIL STATION
- KEY ACTIVITY CENTER



1/4 MI 1/2 MI 1 MI 2 MI 4 MI

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**Crenshaw-Prairie Transportation Corridor
Major Investment Study**





**Figure 1.3
Project Corridor
Sub Areas**

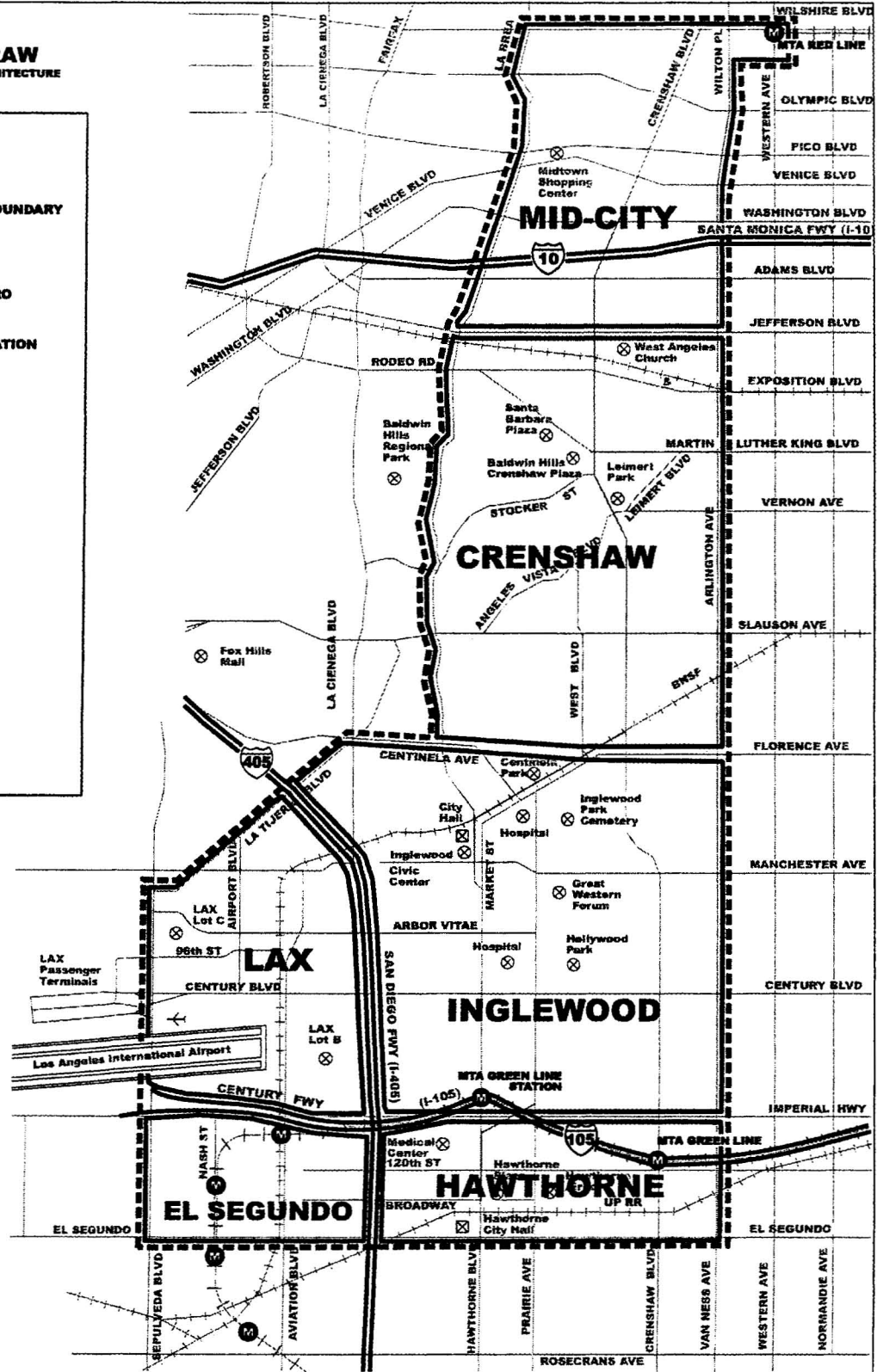
**KORVE
ENGINEERING**



**RAW
ARCHITECTURE**

LEGEND

-  STUDY AREA BOUNDARY
-  SUB AREA
-  REGIONAL METRO RAIL LINE
-  METRO RAIL STATION



- **LAX Area** – The LAX portion of the Corridor extends west of the I-405/San Diego Freeway to the extensive facilities of the Los Angeles World Airport. The potential of providing an improved connection to LAX is significant to the mobility of the Corridor communities, as well as to the region as a whole. LAX is the primary commercial air transportation hub of the Los Angeles region and is the dominant U.S. international gateway to the Pacific Rim. In 2000, it was the third busiest airport in the United States in terms of aircraft operations and passengers, and the world's fourth most active in terms of passengers. LAX is also the second busiest cargo airport in the world handling more than two million tons of air cargo of which 40 percent is international. A *Draft Master Plan* for the future improvement of LAX through 2020 was prepared with the public review and comment period concluding in November 2001. Due to changing local and national priorities, recommendations of the *Draft Master Plan* are being reconsidered. Mayor Hahn has recently proposed improvements intended to create a safer, more efficient transportation hub at LAX. The proposed Master Plan calls for relocation of passenger check-in and all parking facilities to the Manchester Square area located in the vicinity of the Aviation/Century Boulevards intersection. LAX passengers would then circulate to the terminals via an elevated people mover system. The revised LAX Master Plan is anticipated to be completed by December 2002.
- **El Segundo Area** – This portion of the Corridor extends south from LAX, Imperial Highway and the I-105/Century Freeway. The Metro Green Line bends south through this Study Area section, which is developed with hotels, office buildings and air freight distribution-related businesses. New office development is occurring immediately south of the Study Area between Sepulveda and Aviation Boulevards. While initially impacted by aerospace and defense industry cutbacks, El Segundo successfully redeveloped the Study Area portion of the City with a mix of retail, restaurant and office uses.

While the Crenshaw-Prairie Corridor MIS effort was based primarily on an analysis of current year 2000 and future year 2025 conditions, some analytical tasks remain related to a comparison of a current year 1990 and a future year of 2015 as Study Area-level information was not yet available from the 2000 census.

The Crenshaw-Prairie Corridor was recommended for study based on its high population and employment densities, travel characteristics and high transit dependency as illustrated by the following 1990 census information:

- **High population density** – Existing Corridor population densities are double the average of the County's urbanized area; more than triple in the Crenshaw subarea.
- **High employment density** – Current Corridor employment density is double the urbanized County average.
- **High number of low income households** – More than 49 percent of all Corridor households are designated as low income. The Crenshaw segment has an even higher percentage – with 56 percent of the subarea's households designated as low income.
- **High number of households without an available automobile** – A Corridor-wide average of 16 percent of all households does not have access to an automobile compared to eight percent in the County's urbanized area; 19 percent have no auto access in the Crenshaw subarea.

1.1.1 Population and Employment

The Crenshaw-Prairie Corridor is currently home to more than 307,000 residents, or over three percent of the population of Los Angeles County. By 2015, the Corridor's population is expected to increase by more than 38 percent to over 425,000 residents. As shown in Figure 1.4, the current Corridor population density (13.41 persons per acre) is almost double the average of the County's urbanized area (6.96 persons per acre). The average density is even higher in some of the Corridor's subareas. For example, the Mid-City subarea's population density is 23.33 persons per acre, more than three times the average of the County's urbanized area. Information available from the 2000 Census shows that in 2000 the Corridor's residential density was 14.76 almost four times the actual average of the County's urbanized area of 3.66 persons per acre.

In previous analytical work, 2015 Corridor population density was forecast to increase with a more than 20 percent growth to an average of 16.16 persons per acre, nearly double the projected 9.38 persons per acre for the County's urbanized area. 2000 Census-based information shows that in 2015 Corridor residential density is now projected to increase to an average of 20.43 persons per acre, more than four times the forecast 4.31 persons per acre for the County. The Mid-City subarea is forecast to continue to be the densest portion of the Study Corridor with 28.90 persons per acre, while the Inglewood subarea is forecast to have the highest population growth (151 percent).

The Crenshaw-Prairie Corridor currently provides more than 128,000 jobs or over four percent of the County's jobs. Employment within the Corridor is projected to increase by more than 14 percent by 2015 to more than 146,500 jobs. This projected employment increase varies by subarea from a 27 percent increase in the LAX area to a more than 79 percent increase in the Inglewood area. Previous figures showed the Corridor's employment density (4.97 employees per acre) to be almost double the urbanized County's average of 2.81 employees per acre. Future employment density is projected to grow by more than 14 percent to 7.75 employees per acre – well above the projected 4.64 for the County's urbanized area.

1.1.2 Travel Characteristics

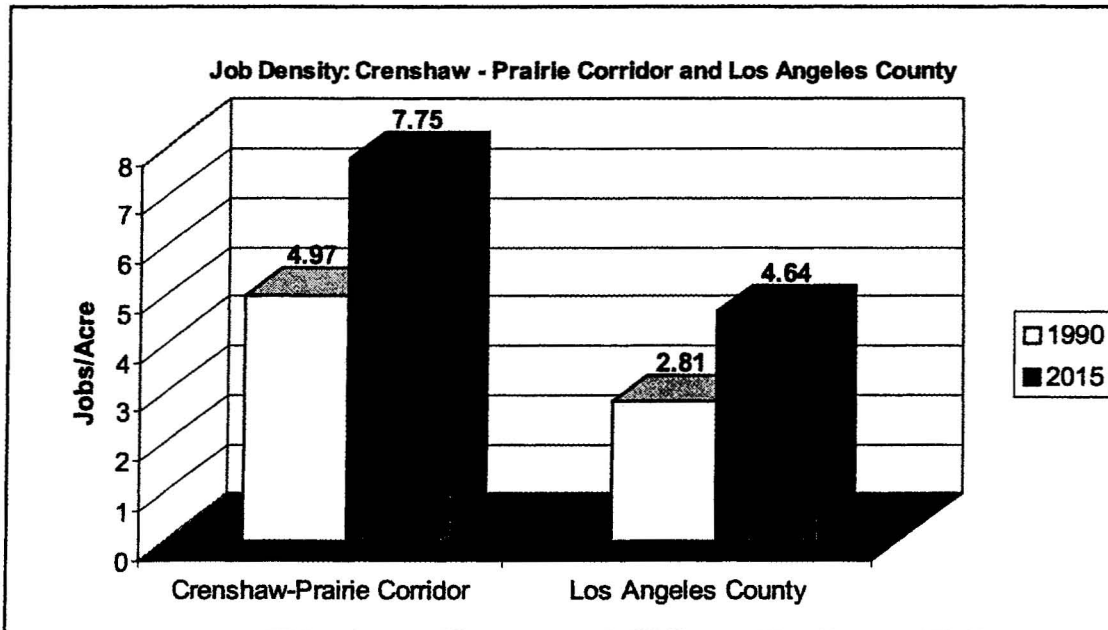
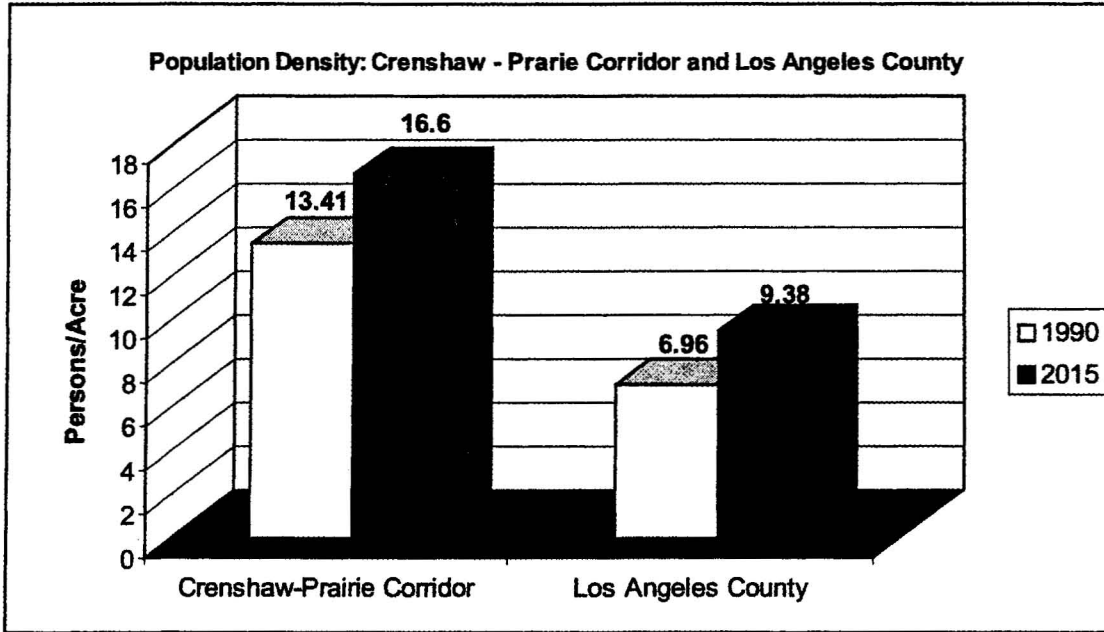
Based on MTA's travel demand forecasting model, approximately 53 percent of all current Corridor-generated trips remain in the Crenshaw-Prairie Corridor, and 47 percent of all Corridor trips are to destinations outside of the Corridor. While the overall trip percentages appear almost balanced, an analysis based on trip purpose – non-work or work-related – presents a very different pattern. Approximately 80 percent of non-work trips, including shopping, school and recreation trips, are to locations within the Corridor. In contrast, more than 80 percent of home-to-work trips are to employment destinations outside the Corridor area, while 20 percent are to job locations in the Corridor. The key work destinations for Study Corridor residents, in order of importance, are:

1. Downtown Los Angeles
2. Southeast Los Angeles including Commerce, Vernon and South Gate
3. Century City, Westwood and West Los Angeles
4. South Bay
5. Mid-City and the Wilshire District
6. Santa Monica and Marina del Rey.

By 2015, the Corridor home-to-work trips are forecast to increase by approximately 25 percent. The distribution pattern of Corridor trips is projected to remain predominantly the same with some intensification of internal Corridor trips due to forecast Study Area land use and employment development.



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Source: LACMTA Travel Demand Model

Given the high number of employment and activity centers in the Crenshaw-Prairie Corridor, the primary travel markets can be defined as:

- Commuters accessing employment areas both within the Corridor, including El Segundo, LAX, Downtown Inglewood, Mid-City and along Wilshire Boulevard, and beyond the Corridor.
- Corridor residents making non-work trips, including shopping, recreational and other activities, throughout the Los Angeles region.
- Travelers and employees accessing LAX and related employment destinations.
- Entertainment and recreational visitors (including residents and tourists) traveling to special event generators such as the Forum and Hollywood Park.
- Shoppers traveling to the Corridor's retail destinations including the Mid-Town Shopping Center, Santa Barbara Plaza, Baldwin Hills/Crenshaw Plaza and highway-oriented commercial development in Hawthorne.
- Patients, visitors and employees traveling to the Corridor's three medical centers – Daniel Freeman Memorial Hospital, Centinela Hospital and Robert F. Kennedy Medical Center.
- Students attending educational institutions both within and outside of the Corridor.
- Transit dependent residents (with no access to a private automobile) including senior, student, disabled and low income residents desiring to make transit connections to the regional bus and rail system including the Metro Red and Green Lines.

The demographic trends discussed above contribute to higher than average transit usage in the Crenshaw-Prairie Corridor. Currently, the County's urbanized area transit mode split is eight percent compared to 16 percent in the northern half of the Corridor and 11 percent in the southern portion. By the year 2015, estimates project a transit mode split increase to 27 percent in the northern portion of the Corridor – more than double the expected increase in the County's urbanized area to 11 percent. The transit mode split in the southern portion of the Corridor is forecast to increase to 16 percent – more than 50 percent higher than the countywide average.

1.1.3 Changes in Economy

From an economic development perspective, the Crenshaw-Prairie Corridor represents a diverse area of tremendous opportunity *and* tremendous challenge. For while the Corridor contains many significant employment destinations, active retail centers and stable residential neighborhoods, it also faces many economic challenges. The Study Area includes some of the lowest income communities in the cities of Los Angeles, Hawthorne and Inglewood, as well as some of the areas hardest hit during the civil disturbances of 1992. In summary, the Crenshaw-Prairie Corridor faces the following economic challenges:

- Poor accessibility to and from destinations both within and beyond the Corridor;
- Loss of employment opportunities; and
- Leakage of retail activity.

All of the above economic impacts have resulted in increased unemployment, reduced incomes and the related decline of some of the Corridor's residential neighborhoods. But the Corridor also offers significant economic opportunities for residents and employers. A majority of the Corridor's key activity

and employment destinations are currently preparing expansion, revitalization and/or redevelopment plans as illustrated in Figure 1.5. The success of these projects and the Corridor's economic future are strongly dependent on improved local and regional accessibility.

The lack of transportation system investment in the Crenshaw-Prairie Corridor has resulted in constrained mobility, which has negatively impacted commercial and retail activity in the Corridor. Many of the Study Area's retail destinations suffer from constrained and congested accessibility, negatively impacting access by both Corridor and regional residents. Constrained mobility has also been viewed as negatively impacting property values and income in the area. Future transportation system investment in the Corridor would provide improved access for Corridor residents to a wider range of employment, shopping, entertainment and recreational opportunities, while providing improved access to the Corridor's many destinations.

Over the years, the loss of jobs from locations throughout the Crenshaw-Prairie Corridor has contributed to a significant increase in Study Area unemployment, and a related decline in Corridor incomes and residential neighborhoods. In addition, the geographical distribution of new jobs created in the Southern California region has tended to bypass the older industrial areas, such as those located in the Crenshaw Corridor, in favor of areas including the San Fernando Valley, San Gabriel Valley and Orange County. Currently, 80 percent of Crenshaw-Prairie residents travel to work beyond the Corridor. The transportation implication of this job loss has been that residents now travel longer distances to employment destinations. Access to employment has been exacerbated by the poor level of Corridor transportation connections to these new employment centers. A high-capacity transportation system improvement would greatly increase the access of Corridor residents to employment, educational and training centers throughout the Southern California region. In addition, improved Corridor mobility would provide all local residents – not only those that are transit dependent – with an alternative to the automobile as the primary mode of access.

Current socioeconomic and market factors in the Crenshaw-Prairie Corridor suggest a Study Area buying potential in excess of \$3.3 billion annually. However, much of that buying power is currently spent outside of the Corridor. This "leakage" of retail expenditures to locations outside the Corridor suggests that the quality, quantity and/or range of retail purchasing opportunities in the Corridor are inadequate or not easily accessed by Corridor, as well as regional, shoppers.

Future economic opportunities are substantial with expansion, revitalization and/or development plans being prepared for many of the Corridor's activity centers including LAX, Downtown Inglewood, El Segundo, Hollywood Park, the Forum (now owned by Faithful Central Bible Church), the West Angeles Church, Hawthorne Plaza, the Baldwin Hills/Crenshaw Plaza, Santa Barbara Plaza, Leimert Park area and the Mid-Town Shopping Center. All of these opportunities are dependent on the provision of improved accessibility to, from and through the Corridor. An effective multi-modal transportation network within the Corridor is necessary to meet the future mobility needs of businesses and residents by providing vital intra- and inter-corridor linkages and services. This transportation investment is viewed as not only improving Corridor mobility, but also as serving as a catalyst for public and private investment in the Corridor as demonstrated elsewhere in the region.

1.1.4 Air Quality Issues

The Corridor is fully contained within the South Coast Air Basin – the airshed with the worst air quality in the nation. Mobile source emissions from vehicles are the single largest contributor to air quality problems in the basin, therefore a complete description of transportation issues in the Corridor must also address air quality concerns.



Crenshaw-Prairie Transportation Corridor Major Investment Study

Figure 1.5

Economic Opportunities

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LEGEND

STUDY AREA BOUNDARY

REGIONAL METRO RAIL LINE



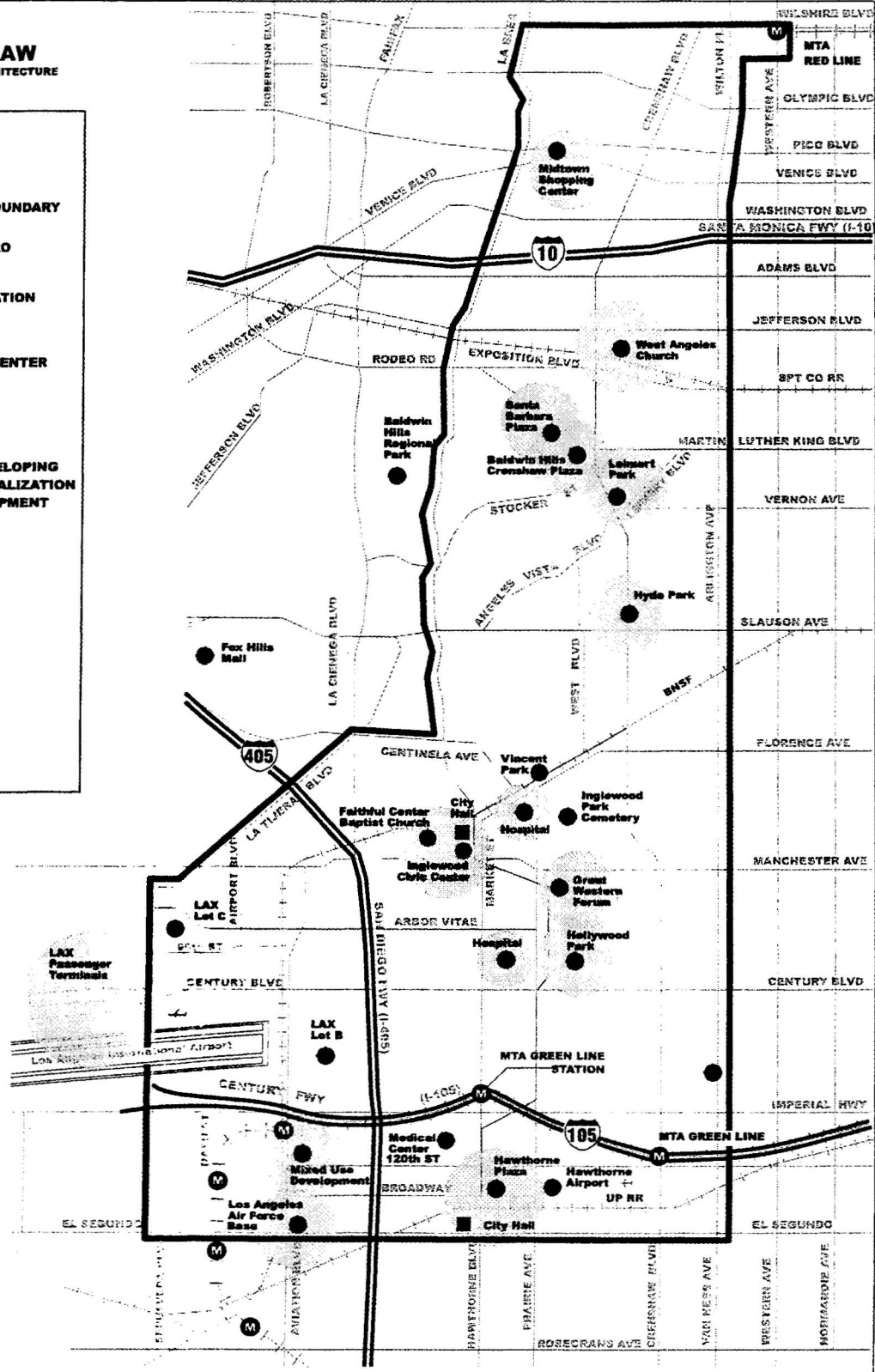
METRO RAIL STATION



KEY ACTIVITY CENTER



DESTINATION DEVELOPING EXPANSION, REVITALIZATION AND/OR REDEVELOPMENT PLANS



1/4 MI 1/2 MI 1 MI 2 MI 4 MI

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The Environmental Protection Agency (EPA) rates the South Coast Air Basin as an “extreme” nonattainment area for ozone, the only area so designated in the nation. Ozone problems in the basin are an order-of-magnitude worse than anywhere else in the country. According to EPA’s most recent evaluation, the basin exceeds the National Ambient Air Quality Standard for ozone approximately 93 days each year. By comparison, the next worst areas – Houston and New York – exceed the standard less than 20 days each year.

In 1992, the South Coast Air Basin recorded the greatest number of exceedances of the carbon monoxide standard, more than twice the number of the next worst area. It is classified as a “serious” nonattainment area for both carbon monoxide and particulates (PM₁₀).

The federal Clean Air Act and the California Clean Air Act include provisions for reducing mobile sources’ contribution to air quality problems with strict sanctions for non-compliance that could affect the region’s economic base. Two key objectives for vehicles include achieving an average vehicle occupancy during peak commuter hours of 1.5 persons per vehicle, and ensuring no net increase in mobile source emissions after 1997.

The most recently adopted *Air Quality Management Plan* (1994 AQMP, as amended in 1999) recognizes that in addition to technological innovations which serve to reduce the quantity of pollutants emitted per vehicle-mile of travel (VMT), there is also a need to reduce VMT through the use of Transportation Control Measures (TCMs). Possible options include transit improvements, shared-ride services, traffic flow improvements, demand management systems, and pedestrian and bicycle programs. Any proposed action to address transportation issues in the Study Corridor must be in conformity with the AQMP and must demonstrate a neutral or positive impact on air quality in the South Coast Air Basin.

1.2 Corridor Transportation System

At first glance, the Crenshaw-Prairie Corridor appears to be well-served by the regional transportation system illustrated in Figure 1.6 with three freeways (I-10/Santa Monica Freeway, I-105/Century Freeway and I-405/San Diego Freeway), two rail systems (the existing Metro Green and Red Lines), and an extensive arterial street network. But a closer examination reveals a Study Area isolated from the regional transportation system due to a lack of on-going infrastructure investment along with significant topographical challenges.

The lack of investment in the Corridor’s transportation infrastructure has resulted in severely constrained travel and a limited range of transportation alternatives. The current travel demand on the freeway and roadway network exceeds the system’s capacity in many places, resulting in considerable congestion during peak periods. The bus system is heavily utilized and must operate on the same congested street system. While there are no currently adopted transportation improvement projects in the Study Area, MTA’s adopted *2001 Long Range Transportation Plan* has identified future funding for the Crenshaw Transit Corridor.

Connections within the Corridor and to the regional transportation system are particularly lacking in the north-south direction. Currently, all of the major regional transportation system facilities serving the Corridor are located along the edges of the Study Area:

- Northern – I-10/Santa Monica Freeway and Metro Red Line;
- Southern – I-105/Century Freeway and Metro Green Line; and
- Western – I-405/San Diego Freeway.

There is no regional transportation system connection along the Study Area's eastern edge. The nearest vehicular transportation facility to the east is the I-110/Harbor Freeway, more than three miles from the heart of the Corridor. The only north-south connection in the regional rail system – the Metro Blue Line – is located more than seven miles to the east of the Crenshaw-Prairie Corridor. In summary, with no north-south high-capacity connection to either the regional freeway or rail systems, a majority of the Crenshaw-Prairie Study Corridor lies isolated between the I-110 and I-405 freeways on the east and west respectively, and the I-10 and I-105 freeways on the north and south.

In addition, the significant topographical changes in the central portion of the Study Area – running east from Crenshaw Boulevard to the I-405 Freeway outside of the Study Area, and from Jefferson Boulevard south to Manchester Avenue – create a formidable barrier that shapes the configuration of the transportation network serving the Crenshaw-Prairie Corridor. More than 45 percent of the Corridor has significant hills that constrain the design and operation of its transportation system. The predominance of hilly terrain in the heart of the Corridor results in the creation of a non-grid street system with winding major streets and few minor streets, making travel through the Corridor circuitous. The resulting street system negatively impacts traffic operations as in many cases there is no parallel street within a mile's distance or closer to allow for diversion of traffic in case of accidents or major congestion. The Study Area's hilly terrain also precludes the provision of major east-west streets in the Corridor from Exposition Boulevard south to Manchester Avenue.

Without taking significant portions of the existing community, any high-capacity transportation improvement would need to be built largely within the existing arterial right-of-way. Many of the Corridor's major streets currently accommodate peak period volumes in excess of their capacity. In addition, the Study Area has some very narrow street segments, which will make accommodation of future high-capacity transportation improvements challenging.

1.3 Mobility Problem

The ability to move quickly and efficiently in the Crenshaw-Prairie Corridor, both now and in the future, can be expressed in terms of freeway and arterial congestion along with transportation system accessibility and choice. With the anticipated future population and employment growth and without future transportation system improvements, the Corridor will have:

- Increasing travel
- Growing transit-dependent population
- Continuing freeway congestion
- Increasing arterial congestion
- Continuing slowing of bus service
- Limited travel options.

1.3.1 Freeway and Arterial Congestion

Currently, the freeway system serving the Crenshaw-Prairie Corridor is highly congested resulting in travel time delays for a significant portion of each day. Using the California Department of Transportation's (Caltrans') definition of congestion as travel speeds less than 35 m.p.h. for a duration of 15 minutes or longer, all of the freeways serving the Corridor experience congestion for at least six hours a day and, more typically, nine to thirteen hours on an incident-free day. Incident-free days are estimated to occur approximately 50 percent of the time and as such represent a best case scenario for Corridor freeway congestion. With the occurrence of incidents, including accidents, lane closures and disabled vehicles, the hours of freeway delay increase.



Crenshaw-Prairie Transportation Corridor
Major Investment Study

Figure 1.6

Project Corridor
Transportation System

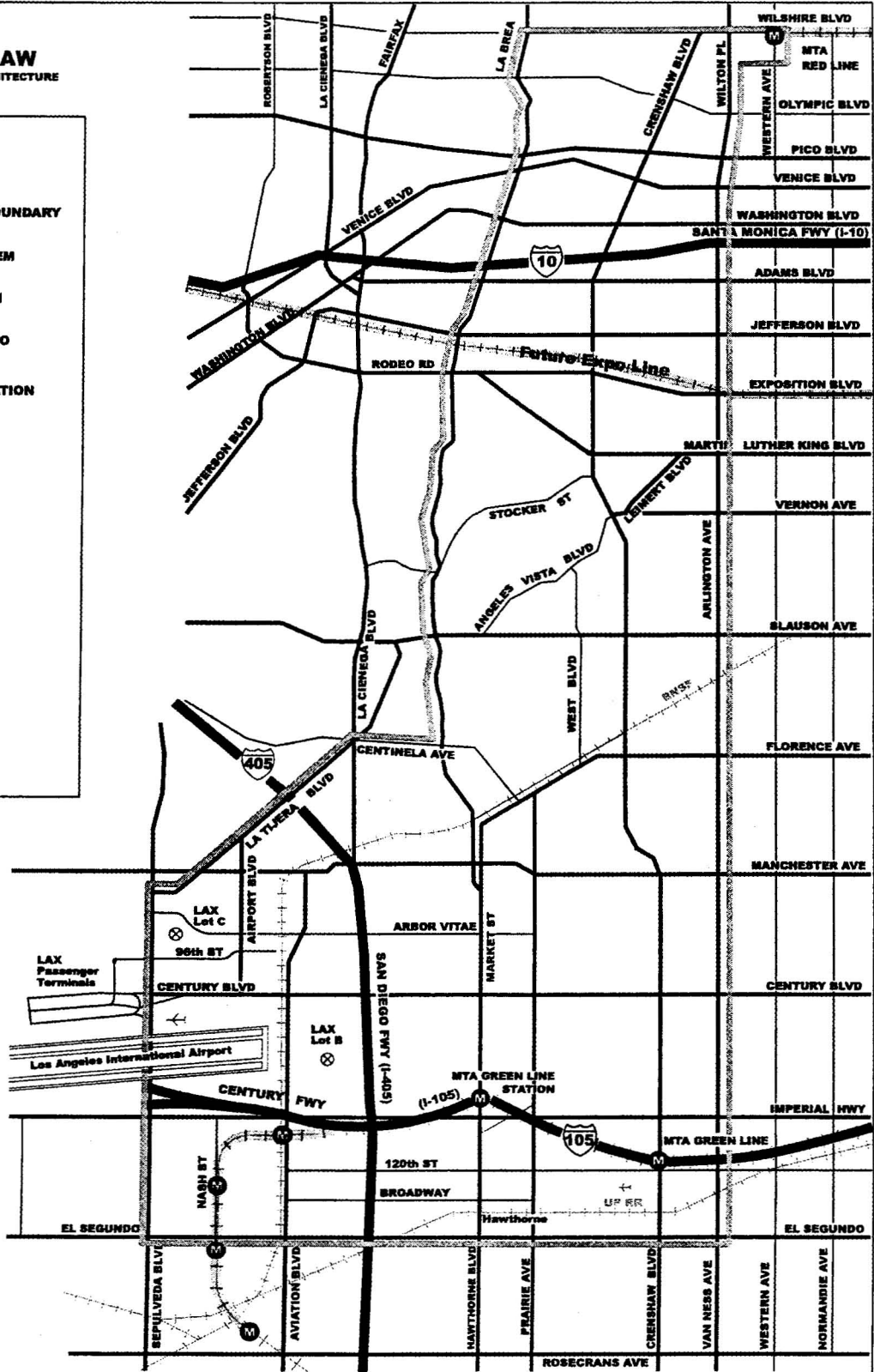
KORVE
ENGINEERING



RAW
ARCHITECTURE

LEGEND

- STUDY AREA BOUNDARY
- FREEWAY SYSTEM
- STREET SYSTEM
- REGIONAL METRO RAIL LINE
- METRO RAIL STATION



Peak period traffic volumes were identified as significantly in excess of capacity on the Study Area's arterial street system, resulting in significant congestion and delay. During the 1995 evening peak period, 47 percent of the Study Area's intersections operated under constrained conditions (Level of Service E or F) with 26 percent exceeding capacity (LOS F). An analysis of 1999 street segment level of service showed that the Corridor's congested street system conditions have worsened with 70 percent of Crenshaw Boulevard under consideration for major transit service improvements experiencing considerable congestion (LOS E or F).

By 2015, the Corridor population is anticipated to increase by more than 20 percent and employment opportunities by 55 percent. With a forecast 19 percent increase in daily Corridor trips, it is projected that peak hour freeway and arterial congestion will continue to occur. The projected delay impacts are anticipated to have increasing impacts on Corridor travelers, including longer commute times. Continuing congestion may adversely impact the accessibility and economic future of the Crenshaw-Prairie Corridor. Currently, there are no planned transportation infrastructure improvements identified for the Corridor to address these significant mobility needs.

1.3.2 Transit System Conditions

Currently, the Crenshaw-Prairie Corridor has a high level of transit service coverage with almost every major and secondary Study Area arterial served by at least one bus route. Seven transit providers offer a combination of community-based, local, limited-stop and freeway-express service within the Corridor. Even with this high level of service coverage, the frequency of Corridor service is not commensurate with the Corridor's needs. Other challenges facing Corridor bus transit service include:

- Capacity issues due to high Corridor transit dependency;
- Operational problems due to utilization of the congested arterial street system;
- Poor regional transportation system connections; and
- Inability to attract and retain the choice rider.

Due to the Corridor's higher than average transit ridership – approximately double the mode split of the County's urbanized area – many of the buses serving the Crenshaw-Prairie Corridor are at- or over-capacity. Operating beyond capacity results in overcrowding, rider pass-bys and loading delays, which create uneven headways and related schedule adherence problems. Overcrowding also reduces the life of buses and contributes to higher maintenance costs.

The effectiveness of Corridor bus transit operations is severely impacted by arterial congestion resulting in slower bus speeds with negative impacts on schedule adherence, as well as decreased service reliability and increased travel times. Buses operating in congested Corridor conditions also result in higher operational and maintenance costs. Increased operational costs are incurred with the addition of buses and drivers in an attempt to maintain the identified service schedule; higher maintenance costs result from the physical wear on buses due to stop-and-go operations.

As identified in the previous discussion of economic development issues, the geographical distribution of new jobs created in the Southern California region typically has bypassed the Corridor in favor of areas including the San Fernando Valley, San Gabriel Valley and Orange County. Currently, 80 percent of Crenshaw-Prairie Corridor residents work outside of the Corridor. The resulting impact on Corridor residents traveling by bus has been increased travel distances and trip times. Constrained access to employment has been exacerbated by the poor level of Corridor transportation connections to the regional transportation system being developed to serve these newer employment centers. There is a demonstrated need to provide faster, more direct transit service from the Study Area to regional job destinations, as well as better access to county-wide transportation options.

Currently, Crenshaw-Prairie Corridor travelers have a limited choice in travel options – auto or bus transit – circulating on the same congested street system. Existing operational issues make bus usage by transit dependent riders daunting, and make utilization undesirable to non-transit dependent residents or choice riders. Expanded Corridor travel options would provide all local residents – not just the transit dependent – with more travel options. The ability to attract and retain Corridor choice riders, provide additional Corridor travel capacity and reduce congestion will depend on a variety of factors including improved travel time, reliability, perception of safety, cleanliness and seamless interfaces with the regional transportation system.

By 2015, Corridor transit demand is estimated to increase by approximately 55 percent. Without significant improvements and capacity enhancements, the Corridor's bus transit system will be significantly overburdened, and mobility to and from the Crenshaw-Prairie Corridor will be significantly constrained. There is an urgent need to improve transportation mobility in the Study Area by improving both the level and quality of transit service both within and to destinations outside of the Corridor.

1.3.3 Regional Transportation System Accessibility

Accessibility to a full range of transportation options is also of importance in addressing the Crenshaw-Prairie Corridor mobility problem. Now and in the future, Corridor travelers will have limited options with continuing freeway and street system congestion, slowing and overburdened bus operations, and no direct connection to the regional rail system. Future Corridor transportation improvements will need to reflect a multi-modal strategy providing travelers with a more complete set of transportation alternatives.

The Study Area currently has poor connections to the regional transportation system and no north-south high-capacity transportation connection within the Corridor. This lack of transit infrastructure limits mobility and transportation choices. The Corridor's only available transit service – bus transit – is constrained in effectiveness and patron convenience by vehicular congestion. The lack of regional transportation system links will become more detrimental to future Corridor travel and economic development as Corridor population and employment continue to grow.

A unique opportunity of the Corridor is its strong potential to connect with the regional rail system and provide a second north-south linkage enhancing Corridor- and region-wide connectivity, and providing much-needed intra- and inter-Corridor linkages and service. A high-capacity transportation system improvement could connect to the Metro Red Line at the northern end of the Corridor, the Metro Green Line at the southern end, and the Metro Blue Line with an eastern connection. A future Crenshaw-Prairie Corridor high-capacity transit project could also provide a connection to existing Metro Rapid service along Wilshire Boulevard and the future Exposition Light Rail Line.

1.4 Purpose and Need

Development of an effective multi-modal transportation network within the Crenshaw-Prairie Corridor is necessary to meet the future mobility needs of residents and businesses by providing vital intra- and inter-corridor linkages and services. By the year 2015, the magnitude and nature of the Corridor's population, employment and transit dependency growth trends are projected to result in continuing transportation challenges in the Corridor as evidenced by the following:

- *Increasing travel* – With a forecast 19 percent increase in daily trips, more than 350,000 additional daily trips will occur in the Corridor.
- *Growing transit-dependent population* – Forecasts show a projected 55 percent increase in Corridor residents reliant on the area's transit system.
- *Continuing freeway congestion* – Currently, 78 percent of the Corridor's freeway system

operates at or below Level of Service F0 (15 minutes or more congestion) during the morning peak period, with 92 percent of the system operating at or below Level of Service F0 in the evening peak period. During the evening peak period, the I-10 Freeway and large segments of the I-405 and I-105 freeways experience significantly more than two hours of congestion. With the forecast growth in daily trips and no planned Crenshaw-Prairie Corridor transportation improvements, Corridor freeway congestion will worsen.

- *Increasing arterial congestion* – During both peak periods, current travel demand exceeds the Corridor’s arterial system capacity resulting in significant congestion and delay. During the 1995 evening peak period, 47 percent of the Study Area’s intersections operated under constrained conditions (Level of Service E or F), with 26 percent exceeding capacity (LOS F). By 1999, Corridor’s street system conditions have worsened with 70 percent of Crenshaw Boulevard in the Study Area experiencing considerable congestion (LOS E or F). With an increasing number of daily Corridor trips, the peak period operation of the Crenshaw-Prairie Corridor’s major streets and intersections will continue to worsen.
- *Continuing slowing of bus service* – Crenshaw bus service currently operates at 12.5 mph; MTA projections show an average system-wide bus speed of 10 m.p.h. in the year 2015.
- *Limited travel options* – The Corridor’s congested freeway and arterial street system, as well as the heavily-utilized bus system, offer no additional capacity to accommodate the forecast 19 percent increase in daily trips.
- *Continuing air quality concerns* – There is a demonstrated need to increase Crenshaw-Prairie Corridor transportation capacity to serve the forecast growth without increasing mobile source ozone emissions in this nonattainment area.

**Crenshaw-Prairie Corridor
Major Investment Study**

2.0 ALTERNATIVES CONSIDERED

2.0 ALTERNATIVES CONSIDERED

This section outlines the development of the Final Set of Alternatives considered for the Crenshaw-Prairie Corridor Major Investment Study. An initial set of transportation alternatives was identified based on past study efforts and in consultation with the public, stakeholders, elected officials and city staffs. This set of options was screened through an evaluation process to identify a Final Set of Alternatives of the best options to meet the goals and objectives for transportation improvements in the Study Corridor.

2.1 Previous Study Efforts

Over the past 35 years, the need for transportation improvements in the Crenshaw-Prairie Corridor has been established through a series of transportation plans and studies undertaken by the MTA and its predecessor agencies – the Southern California Rapid Transit District (SCRTD) and the Los Angeles County Transportation Commission (LACTC). Starting in 1967, the Crenshaw Corridor was included in SCRTD's first rail system plan. In 1991, LACTC staff included the Crenshaw Corridor in the list of transportation corridors to be evaluated for incorporation in the agency's Long Range Transportation Plan.

Spurred by the civil unrest in 1992, a commitment was made by MTA to work with the Study Corridor community to provide transit improvements to underserved areas, and to identify how to best use transit investment as a catalyst for future economic development in the Corridor. In 1993, a *Preliminary Planning Study* was undertaken by MTA for the Crenshaw-Prairie Corridor. Intended as the first step in the development of transportation improvements in the Corridor, this study clearly identified the need for Corridor transit system improvements. Completed in October 1994, the *Preliminary Planning Study* identified two viable transit service corridors with related modal options to be studied further. The study concluded that the implementation of rail transit was viable in the Crenshaw-Prairie Corridor, and that it would represent not only a significant mobility improvement, but would also serve to focus other public and private economic investment efforts in the Corridor.

In 1996, MTA initiated the next phase of the corridor transportation planning process – a Major Investment Study (MIS). The purpose of the MIS was to conduct a thorough and comprehensive analysis of alternative transportation improvements in the Crenshaw-Prairie Corridor within the framework of the MIS process, as required by federal regulations for comprehensive metropolitan planning. Reflecting the uniqueness of the challenges posed by this Corridor, the MIS process was defined to integrate transportation, land use and economic development efforts.

During MIS Project Initiation efforts, a wide range of possible transportation improvements for the Study Corridor was developed through a series of public and stakeholder workshops. The identified transportation options were evaluated and combined into fourteen conceptual alternatives, which were then analyzed further and reduced to an Initial Study Set of six alternatives. This initial set was evaluated through a preliminary technical evaluation process and reduced to a Final Study Set of the four most viable alternatives. A more detailed environmental and technical analysis of the Final Set of Alternatives was intended to provide the public and decision-makers with a technical basis to select the most viable transportation improvement.

In November 1997, changing MTA priorities called for the reconsideration of future transportation improvements not already under construction. As funding for any recommended Crenshaw-Prairie Corridor improvement project was not included in the agency's adopted *1995 Long Range Transportation Plan*, a decision was made by MTA staff to defer completion of the MIS process, including the time-sensitive environmental work, and to instead prepare a Route Refinement Study (RRS) that would have a longer shelf life. The resulting RRS documented the analytical work completed through definition of the

Final Study Set of Alternatives, but did not provide detailed enough technical work for decision-makers to select among the alternatives. The *Final Crenshaw-Prairie Corridor Route Refinement Study Report* was completed in December 2000.

After the conclusion of the *Crenshaw-Prairie Route Refinement Study*, several new transportation services were implemented and studies completed which changed the Study Corridor context. First, MTA was no longer planning extension of Metro Red Line service to the vicinity of Venice and San Vicente Boulevards, which had provided the northern terminus point for the rail alternatives considered in the RRS effort. Second, Metro Rapid Bus service was successfully implemented on Wilshire and Whittier Boulevards from Santa Monica through Downtown Los Angeles and East Los Angeles to Montebello. Third, a *Mid-City/Westside Transit Corridor Major Investment Study* was completed and recommended the implementation of Bus Rapid Transit service on Wilshire Boulevard and Light Rail Transit service on the former Exposition Railroad right-of-way – providing new opportunities for interface with existing and future Crenshaw-Prairie Study Area transit services.

2.2 Screening and Selection Process

The overall objective of the Crenshaw-Prairie Corridor MIS was to develop and assess a full range of transportation alternatives and identify a preferred strategy, or phasing of strategies, which addresses Corridor mobility needs and capacity requirements in the year 2025 and beyond, while being sensitive to community and environmental concerns. The following five local goals for future Corridor transportation improvements were identified through consultation with the Crenshaw-Prairie community:

1. Improve mobility within the Corridor.
2. Improve regional connections to and from the Corridor.
3. Meet the transportation needs of Corridor residents.
4. Act as a catalyst for economic development in the Corridor.
5. Stimulate revitalization of neighborhoods around station sites.

The Crenshaw-Prairie Corridor MIS follows the Federal Transit Administration (FTA) guidance evaluation process and criteria in order to not only provide a reasoned basis for the selection of the Locally Preferred Alternative (LPA), but to ensure that the selected alternative is eligible for federal funding if necessitated by the LPA decision. As documented in the *Crenshaw-Prairie Corridor MIS Evaluation Criteria Report*, a detailed set of criteria was developed to provide the public and decision-makers with information on the benefits and impacts of the alternatives, as well as the differences between the options. Reflecting recent FTA guidance, the following seven evaluation criteria were used to analyze the Study Corridor transportation options:

- Mobility Improvements
- Environmental Benefits
- Operating Efficiencies
- Transportation System Benefits
- Land Use and Economic Considerations
- Public Support
- Other Factors relevant to the success of the project.

Related performance measures for each of the evaluation criteria were identified based on regional, state and federal requirements, the local goals identified in consultation with the affected community, and the *Crenshaw-Prairie Corridor MIS Mobility Problem and Purpose and Need Statement*.

In summary, to be considered a viable alternative for the Crenshaw-Prairie Corridor, a transportation improvement option should satisfy the following conditions:

- Address the Corridor mobility problem and purpose and need for the project.
- Represent an acceptable, usable solution to the community and stakeholders.
- Have minimal or no major operational flaws or environmental impacts.
- Represent an appropriate technology capacity match with the projected Corridor demand.
- Balance costs with expected benefits within funding availability.

2.2.1 Initial Set of Alternatives

An Initial Set of Alternatives was identified based on: past Corridor study efforts; public, stakeholder and agency input; and MTA staff-consultant team work sessions. The following transportation improvements were identified for consideration in the Crenshaw-Prairie Corridor:

1. Improve local bus service.
2. Implement Metro Rapid service.
3. Construct and operate a Bus Rapid Transit system.
4. Construct and operate a Light Rail Transit system.

The screening of the Initial Set of Alternatives was based on public and stakeholder input along with an initial technical assessment. The possible options were presented in a series of outreach efforts to refine details of the options, to check the public acceptability of the options, and to ensure that all transportation options are identified. Alternatives were reviewed by affected agencies within the cities of Los Angeles, Inglewood, Hawthorne and El Segundo to ensure that all applicable public goals, plans and concerns were reflected. A fatal flaw technical and environmental analysis was performed based on best professional practices and in consultation with affected public agencies

The technical and environmental assessment effort was intended to identify any insurmountable engineering, operational, community and environmental flaws. The screening process and results are documented in the *Crenshaw-Prairie Corridor MIS Initial Screening Report*. This viability check screened out any transportation options, alignment segments and cross-sections with fatal flaws and/or significant lack of public/city support. For the purpose of initial screening, an insurmountable engineering flaw was identified as a major constructability flaw such as a significantly high cost, or a construction constraint that could not be mitigated.

Initial screening was performed on a “meets/does not meet” level of analysis for the criteria presented in Table 2.1 below. Not all of the seven recommended evaluation categories were used as some pertinent information was not identified at this stage in the study process. For example, “Transportation System Benefits” or cost effectiveness was not assessed as cost and ridership figures were not developed at this

level of analysis. “Other Factors” were identified in consultation with stakeholders and affected public agencies as the technical and environmental setting analysis work proceeded.

Table 2.1: Initial Screening Criteria and Performance Measures

Criteria	Performance Measures
Mobility Improvements	<ul style="list-style-type: none"> ▪ Defines “build” alternatives that fully assess the the benefits and impacts of a new system ▪ Connects with regional transit system (currently or in the future) ▪ Serves key Corridor activity centers and/or destinations ▪ Provides faster service ▪ Provides more frequent service ▪ Serves Corridor residents without a car ▪ Increases the range of transportation options
Environmental Benefits	<ul style="list-style-type: none"> ▪ Has no environmental and/or community fatal flaws
Operating Efficiencies	<ul style="list-style-type: none"> ▪ Has no engineering and/or operational fatal flaws ▪ Meets MTA service criteria for: Metro Rapid and Bus Rapid Transit (BRT) operations
Transportation System Benefits (Cost Effectiveness)	<i>Not evaluated at Initial Screening Level</i>
Land Use and Economic Considerations	<ul style="list-style-type: none"> ▪ Encourages Corridor economic development
Public Support	<ul style="list-style-type: none"> ▪ Has community and stakeholder support ▪ Has City support for proposed service and/or service alignments
Other Factors	<i>Not evaluated at Initial Screening Level</i>

Public outreach efforts included more than 20 briefings, meetings and work sessions. Three community workshops were held in the northern, central and southern portions of the Study Area. Briefings were conducted with the Mayor of Inglewood and the Transportation Deputy for the Mayor of Los Angeles. Work sessions were held with staff from the cities of Inglewood and Los Angeles. An Interagency Task Force, comprised of elected official and agency representatives, was formed and provided input to the process. More than 12 presentations were made to stakeholder and business groups including the Crenshaw Redevelopment Area Citizens Advisory Committee, the Korean Chamber of Commerce, the Transportation Oversight Committee of the South Bay Council of Governments and the El Segundo Employers Association. A summary of the results is presented in *Section 7.0, Public Input* of this report.

No modal alternatives were recommended for deletion from further study. Rather the public input and technical analysis focused on refining the alternatives with the deletion and/or addition of some alignment options within each modal alternative.

2.3 Definition of MIS Alternatives

Based on the results of an extensive public and stakeholder outreach process and a fatal flaw level of technical and environmental analysis, an Initial Set of Alternatives was identified, evaluated and reduced to a Final Set of Alternatives for further conceptual level technical and environmental analysis. The Final Set of Alternatives for the Crenshaw-Prairie Corridor consists of the No Build, Metro Rapid and the two build alternatives described below.

Under Federal Transit Administration (FTA) guidance published in December 2000, new direction was given on the definition of the No Build and Transportation Systems Management (TSM) alternatives in the MIS planning process. This Rule eliminated the requirement for separate No Build and TSM alternatives, and instead required that the proposed “new start” or “build” options be evaluated against a single “baseline alternative.” In this study effort, a decision was made to evaluate a No Build *and* a Baseline Alternative in order to effectively measure the resulting Corridor mobility improvements. The Baseline Alternative is defined by FTA as all reasonable, cost-effective transit improvements included in the adopted financially constrained regional transportation plan. The Crenshaw-Prairie Corridor Baseline Alternative is represented by the Metro Rapid Alternative discussed below.

2.3.1 No Build

The No Build alternative represents existing transit services, plus commitments as defined in MTA’s Long Range Transportation Plan that are outside of the Study Corridor. This approach allows this alternative to be used as a baseline for assessing the effectiveness of various improvements within the Study Corridor. The transit network includes the existing alignments and operating schedules of the Metro Red, Blue and Green Lines, as well as the planned rail lines serving Pasadena, the Eastside, and the first phase of the Exposition Line. Bus services are enhanced to represent a larger Countywide fleet size in the future, and more rapid bus routes serving throughout the County are assumed.

2.3.2 Metro Rapid Alternative

The Metro Rapid Alternative adds future transit improvements serving the Study Corridor as identified in the MTA *Long Range Transportation Plan*, the MTA *Metro Rapid Five-Year Implementation Plan* (September 2002), and this Study’s initial screening process. This option includes a Metro Green Line extension to the proposed LAX Intermodal Transportation Center, as well as a grid of north-south and east-west Metro Rapid routes, and expanded local circulator service. As presented in Figure 2.1, Metro Rapid service was evaluated on the following Study Corridor service alignments:

- ***Crenshaw/Rossmore/Metro Green Line*** – Operating south from the Metro Red Line Hollywood/Vine Station in Hollywood along Vine Street and then along Rossmore Avenue to Wilshire Boulevard, south on Crenshaw Boulevard through Koreatown and the Crenshaw District to terminate at the Metro Green Line Crenshaw Station.
- ***Crenshaw/Wilshire-Western/Metro Green Line*** – Operating west from the Metro Red Line Wilshire/Western Station along Wilshire Boulevard, then south on Crenshaw Boulevard through Koreatown and the Crenshaw District where it turns west on Florence Avenue through Downtown Inglewood and then along Aviation Boulevard where it interfaces with the future LAX Intermodal Transportation Center and terminates at the Metro Green Line Aviation Station.
- ***Florence/Hawthorne*** – Operating west on Florence Avenue from Downtown Los Angeles, turning south on La Brea Avenue in Downtown Inglewood, continuing on La Brea Avenue as it becomes Hawthorne Boulevard to where it interfaces with the Metro Green Line Hawthorne Station and terminates at El Segundo Boulevard in Downtown Hawthorne.
- ***Century*** – Operating west on Century Boulevard from southern Downtown Los Angeles to terminate at the future LAX Intermodal Transportation Center.
- ***Vernon/La Cienega*** – Operating west on Vernon Avenue from southern Downtown Los Angeles, north on Crenshaw Boulevard to serve the Crenshaw District, west on Stocker Street and then north on La Cienega Boulevard.

- **Pico** – Operating east on Pico Boulevard from Santa Monica and West Los Angeles to the Pico-Rimpau Transit Center located in the Mid-City area, and then continuing east on Pico Boulevard into Downtown Los Angeles.
- **Venice** – Operating east on Venice Boulevard from Santa Monica and West Los Angeles to its termination at the Pico-Rimpau Transit Center located in the Mid-City area. Passengers wishing to travel further east to Downtown Los Angeles would transfer to the Pico Metro Rapid Line.

It should be noted that the MTA Board adopted a majority of the Metro Rapid lines evaluated in this MIS effort in September 2002 as part of the *Metro Rapid Five-Year Implementation Plan* with the following changes made to the MIS alternatives:

- The Florence/Hawthorne Metro Rapid Line was divided into two implementation phases with Florence Avenue service falling within Phase IIA and Hawthorne Boulevard operations being initiated in Phase IIB.
- Venice Boulevard Metro Rapid service was deleted from consideration during the next five-year timeframe; service would continue to be provided by existing local and limited stop bus service.
- The adopted MTA Plan included Metro Rapid service on Manchester Boulevard, rather than along Century Boulevard, based on the existing heavy bus ridership along with the high number of destinations located along this service alignment.

The following two Metro Rapid lines studied in this MIS were not included in the adopted *Metro Rapid Five-Year Implementation Plan*:

- **Crenshaw/Wilshire-Western/Metro Green Line** – Designed to provide Corridor residents and regional travelers with no transfer service from the Metro Red Line Wilshire/Western Station through the Crenshaw District to LAX.
- **Century** – Planned to provide Corridor residents with direct access to employment destinations in the LAX area; and regional travelers with a direct connection to the proposed LAX Intermodal Transportation Center.

For the proposed local circulator service, two lines serving the Study Area, in addition to the Crenshaw DASH lines, were included in the Metro Rapid Alternative. The circulator lines were assumed at this level of analysis to serve: 1) the northern portion of the Corridor, and 2) the City of Inglewood. The exact routing will be determined with community input during the follow-on preliminary engineering phase.

2.3.3 Bus Rapid Transit Alternative

Bus Rapid Transit (BRT) is defined as bus service providing the full range of physical and operational attributes of Metro Rapid service with the addition of dedicated lane operations. This alternative would be operated by MTA under the service name of “Metro Rapid.” As presented in Figure 2.2, BRT service was evaluated on the following Study Corridor service alignments:

1. **Crenshaw/LAX/Metro Green Line** – Operating south from Wilshire Boulevard Metro Rapid service on Crenshaw Boulevard through Koreatown and the Crenshaw District to the former BNSF Railroad right-of-way, along the right-of-way through Downtown Inglewood and then south to interface with the proposed LAX Intermodal Transportation Center, and to accommodate a transfer to the Metro Green Line at the Aviation Station.



**Crenshaw-Prairie Transportation Corridor
Major Investment Study**

Figure 2.1

Metro Rapid Alternative

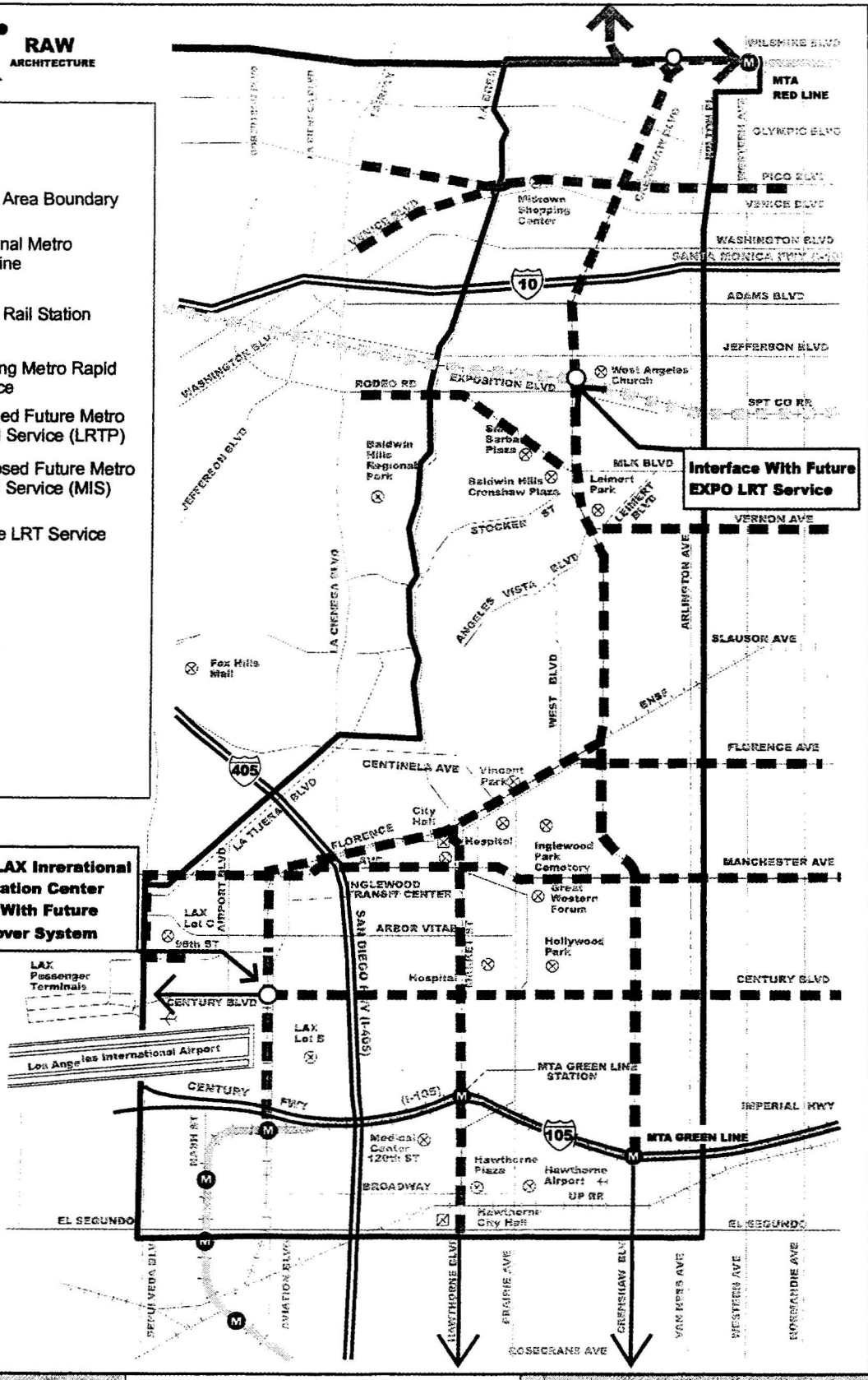
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LEGEND

- Study Area Boundary
- Regional Metro Rail Line
- Metro Rail Station
- Existing Metro Rapid Service
- Planned Future Metro Rapid Service (LRTP)
- Proposed Future Metro Rapid Service (MIS)
- Future LRT Service



2. **Crenshaw/Hawthorne** – Operating south from Wilshire Boulevard Metro Rapid service on Crenshaw Boulevard through Koreatown and the Crenshaw District to the former BNSF Railroad right-of-way, along the right-of-way to La Brea Avenue and south on La Brea Avenue through Downtown Inglewood, continuing south as La Bea Avenue becomes Hawthorne Boulevard, providing a transfer to the Metro Green Line at the Hawthorne Station, and terminating at El Segundo Boulevard in Downtown Hawthorne.

The BRT alternative evaluated a “build” option for the Study Corridor operating in three service configurations:

- Peak period or 24-hour curbside dedicated lane operations where possible (median operations may be possible on Hawthorne Boulevard within the City of Hawthorne);
- Mixed-flow operations in constrained street locations; and
- Dedicated lane operations on the former Burlington Northern-Santa Fe (BNSF) Railroad right-of-way now owned by the MTA.

BRT service would operate in mixed-flow conditions with other vehicular traffic in the following sections of the Study Corridor:

- **Crenshaw Boulevard** – Between Wilshire and Washington Boulevards, and Martin Luther King, Jr. Boulevard and Vernon Avenue.
- **La Brea Avenue** – Between the former BNSF Railroad right-of-way and Manchester Avenue.

As shown in Table 2.2 below, utilization of the former railroad right-of-way offers a unique opportunity for BRT service in the Crenshaw-Prairie Corridor by allowing 46 percent of the proposed Crenshaw/Metro Green Line BRT Alternative to operate in a dedicated right-of-way minimizing traffic and parking impacts, while providing higher travel speeds for BRT patrons. Approximately 14 percent of the Crenshaw/ Hawthorne BRT Alternative would operate on the former railroad right-of-way, with 86 percent of the future BRT service occurring in street right-of-way. For this option, 10 percent of street right-of-way operations could occur within the median of Hawthorne Boulevard, which has sufficient right-of-way to accommodate both traffic and dedicated BRT travel lanes.

Table 2.2: BRT Alternatives – Operating Characteristics

Alternative	Percent of Alignment Proposed to Operate Within the RR ROW	Percent of Alignment Proposed to Operate Within the Street ROW
Crenshaw/LAX/Metro Green Line	46 %	54 %
Crenshaw/Hawthorne	14 %	86 %

The proposed BRT stations are presented below in Table 2.3 and described in the *Crenshaw-Prairie Corridor MIS Station Concepts Report*. The stations were located to facilitate interface with other Corridor transportation services including existing local and limited bus service, the underlying Metro Rapid system, the City of Inglewood Transit Center, the Metro Green Line, the future Exposition LRT Line and the proposed LAX Intermodal Transportation Center. The two alignment alternatives have 12 stations in common located along the service section between Crenshaw/Wilshire Boulevards and the former railroad right-of-way/La Brea Avenue in Downtown Inglewood. The Crenshaw/LAX/Metro Green Line BRT Alternative, operating over 11.5 miles, is proposed to have a total of 15 stations including a connection with the proposed LAX Intermodal Transportation Center and terminating at the

Metro Green Line Aviation Station. The Crenshaw/Hawthorne BRT Alternative, running on a 12.3 mile service alignment, would have 16 stations with its alignment extending beyond an interface with the Metro Green Line to a terminal station located within the City of Hawthorne at the intersection of Hawthorne/El Segundo Boulevards.

Table 2.3: BRT Alternatives – Stations

Common to both alternatives	
1. Crenshaw/Wilshire	7. Crenshaw/Exposition LRT Line
2. Crenshaw/Olympic	8. Crenshaw/Martin Luther King, Jr.
3. Crenshaw/Pico	9. Crenshaw/Vernon
4. Crenshaw/Venice	10. Crenshaw/Slauson
5. Crenshaw/Washington	11. Crenshaw/RR ROW
6. Crenshaw/Adams	12. RR ROW/La Brea
Crenshaw/LAX/Metro Green Line Alternative	
13. RR ROW/Manchester	15. Metro Green Line Aviation Station
14. RR ROW/Century/LAX Intermodal Center	
Crenshaw/Hawthorne Alternative	
13. La Brea/Inglewood Transit Center	15. Metro Green Line Hawthorne Station
14. La Brea/Century	16. Hawthorne/El Segundo

2.3.4 Light Rail Transit Alternative

Light Rail Transit (LRT) service, similar to the service currently operating on the Metro Blue and Green Lines, and under construction for the Pasadena and Eastside rail lines, was studied for the Crenshaw-Prairie Corridor. As presented in Figure 2.3, LRT service was evaluated on the following Study Corridor service alignments:

1. **Crenshaw/LAX/Metro Green Line** – Operating south from the future Exposition Light Rail Line on Crenshaw Boulevard through the Crenshaw District to the former BNSF Railroad right-of-way, along the right-of-way through Downtown Inglewood, and then south to interface with the proposed LAX Intermodal Transportation Center and on to a direct service connection with the Metro Green Line at the Aviation Station.
2. **Crenshaw/Prairie/Hawthorne** – Operating south from the future Exposition Light Rail Line on Crenshaw Boulevard through the Crenshaw District to the former BNSF Railroad right-of-way, along the right-of-way to Prairie Avenue and then south on Prairie Avenue through Inglewood (past Daniel Freeman Hospital, Forum and Hollywood Park) to 111th Street and then west to accommodate a transfer to the Metro Green Line at the Hawthorne Station, south on Hawthorne Boulevard and terminating at El Segundo Boulevard in Downtown Hawthorne.

During Initial Screening, extension of LRT service, either at-grade or in a subway configuration, north from the future Exposition LRT Line to Wilshire Boulevard connecting with a future Metro Red Line Wilshire/Crenshaw Station, was evaluated and removed from further consideration at this time due to significant environmental and operational impacts, which may be addressable in the future.

At-grade LRT operations were precluded due to the severely constrained right-of-way width between Wilshire and Washington Boulevards, which allows for only two travel lanes in each direction. While this is the same area where mixed-flow operations were considered for the BRT options, there would be a larger resulting impact with LRT operations requiring an at-grade station and tail or cross-over tracks to facilitate operations at the Wilshire/Crenshaw Boulevards intersection. At-grade operations may result in significant noise, permanent loss of on-street parking and other environmental impacts on the immediately adjacent residential properties, some of which are potentially historically significant.



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LEGEND

- STUDY AREA BOUNDARY**
- REGIONAL METRO RAIL LINE**
- EXISTING METRO RAPID SERVICE**
- FUTURE METRO RAPID SERVICE**
- FUTURE LRT SERVICE**
- BRT IN EXCLUSIVE ROW (FORMER RAILROAD ROW)**
- BRT IN DEDICATED LANE (OPTION OPERATING WITHIN STREET OR FORMER RR ROW)**
- BRT IN MIXED FLOW OPERATIONS**
- BRT SYSTEM STATION**
- METRO RAIL STATION**

Possible LAX International Transportation Center Interface with future people mover system

Interface with Wilshire Metro Rapid service

Widen 1-10 bridge

Interface with future Expo LRT Service

Address interface with I-405 on/off-ramps



1/4 MI 1/2 MI 1 MI 2 MI 4 MI

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Subway LRT operations were removed from consideration at this time due to concentrated subsurface hydrogen sulfite which precluded extension of the Metro Red Line south on Crenshaw Boulevard in past study efforts. This issue may be resolvable in the future, but the technology currently does not exist to mitigate this major impact.

Analysis was performed to evaluate ridership benefits and cost impacts of the future extension of Crenshaw LRT service north to Wilshire Boulevard either in at-grade, mixed-flow or subway operations. In addition, other future regional decisions would have an impact of the performance of the Crenshaw LRT Line. A conceptual analysis was performed considering extension of the Metro Red Line to Wilshire/Crenshaw Boulevards and completion of the Exposition LRT Line to its proposed western terminus within the City of Santa Monica.

The Crenshaw-Prairie Corridor MIS effort evaluated an LRT alternative operating in a combination of the following five service configurations:

- At-grade, dedicated median-running operations within Corridor streets;
- At-grade, mixed-flow operations in constrained street locations;
- Dedicated primarily at-grade operations, with one grade separation at Centinela Avenue, on the former BNSF Railroad right-of-way
- Aerial operations to interface with the Metro Green Line near the Aviation Station and at the existing aerial configuration at Century Boulevard/BNSF Railroad right-of-way;
- Below-grade operations on Crenshaw Boulevard between Martin Luther King, Jr. Boulevard and Vernon Avenue.

LRT service would operate in mixed-flow conditions with other vehicular traffic in the following sections of the Study Corridor:

- **Crenshaw Boulevard** – Between Martin Luther King, Jr. Boulevard and Vernon Avenue.
- **Prairie Avenue** – Between the former BNSF Railroad right-of-way and 111th Street.

In addition, LRT service operating in a below-grade configuration was evaluated in the following constrained section of the Study Corridor:

- **Crenshaw Boulevard** – Between Martin Luther King, Jr. Boulevard and Vernon Avenue.

As shown in Table 2.4 below, utilization of the former railroad right-of-way offers a unique opportunity for LRT service in the Crenshaw-Prairie Corridor by allowing 63 percent of the proposed Crenshaw/Metro Green Line Alternative to operate in a dedicated right-of-way minimizing traffic and parking impacts, while providing higher travel speeds for LRT patrons.

Consideration of below-grade operations in a constrained portion of the Crenshaw District would allow 70 percent of this option's operations to occur in a dedicated right-of-way. Approximately 17 percent of the Crenshaw/Hawthorne Alternative would operate on the former railroad right-of-way. With subway operations, 24 percent of this option would occur in a dedicated right-of-way. For this option, 11 percent of street right-of-way operations could occur within the median of Hawthorne Boulevard, which has sufficient right-of-way to accommodate both traffic and dedicated LRT travel lanes.

Table 2.4: LRT Alternative – Operating Characteristics

Alternative	Percent of Alignment Proposed to Operate Within the RR ROW	Percent of Alignment Proposed to Operate in Subway	Percent of Alignment Proposed to Operate Within the Street ROW
Crenshaw/LAX/Metro Green Line – Base option	63 %	--	37 %
Crenshaw/LAX/Metro Green Line – Subway option	63 %	7%	30 %
Crenshaw/Prairie/Hawthorne – Base option	17 %	--	83 %
Crenshaw/Prairie/Hawthorne – Subway option	17 %	7 %	76 %

The proposed LRT stations are presented below in Table 2.5 and described in the *Crenshaw-Prairie Corridor MIS Station Concepts Report*. The stations were located to facilitate interface with other Corridor transportation services including existing local and limited bus service, the underlying Metro Rapid system, the Metro Green Line, the future Exposition LRT Line and the proposed LAX Intermodal Transportation Center. The two alignment alternatives have five stations in common located along the service section between Crenshaw/Exposition LRT Line and the former railroad right-of-way/West Boulevard. The Crenshaw/LAX/Metro Green Line LRT Alternative, operating over 8.3 miles, is proposed to have a total of eight stations including the use of the existing Metro Green Line Aviation Station. A ninth LRT station is possible to be located within the City of Inglewood at the former railroad right-of-way/Oak Street to serve a potential park-and-ride facility. The Crenshaw/Hawthorne LRT Alternative, running on a 9.8 mile service alignment, would have 12 stations including a special event-only station at Hollywood Park. This alternative’s alignment would extend beyond an interface with the Metro Green Line to a terminal station located within the City of Hawthorne at the intersection of Hawthorne/El Segundo Boulevards.

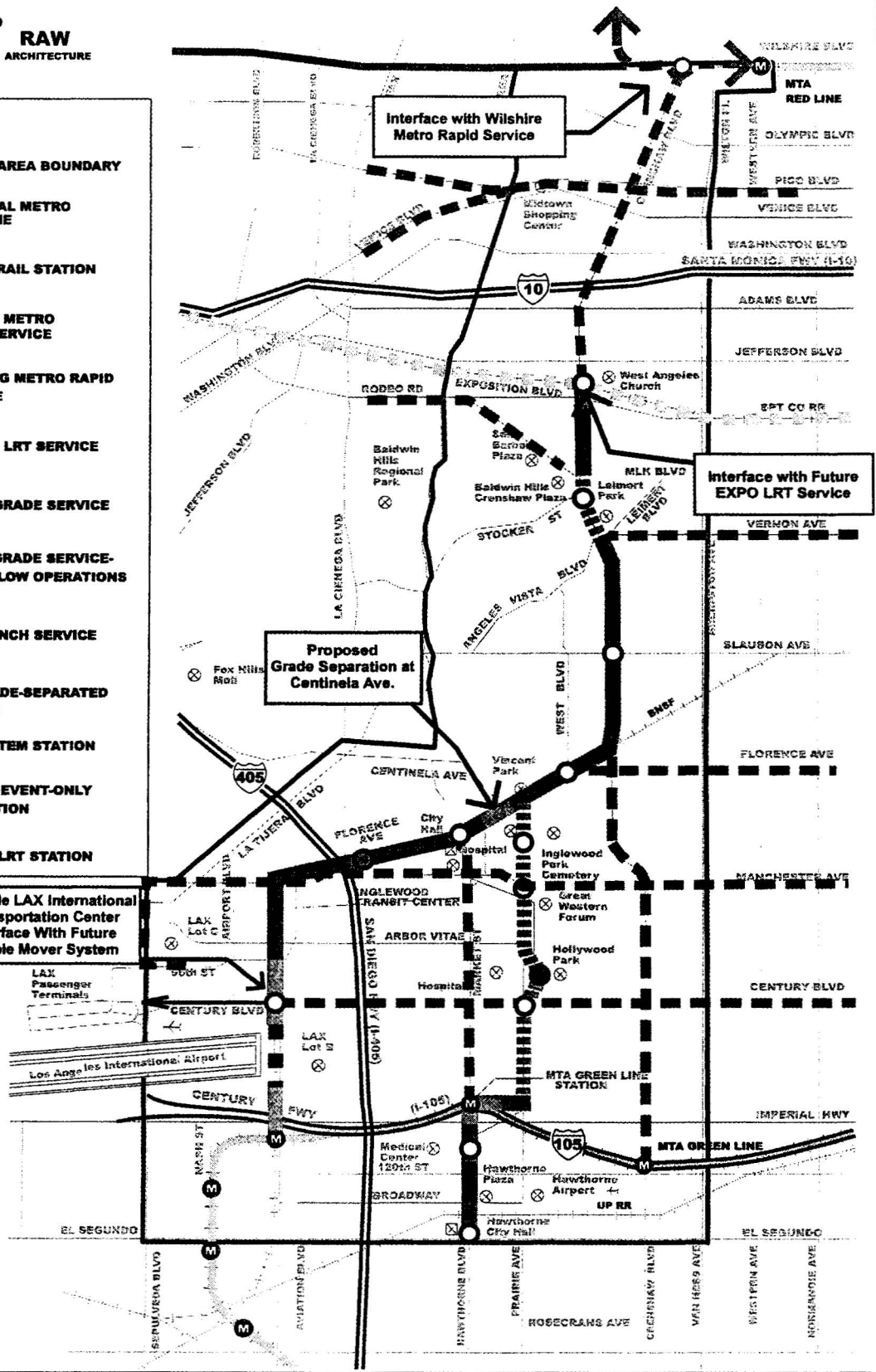
Table 2.5: LRT Alternatives – Stations

Common to both alternatives	
1. Crenshaw/Exposition LRT Line	4. Crenshaw/Slauson
2. Crenshaw/Martin Luther King, Jr.	5. RR ROW/West
3. Crenshaw/Vernon	
Crenshaw/LAX/Metro Green Line Alternative	
6. RR ROW/West	8. Metro Green Line Aviation Station
7. RR ROW/Century/LAX Intermodal Center	
Crenshaw/Hawthorne Alternative	
6. Prairie/Grace (Daniel Freeman Hospital)	10. Metro Green Line Hawthorne Station
7. Prairie/Manchester	11. Hawthorne/118 th (RFK Medical Center)
8. Prairie/Hollywood Park (special event-only)	12. Hawthorne/El Segundo
9. Prairie/Century	



LEGEND

- STUDY AREA BOUNDARY
- REGIONAL METRO RAIL LINE
- METRO RAIL STATION
- FUTURE METRO RAPID SERVICE
- EXISTING METRO RAPID SERVICE
- FUTURE LRT SERVICE
- LRT AT-GRADE SERVICE
- LRT AT-GRADE SERVICE-MIXED FLOW OPERATIONS
- LRT TRENCH SERVICE
- LRT GRADE-SEPARATED SERVICE
- LRT SYSTEM STATION
- SPECIAL EVENT-ONLY LRT STATION
- FUTURE LRT STATION



**Crenshaw-Prairie Corridor
Major Investment Study**

3.0 TRANSPORTATION ANALYSIS

3.0 TRANSPORTATION ANALYSIS

This section describes the existing transportation system within the Crenshaw-Prairie Corridor that would be affected by the proposed project alternatives under consideration. It also describes the transportation system consequences with the implementation of each of the three alternatives under consideration – Metro Rapid, Bus Rapid Transit and Light Rail Transit. These effects are presented both for the roadway system as well as the transit system, and are primarily discussed in terms of existing traffic information and forecasts generated from the MTA travel demand model.

This chapter of the MIS describes the Corridor's transportation environment both in terms of the base year of 2000 as well as the forecast year of 2025. While the Crenshaw-Prairie Corridor MIS effort was based primarily on an analysis of current year 2000 and future year 2025 conditions, some analytical tasks remain related to a comparison of a current year 1990 and a future year of 2015 as Study Area-level information was not yet available from the 2000 census.

3.1 Affected Environment

The current Corridor transportation system can be characterized as heavily automobile-oriented with a high level of bus transit usage. Currently severe congestion is experienced by automobile and bus transit users alike as many Corridor roadways operate at- or over-capacity during peak travel periods. Automobile drivers are negatively impacted by increased delays, while transit users must contend with slowing bus travel on the same congested street system. The ability to move quickly and efficiently in the Crenshaw-Prairie Corridor, both now and in the future, can be expressed in terms of freeway and arterial congestion along with transit system capacity and transportation system accessibility and choice. As discussed in the *Section 1, Purpose and Need* of this document, with anticipated future population, employment and related daily trip growth, and without future transportation system improvements, the Corridor will have:

- Increasing daily trips
- Growing transit-dependent population
- Continuing freeway congestion
- Increasing arterial congestion
- Continuing slowing of bus service
- Limited travel options.

Connections between the Crenshaw-Prairie Corridor and the regional transportation system are lacking, particularly in the north-south direction. Currently, all of the regional transportation system facilities serving the Corridor are located along the edges of the Study Area:

- *Northern edge* – I-10/Santa Monica Freeway and the future extension of the Metro Red Line;
- *Southern edge* – I-105/Century Freeway and the Metro Green Line; and
- *Western edge* – the I-405/San Diego Freeway.

There is no regional transportation system connection through or along the Study Area's eastern edge. The closest transportation facility to the east is the I-110/Harbor Freeway, more than three miles from the heart of the Corridor. The only north-south connection in the regional rail system – the Metro Blue Line – is located more than seven miles to the east of the Crenshaw-Prairie Corridor. The Study Area is isolated with no direct high-capacity connection to either the regional freeway or rail systems limiting mobility and transportation choices.

Accessibility to a full range of transportation options is also of importance in addressing the Crenshaw-Prairie Corridor mobility problem. Now and in the future, Corridor travelers will have limited options with continuing freeway and street system congestion, slowing and overburdened bus operations, and no direct connection to the regional rail system. Future Corridor transportation improvements will need to reflect a multi-modal strategy providing travelers with a more complete set of transportation alternatives.

3.2 TRAFFIC

The ability to move quickly and efficiently in the Crenshaw-Prairie Corridor, both now and in the future, can be expressed in terms of freeway and arterial congestion along with transportation system accessibility and choice. The following discussion presents an overview of existing conditions on the Study Area’s highway system.

3.2.1 Freeway Network

An extensive freeway system serving the Crenshaw-Prairie Corridor provides a high degree of access to areas throughout Los Angeles County and beyond. When operating effectively, this freeway network is capable of moving high volumes of vehicles. Figure 3.1 on the following page illustrates the portions of the existing freeway network within the Corridor Study Area:

- ***I-10/Santa Monica Freeway*** – Part of the east-west interstate freeway corridor connecting Los Angeles County with destinations to the east including the San Gabriel Valley and San Bernardino County. This freeway links the northern portion of the Corridor with Santa Monica, West Los Angeles and Downtown Los Angeles.
- ***I-405/San Diego Freeway*** – Part of the north-south interstate freeway corridor connecting Los Angeles County with Orange and San Diego counties to the south, and the Central Valley to the north. This freeway links the western portion of the Crenshaw-Prairie Corridor with the South Bay, West Los Angeles and the San Fernando Valley.
- ***I-105/Century Freeway*** – Part of the east-west interstate freeway system primarily serving the area of Los Angeles County located between the I-405 and I-710 Freeways. This freeway links the southern portion of the Corridor to the west with LAX, El Segundo and other South Bay cities, and to the east with Southeast Los Angeles and Norwalk.

Caltrans uses Level of Service (LOS) estimates to assess the performance of the region’s freeway system. Levels of Service A and B indicate free flow travel, while LOS C indicates the start of traffic congestion. Freeways operating at LOS D have traffic volumes that are beginning to approach capacity, but have not yet resulted in break down or unstable flow conditions. LOS E indicates traffic volumes that have reached capacity with unstable flow, and Level of Service F represents a break down in traffic flow caused by excessive demand, and is indicated by stop and go traffic congestion and significant delay. LOS F has been further broken down into four sub-categories designed to indicate the duration of the congestion as summarized below in Table 3.1.

Table 3.1: Freeway LOS F Sub-Categories

LOS	Congestion Duration
F0	15 minutes – 1 hour
F1	1 hour – 2 hours
F2	2 hours – 3 hours
F3	Longer than 3 hours

Source: Caltrans



**Crenshaw-Prairie Transportation Corridor
Major Investment Study**

**Figure 3.1
Existing Freeway and
Arterial Network**

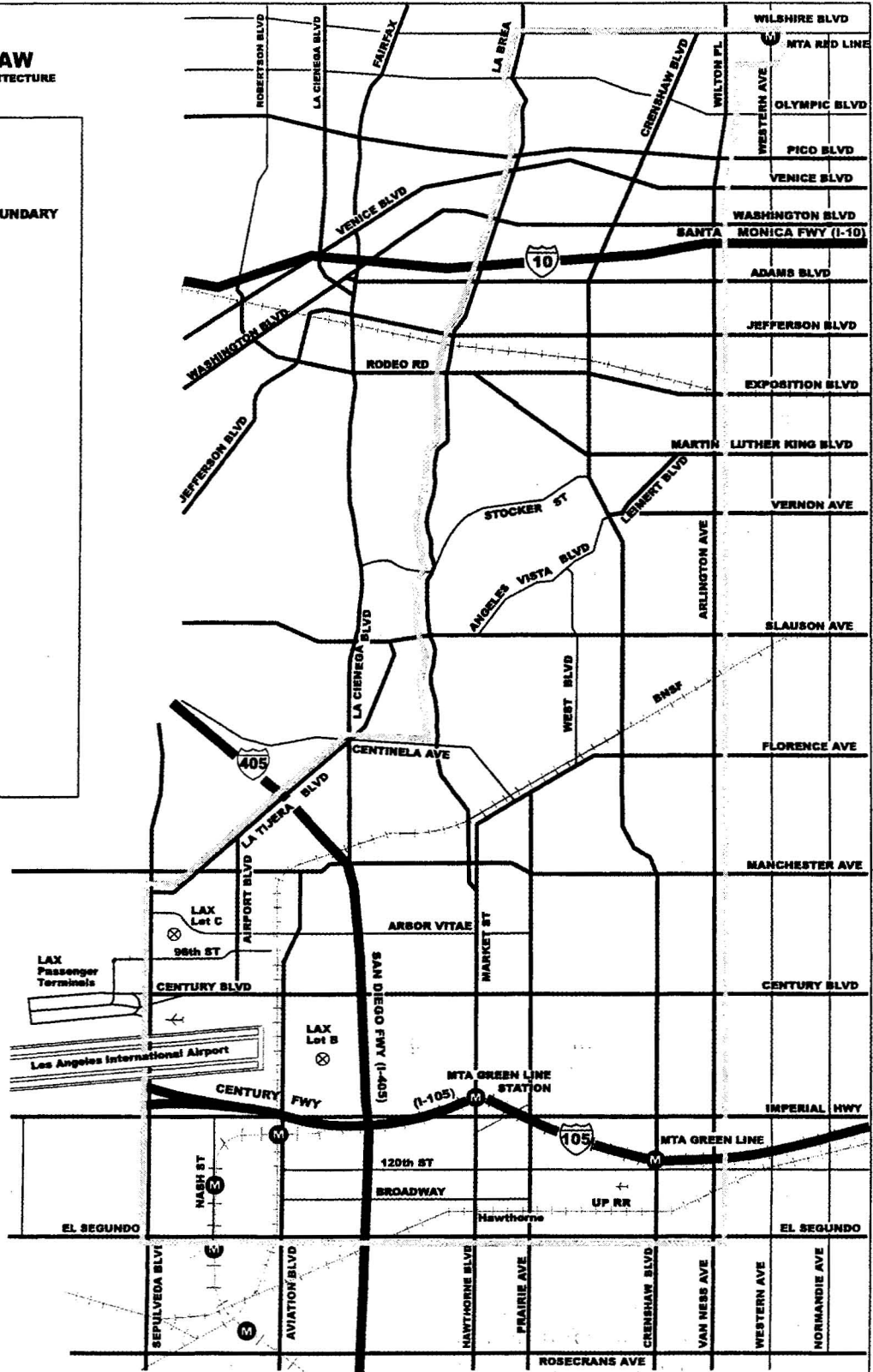
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ARCHITECTURE**

LEGEND

STUDY AREA BOUNDARY



1/4 MI 1/2 MI

1 MI

2 MI

4 MI

COR-FG3 & crr 699

Caltrans documents peak period congestion on an annual basis for the Los Angeles County Freeway system. The resulting maps are representative of operating conditions during peak hours on incident-free days. An incident-free day is defined as one on which operating conditions are not influenced by incidents such as accidents, disabled vehicles and lane closures. Caltrans estimates that incident-free days occur approximately 50 percent of the time and as such represent a best-case scenario for Corridor freeway congestion. Figures 3.2 and 3.3 on the following pages illustrate the 1998 congestion levels on the freeways serving the Crenshaw-Prairie Corridor for the morning and evening peak periods respectively. Table 3.2 below presents a summary of the typical peak period duration, while Table 3.3 identifies the peak period level of service and operating speed for the Corridor’s freeway system.

Table 3.2: Typical Peak Hours of Congestion (1998)

Freeway/Direction	Morning Peak Period	Evening Peak Period
I-10 Eastbound Westbound	7:00 – 10:00	3:15 – 7:30
	6:45 – 10:00	4:45 – 7:30
I-405 Northbound Southbound	6:45 – 10:00	5:30 – 7:45
	7:30 – 8:15	4:15 – 7:00
I-105 Eastbound Westbound	--	3:00 – 6:45
	6:45 – 9:00	--

Source: Caltrans, District 7

During the morning peak period, the freeways serving the Corridor typically operate at LOS F2 and F3 with two to more than three hours of congestion:

- **The I-10/Santa Monica Freeway** is the most congested and experiences peak period slowing in both travel directions. In the morning, the eastbound peak hour period is slightly shorter (three hours) with a typical operating speed between 20 and 35 mph, while the westbound side experiences more than three hours of congestion with speeds under 20 mph.
- **The I-405/San Diego Freeway** is primarily congested in the northbound direction as commuters travel to LAX, El Segundo, West Los Angeles and Santa Monica. The morning northbound level of service ranges between F2 and F3 with two or more hours of congestion and operating speeds typically under 20 mph.
- **The I-105/Century Freeway**, the region’s newest freeway, has the least congestion with morning congestion typically occurring only in the westbound direction from the I-110/Harbor Freeway west to Crenshaw Boulevard. This freeway experiences approximately two hours of congestion with an average operating speed of 20 to 35 mph.

During the evening peak period, the Corridor’s freeways are congested for a longer period of time, but typically operate at a higher speed:

- **The I-10 Freeway** again experiences the most congestion with more than three hours of stop-and-go traffic in both directions operating at speeds ranging between 20 and 35 mph, and with some segments operating at less than 20 mph.
- **The I-405 Freeway** has significant level of congestion in both directions. Northbound travel experiences between one to three hours of congestion with a typical operating speed between 20 and 35 mph with speeds less than 20 mph adjacent to the interchange with the I-105. Southbound travel is heaviest south of the I-105 with more than three hours of congestion.

- **The I-105 Freeway** has congestion in only one direction – westbound between the I-405 and Crenshaw Boulevard. Evening congestion lasts longer than three hours and results in a lower operating speed than in the morning.

Table 3.3: Freeway System Peak Period Congestion (1998)

A.M. Peak Period			
Freeway	Direction	Duration	Speed
I-10/Santa Monica			
Eastbound to Los Angeles	EB	F2	20-35 mph – 85 % Under 20 mph – 15 %
Westbound to Santa Monica	WB	F3	20- 35 mph – 30 % Under 20 mph – 70 %
I-405/San Diego			
North of La Tijera	NB	F3	20-35 mph – 30 % Under 20 mph – 70 %
	SB	F0	20-35 mph
South of La Tijera To I-105	NB	F3 – 90 % F2 – 10%	20-35 mph – 30 % Under 20 mph – 70 %
South of I-105	NB	F3	20-35 mph
I-105/Century			
East of I-405	WB (segment)	F2 – 75% F1 – 25%	20-35 mph
West of I-405	--	--	--
P.M. Peak Period			
I-10/Santa Monica			
Eastbound	Both	F3	20-35 mph – 80 % Under 20 mph – 20 %
Westbound			
I-405/San Diego			
North of La Tijera	Both	F2	20-35 mph
South of La Tijera To I-105	Both	F2 – 50 % F1 – 50 %	20-35 mph – 50 % Under 20 mph – 50 %
South of I-105	SB	F3	20-35 mph – 50 % Under 20 mph – 50 %
I-105/Century			
East of I-405	EB (segment)	F3 – 90 % F0 – 10 %	20-35 mph – 60 % Under 20 mph – 40 %
West of I-405	--	--	--

Source: Caltrans, District 7



**Crenshaw-Prairie Transportation Corridor
Major Investment Study**

Figure 3.2



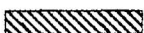
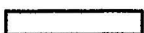

**Freeway Level of Service
(A.M. Peak Period, 1998)**

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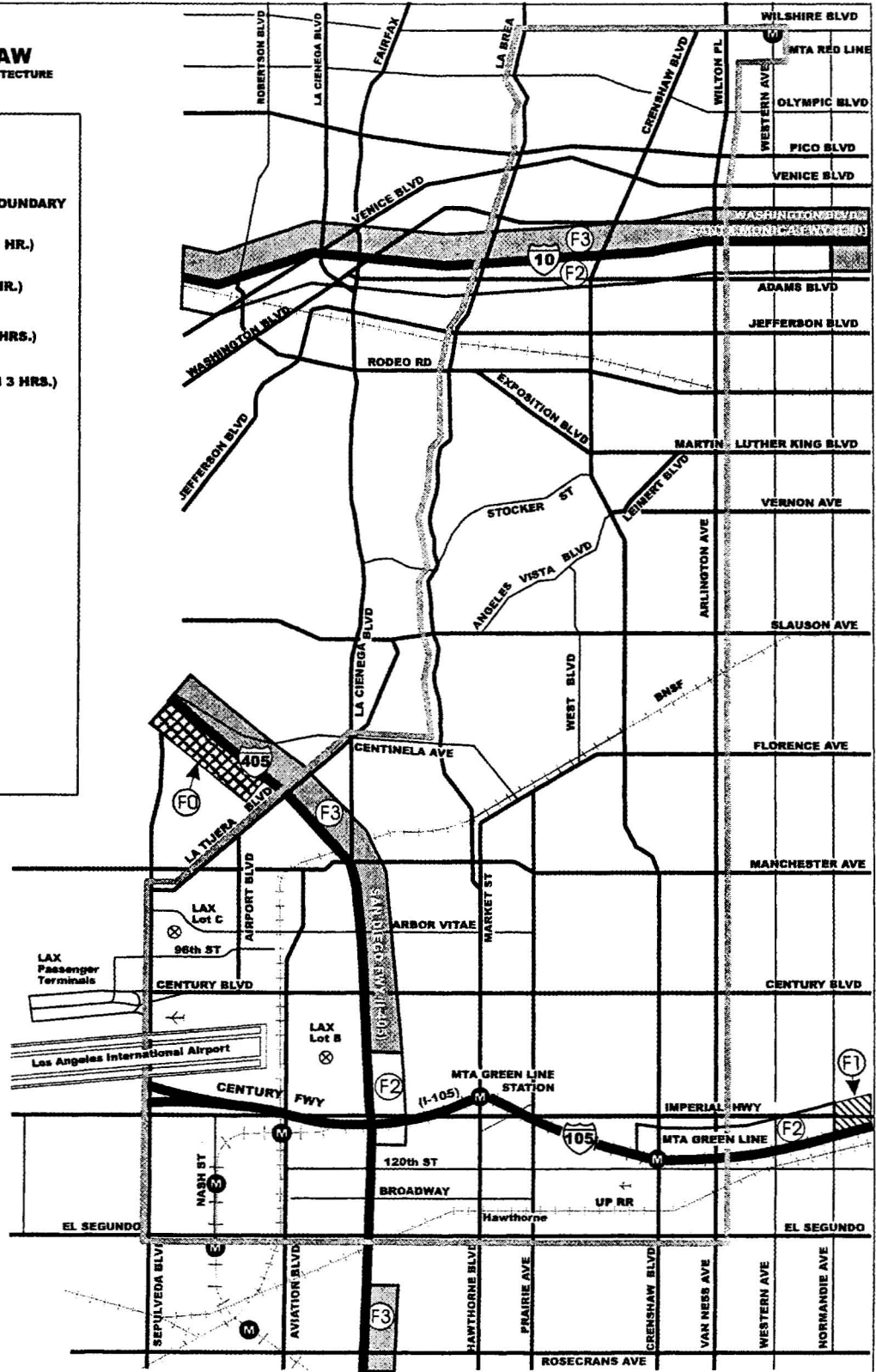


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LEGEND

-  STUDY AREA BOUNDARY
-  F0 (15 MIN. to 1 HR.)
-  F1 (1 HR. to 2 HR.)
-  F2 (2 HRS. to 3 HRS.)
-  F3 (MORE THAN 3 HRS.)

Source: Caltrans District 7



1/4 MI 1/2 MI 1 MI 2 MI

4 MI

COR-FG 3.1.c9 0/00



**Crenshaw-Prairie Transportation Corridor
Major Investment Study**

Figure 3.3

**Freeway Level of Service
(P.M. Peak Period 1998)**

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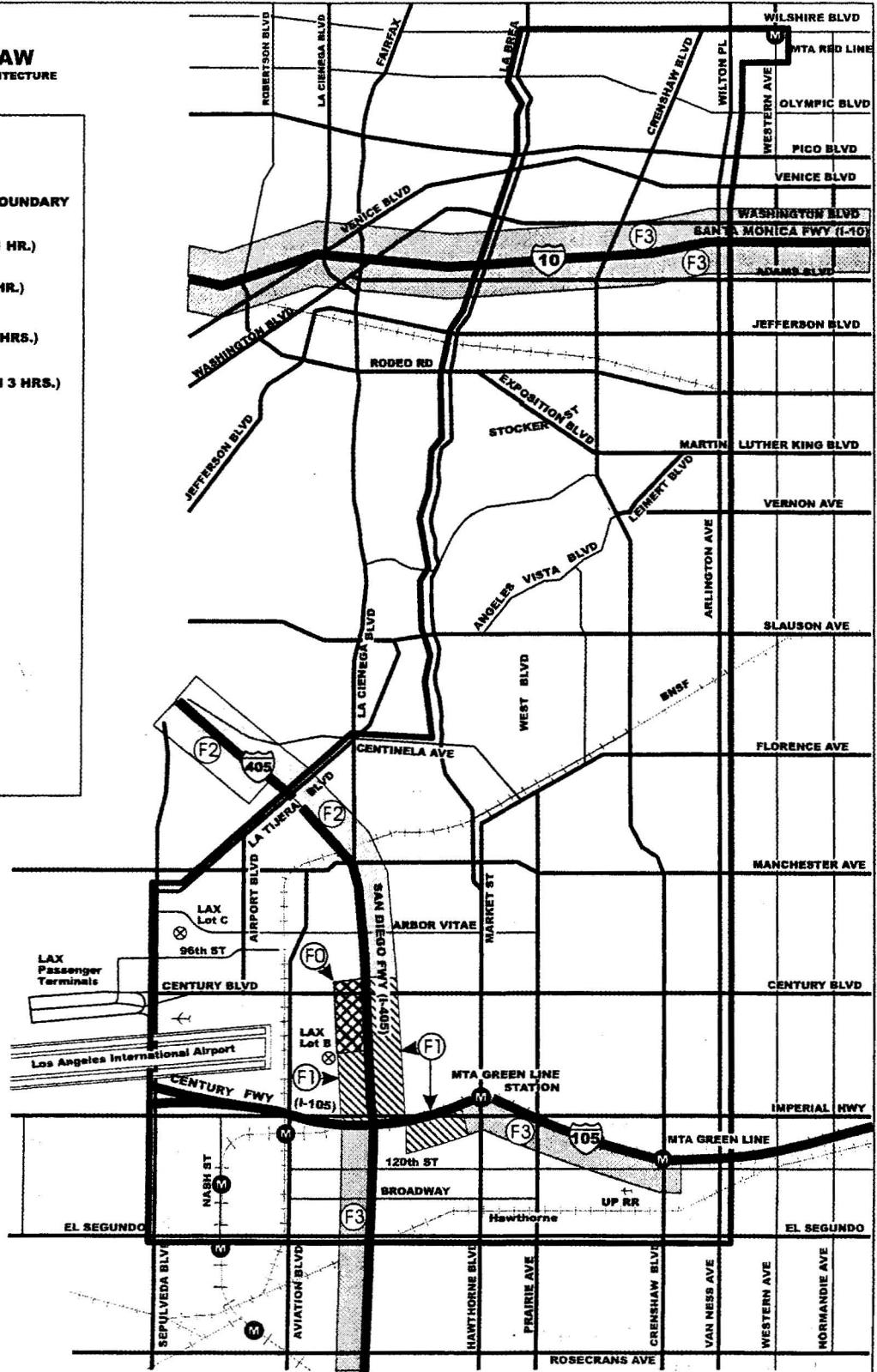


RAW
ARCHITECTURE

LEGEND

- STUDY AREA BOUNDARY
- F0 (15 MIN. to 1 HR.)
- F1 (1 HR. to 2 HR.)
- F2 (2 HRS. to 3 HRS.)
- F3 (MORE THAN 3 HRS.)

Source: Caltrans District 7



In summary, the Crenshaw-Prairie Corridor's freeway system currently exceeds capacity and experiences a significant level of congestion and delay:

- In the morning peak period, approximately 78 percent of the freeway system serving the Corridor operates at or below LOS F0, with the I-10/Santa Monica Freeway and large segments of the I-405/San Diego Freeway experiencing LOS F2 and F3.
- In the evening peak period, approximately 92 percent of the Corridor's freeway system operates at or below LOS F0, with the I-10/Santa Monica and large segments of the I-405/San Diego and I-105/Century Freeways experiencing LOS F2 and F3.

It should be noted again that the system operations identified and discussed above represents incident-free days, and that 50 percent of the time freeway system operations are more severe. On incident-free days in 1998, the Corridor's freeways had the following operational delays:

- **The I-10 Freeway** experienced eastbound congestion for more than 7.25 hours and westbound congestion for over 6.25 hours a day, resulting in more than 13.5 hours of operations at under 35 mph.
- **The I-405 Freeway** had 5.5 hours of northbound congestion and 3.5 hours of southbound delay per day, resulting in more than 9.0 hours of operations of under 20 mph.

Analysis of 2002 data by Caltrans District 7 identified that the section of the I-405 Freeway between the I-105 Freeway and the San Fernando Valley exceeded its weekday capacity for 12 hours a day – between 6:00-10:00 AM and 2:00-10:00 PM. Near-gridlock conditions also existed on Saturday and Sunday. The most severely impacted section was within the Study Area between Century Boulevard and the I-105 Freeway where the traffic volume exceeded capacity by 25 percent during peak periods.

- **The I-105 Freeway** experienced 2.5 hours of westbound congestion in the morning and 3.75 hours of eastbound delay in the evening, resulting in more than 6.0 hours of constrained operations at under 35 mph.

By the year 2025, the only funds programmed for freeway infrastructure improvements in the Crenshaw-Prairie Corridor are for carpool-lane gap closure on the I-405 Freeway between the I-105 Freeway and the US-101/Ventura Freeway. While this freeway improvement will assist Corridor residents traveling to jobs in West Los Angeles and the San Fernando Valley, the project will primarily benefit drivers traveling through the Corridor. Even with infrastructure improvements, the region's freeway system serves only the edges of the Study Area, and provides no north-south high-capacity transportation connection directly serving this heavily-traveled Corridor. Projections show more than 350,000 additional daily person trips will be generated in the Corridor by 2025. With 80 percent of the Corridor's residents traveling to work outside of the Study Area, it can be assumed that a large proportion of those trips will occur on the Corridor's freeway system with a corresponding increase in freeway congestion and delay.

3.2.2 Arterial Network

The Crenshaw-Prairie Corridor's arterial street system covers portions of four cities – Los Angeles, Inglewood, Hawthorne and El Segundo – as illustrated in Figure 3.1. The Study Area's street system is typically arranged in a "grid" network, with major arterial streets spaced at approximately one-mile intervals. A majority of the Corridor's arterial network is designed as a grid system except for the central portion of the Study Area. Here the street system is impacted by significant topographical changes, which constrain the design and operations of the Corridor's street system. Covering more than 45 percent of the

Study Area, this major hill system results in a non-grid street system with winding major streets and few minor streets, making circulation through the Corridor difficult. The resulting circuitous street system negatively impacts traffic operations as in many cases there is no nearby parallel street to allow for diversion of traffic in case of accidents or major congestion. Hilly terrain also precludes major east-west streets in the Corridor from Exposition Boulevard south to Manchester Avenue.

The build alternatives would operate in a combination of:

- **Street right-of-way** – Crenshaw Boulevard, Prairie Avenue, La Brea Avenue and Hawthorne Boulevard; and
- **Railroad right-of-way** – the former Burlington Northern-Santa Fe (BNSF) Railroad right-of-way now owned by the MTA.

Another physical issue impacting the operation of the Corridor's arterial network – and the implementation of future transit service improvements – is the existing constrained right-of-way for many of the Study Area's streets. Running through a substantially built-out community, and with a winding street configuration, many of the Corridor's streets have narrow curb-to-curb widths. Within the Study Area, the street curb-to-curb and right-of-way widths vary widely as presented in detail in Table 3.9, illustrated in Figure 3.4 and discussed below:

- **Crenshaw Boulevard** – Primarily within the City of Los Angeles, this street width and configuration varies significantly – curb-to-curb from 56 to 130 feet and right-of-way from 70 to 200 feet. An important feature of Crenshaw Boulevard is the existence and use of frontage roads for parking on either side of the street. The most constrained segment exists in the northern portion of the Corridor between Wilshire and Olympic Boulevards (56 feet curb-to-curb, 70 feet right-of-way), and further south from Olympic to Washington Boulevards (56 feet curb-to-curb, 90 feet right-of-way). At the other end of the range, the widest parts of Crenshaw Boulevard exist from the former Exposition Railroad right-of-way south to Coliseum Street (176 feet curb-to-curb, 200 feet right-of-way), and from Vernon Avenue south to Slauson Avenue (150 feet curb-to-curb, 180 feet right-of-way).
- **Prairie Avenue** – The proposed build alternatives operate along street sections located within the City of Inglewood. This street's curb-to-curb width ranges from 56 to 75 feet, and the right-of-way width varies from 66 to 100 feet. The most constrained sections exist south from the former BNSF Railroad right-of-way along the Inglewood Park Cemetery to Regent Street (64 feet curb-to-curb, 78 feet right-of-way) with the tightest section south from Regent Street to Manchester Boulevard (56 feet curb-to-curb, 66 feet right-of-way). The street widens south from Century Boulevard to 112th Street (75 feet curb-to-curb, 100 feet right-of-way) where the LRT Alternative will turn west along 112th Street to connect with the Metro Green Line Hawthorne Station.
- **La Brea Avenue/Hawthorne Boulevard** – These two streets provide the north-south connection from the former BNSF Railroad right-of-way south to the Metro Green Line Hawthorne Station and El Segundo Boulevard through the cities of Inglewood and Hawthorne as well as a portion of unincorporated Los Angeles County. La Brea Avenue becomes Hawthorne Boulevard south of Century Boulevard. The street width varies significantly from the more constrained northern section to the much wider southern section – from 75 to 154 feet curb-to-curb and 95 to 178 feet right-of-way. The alignment is most constrained on La Brea Avenue south from the railroad right-of-way to Market Street (75 feet curb-to-curb, 95 feet right-of-way). The widest portion is located on Hawthorne Boulevard from Century Boulevard south to El Segundo Boulevard (154 feet curb-to-curb, 178 feet right-of-way). The former Red Car system operated in the center of Hawthorne Boulevard and an approximately 30 foot wide median remains.



Crenshaw-Prairie Transportation Corridor Major Investment Study

Figure 3.4
Curb-to-Curb and
Right of Way Widths

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LEGEND

- STUDY AREA BOUNDARY
- REGIONAL METRO RAIL LINE
- METRO RAIL STATION
- KEY ACTIVITY CENTER
- CIVIC CENTER

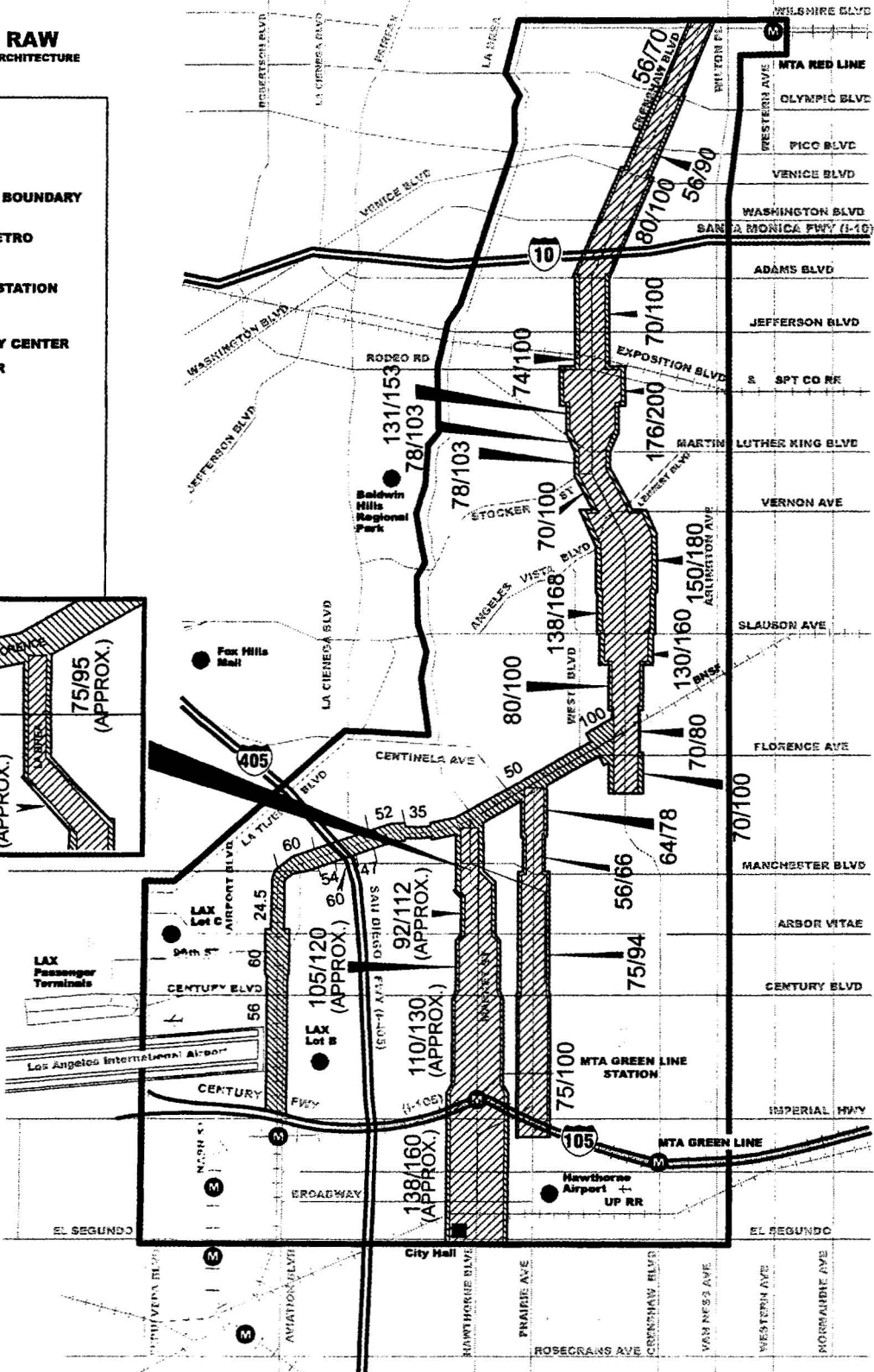
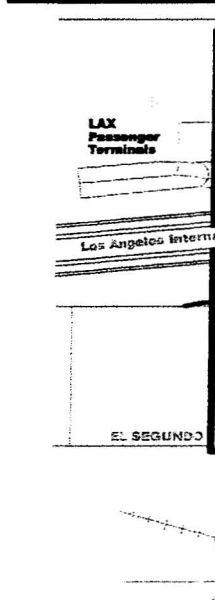
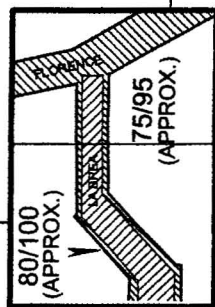


Table 3.4: Corridor Arterial Network

Segment	City	Street Classification	Right-of-Way Width	Curb-to-Curb Width	Number of Lanes	Median/Frontage Road
Crenshaw Boulevard						
Crenshaw/Wilshire to Crenshaw/Olympic	Los Angeles	Major	70	56	4	--
Crenshaw/Olympic to Crenshaw/Venice	Los Angeles	Major	90	56	4	--
Crenshaw/Venice to Crenshaw/Washington	Los Angeles	Major	90	56	4	--
Crenshaw/Washington to Crenshaw/Adams	Los Angeles	Major	100	80	6	--
Crenshaw/Adams to Crenshaw/Jefferson	Los Angeles	Major	100	70-75	6	--
Crenshaw/Jefferson to Crenshaw/Exposition	Los Angeles	Major	100	70	6	--
Crenshaw/Exposition to Crenshaw/Coliseum	Los Angeles	Major	100-200	70-74	6	--
Crenshaw/Coliseum to Crenshaw/39 th	Los Angeles	Major	200	74	6	--
Crenshaw/39 th to Crenshaw/MLK	Los Angeles	Major	174	80	6	--
Crenshaw/MLK to Crenshaw/Vernon	Los Angeles	Major	100-117	70-78	6	--
Crenshaw/Vernon to Crenshaw/Slauson	Los Angeles	Major	100-180	70-84	6	Median
Crenshaw/Slauson to Crenshaw/RR ROW	Los Angeles	Major	100-180	80-130	6	--
Prairie Avenue						
RR ROW/Prairie to Prairie/Manchester	Inglewood	Major	66-94	48-75	4	Reversible Median Lane
Prairie/Manchester to Prairie/Century	Inglewood	Major	90	76	6	Reversible Median Lane
Prairie/Century to Prairie/112 th	Inglewood	Major	100	76	6	--
Prairie/112 th to Metro Green Line Hawthorne Station	Inglewood/Los Angeles Cnty/Hawthorne	Freeway/Right-of-way	Varies	N.A.	8-10	--
La Brea Avenue/Hawthorne Boulevard						
RR ROW/La Brea to Market	Inglewood	Major	95-100	75-80	4	--
Market to Arbor Vitae	Inglewood	Major	112-120	92	6	Median
Arbor Vitae to Century	Inglewood	Major	120	105	6	Median
Century to 104 th	Inglewood	Major	130	110	6	Median
104 th to 111 th	Lennox/Los Angeles County	Major	160	138	6	Median
111 th to Imperial	Hawthorne	Major	160	138	6	
Imperial to 118 th	Hawthorne	Major	178	154	8	Median
118 th to El Segundo	Hawthorne	Major	178	154	8	Median

City Street Designations

Within the City of Los Angeles, the *Transportation Element of the General Plan, September 1999* designates the Corridor streets as Major Class I, Major Class II and Secondary as identified below in Table 3.5. Portions of Crenshaw Boulevard’s existing right-of-way width do not reflect the identified right-of-way width characteristics for Major Class I between Wilshire and Exposition Boulevards, and Martin Luther King, Jr. Boulevard and approximately 46th Street.

Table 3.5: City of Los Angeles Street Designations

Classification	Characteristics	Corridor Streets
Major Class I	126 foot right-of-way	Crenshaw Boulevard (north of 54 th Street)
	4 travel lanes in each direction + left turn lanes at signalized intersections*	
	More than 50,000 ADT 3,200 VPH	
Major Class II	104 foot right-of-way	Crenshaw Boulevard (south of 54 th Street) Wilshire Boulevard, Olympic Boulevard, Pico Boulevard (west of Crenshaw), Adams Boulevard, Martin Luther King, Jr. Boulevard, Stocker Street, Slauson Avenue, Florence Avenue
	3 travel lanes in each direction + left turn lanes at signalized intersections*	
	30,000 to 50,000 ADT 2,400 VPH	
Secondary	90 foot right-of-way	Pico Boulevard (east of Crenshaw), Venice Boulevard, Jefferson Boulevard, Rodeo Road, Vernon Avenue, 48 th Street, 54 th Street, Hyde Park Boulevard
	2 travel lanes in each direction + left turn lanes at signalized intersections*	
	20,000 to 30,000 ADT 1,400 VPH	
Legend:		
* During peak hours		
ADT – Average Daily Trips		
VPH – Vehicles Per Hour in each direction during peak hours		

The City’s *Transportation Element* supports the enhancement of the region’s transit system to compete effectively as an alternative to the automobile. It does so by identifying two categories of transit priority streets intended to encourage transit ridership. Within the City of Los Angeles, the following Corridor streets are designated as transit priority corridors:

- **High Capacity Transit Priority Corridor** – intended to accommodate high-capacity transit service post-2010. This corridor category includes Crenshaw, Wilshire and Olympic Boulevards.
- **Transit Priority Street** – identified to foster transit ridership programs. This group includes Martin Luther King, Jr. Boulevard (east of Crenshaw Boulevard), Florence Avenue and Manchester Avenue.

The *Transportation Element* also designates scenic roadway corridors that merit special controls in order to protect and enhance the City’s scenic resources. Within the Study Area, Crenshaw Boulevard is identified as a Scenic Highway. Design of any improvements to a scenic roadway must include preservation and support of scenic resources as well as safety and capacity considerations. Street-specific design controls are established either through adoption or revision of a Community Plan, or by following the City’s adopted Scenic Highway Guidelines. These design guidelines include protection of existing trees and plants, limiting the number of outdoor advertising signs, and support for undergrounding of new or relocated utility facilities. Any major alterations to a scenic roadway require consideration through the preparation of an environmental impact report.

Within the City of Inglewood, the full lengths of Prairie Avenue, La Brea Avenue and Hawthorne Boulevard are designated as Major Arterials in the *Circulation Element of the Inglewood General Plan*. Prairie Avenue between Florence Avenue and Manchester Boulevard has a restricted right-of-way width due to the presence of the Inglewood Memorial Park Cemetery along the east side of the street. As a result, this side of the street has no sidewalk or parkway. Further south between Florence Avenue and 112th Street, Prairie Avenue has a reversible median lane (using overhead illuminated signs) that may be utilized to handle large volumes of vehicles entering or exiting the Forum parking lot. The need for and utilization of the reversible lane has decreased significantly with the relocation of the Lakers and Kings to the Staples Center in Downtown Los Angeles. The City's adopted *Market Street Renaissance and Downtown Revitalization Plan* identifies the elimination of the dog-leg turn in La Brea Avenue at Market Street/Spruce Avenue, and its realignment as an S-curve to improve and simplify traffic movement.

Within the City of Hawthorne, only Hawthorne Boulevard is being evaluated for future "build" transit improvements. This Major Arterial-designated street has a significant right-of-way width of 178 foot which accommodates eight travel lanes, parking on both sides and an approximately 30 foot wide median formerly used by the Red Car system. The City is currently preparing a Specific Plan for this section of Hawthorne Boulevard. Future land use and transportation strategies are being developed to create a more pedestrian-friendly, mixed-use environment including concepts to mitigate the width of the street and reuse the median for future transit service.

Arterial Performance

The performance of the arterial street network is typically measured in terms of Level of Service (LOS) using the Intersection Capacity Utilization (ICU) methodology. The thresholds, based on an analysis of how much traffic the street is carrying (volume) versus what the street is designed to accommodate (capacity), which assign a letter value to the resulting LOS, are shown below in Table 3.6.

Table 3.6: Level of Service Criteria by ICU Methodology

LOS	Volume/Capacity Ratio (V/C)
A	0 – 0.60
B	0.61 – 0.70
C	0.71 – 0.80
D	0.81 – 0.90
E	0.91 – 1.00
F	> 1.00

The Crenshaw-Prairie Corridor's arterial streets are typically designed to accommodate medium to high traffic volumes (2,400 to 3,200 vehicles per hour per direction during peak hours). Based on an evaluation of existing traffic information, the current travel demand on the Corridor's roadway network exceeds the system's capacity in places, resulting in considerable congestion during peak periods. As illustrated in Figure 3.5, during the 1995 evening peak period, 47 percent of the Study Area intersections operated under constrained conditions (LOS E or F) with 26 percent exceeding capacity (LOS F).

As presented below in Table 3.7, an analysis of 1999 street segment level of service showed that the Corridor's congested street system conditions have worsened with 70 percent of the section of Crenshaw Boulevard under consideration experiencing considerable congestion (LOS E or F). Approximately 36 percent of Crenshaw Boulevard – from Wilshire Boulevard south to Adams Boulevard – was identified as operating at LOS F. The remainder of the Crenshaw Boulevard Corridor under consideration was operating with volume-to-capacity ratios of 0.99 to 1.00, and even a minor level of traffic growth will exceed available capacity. The Corridor's street segments further south from Vernon Avenue to the former BNSF Railroad right-of-way had available capacity, as did portions of Prairie Avenue.

Table 3.7: Segment Level of Service (1999)

Segment	Current Volume/ Capacity Ratio	Level of Service
Crenshaw Boulevard		
Crenshaw/Wilshire to Crenshaw/Olympic	1.06	F
Crenshaw/Olympic to Crenshaw/Venice	1.25	F
Crenshaw/Venice to Crenshaw/Washington	1.36	F
Crenshaw/Washington to Crenshaw/Adams	1.06	F
Crenshaw/Adams to Crenshaw/Jefferson	0.99	E
Crenshaw/Jefferson to Crenshaw/Exposition	0.99	E
Crenshaw/Exposition to Crenshaw/Coliseum	0.99	E
Crenshaw/Coliseum to Crenshaw/39 th	0.99	E
Crenshaw/39 th to Crenshaw/Martin Luther King, Jr.	1.00	E
Crenshaw/Martin Luther King, Jr. to Crenshaw/Vernon	1.00	E
Crenshaw/Vernon to Crenshaw/Slauson	0.75	C
Crenshaw/Slauson to Crenshaw/Railroad right-of-way	0.67	C
Prairie Avenue		
Prairie/90 th to Prairie/Century	0.73	C
Prairie/Century to Prairie/112 th	0.73	C

Source: Korve Engineering

3.2.3 Traffic System Impacts

The Crenshaw-Prairie Corridor’s arterial street system covers portions of four cities – Los Angeles, Inglewood, Hawthorne and El Segundo. The BRT and LRT Alternatives would operate primarily within the cities of Los Angeles, Inglewood and Hawthorne, with Metro Rapid Alternative service extending south into the City of El Segundo.

As the alternatives under consideration are planned to operate only on the Corridor’s arterial system and the former BNSF Railroad right-of-way, they will have a negligible or a positive impact on the freeway system as a portion of the Study Area’s projected trip growth will travel by other modes and routes with implementation of the transit service alternatives.

This section presents a generalized comparative evaluation of the project alternatives based on various traffic, transportation, mobility and highway performance criteria. The evaluation is related to the resulting effects that each alternative may have on overall mobility and levels of congestion at or near intersections in the Study Area. These effects and impacts are related to the following issues:

- Reduction in congestion due to highway trips transferring to the transit service.
- Loss of through capacity for mixed flow vehicles due to the conversion of an existing travel lane to a dedicated transit lane either permanently or for peak period-only transit operations.
- Loss of capacity for intersecting (cross) traffic due to increased traffic/transit volumes and/or traffic signal priority granted to transit (Metro Rapid, BRT or LRT) vehicles along the Corridor.
- Conflicts between transit (bus and rail) vehicles and mixed flow vehicular traffic along the travel corridor at intersections and/or mid-block locations.
- Increased delay and congestion due to additional signal phases, more green time for transit vehicles and/or new signals along the Corridor to accommodate and protect left turning vehicles.
- Loss of left and right turn movements due to transit facilities (BRT or LRT) resulting in redistribution of traffic on to parallel streets including adjacent residential streets.



**Crenshaw-Prairie Transportation Corridor
Major Investment Study**

**Figure 3.5
Arterial Level of Service
(P.M. Peak Period, 1995)**

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ENGINEERING**



**RAW
ARCHITECTURE**

LEGEND

STUDY AREA BOUNDARY

LEVEL OF SERVICE



A and B



C



D

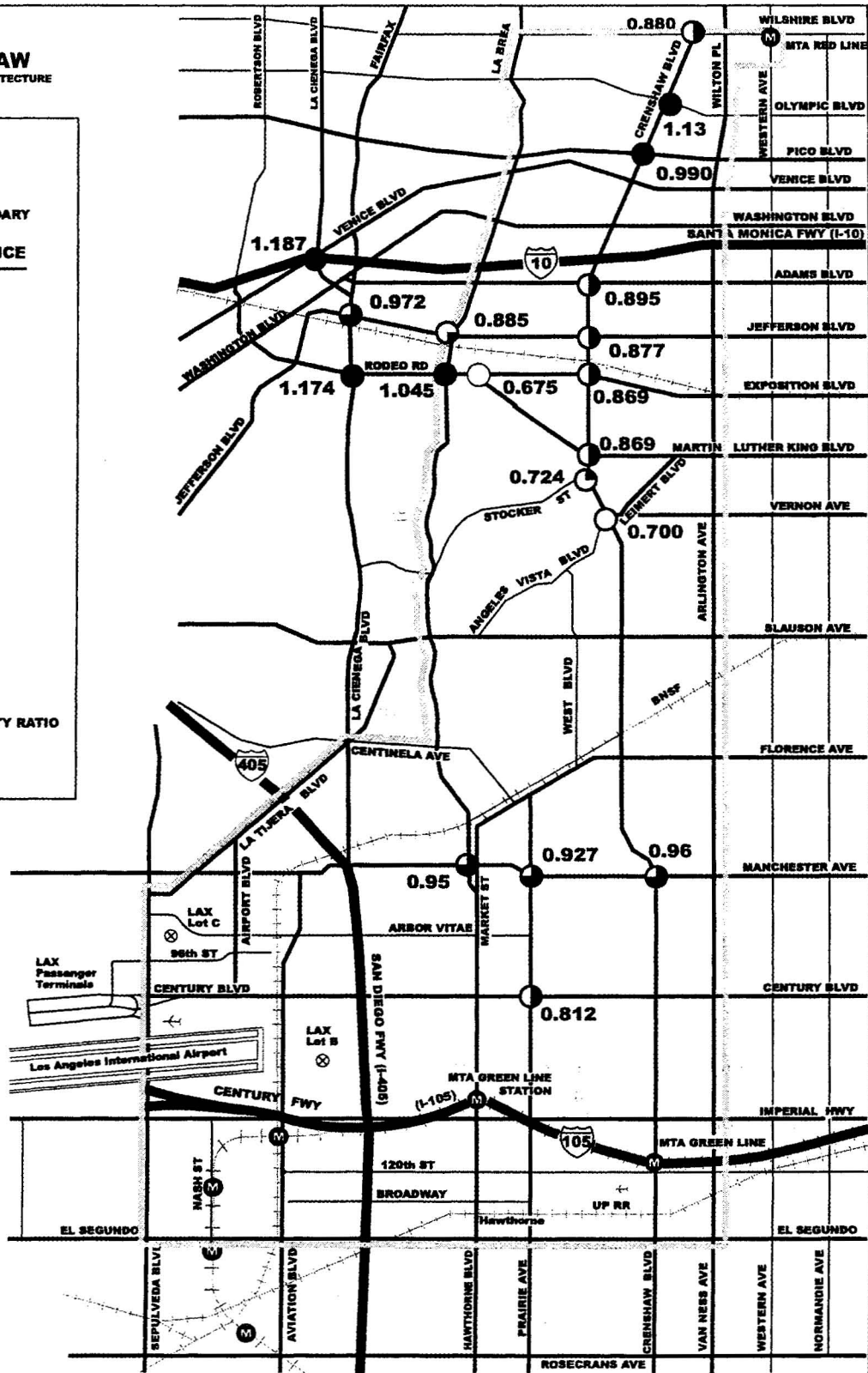


E



F

1.13 VOLUME TO CAPACITY RATIO



- Localized congestion impacts created by additional vehicles circulating to park-and-ride locations at transit stations located throughout the Corridor.

The factors affecting arterial congestion and effectiveness/efficiency are associated with variables such as the following:

- **Roadway geometrics** – the number of lanes in each direction and the presence of channelization (left and/or right turn lanes);
- **Traffic controls** – type and capability of traffic control devices at the intersections such as stop signs, signalization and dedicated turn phases; and
- **Circulation network** – availability of an arterial system that is capable of moving traffic in all directions, while minimizing impacts on surrounding residential neighborhoods.

A more detailed discussion of possible arterial impacts is presented in supporting documents including the *Crenshaw-Prairie Corridor Major Investment Study Technical Memorandum: Design Issues and Constraint Analysis*.

No Build Alternative

The No Build Alternative was comprised of the existing bus and rail systems currently in use with service improvements as required to meet projected 2025 ridership demands. This would include the existing alignments and operating schedules of the approximately 48 MTA bus lines and Metro Red, Blue and Green Lines serving the Study Corridor, as well as the approved Pasadena and Eastside Rail Lines. Bus service improvements included in the No Build Alternative may have a minor impact on the functioning of the arterial system in the Crenshaw-Prairie Corridor.

Metro Rapid Alternative

The Metro Rapid Alternative consisted of a Study Area-grid of Metro Rapid service supported with expanded local circulator service providing community linkages. Metro Rapid service was evaluated on seven Study Corridor service alignments providing direct connections to the Metro Red Line Wilshire/Western and Hollywood/Vine stations, and the Metro Green Line Aviation, Hawthorne and Crenshaw stations.

Metro Rapid services would operate along with other vehicles in mixed-flow conditions. This option would increase the number of buses operating in the Study Corridor by approximately 107 buses over those required under No Build conditions. This alternative's fleet mix would consist entirely of standard size buses. A signal priority system would facilitate the smooth flow of bus service, while minimizing the impact of the additional buses. During the constrained peak periods, a majority of the Corridor's streets currently prohibit curbside parking, which would further reduce peak period circulation impacts resulting from the operation of an increased number of buses. Possible arterial impacts for some street cross-sections may include: conflicts between buses and mixed flow traffic; some increased delay and congestion due to additional green time for Metro Rapid buses; and some impacts to automobile right turn movements at intersections. Detailed arterial impacts would be identified through further study efforts.

Bus Rapid Transit Alternative

Bus Rapid Transit (BRT) was defined as bus service providing the full range of physical and operational attributes of Metro Rapid service with the addition of dedicated lane operations where feasible. In the Crenshaw-Prairie Corridor, the BRT Alternative consisted of two BRT lines supported by the Metro Rapid system proposed in the Metro Rapid Alternative. Both of the proposed BRT lines would operate

south from Wilshire Boulevard Metro Rapid service to approximately the Metro Green Line along two service alignments: 1) Crenshaw Boulevard and the former BNSF Railroad right-of-way to the Metro Green Line Aviation Station; and 2) Crenshaw Boulevard, a portion of the former BNSF Railroad right-of-way and La Brea Avenue/Hawthorne Boulevard with a connection to the Metro Green Line Hawthorne Station. Transfer connections to the regional rail system would be provided to the Metro Green Line and the future Exposition LRT Line. The BRT Alternative evaluated a “build” option for the Study Corridor operating in the following three service configurations:

1. **Curbside dedicated lane operations** – Provision of an exclusive bus lane would be achieved by adding a new lane, replacing an auto lane or using non-vehicular right-of-way where sufficient right-of-way exists. The dedicated lane would occur primarily curbside or, along Hawthorne Boulevard possibly in median operations. The curbside through lane typically would be used for parking before- and after-peak period restrictions – 9 AM to 4 PM. The decision on whether to provide dedicated lane service on a 24-hour basis or for peak periods only would be based on future analysis and agreements with impacted jurisdictions.
2. **Mixed-flow operations** – Due to insufficient right-of-way width, BRT service would operate with other vehicular traffic in two constrained sections of the Study Corridor:
 - **Crenshaw Boulevard** – Between Wilshire and Washington Boulevards, and Martin Luther King, Jr. Boulevard and Vernon Avenue in the City of Los Angeles; and
 - **La Brea Avenue** – Between the former BNSF Railroad right-of-way and Manchester Avenue in the City of Inglewood.
3. **Dedicated right-of-way operations** – Utilization of the former BNSF Railroad right-of-way, now owned by the MTA, offers a unique opportunity for a portion of BRT service to operate separate from other vehicular traffic increasing BRT travel speeds and minimizing traffic impacts. Approximately 46 percent of the proposed Crenshaw/Metro Green Line Alternative could operate in a dedicated right-of-way minimizing traffic impacts. For the Crenshaw/Hawthorne Option, 15 percent of the service alignment could occur on the former railroad right-of-way. Utilization of the former railroad right-of-way by the BRT Alternative is predicated on the abandonment of freight rail operations by the BNSF.

The BRT Alternative would increase the number of buses operating in the Study Corridor over the No Build and Metro Rapid Alternative conditions. This option’s fleet mix would include both 40-foot standard size and 60-foot articulated buses. A signal priority system would facilitate the smooth flow of bus service, while minimizing the impact of the additional buses along with the longer articulated buses. During the constrained peak periods, a majority of the Corridor’s streets currently prohibit curbside parking, which would further reduce peak period circulation impacts resulting from the operation of additional and longer buses.

Signal priority for transit vehicles can be implemented in many ways ranging from adding a few seconds of green time to the transit phase to a complete preemption for the transit vehicle, although preemption is mainly applied to LRT operations. The proposed BRT lines traverse through three jurisdictions, including the cities of Los Angeles, Inglewood and Hawthorne, all with different signal control systems. The challenge for this project will be to develop a transit priority system that could be deployed through all of the jurisdictions along the Corridor.

As discussed and summarized below in Table 3.8, implementation of the BRT Alternative would have significant impacts on the functioning of the arterial system in the Crenshaw-Prairie Corridor. The analysis is based on a conceptual level of design; detailed arterial impacts would be identified through further, more detailed study efforts.

Crenshaw Boulevard

Along a majority of the Crenshaw Boulevard Corridor, BRT buses would be located in dedicated lanes, minimizing bus and vehicle travel conflicts. However, in segments along the Corridor, where the buses are not be able to use an exclusive lane due to a constrained street right-of-way width, BRT operational impacts to other vehicular traffic would be greater due to sharing of the roadway with mixed-flow traffic. As identified below in Table 3.8, this Alternative would result in the loss of a travel lane in each direction between Crenshaw/Washington and Crenshaw/Martin Luther King, Jr. and then Crenshaw/Vernon south to Crenshaw/Railroad ROW, which would reduce traffic capacity.

Table 3.8: Physical Arterial Network Impacts under the BRT Alternative

Segment	City	Proposed Operations	Impacts
Crenshaw Boulevard			
Crenshaw/Wilshire to Crenshaw/Olympic	Los Angeles	Mixed-flow	No impact
Crenshaw/Olympic to Crenshaw/Venice	Los Angeles	Mixed-flow	No impact
Crenshaw/Venice to Crenshaw/Washington	Los Angeles	Mixed-flow	No impact
Crenshaw/Washington to Crenshaw/Adams	Los Angeles	Curbside Dedicated Lane	Loss of one through lane each way – from 6 to 4 lanes
Crenshaw/Adams to Crenshaw/Jefferson	Los Angeles	Curbside Dedicated Lane	Loss of one through lane each way – from 6 to 4 lanes
Crenshaw/Jefferson to Crenshaw/Exposition	Los Angeles	Curbside Dedicated Lane	Loss of one through lane each way – from 6 to 4 lanes
Crenshaw/Exposition to Crenshaw/Coliseum	Los Angeles	Curbside Dedicated Lane	Loss of one through lane each way – from 6 to 4 lanes
Crenshaw/Coliseum to Crenshaw/39 th	Los Angeles	Curbside Dedicated Lane	Loss of one through lane each way – from 6 to 4 lanes
Crenshaw/39 th to Crenshaw/MLK	Los Angeles	Curbside Dedicated Lane	Loss of one through lane each way – from 6 to 4 lanes
Crenshaw/MLK to Crenshaw/Vernon	Los Angeles	Mixed-flow	No impact
Crenshaw/Vernon to Crenshaw/Slauson	Los Angeles	Curbside or Median Dedicated Lane	Loss of one through lane each way – from 6 to 4 lanes
Crenshaw/Slauson to Crenshaw/RR ROW	Los Angeles	Curbside or Median Dedicated Lane	Loss of one through lane each way – from 6 to 4 lanes
La Brea Avenue/Hawthorne Boulevard			
RR ROW/La Brea to Manchester	Inglewood	Mixed-flow	Loss of one through lane each way – from 6 to 4 lanes
Manchester to Century	Inglewood	Curbside Dedicated Lane	Loss of one through lane each way – from 6 to 4 lanes
Century to 103 rd	Inglewood	Curbside Dedicated Lane	Loss of one through lane each way – from 6 to 4 lanes
103 rd to 111 th	Lennox/Los Angeles County	Curbside Dedicated Lane	Loss of one through lane each way – from 6 to 4 lanes
111 th to Imperial	Hawthorne	Curbside or Median Dedicated Lane	Loss of one through lane each way – from 6 to 4 lanes
Imperial to 120 th	Hawthorne	Curbside or Median Dedicated Lane	Loss of one through lane each way – from 6 to 4 lanes
120 th to El Segundo	Hawthorne	Curbside or Median Dedicated Lane	Loss of one through lane each way – from 6 to 4 lanes

Source: Korve Engineering

This loss of traffic capacity may result in the shifting of traffic to parallel streets. While a majority of the Corridor's arterial network is designed as a grid system with major arterials spaced at approximately one-mile intervals, the street system in the central portion of the Study Area is impacted by significant topographical changes. Covering more than 45 percent of the Corridor, this major hill system results in a non-grid street system with winding major streets and few minor streets. The resulting circuitous street system negatively impacts traffic operations as in many cases there is no nearby parallel street to allow for diversion of traffic in case of accidents or major congestion. Any shifting of through traffic would probably occur to the closest through, parallel streets – La Brea Avenue on the west and Arlington Avenue/Wilton Place on the east. Diversion of traffic on to residential streets may occur surrounding congested intersections.

Possible arterial impacts for some street cross-sections may include: conflicts between buses and mixed flow traffic; some increased delay and congestion due to additional green time for BRT buses; and some impacts to automobile right turn movements at intersections. Detailed arterial impacts would be identified through further study efforts.

Depending on the final design of the BRT facility – curbside or median operations – this Alternative may result in a significant reduction of existing left or right turn movements. Consequently, this could have major impact delays to highway flow and could result in traffic dispersing to alternate routes, or diverting to minor streets. The delay effects would also impact traffic making right and left turns across the BRT lanes to east-west streets.

A key decision to be made is whether the BRT dedicated lanes would operate only during peak periods or on a 24-hour basis. Peak period-only dedicated lane operations could be considered Phase I option with expansion to a longer timeframe with more analysis. While this decision may have more of an impact on Corridor parking, as the curbside through lane is typically used for parking before and after peak period restrictions (9 AM to 4 PM), it would have an impact on mid-day traffic carrying capacity. This decision would be made based on more detailed analysis and working closely with the impacted city transportation departments – Los Angeles, Inglewood and Hawthorne, and possibly the County of Los Angeles. There would be no BRT impacts in the City of El Segundo.

The BRT Alternative would incorporate various degrees of traffic signal prioritization at the intersections to facilitate the smooth flow of bus operations along Crenshaw Boulevard, thereby resulting in the loss of signal green-time from, and some increase in delays to, cross-street traffic. Although these impacts and delays may be minimized utilizing the latest vehicle detection and signal timing/ synchronization technology, it would result in increased delays, particularly at locations where new traffic signals may be installed. The signal prioritization issue is more complicated in the Crenshaw-Prairie Corridor as the underlying Metro Rapid system has several proposed east-west lines that would also require signal prioritization to ensure the best functioning of this service.

La Brea Avenue/Hawthorne Boulevard

Along a majority of the La Brea Avenue and Hawthorne Boulevard Corridor, BRT buses would be located in dedicated lanes, minimizing bus and vehicle travel conflicts. However, between the former railroad right-of-way and Manchester Avenue, where the buses are not be able to use the an exclusive lane due to a constrained street right-of-way width and civic desires, BRT operational impacts to other vehicular traffic would be greater due to sharing of the roadway with other traffic.

As identified in Table 3.8, this Alternative would result in the loss of a travel lane in each direction between Manchester Avenue and El Segundo Boulevard, which would reduce traffic capacity and may result in shifts of traffic volumes to parallel streets. Further analysis is required, but it appears that this corridor's overall traffic capacity and mobility may be negatively impacted on the more constrained section through Downtown Inglewood, but would not be negatively impacted south of Manchester Avenue where excess traffic carrying capacity appears to exist.

Depending on the actual design of the BRT facility – curbside or median operations – this Alternative may result in a reduction of existing left or right turn movements. Consequently, this could have impact delays to highway flow and could result in traffic dispersing to alternate routes, or diverting to minor streets. The delay effects will also impact traffic making right and left turns across the BRT lanes from east-west streets.

This Alternative will also require various degrees of traffic signal prioritization at the intersections for bus movement along La Brea Avenue/Hawthorne Boulevard, thereby resulting in the loss of signal green-time from, and some increase in delays to cross-street traffic. Although these impacts and delays may be minimized utilizing the latest vehicle detection and signal timing/synchronization technology, implementation of this Alternative may result in increased delays, particularly at locations where traffic capacity is already constrained and/or new traffic signals will be installed.

Railroad Right-of-way

Along the former BNSF Railroad right-of-way portion of the BRT service alignment, traffic control devices would need to be placed at each grade crossing to control both bus and vehicle traffic. Typically, gates and/or signals installed at the BRT crossings would be two-phased: 1) BRT phase, and 2) vehicle phase. Other traffic control devices may include installation of pre-signals with BRT phasing, stop signs and closing of minor streets crossing the railroad right-of-way.

Light Rail Transit Alternative

Crenshaw-Prairie Corridor Light Rail Transit (LRT) service would be similar to the service currently operating on the Metro Blue and Green Lines, and under construction for the Pasadena and Eastside rail lines. In the Study Corridor, the LRT Alternative would be a northern extension of the existing Metro Green Line consisting of two LRT lines supported by the expanded Metro Rapid system proposed in the Metro Rapid Alternative. Both of the LRT lines would operate south from the future Exposition LRT Line to the Metro Green Line along two service alignments: 1) Crenshaw Boulevard and the former BNSF Railroad right-of-way to the Metro Green Line Aviation Station; and 2) Crenshaw Boulevard, a portion of the former BNSF Railroad right-of-way and Prairie Avenue/Hawthorne Boulevard with an interface to the Metro Green Line Hawthorne Station. Transfer connections to the regional rail system would be provided to the Metro Green Line and the future Exposition LRT Line. The LRT Alternative evaluated a “build” alternative for the Study Corridor operating in a combination of the following five service configurations:

1. **Median dedicated lane operations** – Provision of at-grade LRT tracks achieved by replacing an auto lane or using non-vehicular right-of-way where sufficient right-of-way exists. The LRT tracks would be located in the street median
2. **Mixed-flow operations** – Due to insufficient right-of-way width, at-grade LRT service would operate with other vehicular traffic in two constrained sections of the Study Corridor:
 - **Crenshaw Boulevard** – Between Martin Luther King, Jr. Boulevard and Vernon Avenue in the City of Los Angeles; and
 - **Prairie Avenue** – Between the former BNSF Railroad right-of-way and 111th Street in the City of Inglewood.
3. **Dedicated right-of-way operations** – Utilization of the former BNSF Railroad right-of-way, now owned by the MTA, offers a unique opportunity for a portion of LRT service to operate separate from vehicular traffic. Approximately 63 percent of the proposed Crenshaw/Metro Green Line Alternative would operate in a dedicated right-of-way minimizing traffic impacts. Consideration

of below-grade operations in a constrained portion of the Crenshaw District would allow 70 percent of this option's operations to occur in a dedicated right-of-way. Approximately 17 percent of the Crenshaw/Hawthorne Alternative would operate on the former railroad right-of-way. With subway operations, 24 percent of this option could occur in a dedicated right-of-way.

4. **Aerial operations** – Designed as a northern extension of the Metro Green Line, the LRT line will operate north in an aerial configuration from the Metro Green Line Aviation Station as well as interface with an aerial section adjacent to the Metro Green Line Hawthorne Station.
5. **Below-grade operations** – Studied for the section of Crenshaw Boulevard between Martin Luther King, Jr. Boulevard and Vernon Avenue.

The LRT Alternative would increase the number of buses operating in the Study Corridor over No Build conditions, while decreasing the number of buses operated under the Metro Rapid Alternative. This Alternative would result in the operation of rail vehicles within some portions of the Study Area's arterial system.

Table 3.9: Physical Arterial Network Impacts under the LRT Alternative (Non-Subway Option)

Segment	City	Proposed Operations	Impacts
Crenshaw Boulevard			
Crenshaw/Exposition to Crenshaw/Coliseum	Los Angeles	At-grade Median	Loss of one through lane each way – from 6 to 4 lanes + loss of median and/or center left turn lane
Crenshaw/Coliseum to Crenshaw/39 th	Los Angeles	At-grade Median	Frontage road reduced by 20 feet + loss of center left turn lane
Crenshaw/39 th to Crenshaw/MLK	Los Angeles	At-grade Median	Loss of median + eastern frontage road + loss of center left turn lane
Crenshaw/MLK to Crenshaw/Vernon	Los Angeles	Mixed-flow	No impact
Crenshaw/Vernon to Crenshaw/Slauson	Los Angeles	At-grade Median	Loss of median and/or center left turn lane, <i>or</i> loss of one through lane each way – from 6 to 4 lanes
Crenshaw/Slauson to Crenshaw/RR ROW	Los Angeles	At-grade Median	Loss of median and/or center left turn lane, <i>or</i> loss of one through lane each way – from 6 to 4 lanes
Prairie Avenue/Hawthorne Boulevard			
RR ROW/Prairie to Prairie/Manchester	Inglewood	Mixed-flow	No impact
Prairie/Manchester to Prairie/Century	Inglewood	At-grade Median	Loss of median and/or center left turn lane, <i>or</i> loss of one through lane each way – from 6 to 4 lanes
Prairie/Century to Prairie/112 th	Inglewood	At-grade Median	Loss of median and/or center left turn lane, <i>or</i> loss of one through lane each way – from 6 to 4 lanes
Prairie/112 th to Metro Green Line Hawthorne Station	Inglewood/Los Angeles Cnty/ Hawthorne	Aerial	Coordination with Caltrans for aerial structure over I-105
Metro Green Line to 118 th	Hawthorne	Aerial	Median is reduced to 14 feet along street section, and reduced to 8 feet or less at intersections
118 th to El Segundo	Hawthorne	At-grade Median	Loss of median and/or center left turn lane, <i>or</i> loss of one through lane each way – from 8 to 6 lanes

Source: Korve Engineering

A signal priority system would facilitate the smooth flow of rail service and mitigate a majority of the vehicular impacts resulting from the operation of the trains. Signal priority for transit vehicles can be implemented in many ways ranging from adding a few seconds of green time to the transit phase to a complete preemption for the LRT vehicle. The proposed LRT service traverses through three jurisdictions, including the cities of Los Angeles, Inglewood and Hawthorne, all with different signal control systems. The challenge for this project will be to develop a transit priority system that could be deployed through all of the jurisdictions along the Corridor.

As discussed and summarized above in Table 3.9, implementation of the LRT Alternative would have significant impacts on the functioning of the arterial system in the Crenshaw-Prairie Corridor. This analysis is based on a conceptual level of design; detailed arterial impacts would be identified through further, more detailed study efforts.

Crenshaw Boulevard

Along a majority of the Crenshaw Boulevard Corridor, LRT vehicles would operate in an at-grade configuration in dedicated lanes minimizing rail and vehicle travel conflicts. However, in the segment between Martin Luther King, Jr. Boulevard and Vernon Boulevard, where the trains are not be able to operate in an exclusive lane due to a constrained street right-of-way width, LRT operational impacts to other vehicular traffic would be greater due to the sharing of the roadway with mixed-flow traffic. Resulting arterial impacts from mixed-flow LRT operations could be mitigated with the construction of a subway segment in this constrained section as shown below in Table 3.10.

Crenshaw Boulevard’s overall traffic capacity and mobility may be negatively impacted with implementation of the LRT Alternative due to the loss of traffic carrying capacity along the Corridor. As identified above in Table 3.9, this Alternative would result in the loss of a travel lane in each direction between Crenshaw/Exposition and Crenshaw/Martin Luther King, Jr., as well as from Crenshaw/Vernon south to Crenshaw/Railroad ROW.

Table 3.10: Physical Arterial Network Impacts under the LRT Alternative (Subway Option)

Segment	City	Proposed Operations	Impacts
Crenshaw Boulevard			
Crenshaw/Exposition to Crenshaw/Coliseum	Los Angeles	At-grade Median	Loss of one through lane each way – from 6 to 4 lanes + loss of median and/or center left turn lane
Crenshaw/Coliseum to Crenshaw/39 th	Los Angeles	At-grade Median	Frontage road reduced by 20 feet + loss of center left turn lane
Crenshaw/39 th to Crenshaw/MLK	Los Angeles	At-grade Transition to Subway	Subway portal begins south of 39 th Street, cut continues to south in median for approximately 575 feet
Crenshaw/MLK to Crenshaw/Vernon	Los Angeles	Subway Transition to At-grade	Subway portal ends at Brynhurst Street north of Vernon, cut continues to north in median for approximately 525 feet
Crenshaw/Vernon to Crenshaw/Slauson	Los Angeles	At-grade Median	Loss of median and/or center left turn lane, <i>or</i> loss of one through lane each way – from 6 to 4 lanes
Crenshaw/Slauson to Crenshaw/RR ROW	Los Angeles	At-grade Median	Loss of median and/or center left turn lane, <i>or</i> loss of one through lane each way – from 6 to 4 lanes

Source: Korve Engineering

This loss of traffic capacity may result in the shifting of traffic to parallel streets. The Corridor’s circuitous street system negatively impacts traffic operations as in many cases there is no nearby parallel street to allow for diversion of traffic in case of accidents or major congestion. Any shifting of through

traffic would probably occur on the closest through, parallel streets – La Brea Avenue on the west and Arlington Avenue/Wilton Place on the east. Diversion of traffic on to residential streets may occur surrounding congested intersections.

With the proposed median operations, the LRT Alternative may result in a significant reduction of existing automobile left turn movements. Consequently, this could result in major delays to highway flow and could result in traffic dispersing to alternate routes, or diverting to minor streets. The delay effects would also impact traffic making right and left turns across the LRT lanes from east-west streets.

The LRT Alternative would incorporate various degrees of traffic signal prioritization at the intersections to ensure the smooth flow of rail operations along Crenshaw Boulevard, thereby resulting in the loss of signal green-time from, and some increase in delays to, cross-street traffic. Although these impacts and delays may be minimized utilizing the latest vehicle detection and signal timing/synchronization technology, implementation of this Alternative may result in increased delays, particularly at locations where traffic capacity is already constrained and/or new traffic signals may be installed. The signal prioritization issue is more complicated in the Crenshaw-Prairie Corridor as the underlying Metro Rapid system has several proposed east-west lines that would also require signal prioritization to ensure the best functioning of this service.

Railroad Right-of-way

Along the former BNSF Railroad right-of-way portion of the LRT service alignment, traffic control devices would need to be placed at each grade crossing to control both rail and vehicle traffic. Typically, gates and/or signals at the LRT crossings would be two-phased: 1) LRT phase, and 2) vehicle phase. Other traffic control devices may include installation of pre-signals with LRT phasing, stop signs and closing of minor streets crossing the railroad right-of-way. Current regulations require traffic gates and flashing light signals for highway-light rail transit grade crossings in semi-exclusive alignments where LRT operating speeds exceed 35 mph.

In addition, analysis shows that a grade separation over Centinela Avenue may be justified based on an initial capacity analysis. Other locations that were considered for possible grade separations were La Cienega Boulevard and La Brea Avenue. Conceptual analysis showed that La Cienega Boulevard might be feasible for at-grade operations, while at-grade operations at La Brea Avenue may be viable if LRT service delay is acceptable.

3.3 TRANSIT

As discussed in *Section 1, Purpose and Need* of this document, with the demonstrated high level of Corridor transit usage and dependency, along with the forecast future population, employment and related daily trip growth, and without future transportation system improvements, transit service in the Corridor will be impacted in the following ways:

- Continued slowing of bus service;
- Limited travel options;
- Weak regional transportation system connections; and
- Continued air quality concerns.

3.3.1 Transit Service and Ridership

Currently, the Crenshaw-Prairie Corridor has a high level of transit service coverage with almost every major and secondary Study Area arterial served by at least one bus route as illustrated in Figure 3.6 and Table 3.11 on the following pages. Seven area transit providers offer a combination of community-based,



Figure 3.6
EXISTING BUS SERVICE

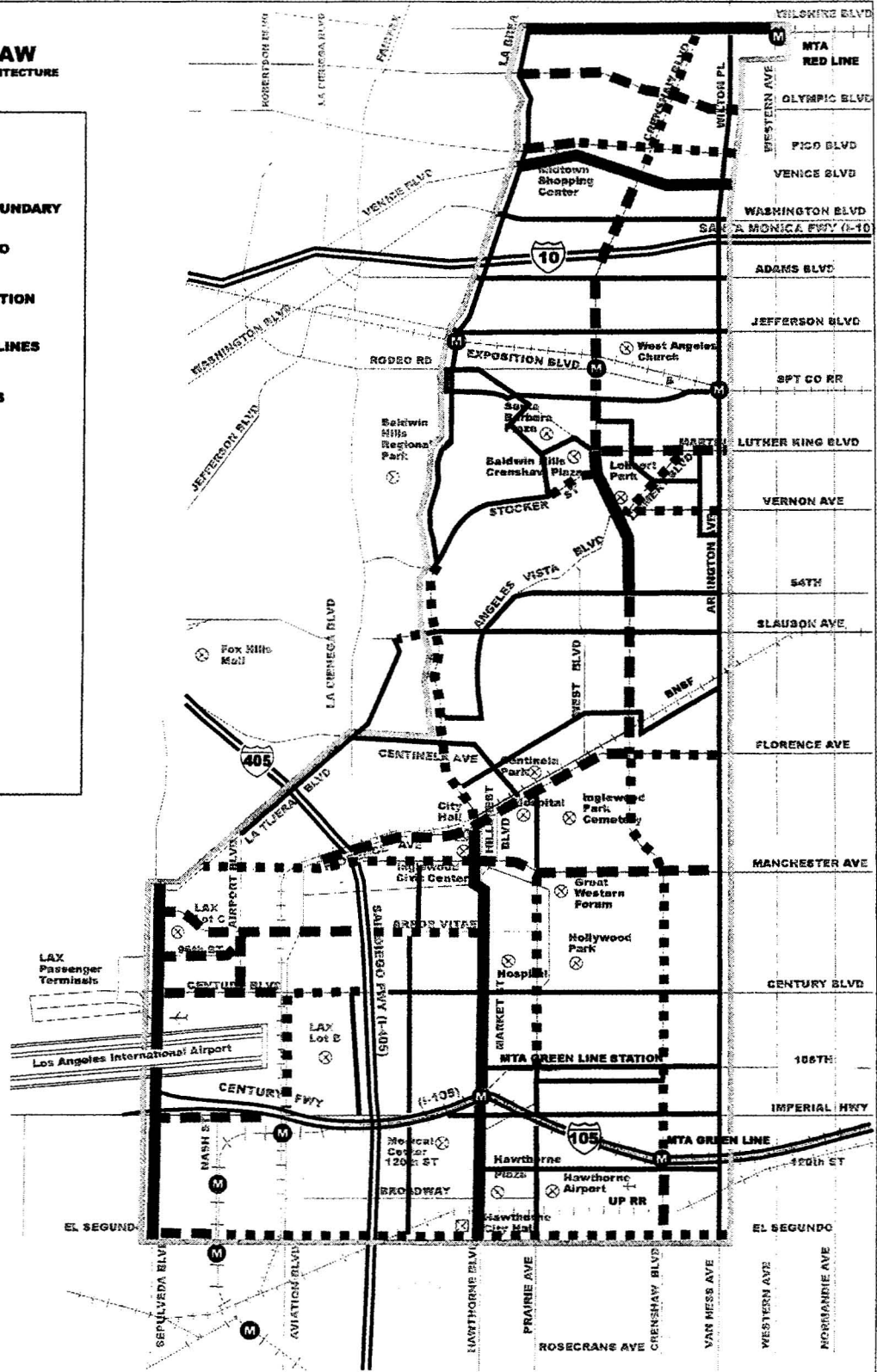
KORVE
ENGINEERING



RAW
ARCHITECTURE

LEGEND

- STUDY AREA BOUNDARY
- REGIONAL METRO RAIL LINE
- METRO RAIL STATION
- 5 OR MORE BUS LINES
- 3 OR 4 BUS LINES
- 2 BUS LINES
- 1 BUS LINES



1/4 MI 1/2 MI 1 MI 2 MI 4 MI

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local, limited-stop, Metro Rapid and freeway-express bus operations, along with rail transit service, within the Corridor. An eighth transit operator provides regional bus service running from El Monte through Downtown Los Angeles and along Wilshire Boulevard to terminate at the Metro Red Line Wilshire/Western Station.

Current challenges facing Crenshaw-Prairie Corridor bus service include:

- Frequency of Corridor service is not commensurate with the Study Area's needs;
- Capacity issues due to high Corridor transit dependency;
- Operational problems due to utilization of the congested arterial street system; and
- Inability to attract and retain the choice rider.

While every major Study Area street is served by at least one bus route, the frequency of service is not always commensurate with the Corridor's needs. Operating with longer headways underserves the Corridor's transit dependent riders and discourages choice riders. Providing more frequent service would better serve current riders along with the forecast increase in transit demand, while attracting choice riders as demonstrated by the Wilshire-Whittier Metro Rapid service and the patronage forecasts discussed below.

Due to the Corridor's higher than average transit ridership, approximately double the mode split of the County's urbanized area, many of buses serving the Crenshaw-Prairie Corridor are at- or over-capacity. Operating bus service beyond capacity results in overcrowding, rider pass-bys and loading delays, which in turn creates uneven headways, related schedule adherence problems and unhappy riders.

The effectiveness of Corridor bus transit operations is negatively impacted by arterial congestion resulting in slower bus speeds with negative impacts on schedule adherence, as well as decreased service reliability and increased travel times. Bus service in the congested Corridor conditions also results in higher operational costs due to the need for additional buses and drivers in an attempt to maintain the identified service schedule.

Currently, Crenshaw-Prairie Corridor travelers have a limited choice in travel options – auto or bus transit – circulating on the same congested street system. Existing operational issues make bus usage by transit dependent riders daunting, and make utilization undesirable to non-transit dependent residents or choice riders. Expanded Corridor travel options would provide all local residents, not just the transit dependent, with a more complete set of mode of access alternatives. The ability to attract and retain Corridor choice riders will depend on a variety of factors including improved travel time, reliability, perception of safety, cleanliness and seamless service interfaces with the regional transportation system.

Transit Dependency

Previous analysis documented in the *Crenshaw-Prairie Corridor Route Refinement Study* identified that more than 49 percent of the households within the Study Corridor were classified as low income, and approximately 16 percent of Corridor households had no automobile available. Both of these factors contributed to a higher than average transit usage. The urbanized County transit mode split was eight percent compared to an average of more than 13 percent in the Study Area. Transit usage in the Mid-City Subarea (21 percent) was approximately three times the average for the County's urbanized area. A majority of the Corridor, represented by the Crenshaw, Inglewood and Hawthorne subareas, had a transit mode share ranging between 10 and 14 percent, or 25 to 75 percent higher than the average of the County's urbanized area. Even the subarea with the Corridor's lowest transit usage – LAX with a nine percent transit mode share – was higher than the urbanized County average. While Study Area-level information was not yet available from the 2000 census, current Corridor transit usage appears to reflect past patterns.

Table 3.11: Corridor Transit Service

Operator	Service Name/ Line Number	Major Corridor Street(s)	Destinations
MTA	Rail Service		
	Red Line	Wilshire Boulevard	Wilshire/Western Station to Union Station and North Hollywood
	Green Line	I-105/Century Freeway	Norwalk-Hawthorne-El Segundo-Redondo Beach
	Metro Rapid Service		
	820	Wilshire Boulevard	Wilshire/Whittier from Santa Monica to Montebello
	Bus Service		
	20	Wilshire Boulevard	Wilshire – Santa Monica
	21	Wilshire Boulevard	Wilshire – UCLA
	27	Olympic Boulevard	W. Olympic-San Vicente- Burton Way
	28-328	Olympic Boulevard	W. Olympic (local & limited service)
	30	Pico Boulevard	W. Pico-E. 1 st St-Floral Drive
	31	Pico Boulevard	W. Pico-E. 1 st St
	33-333	Venice Boulevard	Venice Bl-Union Station (local & limited service)
	37	Adams Boulevard	Adams Bl
	38	Jefferson Boulevard	W. Jefferson Bl
	40-340	Hawthorne, Crenshaw, MLK Boulevards	So. Bay Galleria Transit Center-Hawthorne-Crenshaw-MLK-Union Station (local & limited)
	42	Martin Luther King, Jr. Boulevard	Union Station-MLK-La Tijera-LAX City Bus Center
	68	Washington Boulevard	West LA Transit Center-W. Washington-Cesaer Chavez-Montebello Town Center Mall
	102	Exposition Boulevard, Coliseum Street	E. Jefferson Bl-Exposition Bl-Coliseum Bl
	105	Vernon Avenue, La Cienega Boulevard	Vernon Ave-La Cienega Bl
	107	54 th Street	54 th Street-Fairview Bl-Santa Ana St
	108	Slauson Avenue	Marina Del Rey-Slauson Ave.-City of Commerce
	110	Centinela Avenue, Hyde Park Boulevard, Southwest Drive, Gage Avenue	Gage Ave-Centinela Ave-Fox Hills Mall
	111-311	Florence Avenue	LAX City Bus Center-Florence Ave-Leffingwell Rd (local & limited service)
	112	Florence Avenue	Florence Ave-Otis St
	115	Manchester Avenue	Manchester Bl-Firestone Bl
	/315	Manchester Avenue	LAX City Bus Center-Manchester Bl-Firestone Bl (limited service)
	117	Century Boulevard	LAX City Bus Center-Century Bl-Tweedy Bl-Rancho Los Amigos Medical Center
	119	108 th Street, Hawthorne Boulevard	108 th St-Green Line Hawthorne Station
	120	Imperial Highway	LAX City Bus Center-Imperial Hwy-Green Line Imperial/Wilmington Station
121	Imperial Highway	Green Line Imperial/Wilmington Station-Imperial Hwy-Norwalk/Santa Fe Springs Transp. Center	
124	El Segundo Boulevard	El Segundo Bl-Santa Fe Ave	
126	El Segundo Boulevard, 120 th Street	Yukon Ave-Manhattan Beach Bl	
210	Crenshaw Boulevard	Vine St-Crenshaw Bl-South Bay Galleria Transit Center	
/310	Crenshaw Boulevard	Vine St-Red Line Wilshire/Western Station-Crenshaw Bl-South Bay Galleria Transit Center (limited service)	
211	Prairie Avenue	Prairie Ave-South Bay Galleria Transit Center	

Table 3.11: Corridor Transit Service (continued)

Operator	Service Name/ Line Number	Major Corridor Street(s)	Destinations
MTA	Bus Service (continued)		
	212	La Brea Avenue, Hawthorne Boulevard	Hollywood Bl-La Brea Ave-Inglewood Ave- Hawthorne Bl
	215	Inglewood Avenue	Inglewood Ave-Redondo Beach
	220	Sepulveda Boulevard	Robertson Bl-Culver Bl-LAX City Bus Center
	225	Aviation Boulevard	LAX City Bus Center-Aviation Bl-Palos Verdes- San Pedro
	232	Sepulveda Boulevard	Long Beach-Anaheim St-Pacific Coast Hwy- Sepulveda Bl-LAX City Bus Center
	305	Vernon Avenue, Crenshaw Boulevard, Venice Boulevard	UCLA-Westwood-Green Line Imperial/ Wilmington Station (limited service)
	Express Service		
	434	Venice Boulevard	Malibu-Santa Monica-Union Station
	439	Sepulveda Boulevard, Centinela Avenue, La Cienega Boulevard	Redondo Beach-LAX City Bus Center-Union Station
	442	Hawthorne Boulevard, Manchester Ave	South Bay Galleria Transit Center-Hawthorne Bl- Manchester Bl-Union Station
	550	San Vicente Boulevard, Venice Boulevard	San Pedro-West Hollywood
	561	Sepulveda Boulevard, Century Boulevard, Aviation Boulevard	Metrolink Sylmar/San Fernando Station-San Diego Fwy-Getty Museum-UCLA-LAX City Bus Center-Green Line Aviation Station
	Special Service		
	608	Crenshaw Boulevard, 39 th Street, 48 th Street, Leimert Boulevard	<i>Crenshaw Connection:</i> Crenshaw/Baldwin Hills Plaza/48 th St & Normandie St
	625	Imperial Highway, La Cienega Boulevard, Century Boulevard, 96 th Street	<i>Green Line Shuttle (North):</i> Green Line Aviation Station-LAX City Bus Center
626	Nash Street, El Segundo Boulevard, Sepulveda Boulevard, Imperial Highway	<i>Green Line Shuttle (South):</i> Green Line Mariposa/ Nash Station-Sepulveda Boulevard	
LADOT	DASH Service		
	CRN	Crenshaw Boulevard, Coliseum Street	Crenshaw District
	LS	Crenshaw Boulevard, 54 th Street, MLK Boulevard	Leimert Park/Slauson Ave
	MCK (new)	--	Mid-City (Pico-Rimpau Transit Center)- Koreatown
	MID	Crenshaw Boulevard, Jefferson Boulevard, Adams Boulevard, Western Avenue, Washington Boulevard, Pico Boulevard	Midtown-Santa Barbara Plaza-Crenshaw
	WCK	Western Avenue	Red Line Wilshire/Western Station-Koreatown
	S9	Aviation Boulevard	Green Line Aviation Station-LAX
	Commuter Express Service		
	438	Aviation Boulevard	Redondo Beach-Hermosa Beach-LAX City Bus Center-Downtown Los Angeles
	534	Olympic Boulevard	West Los Angeles-Downtown Los Angeles
	574	Sepulveda Boulevard, Aviation Boulevard	Metrolink Sylmar-San Fernando Station-LAX City Bus Center-El Segundo

Table 3.11: Corridor Transit Service (continued)

Operator	Service Name/ Line Number	Major Corridor Street(s)	Destinations
Culver City	6	Sepulveda Boulevard, Westchester Parkway, 96 th Street	LAX City Bus Center-Sepulveda BI-UCLA
Foothill	481	Wilshire Boulevard	Red Line Wilshire/Western Station-El Monte- West Covina
Inglewood	I Line	La Brea Avenue, Market Street, Centinela Avenue	La Brea/Market-La Brea/Centinela
	213 (new)	--	Inglewood Circulator
Municipal Area Express (El Segundo, Palos Verdes & Torrance)	2	Sepulveda Boulevard	Palos Verdes-Torrance-El Segundo-LAX City Bus Center
	3	Sepulveda Boulevard	San Pedro-Torrance-El Segundo-LAX City Bus Center
	3X	El Segundo Boulevard	San Pedro-I-110/Harbor Fwy-El Segundo BI-LAX City Bus Center
Santa Monica Municipal Bus Lines	3	Sepulveda Boulevard, Century Boulevard, Aviation Boulevard	LAX City Bus Center-Marina Del Rey-Lincoln BI-Montana Ave-UCLA
	5	Pico Boulevard	Pico/Rimpau Transit Center to West Los Angeles- Century City via Pico Boulevard
	7	Pico Boulevard	Pico/Rimpau Transit Center to Santa Monica via Pico Boulevard
	12	Pico Boulevard	Pico/Rimpau Transit Center-Robertson BI-Palms- UCLA
	13 (15 - new)	Pico Boulevard	Pico/Rimpau Transit Center-Westside Pavilion- VA Hospital
	16 (new)	Pico Boulevard	Pico/Rimpau Transit Center-UCLA
Torrance Transit	8	El Segundo Boulevard, Sepulveda Boulevard, 96 th Street, Century Boulevard, Aviation Boulevard, Airport Boulevard	Green Line Mariposa/Nash Station-LAX City Bus Center

The Corridor's high transit usage was projected to continue with the transit mode share increasing in 2015 to an average of more than 21 percent as compared to 11 percent for the County's urbanized area. Transit usage in the northern portion of the Corridor (north of Slauson Avenue) was forecast to increase by 69 percent, while the southern portion was projected to have a 27 percent increase in transit mode share. The Mid-City Subarea would continue to have the highest percentage of transit utilization with a forecast 27 percent transit mode share. The Crenshaw Subarea is projected to have the highest percentage increase in transit usage with a 33 percent growth in transit mode share. The Corridor's other subareas also are forecast to have increases in transit usage maintaining their higher than average transit mode share. The Corridor's higher than average transit mode share is based on the current level of bus transit service and does not reflect the addition of a high capacity transit facility in the Crenshaw-Prairie Corridor.

Regional Transit System Connections

The geographical distribution of new jobs created in the Southern California region has bypassed the Corridor in favor of other areas including the San Fernando Valley, San Gabriel Valley and Orange County. Currently, 80 percent of Crenshaw-Prairie Corridor residents work outside of the Corridor. The resulting impact on Corridor residents traveling by transit has been longer travel distances and trip times. There is a demonstrated need to provide faster, more direct transit service to/from the Study Area

to regional job destinations, as well as better access to county-wide transportation options, to access these newer employment centers.

The Study Corridor currently has limited connections to the regional transit system, and no north-south high-capacity transportation connection within the Corridor. This lack of transit infrastructure limits mobility and transportation choices. The Corridor's only available transit service – bus transit – is constrained in effectiveness and patron convenience by traffic congestion. The lack of regional transportation system links will become more detrimental to future Corridor travel and economic development as Corridor population and employment continue to grow.

A unique Corridor opportunity exists with its strong potential to connect with the regional rail system at three locations, while providing a much-needed north-south linkage enhancing Corridor- and region-wide connectivity. As illustrated in Figure 3.7, a high-capacity Corridor transportation system could connect to the following lines of the regional rail system:

- Metro Red Line in the north;
- Future Exposition LRT Line in the center; and
- Metro Green Line in the south.

A future high-capacity transportation project within the Crenshaw-Prairie Corridor also offers the potential to provide improved linkages to the following service components of the regional bus transit system:

- Metro Rapid service operating on Wilshire Boulevard;
- Three major bus transfer centers – Pico/Rimpau Transit Center, the LAX City Bus Center, and future Downtown Inglewood Transit Center; and
- Numerous local and regional bus lines operating in the Corridor.

3.3.2 Transit Service Impacts

Ridership projections were prepared utilizing the MTA Travel Demand Model for the transit system options under consideration – the Metro Rapid, Bus Rapid Transit and Light Rail Transit alternatives – along with the No Build Option to provide a basis for comparison. Table 3.12 below presents the projected passenger daily boardings as well as the number of new transit riders attracted through implementation of each of the proposed alternatives in the year 2025.

Table 3.12: Forecast Ridership (Year 2025)

Alternative	Total Daily Corridor Boardings	Daily New Transit Riders Over No Build	Daily New Transit Riders Over Metro Rapid
No Build	9,400	--	--
Metro Rapid	45,100	13,400	--
Bus Rapid Transit	55,500	17,800	4,400
Light Rail Transit	53,700	21,800	8,400

Modeling results demonstrated a significant increase in daily transit boardings in the Crenshaw-Prairie Corridor with implementation of the proposed north-south and east-west grid system network of Metro Rapid lines. Implementation of this Alternative would attract and serve an additional 35,700 daily boardings – a more than 475 percent increase in Corridor ridership – over the No Build Option by the year 2025. The proposed system of frequent, high-speed bus service routes was projected to attract 13,400 daily new transit riders over No Build conditions.

Implementation of the Bus Rapid Transit Alternative, primarily providing dedicated lane operations for two BRT lines, along with the supporting Metro Rapid service network in the Study Area, was forecast to serve an additional 46,100 daily boardings – an increase of approximately five times over the ridership attracted under No Build conditions. Providing dedicated lane bus service, resulting in faster travel speeds and shorter travel times, would attract 17,800 daily new transit riders over the No Build Option and 4,400 new riders more than the Metro Rapid Alternative.

Construction of the Crenshaw Light Rail Transit Alternative (between the future Exposition LRT Line and the Metro Green Line), providing primarily at-grade rail operations on two LRT lines, along with the supporting Metro Rapid service network, was projected to serve an additional 44,270 daily boardings – an increase of approximately 470 percent over No Build ridership. Providing the initial section of LRT service was forecast to attract the highest number among the alternatives under consideration. Implementing LRT service as a direct extension of the regional rail system would attract 21,800 more new transit riders than the No Build Option, and 8,400 more new riders than those attracted to the Metro Rapid Alternative.

3.1

In addition, three sensitivity runs were prepared to assess the effects of the following future rail system decisions related to the LRT Alternative:

- Extension of the future Exposition LRT Line west to its proposed terminus in the City of Santa Monica;
- Extension of Crenshaw LRT service north to a Wilshire/Crenshaw LRT terminal station, with no extension of Metro Red Line service beyond its current terminus at the Red Line Wilshire/Western Station; and
- Extension of Crenshaw LRT service north to connect with a future Metro Red Line extension to Wilshire and Crenshaw Boulevards.

Table 3.13: Comparison of LRT System Forecast Ridership (Year 2025)

Alternative	Corridor LRT System Length (Miles)	Total Daily Corridor Boardings	Daily New Transit Riders Over No Build	Daily New Transit Riders Over Metro Rapid
LRT (Base Option) From Exposition LRT Line south to Metro Green Line	12.7	53,700	21,800	8,400
LRT With Exposition LRT service extended to City of Santa Monica	12.7	53,800	36,300	22,900
LRT With extension north to Wilshire, Metro Red Line at current terminus at Wilshire/Western	15.7	61,300	23,000	9,600
LRT With extension north to Wilshire, Metro Red Line extension to new Wilshire/Crenshaw Station	15.7	65,200	27,600	14,200
<i>Metro Blue Line (FY 02)</i>	22.0	73,000		

Extension of the future Exposition LRT Line west to its proposed terminus in the City of Santa Monica would attract and serve the highest number of new transit riders among the LRT system options that were modeled. With this connection, the Crenshaw LRT Line was forecast to serve an additional 36,300 daily new transit riders over the No Build Option and 22,900 more than the Metro Rapid Alternative.



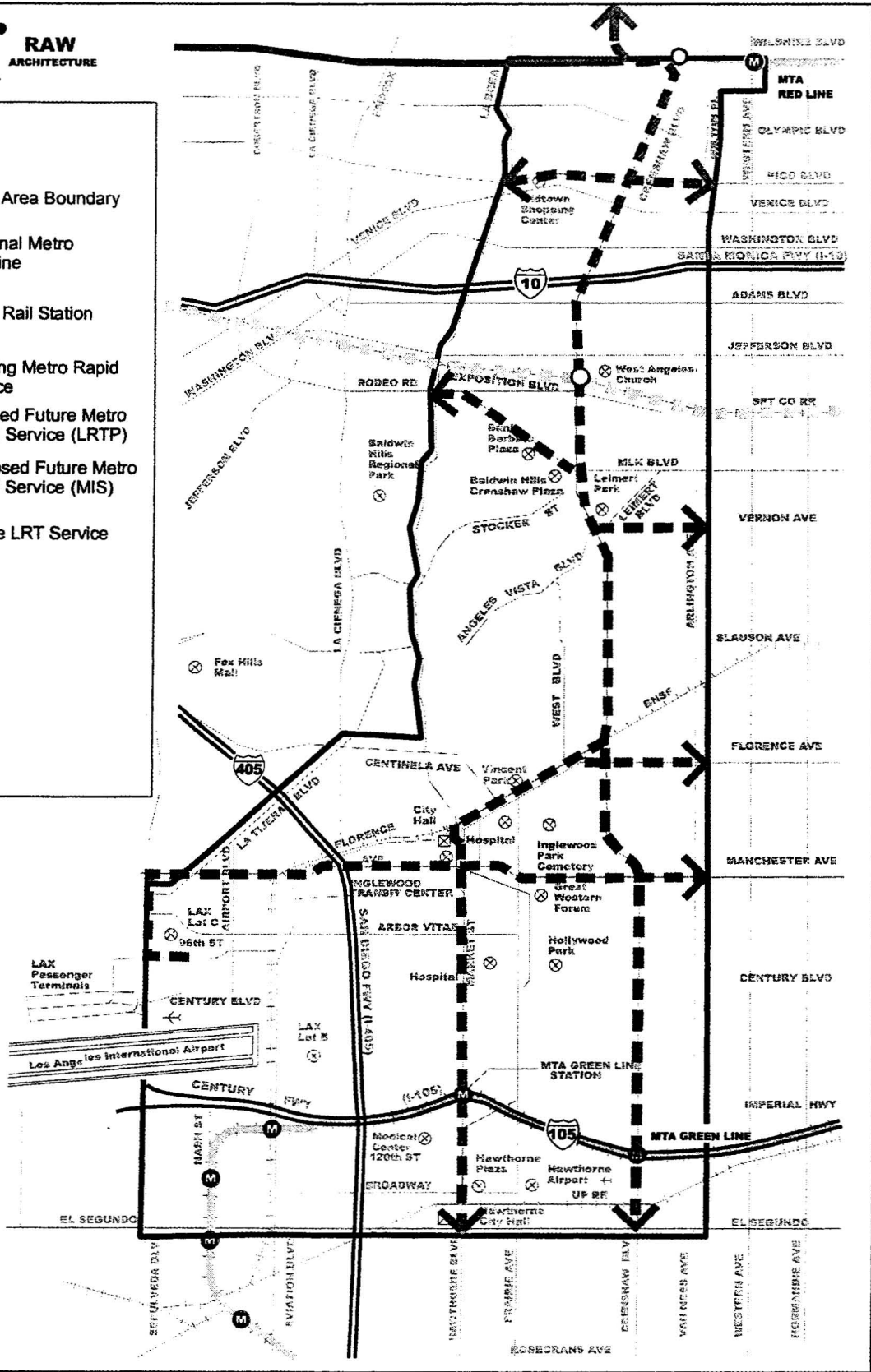
**Crenshaw-Prairie Transportation Corridor
Major Investment Study**

**Figure 3.7
Existing and Planned
Rail and Bus System**



LEGEND

- Study Area Boundary
- Regional Metro Rail Line
- Metro Rail Station
- Existing Metro Rapid Service
- Planned Future Metro Rapid Service (LRTP)
- Proposed Future Metro Rapid Service (MIS)
- Future LRT Service



1/4 MI 1/2 MI 1 MI 2 MI 4 MI

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Future extension of Crenshaw LRT service in mixed-flow operations north to a Wilshire/Crenshaw LRT station, with no extension of Metro Red Line service beyond its current terminus at Wilshire/Western, was projected to attract and serve an additional 23,000 new transit riders over the No Build Option and 9,600 more than the Metro Rapid Alternative.

Extension of Crenshaw LRT service in mixed-flow operations north to a Wilshire/Crenshaw LRT station, with extension of Metro Red Line to a new Wilshire/Crenshaw Station, was forecast to serve an additional 27,600 new riders over the No Build Option and 14,200 more than the Metro Rapid Alternative.

It should be noted that the ridership analysis of all of the LRT options was based on mixed flow operations between Adams and Wilshire Boulevards due a constrained street right-of-way width and possible significant neighborhood impacts. With construction of subway service north from Adams Boulevard under the I-10 Freeway to a future Metro Red Line Wilshire/Crenshaw Station, Crenshaw LRT Line ridership would increase due to a faster travel time and a more direct connection with the Metro Red Line.

3.4 PARKING

This section identifies existing Study Area parking conditions and restrictions, and provides an initial analysis of future parking impacts with implementation of each of the alternatives under consideration, including the proposed park-and-ride facilities related to the BRT and LRT Alternatives.

3.4.1 Parking Facilities

A data collection and analytical effort was undertaken to develop an initial description of the parking characteristics in the Study Corridor. The parking analysis presented in this section focuses on the Study Area streets where the alternatives are proposed for implementation:

- *City of Los Angeles* – Crenshaw Boulevard along with sections of Florence Avenue and Aviation Boulevard;
- *City of Inglewood* – La Brea Avenue/Hawthorne Boulevard and Prairie Avenue as well as segments of Florence Avenue and Aviation Boulevard;
- *City of Hawthorne* – Hawthorne Boulevard; and
- *County of Los Angeles (Lennox)* – a section of Hawthorne Boulevard.

The analysis of existing parking facilities includes identification of public on- and off-street parking currently available within the Study Corridor. There are currently three transit centers that provide varying levels of transit-related parking:

- *Pico/Rimpau Transit Center* – This facility serves as a key transfer point between MTA, Santa Monica and LADOT DASH bus service. Located in the northern section of the Corridor, the center provides off-street bus loading and layover space; there is not public parking.
- *LAX City Bus Center* – Located in the airport’s public parking Lot C, this facility provides short- and long-term parking allowing people to circulate to LAX via City shuttle service. Primarily LAX-oriented, this public parking facility is heavily utilized; master plan efforts may change its future function and configuration.

- **Downtown Inglewood Transit Center** – Located on La Brea Avenue, this facility accommodates transfers between City of Inglewood and MTA bus service. Parking is provided in adjacent public on- and off-street facilities.

Transit patron parking is available at two Metro Green Line stations:

- **Hawthorne Station** – Located on the southside of the station and the I-105 Freeway, this surface parking facility serves Metro Green Line passengers and provides bus layover space. Bus loading and additional Green Line Station access occurs on Hawthorne Boulevard as it crosses the I-105 Freeway. Transit parking is also provided on the northside of the station creating a total of 750 spaces in this station area. Currently, station area parking has a low daily utilization rate of approximately five percent. A portion of the northern lot is heavily used by teachers and parents from the adjacent elementary school located at 111th Street and Larch Avenue.
- **Aviation Station** – Located on the northside of the station and I-105 Freeway, this surface parking lot provides 525 spaces for Metro Green Line passengers and frequently operates at and beyond capacity. Shuttles provide access to LAX.

On-street parking is located along the Corridor streets and is governed by a wide range of parking restrictions that are presented in Table 3.14 on the following pages. There is a significant variation in restrictions by the side of each street, so the restrictions are presented in two ways:

- No street side designation when the same restrictions are applicable to both sides; or
- By appropriate street side designation – Eastside or westside.

The existing parking restrictions are reflective of frequently constrained street right-of-ways serving a densely built-out area dating primarily from the 1920s and 1930s. Parking restrictions fall into the following four categories:

1. **Parking Allowed with and without set time limits** – with one and two hour parking limits being the most common in the Study Area. There are extended time limits in two locations: 1) Crenshaw Boulevard between Vernon Avenue and 50th Street allows four hour parking; and 2) La Brea Avenue between Regent Street and Hillcrest Boulevard provides for five hour parking in Downtown Inglewood. Corridor parking is seldom controlled by meters except in portions of the Crenshaw District and in Downtown Inglewood.
2. **No Parking** – either anytime resulting in the permanent removal of parking, or for set times such as for street cleaning in Los Angeles or prohibiting overnight parking in Downtown Inglewood.
3. **No Stopping** –either anytime or for set times particularly adjacent to freeway on- and off-ramps, at/approaching major intersections, at locations with a narrow street right-of-way width, sections of Crenshaw Boulevard where there is an adjacent side street, and along Prairie Avenue to accommodate a center reversible lane for special event access.
4. **Tow Away No Stopping** – typically identified for weekday peak periods on one or both sides. While the morning time period is consistent throughout a majority of the Corridor (7-9 AM), the evening peak period varies from 4-6 PM to 4-7 PM. This parking restriction is also used in the Crenshaw District from 6 PM Sunday to 6 AM on Monday to discourage cruising by young people.

Table 3.14: Current Parking Restrictions

Segment	City	Restrictions
Crenshaw Boulevard		
Crenshaw/Wilshire to Crenshaw/9 th	Los Angeles	Eastside: No Parking, 10-12 Wednesday Westside: No Parking, 10-12 Thursday
Crenshaw/9 th to Crenshaw/Olympic	Los Angeles	Both: 1 Hour Parking, 8 AM-6 PM ES: No Parking, 10-12 Wednesday WS: No Parking, 10-12 Thursday
Crenshaw/Olympic to Crenshaw/Country Club	Los Angeles	NSAT
Crenshaw/County Club to Crenshaw/Pico	Los Angeles	ES: No Parking, 8-10 Wednesday WS: No Parking, 8-10 Thursday
Crenshaw/Pico to Crenshaw/Venice	Los Angeles	TANS 7-9 AM, 4-6 PM, except Saturday/Sunday (typical) ES: No Parking, 12-3 Wednesday WS: No Parking, 12-3 Thursday
Crenshaw/Venice to Crenshaw/Washington	Los Angeles	TANS 7-9 AM, 4-6 PM
Crenshaw/Washington to Crenshaw/I-10 Freeway bridge		TANS 7-9 AM, 4-7 PM
Crenshaw/I-10 Freeway bridge	Los Angeles	NSAT
Crenshaw/I-10 Freeway to Crenshaw/Adams	Los Angeles	TANS 7-9 AM, 4-7 PM 1 Hour Parking: 9 AM-4 PM, except Sunday
Crenshaw/Adams to Crenshaw/29 th	Los Angeles	TANS 7-9 AM, 4-7 PM 1 Hour Parking: 9 AM-4 PM, except Sunday
Crenshaw/29 th to Crenshaw/30 th	Los Angeles	TANS 7-9 AM, 4-7 PM ES: 1 Hour Parking, 9 AM-4 PM WS: 2 Hour Parking, 9 AM-4 PM
Crenshaw/30 th to Crenshaw/Jefferson	Los Angeles	TANS 7-9 AM, 4-7 PM ES: 1 Hour Parking, 9 AM-4 PM WS: No Parking Restrictions
Crenshaw/Jefferson to Crenshaw/Exposition	Los Angeles	ES: NSAT WS: TANS 7-9 AM, 4-7 PM 1 Hour Parking, 9 AM-4 PM, except Sunday
Crenshaw/Exposition to Crenshaw/Rodeo	Los Angeles	ES: NSAT WS: TANS 7-9 AM, 4-7 PM 1 Hour Parking, 9 AM-4 PM, except Sunday
Crenshaw/Rodeo to Crenshaw/Rodeo Place	Los Angeles	TANS 7-9 AM, 4-7 PM 1 Hour Parking, 9 AM-4 PM
Crenshaw/Rodeo Place to Crenshaw/Coliseum	Los Angeles	ES: NSAT WS: No Parking Restrictions
Crenshaw/Coliseum to Crenshaw/39 th	Los Angeles	NSAT
Crenshaw/39 th to Crenshaw/MLK	Los Angeles	NSAT
Crenshaw/MLK to Crenshaw/Stocker	Los Angeles	ES: TANS 7-9 AM 2 Hour Parking: 9 AM-6 PM, except Sunday WS: NSAT
Crenshaw/Stocker to Crenshaw/Homeland	Los Angeles	ES: NSAT WS: TANS 7-9 AM, 4-6 PM TANS: 6 PM Sunday to 6 AM Monday Metered 2 Hour Parking: 9 AM-4 PM, except Sun
Crenshaw/Homeland to Crenshaw/43 rd	Los Angeles	ES: NSAT WS: TANS 7-9 AM, 4-6 PM TANS: 6 PM Sunday to 6 AM Monday Metered 2 Hour Parking: 9 AM-4 PM, except Sun
Legend:		
NS – No Stopping	TANS – Tow Away No Stopping	NPAT – No Parking Anytime
NSAT – No Stopping Anytime	TANSAT – Tow Away No Stopping Anytime	TANP – Tow Away No Parking

Table 3.14: Current Parking Restrictions (continued)

Segment	City	Restrictions
Crenshaw Boulevard (continued)		
Crenshaw/43 rd to Crenshaw/Vernon	Los Angeles	ES: TANS 7-9 AM, 4-6 PM TANS: 6 PM Sunday to 6 AM Monday Metered 2 Hour Parking: 9 AM-4 PM, except Sun WS: TANS 7-9 AM, 4-6 PM TANS: 6 PM Sunday to 6 AM Monday Metered 2 Hour Parking: 9 AM-4 PM, except Sun
Crenshaw/Vernon to Crenshaw/Brynhurst	Los Angeles	Metered 2 Hour Parking: 9 AM-4 PM, except Sun ES: TANS 7-9 AM, 4-6 PM WS: TANS 4-6 PM
Crenshaw/Brynhurst to Crenshaw/50 th	Los Angeles	ES: TANS 7-9 AM, 4-6 PM Metered 2 Hour Parking, 9 AM-4 PM WS: TANS 4-6 PM Metered 4 Hour Parking, 8 AM-4 PM
Crenshaw/50 th to Crenshaw/52 nd	Los Angeles	NSAT
Crenshaw/52 nd to Crenshaw/Slauson	Los Angeles	NSAT
Crenshaw/Slauson to Crenshaw/60 th	Los Angeles	2 Hour Parking 8 AM-6 PM ES: 1 and 2 Hour Parking, 8 AM-6 PM WS: TANS 6 PM Sunday-6 AM Monday
Crenshaw/60 th to Crenshaw/63 rd	Los Angeles	TANS: 6 PM Sunday-6 AM Monday ES: TANS 7-9 AM, 4-6 PM 1 or 2 Hour Parking, 9 AM-4 PM WS: TANS 4-6 PM 1 Hour Parking, 8 AM-4 PM
Crenshaw/63 rd to Crenshaw/Hyde Park	Los Angeles	TANS: 6 PM Sunday-6 AM Monday ES: TANS 7-9 AM WS: TANS 4-6 PM
Crenshaw/Hyde Park to Crenshaw 67 th	Los Angeles	TANS: 6 PM Sunday-6 AM Monday ES: TANS 7-9 AM, 4-6 PM 1 Hour Parking, 9AM-4 PM WS: TANS 4-6 PM 1 Hour Parking, 8 AM-4 PM
Crenshaw/67 th to Crenshaw/Florence	Los Angeles	TANS: 6 PM Sunday-6 AM Monday ES: TANS 7-9 AM, 4-6 PM WS: TANS 4-6 PM
La Brea Avenue/Hawthorne Boulevard		
Florence/La Brea to La Brea/Regent	Inglewood	No Parking 3:30-7 AM, M-F Metered 2 Hour Parking, 9 AM-6 PM
La Brea/Regent to La Brea/Manchester	Inglewood	No Parking 3:30-7 AM, M-F ES: Metered 5 Hour Parking (All Day) WS: No Stopping 4-6 PM
La Brea/Manchester to La Brea/Hillcrest	Inglewood	No Parking 3:30-7 AM, M-F ES: Metered 5 Hour Parking (All Day) WS: Metered 2 Hour Parking, 9 AM-6 PM
La Brea/Hillcrest to La Brea/Market	Inglewood	No Parking 3:30-7 AM, M-F ES: NSAT or 2 Hour Parking, 9 AM-6 PM WS: NSAT
La Brea/Market to La Brea/Arbor Vitae	Inglewood	No Parking 3:30-7 AM, M-F 2 Hour Parking, 9AM-6 PM
La Brea/Arbor Vitae to La Brea/Hardy	Inglewood	ES: 1 or 2 Hour Parking, 9 AM-6 PM WS: 2 Hour Parking, 9 AM-6 PM
La Brea/Hardy to Hawthorne/Century	Inglewood	No Parking 3:30-7:00 AM, M-F 2 Hour Parking, 9 AM-6 PM
Legend:		
NS – No Stopping	TANS – Tow Away No Stopping	NPAT – No Parking Anytime
NSAT – No Stopping Anytime	TANSAT – Tow Away No Stopping Anytime	TANP – Tow Away No Parking

Table 3.14: Current Parking Restrictions (continued)

Segment	City	Restrictions
La Brea/Hawthorne (continued)		
Hawthorne/Century to Hawthorne/104 th	Inglewood	No Parking 3:30-7:00 AM, M-F ES: 1 or 2 Hour Parking, 9 AM-6 PM WS: 2 Hour Parking, 9 AM- 6 PM
Hawthorne/104 th to Hawthorne/Lennox	Lennox/Los Angeles County	No Parking 3:30-7:00 AM, M-F 1 Hour Parking, 7 AM-6 PM
Hawthorne/Lennox to Hawthorne/111 th	Lennox/Los Angeles County	No Parking 3-5 AM ES: 1 or 3 Hour Parking, 7 AM-6 PM WS: 1 Hour Parking, 7 AM-6 PM
Hawthorne/111 th to Hawthorne/I-105 Freeway	ES: Lennox WS: Hawthorne	ES: NSAT WS: NSAT adjacent to/on freeway crossing 1 Hour Parking, 8 AM-6 PM
Hawthorne/I-105 Freeway to Hawthorne/Imperial	Hawthorne	ES: NSAT WS: NSAT adjacent to/on freeway crossing 1 Hour Parking, 8 AM-6 PM
Hawthorne/Imperial to Hawthorne/El Segundo	Hawthorne	ES: NSAT WS: 1 Hour Parking, 8 AM-6 PM
Prairie Avenue		
Florence/Prairie to Prairie/Howland	Inglewood	NSAT
Prairie/Howland to Prairie/Regent	Inglewood	ES: TANP 6:30-8:00 AM, 4-6 PM 2 Hour Parking 9 AM-4 PM WS: NSAT
Prairie/Regent to Prairie/Manchester	Inglewood	NSAT
Prairie/Manchester to Prairie/Century	Inglewood	ES: NSAT WS: NPAT
Prairie/Century to Prairie/102 nd	Inglewood	NSAT
Prairie/102 nd to Prairie/111 th	Inglewood	ES: NSAT except 9-4 PM Daily WS: NSAT
Prairie/111 th to 111 th /Freeman	Inglewood/ Lennox	NS: NPAT except 9-11 AM Wednesday SS: No parking restrictions except 9-11 AM Wednesday
111 th /Freeman to 111 th /Hawthorne	Lennox/Los Angeles County	NPAT
Hawthorne/111 th to Hawthorne/El Segundo	Hawthorne	<i>See La Brea/Hawthorne above</i>
Legend:		
NS – No Stopping	TANS – Tow Away No Stopping	NPAT – No Parking Anytime
NSAT – No Stopping Anytime	TANSAT – Tow Away No Stopping Anytime	TANP – Tow Away No Parking

Source: RAW International

3.4.2 Future Parking Impacts

This section presents a generalized comparative evaluation of the parking effects of each of the alternatives under consideration. The analysis is based on the resulting effects that each alternative may have on overall Corridor mobility and levels of congestion adjacent to stations with proposed park-and-ride facilities. These impacts and benefits are related to the following issues:

- Loss of on-street parking.
- Provision of park-and-ride facilities.
- Localized congestion impacts created by additional vehicles circulating to park-and-ride locations along the Corridor.
- Spill-over of park-and-ride activity into neighborhoods near stations.

No Build Alternative

The bus service improvements included in the No Build Option would have no impact on the number and availability of on-street parking spaces in the Crenshaw-Prairie Corridor. No new park-and-ride facilities are proposed under this alternative.

Metro Rapid Alternative

Metro Rapid services would operate along with other vehicles in mixed-flow conditions, and would not require dedicated lane operations, though peak period parking restrictions would facilitate operation of this option's higher speed service. No new off-street parking facilities are proposed as part of the implementation of this Alternative – patrons will walk to or transfer from other transit service at Metro Rapid stops.

Bus Rapid Transit Alternative

Bus Rapid Transit (BRT) was defined as bus service providing the full range of physical and operational attributes of Metro Rapid service with the addition of dedicated lane operations where feasible. The provision of an exclusive bus lane would be achieved by replacing an auto lane or parking lane, or using non-vehicular right-of-way. Dedicated lane operations would occur primarily in the curbside lane except for along Hawthorne Boulevard where median operations may be feasible. The decision on whether to provide dedicated lane service on a peak period-only or 24-hour basis would be based on future analysis and agreements with impacted jurisdictions.

As discussed and summarized below in Table 3.15, implementation of the BRT Alternative would have significant impacts on the on-street parking available in the Corridor. At this level of analysis, the loss of on-street parking spaces has been noted, but not quantified. These impacts are considered reasonably representative for the purpose of comparing alternatives. Detailed parking impacts would be identified through future, more detailed study efforts.

Under the BRT Alternative, parking impacts in the Study Area would fall into the following three categories:

1. ***No street parking impacts*** – either on a peak period-only or a 24-hour basis. The resulting lack of impacts is due either to BRT mixed flow operations, or existing parking restrictions – Tow Away No Stopping (TANS) or Tow Away No Stopping Anytime (TANSAT) – during both peak periods, or No Stopping Anytime (NSAT). Approximately 58 percent of the total Study Corridor would have no parking impacts during peak period-only operations.
2. ***Loss of street parking on one side*** – either on a peak period-only or a 24-hour basis. There are Corridor locations where parking on one side of the street is restricted, while the other side has no parking restrictions (other than time limits) in place. Approximately 18 percent of the total Study Corridor would lose street parking on one side.
3. ***Loss of street parking on both sides*** – either on a peak period-only or a 24-hour basis due to the lack of parking restrictions (other than time limits). Approximately 24 percent of the total Study Corridor would lose street parking on both sides.

If a decision is made to proceed with peak period-only BRT dedicated lane operations, the loss of street parking could be mitigated with the posting of Tow Away No Stopping (TANS) signs for both the morning and evening peak periods. There are some existing inconsistencies in the posted evening peak period within the City of Los Angeles that require resolution. In the Crenshaw Boulevard Corridor section, the posted hours vary between 4 to 6 PM and 4 to 7 PM. There is also an inconsistency between the Corridor cities regarding the morning peak period hours with Los Angeles posting the morning peak from 7 to 9 AM, while Inglewood considers it as from to 8:00 AM (posted only on Prairie Avenue).

The decision to implement 24-hour BRT operations would require further detailed analysis as it would have a significant impact throughout the Corridor. Currently, 20 percent of the Crenshaw Boulevard Corridor and none of the La Brea Avenue/Hawthorne Boulevard Corridor have parking restrictions in place that would accommodate 24-hour operations. A summary of peak period versus 24-hour restrictions is provided below in Table 3.16.

Crenshaw Boulevard

In the Crenshaw Boulevard Corridor, BRT service would operate in a curbside, dedicated lane that would replace on-street parking either on a peak period-only or 24-hour basis. In Corridor areas with a constrained right-of-way width and in the Crenshaw District, BRT service would operate in mixed flow conditions with other vehicles. Located entirely within the City of Los Angeles, the Crenshaw Boulevard has varied parking restrictions and resulting impacts.

In the two areas of mixed flow operations – between Wilshire and Washington Boulevards in the northern portion and Martin Luther King, Jr. Boulevard and Vernon Avenue in the central section of the Corridor – there would be no street parking impacts. A majority of the northern section allows unrestricted curbside parking in order to accommodate adjacent residential properties with little or no off-street parking. Existing parking restrictions in the commercial district between MLK Boulevard and Vernon Avenue include a combination of No Stopping Anytime (NSAT) and a range of Tow Away No Stopping (TANS) peak period restrictions.

Within the Crenshaw Boulevard Corridor, approximately 10 blocks have NSAT restrictions that would accommodate both peak period-only and 24-hour BRT operations: the I-10 Freeway overcrossing, Coliseum Street to MLK Boulevard, and 50th Street to Slauson Avenue. Nine blocks have both morning and evening peak period TANS restrictions: Washington Boulevard to Jefferson Boulevard and further south for a short section between Rodeo Road to Rodeo Place. Six blocks have a combination of NSAT and both morning and evening peak period TANS restrictions: Jefferson Boulevard to Rodeo Road and Stocker Street to Vernon Avenue. In summary, there would be no loss of peak period parking for 80 percent of the Crenshaw Boulevard Corridor, which stretches from Wilshire Boulevard south to Vernon Avenue. In contrast, only 20 percent of the Crenshaw Boulevard Corridor has existing parking restrictions that would accommodate 24-hour BRT operations.

BRT operations would result in the loss of street parking on one side for eight blocks (18 percent) of the Crenshaw Boulevard Corridor. The impacted sections include a central section between MLK Boulevard and Stocker Street, and three southern sections: Vernon Avenue to 50th Street, 60th to 63rd Streets and Hyde Park Boulevard to Florence Avenue. All of these street parking losses could be mitigated with the following revisions to the posted peak period TANS restrictions:

- Central section impacts – add evening peak period TANS; and
- Southern section impacts – add morning peak period TANS.

Only three blocks (two percent) within the Crenshaw Boulevard Corridor would lose street parking on both sides with the operation of peak period-only BRT service. Located in the southern section of the Corridor, the impacted sections include: Slauson Avenue to 60th Street and 63rd Street to Hyde Park Boulevard. The resulting parking losses could be mitigated with the posting of peak period TANS restrictions.

Table 3.15: Parking Impacts under the BRT Alternative

Segment	City	Proposed Operations	Impacts
Crenshaw Boulevard			
Crenshaw/Wilshire to Crenshaw/Olympic	Los Angeles	Mixed flow	No street parking impacts
Crenshaw/Olympic to Crenshaw/Venice	Los Angeles	Mixed flow	No street parking impacts
Crenshaw/Venice to Crenshaw/Washington	Los Angeles	Mixed flow	No street parking impacts
Crenshaw/Washington to Crenshaw/Adams	Los Angeles	Curbside Dedicated Lane	Loss of street parking on both sides – non-peak period/24-hour
Crenshaw/Adams to Crenshaw/Jefferson	Los Angeles	Curbside Dedicated Lane	Loss of street parking on both sides – non-peak period/24-hour
Crenshaw/Jefferson to Crenshaw/Exposition	Los Angeles	Curbside Dedicated Lane	Loss of street parking on westside – non-peak period/24-hour
Crenshaw/Exposition to Crenshaw/Rodeo	Los Angeles	Curbside Dedicated Lane	Loss of street parking on westside – non-peak period/24-hour
Crenshaw/Rodeo to Crenshaw/Rodeo Place	Los Angeles	Curbside Dedicated Lane	Loss of street parking on both sides – non-peak period/24-hour
Crenshaw/Rodeo Place to Crenshaw/Coliseum	Los Angeles	Curbside Dedicated Lane	Loss of street parking on westside
Crenshaw/Coliseum to Crenshaw/MLK	Los Angeles	Curbside Dedicated Lane	No street parking impacts
Crenshaw/MLK to Crenshaw/Stocker	Los Angeles	Mixed flow	No street parking impacts
Crenshaw/Stocker to Crenshaw/Vernon	Los Angeles	Mixed flow	No street parking impacts
Crenshaw/Vernon to Crenshaw/Brynhurst	Los Angeles	Curbside Dedicated Lane	Loss of street parking on westside in AM peak, non-peak period/ 24-hour
Crenshaw/Brynhurst to Crenshaw/50 th	Los Angeles	Curbside Dedicated Lane	Loss of street parking on eastside in non-peak period/24-hour and on westside in AM peak, non-peak period/24-hour
Crenshaw/50 th to Crenshaw/Slauson	Los Angeles	Curbside Dedicated Lane	No street parking impacts
Crenshaw/Slauson to Crenshaw/60 th	Los Angeles	Curbside Dedicated Lane	Loss of street parking on both sides
Crenshaw/60 th to Crenshaw/63 rd	Los Angeles	Curbside Dedicated Lane	Loss of street parking on eastside in PM peak, non-peak period/ 24-hour and on westside in AM peak, non-peak period/24-hour
Crenshaw/63 rd to Crenshaw/Hyde Park	Los Angeles	Curbside Dedicated Lane	Loss of street parking on eastside in PM peak, non-peak period/ 24-hour and on westside in AM peak, non-peak period/24-hour
Crenshaw/Hyde Park to Crenshaw/Florence	Los Angeles	Curbside Dedicated Lane	Loss of street parking on eastside in non-peak period/24-hour and on westside AM peak, non-peak period/24-hour
La Brea Avenue/Hawthorne Boulevard			
Florence/La Brea to La Brea/Manchester	Inglewood	Mixed flow	No street parking impacts
La Brea/Manchester to La Brea/Hillcrest	Inglewood	Curbside Dedicated Lane	Loss of street parking on both sides
La Brea/Hillcrest to La Brea/Market	Inglewood	Curbside Dedicated Lane	Loss of street parking on eastside
La Brea/Market to La Brea/Century	Inglewood	Curbside Dedicated Lane	Loss of street parking on both sides

Table 3.15: Parking Impacts Under the BRT Alternative (continued)

Segment	City	Proposed Operations	Impacts
<i>La Brea Avenue/Hawthorne Boulevard</i>			
Hawthorne/Century to Hawthorne/104 th	Inglewood	Curbside Dedicated Lane	Loss of street parking on both sides
Hawthorne/104 th to Hawthorne/111 th	Lennox/Los Angeles County	Curbside Dedicated Lane	Loss of street parking on both sides
Hawthorne/111 th to Hawthorne/I-105 Freeway	ES: Lennox WS: Hawthorne	Curbside Dedicated Lane	Loss of some street parking on westside
Hawthorne/I-105 Freeway to Hawthorne/Imperial	Hawthorne	Curbside or Median Dedicated Lane	Loss of street parking on eastside
Hawthorne/Imperial to Hawthorne/El Segundo	Hawthorne	Curbside or Median Dedicated Lane	Loss of street parking on eastside

Railroad Right-of-way

The BRT Alternative is proposed to operate in dedicated lane service on the former BNSF Railroad right-of-way between Crenshaw Boulevard and La Brea Avenue, which would have a minor impact on street parking. There may be a minor loss of street parking spaces on Crenshaw Boulevard from 67th Street south to the railroad right-of-way in order to facilitate movement of BRT vehicles from the street on to the railroad right-of-way.

If this alternative cannot run on the railroad right-of-way due to the continuation of freight rail operations, BRT service would operate on the adjacent streets – Florence Avenue and Aviation Boulevard. Located within the cities of Inglewood and Los Angeles, both of these streets have a constrained right-of-way width, which typically accommodates only two travel lanes in each direction with no street parking allowed. Within this section, the BRT Alternative would operate in mixed flow service with other vehicular traffic. In the few areas where street parking is allowed, such as along the southside of Florence Avenue between Centinela and La Brea Avenues, coordination with the local jurisdiction would be necessary to restrict parking either on a peak period-only or a 24-hour basis.

La Brea Avenue/Hawthorne Boulevard

In the La Brea Avenue/Hawthorne Boulevard Corridor, BRT service may run in three configurations: mixed flow, dedicated curbside lane and/or dedicated median operations. Located within the jurisdictions of the cities of Inglewood and Hawthorne, and the County of Los Angeles for the City of Lennox, this Corridor has a fairly consistent set of parking restrictions and resulting impacts. There are almost no existing NSAT and TANS restrictions, and any future plans to operate even peak period-only BRT service would require major changes to this street section's parking restrictions.

With implementation of the BRT Alternative on a peak period-only basis, a majority of this Corridor (56 percent) would experience the loss of street parking on both sides as there are no peak period parking restrictions. The resulting parking losses could be mitigated with the posting of peak period TANS restrictions.

BRT operations would result in the loss of street parking on the eastside along the five blocks from Imperial Highway south to El Segundo Boulevard within the City of Hawthorne. Parking is currently not allowed along this side of Hawthorne Boulevard from 120th Street to El Segundo Boulevard due to the Hawthorne Plaza and new commercial development further south. The resulting parking losses could be mitigated with either the posting of peak period TANS restrictions or median BRT operations.

Only six blocks would have no street parking impacts due to the proposed mixed flow operations between Florence Avenue and Manchester Boulevard, or posted NSAT over the I-105 Freeway.

Table 3.16: Summary of Corridor Peak Period and 24-Hour Parking Restrictions

Street Segment	Eastside of Street				Westside of Street			
	None	AM	PM	24-Hour	None	AM	PM	24-Hour
Crenshaw Boulevard								
Crenshaw/Wilshire to Crenshaw/Olympic	X				X			
Crenshaw/Olympic to Olympic/Country Club				✓				✓
Crenshaw/Country Club to Crenshaw/Pico	X				X			
Crenshaw/Pico to I-10 Freeway		✓	✓			✓	✓	
I-10 Freeway Overcrossing				✓				✓
I-10 Freeway to Crenshaw/Jefferson		✓	✓			✓	✓	
Crenshaw/Jefferson to Crenshaw/Rodeo				✓		✓	✓	
Crenshaw/Rodeo to Crenshaw/Rodeo Place		✓	✓			✓	✓	
Crenshaw/Rodeo Place to Crenshaw/Coliseum				✓	X			
Crenshaw/Coliseum to Crenshaw/MLK				✓				✓
Crenshaw/MLK to Crenshaw/Stocker		✓	X					✓
Crenshaw/Stocker to Crenshaw/43 rd				✓		✓	✓	
Crenshaw/43 rd to Crenshaw/Vernon				✓				✓
Crenshaw/Vernon to Crenshaw/50 th		✓	✓			X	✓	
Crenshaw/50 th to Crenshaw/52 nd				✓	X			
Crenshaw/52 nd to Crenshaw/Slauson				✓				✓
Crenshaw/Slauson to Crenshaw/60 th	X				X			
Crenshaw/60 th to Crenshaw/63 rd	X					X	✓	
Crenshaw/63 rd to Crenshaw/Hyde Park		✓	X			X	✓	
Crenshaw/Hyde Park to Crenshaw/Florence		✓	✓			X	✓	
La Brea Avenue/Hawthorne Boulevard								
Florence/La Brea to La Brea/Regent	X				X			
La Brea/Regent to La Brea/Manchester	X							✓
La Brea/Manchester to La Brea/Hillcrest	X				X			
La Brea/Hillcrest to La Brea/Market	Some			Some				✓
La Brea/Market to La Brea/Arbor Vitae	X				X			
La Brea/Arbor Vitae to Hawthorne/Century	X				X			

Table 3.16: Summary of Corridor Peak Period and 24-Hour Parking Restrictions (continued)

Street Segment	Eastside of Street				Westside of Street			
	None	AM	PM	24-Hour	None	AM	PM	24-Hour
La Brea Avenue/Hawthorne Boulevard (continued)								
Hawthorne/Century to Hawthorne/111 th	X				X			
Hawthorne/111 th to Hawthorne/I-105 Freeway				✓				✓
Hawthorne/I-105 Freeway to Hawthorne/El Segundo				✓	X			

Park-and-Ride Facilities

Off-street parking-and-ride facility opportunities have been identified as part of the BRT Alternative and are presented below in Table 3.17. Parking facilities are proposed at five station stops providing a Corridor total of 750 spaces. As BRT service is viewed by the MTA as upgraded Metro Rapid service with the provision of dedicated lane operations, it was assumed that a majority of patrons would walk to or transfer from other transit service at BRT station stops. The BRT Alternative with its shortened travel times and more frequent service offers the opportunity to attract choice riders. Provision of park-and-ride facilities at key entry points to the system will be important to successfully serving these patrons.

Table 3.17: BRT Alternative – Proposed Park-and-Ride Facilities

Station	PNR Facilities	Number of Spaces
Crenshaw Segment		
Crenshaw/Wilshire	MTA parking lot at southwest corner	50
Crenshaw/Exposition	Proposed station area land purchase	125
Crenshaw/MLK	Agreement with redevelopment agency/developers to build station area public parking structures	125
La Brea/Hawthorne Segment		
Metro Green Line Hawthorne Station	Joint MTA/Caltrans facility	250
Hawthorne/El Segundo	Agreement with City regarding reuse of vacant Hawthorne Plaza parking structures	200
Total Proposed Parking Spaces		750

Development of the following three park-and-ride facilities would be under MTA control:

- Crenshaw Boulevard/Wilshire Boulevard Station Stop Area** – The MTA owns the parking lot located at the southwest corner of this intersection. The surface parking lot is currently leased to tenants in the office building on the northern side of Wilshire Boulevard. Future use of this lot by BRT patrons could be accommodated by either terminating the current lease agreement, or converting the surface lot to a parking structure sized to accommodate both MTA patrons and revenue-generating office building employees.
- Crenshaw Boulevard/Exposition Railroad Right-of-Way Station Stop Area** – As part of the Exposition Light Rail Transit Line, this station has been identified as a future LRT station with related parking facilities. As identified in the *Crenshaw-Prairie Corridor MIS Station Concepts Report*, this station stop area has been proposed for an intermodal facility and related joint development. The intermodal facility would accommodate access and parking for both the Exposition LRT and Crenshaw BRT Projects, as well as other transit patrons arriving by Metro Rapid, local bus and shuttle service.

- **Metro Green Line Hawthorne Station Stop Area** – This joint MTA/Caltrans surface parking facility is currently underutilized and could attract and serve Crenshaw Corridor BRT patrons arriving at the southern end of the Study Area by the Metro Green Line or the I-105 Freeway. There is a future opportunity to convert the surface parking lots to structured parking if demand increases.

The Metro Green Line Aviation Station Area was not identified as a BRT parking opportunity due to its current operation at and beyond capacity. A future decision could be made to convert this surface facility into structured parking.

The following two station stop parking opportunities could be leveraged by MTA in coordination with other Corridor activities and agencies:

- **Crenshaw Boulevard/Martin Luther King, Jr. Boulevard Station Stop Area** – Within the redevelopment area including the Baldwin Hills, Crenshaw and Santa Barbara Plazas, the opportunity exists to work with the City of Los Angeles Redevelopment Agency to build parking structures to support both revitalization activities and utilization of the BRT service.
- **Hawthorne Boulevard/El Segundo Boulevard Station Stop Area** – The City of Hawthorne is currently preparing a Specific Plan in part to address the reuse of the now-empty Hawthorne Plaza and adjacent parking structures. Initial discussions with City staff have confirmed their interest in a future agreement to reserve a portion of the parking structures for use by future transit patrons.

There may be some localized congestion impacts created by additional vehicles circulating to these five proposed park-and-ride locations, along with some spill-over of park-and-ride activity into neighborhoods near stations. As a majority of the BRT patrons will walk to or transfer from other transit service, it is assumed that these impacts would be minor. Detailed parking impacts would be defined in future efforts.

Light Rail Transit Alternative

Since the LRT Alternative will utilize existing roadway space along its proposed alignment where it operates within the street right-of-way, there may be a reduction in parking spaces along those street segments. At this level of analysis, the loss of on-street parking spaces has been noted, but not quantified. The parking impacts identified below in Table 3.18 are permanent. These impacts are considered reasonably representative for the purpose of comparing alternatives. During any subsequent preliminary engineering efforts, parking impacts will become more detailed. Revised assessments of parking effects will be prepared accordingly and described in any subsequent study efforts.

Under the LRT Alternative, Study Area parking impacts would fall into the following three categories:

1. **No street parking impacts** – The resulting lack of parking impacts is due either to LRT mixed flow operations, or existing parking restrictions including No Stopping Anytime (NSAT) or No Parking Anytime (NPAT). Approximately 48 percent of the total Study Corridor would have no parking impacts.
2. **Loss of street parking on one side** – There are Corridor locations where parking on one side of the street is prohibited, while the other side has no parking restrictions, other than time limits, in place. Approximately 34 percent of the total Study Corridor would lose street parking on one side.
3. **Loss of street parking on both sides** – Some Corridor sections have no parking restrictions, other than time limits, in place. Approximately 18 percent of the total Study Corridor would lose street parking on both sides.

Table 3.18: Parking Impacts Under the LRT Alternative

Segment	City	Proposed Operations	Impacts
Crenshaw Boulevard			
Crenshaw/Exposition to Crenshaw/Rodeo	Los Angeles	At-grade Median	Loss of street parking on one side
Crenshaw/Rodeo to Crenshaw/Rodeo Place	Los Angeles	At-grade Median	Loss of street parking on both sides
Crenshaw/Rodeo Place to Crenshaw/Coliseum	Los Angeles	At-grade Median	Loss of street parking on one side
Crenshaw/Coliseum to Crenshaw/MLK	Los Angeles	At-grade Median	No street parking impacts
Crenshaw/MLK to Crenshaw/Homeland	Los Angeles	Mixed flow	No street parking impacts
Crenshaw/Homeland to Crenshaw/43 rd	Los Angeles	Mixed flow	No street parking impacts
Crenshaw/43 rd to Crenshaw/Vernon	Los Angeles	At-grade Median	No street parking impacts
Crenshaw/Vernon to Crenshaw/50 th	Los Angeles	At-grade Median	Loss of street parking on both sides
Crenshaw/50 th to Crenshaw/52 nd	Los Angeles	At-grade Median	No street parking impacts
Crenshaw/52 nd to Crenshaw/Slauson	Los Angeles	At-grade Median	No street parking impacts
Crenshaw/Slauson to Crenshaw/RR ROW	Los Angeles	At-grade Median	Loss of street parking on both sides
Prairie Avenue/Hawthorne Boulevard			
RR ROW/Prairie to Prairie/Howland	Inglewood	Mixed flow	No street parking impacts
Prairie/Howland to Prairie/Regent	Inglewood	Mixed flow	No street parking impacts
Prairie/Regent to Prairie/Manchester	Inglewood	Mixed flow	No street parking impacts
Prairie/Manchester to Prairie/Century	Inglewood	At-grade Median	No street parking impacts
Prairie/Century to Prairie/102 th	Inglewood	At-grade Median	Loss of street parking on both sides
Prairie/102 nd to Prairie/111 th	Inglewood	At-grade Median	Loss of street parking on one side
Hawthorne/111 th to I-105 Freeway	ES: Lennox WS: Hawthorne	At-grade Median	No street parking impacts
I-105 Freeway to Hawthorne/Imperial	Hawthorne	At-grade Median	No street parking impacts
Hawthorne/Imperial to Hawthorne/El Segundo	Hawthorne	At-grade Median	Loss of street parking on one side

Crenshaw Boulevard

In the Crenshaw Boulevard Corridor, LRT service would operate in dedicated, at-grade median service. In areas with a constrained right-of-way width and in the Crenshaw District, LRT service would operate in mixed flow conditions with other vehicles. Located entirely within the City of Los Angeles, the Crenshaw Boulevard has varied parking restrictions and resulting impacts.

There would be no loss of street parking for 50 percent of the Crenshaw Boulevard Corridor due to existing restrictions and mixed flow operations. Approximately nine blocks have No Stopping Anytime (NSAT) restrictions which would accommodate 24-hour LRT operations with no parking impacts. These segments are located in the northern portion of the Crenshaw Boulevard Corridor between Coliseum

Street to MLK Boulevard, and in the southern section between 50th Street to Slauson Avenue. In the proposed area of mixed flow operations – between Martin Luther King, Jr. Boulevard and Vernon Avenue in the central section of the Corridor – there would be no street parking impacts. Existing parking restrictions in this area include a combination of No Stopping Anytime (NSAT) and a range of Tow Away No Stopping (TANS) peak period restrictions.

LRT operations would result in the loss of street parking on one side for two blocks (8 percent) in the Crenshaw Boulevard Corridor. The impacted segments are located in the northern section between Exposition Boulevard and Rodeo Road, and further south between Rodeo Place and Coliseum Boulevard.

Within the Crenshaw Boulevard Corridor, 11 blocks (42 percent) would lose street parking on both sides with the implementation of LRT service. These segments are located in the northern section between Rodeo Road and Rodeo Place, and in the southern section of the Corridor between Vernon Avenue and 50th Street, and Slauson Avenue to Florence Avenue.

Railroad Right-of-way

The LRT Alternative is proposed to operate in dedicated service on the former BNSF Railroad right-of-way between Crenshaw Boulevard and the Metro Green Line Aviation Station and would have no impacts on street parking. There may be a minor loss of street parking spaces on Crenshaw Boulevard from 67th Street south to the railroad right-of-way in order to facilitate movement of the LRT trains from the street on to the railroad right-of-way.

Prairie Avenue/Hawthorne Boulevard

In the Prairie Avenue/Hawthorne Boulevard Corridor, LRT service would run in dedicated, at-grade median service. Located within the jurisdictions of the cities of Inglewood and Hawthorne, and the County of Los Angeles for the City of Lennox, this Corridor has a fairly consistent set of parking restrictions and resulting impacts.

With implementation of the LRT Alternative, a majority of this Corridor (57 percent) would experience no street parking impacts due to the existing No Stopping Anytime (NSAT) and No Parking Anytime (NPAT) restrictions related to the Inglewood Park Cemetery and special event destinations along the Prairie Avenue.

LRT operations would result in the loss of street parking on one side along 15 blocks (43 percent) in the following segments of Prairie Avenue: Howland Avenue to Regent Street, and 102nd to 111th Streets; and on Hawthorne Boulevard from Imperial Highway to El Segundo Boulevard. Parking is currently not allowed along the eastside of Hawthorne Boulevard from 120th Street to El Segundo Boulevard due to the Hawthorne Plaza and new commercial development further south. The resulting parking losses may not require mitigation along Hawthorne Boulevard due to the significant street right-of-way width (154 foot).

No portion of the Prairie Avenue/Hawthorne Boulevard Corridor would experience a loss of parking on both sides with implementation of LRT service.

Park-and-Ride Facilities

Off-street parking-and-ride facility opportunities have been identified as part of the LRT Alternative and are presented below in Table 3.19. Parking facilities are proposed at eight stations providing a total of 1,100 spaces. The LRT Alternative with its shortened travel times, more frequent service and direct regional rail system connections offers the demonstrated opportunity to attract choice riders. Provision of park-and-ride facilities at key entry points to the system will be important to successfully serving these patrons.

Table 3.19: LRT Alternative – Proposed Park-and-Ride Facilities

Station	PNR Facilities	Number of Spaces
Crenshaw Segment		
Crenshaw/Exposition	Proposed station area land purchase	125
Crenshaw/MLK	Agreement with redevelopment agency/developers to build station area public parking structures	125
Railroad Right-of-Way Segment		
Crenshaw/Florence/West/RR ROW	ROW purchase required to allow for LRT turning movements to/from Crenshaw and RR ROW	125
RR ROW/La Brea	Proposed station area land purchase	75
Prairie Segment		
Prairie/Manchester	Agreement with the Forum owners	100
Prairie/Century	Agreement with Hollywood Park	100
Metro Green Line Hawthorne Station	Joint MTA/Caltrans facility	250
Hawthorne Segment		
Hawthorne/El Segundo	Agreement with City regarding reuse of vacant Hawthorne Plaza parking structures	200
Total Proposed Parking Spaces		1,100

Development of the following three park-and-ride facilities would be under MTA control:

- Crenshaw Boulevard/Exposition Railroad Right-of-Way Station Area** – As part of the Exposition Light Rail Transit Line, this station has been identified as a future LRT station with related parking facilities. As identified in the *Crenshaw-Prairie Corridor MIS Station Concepts Report*, this station area has been proposed for an intermodal facility and related joint development. The intermodal facility would accommodate access and parking for both the Exposition LRT and Crenshaw LRT Lines, as well as other transit patrons arriving by Metro Rapid, local bus and shuttle service. This station will serve as the northern terminus for the Crenshaw LRT Line for the foreseeable future and land use acquisition is proposed in addition to that required by the Exposition LRT Project in order to accommodate this station's interim Corridor gateway role.
- Crenshaw Boulevard/Florence Avenue/West Boulevard Station Area** – Under the LRT Alternative, property acquisition is required to accommodate LRT service turning from Crenshaw Boulevard on to the former BNSF Railroad right-of-way. An opportunity exists to purchase additional property to accommodate parking and an intermodal facility allowing for transferring between the Crenshaw LRT and Metro Rapid services, along with local bus and shuttle service. There is a related joint development opportunity to provide infill retail uses facing on to Crenshaw Boulevard as well as station area amenities.
- Metro Green Line Hawthorne Station Area** – This joint MTA/Caltrans surface parking facility is currently underutilized and could attract and serve Crenshaw Corridor LRT patrons arriving by the Metro Green Line, other bus service or the I-105 Freeway. There is a future opportunity to convert the surface parking lots to structured parking if demand increases.

The Metro Green Line Aviation Station Area was not identified as a LRT parking opportunity due to its current operation at and beyond capacity. A future decision could be made to convert this surface facility into structured parking.

The following five station parking opportunities could be leveraged by MTA in coordination with other Corridor activities and agencies/entities:

- ***Crenshaw Boulevard/Martin Luther King, Jr. Boulevard Station Area*** – Within the redevelopment area including the Baldwin Hills, Crenshaw and Santa Barbara Plazas, the opportunity exists to work with the City of Los Angeles Redevelopment Agency to build parking structures to support both revitalization activities and utilization of the new LRT service.
- ***RR ROW/La Brea Avenue Station Area*** – Located within a City of Inglewood redevelopment project area, a station area land use purchase is proposed to allow for parking and drop-off facilities and related joint development opportunity. The MTA and the City could establish a working relationship to support purchase of the property and provision of parking facilities to support Downtown Inglewood revitalization activities and utilization of the new transit service. There is a related joint development opportunity to provide infill retail uses facing on to Florence and La Brea Avenues supporting the City's station area revitalization efforts as well as providing station area amenities.
- ***Prairie Avenue/Manchester Boulevard Station Area*** – Located adjacent to the Forum with special event-required parking typically required during weekday and weekend evenings, and Sundays, an opportunity exists to establish an agreement with the Forum, now owned by the Faithful Central Bible Church to allow for some portion of their surface parking to be set aside for rail patrons particularly on weekdays.
- ***Prairie Avenue/Century Boulevard Station Area*** – Located adjacent to the Hollywood Park and Casino whose parking is not fully utilized during the weekdays, an opportunity exists to establish an agreement with the owners to allow for some portion of their surface parking to be set aside for rail patrons. Initial discussions with representatives of the owner have indicated their interest in further discussions. They have had a positive experience with a similar gaming facility located adjacent to the Metro Blue Line.
- ***Hawthorne Boulevard/El Segundo Boulevard Station Area*** – The City of Hawthorne is currently preparing a Specific Plan in part to address the reuse of the now-empty Hawthorne Plaza and adjacent parking structures. Initial discussions with City staff have confirmed their interest in a future agreement to reserve a portion of the parking structures for use by future transit patrons.

There may be some localized congestion impacts created by additional vehicles circulating to these eight proposed park-and-ride locations, along with some spill-over of park-and-ride activity into neighborhoods near stations. Detailed parking impacts would be identified through future study efforts.

3.5 OTHER MODES

This section provides an initial analysis of possible impacts on Study Corridor pedestrians and bicyclists with implementation of each of the alternatives under consideration.

3.5.1 Existing Facilities

The areas within the Study Corridor that may have potential impacts on pedestrians and bicyclists include the streets and intersections where the at-grade service of the No Build, Metro Rapid, BRT and LRT options would operate. The discussion presented in this section focuses on the streets where the alternatives are proposed for implementation:

- *City of Los Angeles* – Crenshaw Boulevard along with sections of Florence Avenue and Aviation Boulevard;
- *City of Inglewood* – La Brea Avenue/Hawthorne Boulevard and Prairie Avenue as well as segments of Florence Avenue and Aviation Boulevard;
- *City of Hawthorne* – Hawthorne Boulevard; and
- *County of Los Angeles (Lennox)* – a section of Hawthorne Boulevard.

All of the alternatives under consideration would operate primarily at-grade within the existing street right-of-way which may have possible impacts on pedestrians and bicyclists. Possible impacts may include the following:

1. Conflicts between transit vehicles, other vehicular traffic and an increased number of pedestrians particularly at crosswalks.
2. Safety and convenience of pedestrians waiting in transit station areas.
3. Pedestrian safety and quality of experience related to walking to/from transit station areas.
4. Prevention of pedestrian crossing of LRT tracks except at designated, protected locations.
5. Conflicts between vehicular traffic and bicyclists.
6. Provision of bicycle-related facilities at transit station areas where appropriate.

Pedestrian Impacts

All of the trips made within the Study Corridor have a pedestrian component, with transit trips being the most dependent on successful walking connections. Numerous studies have demonstrated the willingness of people to walk when the pedestrian environment is safe, pleasant and interesting. A carefully planned and designed pedestrian system will be a key component of the successful current and future use of any of the transit options under consideration as each of the proposed alternatives is based on the demonstrated assumption that a majority of the Corridor's transit patrons would walk to or transfer from other transit service at station areas. The Crenshaw-Prairie Corridor has the demonstrated population density and level of employment to support substantial pedestrian activity and access to the proposed transit system improvements. But the pedestrian environment has to accommodate, encourage and enhance the pedestrian experience, and correspondingly the transit trip.

There is a demonstrated need for implementation of design policies and projects that develop, protect and foster the pedestrian-oriented nature of the Corridor's proposed transit station areas, and adjacent commercial and residential neighborhoods. Improving the Corridor's pedestrian environment would both increase transit access by pedestrians, and contribute to the quality of life of surrounding neighborhoods.

Pedestrian Effects

There are four primary areas of possible impacts to Study Corridor pedestrians:

1. ***Street crossing*** – Addresses the safety and convenience of pedestrians interacting with transit and other vehicular traffic at crosswalks and other street crossings. It will be important to create an identifiable and protected zone dedicated to pedestrians that provides increased safety and capacity in crossing Corridor streets.
2. ***Sidewalks*** – Metro Rapid and BRT station stops are typically located on existing sidewalks, while LRT stations are placed in the street median. Increased pedestrian activity and queuing needs may require additional sidewalk width in some station areas. In order to create a successful pedestrian environment, there is a need to create a safe and comfortable experience for the pedestrian and transit patron by providing an appropriately-sized sidewalk and related amenities.

Surveys of transit patrons have shown the value of amenities such as shelters, lighting, benches, phones and station area services.

3. ***Circulating to/from transit stations*** – This issue reflects the willingness of people to walk to/from their homes to transit stations when the pedestrian experience is safe and pleasant. This can be provided by improving the walkability of adjacent neighborhood streets by creating a cohesive, coordinated pedestrian system with related physical improvements including street trees, lighting and pavement in good repair.
4. ***Crossing of LRT tracks*** – Addresses the unique issue of LRT operations with vehicles operating at a high speed in some segments. The LRT system components should be designed to encourage pedestrians and LRT patrons to cross at protected crosswalk locations, while preventing crossing along the LRT tracks between stations. Pedestrian access is controlled on other LRT lines through a combination of walls, fences and/or landscaping as appropriate.

Pedestrian Policies and Standards

Cities typically provide pedestrian-related guidelines for commercial and residential areas, and in some cases, for transit station areas. For example, the City of Los Angeles identifies pedestrian requirements in the *Transportation Element of the General Plan*, and the *Integrated Land Use and Transportation Policy*. The City's *Transportation Element* designates Corridor streets in two ways:

1. ***By street type*** – Within the Corridor, the streets under study for future transit improvements are identified as Major Highway-Class I or II, and Secondary Highway. The pedestrian-related guidelines focus on sidewalk and crosswalk widths. Sidewalk requirements are 12 foot sidewalk/parkway for Major Highway-Class I/II and 10 foot sidewalk/parkway for a Secondary Highway. For all three street types, the crosswalk requirements are 10 feet in typical conditions and a minimum of 15 feet, with 20 feet recommended, adjacent to rail platforms/portals.
2. ***By special street purpose*** – In order to support the enhancement of the region's transit system to compete effectively as an alternative to the automobile, the City of Los Angeles identifies two categories of transit priority streets:
 - ***High Capacity Transit Priority Corridor*** – intended to accommodate high-capacity transit service post-2010. This category includes Crenshaw, Wilshire and Olympic Boulevards.
 - ***Transit Priority Street*** – identified to foster transit ridership programs. This group includes Martin Luther King, Jr. Boulevard (east of Crenshaw Boulevard), Florence Avenue and Manchester Avenue.

Both transit priority street types require a sidewalk width of 12 feet, with a minimum of 15 feet with 20 feet recommended adjacent to rail platforms/portals, along with a minimum crosswalk width of 15 feet with 20 feet recommended. These width requirements are provided along with design objectives and guidelines in order to better define spaces set aside for users of the regional transportation system. The design guidelines support the creation of a special sidewalk paving theme, or to follow an existing one where precedent has been set, such as providing paving materials compatible with those used in community buildings that may have a significant historic and/or cultural value. Pedestrian amenities that are identified and encouraged include benches, bike racks, bus shelters, newspaper racks, planters, street lights, and parkway street trees and ground covering.

The City of Los Angeles also designates Pedestrian Priority Street Segments. These segments are defined as not exceeding five blocks in length, and any street designated as a Transit Priority Corridor or Street cannot also be identified as a Pedestrian Priority Street Segment. These street segments are proposed to have additional pedestrian amenities including a 17 foot sidewalk and parkway width. The Pedestrian Priority Street Segments identified in the Study Corridor include an area on MLK, Jr. Boulevard adjacent to the Santa Barbara Plaza, and on Slauson Avenue west of the intersection of Crenshaw Boulevard and Slauson Avenue.

Within the City of Los Angeles, the *Land Use/Transportation Policy* adopted by the City and MTA seeks to concentrate mixed commercial/residential and neighborhood-oriented retail around transit stations to encourage public transit ridership and create more efficient land use patterns. The policy is based on six transit station area prototypes reflective of varied land use characteristics and community visions for the future of their neighborhoods. The Policy identifies a minimum sidewalk width in anticipation of heavy pedestrian activity due to transit and retail activity – a minimum of 15 feet is identified as preferred on streets surrounding the transit station, with 15 feet plus preferred in the immediate transit station area. The policy calls for the establishment of Pedestrian Oriented Districts in some transit station areas, where appropriate. This is an overlay zone intended to ensure or encourage a “pedestrian friendly” environment that is safe and enticing for pedestrians.

Bicycle Effects

MTA supports bicycling as a transportation mode that improves air quality and congestion, and helps make healthy communities in Los Angeles County. The Agency seeks to increase the number of bicyclists who ride for commuting and other utilitarian purposes, while reducing traffic congestion and improving air quality. The adopted *MTA Long Range Transportation Plan* includes targeted goals of increasing bicycle utilization both for daily trips overall and home-to-work trips – five percent of all trips by 2025 – which represents a doubling of the current 2.4 percent utilization rate.

All of the alternatives being studied would operate primarily at-grade within the existing street right-of-way which may have impacts on bicyclists. Possible areas of effects may include the following:

1. Conflicts between vehicular traffic and bicyclists, particularly on planned bicycle routes
2. Provision of bicycle-related facilities at transit stations where appropriate.

Currently, bicycles are encouraged on the MTA bus and rail system. Bicycles are allowed on the Metro Bus system by way of bike racks mounted on the front of each bus. This free service can accommodate two bicycles per bus at a time. Bicycles are allowed on the Metro Rail system trains during non-peak times – that is not on weekdays from 6:30-8:30 AM and 4:30-6:30 PM based on recently posted signs. There are some directional exceptions: in the morning peak period southbound bicyclists are allowed on the Blue Line and eastbound bicyclists are permitted on the Green Line; in the evening peak, the reverse patterns are allowed. A permit to do so is required from MTA. Bicycle racks and lockers are located at some rail stations, and are available on a first-come, first-served basis at no charge. Bicycle lockers leased by the MTA are also available at some rail locations.

Bicycle Routes

In 1995, the six Los Angeles County Bikeway Master Plans identified the following bike paths classes with system miles per class:

- ***Class I Bike Paths*** – This class of bicycle routes represents exclusive two-way paths for bicycles, and is most often located along flood control channels, riverbanks, active or inactive rail rights-of-way and utility rights-of-way. In 1995, there were approximately 177 miles of existing Class I bike paths with an additional 17 miles constructed since then for a total of 194 miles.

- **Class II On-Street Bike Lanes** – This category of bicycle routes is striped one-way lanes on streets or highways with signage. The Master Plans identified approximately 240 miles of existing Class II on-street bike lanes with an additional 30 miles of bike lanes constructed since 1995 for a total of 270 miles.
- **Class III Bike Routes** – There are also many miles of Class III bike routes shared by motor vehicles and bicycles, and are typically designated by signage only.

Current Bikeway Master Plans call for the expansion of the regional bicycle system to 406 Class I bike path miles and 1,365 Class II/III miles, for a total of 1,771 miles, with approximately 26 percent of this system having been completed, not including Class III facilities.

At the city level, the City of Los Angeles *Bicycle Plan*, which is part of the *Transportation Element of the General Plan*, has been prepared to guide the development of a citywide bicycle transportation system, which is accessible, safe and convenient for bicycle travel. The Plan establishes standards for the development of bicycle facilities, as well as criteria for prioritization of development of the designated routes. Specific goals identified within the plan call for improvement and upgrading of bicycle parking facilities and access at transit centers. The following Study Corridor streets and former railroad rights-of-way are incorporated in the City's Bicycle Plan and are designated as follows:

- **Class I (bike path)** – the former Exposition Railroad and BNSF Railroad rights-of-way;
- **Class II (bike lane)** – Imperial Highway, La Brea Avenue, San Vicente Boulevard and Venice Boulevard;
- **Commuter Bikeway** – Pico Boulevard; and
- **Study Corridor** – Crenshaw Boulevard.

Within the City of Los Angeles, a Class I bicycle path is defined as a special pathway facility for the exclusive use of bicycles that is separated from auto circulation by space or a physical barrier. A bike path may be located on a portion of a street right-of-way, or in a special right-of-way without auto traffic. Within the Study Area, the two designated Class I facilities are located on the two former railroad rights-of-way running through the Corridor. The City of Los Angeles policy calls for the incorporation of bike paths to the maximum extent possible with the conversion of publicly-owned rights-of-way to rail or bus transit use. On the former Exposition Railroad right-of-way, a planned bike path facility is being included in the design of the Exposition Transit Parkway that will incorporate the future Exposition LRT Line.

As Corridor reuse plans of the former BNSF Railroad right-of-way proceed for transit use, incorporation of a bicycle facility should be considered, though some portions of the right-of-way, particularly those running parallel to Aviation Boulevard, are constrained and additional right-of-way would be required to accommodate either a two-lane BRT system or a two-track LRT system.

A Class II bikeway is defined by the City of Los Angeles as a lane located on the paved area of a road allowing for preferential use by bicycle travel, and is usually placed along the edge of the paved area or between the parking lane and first car travel lane.

There are no proposed Class III shared route bike facilities identified within the Study Area – typically this class of facility is identified as a bicycle facility by “Bike Route” guide signage only and there are no special lane markings as bicycle traffic shares the roadway with motor vehicles.

Commuter Bikeways are intended to provide some of the benefits of a Class II facility during peak periods, where parking prohibitions would encourage the use of key roadways as commuter facilities for bicyclists. Designed as a hybrid of Class II and Class III bikeways, Commuter Bikeways are unstriped

routes that utilize a wide curb lane where parking is prohibited during peak hours. Within the Study Corridor, Pico Boulevard has been identified as a future Commuter Bikeway.

Crenshaw Boulevard, from Venice Boulevard to the former BNSF Railroad right-of-way, has been designated as a Bicycle Study Corridor. It has been identified for further study based on changes in traffic conditions, parking restrictions, roadway conditions, development patterns and/or funding to provide future opportunities to designate and develop Class I, Class II or Commuter Bikeway facilities on this street. The *Bicycle Plan* notes that Crenshaw Boulevard appears to have traffic volumes that are too high for this street to be considered as a Commuter Bikeway. A peak period-only Class II Bikeway may be possible along Crenshaw Boulevard.

3.5.2 Future Impacts

The areas within the Study Corridor that may have potential impacts on pedestrians and bicyclists include the streets and intersections where the at-grade service of the No Build, Metro Rapid, BRT and LRT options would operate. The impact discussion presented below focuses on the streets where the alternatives are proposed for implementation.

No Build Alternative

The No Build Alternative was comprised of the existing bus and rail systems currently in use with service improvements as required to meet projected 2025 ridership demands. Possible increases in bus service included in the No Build Alternative may have a minor impact on pedestrian and bicycle facilities in the Crenshaw-Prairie Corridor.

Metro Rapid Alternative

Metro Rapid service would operate along with other vehicles in mixed-flow conditions on the Corridor's arterial system. As this option would increase the number of buses operating in the Study Corridor over those required under No Build conditions, implementation of the Metro Rapid Alternative may result in some or all of the following impacts to Study Area pedestrians and bicyclists:

1. There may be a minor increase in conflicts between transit vehicles and pedestrians particularly at crosswalks due to the anticipated increase in number of transit patrons who would access the system as pedestrians.
2. The safety and convenience of pedestrians waiting at Metro Rapid station stops, such as the widening of sidewalks to accommodate the shelters as necessary, should be considered as more detailed plans are developed.
3. Pedestrian safety and quality of experience related to walking to/from the Corridor's Metro Rapid station stops from adjacent commercial and residential neighborhoods should be considered as more detailed plans are developed.
4. Conflicts between transit vehicles and bicyclists may occur due to the increased number of Metro Rapid vehicles operating in the Corridor. During the constrained peak periods, a majority of the Corridor's streets currently prohibit curbside parking, which would reduce peak period bicycle impacts resulting from the operation of an increased number of buses. Of the streets with designated bike facilities, the only ones that may be impacted are Pico Boulevard (Commuter Bikeway) and La Brea Avenue/Hawthorne Boulevard (Class II Bike Lane).
5. Provision of bicycle-related facilities at Metro Rapid station stops may be evaluated as more detailed plans are developed. Provision of bicycle racks and lockers at station stops is not

currently implemented as part of MTA's Metro Rapid service policy, but may be considered in future service phases. Similar to current MTA policy, bicycles would be encouraged on Metro Rapid vehicles through the use of bike racks mounted on the front of each bus. Bicyclists utilizing the Metro Rail system would continue to be accommodated with a permit during non-peak times.

Bus Rapid Transit Alternative

In the Crenshaw-Prairie Corridor, Bus Rapid Transit (BRT) was defined as bus service providing the full range of physical and operational attributes of Metro Rapid service with the addition of dedicated lane operations where feasible. Dedicated lane operations would occur primarily in the curbside lane except for along Hawthorne Boulevard where median operations may be feasible. The former BNSF Railroad right-of-way offers the opportunity for off-street operations from approximately Crenshaw Boulevard/Florence Avenue to the Metro Green Line Aviation Station.

Since the BRT Alternative would utilize existing roadway space along its proposed alignment where it operates within the street right-of-way, there may be some impacts to pedestrians and bicyclists along those street segments. There may also be some impacts to pedestrians crossing and bicyclists circulating along the former railroad right-of-way section. At this level of analysis, possible impacts have been noted, but are not specified nor are mitigation measures identified. The possible impacts are considered reasonably representative for the purpose of comparing alternatives. During any subsequent preliminary engineering work, BRT System components and requirements would become more detailed. Impacts to Corridor pedestrians and bicyclists will be assessed accordingly, and described in any subsequent future Environmental Impact Report/Environmental Impact Statement (EIR/EIS) efforts.

BRT service would operate primarily in dedicated curbside lane operations either on a peak period-only or a 24-hour basis and would increase the number and the size of buses operating in the Study Corridor over those required under No Build conditions. Implementation of this Alternative may result in some or all of the following impacts to Study Area pedestrians and bicyclists:

1. There may be a minor increase in conflicts between transit vehicles and pedestrians particularly at crosswalks along both the street and former railroad right-of-way due to the anticipated increase in number of transit patrons who would access the system as pedestrians.
2. The safety and convenience of pedestrians waiting at BRT station stops, such as the widening of sidewalks to accommodate the shelters and other amenities as necessary, should be considered as more detailed plans are developed.
3. Pedestrian safety and quality of experience related to walking to/from the Corridor's BRT station stops from adjacent commercial and residential neighborhoods should be considered as more detailed plans are developed.
4. Conflicts between transit vehicles and bicyclists may occur due to the increased number and length of the BRT Rapid vehicles proposed to operate in the Corridor. During the constrained peak periods, a majority of the Corridor's streets currently prohibit curbside parking, which would reduce peak period bicycle impacts resulting from the operation of an increased number of buses in dedicated lane operations. Of the streets with designated bike facilities, the only ones that may be impacted are Pico Boulevard (Commuter Bikeway) and La Brea Avenue/Hawthorne Boulevard (Class II Bike Lane).

As Corridor reuse plans of the former BNSF Railroad right-of-way proceed for transit use, incorporation of a bicycle facility should be considered, though some portions of the right-of-

way, particularly those running parallel to Aviation Boulevard, are constrained and additional right-of-way may be required to accommodate a two-lane BRT system as well as a bicycle path.

5. Provision of bicycle-related facilities at BRT station stops may be evaluated as more detailed plans are developed. Provision of bicycle racks and lockers at station stops may be included as part of MTA's BRT service policy. Appropriate facility locations should be identified during future study efforts. Similar to current MTA policy, bicycles would be encouraged on BRT Rapid vehicles through the use of bike racks mounted on the front of each bus. Bicyclists utilizing the Metro Rail system would continue to be accommodated with a permit during non-peak times.

Station area land use planning and development efforts could encourage greater access by walking. Ideally, planning of future BRT service would be coordinated with existing land use patterns and future plans. Within the City of Los Angeles, the adopted *Land Use/Transportation Policy* identifies a "Major Bus Center" station area prototype which matches the service intentions of the BRT option. This prototype provides for higher density mixed use development, with a focus on residential uses, at the intersections of the City's most heavily utilized routes. The Major Bus Center prototype encourages three- and four-story mixed use development within a pedestrian-oriented environment. Other cities, such as Vancouver, have had success in developing mixed-use projects adjacent to major bus centers.

Light Rail Transit Alternative

Crenshaw-Prairie Corridor Light Rail Transit (LRT) service would be similar to the service currently operating on the Metro Blue and Green Lines, and under construction for the Pasadena and Eastside rail lines. LRT operations would occur in a combination of dedicated on-street median lane and railroad right-of-way operations.

Since the LRT Alternative will utilize the median of existing roadway space along its proposed alignment where it operates within the street right-of-way, there may be some impacts to pedestrians and bicyclists along those street segments. There may also be some impacts to pedestrians and bicyclists along the former railroad right-of-way section. At this level of analysis, the possible impacts have been noted, but are not specified nor are mitigation measures identified. The identified impacts are considered reasonably representative for the purpose of comparing alternatives. During any subsequent preliminary engineering work, LRT System components and requirements will become more detailed. Impacts to Corridor pedestrians and bicyclists will be assessed accordingly, and described in any subsequent future Environmental Impact Report/Environmental Impact Statement (EIR/EIS) efforts.

Implementation of this Alternative may result in some or all of the following impacts to Study Area pedestrians and bicyclists:

1. There may be a minor increase in conflicts between LRT vehicles and pedestrians particularly at crosswalks along both the street and former railroad right-of-way due to the anticipated increase in number of transit patrons who would access the system as pedestrians.
2. The safety and convenience of pedestrians waiting at LRT stations in the street median should be considered as more detailed plans are developed.
3. Pedestrian safety and quality of experience related to walking to/from the Corridor's LRT stations from adjacent commercial and residential neighborhoods should be considered as more detailed plans are developed.
4. Prevention of pedestrian crossing of LRT tracks except at designated, protected locations is a key safety issue for LRT operations. Study Corridor LRT stations would be located near major

signalized intersections where pedestrian crosswalks are currently in place, or signals and crosswalks would be added at some locations. All of the intersections that become signalized because of the introduction of the LRT system would be equipped with pedestrian call buttons. The use of pedestrian-oriented signal phasing could be considered at major crossing locations. Along the railroad right-of-way, gates and flashing lights will be incorporated both for vehicular and pedestrian safety.

As is the design of the stations for the existing Metro Blue Line along Washington Boulevard, LRT passengers would enter and exit stations via a ramp that would lead to a crosswalk at signalized intersections. There would be a waiting area at this location where pedestrians would safely wait for a walk signal in order to cross the street to adjacent sidewalk areas. Pedestrian movements would be prohibited across the LRT tracks by fencing and other design elements in order to minimize potential conflicts. Other techniques for increased pedestrian safety include educational programs in local schools, marketing and advertising campaigns, and crossing guards.

5. Conflicts between rail transit vehicles and bicyclists are not anticipated to due to median-operations of the LRT system and street operations of the bicycle system. Typically median operations no direct impact other than constraining vehicular traffic into fewer lanes which may have an impact on curbside lane bike operations,

The LRT Alternative would not impact any of the Corridor's streets designated as bike facilities except for possibly a portion of Hawthorne Boulevard (Class II Bike Lane). As Corridor reuse plans of the former BNSF Railroad right-of-way proceed for transit use, incorporation of a bicycle facility should be considered, though some portions of the right-of-way, particularly those running parallel to Aviation Boulevard, are constrained and additional right-of-way may be required to accommodate a two-track LRT system as well as a bicycle path.

6. Provision of bicycle-related facilities at LRT station stops will be evaluated as more detailed plans are developed. Location of bicycle racks and lockers at station areas is included as part of MTA's LRT service policy. Appropriate facility locations should be identified during future study efforts. Similar to current MTA policy, bicycles would be accommodated on the Crenshaw LRT Line with a permit during non-peak times.

Station area land use planning and development efforts could encourage greater access by walking. Ideally, planning of future LRT service would be coordinated with existing land use patterns and future plans. Within the City of Los Angeles, the adopted *Land Use/Transportation Policy* identifies five station area prototypes reflective of varied land use characteristics and community visions of how rail transit should serve and fit within their neighborhoods – from “Neighborhood Center” to “Urban Core (CBD).” These prototypes provide for higher density mixed use development, with a focus on residential uses, within a pedestrian-oriented environment. Los Angeles and other cities, including Portland, Sacramento and San Jose, have had success in developing mixed-use projects adjacent to rail lines.

**Crenshaw-Prairie Corridor
Major Investment Study**

4.0 ENVIRONMENTAL CONSIDERATIONS

4.0 ENVIRONMENTAL ANALYSIS

The alternatives evaluated for the Crenshaw-Prairie Corridor Major Investment Study (MIS) would have direct and indirect effects on the physical environment of the Corridor. This chapter of the MIS analyzes the environmental consequences associated with the implementation of the Metro Rapid, Bus Rapid Transit (BRT) or Light Rail Transit (LRT) alternatives.

Specific physical environment impact areas analyzed in this section include: land use and economic development, acquisitions and displacements, public services and utilities, visual quality and aesthetics, air quality and conformity, noise and vibration, energy, safety and security, geology and subsurface conditions, hazardous materials, historic and archaeological resources, parks and recreation, hydrology and water resources, biological resources and wetlands and environmental justice. The potential impacts on traffic and transit ridership are discussed separately in *Section 3.0, Transportation Analysis*.

Possible effects of the Corridor alternatives during both operation and construction are discussed in the following analysis. Operational impacts would generally be more substantial as they are on-going, while construction impacts would be temporary. Potential site-specific impacts are described based on planning efforts to date and utilizing currently available information. These impacts are considered reasonably representative for the purpose of comparing alternatives. During any subsequent preliminary engineering efforts, system components and requirements will become more detailed. Revised assessments of environmental effects will be prepared accordingly, and described in any subsequent future Environmental Impact Report/Environmental Impact Statement (EIR/EIS) efforts.

4.1 Land Use and Economic Development

The Crenshaw-Prairie Corridor is characterized by the diversity of land uses within it, including many significant employment destinations, active retail centers and stable residential neighborhoods. However, the study area also includes some of the lowest income neighborhoods in the cities of Los Angeles, Hawthorne and Inglewood, as well as some of the areas hardest hit during the civil disturbances of 1992. In summary, the Crenshaw-Prairie Corridor faces the following economic challenges:

- Poor accessibility to and from destinations both within and beyond the Corridor;
- Loss of employment opportunities; and
- Leakage of retail activity.

All of the above economic factors have resulted in increased unemployment, reduced incomes and the related decline of some of the Corridor's neighborhoods. But the Corridor also offers significant economic opportunities for residents and employers. A majority of the Corridor's key activity and employment destinations are currently preparing expansion, revitalization and/or redevelopment plans as presented in Figure 4.1. Improvements are planned or already underway for: the Los Angeles Air Force Base in El Segundo, LAX, Downtown Inglewood and Hawthorne, Hollywood Park, the Great Western Forum, the West Angeles Church, the Leimert Park area, the Baldwin Hills/Crenshaw Plaza, Santa Barbara Plaza and the Mid-Town Shopping Center. The ultimate success of all of these opportunities is dependent on the provision of much needed transportation system improvements in the Corridor. This future investment is viewed as not only improving Corridor mobility, but also serving as a catalyst for public and private investment as demonstrated elsewhere in the region.

The geographical distribution of new jobs created in the Southern California region has bypassed the Corridor in favor of areas including the San Fernando Valley, San Gabriel Valley and Orange County. Due to this shift in jobs, 80 percent of Corridor residents work outside the Study Area. The resulting impact on workers, but bus riders in particular, has been longer travel distances and travel times. Access

to employment has been exacerbated by the poor level of Corridor transportation connections to the regional transportation system being developed to serve the existing employment centers. There is a demonstrated need for faster, more direct transit service from the Study Area to regional job destinations, as well as improved access to other regional transportation options. Future demographic projections show a substantial growth in employment opportunities primarily in the Mid-City, Inglewood and Los Angeles Airport (LAX) sub areas of the Corridor. In order to support that future job growth and related improved economic health of Corridor, there is a demonstrated need to improve regional connections into and within the Corridor.

4.1.1 Land Use Effects

The Cities of Los Angeles, Inglewood, Hawthorne and El Segundo each encourage the development of transit through policies in their respective General Plans and designation of Redevelopment Areas within the Corridor boundaries. Common objectives include:

- Improving low income household accessibility to employment opportunities;
- Addressing retail services leakage;
- Serving Corridor activity centers; and
- Increasing economic activity.

City of Los Angeles Land Use Plans

The Los Angeles General Plan Framework, adopted in December 1996, is the citywide portion of the City of Los Angeles' General Plan, which is intended to guide the City's long-range growth and development through the year 2010. The Framework allocates the majority of growth to areas within one quarter mile of transit stations and corridors. Approximately two thirds of the City's overall growth through 2010 is intended to be comprised of intensification and reuse of areas within and adjacent to the City's existing primary transportation corridors. Crenshaw Boulevard in particular is designated as a "Transit-Priority Highway."

The City is also divided into 35 community planning districts. A community plan is in place for each district establishing land use designations, policies, and implementation programs. The community plans are the means by which the citywide policies are applied to specific proposals at the local level. Two community plans cover the Los Angeles portion of the Corridor Study Area – the Wilshire District Plan and the West Adams-Baldwin Hills-Leimert Community Plan.

The Wilshire District Plan identifies the need for "improvement of the public transportation system to meet the future increase in trip demand through and within the Wilshire District and to reduce adverse environmental impacts due to the use of the private automobile." The Plan states that "improved transit routes and systems should be encouraged, but only after a full study of the alternatives, their impacts, and their social, economic and environmental costs and benefits."

The West Adams-Baldwin Hills-Leimert Community Plan stresses the need for "a greatly improved public transportation system" and a "rapid transit system connecting major centers," among other objectives. The Plan also identifies the need to "focus future growth around transit stations" through an increase in residential densities and by encouraging mixed-use projects through incentives.

Joint City of Los Angeles and MTA Policy

In cooperation with MTA, the City has adopted a Land Use-Transportation Policy which is a long term strategy for integrating land use, housing, transportation and environmental policies into the development of a city form that complements and maximizes the utilization of the region's transit system. This Policy



Crenshaw-Prairie Transportation Corridor Major Investment Study

Figure 4.1

Economic Opportunities

KORVE
ENGINEERING



RAW
ARCHITECTURE

LEGEND

STUDY AREA BOUNDARY

REGIONAL METRO RAIL LINE



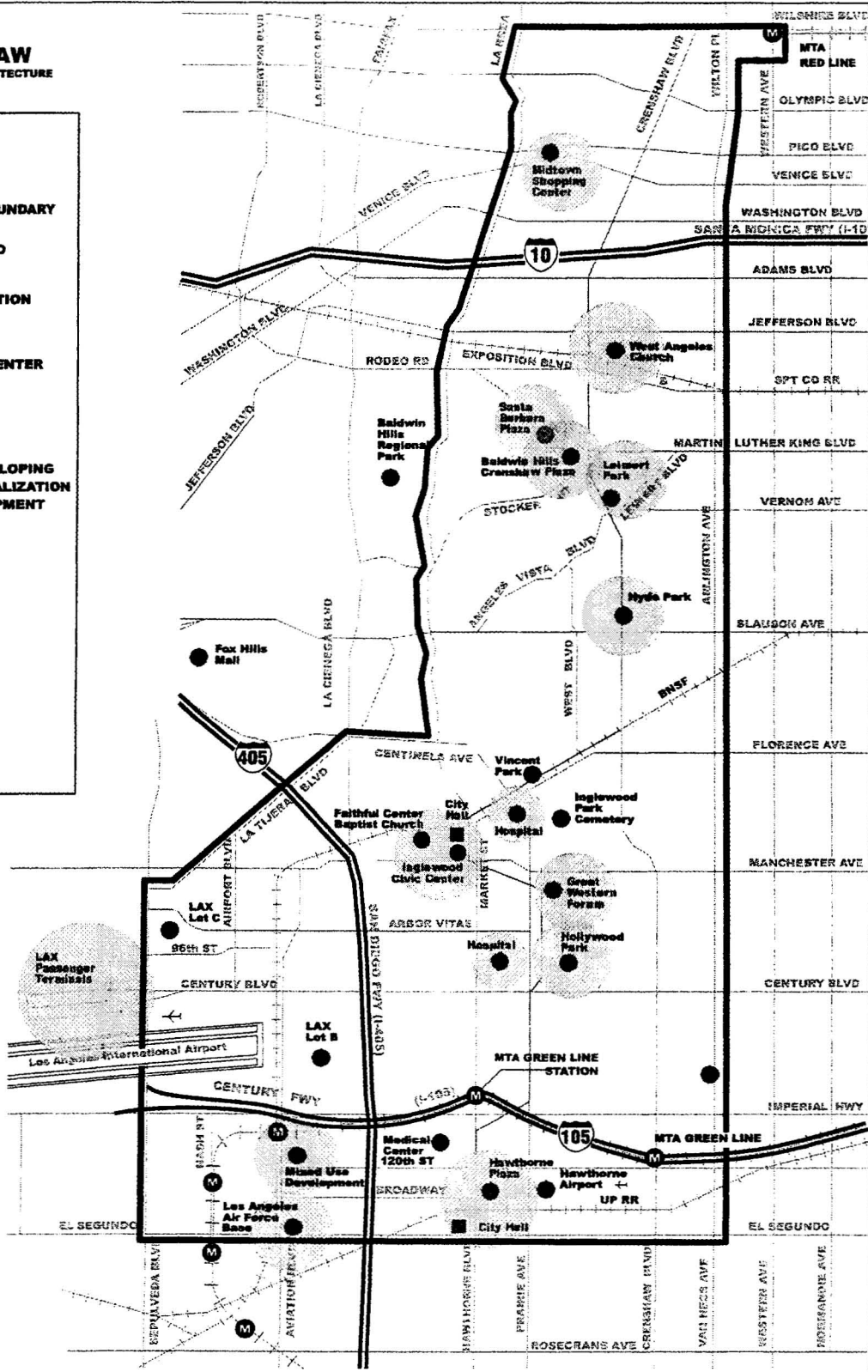
METRO RAIL STATION



KEY ACTIVITY CENTER



DESTINATION DEVELOPING
EXPANSION, REVITALIZATION
AND/OR REDEVELOPMENT
PLANS



provides land use, housing, urban design, pedestrian, economic development and community facility guidelines for bus and rail transit station area development. The guidelines are based on six station area prototypes each reflective of varied land use characteristics and community visions of how transit should serve and fit within their neighborhoods. Based on this Policy, possible future Crenshaw-Prairie Corridor station area images have been developed and are presented on the following pages for three key stations: 1.) Crenshaw/Exposition Station Area; 2.) Crenshaw/Martin Luther King Station Area; and 3.) Florence/La Brea Station Area (looking south and west).

City of Inglewood Land Use Plans

The City of Inglewood acknowledges and supports ongoing study of the BRT and LRT options which would relieve traffic congestion and create linkages between the City and nearby activity and work centers, as well as LAX. The Circulation Element of the City's General Plan urges that the former Burlington Northern Santa Fe (BNSF) Railroad right-of-way now owned by MTA, which passes through the City, be considered for use in such plans. A Transit Corridor Land Use Policy has been adopted by the City.

City of Hawthorne Land Use Plans

The City of Hawthorne's General Plan Circulation Element includes policies to encourage and stimulate the advancement of transit. The Element notes "an opportunity for increased use in public transportation through expansion of local and regional bus systems" and seeks to "exploit the opportunity that exists due to the location of the Century-El Segundo Light Rail Transit System." A Specific Plan is currently being developed for Hawthorne Boulevard.

City of El Segundo Land Use Plans

The City of El Segundo's General Plan also demonstrates transit objectives that are consistent with the goals of the proposed transit alternatives. The City's Circulation Element (1992) indicates a desire to "ensure provision of a safe and efficient transit system" and to work closely with transit and transportation agencies to improve public transit service within and adjacent to the City. The land use designation adjacent to the Metro Green Line stations is Urban Mixed Use which encourages a mixture of office, research and development, retail and hotel uses.

Redevelopment Plan Areas

The Corridor study area also encompasses portions of redevelopment areas designated by the Cities of Los Angeles, Inglewood and Hawthorne as illustrated in Figure 4.2. The City of El Segundo does not have any designated redevelopment areas. Through the provisions of state redevelopment law, these areas provide financial incentives for development and in order to encourage the types of land use densities and patterns desired in the General Plans outlined above, namely high-density development that is oriented to major transit routes.

Within the Corridor Study Area, the City of Los Angeles has two designated redevelopment areas – the Crenshaw Redevelopment Project and the Crenshaw-Slauson Redevelopment Project. These projects are directed at eliminating blight and generating economic development and jobs. The City of Inglewood has six redevelopment project areas within the Study Area: In Town, La Cienega, Manchester-Prairie, North Inglewood Industrial Park, Century and Imperial-Pacific. Activities within these project areas are committed to the economic health of the business community and the stability of the City's neighborhoods. The City of Hawthorne has one redevelopment plan area within the Corridor Study Area located generally along Hawthorne Boulevard.

4.1.2 Economic Effects

Short-term effects are more likely to occur during rail construction and may include travel delays and detours resulting in reduced accessibility to and from Corridor activity centers impacting local businesses adjacent to the rail system construction sites. Depending on the alternative ultimately identified, property acquisition may adversely impact existing businesses and residents (please see Section 4.2 for more details about potential acquisitions and displacements). Conversely, rail system-related property acquisition may offer system-related development opportunities particularly in station areas. Such development can strengthen the Corridor's neighborhoods by providing expanded and upgraded space for businesses as well as housing and community services, while strengthening system ridership.

More than 49 percent of the Crenshaw-Prairie Corridor's households are classified as low income and approximately 16 percent of the Corridor's households have no auto available. Both of these factors contribute to a higher than average transit usage in the Corridor. At the same time, 80 percent of the Corridor's residents travel to job opportunities outside of the Corridor due to the loss of jobs from various locations within the Crenshaw-Prairie Corridor, particularly in South Central Los Angeles. The loss of Corridor jobs and constrained access to jobs outside of the Corridor has contributed to a significant increase in Study Area unemployment and the related decline in Corridor incomes and maintenance of some residential neighborhoods. Future projections show a continued high number of low income households without access to an automobile, and projected higher percentage of transit dependency. At the same time, employment within the Corridor is projected to increase by more than 14 percent by 2025, adding 18,500 jobs at existing and new businesses.

The Metro Rapid, BRT and LRT alternatives increase the access and mobility of Corridor low income residents to employment opportunities by providing a reliable, high-capacity, regional linkage to Corridor businesses, and enhancing access by Corridor residents to job opportunities outside the Corridor by providing a transit alternative that reduces travel times and improves regional system connectivity. Enhanced access to employment opportunities would strengthen Corridor's economic position, result in lowered unemployment rates, stop the decline in Corridor incomes, and improve neighborhoods with deferred maintenance. Conversely, provision of a Metro Rapid, BRT or LRT system within the Corridor would make existing and future job opportunities more accessible to people within and outside of the Corridor- making it a desirable location for new businesses.

Socioeconomic and market factors in the Crenshaw-Prairie Corridor suggest a Corridor buying power in excess of \$3.3 billion annually. However, much of that buying power is currently spent outside of the Corridor. This leakage of retail expenditures to non-Corridor locations suggests that the quality, quantity and/or range of retail purchasing opportunities in the Corridor is inadequate or not easily accessed by Corridor, as well as regional shoppers. Each of the proposed alternatives would provide enhanced access to the Corridor's retail facilities by all residents, as well as by non-Corridor residents.

4.2 Acquisitions and Displacements

Although the Crenshaw-Prairie Corridor alternatives under consideration are intended to maximize use of publicly-owned rights-of-way, certain design, alignment and mitigation features of these alternatives may require that a limited number of businesses be acquired. Specific actions that would cause displacement include: acquisition of private property for route alignment, station facility land requirements, and parking and/or impact mitigation purposes.

Acquisition and Displacement Effects

Initial project plans for both the BRT and LRT alternatives suggest that a limited number of acquisitions may be required for construction of certain stations along the alignment. While acquisitions and related



**Figure 4.2
Redevelopment/
Revitalization Plan Areas**

**KORVE
ENGINEERING**



**RAW
ARCHITECTURE**

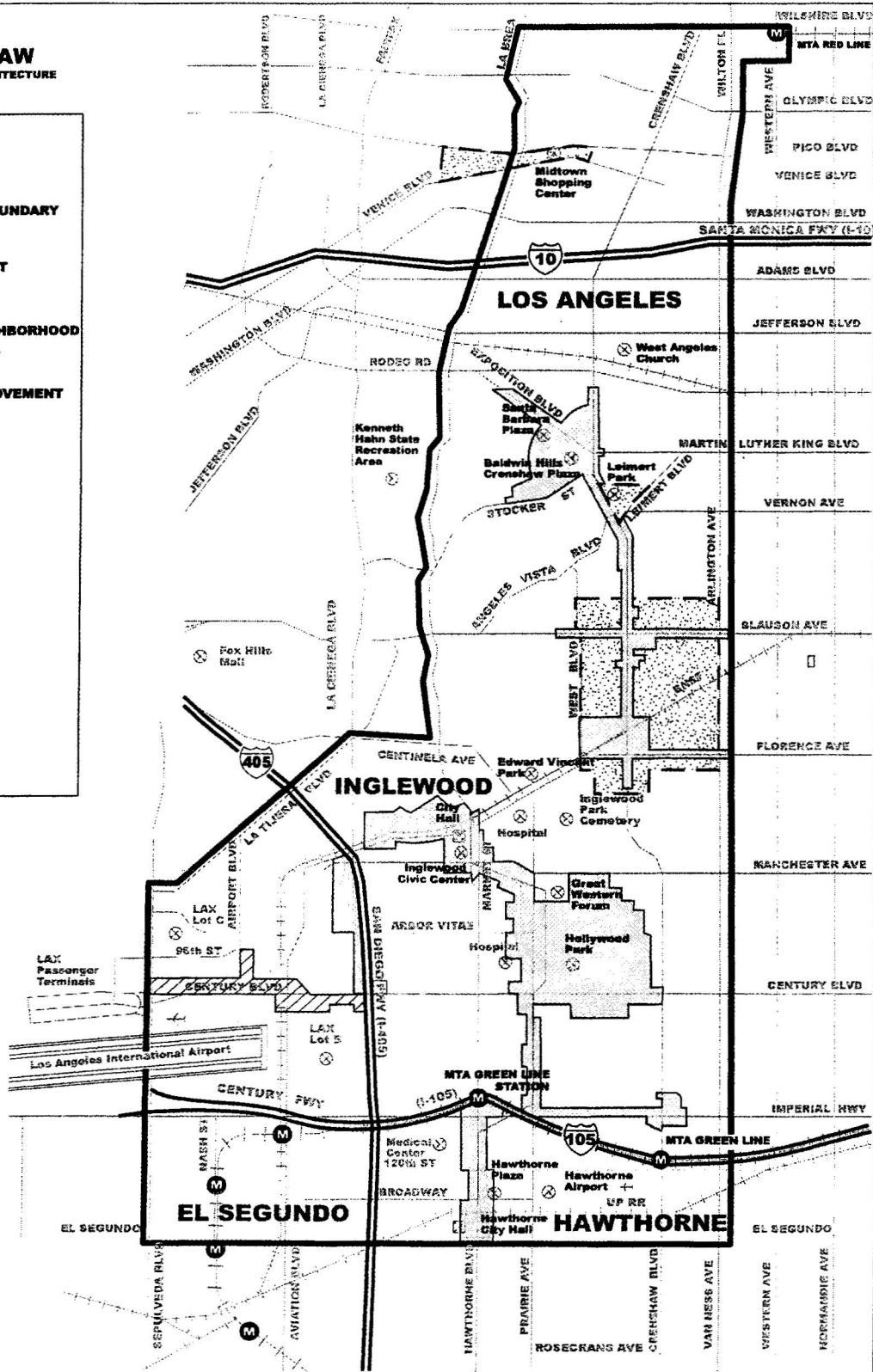
LEGEND

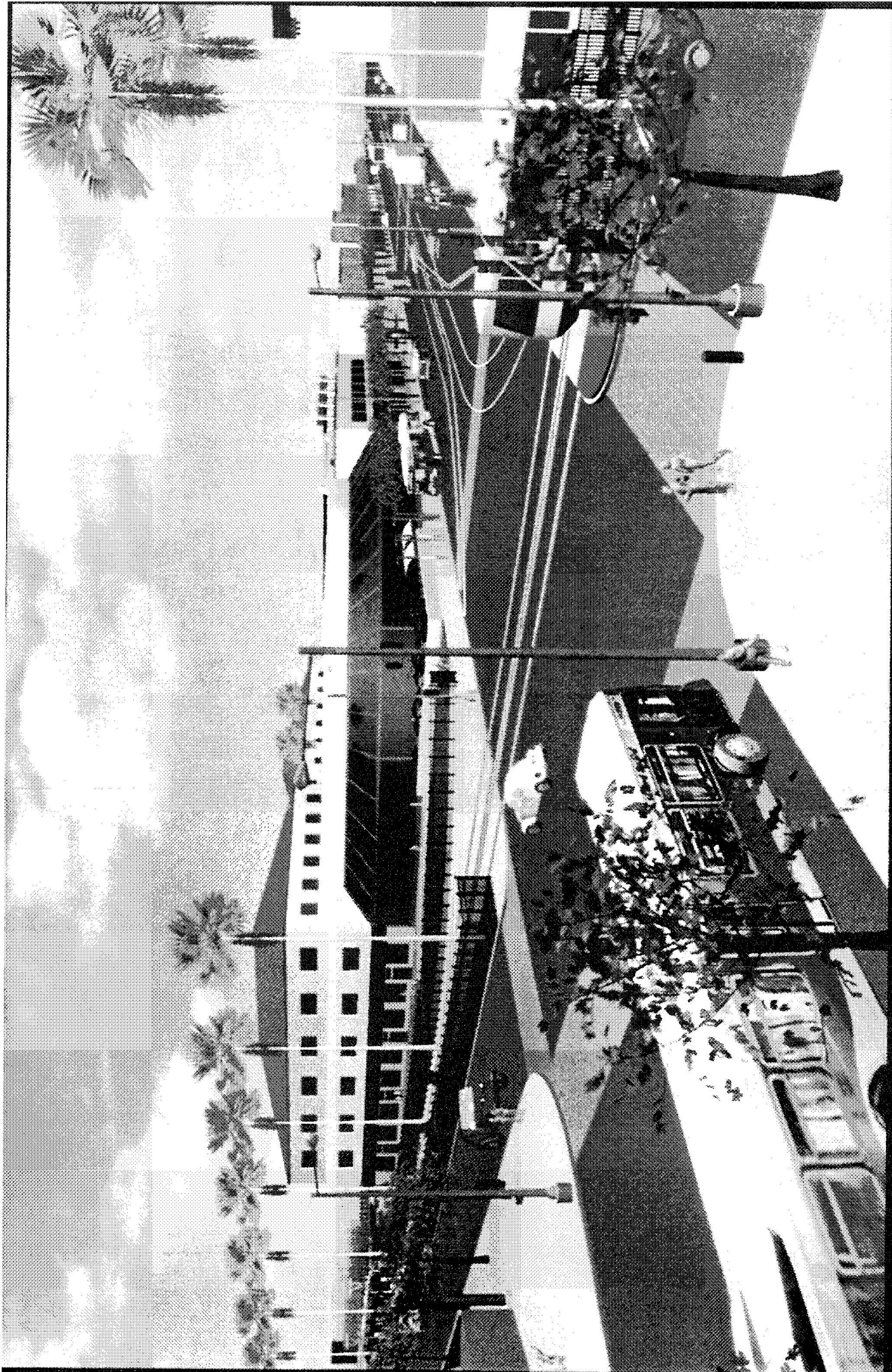
STUDY AREA BOUNDARY

**REDEVELOPMENT
PLAN AREA**

**TARGETED NEIGHBORHOOD
INITIATIVE AREA**

**BUSINESS IMPROVEMENT
DISTRICT**





Rendering 4.1: Crenshaw / Exposition Station Area
Looking Southeast



Rendering 4.2: Crenshaw and Martin Luther King Station Area
Looking Southeast



Rendering 4.3: Florence / LaBrea Avenues Station Area
Looking West



Rendering 4.4: Florence and La Brea Station Area
Looking South

displacement of individuals and/or businesses may be unavoidable, the potential adverse effects of such actions would be substantially alleviated through compliance with applicable federal and state laws governing relocation assistance and property acquisition procedures. At this time, it is expected that six businesses could potentially be displaced for implementation of the BRT alternative and nine businesses under the LRT option. The Metro Rapid Alternative will not result in any acquisition and displacement impacts.

The *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*, as amended (Uniform Act), mandates that certain relocation services and payments be made available to eligible residents, businesses, and nonprofit organizations displaced as a direct result of programs or projects undertaken by a federal agency or with federal financial assistance. The Uniform Act provides for uniform and equitable treatment of persons displaced from their homes or business and establishes uniform and equitable land acquisition policies. The provisions of the *California Relocation Act* (California Act), applies in the absence of federal funds and/or involvement if a public entity undertakes a project and consequently must provide relocation assistance and benefits. The California Act, which is consistent with the intent and guidelines of the Uniform Act seeks to (1) ensure the consistent and fair treatment of owners of real property (2) encourage and expedite acquisition by agreement to avoid litigation and relive congestion in the courts and (3) promote confidence in the public land acquisitions.

4.3 Public Services and Utilities

Public Services. Public facilities and services within the Crenshaw-Prairie Corridor study area include fire and police stations, libraries, schools, health care facilities, parks and recreation centers, and religious institutions. Each of these is discussed in this section except for parks and recreation centers which are discussed in Section 4.12 "Parks and Recreation Resources."

Utilities. Utilities within the study area are provided by a host of agencies and companies and include water, wastewater, electricity, natural gas, and solid waste disposal. This section focuses on wastewater (sewer) and solid waste, as water resources are addressed in Section 4.13 "Hydrology and Water Resources" and electricity and natural gas are addressed in Section 4.7 "Energy."

Public Services and Utilities Effects

Public Services. As none of the proposed alternatives would result in direct population growth (as a housing development would for example), they would not place an increased demand on public services such as libraries, schools, fire and police services. With the exception of one small private school, no public service facilities would be displaced or otherwise physically affected by either of the proposed project alternatives. Any impacts to public facilities would indirect or secondary effects, such as noise and air quality impacts (evaluated in Sections 4.6 and 4.5 respectively). Other effects which would primarily apply to police and fire services within the area could include ingress/egress and emergency access conflicts due to changing traffic configurations and/or increases in traffic at certain locations. Mitigation measures will be incorporated into subsequent environmental impact documents to ensure adequate ingress/egress and emergency response for police and fire stations.

Several schools and day care facilities have been identified adjacent to the proposed alignments. Noise and safety impacts related to the BRT and LRT alternatives would be of primary concern in this regard. Mitigation measures would likely be required to ensure that school facilities are able to maintain an appropriate environment for learning. Similar considerations are important with regard to libraries, religious institutions and health care facilities, all of which have heightened sensitivity to noise.

Utilities. The Hyperion Treatment Plan (HTP), located in the community of Playa Del Rey southwest of the Los Angeles International Airport, treats wastewater generated within the study area. No adverse

effects are anticipated with regard to any of the project alternatives because, as discussed above, the project would not result in population growth which could place an increased burden on this service provider.

Likewise, landfills which serve the study area (there are numerous landfills which waste is hauled to from within the Study Area) would not be adversely affected by operation of any of the proposed project alternatives as no increase in the solid waste stream is forecast.

4.4 Visual Quality and Aesthetics

As discussed in earlier sections of this report, the Corridor is comprised of a wide range of land uses and is decidedly urban in nature. The visual and aesthetic quality of the Corridor reflects this diversity of land uses. While some segments of the proposed transit routes exhibit dense landscaping, well-kept homes and businesses and an active pedestrian environment, others show signs of decay and neglect.

Visual Quality and Aesthetic Effects

Visual and aesthetic impacts may occur when a proposed project is out of scale with its immediate surroundings, or when it blocks views or sight lines which now exist, such as scenic vistas of Downtown Los Angeles and the Hollywood Hills from the Baldwin Hills/View Park area of the Corridor. The introduction of catenary wires, station platforms and especially aerial structures associated with the LRT alternative could cause visual and aesthetic impacts. Additionally, aerial structures located within street rights-of-way may create shaded or dark areas which pedestrians may perceive as unsafe, while supporting columns and structures may provide opportunities for graffiti. Where aerial operations are proposed, visual and aesthetic impacts would result which could impact not only properties immediately adjacent to the alignment, but those on adjoining blocks as well. An existing BNSF railroad overcrossing at Century Boulevard will be used by both the BRT and LRT options. New aerial structures are proposed for the LRT alternative in two locations related to the Metro Green Line: along the north side of the I-105 Freeway connecting to the Metro Green Line Hawthorne Station and then returning to street level in the median of Hawthorne Boulevard; and a segment running from a trench at the end of the LAX runways connecting to the Metro Green Line Aviation Station.

Overall, within the urban environment, the addition of LRT or BRT service would not, in and of itself, be out of context with existing surroundings. While there are several sensitive land uses situated adjacent to the proposed transit routes (including parks, schools, a cemetery and a hospital), these uses would not be adversely affected by the "sight" of buses or trains themselves. The areas where the transit route would run along the existing railroad right-of-way are largely industrial in nature and thus visual effects in these areas would be minor. Rather, it is the secondary effects, such as noise, that are of issue for these uses. These types of effects are discussed throughout this section.

4.5 Air Quality and Conformity

Air quality in the United States is governed by the Federal Clean Air Act (CAA) and is administered by the United States Environmental Protection Agency (USEPA). In addition to being subject to the requirements of the CAA, air quality in California is also governed by more stringent regulations under the California Clean Air Act (CCAA). The CCAA is administered statewide by the California Air Resources Board (CARB). CARB oversees the functions of local air pollution control districts and air quality management districts, who in turn administer air quality activities at the regional and county level.

The South Coast Air Quality Management District (SCAQMD) has jurisdiction over a 10,743 square mile area, commonly referred to as the South Coast Air Basin (SCAB). This area includes all of Orange County, Los Angeles County, except for the Antelope Valley, the non-desert portion of western San

Bernardino County, and the western and Coachella Valley portions of Riverside County. The SCAB is generally bounded by the Pacific Ocean to the west; by the San Gabriel, San Bernardino and San Jacinto mountains to the north and the east; and by the San Diego County line to the south.

CARB designates an area as non-attainment for a pollutant if air quality data shows that a State standard for a pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a State standard, and are not used as a basis for designating areas as non-attainment.

On the basis of regional monitoring data, the Los Angeles County portion of the South Coast Air Basin is designated as a non-attainment area for ozone, carbon monoxide, and total suspended particulates (PM₁₀). The air basin is designated as an attainment area for nitrogen oxide, sulfur dioxide, sulfates, and lead.

The SCAQMD monitors air quality conditions at 37 locations throughout the SCAB. Data from the West Los Angeles-VA Hospital and Hawthorne monitoring stations were used to characterize existing conditions in the vicinity of the proposed project since they are closest to the Corridor study area. The pollutants SO₂ and PM₁₀ are not monitored at the West Los Angeles monitoring station. A summary of the data recorded at these stations is presented below in Tables 4.1 and 4.2.

Table 4.1: 1996-2000 Criteria Pollutant Violations – Hawthorne Air Monitoring Station

Pollutant	Period	State Standard	Number of Days Above State Standard				
			1996	1997	1998	1999	2000
Ozone	1-Hour	0.09 ppm	8	6	0	1	1
PM ₁₀	24-Hour	50 ug/m ³	5	4	7	6	9
Carbon Monoxide	8-Hour	9.0 ppm	6	1	1	0	0
Nitrogen Dioxide	1-Hour	0.25 ppm	0	0	0	0	0
Sulfur Dioxide	24-Hour	0.04 ppm	0	0	0	0	0

Source: California Air Resources Board

ppm = parts per million
 ug/m³ = micrograms per cubic meter

Table 4.2: 1996-2000 Criteria Pollutant Violations – West Los Angeles (VA Hospital Air Monitoring Station^a)

Pollutant	Period	State Standard	Number of Days Above State Standard				
			1996	1997	1998	1999	2000
Ozone	1-Hour	0.09 ppm	13	6	7	4	2
Carbon Monoxide	8-Hour	9.0 ppm	0	0	0	0	0
Nitrogen Dioxide	1-Hour	0.25 ppm	0	0	0	0	0

Source: California Air Resources Board

ppm = parts per million
^a PM₁₀ and sulfur dioxide are not monitored at this station

4.5.1 Air Quality Effects

Annual regional VMT is expected to decrease under both the BRT and LRT alternatives and thus the emissions related to vehicle exhaust (Carbon-monoxide, Oxides of Nitrogen and Sulfur) are also expected to decline in comparison to the Metro Rapid Alternative (see Table 4.3). This decrease is due to increased transit ridership and related decrease in miles traveled for private automobiles. Changes in PM₁₀

emissions (related to such aspects as tire wear) are expected to be negligible. Emissions of ozone precursors (volatile organic compounds [VOCs]) are also unlikely to be significantly altered. As shown in Table 4.3, emissions of ozone precursors would not increase by more than 50 tons per year for either the BRT or LRT alternatives when compared with the Metro Rapid Alternative and thus a conformity analysis and determination in accordance with the Code of Federal Regulations (CFR 40 Part 51) would not be required. The federal conformity analysis only applies to operational emissions of criteria pollutants. It is not applicable to construction emissions.

4.5.2 Localized Impacts

Localized CO concentrations at certain intersections within the study area could exceed Federal or State standards due to changes in intersection configuration and levels of service, resulting in a CO "hot spot." If future traffic analysis indicates that certain intersections may suffer a decreasing level of service, those intersections will be modeled for CO hot spots. Overall, future concentrations of CO along the Corridor alignment would be much lower than under existing conditions due to ongoing implementation of emissions reduction programs and turnover in the vehicle fleet.

4.6 Noise and Vibration

Currently, the Crenshaw-Prairie Corridor study area is subject to relatively high levels of existing ambient noise due to vehicular traffic (all segments), freight train traffic (LAX segment) and aircraft traffic (LAX, Hawthorne and Prairie segments).

Noise and Vibration Effects

The LRT alternative could produce noise and vibration impacts from rail vehicle operation (engine and track noise) and from the sounding of bells or air horns when traversing at-grade crossings. Because noise and vibration decline rapidly with distance, their effects would depend on the presence of residential land uses or other sensitive noise receptors in proximity to the proposed light rail lines. The significance of noise generated by rail operations also is dependent on the existing ambient noise levels in the areas surrounding the proposed rail alignment.

Noise and vibration impacts likely would be greatest near aerial or at-grade segments of the proposed LRT route. Little, if any, impacts would result from below grade operation except adjacent to the transitions to above-ground configuration. At-grade operations would generate the greatest noise impacts along the proposed alignments, while aerial operations would generate greater vibration impacts. However, aerial LRT operations could also generate significant noise levels which could travel greater distances over adjacent buildings and other structural barriers to sound propagation.

The BRT alternative would also present a new noise source by introducing a curbside lane that would place the noise source (buses) closer to sensitive receptors along the route. Buses may also be louder than comparable trains in the LRT scenario under certain circumstances, namely at high speeds and during acceleration from stops. CNG buses in particular can produce more noise than traditional diesel buses due to the noise of the bus CNG cooling mechanism.

No significant adverse effects are expected within the BNSF railroad right-of-way portions of the proposed alignments with respect to both the BRT and LRT alternatives. The right-of-way is generally industrial in nature and avoids sensitive receptors. One exception is the northernmost segment of the railroad right-of-way, which passes by Edward Vincent Park near the intersection with Florence Avenue.

Table 4.3: Annual Emissions of Criteria Pollutants (tons per year)

ANNUAL EMISSIONS OF CRITERIA POLLUTANTS (tons per year)												
Vehicle Class	Alt 1 – Metro Rapid				Alt 2 – BRT				Alt 3 - LRT			
	CO	NO _x	VOC	PM ₁₀	CO	NO _x	VOC	PM ₁₀	CO	NO _x	VOC	PM ₁₀
Passenger Vehicle	551,245.18	78,749.31	29,749.74	3,499.97	551,218.60	78,745.51	29,748.31	3,499.80	551,227.08	78,746.73	29,748.76	3,499.85
CNG Bus	339.11	1,640.42	457.66	5.51	340.07	1,645.05	458.96	5.53	338.37	1,636.83	456.66	5.50
Light or Heavy Rail/Electric	0	0	0	0	0	0	0	0	0	0	0	0
Commuter Rail/Diesel	84.70	254.00	2,287.90	57.53	84.69	253.95	2,287.45	57.51	84.68	253.93	2,287.26	57.51
Total	551,668.99	80,643.72	32,495.30	3,563.01	551,643.36	80,644.52	32,494.71	3,562.84	551,650.13	80,637.48	32,492.68	3,562.87

SOURCE: Terry A. Hayes Associates LLC, 2002.

4.7 Energy

Transportation is a major consumer of energy in the Los Angeles region. Current fossil fuel consumption from vehicle trips with origins or destinations in the region amount to about 4.9 billion gallons of fuel per year. About 89 percent of the fuel is gasoline, and the remaining 11 percent is diesel. Transportation energy consumption is equivalent to about 739 trillion British Thermal Units (BTU) per year, or about 126 million barrels of oil. Approximately 98 percent of this consumption is attributable to automobiles.

Various energy service providers serve the southern California region. Within the Study Corridor, the Los Angeles Department of Water and Power (LADWP) and Southern California Edison (SCE) provide electricity, and the Southern California Gas Company (TGC) provides natural gas. Electrical and natural gas services are readily available to the project area, with lines located along each of the proposed corridors.

Energy Effects

For the LRT alternative, electricity for the trains would be provided via service connections within the Study Corridor. These connections would be provided by both overhead and underground lines. The overhead lines both transmit and distribute electricity. Underground lines are used entirely for distribution of electricity. For the BRT alternative, buses would be fueled at MTA maintenance and fueling facilities, likely using compressed natural gas (CNG) or other alternative fuels.

Energy consumption involves energy used by the operation of vehicles (automobile, truck, bus, or train) within the corridor. Energy consumption estimates give consideration to the following factors:

- Annual vehicle miles traveled (VMT) for automobiles, trucks, buses and heavy rail vehicles;
- Variation of fuel consumption rates by vehicle type.

Both the BRT and LRT alternatives are expected to reduce energy consumption by reducing dependence on automobile use. In general, one rail car requires the same amount of energy as 11 automobiles. Therefore, any reduction in automobile trips would result in an energy savings. Likewise, one bus is estimated to consume the energy equivalent to five automobiles. Energy consumption for passenger vehicles, CNG bus, light or heavy rail, and commuter rail for each alternative is shown in Table 4.4 below.

When compared to 1998 Baseline, energy consumption for the Metro Rapid Alternative is anticipated to increase by a total of approximately 383,724,774 British thermal units (BTU) per year.¹

Table 4.4: Energy Consumption Increases for Alternatives (BTUs per year)

Type	Metro Rapid Alternative	BRT Alternative	LRT Alternative
Passenger Vehicle	381,093,221	381,045,428	381,060,667
CNG Bus	1,281,209	1,310,725	1,258,371
Light or Heavy Rail	796,114	793,529	821,086
Commuter Rail	554,230	554,026	553,940
Total	383,724,774	383,703,708	383,694,064

Under the BRT alternative, energy consumption for CNG buses is anticipated to increase by approximately 29,516 BTU per year when compared to the Metro Rapid Alternative. However,

¹ Calculations based on the energy consumption factors and 2020 daily traffic volumes and VMT provided by the MTA model, in accordance with the Federal Transit Administration's *Technical Guidance on Section 5309 New Starts Criteria* (Federal Transit Administration, 1999).

passenger vehicles, light or heavy rail, and commuter rail are anticipated to decrease by approximately 47,793, 2,585, and 204 BTU per year, respectively. Overall, energy consumption for all vehicular class under the BRT alternative is anticipated to decrease by a total of approximately 21,066 BTU per year when compared to the Metro Rapid alternative.

Under the LRT Alternative, energy consumption for light or heavy rail is anticipated to increase by approximately 24,972 BTU per year when compared to Alternative 1. However, passenger vehicles, CNG bus, and commuter rail are anticipated to decrease by approximately 32,554, 22,838, and 290 BTU per year, respectively. Overall, energy consumption for all vehicular class under LRT alternative is anticipated to decrease by a total of approximately 30,710 BTU per year when compared to the Metro Rapid alternative.

4.8 Safety and Security

Safety issues associated with the proposed alternatives include pedestrian/vehicle accidents, station accidents, boarding and disembarking accidents, and right-of-way accidents. Another aspect of the safety question is security, particularly whether transit station and/or parking design, location, and layout would compromise the safety of transit patrons or surrounding communities making them more susceptible to criminal activity.

The primary concern regarding security is the environment into which the transit improvements will be introduced. The addition of increased pedestrian levels and activity at transit stations raises the potential for security-related problems that must be handled by either MTA security personnel or affected local police departments. Security on the MTA system is provided by the Los Angeles Police Department (LAPD) and the Los Angeles Sheriff's Department (LASD). The LAPD is under contract with MTA to provide Metro Red Line subway security and to patrol Metro Buses operating within the City of Los Angeles. While the LASD is contracted by the MTA to provide security for the Metro Blue and Green Lines and patrol all Metro Buses operating outside the City of Los Angeles. Security for other service providers is provided by local police departments and the LASD.

Safety and Security Effects

The BRT option will evaluate an alternative operating in three service configurations: 1) curbside dedicated street lane operations where possible; 2) mixed-flow operations in constrained street locations; and 3) dedicated lane operations on the former BNSF Railroad right-of-way.

Pedestrian safety at BRT crossings focuses on the ability of a pedestrian to determine that a bus is approaching, and proceed to a safe location when the bus passes. To reduce the potential for accidents, pedestrian "Walk/Don't Walk" signals will be installed at all of the pedestrian crosswalks that cross the busway (where not currently installed). The crosswalks could also be equipped with an active "Bus Coming Icon" to warn pedestrians of the presence of an approaching bus.

Another potential hazard associated with the BRT alternative is the conflict presented by motorists merging into the exclusive BRT lane in order to turn right. This movement is generally not considered a high risk movement, as the motorist should have adequate visibility of a bus approaching on the right. However, the bus will be required to yield the right of way to a motorist making a right turn in the exclusive bus lane.

The LRT option will evaluate an alternative operating in a combination of four service configurations: 1) at-grade, median-running operations in city streets; 2) at-grade, mixed-flow operations in constrained street locations; 3) dedicated, primarily at-grade operations on the former BNSF Railroad right-of-way;

and 4) aerial operations to interface with the Metro Green Line. In addition, subway operations are being evaluated on Crenshaw Boulevard between Martin Luther King, Jr. Boulevard and Vernon Avenue.

A review of data from prior research, safety oversight authorities and direct surveys of LRT system staff in the western United States conducted in recent years reveals that train-pedestrian collisions are divided into two general location types. The first location type – at station platforms – represents the largest percentage of train-pedestrian collisions. This high percentage may be attributed to the inherent purpose of a station, where large numbers of people converge to board/alight from light rail vehicles and cross the trackway. Many collisions at stations are also easily preventable through safe design, appropriate signage and public education to encourage safe behavior. The second location type is along the LRT right-of-way away from the stations. This location type includes paths to stations, such as crossings at intersections where pedestrians cross over the light rail tracks and right-of-way intrusion (trespassing).

Pedestrian safety at LRT grade crossings is a potentially significant impact that can be addressed through safety treatments. Signs that warn pedestrians to “Look Both Ways” and display a train icon can be placed at the grade crossing. In addition, pedestrian channelization can direct pedestrians to designated crossing locations. Pedestrian channelization controls pedestrian movement through the use of paving, delineation, and barriers. Another pedestrian treatment that could be utilized along the alignment is the use of tactile warning strips. While traditionally used at stations to warn pedestrians of the edge of the platform, tactile warning strips can be installed at all designated pedestrian crossings of the trackway where the LRT alignment is not in the median of the roadway. Tactile warning strips assist the visually impaired and also provide a visual warning of the dynamic envelope of the train.

Safety and security at stations along the proposed BRT or LRT route would likely make use of both technology and human security presence. BRT station stops may include security and communication system equipment. Similar to the Metro Blue and Green Lines, the LRT stations may include security and communication system equipment, closed circuit television surveillance cameras and security intercoms. All stations would also be lit to standards that avoid shadows, and all pedestrian pathways leading to/from sidewalks and parking areas would be well illuminated. Stations would be designed to avoid elements that obstruct visibility or observation. In addition to these design measures and use of technology such as security cameras, MTA security officers in coordination with local police officers, would patrol all facilities developed within the Corridor.

4.9 Geology and Subsurface Conditions

Geologic Features and Soils. The proposed project site is located within the Los Angeles Coastal Basin, a physiographic feature bounded by the surrounding highlands. The Baldwin Hills to the immediate west of the northern portion of the Study Corridor are the most prominent geological feature. The maximum elevation of the adjacent hills is approximately 416 feet above sea level. The Los Angeles Coastal Plains consist mainly of consolidated sediments and alluvium, bounded at a depth by bedrock. Within the Study Corridor, soils are generally fine-grained, consisting of clay, silts, and sands belonging to the Yolo, Copley, Chino and Ramona-Placentia soil associations.

Seismicity. The western portion of the Crenshaw-Prairie Corridor encompasses portions of an active series of earthquake faults known as the Newport-Inglewood Fault Rupture Zone. The Newport-Inglewood Fault Rupture Zone has a discontinuous surface trace of approximately 47 miles. The fault zone can easily be noted by the existence of a chain of low hills extending from Culver City to Signal Hill. The fault complex is oriented in a northwest to southeast diagonal direction. The Baldwin Hills Fault is a buried portion of the fault system located south of Santa Rosalia Drive in the vicinity of the northern Crenshaw Boulevard segment of the BRT or LRT route alignment. The probable magnitude of a

seismic event on this fault would range from 5.5 to 6.0 on the Richter scale. The proposed project site is not located in an Alquist-Priolo Earthquake Fault Zone.

Landslide. A landslide is a descent of earth and rock down a slope. Some areas are at higher risk for landslides due to inherent instability. Northern portions of the Study Corridor are designated on Los Angeles County Maps as being within a hillside area which indicates potential for such effects as landslides. Slope instability is generally caused by a steep downward slope or unstable soil composition. Heavy rainfall, flooding, or ground movements such as earthquakes can induce landslides. Typically sites with a grade of 15 percent or greater are susceptible to landslides.

Liquefaction. Liquefaction is essentially the transformation of the soil to a liquid state. Liquefaction is a phenomenon in which the strength and stiffness of a soil are reduced by earthquake shaking or other rapid unloading. Liquefaction potential has been found to be the greatest where the groundwater level is shallow, and loose, fine sands occur with a depth of about 50 feet or less. Significant factors that affect liquefaction include water level, soil type, particle size and gradation, relative density, confining pressure, intensity of shaking and duration of shaking. While most of the Study Corridor has a high groundwater table – approximately 30 feet below the ground surface – only a small portion of land in the vicinity of Centinela Avenue (where the southern and western branches of the proposed LRT alignments converge at the BNSF railroad right-of-way) is designated on Los Angeles County Maps to be susceptible to liquefaction hazards.

Geology and Subsurface Conditions Effects

Geologic Features and Soils. Construction and operation of either of the project alternatives is not expected to adversely affect geology in the Study Corridor. Generally, effects would occur if a project increased the potential for soil erosion, altered unique geologic features, or otherwise caused or accelerated geologic hazards resulting in potential for human safety risks or damage to infrastructure or other property. As both the BRT and LRT alternatives would make use of existing rights-of-way for route alignment and would not require alterations to geologic features, no adverse effects are anticipated. Engineering of final project designs would determine proper construction techniques and specifications based on detailed analysis of soil and subsurface conditions along the proposed alignment.

Seismicity. The severity of ground shaking at any point depends on the earthquake magnitude, distance from the earthquake source, and local geologic conditions. In the area of the proposed project site the geotechnical hazard posed by seismic shaking is considered to be high due to the proximity to the Newport-Inglewood Fault Zone and the nature of the underlying materials. The proposed alternatives would be designed and constructed in accordance with all applicable earthquake standards to ensure the greatest protection from earthquakes.

Landslides. As stated above, areas with slopes of less than fifteen percent are generally not susceptible to landslides. Construction of a BRT or LRT alternative would occur almost entirely within existing right-of-ways which are relatively flat and not adjacent to landslide threats.

Liquefaction. Within the limited portions of the Study Corridor where liquefaction concerns are present, final engineering specifications would determine proper footings and foundations along the rail or bus option alignment as well as for any associated station construction. No adverse effects are anticipated.

4.10 Hazardous Materials

Certain chemical and physical properties of a substance may cause it to be considered hazardous. As defined by the California Code of Regulations (CCR), Title 22, Section 66084, a "hazardous material" is a

"substance or combination of substances which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either:

- Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or
- Pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed."

According to the California Health and Safety Code, Section 25124, a "hazardous waste" is any hazardous material that is abandoned, discarded or in storage prior to recycling. For example, excavated soil containing hazardous materials would be a hazardous waste if the concentration of contaminants exceeded specific CCR Title 22 criteria.

Hazardous Materials and Waste Effects

Based on a review of the databases maintained by the Environmental Protection Agency (EPA), the Study Corridor contains 346 hazardous waste facilities. This includes all generators, transporters, treaters, storers, and disposers of hazardous waste. However, as implementation of the project alternatives would largely occur within the existing street right-of-way it is not anticipated that any of these hazardous materials facilities would be disturbed during construction of either alternative.

The primary hazardous materials concerns for both the BRT and LRT alternatives revolve around conditions within and immediately adjacent to the former BNSF railroad right-of-way, due to its historically industrial use. A full evaluation of site conditions would be conducted prior to construction and any hazardous conditions would be corrected following appropriate state and federal procedures

In addition to hazardous materials concerns, the introduction of the LRT alternative would also introduce new electromagnetic field (EMF) sources associated with the overhead electrical power system used to propel the vehicles. Electromagnetic fields are generated from electrical power facilities and appliances. An EMF is an invisible, low frequency radiation that is emitted from electrical sources. Common sources include power lines, hair dryers, microwave ovens, video terminals, electric blankets and other appliances. High voltages generate the electrical fields, while the movement of these voltages in wires generates the magnetic fields. An EMF weakens as the field extends from the source.

The overhead catenary system and traction power substations are the sources of EMFs from the LRT alternative. This option would use 600 volts of direct current (dc) (0.6kV). For comparison, overhead power lines use a much higher voltage (400 kV). Based on the fact that the EMFs produced by LRT systems are relatively weak, it is not anticipated that EMFs would create an increased risk to human health.

4.11 Historic and Archaeological Resources

A wide range of historic, cultural, and archaeological sites are situated within the boundaries of the Crenshaw-Prairie Corridor Study Area as illustrated in Figure 4.3. A records search of the California Historic Resources Information System was completed for the Crenshaw-Prairie Corridor. This search included a review of all recorded historic and archaeological sites within the study area, as well as a review of all known cultural resource surveys, excavation reports and previously prepared environmental documents. In addition the California State Historic Resources Inventory, the National Register of Historic Places, the listing of California Historical Landmarks, the California Points of Historical Interest, the City of Los Angeles Historic-Cultural Monuments, and UCLA's file of historic maps were consulted.

In summary, the search identified the following historic and cultural resources within the Corridor study area which are illustrated in Figure 4.3:

- *Archaeological sites* – Five sensitive archaeological sites.
- *National Register of Historic Places* – Eight study area properties are listed on the federal register.
- *California Historical Landmarks* – One state landmark – the Centinela Springs – is located in Edward Vincent Park north of BNSF RR ROW.
- *City of Los Angeles Historic-Cultural Monuments* – Fifteen designated landmarks including an adobe, two libraries, two churches, one cultural facility, one industrial building and several residences.

Designated local, state and federal historic and cultural resources are listed below in Table 4.5. In addition, there are numerous residential and commercial buildings that have been identified as potential historic resources within the Crenshaw-Prairie Corridor Study Area. These resources are located in three main areas within the Corridor:

- ***West Adams Boulevard*** – There are 23 potential historic resources located along this street throughout the study area. The resources are predominantly residential to the east of Crenshaw Boulevard. Constructed between 1903 and 1914, these structures display a range of architectural styles including Tudor Revival, Beaux Art, Gothic Revival and Mediterranean. From Crenshaw Boulevard west, the potential historic resources are primarily commercial with some churches and related facilities. Constructed between 1923 and 1936, these historic buildings reflect commercial architectural styles popular at that time including Spanish Colonial Revival, Art Deco and Zigzag Moderne.
- ***Northern Crenshaw Boulevard*** – Between Venice Boulevard and the I-10/Santa Monica Freeway, there is a significant set of Craftsman-style residences lining both sides of Crenshaw Boulevard. These 38 resources, built between 1910 and 1922, were identified as worthy of protection.
- ***Central Crenshaw Boulevard*** – A significant number of potentially historic commercial resources are located between Exposition Boulevard and Slauson Avenue along both sides of Crenshaw Boulevard. Primarily built between 1927 and 1949, the structures are predominately designed in the Streamline and Postwar Moderne styles with some examples of Tudor, French and Spanish Colonial revival designs. These historic resources complement and add to the importance of this area's two National Register buildings – the former May Company and Broadway Department Store structures.

The Corridor's five identified archaeological areas are located as follows:

- Vicinity of La Brea Avenue between Jefferson Boulevard and Rodeo Road;
- Area west of Crenshaw Boulevard between the former Exposition Railroad right-of-way and Rodeo Road;
- Vicinity of the intersection of Martin Luther King Boulevard and Crenshaw Boulevard;
- Along Crenshaw Boulevard south of Vernon Avenue; and
- Area southwest of the intersection of Aviation Boulevard and Manchester Avenue.



Figure 4.3







**Historic, Cultural and
Archaeological Resources**

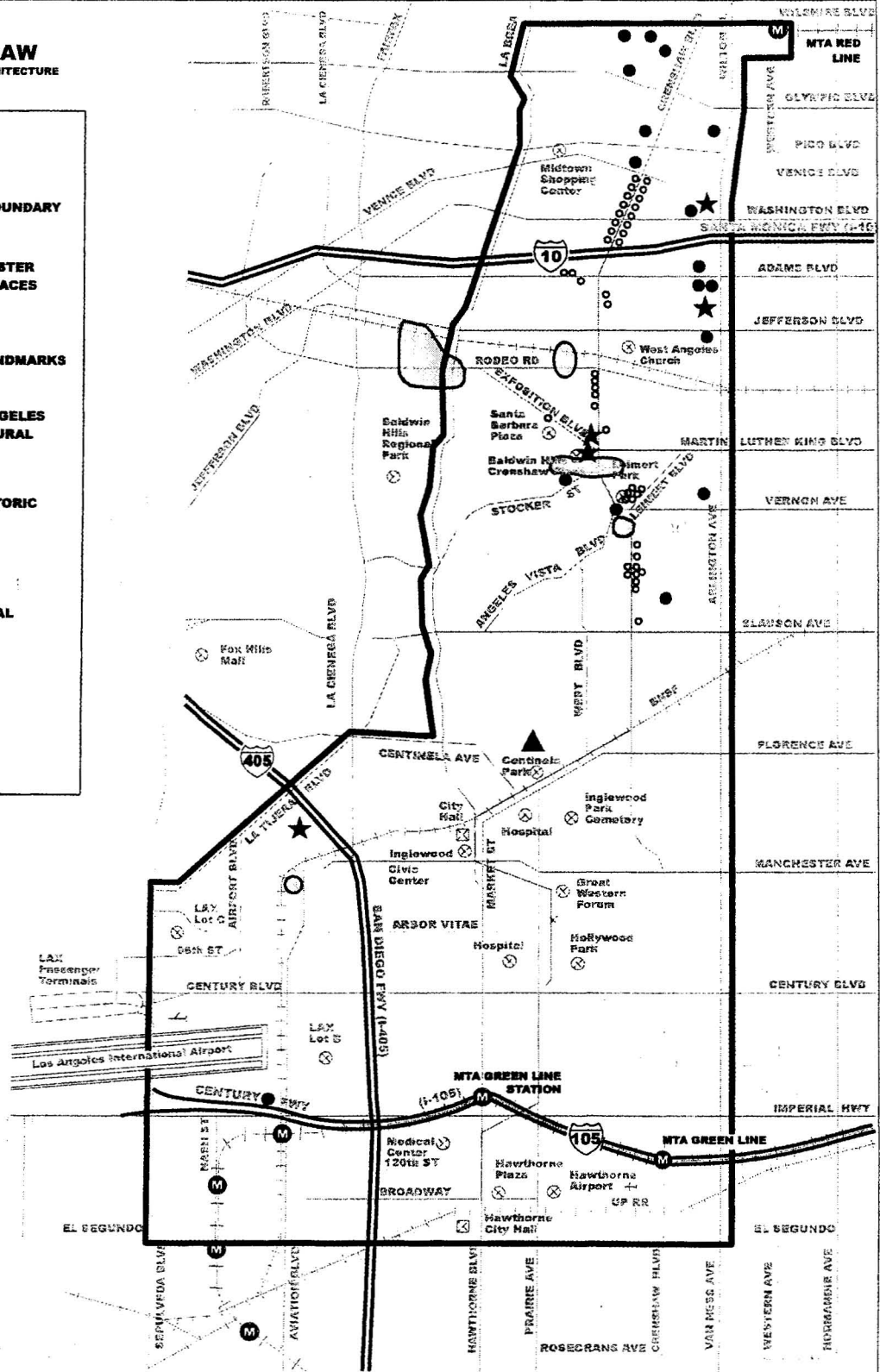
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LEGEND

-  **STUDY AREA BOUNDARY**
-  **NATIONAL REGISTER OF HISTORIC PLACES**
-  **CALIFORNIA HISTORICAL LANDMARKS**
-  **CITY OF LOS ANGELES HISTORIC-CULTURAL MONUMENT**
-  **POTENTIAL HISTORIC RESOURCES**
-  **IDENTIFIED ARCHAEOLOGICAL AREAS**



1/4 MI 1/2 MI 1 MI 2 MI 4 MI

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Table 4.5: Designated Historic and Cultural Resources

Resource	Location
Jefferson Branch Library	2211 W. Jefferson Boulevard, Los Angeles
Centinela Adobe	7634 Midfield Avenue, Los Angeles
May Company	4001 Crenshaw Boulevard, Los Angeles
Broadway Department Store	4101 Crenshaw Boulevard, Los Angeles
State Landmark No. 363 - Centinela Springs	Edward Vincent Park, Inglewood
No. 44 – Hangar No. I Building	5701 W. Imperial Highway, Los Angeles
No. 81 – Memorial Library	4625 W. Olympic Boulevard, Los Angeles
No. 114 – Wilshire United Methodist Church	4350 Wilshire Boulevard, Los Angeles
No. 169 – Residence of William Grant Still	1262 Victoria Avenue, Los Angeles
No. 170 – Paul R. Williams Residence	1690 Victoria Avenue, Los Angeles
No. 174 – Village Green (Baldwin Hills Village)	5112-5595 Village Green, Los Angeles
No. 229 – Westminster Presbyterian Church	2230 W. Jefferson Boulevard, Los Angeles
No. 250 – The Ebell of Los Angeles Building	4400 Wilshire Boulevard, Los Angeles
No. 258 – Fitzgerald House	3115 W. Adams Boulevard, Los Angeles
No. 307 – Washington Irving Branch Library	1803 S. Arlington Avenue, Los Angeles
No. 344 – Institute of Musical Art	3210 W 54 th Street, Los Angeles
No. 417 – Gordon L. McDonough House	2532 5 th Avenue, Los Angeles
No. 419 – Walker Mansion	3300W. Adams Boulevard, Los Angeles
No. 477 – Briggs Residence	3734 W. Adams Boulevard Los Angeles
No. 478 – Guasti Villa/Busby Berkeley Estate	3500 W. Adams Boulevard, Los Angeles
No. 479 – Grandville MacGowan House	3726 W. Adams Boulevard, Los Angeles
No. 487 – Sanchez Ranch	3725 Don Felipe Drive, Los Angeles
No. 496 – Lycurgus Lindsay Mansion	3424 W. Adams Boulevard, Los Angeles
No. 512 – Church of the Advent	4976W. Adams Boulevard, Los Angeles
No. 578 – Emanuel Danish Evangelical Lutheran Church	4254-4260 Third Avenue, Los Angeles
No. 620 – Leimert Plaza	4395 Leimert Boulevard, Los Angeles
No. 636 – C.A. Fellows Residence	1215 Westchester Place, Los Angeles
No. 639 – Ruskin Art Club	800 S. Plymouth Boulevard, Los Angeles
No. 654 – Craftsman Mansion	4318 Victoria Park Place, Los Angeles

Historic and Archaeological Resources Effects

To the extent that construction and operation of the Metro Rapid, BRT or LRT alternatives would occur primarily within existing street rights-of-way, there would be no resulting physical impacts on historic or cultural resources. Only if the resources were destroyed or altered, most likely through the acquisition of required additional right-of-way for a rail system, would physical impacts occur. Physical impacts related to potential acquisition of adjacent properties to provide sufficient right-of-way for rail operations and station areas could occur within constrained portions of the Corridor. The at-grade and aerial segments of the project alternatives may also result in visual and aesthetic impacts on historic and cultural resources, especially in regard to the Crenshaw Corridor Craftsman Clusters.

The Crenshaw segment, with its constrained right-of-way between King Boulevard and Vernon Avenue and adjacent to Leimert Park, may have the most substantial impacts on the Corridor's historic and cultural resources. In addition, the LRT alternative may affect two archaeological sites depending on the extent of earthwork required: one in the vicinity of the intersection of King and Crenshaw Boulevards; and another along Crenshaw Boulevard south of Vernon Avenue.

In the Inglewood segment of the Corridor, potential impacts to historic and cultural resources are minimal. Operations within the former BNSF railroad right-of-way would not result in adverse effects as this right-of-way has existed since the late 1800s. The only resource in this area – Centinela Springs – is located adjacent to the right-of-way in Edward Vincent Park. There may be visual and aesthetic impacts to this resource, but the right-of-way has been used for rail operations for over 100 years.

There are no known historic, cultural, archeological or paleontological resources in the Hawthorne, LAX and El Segundo segments of the Crenshaw-Prairie Corridor.

Future detailed environmental analysis, along with development of more detailed engineering plans, will identify specific impacts and possible mitigation measures.

4.12 Parks and Recreation

The numerous parks situated within the Crenshaw-Prairie Study Corridor are presented below in Table 4.6 and illustrated in Figure 4.4.

Parks and Recreation Resources Effects

Construction and operation of the BRT or LRT alternatives would occur primarily within existing street and railroad rights-of-way and would not physically impact any parks or recreational resources, with the possible exception of minor alterations to Leimert Park (Resource No. 11). Leimert Park is discussed separately below. Other park and recreation resources may be affected indirectly. Indirect effects could include noise and conflicts between pedestrians and trains or buses. The introduction of a BRT or LRT system may also have beneficial effects to parks and recreation facilities, allowing for better connectivity between these community facilities and the community itself.

Table 4.6: Corridor Park and Recreational Resources

Resource	Location
1. Harold A. Henry Park	890 S. Lucerne Boulevard, Los Angeles
2. Los Angeles High Memorial Park	4625 W. Olympic Boulevard, Los Angeles
3. Queen Anne Recreation Center	1240 Queen Anne Place, Los Angeles
4. Eleanor Green Roberts Aquatic Center	West/Pico Boulevards, Los Angeles
5. Saint Charles Park	Saint Charles Place between Buckingham and Victoria, Los Angeles
6. 2 nd Avenue Park	2413 2 nd Avenue, Los Angeles
7. Leslie N. Shaw Park	2250 W. Jefferson Boulevard, Los Angeles
8. Vineyard Recreation Center	2942 Vineyard Avenue, Los Angeles
9. Rancho Cienega Sports Center Park	5001 Rodeo Road, Los Angeles
10. Kenneth Hahn State Recreation Area	S. La Cienega Boulevard./La Brea Avenue, Los Angeles
11. Leimert Park	4395 Leimert Boulevard, Los Angeles
12. Van Ness Recreation Ctr.	5720 2 nd Avenue, Los Angeles
13. North Park	Hargrave Street/Wexham Way, Inglewood
14. Edward Vincent Park	700 Warren Avenue, Inglewood
15. Rogers Park	N. Oak Street/N. Eucalyptus Avenue, Inglewood
16. Queen Park	Queen Street/Manchester Terrace, Inglewood
17. Darby Park	3400 W. Arbor Vitae Street, Inglewood
18. Ashwood Park	Ash Avenue/I-405 Freeway, Inglewood
19. Carl E. Nielsen Youth Park	Will Rogers Street/Yorktown Avenue, Los Angeles
20. Siminiski Park	9717 S. Inglewood Avenue, Inglewood
21. Lennox Park	Lennox Boulevard./Condon Avenue, Lennox
22. Center Park	W. 111 th Street, Inglewood
23. Eucalyptus Park	Inglewood Avenue/Gale Avenue, Hawthorne
24. Hawthorne Memorial Park	3901 W. El Segundo Boulevard., Hawthorne
25. Del Aire Park	12601 S. Isis Avenue, Los Angeles County



**Figure 4.4
Parks and
Recreation Resources**

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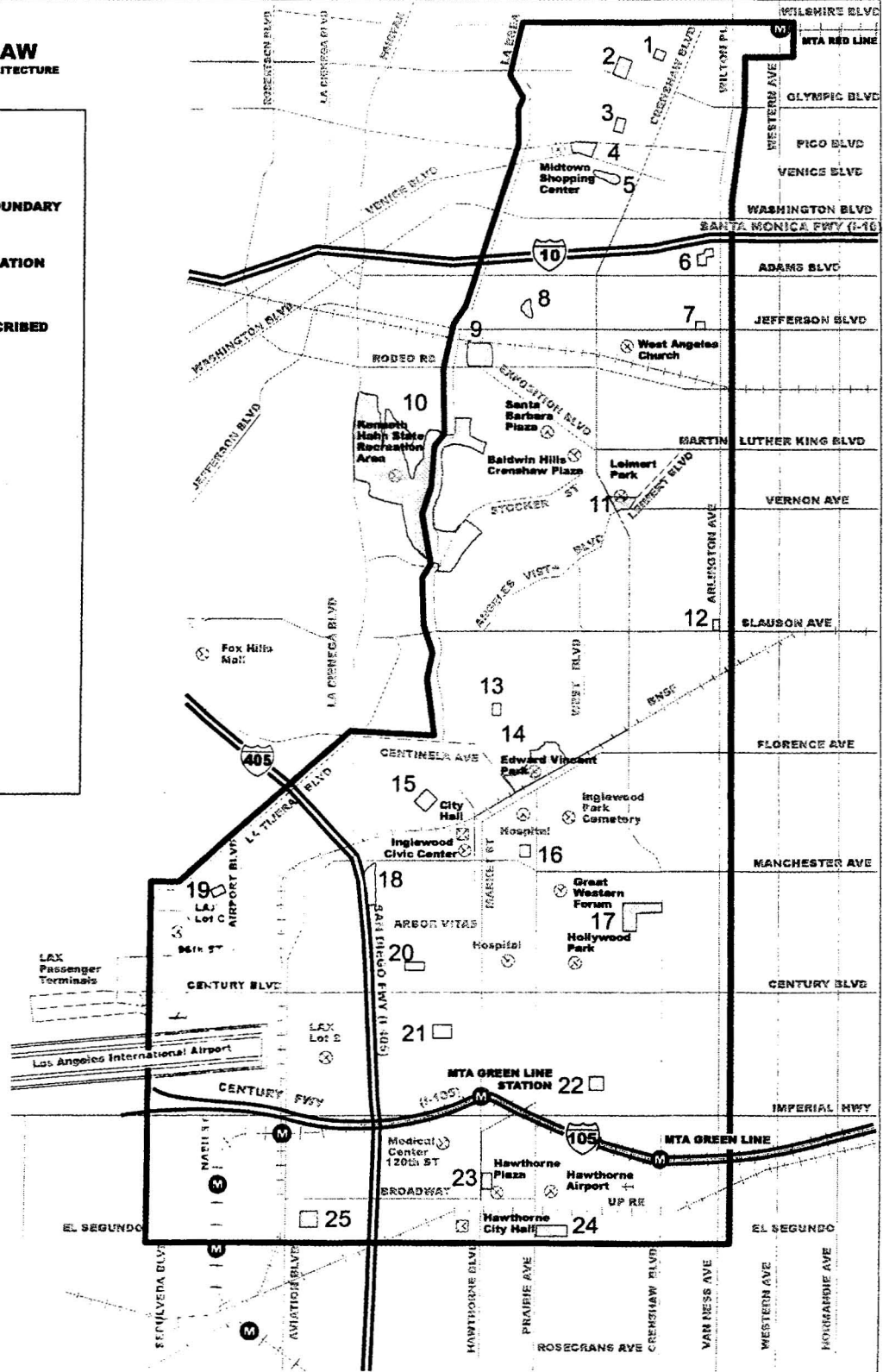
STUDY AREA BOUNDARY



**PARK OR RECREATION
RESOURCE**

1

**RESOURCE DESCRIBED
IN TABLE 4.4**



Crenshaw-Prairie Transit Corridor

In the Crenshaw segment of the Corridor, Leimert Park may be physically affected by either alternative due to the constrained right-of-way at this location. This narrow, curving portion of Crenshaw Boulevard is bracketed on one side by an historic and cultural landmark (Family Savings & Loan Associates), and on the other side by Leimert Park. At-grade rail system operations are further constrained by a complex three-way intersection configuration just south of the park. Further detailed engineering plans will need to be developed to identify, evaluate and resolve specific physical impacts of at-grade operations on Leimert Park. The LRT system could operate in mixed-flow conditions in this segment mitigating the taking of two traffic lanes. Or, an approximately 1.5 mile LRT subway option from Martin Luther King, Jr. Boulevard south to Leimert Park is currently being considered to alleviate the need to physically affect the park.

Edward Vincent Park is another park located immediately adjacent to the BNSF railroad right-of-way in the City of Inglewood. The railroad right-of-way adjacent to the park is sufficiently wide to support both the BRT and LRT alternatives and no physical alterations to the park would be required.

No other parks within the Corridor Study Area are situated immediately adjacent to the proposed BRT or LRT alignments and no physical effects to these parks is anticipated.

4.13 Hydrology and Water Resources

Water Bodies. Portions of both the concrete-lined Centinela Dominguez Creeks are located within the Study Corridor, which are maintained by the Los Angeles County Flood Control District as flood channels. The Pacific Ocean is approximately five to eight miles west of the Study Corridor.

Groundwater. The Study Corridor is located within the Central Groundwater Basin, which extends to the northeast of the Newport-Inglewood Fault Zone. Fresh water aquifers occur in the Recent (younger than 10,000 years) and Pleistocene (10,000 to 2 million years old) deposits that comprise the upper portion of this groundwater basin. The coarse-grained layers in the alluvial deposits underlying the proposed project area are capable of absorbing, storing, transmitting and yielding water. Therefore, semi-perched, seasonal groundwater can occur in these deposits. Groundwater is generally located at approximately 30 feet below ground surface within the Study Corridor and is not known to be contaminated.

Flooding. According to Los Angeles County Maps, several portions of the Study Corridor Area are within a designated 500-year flood plain: west of Crenshaw Boulevard from the I-10 Freeway south to Martin Luther King, Jr. Boulevard; east of Crenshaw Boulevard from Jefferson Boulevard to just north of Slauson Avenue; and smaller designations located along southern portions of Crenshaw Boulevard and Florence Avenue. A small portion of the northernmost segment of Crenshaw Boulevard (in the vicinity of Olympic Boulevard) is within a 100-year flood plain.

Tsunami, Inundation, and Seiches. Tsunamis are usually caused by displacement of the ocean floor causing large waves, and are typically generated by seismic activity. A seiche is a standing wave in an enclosed or partly enclosed body of water. Seiches are normally caused by earthquake activity, and can affect harbors, bays, lakes, rivers and canals. Inundation is flooding caused by tsunamis or seiches. Because the Study Corridor is not located within a coastal zone or within one-quarter mile of a body of water, tsunamis, inundation and seiches are not a potential hazard.

Hydrology and Water Resources Effects

Water Bodies. The Centinela and Dominguez Creeks would not be adversely affected by any of the proposed alternatives as both are well-distanced from the nearest areas of route construction.

Groundwater. Construction of either the BRT or LRT alternative would not require excavation to depths where groundwater would be encountered. A possible exception is the Martin Luther King-Leimert Park LRT subway component option under consideration. Some dewatering may be required for this option but not at substantial level which would result in adverse effects to groundwater recharge. None of the proposed alternatives would result in altering the dynamics of groundwater flow.

Flooding. The proposed project alternatives would not increase or otherwise alter the existing flood characteristics of the study area or region. Final engineering of the preferred alternatives would include appropriate design and specifications for construction within designated flood plains.

Tsunami, Inundation and Seiches. As stated above, because the Corridor study area is not located within a coastal zone or within one-quarter mile of a body of water, tsunamis, inundation and seiches are not a potential hazard.

4.14 Biological Resources and Wetlands

Because of the urbanized and developed character of the Corridor study area, biological resources are not expected to be substantially or significantly affected by the proposed project alternatives. The discussion below outlines the primary biological resource impacts considerations in the Corridor.

The Study Corridor is one of the most densely developed and urbanized areas in the southern California region. As a result, open space is largely limited to man-made parks. With the exception of the Baldwin Hills, there are no natural open space areas within the Study Corridor. Portions of both the concrete-lined Centinela Dominguez Creeks are located within the Corridor. The creeks are maintained by the Los Angeles County Flood Control District as flood channels. There are no wetlands within the Study Corridor.

Biological Resources Effects

Based on a search of the California Natural Diversity Database (NDDDB), there are no sensitive species within the areas affected by the proposed alternatives. The alternatives would not traverse any known wildlife migration corridors or any riparian habitats or wetlands. The Cities of Los Angeles, Inglewood, Hawthorne and El Segundo do not list any Significant Ecological Areas (SEAs) or otherwise sensitive habitat areas within the Study Corridor.

The Centinela and Dominguez Creeks would not be adversely affected by either of the alternatives as both are well distanced from the nearest areas of route construction.

Construction of the alternatives could require the removal of existing median and/or sidewalk trees in some segments. In limited circumstances, the removal of median trees could adversely affect nesting birds. However, no species within the Study Corridor are listed as threatened or endangered. Any trees slated for removal or relocation would be evaluated prior to construction.

4.15 Environmental Justice

On February 11, 1994, President Clinton issued an "Executive Order on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." This Order is designed to focus Federal attention on environmental and human health conditions in minority communities and low-income communities. The Order is further intended to promote non-discrimination in Federal Programs substantially affecting human health and the environment and to provide for information access and public participation relating to such matters.

The primary focus of an Environmental Justice analysis is determining whether a project would result in disproportionate impacts to minority and/or low-income populations. As detailed earlier in this MIS, the Crenshaw-Prairie Corridor has a high percentage of both minorities and low-income households. Therefore, the environmental effects of the proposed project alternatives would inherently disproportionately affect those populations. However, public transportation projects are beneficial to low-income households because of the reliance those individuals have on public transit for mobility. While the environmental impacts associated with this alternative would be disproportionately distributed to both low-income and minority households, the result of an improved transit system for those individuals is considered beneficial. The potential environmental consequences of the proposed project would not outweigh the benefits of installing an improved public transportation system to an area of target users.

**Crenshaw-Prairie Corridor
Major Investment Study**

5.0 COST ANALYSIS

5.0 COST ANALYSIS

This section presents the capital and operating and maintenance cost estimates for the proposed alternatives under consideration. It also describes the vehicle requirements to support implementation of the Final Set of Alternatives that includes the No Build, Metro Rapid, Bus Rapid Transit (BRT) and Light Rail Transit (LRT) alternatives.

5.1 Analytical Overview

The cost of a transportation investment falls into two categories: capital costs, and operating and maintenance costs. Capital costs are the expenses associated with the design and construction of the dedicated lane/guideway and station construction, vehicles, and any system facilities required for project initiation. Operating and maintenance costs are those related with the day-to-day operating of the proposed transportation service. These costs include labor, vehicle maintenance and overall transit facility maintenance.

The overall objective of the Crenshaw-Prairie Corridor MIS was to develop and assess a full range of transportation alternatives, and identify a preferred strategy, or phasing of strategies, which addresses Corridor mobility needs and capacity requirements in the year 2025 and beyond. The resulting MIS level of cost analysis is based on conceptual engineering drawings and operational plans. It provides information at a level sufficient to differentiate between the alternatives and can be used as a guideline for informed decision-making. During any subsequent preliminary engineering efforts, system components and requirements will become more detailed. Revised cost assessments will be prepared accordingly, and described in any subsequent future Environmental Impact Report/Environmental Impact Statement (EIR/EIS) efforts.

The No Build Alternative does not have any associated capital costs, or operating and maintenance costs for comparative purposes as they are considered to be within the overall financial capability as reflected in the MTA's adopted FY 2001 Budget and *2001 Long Range Transportation Plan*. While capital and operating and maintenance costs have been identified for the Metro Rapid Alternative, a majority of these costs would not be incurred by the Crenshaw-Prairie Corridor Project, and are provided solely for comparison among the alternatives under consideration. Expansion of the Metro Rapid Program serving the Study Corridor has been addressed by other MTA planning and funding documents including September 2002 Board Action adopting the Metro Rapid Five-Year Implementation Plan as reflected in the adopted *2001 Long Range Transportation Plan*.

5.2 Capital Costs

Capital costs are the expenses associated with design and construction of the transit service alternatives and include acquisition of right-of-way, dedicated lane/guideway and station construction, vehicles, system equipment, maintenance facilities, environmental mitigation requirements, urban design considerations, supporting access facilities such as park-and-ride lots and other components of the project. The estimates were based on a conceptual level of engineering analysis evaluating the implementation of a Metro Rapid system, BRT service operating primarily in a dedicated lane/right-of-way configuration, and a primarily at-grade, double-track LRT guideway system operating in a dedicated lane/right-of-way configuration.

Initial capital costs were developed by estimating quantities for individual line items required to build and operate an alternative based on conceptual drawings or route descriptions, and then by applying standardized rates. The order-of-magnitude cost estimates presented in this section reflect current MTA unit costs and FY 2002 dollars. Costs for the BRT alternative were based on projects being developed at

MTA and consultant team engineering judgment. Certain percentages, commonly called “soft costs” were applied to the unit costs to develop the total cost for each alternative. These percentages provide a way to account for costs such as design services, insurance, artwork and project contingencies. In general, a 20 percent contingency of the total construction costs was applied to each of the various categories of the BRT and LRT alternatives with two exceptions. For vehicles 15 percent of the vehicle costs was applied, and for right-of-way acquisitions 25 percent of total right-of-way costs was applied. The capital costs for the BRT and LRT options include a percentage allocation for related streetscape and urban design improvements to enhance transit system usage and integration with adjacent commercial districts and residential neighborhoods. The set-aside amount was based on two percent of the dedicated lane/guideway and structures cost estimate. The final, appropriate project percentage will be identified in further study efforts.

5.2.1 Bus Vehicle Requirements

Table 5.1 below presents the bus requirements for each alternative. The cost of additional buses was included in the capital cost, whereas the cost of operating these additional buses was included in the operating and maintenance costs. The total MTA peak buses were identified from the MTA model ridership runs and then were adjusted per the recommended headway equilibration based on a Peak Load Analysis. The resulting number of peak buses was then further increased by 20 percent to allow for spare buses to arrive at a total MTA active fleet size for the Corridor. There are vehicle requirement differences between the alternatives not only in the recommended fleet size to best serve the Study Corridor, but also in the mix of proposed bus types. The bus fleet serving the BRT Alternative is recommended to include articulated buses operating in a dedicated lane or right-of-way configuration to best serve the significant forecast ridership on one of the BRT branch lines.

Table 5.1: Summary of Bus Vehicle Requirements

Vehicle Description	No Build	Metro Rapid Alternative	BRT Alternative	LRT Alternative
Total MTA active fleet	2,320	2,427	2,457	2,411
Incremental MTA Buses to No Build	--	107	137	91
Incremental MTA Buses to Metro Rapid	--	--	30	-16
Incremental MTA Buses to No Build by Type				
Articulated (60-foot) buses	--	0	45	0
Standard buses	--	107	92	91
Total MTA Buses	--	107	137	91
Incremental MTA Buses to Metro Rapid Alternative by Type				
Articulated (60-foot) buses	--	--	45	0
Standard buses	--	--	-15	-16
Total MTA Buses	--	--	30	-16

The No Build Option was projected to require a total of active peak fleet size of 2,320 in year 2025 to serve the existing bus system currently in use with service improvements as required to meet forecast 2025 ridership demands. This includes improvements to the existing alignments and operating schedules of the approximately 48 MTA bus lines serving the Crenshaw-Prairie Corridor. No articulated buses are assumed to operate within the Study Corridor under No Build conditions.

The Metro Rapid Alternative, providing a network of approximately seven Metro Rapid lines serving the Corridor, was forecast to require a total of 107 additional standard buses over those required under the No Build Option.

The BRT Alternative, which would allow some Metro Rapid routes to take advantage of operating in a dedicated lane or right-of-way, was projected to require 137 more buses than the No Build Option and 30 additional vehicles over the Metro Rapid Alternative. One of the proposed BRT routes – Crenshaw/

LAX/Green Line – was projected to have such high passenger loads that articulated buses were indicated. The BRT Alternative’s fleet mix of buses has been identified to vary from the No Build and Metro Rapid options as follows: 45 articulated buses and 92 more standard buses than the No Build Alternative; and 45 articulated buses and 15 less standard buses than the Metro Rapid Alternative.

The LRT Alternative, consisting of the Metro Rapid service network and two LRT lines primarily operating in dedicated lane or right-of-way service, was forecast to require 91 more buses than necessary under the No Build Option and 16 less buses than required by the Metro Rapid Alternative. The LRT Alternative’s fleet mix of buses is similar to that of both the No Build and Metro Rapid options.

5.2.2 Rail Vehicle Requirements

While the No Build option requires no additional rail vehicles for the operation of the three rail lines serving the Study Area, the three alternatives under consideration required a varied number of new rail vehicles. Both the Metro Rapid and BRT alternatives were forecast to require six new rail cars to serve the proposed 1.3-mile Metro Green Line extension north to approximately Century Boulevard to serve LAX. The LRT Alternative, providing rail service on 11.4 Corridor miles, was projected to require 22 new vehicles over the No Build Option and 16 more than the Metro Rapid Alternative.

5.2.3 Storage and Maintenance Facilities

The capital cost estimates presented below indicate a placeholder cost for storage and maintenance facilities, including right-of-way acquisition, for both the BRT and LRT alternatives. While the cost of yard facilities associated with the BRT and LRT options was included in the capital cost estimates, the final decision on where to locate these facilities and how to allocate their cost should be made within the larger framework of the entire MTA transit system, rather than on a corridor-by-corridor basis. Consolidation of MTA system-wide bus and rail maintenance and storage needs may present a more cost-effective solution. Based on further policy and cost analysis, a decision may be made to provide for overnight storage of vehicles within the Corridor, with maintenance occurring elsewhere in consolidated bus and rail facilities. For the BRT Option, an opportunity exists to coordinate storage and maintenance requirements, particularly for the articulated buses, with future Wilshire Boulevard BRT service decisions. Crenshaw LRT storage facilities could be provided within the Corridor to reduce service deadhead time, while maintenance facilities could be shared with the Metro Green Line or the future Exposition LRT Line.

A storage and maintenance facility was not costed for the Metro Rapid Option as it was assumed that the additional vehicles could be served by existing MTA yard facilities such as the Division 10 facilities located at Macy Street and Mission Road in Downtown Los Angeles. In addition, the Metro Rapid Program expansion both within and beyond this Corridor is being addressed by other MTA actions.

5.2.4 Corridor Segments

Capital cost estimates for the BRT and LRT alternatives were divided into the four project corridor segments presented below in Table 5.2 to allow for consideration of Minimal Operable Segments (MOSs) in the identification of a preferred transportation strategy or phasing of strategies, which addresses Corridor mobility needs and capacity requirements in the year 2025 and beyond. The Corridor segments also represent the two service branches of the BRT and LRT options:

- **Crenshaw/LAX/Metro Green Line** – Segments A, B and C; and
- **Crenshaw/Hawthorne** – Segment D along La Brea Avenue and Hawthorne Boulevard for the BRT Alternative, and Prairie Avenue and Hawthorne Boulevard for the LRT Alternative.

Table 5.2: Corridor Segments Used in Cost Estimates

Segment	BRT Alternative	LRT Alternative
A	Wilshire Boulevard to Crenshaw Boulevard/ BNSF Railroad ROW	Exposition Line LRT Station to Crenshaw Boulevard/BNSF Railroad ROW
B	Crenshaw Boulevard/BNSF Railroad ROW to 110' south of 98 th Street	Crenshaw Boulevard/BNSF Railroad ROW to 170' north of 98 th Street
C	110' south of 98 th Street to Metro Green Line Aviation Station	170' north of 98 th Street to Metro Green Line Aviation Station
D	Crenshaw Boulevard/BNSF Railroad ROW to Hawthorne/El Segundo Boulevards	Crenshaw Boulevard/BNSF Railroad ROW to Hawthorne/El Segundo Boulevards

Under the BRT Alternative, either branch could be implemented as a first phase. Given the outstanding issue of freight rail operations on the BNSF Railroad right-of-way that may preclude BRT operations on an interim basis, a decision could be made to implement the Crenshaw/Hawthorne Branch first providing immediate BRT service south from Wilshire Boulevard to Koreatown, the Crenshaw District, Downtown Inglewood and Hawthorne, with connections with the Red Line in the north and the Green Line in the south.

For the LRT Option, a decision could be made to proceed first with the Crenshaw/LAX/Metro Green Line Branch, while deferring implementation of the Crenshaw/Hawthorne Branch. If the Crenshaw LRT Line is operated as a northern extension of the Metro Green Line, the Crenshaw/Metro Green Line Branch would provide a direct Green Line service connection from an existing system component (Y-connector) that was constructed to allow for the future northern extension of the Green Line.

The adopted *2001 MTA Long Range Transportation Plan* includes extension of the Metro Green Line north to approximately Century Boulevard, which is represented in the conceptual capital cost estimates presented below in Table 5.3 as Segment C. This system extension was assumed to be funded through LAX Master Plan efforts that are on-going at this time.

For the BRT Alternative, a range of initial capital costs was identified for two project elements: widening of the I-10 Bridge to accommodate dedicated lane operations; and reuse of the former BNSF Railroad right-of-way for bus operations. The resulting cost range is presented below in Table 5.3 to allow for an informed comparison among the alternatives. During any subsequent preliminary engineering efforts, system components and requirements would become more detailed in consultation with Caltrans, the City of Los Angeles and the BNSF Railroad as appropriate. Revised cost assessments would be prepared accordingly, and described in any subsequent future Environmental Impact Report/Environmental Impact Statement (EIR/EIS) efforts.

The on- and off-ramps at the current Crenshaw Boulevard crossing of the I-10 Freeway have been identified as possibly substandard and may require reengineering with associated property acquisition. The lower end of the range (\$2.9 million) identifies the cost to reconstruct the bridge to accommodate two additional travel lanes for dedicated BRT operations. The higher end (\$40 million) begins to quantify the cost of a more extensive reconstruction of the ramps, along with associated property acquisition, and may be conservative.

Table 5.3 also presents a range of initial capital cost estimates reflecting the three possible BRT operating scenarios related to the use of the railroad right-of-way:

- Freight rail operations removed permanently with conversion of the right-of-way solely to BRT operations;



Crenshaw-Prairie Transportation Corridor Major Investment Study

Figure 5.1 Corridor Segments

KORVE
ENGINEERING



RAW
ARCHITECTURE

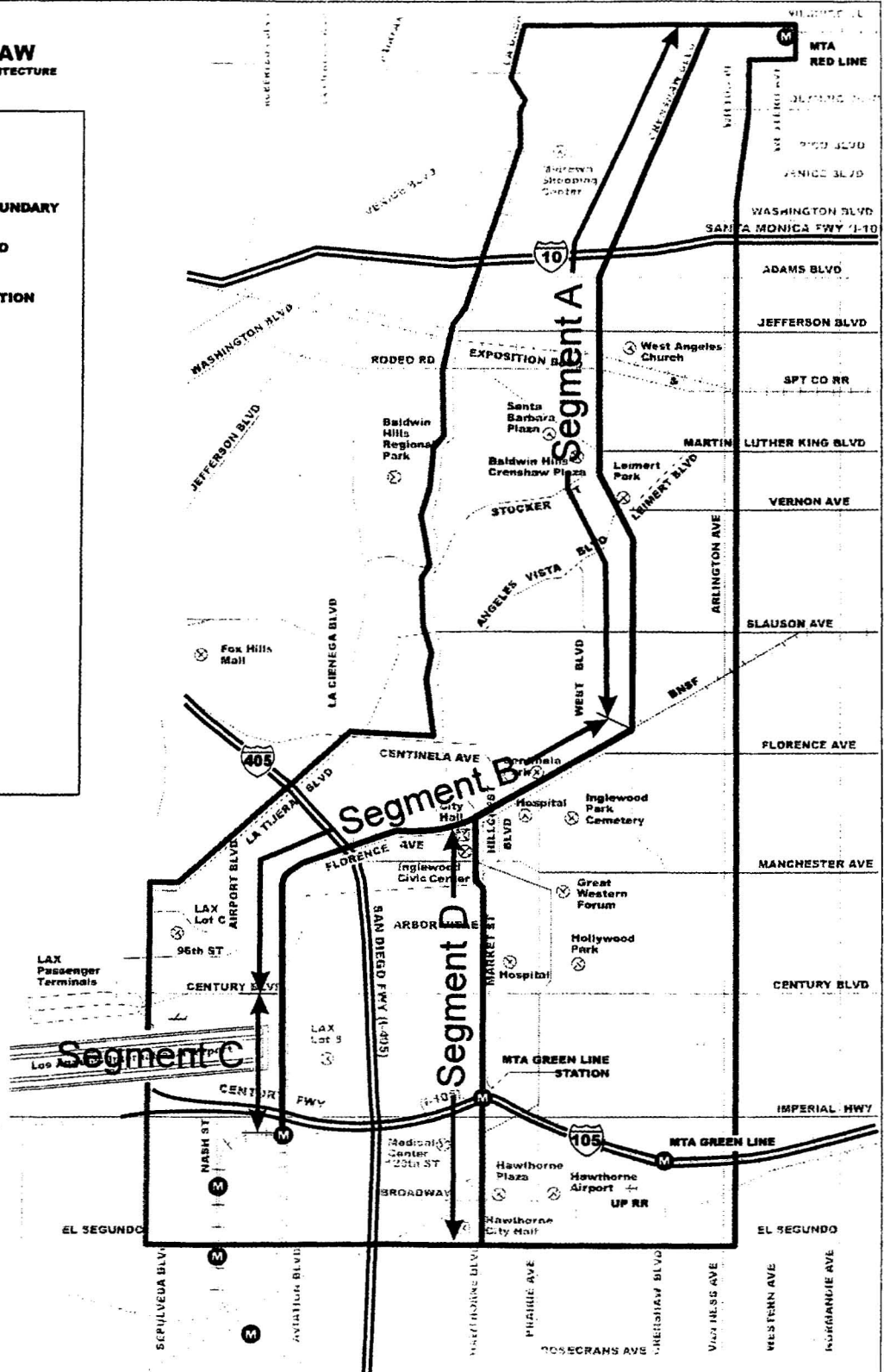
LEGEND

STUDY AREA BOUNDARY

REGIONAL METRO RAIL LINE



METRO RAIL STATION



1/4 MI 1/2 MI 1 MI

2 MI

4 MI

COR-F01R/cd 3/2/99

- Freight rail operations remain with BRT service operated through a temporal separation agreement (e.g., BRT service would run 6:00 AM – 9:00 PM with freight rail operations between 9:01 PM – 5:59 AM); and
- Freight rail operations retain full utilization of the railroad right-of-way with BRT service operations occurring on adjacent Florence Avenue and Aviation Boulevard.

BRT operations on adjacent city streets would be the least expensive of the options with an estimated cost of \$64.8 million identified for street-related and other operational improvements. Converting the former railroad right-of-way to BRT service-only was estimated to cost \$88.2 million utilizing unit costs similar to those identified for the San Fernando Valley BRT System currently being designed. The cost may be higher as some acquisition may be required along narrow sections of the right-of-way, but in many cases the adjacent width may be gained from underutilized side streets and/or parking. Co-use of the right-of-way by both freight rail and high speed bus service was identified as the most costly at \$101.2 million due to the need for physical improvements (asphalt and trackwork) and safety requirements to allow for the joint operations.

Table 5.3: Initial Capital Cost Estimates of Build System Alternatives (FY 2002 Dollars)

Segment	BRT Alternative			LRT Alternative		
	Miles	Cost (Millions)	Cost Per Mile (Millions)	Miles	Cost (Millions)	Cost Per Mile* (Millions)
A	6.1	\$107.4	\$17.6	3.1	\$210.8	\$68.0
B	4.1	64.8 – 101.3	15.9 – 24.7	3.9	265.2	68.0
Widening I-10 Bridge		2.9 – 40.0				
Subtotal	10.2	\$175.1 – 248.7	17.2 – 24.4	7.0	\$476.0	68.0
D	3.3	52.1	15.8	4.4	299.2	68.0
Subtotal	13.5	\$227.2 – 300.8	16.8 – 22.3	11.4	\$775.2	68.0
Vehicles		80.7			101.2	
Subtotal		\$307.9 – 381.5	\$22.8 – 28.3		\$876.4	\$76.9
Yard		27.5			50.0	
Total		\$335.4 – 409.0	\$24.9 – 30.3		\$926.4	\$81.3
C (Funded by others)	1.3	72.8		1.3	72.8	
Total	14.8	\$408.2 – 481.8	\$27.6 – 32.6	12.7	\$999.2	\$78.7

* LRT capital costs were revised to reflect the latest MTA cost per mile figures.

The conceptual level capital cost for the 13.5-mile Corridor BRT System was identified as ranging between \$335 and 409 million. The total system cost breaks down to \$227 – 301 million for construction with \$81 million identified for vehicles (standard and articulated buses) and a placeholder cost of \$27.5 million for a related storage and maintenance yard. Combining the Crenshaw BRT yard facilities with other regional bus system facilities would reduce the Corridor’s BRT System cost to \$308 – 382 million. Clarification of the I-10 Freeway bridge widening requirements and the freight rail utilization of the railroad right-of-way would further resolve this alternative’s total cost.

The BRT Alternative’s lowest cost operations occur within the Corridor’s street right-of-way – \$15.8-17.6 million per mile depending on the location – and the most expensive portion occurs with the use of the railroad right-of-way for either BRT-only use (\$21.5 million per mile) or joint freight rail-BRT operations (\$24.7 million per mile). Segment D – running south from the railroad right-of-way in mixed-flow operations on La Brea Avenue to Manchester Boulevard and then in curbside or median operations along the wide right-of-way of Hawthorne Boulevard – has the lowest cost per mile. Use of the railroad right-of-way to accommodate both freight rail and BRT operations results in the highest per mile cost.

The conceptual-level capital cost for the 11.4-mile Corridor LRT System Alternative was identified as \$926.4 million. The total cost breaks down to \$775.2 million for system construction with \$101.2 million identified for vehicles (buses and rail cars) and a placeholder cost of \$50.0 million for a related storage and maintenance yard. Combining the Crenshaw LRT yard facilities with other regional rail system facilities would reduce the Corridor’s LRT System cost to \$876.4 million. The per mile capital cost is based on MTA’s current estimated cost of \$68.0 million per mile for all at-grade light rail service, whether in an existing street right-of-way or along an existing rail right-of-way.

The decision may be made to implement only one branch of the two branch BRT or LRT systems. The discussion below and the cost information presented below in Tables 5.4 and 5.5 identify the conceptual level capital cost broken down by branch.

Table 5.4: Initial Capital Cost Estimates for the Crenshaw/LAX/Green Line Branch Alternatives

Segment	BRT Alternative			LRT Alternative		
	Miles	Cost (Millions)	Cost Per Mile (Millions)	Miles	Cost (Millions)	Cost Per Mile (Millions)
A	6.1	\$107.4	\$17.6	3.1	\$210.8	\$68.0
Widening I-10 Bridge		2.9 – 40.0				
B	4.1	64.8 – 101.3	15.9 – 24.7	3.9	265.2	68.0
Subtotal	10.2	\$175.1 – 248.7	17.2 – 24.4	7.0	\$476.0	68.0
Vehicles		77.8			73.0	
Total		\$252.9 – 326.5	\$24.8 – 32.0		\$549.0	\$78.4

Looking at the cost of two branches of the BRT System separately, the 10.2-mile Crenshaw/LAX/Green Line Branch – representing 75 percent of the proposed BRT System – was estimated to cost \$253 to 327 million or 82-86 percent of the total system cost. The 11.0-mile Crenshaw/Hawthorne BRT Line Branch – representing 81 percent of the BRT system – was identified to cost between \$249 to 300 million or 79-81 percent of the total system cost. The per mile cost ranges between \$25 to 32 million for the LAX Branch and \$23 to 27 million per mile for the Hawthorne Branch. The higher cost for the LAX Branch reflects the higher cost of converting the railroad right-of-way to BRT operations compared to the lower cost of operating within the existing street right-of-way particularly the wide cross-section of Hawthorne Boulevard.

Table 5.5: Initial Capital Cost Estimates for the Crenshaw/Hawthorne Line Branch Alternatives

Segment	BRT Alternative			LRT Alternative		
	Miles	Cost (Millions)	Cost Per Mile (Millions)	Miles	Cost (Millions)	Cost Per Mile (Millions)
A	6.1	\$107.4	\$17.6	3.1	\$210.8	\$68.0
Widening I-10 Bridge		2.9 – 40.0				
B (portion)	1.6	25.3 – 39.5	15.9 – 24.7	1.0	68.0	68.0
D	3.3	52.1	15.8	4.4	299.2	68.0
Subtotal	11.0	\$187.7 – 239.0	\$17.1 – 21.7	8.5	\$578.0	\$68.0
Vehicles		61.0			60.6	
Total		\$248.7 – 300.0	\$22.6 – 27.3		\$638.6	\$75.1

Evaluating the cost of the two branches of the LRT System separately, the 7.0-mile Crenshaw/LAX/Green Line Branch – representing 61 percent of the proposed LRT System – was identified as costing \$476.0 million. The 8.5-mile Crenshaw/Prairie/Hawthorne Branch Line – representing 75 percent of the total system – was estimated to cost \$578.0 million.

Analysis was performed to evaluate the capital cost impacts of any future extension of Crenshaw LRT service north to Wilshire Boulevard in at-grade operations. Extending the Crenshaw/Green Branch Line would operate in dedicated lane service north from the proposed terminus with the Exposition LRT Line to Adams Boulevard where, due to the narrow street right-of-way width, LRT service would continue in mixed-flow operations to its terminus at Wilshire Boulevard. Resulting in a 9.9-mile Crenshaw LRT system, the additional 2.9-mile at-grade section was estimated to cost \$197.2 million. Extension of the Metro Red Line west from its current terminus at the Wilshire/Western Station to a future Wilshire/Crenshaw Station – 0.6-miles of subway construction – was projected to cost \$210.0 million for a total of \$883.2 million.

Table 5.6: Initial Capital Cost Estimates for Crenshaw LRT System Alternatives

Option	Total System Miles	Conceptual Cost (Millions)	Cost Per Mile (Millions)
LRT (Base Option)			
Exposition LRT Line to Metro Green Branch Line	7.0	\$476.0	\$68.0
LRT extended north to Wilshire Boulevard – With mixed-flow operations			
LRT Base Option	7.0	\$476.0	\$68.0
Mixed-flow operations	2.9	\$197.2	\$68.0
Subway operations – Metro Red Line extended west to Wilshire/Crenshaw	0.6	\$210.0	\$350.0
<i>Total</i>	10.5	\$883.2	\$84.1

The cost of extending LRT service north with a segment of subway operations to avoid impacts to the existing constrained street right-of-way was also identified, even though precluded at this time due to unresolved technical challenges in addressing underground hazardous gases. Extending Crenshaw LRT service north would operate in a combination of at-grade, dedicated lane service for 0.7 miles north from the proposed terminus with the Exposition LRT Line to Adams Boulevard. Then the LRT Line would transition to subway operations under the I-10 Freeway and the constrained section of Crenshaw Boulevard to connect with the future Wilshire/Crenshaw subway station. Resulting in a 14.4-mile system, the additional 2.9-mile section was estimated to cost a total of \$797.6 million – \$68.0 million for the at-grade segment and the \$750 million for the 2.2-mile subway segment with four subway stations. The Crenshaw LRT System cost would be \$1.3 billion along with \$210.0 million for extending the Metro Red Line to a new Wilshire Crenshaw for a total of \$1.5 billion.

5.3 Operating and Maintenance Costs

Operating and maintenance (O&M) costs were identified using the MTA's O&M cost model. This model was developed to estimate the O&M costs for MTA's Bus, Blue Line, Green Line and Red Line operating transit modes, as well as to support department costs related to operations. The MTA O&M cost model estimates staffing requirements, labor costs and non-labor expenses by transit mode (e.g., Bus, Blue Line, Green Line, Red Line) and department within each mode. The model is calibrated to MTA's FY 2001 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 services are implemented) costs will change accordingly.

The model meets Federal Transit Administration (FTA) guidelines for estimating operating costs. These guidelines specify that costs are computed by estimating labor and materials required to provide a given level of service, and then unit costs are applied to the forecast future labor and material cost items. O&M costs were calculated based on operating characteristics for each mode, rather than for all modes combined. Each reported labor and non-labor expense was calculated separately, which ensures that equations are mutually exclusive and cover all operating costs. Most cost items are variable and cost

estimates will change with projected revisions to MTA service. The model calculates costs separately for each labor and non-labor item in MTA's FY 2001 Adopted Budget. The driving variables used in MTA's operating and maintenance cost model are presented below in Table 5.7.

In the O&M cost model, Metro Rapid bus service is costed the same as standard bus service. BRT services also are based on standard bus service costs, but BRT station maintenance is presumed to be somewhat higher than standard bus stop maintenance. For study purposes, an annual cost of \$25,000 was added for each BRT station.

For articulated buses, a premium of eight percent is applied to bus costs based on the proportion of the bus fleet that is articulated. This premium is based on 2000 budget data provided by King County Metro (Seattle). The premium reflects only daily operations and maintenance costs and does not include other special aspects of articulated bus operations such as training, equipment, vehicle parts, special tools or other start-up costs.

Table 5.7: Operating & Maintenance (O&M) Cost Model Variables

Input Statistic	Bus	BRT	Rail
Annual Boardings (Unlinked passengers)	X	X	X
Peak Vehicles	X	X	X
Active Fleet Vehicles	X	X	X
Operating Divisions	X	X	X
Annual Revenue Bus/Car Miles	X	X	X
Annual Revenue Bus/Train Hours	X	X	X
Contract/BDOF Service Hours	X	X	
Route Miles			X
At-Grade Stations		X	X
Elevated Stations			X
Subway Stations			X
Total Stations			X
Automated Operation (Green Line)			X

For each alternative, O&M costs were calculated for the entire MTA system of Bus, Red Line, Green Line and Blue Line service. Table 5.8 below presents the conceptual annual operating and maintenance cost estimates for each alternative in FY 2001 dollars. While there are small variations in Blue Line and Red Line costs among the alternatives (due to fluctuation in patronage among the study options), the main changes in O&M costs occur in the MTA bus category and Green Line operations.

The costs were first estimated for the No Build Alternative. The costs for the build alternatives were then estimated for the forecast year 2025 in FY 2001 dollars. The build alternatives include not only the operation and maintenance costs for the BRT and LRT service, but also incorporate the cost of the Metro Rapid Alternative that provides a grid-system of Metro Rapid service throughout the Corridor.

The 2025 No Build Option was forecast to cost \$923.3 million in annual operating and maintenance costs, which was divided between \$712.1 million for MTA bus operations, and \$211.2 million for MTA rail operations countywide.

The Metro Rapid Alternative was estimated to cost \$956.3 million annually to operate, or approximately \$33.0 million more than the No Build Option. The projected annual O&M costs were divided between \$738.0 million for MTA bus operations, and \$218.3 million for rail service. This forecast cost represented a \$25.9 million increase in bus operating costs and a \$7.1 million increase in rail system costs over the No Build Option. The bus service increase (four percent) reflected operational costs for the expansion of Metro Rapid service along seven routes serving the Corridor, while the rail service cost increase (three percent) supported expanded Metro Green Line operations north to Century Boulevard.

Table 5.8: Annual MTA Operating and Maintenance Costs (FY 2001 Dollars)

Mode	No Build (Millions)	Metro Rapid Alternative (Millions)	BRT Alternative (Millions)	LRT Alternative (Millions)
MTA Bus	\$712.1	\$738.0	\$741.1	\$734.4
Blue Line	104.4	104.5	104.5	105.7
Green Line	32.2	39.1	39.1	54.0
Red Line	74.6	74.7	74.7	74.7
Total O&M Cost	\$923.3	\$956.3	\$959.4	\$968.8
Incremental Cost versus No Build	--	\$33.0	\$36.1	\$45.5
Incremental Cost versus Metro Rapid	--	--	\$3.1	\$12.5

The BRT Alternative was forecast to annually cost \$959.4 million to operate, or \$36.1 million more than the No Build Option and an increase of \$3.1 million over the Metro Rapid Alternative. The projected annual O&M costs were divided between \$738.0 million for MTA's bus operations, and \$218.3 million for rail service. The forecast bus service cost increase of four percent over the No Build Option reflected the expansion of Metro Rapid service operating as a supporting network feeding the two proposed BRT lines. The forecast O&M cost for the BRT Alternative was \$3.1 million more costly to operate than the Metro Rapid Alternative reflecting the increase in bus fleet size (30 more buses), along with the introduction of articulated vehicles to accommodate increased demand. Similar to the Metro Rapid Option, the BRT Alternative cost represented an annual increase in rail system costs of \$7.1 million over No Build conditions.

The LRT Alternative was estimated to cost \$968.8 million annually to operate, or \$45.5 million more than the No Build Option, and an increase of \$12.5 million over the Metro Rapid Alternative. The projected annual O&M costs were divided between \$734.4 million for MTA bus operations, and \$233.4 million for rail service. Under the LRT Option, the forecast bus service cost represented a \$22.3 million (three percent) increase over No Build conditions, supporting the operation of 91 additional buses. The bus O&M cost for the LRT Alternative represented a \$3.6 million (0.5 percent) decrease from the Metro Rapid Alternative, reflecting 16 less buses operating in the Corridor.

The LRT annual rail O&M cost represents an annual increase of rail system costs of \$23.2 million over the No Build Option and an increase of \$16.1 million over the rail costs included in the Metro Rapid Alternative. The largest increase in rail O&M costs – 38 percent over the Metro Rapid Alternative – would support expansion of Metro Green Line operations.

Analysis was performed to evaluate the O&M cost impacts of any future extension north to Wilshire Boulevard in at-grade operations along with other related MTA System cost impacts. As shown below in Table 5.9, any extension of Crenshaw LRT service would result in an increase in annual O&M costs. Operation of the LRT Base Option with extension of Exposition LRT service to its proposed terminus in Santa Monica was estimated to cost \$983.7 million annually. This represents a \$60.3 million increase over the No Build Option, \$27.7 million more than the Metro Rapid Alternative and \$14.9 million in addition to the LRT Base Option. The increase beyond the Base Option reflects additional Metro Green and Blue Line operational costs balanced with a minor decrease in MTA bus system costs.

Extension of the LRT Base Option north to Wilshire Boulevard, with the Metro Red Line operating to its current terminus at Wilshire/Western, was projected to cost \$972.0 million annually to run. This is an increase of \$48.7 million beyond the No Build Option, \$15.7 million more than the Metro Rapid Alternative and \$3.2 million in addition to the LRT Base Option. The cost increase over the Base Option was due to an increase in Metro Green Line service as the Crenshaw LRT would be interlined to operate

north through the Crenshaw District and then west along the Exposition LRT right-of-way to Santa Monica.

Table 5.9: LRT Options – Annual MTA Operating and Maintenance Costs (FY 2001 Dollars)

Mode	LRT Base Option Expo LRT to Green Line (Millions)	LRT Base Option With Extension of Expo LRT to Santa Monica (Millions)	LRT Extension north to Wilshire With No Red Line Extension (Millions)	LRT Extension north to Wilshire With Red Line Extension (Millions)
MTA Bus	\$734.4	\$731.3	\$734.3	\$734.2
Blue Line	105.7	116.7	105.5	105.3
Green Line	54.0	61.1	57.9	60.7
Red Line	74.7	74.5	74.3	76.3
Total O&M Cost	\$968.8	\$983.7	\$972.0	\$976.5
Incremental Cost versus No Build	\$45.5	60.3	48.7	53.2
Incremental Cost versus Metro Rapid	\$12.5	\$27.4	\$15.7	\$20.2
Incremental Cost versus LRT Base Option	--	\$14.9	\$3.2	\$7.7

With extension of the LRT Base Option north to Wilshire Boulevard and the Metro Red Line operating to a new terminus at Wilshire/Crenshaw, this system option would cost \$976.5 million annually to run. This represents an annual increase of \$53.2 million over the No Build Option, \$20.2 million beyond the Metro Rapid Alternative and \$7.7 million in addition to the Crenshaw LRT Base Option. The additional cost beyond the Base Option reflects a substantial increase over Metro Green Line (\$6.7 million) and a minor increase in Metro Red Line (\$1.6 million) operations balanced with a minor decrease in MTA bus and Metro Blue Line costs.

6.0 COMPARISON OF ALTERNATIVES

6.0 COMPARISON OF ALTERNATIVES

The Final Set of Alternatives was evaluated through a conceptual technical and environmental setting analytical effort. This analysis was intended to provide the public and decision-makers with a technical basis to select the most viable transportation strategy, or phasing of strategies, which would address Corridor mobility needs and capacity requirements in the year 2025 and beyond, while being sensitive to community, environmental and economic development concerns. This conceptual level of analysis identified a range of technical information for each of the MIS alternatives including the following:

- Peak hour transit capacity
- Daily boardings
- New daily transit trips
- Average and maximum operating speed.
- Capital cost per alternative
- Annualized operating costs per alternative.

The following presents a summary of the analytical results discussed in other sections of this report organized by the following seven evaluation categories:

1. Mobility Improvements
2. Environmental Impacts and Benefits
3. Operating Efficiencies
4. Transportation System Benefits or Cost Effectiveness
5. Land Use and Economic Considerations
6. Public Support
7. Other Factors relevant to the success of the proposed project.

6.1 Mobility Improvements

Development of an effective multi-modal transportation network within the Crenshaw-Prairie Corridor is necessary to meet the future mobility needs of residents and businesses by providing vital intra- and inter-corridor linkages and services. By the year 2015, the magnitude and nature of the Corridor's population, employment and transit dependency growth trends are projected to result in continuing transportation challenges in the Corridor. The ability to move quickly and efficiently in the Crenshaw-Prairie Corridor, both now and in the future, was identified and evaluated as follows:

- Corridor activity centers and/or destinations served by each alternative
- Employment access
- Low income households served by each alternative
- Travel times for major origin-destination pairs
- Transfers required for travel between major origin-destination pairs
- Operating speeds
- Peak period transit system capacity
- Travel options
- Forecast ridership.

6.1.1 Activity Centers and Destinations

The Crenshaw-Prairie Corridor is an approximately ten-mile long, north-south oriented corridor that covers portions of four cities – Los Angeles, Inglewood, Hawthorne and El Segundo. The Corridor runs

from the Park Mile area of Los Angeles on the north, south through Koreatown and the Crenshaw District to Downtown Hawthorne and west through Downtown Inglewood to the Los Angeles World Airport and El Segundo area. The Study Area’s key activity, employment and transportation destinations include:

- A major regional transportation facility with related employment destinations – Los Angeles World Airport;
- Two civic centers – Downtown Inglewood and Hawthorne;
- Three concentrations of office development – Wilshire Boulevard, Downtown Inglewood and El Segundo;
- Four shopping centers – the Mid-Town Shopping Center, Baldwin Hills/Crenshaw Plaza, Santa Barbara Plaza (the recently approved Marlton Square Project) and the former Hawthorne Plaza;
- Three shopping districts – Koreatown, the Crenshaw District and Downtown Inglewood;
- Two regional entertainment venues – the Great Western Forum and Hollywood Park;
- Three hospitals – Daniel Freeman Memorial Hospital, Centinela Hospital and Robert F. Kennedy Medical Center;
- Two regional parks – Leimert Park and Edward Vincent Park; and
- Two major churches – West Angeles Church and Faithful Central Bible Church (now housed in the Forum).

The number of Corridor activity centers and destinations served by each alternative is presented in Table 6.1 and discussed below.

Table 6.1: Corridor Activity Centers/Destinations Served by Each Alternative

Destination	No Build	Metro Rapid	BRT Alternative		LRT Alternative	
			Crenshaw/ LAX/ Green Line	Crenshaw/ Hawthorne	Crenshaw/ LAX/ Green Line	Crenshaw/ Prairie/ Hawthorne
LAX	✓	✓	✓		✓	
Inglewood Civic Center	✓	✓	✓		✓	
Hawthorne Civic Center	✓	✓		✓		✓
Wilshire Boulevard	✓	✓	✓	✓		
Downtown Inglewood	✓	✓	✓	✓	✓	
El Segundo	✓	✓	✓		✓	
Mid-Town Shopping Center	✓	✓	✓	✓	✓	✓
Baldwin Hills/Crenshaw Pl.	✓	✓	✓	✓	✓	✓
Santa Barbara Plaza	✓	✓	✓	✓	✓	✓
Hawthorne Plaza	✓	✓		✓		✓
Koreatown	✓	✓	✓	✓		
Crenshaw District	✓	✓	✓	✓	✓	✓
Downtown Inglewood	✓	✓	✓	✓	✓	
Great Western Forum	✓					✓
Hollywood Park	✓					✓
D. Freeman Mem. Hospital	✓					✓
Centinela Hospital	✓					✓
RFK Medical Center	✓	✓		✓		✓
Leimert Park	✓	✓	✓	✓	✓	✓
Edward Vincent Park	✓	✓	✓	✓	✓	✓
West Angeles Church	✓	✓	✓	✓	✓	✓
Faithful Cen. Bible Church	✓					✓
Total	22	17	14	14	12	15

Beyond the local bus network represented by the No Build Option, which serves all of the Corridor destinations, the MIS alternatives are fairly similar in the total number of destinations/activity centers that they serve. The Metro Rapid Alternative, with its grid of north-south and east-west high speed bus operations, serves the highest number of Corridor destinations. It is followed closely by the Crenshaw/Prairie/Hawthorne LRT alignment option that serves the many hospitals and regional entertainment venues located along Prairie Avenue in the City of Inglewood. The two BRT alignment options serve an equal number of destinations, with the Crenshaw/LAX connecting the Crenshaw Corridor to LAX and adjacent employment destinations, and the Crenshaw/Hawthorne providing service to more city of Inglewood and Hawthorne destinations. The Crenshaw/LAX/LRT alignment option provides a regional connection to LAX, but serves the lowest total number of Corridor destinations. With a future extension of LRT service north to Wilshire Boulevard, this LRT alignment option would serve an equal number of destinations as the BRT options.

6.1.2 Employment Access

Based on past study efforts using the MTA travel forecasting model, a majority of Crenshaw-Prairie Corridor work trips are to destinations outside the Study Area. Previous analysis identified that approximately 80 percent of home-to-work trips are to destinations beyond the Corridor area, while 20 percent are to Corridor employment destinations. All of the proposed alternatives would significantly increase access to work destinations both within and outside of the Study Corridor. The key work destinations beyond the Corridor, listed in order of importance, are as follows:

1. **Downtown Los Angeles** – All of the proposed options would improve access, with a slight increase in travel time, to this major work destination for Corridor residents. With future regional transportation system improvements, the travel time to and from Downtown Los Angeles would be significantly improved for all of the proposed alternatives.
2. **Southeast Los Angeles including Commerce, Vernon and South Gate** – The LRT Alternative would provide the most direct and fastest connection to these job locations as the Crenshaw LRT Line would operate as a direct Metro Green Line service connection. Corridor residents would then transfer to the Metro Blue Line which runs along Long Beach Boulevard serving these communities.
3. **Century City, Westwood and West Los Angeles** – The BRT Alternative would best serve Corridor residents accessing employment destinations in West Los Angeles with frequent service north on Crenshaw Boulevard and then a transfer to service west on one of the following: the Wilshire Metro Rapid, future peak period BRT service or future extension of the Metro Red Line. With the future extension of Crenshaw LRT service north to Wilshire Boulevard, this alternative would provide an improved service connection for Corridor residents, particularly if it were to operate in a subway configuration rather than mixed-flow service.
4. **South Bay** – The Crenshaw/LAX LRT alignment option would provide the best connection to the South Bay cities with fast access to the Metro Green Line Aviation Station with a platform transfer to Green Line service.
5. **Mid-City and the Wilshire District** – The BRT Alternative would best serve Corridor residents accessing employment in the Mid-City and Wilshire District with frequent service north on Crenshaw Boulevard and then a transfer to service west on one of the following: the Wilshire Metro Rapid, future peak period BRT service or future extension of the Metro Red Line. With the future extension of Crenshaw LRT service north to Wilshire Boulevard, this alternative would provide an improved service connection for Corridor residents, particularly if it were to operate in a subway configuration rather than mixed-flow service.

6. **Santa Monica and Marina del Rey** – The LRT Alternative would best serve Corridor residents accessing jobs in the Santa Monica area either through a transfer at the Exposition LRT Line west to Santa Monica, or through a proposed direct extension of Crenshaw LRT Line service west along the Exposition LRT right-of-way to Santa Monica.

All of the proposed alternatives increase the access and mobility of Corridor and regional residents to employment opportunities by providing reliable, high-capacity, regional linkages for Corridor residents traveling to job opportunities both within and outside of the Corridor. As discussed below, all of the options reduce travel times and improve regional system connectivity. Enhanced access to employment opportunities would strengthen the Corridor's economic position, support lowered unemployment rates and stop the decline in Corridor incomes. Conversely, provision of a Metro Rapid, BRT or LRT system within the Corridor would make existing and future job opportunities more accessible to people within and outside of the Corridor – making it a desirable location for new businesses.

6.1.3 Low Income Households

Based on the last census, more than 49 percent of the Crenshaw-Prairie Corridor's households are classified as low income and approximately 16 percent of the Corridor's households have no auto available. Both of these factors contribute to a higher than average transit usage in the Corridor. The loss of Corridor employment and constrained access to jobs outside of the Corridor has contributed to a significant increase in Study Area unemployment and the related decline in Corridor incomes. Future projections show a continued high number of low income households without access to an automobile, and forecast higher percentage of transit dependency.

All of the proposed alternatives would increase the access and mobility of Corridor low income residents for work, shopping, school and recreation trips both within and beyond the Study Area by providing a reliable, high-capacity service that reduces travel times. Enhanced access to work and non-work destinations would strengthen the Corridor's economic position, assist in lowering unemployment rates and stop the decline in Corridor incomes. Conversely, provision of a Metro Rapid, BRT or LRT system within the Corridor would make existing and future shopping, entertainment and recreation destinations more accessible to people both within and outside of the Corridor – supporting Corridor businesses and workers.

6.1.4 Travel Times

A travel time comparison of overall travel times and operating speeds provides an understanding of how the alternatives perform during a peak period trip between two points. Travel time is particularly important to choice riders when making a decision whether to make a trip by auto or by transit. Year 2025 peak period travel times were identified for all the alternatives including No Build conditions using the MTA Travel Demand Model. The travel times were based on the proposed station spacing, bus/rail priority treatments and resulting operating speeds, and include in-vehicle time, transfer time and additional wait time. As presented below in Table 6.2, Corridor travel times were identified for the following three origin-destination pairs:

- 7th/Flower in Downtown Los Angeles to the intersection of Crenshaw/Martin Luther King, Jr. Boulevards in the Crenshaw District;
- 7th/Flower in Downtown Los Angeles to LAX; and
- Crenshaw Boulevard and the Exposition Railroad right-of-way to the Metro Green Line Aviation Station.

Table 6.2: Peak Transit Travel Times (Minutes)*

Origin/Destination	No Build	Metro Rapid	BRT Alternative	LRT Alternative
7 th /Flower to Crenshaw/MLK	31.3	32.8	32.8	32.8
7 th /Flower to LAX	64.3	52.7	52.7	46.0
Crenshaw/Expo to Aviation Green Line	49.2	43.1	23.4	17.1

* Travel times include in-vehicle time, transfer time and additional wait time.

For the first origin and destination pair – Downtown Los Angeles to the Crenshaw District – all of the MIS alternatives were estimated to take the same travel time. They are forecast to take 1.5 minutes longer than traveling by the No Build Option due to the fact that the existing bus system provides more direct service for this origin and destination pair than the MIS alternatives. Currently, patrons seeking to travel by bus from Downtown Los Angeles to Crenshaw/Martin Luther King, Jr. boulevards can take either Line 40 (local service) or Line 340 (limited service). Both lines operate from Downtown on Broadway south to Martin Luther King, Jr. Boulevard and then west to Crenshaw Boulevard. The combined headways on the 40 and 340 lines provide a shorter travel time due to less wait time for patrons. Under the Metro Rapid Option, Line 340 would be replaced by Metro Rapid service (the Crenshaw and Hawthorne Boulevard routes), while Line 40 would continue operations on Martin Luther King, Jr. Boulevard.

For future travel between Downtown Los Angeles and LAX, all of the proposed alternatives would provide faster travel times than the No Build Option. The bus-based alternatives – Metro Rapid and Bus Rapid Transit – are forecast to provide the same 11.6-minute travel time improvement. The BRT Option's similar travel time to the Metro Rapid Alternative is due to the fact that even with dedicated lane operations, the BRT Alternative must share its lane with Metro Rapid and local buses, while allowing for vehicular right turn movements. Still, both the Metro Rapid and BRT alternatives are forecast to provide a 20 percent reduction in travel time over No Build conditions. The LRT Alternative, operating as a direct northern extension of the Metro Green Line provides an 18.3-minute savings over the No Build Option (a 28 percent travel time reduction), and a 6.7-minute (a 15 percent reduction) improvement over the Metro Rapid Alternative.

For the future trip between the Crenshaw/Exposition intersection in the Crenshaw District and the Metro Green Line Aviation Station, all of the proposed alternatives were forecast to result in shorter travel times for transit patrons. The Metro Rapid Alternative, with a limited number of stops, would reduce the travel time by 6.1-minutes over that provided by local bus service. Both the BRT and LRT alternatives would significantly reduce travel time for this trip due to their ability to run in dedicated operations along the former BNSF Railroad right-of-way. The BRT Alternative would cut the travel time by more than half an approximately three times reduction over No Build conditions; and it would provide a 26.0-minute or a 2.5 time reduction over the Metro Rapid Alternative's travel times.

6.1.5 Regional Connectivity

The Crenshaw-Prairie Corridor has weak connections to the regional transportation system and no north-south high-capacity connection within the Study Area. This lack of transit infrastructure seriously limits Corridor mobility and accessibility. Currently, Corridor residents traveling by bus to destinations both within and beyond the Study Area are required to make frequent transfers – lengthening travel times and discouraging choice riders. This negatively impacts the 80 percent of Corridor residents who work outside the Study Area. The inability to directly connect with the regional transit system will become more detrimental in the future as Corridor population, employment and trip-making continue to grow.

In addition, the Crenshaw-Prairie Corridor transportation improvement has the opportunity to play an important role in the regional transportation system by providing a needed link. Currently, there is no north-south high-capacity connection west of Downtown Los Angeles and the I-110 Freeway – other than the I-405 Freeway which serves only a corner of the Study Area. In the regional rail system, the Metro Blue Line is the only north-south connection in a growing network of east-west rail lines. A rail system connection operating on Crenshaw Boulevard would provide a much-needed second north-south link enhancing regional and Corridor connectivity, and lessening the system operational impacts on the capacity at 7th/Metro Center. A high-capacity transportation system improvement could connect to the Metro Red Line at the northern end of the Corridor, the future Exposition LRT Line in the center, and the Metro Green Line at the southern end.

One of the proposed Metro Rapid routes – the Crenshaw/Wilshire-Western/Metro Green Line Option – would provide direct service from the Metro Red Line Wilshire/Western Station along Crenshaw Boulevard to Florence Avenue and then Aviation Boulevard to the Metro Green Line Aviation Station. The Crenshaw/Rossmore Metro Rapid Line would require patrons arriving at the Metro Red Line Wilshire/Western Station to transfer to Wilshire Metro Rapid service and then transfer again at Wilshire/Crenshaw to access Crenshaw Metro Rapid service. The BRT Alternative operates south from Wilshire/Crenshaw and would require patrons arriving at the Metro Red Line Wilshire/Western Station to transfer to Wilshire Metro Rapid service and then transfer again at Wilshire/Crenshaw to access Crenshaw BRT service. Future extension of the Metro Red Line to Wilshire/Crenshaw would improve the service provided by the Metro Rapid and BRT alternatives. The LRT Alternative does not extend north to Wilshire Boulevard at this time, patrons would transfer to Metro Rapid service to travel north. Future extension of LRT service north and the Metro Red Line to Wilshire/Crenshaw would significantly improve the service provided by the LRT Alternative.

All of the alternatives interface with the future Exposition LRT Line. This station/stop area is proposed to be a major park-and-ride and transfer facility for the BRT and LRT alternatives. An opportunity to operate the Crenshaw LRT Line north on Crenshaw Boulevard and then west along the Exposition LRT right-of-way was explored in this MIS and resulted in attracting the highest number of new transit riders as discussed below.

Each of the MIS alternatives would interface with the Metro Green Line as follows:

- *Metro Rapid Alternative* – Transfers at the Crenshaw, Hawthorne and Aviation stations;
- *BRT Alternative* – Transfers at the Hawthorne and Aviation stations; and
- *LRT Alternative* – Direct service connection at the Aviation Station – the Crenshaw LRT Line is proposed to operate as a direct northern extension of the Metro Green Line – and a transfer at the Hawthorne Station.

Improvement in regional system connectivity can be measured by the ability of each alternative to reduce the number of transfers required to reach key destinations both within and beyond the Study Area. The number of transfers required under each alternative for each of the travel origin and destination pairs discussed above is presented below in Table 6.3.

The proposed alternatives provide varying improvements to the Corridor's regional connectivity with the Metro Rapid Alternative reducing the number of transfers required for only one origin and destination pair – Downtown Los Angeles (7th/Metro Center) to LAX.

Implementation of the BRT Alternative would reduce the number of transfers required for two of the identified origin and destination pairs: 1) for travel between Downtown Los Angeles and LAX – from

three transfers to two; and 2) from within the Corridor (Crenshaw/Exposition) to the regional rail system (the Metro Green Line) – from two transfers to only one.

The LRT Alternative would significantly reduce the number of transfers required for two of the three pairs: 1) travel between Downtown Los Angeles and LAX – from three transfers to only one; and 2) for travel within the Corridor (Crenshaw/Exposition) to the regional rail system – from two transfers to no transfers required as the Crenshaw LRT service would operate as a northern extension of the Metro Green Line.

Table 6.3: Number of Transfers Required

Origin/Destination	No Build	Metro Rapid	BRT Alternative	LRT Alternative
7 th /Metro Center to Crenshaw/MLK	1	1	1	1
7 th /Metro Center to LAX	3	2	2	1
Crenshaw/Expo to Aviation Green Line	2	2	1	0

6.1.6 Operating Speeds

Operating speeds have been identified for the alternatives using the MTA travel demand model. While the BRT and LRT alternatives have a maximum street-running speed of 35 miles per hour (mph) and a dedicated railroad right-of-way operational speed of 55 mph, factors such as street-running delay, the tight curve from Crenshaw Boulevard to the railroad right-of-way, and fairly close station spacing reduce the average operating speeds to those shown below in Table 6.4. Both of the alternatives result in a higher operating speed than current conditions with Crenshaw bus service operating at 12.5 mph and future projections that show an average MTA system-wide speed of 10.5 mph in 2015.

Table 6.4: Average Operating Speeds

Alternative Description	Operations	Miles	Average Speed (Miles per hour)	Total Travel Time (Minutes)
BRT Alternative				
Crenshaw/Washington to Crenshaw/MLK	Curbside dedicated lane	2.03	20.0	6.1
LAX/Metro Green Line Alignment Option: Crenshaw/ Vernon to Metro Green Line Aviation Station	Curbside dedicated lane, railroad right-of-way	6.95	29.9	14.0
La Brea/Hawthorne Alignment Option: Inglewood Transit Center to El Segundo	Mixed-flow, curbside or median dedicated lane	3.18	22.0	8.7
LRT Alternative				
LAX/Metro Green Line Alignment Option: Crenshaw/ Exposition to Metro Green Line Aviation Station	Median, mixed-flow, railroad right-of-way, trench, aerial	8.37	29.4	17.1
Prairie/Hawthorne Alignment Option: Crenshaw/Exposition to El Segundo	Median, mixed-flow, aerial	8.48	20.6	24.7

6.1.7 Transit System Capacity

The Corridor's congested freeway and arterial street system, as well as the heavily-utilized bus system offer no additional capacity to accommodate the forecast 19 percent increase in daily trips. The additional transit system capacity provided over No Build conditions by each of the alternatives was calculated and is presented below in Table 6.5. The seated and standing capacity was based on a 1.2 load factor for the standard and articulated buses, and a 2.0 for the rail vehicles. Due to a longer and differently-designed vehicle configuration, train cars can comfortably accommodate more standing patrons than buses.

Each of the proposed alternatives would provide a substantial increase in the peak period fleet size and corresponding, a substantial increase in the number of seats available to attract and serve Corridor residents. With the largest fleet size, the BRT Alternative would have the highest increase in peak hour capacity – providing 7,065 more seats than No Build conditions and approximately 8,500 more in a seated and standing capacity. Compared to the Metro Rapid Alternative, the BRT Option, with 30 more vehicles, including 45 articulated buses, would provide 2,250 or approximately 50 percent more seated capacity and 2,700 or approximately 47 percent increase in seated and standing capacity. The smaller-system LRT Alternative would provide 952 or approximately 20 percent more seated capacity and 2,480 or approximately 43 percent increase in seated and standing capacity over the Metro Rapid Option. Any future extension of the LRT System would have a corresponding increase in the number of vehicles and seats provided.

Table 6.5: Additional Peak Hour Transit System Capacity over No Build Conditions

Alternative	Fleet Composition	Peak Period Fleet	Seated Capacity	Seated and Standing Capacity
Metro Rapid	Standard buses	107	4,815	5,778
BRT	Standard buses	92	4,140	4,968
	Articulated buses	45	2,925	3,510
	<i>Total</i>	137	7,065	8,478
LRT	Standard buses	91	4,095	4,914
	Rail vehicles	22	1,672	3,344
	<i>Total</i>	113	5,767	8,258

6.1.8 Travel Options

The ability to move quickly and efficiently in the Crenshaw-Prairie Corridor can also be expressed in terms of transportation system choice. Currently, Corridor travelers have a limited choice in travel options – auto or bus transit – circulating on the same congested street system. Existing operational issues make bus usage by transit dependent riders daunting, and make utilization undesirable to non-transit dependent residents or choice riders. A multi-modal Corridor strategy would provide all local residents – not just the transit dependent – with more travel options.

Each of the proposed alternatives would improve the choice in travel options within the Crenshaw-Prairie Corridor. The Metro Rapid and BRT alternatives would provide improved coverage and frequency of bus service in the Corridor, but would not provide Corridor residents and visitors with additional transportation options. While the Metro Rapid and BRT alternatives are not new modal options, the faster, more frequent service coupled with attractive, low-floor vehicles would better serve existing riders and attract choice riders as demonstrated by the existing Metro Rapid service. In addition, the dedicated lane service with articulated buses provided by the BRT Alternative would increase the system's speed, capacity and rider's comfort level, and provide a corresponding increase in the number of choice riders attracted to this transit service as shown by the ridership projections discussed below. The LRT Alternative would not only provide a new modal option operating as a direct extension of the regional rail

service, but would also attract the highest number of new transit riders as presented in the following section and demonstrated by other regional rail services.

6.1.9 Forecast Ridership

Ridership projections were prepared utilizing the MTA Travel Demand Model for the transit system options under consideration – the Metro Rapid, Bus Rapid Transit and Light Rail Transit alternatives – along with the No Build Option to provide a basis for comparison. Table 6.6 below presents the projected passenger daily boardings as well as the number of new transit riders attracted through implementation of each of the proposed alternatives in the year 2025.

Modeling results demonstrated a significant increase in daily transit boardings in the Crenshaw-Prairie Corridor with implementation of the proposed north-south and east-west grid system network of Metro Rapid lines. Implementation of this Alternative would attract and serve an additional 35,700 daily boardings – a more than 475 percent increase in Corridor ridership – over the No Build Option. The proposed system of frequent, high-speed bus service routes was projected to attract 13,400 daily new transit riders over No Build conditions.

Table 6.6: Forecast Ridership (Year 2025)

Alternative	Total Daily Corridor Boardings	Daily New Transit Riders Over No Build	Daily New Transit Riders Over Metro Rapid
No Build	9,400	--	--
Metro Rapid	45,100	13,400	--
Bus Rapid Transit	55,500	17,800	4,400
Light Rail Transit – Base Option From Exposition LRT Line south to Metro Green Line	53,700	21,800	8,400 ¹
Light Rail Transit With Exposition LRT service extended to City of Santa Monica	53,800	36,300	22,900
Light Rail Transit With extension north to Wilshire, Metro Red Line at current terminus at Wilshire/Western	61,300	23,000	9,600
Light Rail Transit With extension north to Wilshire, Metro Red Line extension to new Wilshire/Crenshaw Station	65,200	27,600	14,200

Implementation of the Bus Rapid Transit Alternative, primarily providing dedicated lane operations for two BRT lines, along with the supporting Metro Rapid service network in the Study Area, was forecast to serve an additional 46,100 daily boardings – an increase of approximately five times over the ridership attracted under No Build conditions. Providing dedicated lane bus service, resulting in faster travel speeds and shorter travel times, would attract 17,800 daily new transit riders over the No Build Option and 4,400 new riders more than the Metro Rapid Alternative.

Construction of the Crenshaw Light Rail Transit Alternative (between the future Exposition LRT Line and the Metro Green Line), providing primarily at-grade rail operations on two LRT lines, along with the supporting Metro Rapid service network, was projected to serve an additional 44,270 daily boardings – an increase of approximately 470 percent over No Build ridership. Providing the initial section of LRT service was forecast to attract the highest number of new riders among the alternatives under consideration in this MIS. Implementing LRT service as a direct extension of the regional rail system

would attract 21,800 more new transit riders than the No Build Option, and 8,400 more new riders than those attracted to the Metro Rapid Alternative.

Three sensitivity runs were prepared to assess the effects of the following future rail system decisions related to the LRT Alternative:

- Extension of the future Exposition LRT Line west to its proposed terminus in the City of Santa Monica;
- Extension of Crenshaw LRT service north to a Wilshire/Crenshaw LRT terminal station, with no extension of Metro Red Line service beyond its current terminus at the Red Line Wilshire/Western Station; and
- Extension of Crenshaw LRT service north to connect with a future Metro Red Line extension to Wilshire and Crenshaw Boulevards.

The findings show that all of the rail alternatives attract more new riders than the bus-based alternatives.

Extension of the future Exposition LRT Line west to its proposed terminus in the City of Santa Monica would attract and serve the highest number of new transit riders among the LRT system options that were modeled. With this connection, the Crenshaw LRT Line was forecast to serve an additional 36,300 daily new transit riders over the No Build Option and 22,900 more than the Metro Rapid Alternative.

Future extension of Crenshaw LRT service in mixed-flow operations north to a Wilshire/Crenshaw LRT station, with no extension of Metro Red Line service beyond its current terminus at the Wilshire/Western Station, was projected to attract and serve an additional 23,000 new transit riders over the No Build Option and 9,600 more than the Metro Rapid Alternative.

Extension of Crenshaw LRT service in mixed-flow operations north to a Wilshire/Crenshaw LRT station, with extension of Metro Red Line to a new Wilshire/Crenshaw Station, was forecast to serve an additional 27,600 new riders over the No Build Option and 14,200 more than the Metro Rapid Alternative.

It should be noted that the ridership analysis of all of the LRT options was based on mixed flow operations between Adams and Wilshire Boulevards due a constrained street right-of-way width and possible significant neighborhood impacts. With construction of subway service north from Adams Boulevard under the I-10 Freeway to a future Metro Red Line Wilshire/Crenshaw Station, Crenshaw LRT Line ridership would substantially increase due to a faster travel time and a more direct connection with the Metro Red Line.

6.2 Environmental and Community Considerations

Potential environmental and community effects of each of the alternatives were evaluated through the following analytical actions:

- Identification of any adverse community and environmental impacts;
- Description of any traffic and parking impacts;
- Current EPA designation for region's compliance with National Ambient Air Quality Standards;
- Forecast net change in criteria pollutant emissions; and
- Forecast net change per year in the regional consumption of energy.

Community and environmental effects including any traffic and parking impacts are discussed in detail in Section 4.0, Environmental Analysis and Section 3.0, Transportation System Analysis of this report respectively. The identified possible impacts are summarized below in Table 6.7.

At this level of analysis, the possible impacts of each of the alternatives under consideration have been noted, but were not specified nor were mitigation measures defined. The identified impacts are considered reasonably representative for the purpose of comparing alternatives. During any subsequent preliminary engineering work, the system components of each of the alternatives would be become detailed and resulting impacts would be assessed accordingly, and described in any subsequent future Environmental Impact Report/Environmental Impact Statement (EIR/EIS) efforts.

Table 6.7: Summary of Environmental and Community Impacts

Option	Environmental and Community Impacts	Traffic and Parking Impacts
Metro Rapid	<ul style="list-style-type: none"> • Noise and air pollution from increased bus service 	<ul style="list-style-type: none"> • Minor impacts on functioning of arterial system from increased bus service • Impacts to right turn movements • Some increased delay and congestion due to additional signal green time for buses • Possible impacts between increased number of transit vehicles and pedestrians/bicyclists
BRT	<ul style="list-style-type: none"> • Construction impacts: short-term traffic disruptions, noise and air pollution • Potential impacts to historically or culturally significant resources within the Crenshaw District • Noise and vibration from increased bus service • Potential air pollution “hot spots” at certain intersections • Limited acquisitions of property for dedicated bus lane space 	<ul style="list-style-type: none"> • Loss of travel lane in each direction between Crenshaw/Washington and Crenshaw/MLK, Crenshaw/Vernon and Crenshaw/Railroad ROW • Loss of travel lane in each direction on La Brea/Hawthorne between Manchester and I-105 Freeway • Loss of median in Hawthorne Boulevard or travel lane between I-105 Freeway and El Segundo • Minor loss of peak period on-street parking on one or both sides at locations along Crenshaw Boulevard (20% of street) • Significant loss of peak period on-street parking on one or both sides at locations along La Brea/Hawthorne (76% of street) • Possible impacts between increased number of transit vehicles and pedestrians/bicyclists
LRT	<ul style="list-style-type: none"> • Construction impacts: short-term traffic disruptions, noise and air pollution • Potential impacts to historically or culturally significant resources within the Crenshaw District • Noise and vibration from train service • Potential air pollution “hot spots” at certain intersections • Limited acquisitions of property for required rail right-of-way space 	<ul style="list-style-type: none"> • Loss of travel lane in each direction between Crenshaw/Exposition and Crenshaw/MLK, Crenshaw/Vernon and Crenshaw/Railroad ROW • Loss of a travel lane in one direction on Prairie Avenue • Loss of median on Hawthorne Boulevard between I-105 Freeway and El Segundo • Permanent loss of on-street parking on one or both sides at locations along Crenshaw (50%) • Permanent loss of on-street parking on one side at locations along Prairie Avenue (43%) • Possible impacts between increased number of transit vehicles and pedestrians/bicyclists • Need to prevent pedestrian crossing of LRT tracks except at designated, protected locations

6.2.1 Air Quality Impacts

The Corridor is fully contained within the South Coast Air Basin – the airshed with the worst air quality in the nation. Mobile source emissions from vehicles are the single largest contributor to air quality problems in the basin. The Environmental Protection Agency (EPA) rates the South Coast Air Basin as an “extreme” nonattainment area for ozone, the only area so designated in the nation. Ozone problems in the basin are an order-of-magnitude worse than anywhere else in the country. According to EPA’s most recent evaluation, the basin exceeds the National Ambient Air Quality Standard for ozone approximately 93 days each year. By comparison, the next worst areas – Houston and New York – exceed the standard less than 20 days each year. In 1992, the South Coast Air Basin recorded the greatest number of exceedances of the carbon monoxide standard, more than twice the number of the next worst area. It is classified as a “serious” nonattainment area for both carbon monoxide and particulates (PM₁₀).

The forecast net change in criteria pollutant emissions is discussed in *Section 4.0, Environmental Analysis* of this report and summarized below in Table 6.8. Total annual emissions were calculated per vehicle class based on the following categories: passenger vehicles, CNG buses, light or heavy rail/electric and commuter rail/diesel. Light and heavy rail vehicles were forecast as having zero emissions for all of the alternatives as the energy would be generated beyond the Study Area and transmitted via overhead and underground lines.

Table 6.8: Forecast Net Change in Criteria Pollutant Emissions

Total Annual Emissions	Metro Rapid Alternative	BRT Alternative	LRT Alternative
CO	551,669	551,643	551,650
NO _x	80,694	80,645	80,637
VOC	32,495	32,495	32,493
PM ₁₀	3,563	3,563	3,563

Source: Terry A. Hayes Associates LLC, 2002

Annual regional VMT is expected to decrease under both the BRT and LRT alternatives and thus the emissions related to vehicle exhaust (Carbon-monoxide, Oxides of Nitrogen and Sulfur) are also expected to decline in comparison to the Metro Rapid Alternative. This decrease is due to increased transit ridership and related decrease in miles traveled for private automobiles. Changes in PM₁₀ emissions (related to such aspects as tire wear) are expected to be negligible. Emissions of ozone precursors (volatile organic compounds [VOCs]) are also unlikely to be significantly altered. Emissions of ozone precursors would not increase by more than 50 tons per year for either the BRT or LRT alternatives when compared with the Metro Rapid Alternative and thus a conformity analysis and determination in accordance with the Code of Federal Regulations (CFR 40 Part 51) would not be required. The federal conformity analysis only applies to operational emissions of criteria pollutants. It is not applicable to construction emissions.

In the carbon-monoxide category (CO), the BRT Alternative was forecast to result have the lowest of level of emissions due to the projected largest reduction in passenger vehicles miles traveled among the alternatives due to a longer system and higher ridership forecast than the LRT Alternative. In the oxides of nitrogen and sulfur (NO_x) category, the LRT Alternative would have the lowest level of emissions due a reduction in the number of buses operating in the Corridor when compared to the Metro Rapid and BRT alternatives. Looking at volatile organic compounds (VOC), the LRT Alternative was forecast to have the lowest level of emissions again due to a reduced number of buses when compared to the Metro Rapid

and BRT alternatives. The negligible changes forecast in the PM₁₀ category were projected to be the same for all of the alternatives.

Localized CO concentrations at certain intersections within the Study Area could exceed Federal or State standards due to changes in intersection configuration and levels of service, resulting in a CO “hot spot.” If future traffic analysis indicates that certain intersections may suffer a decreasing level of service, those intersections will be modeled for CO hot spots. Overall, future concentrations of CO along the Corridor alignment would be much lower than under existing conditions due to ongoing implementation of emissions reduction programs and turnover in the vehicle fleet.

6.2.2 Energy Impacts

Current fossil fuel consumption from vehicle trips with origins or destinations in the region amount to about 4.9 billion gallons of fuel per year – of which 89 percent is gasoline and the remaining 11 percent is diesel. Regional transportation energy consumption is equivalent to about 739 trillion British Thermal Units (BTU) per year, or about 126 million barrels of oil. Currently, approximately 98 percent of this regional energy consumption is attributable to automobiles.

The buses serving the Metro Rapid and BRT Alternatives would be fueled at MTA maintenance and fueling facilities, likely using compressed natural gas (CNG) or other alternative fuels. Electricity for the LRT Alternative’s trains would be provided via service connections from sources beyond the Study Area. The energy consumption calculation is based on the forecast energy for operation of vehicles (automobile, truck, bus or train) within the Corridor. The following energy consumption estimates are based on the following factors:

- Annual vehicle miles traveled (VMT) for automobiles, trucks, buses and heavy rail vehicles; and
- Variation of fuel consumption rates by vehicle type.

Table 6.9: Forecast Net Change Per Year in Regional Consumption of Energy (BTUs per year)

Type	Metro Rapid Alternative	BRT Alternative	LRT Alternative
Passenger Vehicle	381,093,221	381,045,428	381,060,667
CNG Bus	1,281,209	1,310,725	1,258,371
Light or Heavy Rail	796,114	793,529	821,086
Commuter Rail	554,230	554,026	553,940
Total	383,724,774	383,703,708	383,694,064

Source: Terry A. Hayes Associates LLC, 2002

Both the BRT and LRT alternatives are expected to reduce energy consumption by decreasing dependence on automobile use. In general, one rail car requires the same amount of energy as 11 automobiles. Therefore, any reduction in automobile trips would result in an energy savings. Likewise, one bus is estimated to consume the energy equivalent to five automobiles. Energy consumption for passenger vehicles, CNG bus, light or heavy rail, and commuter rail for each alternative is summarized in Table 6.9 above. When compared to the 1998 Baseline, energy consumption for each of the alternatives was identified as follows:

- The Metro Rapid Alternative was anticipated to require a total of approximately 384 million British thermal units (BTU) per year.
- Under the BRT Alternative, energy consumption was projected to increase for the proposed CNG buses (29,500 BTU per year), while decreasing for all of the other categories (47,800 per year) when compared to the Metro Rapid Alternative. Overall, the total energy consumption under the

BRT Alternative is anticipated to decrease by a total of approximately 21,100 BTU per year when compared to the Metro Rapid Alternative.

- Under the LRT Alternative, energy consumption for light or heavy rail vehicles was projected to increase (25,000 BTU per year), while decreasing for the passenger vehicle, CNG bus and commuter rail categories (55,700 BTU per year) when compared to the Metro Rapid Alternative. In summary, the total energy consumption under the LRT Alternative was forecast to decrease by a total of approximately 30,700 BTU per year when compared to the Metro Rapid Alternative.

6.3 Operating Efficiencies

The operating efficiencies of each of the alternatives were evaluated by identifying the annual operating and maintenance cost for each alternative and comparing them to No Build conditions, and forecasting the net change in operating cost per passenger-mile for the entire transit system.

As documented in Section 5.3 of this document the operating and maintenance (O&M) costs were calculated using the MTA's O&M cost model for each alternative. This model meets the Federal Transit Administration (FTA) guidelines for estimating operating costs. Each alternative's O&M costs were calculated for the entire MTA system of Bus, Red Line, Green Line and Blue Line service. Table 6.10 below presents the conceptual annual operating and maintenance cost estimates in FY 2001 dollars. While there are small variations in Blue Line and Red Line costs among the alternatives (due to fluctuation in patronage among the study options), the main changes in O&M costs occur in the MTA bus category and Green Line operations.

The 2025 No Build Option was forecast to cost \$923.3 million in annual operating and maintenance costs, which was divided between \$712.1 million for MTA bus operations, and \$211.2 million for MTA rail operations countywide.

Table 6.10: Annual MTA Operating and Maintenance Costs (FY 2001 Dollars)

Mode	No Build (Millions)	Metro Rapid Alternative (Millions)	BRT Alternative (Millions)	LRT Alternative (Millions)
MTA Bus	\$712.1	\$738.0	\$741.1	\$734.4
Blue Line	104.4	104.5	104.5	105.7
Green Line	32.2	39.1	39.1	54.0
Red Line	74.6	74.7	74.7	74.7
Total O&M Cost	\$923.3	\$956.3	\$959.4	\$968.8
Incremental Cost versus No Build	--	\$33.0	\$36.1	\$45.5
Incremental Cost versus Metro Rapid	--	--	\$3.1	\$12.5

The Metro Rapid Alternative was estimated to cost \$33.0 million more to operate annually than the No Build Option. The bus service increase (four percent) reflected operational costs for the expansion of Metro Rapid service along several routes serving the Corridor, while the rail service cost increase (three percent) supported expansion of Metro Green Line operations north to Century Boulevard.

The BRT Alternative was forecast to cost \$36.1 million more to operate annually than the No Build Option, and \$3.1 million more than the Metro Rapid Alternative. The forecast bus service cost increase of four percent over the No Build Option reflected the expansion of Metro Rapid service operating as a supporting network feeding the two proposed BRT lines. The forecast O&M cost for the BRT Alternative was \$3.1 million more costly to operate than the Metro Rapid Alternative reflecting the

increase in bus fleet size (30 more buses), along with the introduction of articulated vehicles to accommodate the forecast increased demand. Similar to the Metro Rapid Option, the BRT Alternative cost represented an annual increase in rail system costs of \$7.1 million over No Build conditions, primarily for expanded Metro Green Line operations.

The LRT Alternative was estimated to cost \$45.5 million more to operate annually than the No Build Option, and \$12.5 million more than the Metro Rapid Alternative. Under the LRT Option, the forecast bus service cost represented a \$22.3 million (three percent) increase over No Build conditions, supporting the operation of 91 additional buses. The bus O&M cost for the LRT Alternative represented a \$3.6 million (0.5 percent) decrease from the Metro Rapid Alternative, reflecting 16 less buses operating in the Corridor. The LRT annual rail O&M cost represents an annual increase of rail system costs of \$23.2 million over the No Build Option and an increase of \$16.1 million over the rail costs included in the Metro Rapid Alternative. The largest increase in rail O&M costs – 38 percent over the Metro Rapid Alternative – would support expansion of Metro Green Line operations.

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. Table 6.11 presents an analysis of the change in the annual operating cost per passenger-mile with the implementation of each of the proposed alternatives. This cost was calculated by dividing the MTA system’s annual operating cost by the system annual passenger-miles for the year 2025.

With the increase in bus and rail operation costs resulting from each of the alternatives, the MIS alternatives represent an increase in operating cost ranging from \$0.006 to \$0.010 per passenger mile over No Build conditions. The BRT Alternative would result in the lowest increase in annual operating cost, while the LRT Alternative would have the highest increase in cost. When compared to the Metro Rapid Alternative, the BRT Option represents a decrease in annual operational costs per passenger-mile reflecting the use of articulated buses. Implementation of the LRT Alternative would result in an increase to annual operational costs per passenger-mile due to the slightly higher cost of light rail service.

Table 6.11: Operating Cost per Passenger-Mile

	No Build Conditions	Metro Rapid Alternative	BRT Alternative	LRT Alternative
Cost Per Passenger-Mile	\$0.281	\$0.288	\$0.288	\$0.292
Compared to No Build	--	\$0.007	\$0.006	\$0.010
Compared to Metro Rapid	--	--	(\$0.000)	\$0.004

6.4 Transportation System Benefits

The evaluation of the Corridor MIS alternatives was based on an analytical framework that weighs the benefits accruing from each transportation strategy against their costs and impacts. In this evaluation category, the transportation system efficiency, or the cost-effectiveness, of each option was identified and compared. Cost-effectiveness is a measure used to weigh 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 costs, divided by the change in annual transit system ridership, as expressed by the following equation:

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

To calculate the change in capital cost, project costs presented in Section 5.2 of *Section 5.0, Cost Analysis* of this report were aggregated according to their assumed useful life and annualized accordingly, using the FTA annualization factors shown below in Table 6.12. Annual operating and maintenance (O&M) costs were calculated using the approach described in subsection 5.3 of this document. The change in linked transit trips for the forecast year 2025 was determined using the MTA travel forecasting model as presented in *Section 3.0, Transportation Analysis* of this document, and summarized in Section 6.1 above.

Consistent with FTA requirements, the cost-effectiveness for each alternative was measured against the No Build and Baseline (Metro Rapid) options. The results are presented below in Tables 6.13 and 6.14. As may be expected, the lower the incremental cost per new transit rider, the more cost-effective the project alternative. A recent evaluation of FTA-funded projects identified \$2.54 as the minimum cost per new rider, \$10.39 as the average, and \$48.82 as the maximum.

Table 6.12: Life Cycle Assumptions

Project Element	Economic Lifetime (Years)	Annualized Factor
Right-of-way	100	0.070
Structures, trackwork, signals, electrification	30	0.081
Rail vehicles	25	0.086
Buses (Large)	12	0.126

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

In addition to the Base LRT Alternative (LRT to Exposition), which represents only the initial segment of a Corridor-serving LRT System, the cost-effectiveness was identified to assess the effects of the following future rail system decisions:

- Extension of the future Exposition LRT Line west to its proposed terminus in the City of Santa Monica;
- Extension of Crenshaw LRT service north to a Wilshire/Crenshaw LRT terminal station, with no extension of Metro Red Line service beyond its current terminus at the Red Line Wilshire/Western Station; and
- Extension of Crenshaw LRT service north to connect with a future Metro Red Line extension to Wilshire and Crenshaw Boulevards.

When compared to No Build conditions, the Metro Rapid Alternative was the most cost-effective transportation strategy with an incremental cost of under \$16 per added rider. This cost reflects a significant increase in Corridor fleet size along with the provision of station stop facilities and signal priority system improvements.

Table 6.13: Incremental Cost per Incremental Passenger Compared to No Build

Metro Rapid	BRT	LRT to Exposition	LRT to Santa Monica	LRT to Wilshire with no Red Line Extension	LRT to Wilshire with Red Line Extension
\$15.65	\$18.26	\$26.52	\$17.69	\$27.33	\$24.53

When compared to No Build, the second most cost-effective alternative – at approximately \$17.70 per new rider – is the provision of the Crenshaw LRT Line with operation of service west on the Exposition right-of-way to its proposed terminus in the City of Santa Monica. This alternative attracts and serves

the highest number of new riders among the alternatives balanced by the high capital cost to construct the LRT system.

The third most cost-effective option is the BRT Alternative at approximately \$18.25 per new rider. This proposed alternative connecting north to Wilshire Boulevard and south to the Metro Green Line attracts a high number of new riders, balanced with a high capital cost reflecting the addition of a significant number of new vehicles to the fleet, including articulated buses, along with the provision of street right-of-way and signal priority improvements, and station stop facilities.

The Base LRT Alternative, providing service in the Crenshaw Corridor between the Exposition LRT Line and the Metro Green Line, attracts a good number of new riders, but not a sufficient number to balance out the high capital cost of the initial segment of a light rail system. The resulting incremental cost would be \$26.25 per new rider. As the rail system is extended, including Crenshaw LRT connections made north to Wilshire Boulevard as well as possibly west interlining with Exposition LRT service, along with the western extension of the Metro Red Line along Wilshire Boulevard to Wilshire/Crenshaw and beyond, a significant number of new riders would be attracted. Even with the significant capital cost of extending both the Metro Red Line and the Crenshaw LRT Line, the high number of new riders would result in a lower cost per new rider (\$24.50) than that provided by the Base LRT Alternative. This option has lower ridership due to not connecting north to Wilshire Boulevard which is a key destination of many Corridor patrons. As demonstrated by the BRT Alternative, providing the system connection to Wilshire Boulevard results in higher total ridership.

Table 6.14: Incremental Cost per Incremental Passenger Compared to Metro Rapid

BRT	LRT to Exposition	LRT to Santa Monica	LRT to Wilshire with no Red Line Extension	LRT to Wilshire with Red Line Extension
\$25.62	\$71.56	\$18.82	\$58.73	\$34.71

Similar to the comparison with No Build – the two most cost-effective alternatives are the LRT Alternative with extension of rail service to Santa Monica (\$18.80 per new rider), and the BRT Alternative at \$25.60 per added trip.

When compared to the Metro Rapid Alternative, the other LRT options do not rank well. The Base LRT Alternative was forecast to have the highest cost per new rider (\$71.56) among the alternatives considered in this category. As discussed above, while attracting a high number of new riders, this initial segment of a light rail system would serve as an expensive rail shuttle service that does not allow for the key connection north to Wilshire and then west as needed by Corridor travelers. When the LRT connection is made north to Wilshire Boulevard to a new Metro Red Line Wilshire/Crenshaw Line Station, the cost per new rider is cut almost in half (\$34.70) as the significant increase in new riders begins to balance the substantial capital cost of this alternative.

In summary, the Metro Rapid Alternative was identified as the most cost-effective transportation improvement followed by the provision of the Crenshaw LRT Line with operation of service west on the Exposition right-of-way to its proposed terminus in the City of Santa Monica. This alternative attracts and serves the highest number of new riders among the alternatives. Overall, the BRT Alternative ranks third in the cost of serving new riders. The Base Crenshaw LRT Alternative would work on a cost-effectiveness basis only if considered as an initial phase of a future rail system serving the Corridor and Region.

6.5 Land Use and Economic Considerations

The Crenshaw-Prairie Community has expressed a strong desire to use any future transportation system investment as a catalyst for economic development and neighborhood revitalization. This section discusses the following transit-support land use and economic development considerations:

- Corridor economic development activities;
- Corridor and station/stop area transit-supportive land use patterns including existing and future residential and employment densities; and
- Existing transit-supportive policies, zoning regulations and implementation tools.

6.5.1 Background

The importance of linking economic development to future transportation system improvements in the Crenshaw-Prairie Corridor has been recognized from the initiation of Corridor planning activities. Spurred by the civil unrest in 1992, a commitment was made by MTA to work with the Study Corridor community to provide transit improvements to underserved areas, and to identify how to best use transit investment as a catalyst for future economic development in the Corridor. In 1993, a *Preliminary Planning Study* was undertaken by MTA for the Crenshaw-Prairie Corridor. Completed in October 1994, the study concluded that implementation of rail transit was viable in the Crenshaw-Prairie Corridor, and that it would represent not only a significant mobility improvement, but would also serve to focus other public and private economic investment efforts in the Corridor. In 1996, MTA initiated the next phase of the corridor transportation planning process – a Major Investment Study (MIS). Reflecting the uniqueness of the challenges posed by this Corridor, the MIS process was defined to integrate transportation, land use and economic development efforts.

The overall objective of the Crenshaw-Prairie Corridor MIS was to develop and assess a full range of transportation alternatives, within the context of being sensitive to community needs and concerns. Five local goals for the evaluation of future Corridor transportation improvements were identified through consultation with the Crenshaw-Prairie community, which included the following two land use and economic development-related goals:

1. Act as a catalyst for economic development in the Corridor.
2. Stimulate revitalization of neighborhoods around station sites.

6.5.2 Economic Development Activities

From an economic development perspective, the Crenshaw-Prairie Corridor represents a diverse area of tremendous opportunity *and* tremendous challenge. For while the Corridor contains many significant employment destinations, active retail centers and stable residential neighborhoods, it also faces many economic challenges. The Study Area includes some of the lowest income communities in the cities of Los Angeles, Hawthorne and Inglewood. In summary, the Crenshaw-Prairie Corridor faces the following economic challenges:

- Loss of employment opportunities,
- Leakage of retail activity; and
- Constrained ability to attract new retail and other development activity.

The above economic impacts have resulted in increased unemployment, reduced incomes and the related decline of some of the Corridor's residential neighborhoods. Current socioeconomic and market factors in the Crenshaw-Prairie Corridor suggest a Study Area-buying potential in excess of \$3.3 billion annually. However, much of that buying power is currently spent outside of the Corridor. This

“leakage” of retail expenditures to locations outside the Corridor suggests that the quality, quantity and/or range of retail purchasing opportunities in the Corridor are inadequate or not easily accessed by Corridor, as well as regional, shoppers.

Conversely, the Corridor offers significant potential economic opportunities for residents and employers. Expansion, revitalization and/or development plans are being prepared for many of the Corridor’s activity centers including LAX, Downtown Inglewood, El Segundo, Hollywood Park, the Forum (now owned by Faithful Central Bible Church), the West Angeles Church area, the Mid-Town Shopping Center, the Baldwin Hills/Crenshaw Plaza, the recently approved Marilton Square Project at the Santa Barbara Plaza, the Leimert Park area, and the Hawthorne Boulevard Specific Plan including the former Hawthorne Plaza.

The success of these projects, and the Corridor’s economic future, are strongly dependent on improved local and regional accessibility. Any transportation investment is viewed as not only improving Corridor mobility, but also as serving as a catalyst for public and private investment in the Corridor as demonstrated elsewhere in the region. An effective multi-modal transportation network within the Corridor is necessary to meet the future mobility needs of businesses and residents by providing vital intra- and inter-corridor linkages and services. All of the proposed alternatives would provide enhanced access to the Corridor’s many retail, entertainment and community-based activities for residents as well as non-Corridor residents.

6.5.3 Residential and Employment Densities

The Crenshaw-Prairie Corridor has significantly high levels of residential and employment densities that would be very supportive of any transportation system improvement.

Population

As shown below in Table 6.15, the Corridor’s population was projected to increase by about 47 percent to over 451,000 residents by Year 2025. The highest population growth was forecast to occur in the LAX subarea with a projected 56 percent increase. The Inglewood and Mid-City subareas are forecast to expand by more than 53 and 43 percent respectively. Residential population in the Crenshaw and Hawthorne subareas was projected to increase by 39 and 31 percent respectively.

Table 6.15: Current and Future Corridor Population

Subarea	Current Population (2000 Census)	Percentage of Corridor Population	Forecast Population (2025)	Percentage of Corridor Population	Forecast Percentage of Growth
Inglewood	93,000	30 %	142,000	31 %	53 %
Crenshaw	97,000	32 %	135,000	30 %	39 %
Mid-City	69,000	23 %	107,000	24 %	43 %
Hawthorne	32,000	10 %	42,000	9 %	31 %
LAX	16,000	5 %	25,000	6 %	56 %
Total	307,000	100 %	451,000	100 %	5

Current population densities within the Crenshaw-Prairie Corridor (14.76 persons per acre) are approximately four times the average of the County’s urbanized area (3.66 persons per acre). In the Mid-City subarea, the population density is 20.14 persons per acre, more than five times the average of the County’s urbanized area. The Inglewood subarea has both the highest population and the second highest population density in the Corridor with 15.65 persons per acre.

By 2025, Crenshaw-Prairie Corridor population density is expected to increase with an approximately 47 percent growth to the Corridor-average of 21.68 persons per acre, about eight times the projected 2.71 persons per acre in the County’s urbanized area. The Mid-City subarea was forecast to continue to be the densest portion of the Corridor with 31.23 persons per acre, more than eleven times the urbanized County’s density. The largest population density growth was projected to occur in the LAX subarea with a 56 percent increase. The Mid-City and Inglewood subareas were forecast to have a population density increase of 55 and 53 percent respectively. Both the Crenshaw and Hawthorne subareas were forecast to have an increase in population density between 2000 and 2025 of 39 and 31 percent respectively.

Table 6.16: Current and Future Population Densities

Subarea	Current Population Density (Persons per acre)	Forecast Population Density (Persons per acre)	Forecast Percentage Increase in Density
Los Angeles County*	3.66	2.71	- 26 %
Inglewood	15.65	23.90	53 %
Crenshaw	14.32	19.93	39 %
Mid-City	20.14	31.23	55 %
Hawthorne	14.11	18.52	31 %
LAX	6.68	10.44	56 %

* Average of County’s urbanized area.

Housing

Similar to the Corridor population densities discussed above, the residential densities are also significantly higher than the urbanized area of the County. The Mid-City subarea has the highest residential density with 7.3 dwelling units per acre, more than five times the average of the County’s urbanized area (1.3 dwelling units per acre). With its heavy concentration of industrial and transportation-related uses, the LAX subarea has the lowest residential density in the Corridor with only 2.5 dwelling units per acre. As shown below in Table 6.17, the residential densities of the Corridor’s other three subareas are all more than three times the average of the County’s urbanized area.

Table 6.17: Current and Future Residential Densities

Subarea	Current Residential Density (Persons per acre)	Forecast Residential Density (Persons per acre)	Forecast Percentage Increase in Density
Los Angeles County*	1.3	0.9	- 31 %
Inglewood	5.2	7.6	46 %
Crenshaw	5.9	7.1	20 %
Mid-City	7.3	9.3	27 %
Hawthorne	4.9	6.2	27 %
LAX	2.5	3.8	52 %

* Average of County’s urbanized area.

Reflecting the forecast population change, the greatest increase in residential density in the Corridor is projected to occur in the LAX subarea. By 2025, the residential density was forecast to grow from 2.5 to

3.8 dwelling units per acre (a 52 percent increase). Similarly, the residential density in the Inglewood subarea was projected to increase by 46 percent. The Hawthorne and Mid-City subareas were projected to have a similar percent increase in residential density between 2000 and 2025 of about 27 percent, while the Crenshaw subarea was forecast to have a 20 percent increase in residential density. However, at 9.3 dwelling units per acre, the Mid-City will continue to have a residential density more than ten times the urbanized County average. Though the LAX subarea was forecast to have a 52 percent increase in dwelling units, it will continue to have a significantly low residential density.

Employment

Employment densities within the Crenshaw-Prairie Corridor serve as indicators of the level of economic activity and strength within the Study Area, as well as its potential attractiveness as an employment destination and its future support for a high-capacity transit system. Based on the 2000 Census, there are approximately 6.15 employees per acre in the Corridor, which is over three times the urbanized Los Angeles County average of 1.58 employees per acre. The highest employment densities within the Corridor occur in the LAX and Hawthorne subareas with densities ranging from 8.38 to 17.2 employees per acre, more than five to ten times the urbanized County average. The Crenshaw subarea has the lowest employment density with approximately 3.4 employees per acre – still more than double the urbanized County average.

Reflecting current population densities, the LAX subarea has the highest number of jobs, followed by the Inglewood and Crenshaw subareas. Employment within the Corridor is expected to increase with a forecast 21 percent growth in jobs by the year 2025 as presented below in Table 6.18. All of the subareas, excluding LAX, will share in the job growth, but only Inglewood was projected to experience a significant expansion in the number of employment opportunities. The Inglewood subarea was forecast to have the most significant job growth with an increase in the current number of jobs by 86 percent. The Mid-City subarea was projected to second with a 29 percent expansion in the number of jobs, followed by the Crenshaw subarea with a 26 percent increase in employment opportunities. The Hawthorne subarea was forecast to have a minor increase of five percent in the number of jobs, while the LAX subarea is forecast to have a 22 percent decrease in employment opportunities.

Table 6.18: Current and Future Employment

Subarea	Current Employment (Number of jobs)	Forecast Employment (Number of jobs)	Forecast Percentage Increase in Employment
Inglewood	28,000	52,000	86 %
Crenshaw	23,000	29,000	26 %
Mid-City	17,000	22,000	29 %
Hawthorne	19,000	20,000	5 %
LAX	41,000	32,000	- 22 %

* Average of County’s urbanized area.

Corresponding to the Corridor’s projected employment growth, the future employee density (7.45 employees per acre) was forecast to be more than six times the estimated average density for the County’s urbanized area (1.16 employees per acre). The highest and most significant employment density increase was forecast to occur in the Inglewood subarea. These future job projections do not reflect any LAX Master Plan revisions as these recommendations are currently being revised. The number of employment opportunities in the LAX subarea may increase with adoption of the final plan. The Mid-City and Crenshaw subareas were also forecast to experience significant increases in employment density to

approximately 6.4 and 4.3 employees per acre and higher – more than triple the future urbanized County average.

6.5.4 Land Uses

The Crenshaw-Prairie Corridor has a unique combination of regional and local destinations along with a rich mix of single- and multi-family housing, some of which is eligible for historic designation. This dense mixed-use Study Area is home to a significant number of regional destinations including LAX and two entertainment venues – the Great Western Forum and Hollywood Park. It serves the local communities with civic centers located in Inglewood and Hawthorne, and a high number of shopping districts and centers including Koreatown, the Crenshaw District and Downtown Inglewood. The Corridor also has concentrations of office development along Wilshire Boulevard, in Downtown Inglewood and El Segundo adjacent to the Metro Green Line. The Corridor's land use patterns result in the high levels of residential and employment densities discussed above. A more detailed description of the land use patterns within each of the Corridor's seven major subareas is presented below.

- **Northern Area** – This portion of the Corridor extends south from Wilshire Boulevard to Olympic Boulevard. The Hancock Park residential neighborhood is located immediately north of Wilshire Boulevard. The Park Mile area along Wilshire Boulevard contains a mix of commercial uses including low- to mid-rise office and apartment buildings, cultural resources such as the Ebell Theater, and the historic Wilshire United Methodist Church. Two story multi-family residential and local community commercial uses are located along Crenshaw Boulevard between Wilshire and Olympic Boulevards. Koreatown-related retail uses occupy the intersection of Wilshire and Olympic Boulevard with the Koreatown shopping district extending east along Olympic Boulevard.
- **Mid-City Area** – This portion of the Corridor extends south from Olympic Boulevard to Adams Boulevard. This subarea is primarily single-family residential with some duplex development, and includes several historic neighborhoods including Country Club Park, Victoria Park, Lafayette Square and Longwood Heights. The Mid-City subarea contains the Mid-Town Shopping Center and local commercial uses along Pico Boulevard. New commercial development, including several big box uses, is planned adjacent to the Mid-Town Shopping Center located at Pico-San Vicente Boulevards. Craftsman-style housing lining Crenshaw Boulevard between Venice Boulevard and the I-10 Freeway is potentially eligible for historic district designation.
- **Crenshaw Area** – The next segment of the Corridor extends south between Adams Boulevard and Slauson Avenue. Major land uses in this subarea include the Baldwin Hills/Crenshaw Plaza Shopping Center, the Santa Barbara Plaza Shopping Center and the shopping activities of the Crenshaw District extending along Crenshaw Boulevard between Martin Luther King, Jr. Boulevard and Vernon Avenue. The Santa Barbara Plaza will be redeveloped as the recently approved mixed-use Marlton Square Project. This Corridor segment also contains the Leimert Park area, which in recent years has become a focal point of the African-American community in Los Angeles. In the Leimert Park area, Crenshaw Boulevard is lined with many restaurants, clubs and art galleries creating an active pedestrian environment. Stable residential neighborhoods are located behind both sides of the commercial uses along Crenshaw Boulevard. Further south on Crenshaw Boulevard is the Hyde Park business community, which is seeking to create a pedestrian-oriented environment for the revitalized retail and commercial businesses.
- **Inglewood Area** – The Inglewood portion of the Corridor extends south along Crenshaw Boulevard from Slauson Avenue to south of Manchester Boulevard. This subarea contains the Inglewood Civic Center and adjacent commercial uses, as well as the Forum, Hollywood Park,

the Daniel Freeman Memorial Hospital, the Centinela Hospital, Inglewood Park Cemetery and St. Mary's Academy. Downtown Inglewood houses the Civic Center area and a concentration of high-rise office buildings serving government uses. Retail uses are located along La Brea Avenue and the recently upgraded Market Street area. Prairie Avenue south of Century Boulevard is lined with a mix of residential, local retail uses and highway-oriented commercial development.

- **Hawthorne Area** – This segment of the Corridor extends south from Imperial Highway past the I-105/Century Freeway and Metro Green Line to Downtown Hawthorne. While this subarea is primarily residential, the Robert F. Kennedy Medical Center, Hawthorne Civic Center, the former Hawthorne Plaza (which is undergoing substantial redevelopment) and recent highway-oriented commercial retail development are located within the southern end of the Corridor. A specific plan process is being undertaken to redevelop Hawthorne Boulevard between the I-105 Freeway and Rosecrans Boulevard. In the final planning stage, the draft specific plan seeks to create a pedestrian-oriented, mixed-use destination area supportive of future transportation improvements.
- **LAX Area** – The LAX portion of the Corridor extends west of the I-405/San Diego Freeway to the extensive facilities of the Los Angeles World Airport. LAX is the primary commercial air transportation hub of the Los Angeles region and is the dominant U.S. international gateway to the Pacific Rim. In 2000, it was the third busiest airport in the United States in terms of aircraft operations and passengers, and the world's fourth most active in terms of passengers. LAX is also the second busiest cargo airport in the world handling more than two million tons of air cargo of which 40 percent is international.
- **El Segundo Area** – This portion of the Corridor extends south from LAX, Imperial Highway and the I-105/Century Freeway. The Metro Green Line bends south through this Study Area section, which is developed with hotels, office buildings and airfreight distribution-related businesses. New development providing a mix of retail, restaurant and office uses is occurring immediately south of the Study Area between Sepulveda and Aviation Boulevards.

Station Area Development

Proposed station/stop areas have been identified for the BRT and LRT alternatives as presented in *Section 2.0, Alternatives Considered* of this report. Many of these stations/stops will also accommodate Metro Rapid, local and community circulator services. The identified stations/stops have been located to best serve existing Corridor destinations and neighborhoods, while supporting revitalization efforts and future development plans. As discussed below, many of the local land use plans call for densification of land uses in the proposed stations/stops to accommodate forecast future housing and job growth, provide for community services and enhancements, and support utilization of future transit system improvements.

System-related property acquisition may offer joint development opportunities particularly in station areas. City plans support the active pursuit of joint development and other revitalization projects adjacent to the area's future transit stations as discussed below. Such development can strengthen the Corridor's neighborhoods by providing expanded and upgraded space for businesses as well as housing and community services, while strengthening system ridership. While some regions have had success with development associated with bus service, there are more demonstrated development results related to implementation of a light rail system.

6.5.6 Land Use and Development Plans and Policies

This section summarizes the existing transit-supportive policies, zoning regulations and implementation tools available to ensure the success of the regional transportation system through the development of

land use patterns that support transit ridership, and act as a catalyst for economic development and neighborhood revitalization.

The cities of Los Angeles, Inglewood, Hawthorne and El Segundo each encourage the development of transit through policies in their respective General Plans and designation of Redevelopment Areas within the Corridor boundaries. Common objectives include:

- Improving low income household accessibility to employment opportunities;
- Addressing retail services leakage;
- Serving Corridor activity centers; and
- Increasing economic activity.

Los Angeles

In cooperation with MTA, the City of Los Angeles has adopted a *Land Use-Transportation Policy* which is an integrated strategy addressing land use, transportation and air quality issues related to the development of the regional transportation system. The Policy is based on the unique opportunity created by the development of an integrated rail and bus transit system to address the challenge of providing for local growth, supporting economic vitality, improving local air quality, relieving traffic congestion and providing a full range of housing opportunities, while maintaining and improving the City's quality of life. The Policy seeks to guide future development around station areas through the identification of six station area prototypes reflective of varied land use characteristics and community visions of how transit should serve and fit within their neighborhoods. This document provides land use and design guidelines for station area development designed to accomplish the following major goals:

- Increase land use intensity in transit station areas.
- Accommodate mixed commercial and residential development
- Create a pedestrian-oriented environment in the context of an enhanced urban setting.
- Attract private investment and contribute to neighborhood revitalization.

The Policy identifies minimum and maximum levels of densities with the prototypes most applicable to the Crenshaw-Prairie Corridor providing for a minimum housing density ranging between 24 (Major Bus Center) to 40 (Rail station prototypes) dwelling units per acre, a maximum of 40 to 60 dwelling units per acre, with an average of 40 dwelling units preferred among all prototypes. The Policy provides for standard incentives including:

- Mixed-use development by right;
- Reduced parking requirements;
- Reduced permit processing fees; and
- Expedited environmental and permit processing.

Additional incentives, including floor area ratio (FAR) and density bonuses, are identified for pedestrian enhancement and community benefits. In many cases, the provisions of this policy have been incorporated into the City's General Plan update process through the designation of Transit Oriented Districts at existing and proposed station areas.

Additional support for transit-supportive development is provided by the Los Angeles General Plan Framework, which is intended to guide the City's long-range growth and development through the year 2010. The Framework allocates the majority of the City's future growth to areas within one-quarter mile of transit stations and corridors. Approximately two thirds of the City's overall growth through 2010 is intended to be comprised of intensification and reuse of areas within and adjacent to the City's existing

primary transportation corridors. Crenshaw Boulevard in particular is designated as a “High Capacity Transit Priority Corridor.”

The City is also divided into 35 community planning districts with adopted plans in place establishing land use designations, policies, and implementation programs. The community plans are the means by which the citywide policies are applied to specific proposals at the local level. Two community plans address the portion of the Study Area within the City of Los Angeles – the Wilshire and West Adams-Baldwin Hills-Leimert community plans.

The Wilshire Community Plan area, which is often called the Mid-City section, extends south from Melrose Avenue to Venice Boulevard. The Wilshire District Plan supports the implementation of mass-transit alternatives including expansion of Metro Rail and Rapid services.

The West Adams-Baldwin Hills-Leimert Community Plan area, located to the south of the Wilshire Area, is much more specific about its support for future transportation system improvements. This Plan calls for the provision of an expanded public transit system serving the community plan area, and identifies the importance of the future Crenshaw/Prairie and Exposition LRT Lines. Provision of high-capacity transit service is viewed as crucial to the mobility, revitalization and growth of the community. The Plan refers to the *Land Use-Transportation Policy* and identifies the need to “focus future growth around transit stations” through an increase in residential densities and the provision of mixed-use projects through incentives. Four Transit Oriented Districts (TODs) are identified within this community plan area:

- Crenshaw/Washington
- Crenshaw/Exposition
- Crenshaw Plaza/Leimert Park
- Slauson and Crenshaw.

The West Adams-Baldwin Hills-Leimert Community Plan supports the active pursuit of joint development and other revitalization projects adjacent to the area’s future transit stations. It recognizes that the existing development surrounding some of the proposed stations is less intense than that permitted by the Plan, and that future development of a high-capacity LRT system project could result in redevelopment to the higher densities permitted in the Plan.

Inglewood

The City of Inglewood acknowledges and supports ongoing study of the BRT and LRT options which would relieve traffic congestion and create linkages between the City and nearby activity and work centers, as well as LAX. The City has adopted a *Transit Corridor Land Use Policy*, and is developing a Smart Growth Planning Initiative Program. This planning effort is focused on business attraction retention and expansion strategies throughout the City including some areas that are located along the transportation corridors proposed by the MIS alternatives. Inglewood has an adopted Downtown Plan that recognizes the future transit station area at La Brea Avenue/the former BNSF Railroad right-of-way and seeks more intensive and varied land uses in the station area.

Hawthorne

The City of Hawthorne’s *General Plan Circulation Element* includes policies to encourage and stimulate the advancement of transit. The Element notes “an opportunity for increased use in public transportation through expansion of local and regional bus systems” and seeks to “exploit the opportunity that exists due to the location of the Century-El Segundo Light Rail Transit System.” Within the City of Hawthorne, Hawthorne Boulevard is being evaluated for future “build” transit improvements. The median of this street was formerly used for Red Car system operations. The City is in the final stage of preparing a

Specific Plan for this section of Hawthorne Boulevard. Future land use and transportation strategies are being developed to create a more pedestrian-friendly, mixed-use environment including concepts to reuse the median for future transit service. The resulting Specific Plan will be adopted by the City Council and implemented through the City's Redevelopment Agency.

El Segundo

The City of El Segundo's *General Plan Circulation Element* incorporates transit objectives and policies that are supportive of the goals of the proposed MIS alternatives. This policy seeks to ensure that "transit planning is considered and integrated into all related elements of city planning." Development in the City has been led by employment rather than population growth, with the City having a daytime employment population of approximately 80,000 compared with 16,000 residents. They have sought to increase employment-access via the Metro Green Line, and other transit services, through General Plan land use strategies such as designating parcels along the Metro Green Line and in station areas as Urban Mixed Use, which permits a mixture of higher density office, research and development, retail and hotel uses.

Redevelopment Plan Areas

A significant portion of the alignments of the proposed alternatives falls within redevelopment areas designated by the cities of Los Angeles, Inglewood and Hawthorne. The City of El Segundo does not have any designated redevelopment areas, relying more on the development agreement process to ensure their land use goals are met. Through the provisions of state redevelopment law, these areas provide financial incentives for development and in order to encourage the types of land use densities and patterns desired in the General Plans outlined above, namely high-density development that is oriented to major transit routes.

Within the Corridor Study Area, the City of Los Angeles has two designated redevelopment areas – the Crenshaw Redevelopment Project and the Crenshaw-Slauson Redevelopment Project. These projects are directed at eliminating blight and generating economic development and related employment. The City of Inglewood has six redevelopment project areas within the Study Area: In Town, La Cienega, Manchester-Prairie, North Inglewood Industrial Park, Century and Imperial-Pacific. Activities within these project areas are committed to the economic health of the business community and the stability of the City's neighborhoods. The City of Hawthorne has one redevelopment plan area within the Corridor Study Area located generally along Hawthorne Boulevard, which is focused on improving the retail and commercial viability and character of this portion of the City's "Main Street."

6.6 Public Support

The purpose of analytical factors included in this evaluation category is to identify the alternative, or phasing of alternatives, that has the highest level of support from the community, stakeholders and elected officials, as well as public plans and documents. Support for the alternatives evaluated in the Crenshaw-Prairie Study can be measured through comments received and actions undertaken in the following areas:

- Public plan and policy support at the local, countywide and regional level;
- Community and stakeholder support;
- Public support including elected officials; and
- Public agency support.

At this point in the process, the final MIS outreach has not been completed and public support for alternatives cannot be ascertained. The community, stakeholders, public agency staff members and elected officials are waiting for the detailed analytical information presented in this MIS document before

making a decision on the most effective transportation improvement strategy, or phasing of strategies, to the mobility problems identified in the Corridor in the context of local goals and objectives. Community and stakeholder support received during the Initial Screening efforts, as documented in *Section 7.0, Public Input* of this report, is summarized below. Alternative-specific support will be ascertained during the final MIS outreach efforts.

6.6.1 Public Plan and Policy Support

Support for future Crenshaw-Prairie Corridor transportation improvements has been documented in the adopted Regional Transportation Plan (RTP) and the Long Range Transportation Plan (LRTP). Future Corridor transportation projects are supported in various city documents within the cities of Los Angeles, Inglewood, Hawthorne and El Segundo.

The Southern California Association of Governments (SCAG) is the metropolitan planning organization for the six-county area that includes Los Angeles County. Under federal and state law, SCAG is required to prepare a long-range (20 year) Regional Transportation Plan (RTP) that is updated every three years. SCAG is also responsible for developing the associated Regional Transportation Improvement Program (RTIP), which is the list of approved and conforming transportation projects that implements the RTP. Updated by SCAG every three years, the *2001 Regional Transportation Plan* is the current operating plan, which was adopted by the SCAG Regional Council in April 2001. The Constrained Transit Project list reflected in the 2001 RTP included the following Crenshaw-Prairie Corridor projects:

- Metro Green Line extension north to Century and Sepulveda Boulevards;
- Metro Rapid lines on Crenshaw-Rossmore, Florence, Hawthorne, Century, Vernon-La Cienega and Venice-Pico; and
- Crenshaw Transit Corridor Project.

The Los Angeles County Metropolitan Transportation Authority (MTA) is the state-designated transportation planning and programming agency for Los Angeles County. The Long Range Transportation Plan (LRTP), a key element of MTA's planning process, identifies transportation needs for Los Angeles County over the next 20 years. Once adopted by the MTA Board, the LRTP is submitted to SCAG and incorporated into the RTP and RTIP. MTA Board support for the Study Corridor was provided with the adoption of the *2001 Long Range Transportation Plan* at the April 2001 MTA Board meeting. This update of the 1995 LRTP provided the Crenshaw Transit Corridor – from Wilshire and Crenshaw Boulevards to the Metro Green Line/Los Angeles World Airport – with \$346.1 million in future funding. In addition, the LRTP identified funding for 22 new Metro Rapid lines – several of which will serve the Study Corridor.

Future Crenshaw-Prairie Corridor transportation projects are supported by the City of Los Angeles in a variety of transportation and land use planning documents. The City's *Transportation Element* supports the enhancement of the region's transit system to compete effectively as an alternative to the automobile. It does so by identifying two categories of transit priority streets intended to encourage transit ridership. Within the City of Los Angeles, the following Corridor streets are designated as transit priority corridors:

- **High Capacity Transit Priority Corridors** – Crenshaw, Wilshire and Olympic Boulevards.
- **Transit Priority Streets** – Martin Luther King, Jr. Boulevard (east of Crenshaw Boulevard), Florence Avenue and Manchester Avenue.

Two community plans cover the portion of the Study Area within the City of Los Angeles – the Wilshire and West Adams-Baldwin Hills-Leimert community plans. The Wilshire Community Plan area supports the implementation of mass-transit alternatives including expansion of Metro Rail and Rapid services. The West Adams-Baldwin Hills-Leimert Community Plan area, located south of the Wilshire Area, is much more specific about its support of transportation improvements. This Plan calls for the provision

of an expanded public transit system serving the community plan area, and identifies the importance of the future Crenshaw/Prairie and Exposition LRT Lines. This Community Plan views the implementation of transportation improvements as crucial elements to the mobility, revitalization and growth of the community.

Also within the City of Los Angeles, the *Integrated Land Use and Transportation Plan*, adopted by the City of Los Angeles and MTA, seeks to concentrate mixed-use and higher-density development around transit stations to encourage public transit ridership and to create more efficient land use patterns. The policy is based on six station area prototypes reflective of varied land use characteristics and community visions of how transit should serve and fit within their neighborhoods.

The City of Inglewood acknowledges and supports ongoing study of the BRT and LRT options which would relieve traffic congestion and create linkages between the City and nearby activity and work centers, as well as LAX. The *Circulation Element* of the City's General Plan urges that the former Burlington Northern Santa Fe (BNSF) Railroad right-of-way now owned by MTA, which passes through the City, be considered for use in such plans. The City has adopted a *Transit Corridor Land Use Policy*.

The City of Hawthorne's *General Plan Circulation Element* includes policies to encourage and stimulate the advancement of transit. The Element notes "an opportunity for increased use in public transportation through expansion of local and regional bus systems" and seeks to "exploit the opportunity that exists due to the location of the Century-El Segundo Light Rail Transit System."

The City of El Segundo's General Plan seeks to ensure that "transit planning is considered and integrated into all related elements of city planning," and directs City staff and elected official to "work closely with public agencies and private businesses to expand and improve public transit service." The General Plan identifies land use strategies to focus higher density development in existing Metro Green Line station areas.

6.6.2 Community and Stakeholder Support

The following overview of public comments received regarding the alternatives is summarized from *Section 7.0, Public Input* of this report. Public comments were received and documented over the course of 18 months at various community, interagency and stakeholder meetings and work sessions.

During the Initial Screening efforts, strong public support and desire for Corridor transportation improvements was voiced. The communities in the Crenshaw-Prairie Corridor have been patiently waiting for their needs to be addressed. They have endured the growing gridlock on their streets and participated in many studies that have resulted in no improvements. There was a sense of hope – that the waiting was over and that the MIS process would result in implementable projects that would benefit the entire Study Corridor.

Community and stakeholder feedback was received through public meetings, personal contacts with individual stakeholders, calls to the project hot line, completion of surveys and letters written by stakeholder groups. The following is a summary of the public comments received regarding the transit alternatives:

- *Improve local bus service* – This option regularly ranked last with the public and stakeholders. Although the option to improve local bus service was seen as vital for quality of life improvements within the Corridor communities, with respect to this study, the community felt that there is an opportunity to have greater impact with one of the other transit alternatives. The general sense was that bus improvements should happen irrespective of a Crenshaw-Prairie transit project. If anything, local bus service improvements were viewed as enhancing and

complementing a newly adopted high-capacity project by providing feeder service and increased service coverage.

- *Implement Metro Rapid service* – Implementation of Metro Rapid service was positively received by the Corridor communities. Many community members made supportive comments about the existing Metro Rapid service, and were in favor of seeing this system expanded within the Study Corridor. This alternative consistently ranked very high and received many first place rankings from the community; and overall it was ranked second among the modal alternatives presented.
- *Construct and Operate a Bus Rapid Transit system* – During initial outreach efforts, the Bus Rapid Transit (BRT) Alternative was consistently ranked third, behind the Light Rail Transit and Metro Rapid service options by the public. The BRT Option was the most difficult for people to comprehend due to a lack of personal experience with this type of system. This was not a popular option when compared to a light rail system due to a perception of slower service, less system capacity and not as direct connections to the regional transit system .
- *Construct and operate a Light Rail Transit system* – The Light Rail Transit (LRT) system alternative was consistently ranked first or second by most individuals, and overall was the most popular option. Community members generally favored this system because of the perception of high service frequency, speed and reliability. Another major supporting factor was the ability of this option to provide a direct rail connection with the regional rail system including the Metro Red Line, the future Exposition LRT Line and the Metro Green Line, thereby providing the best alternative for regional connectivity.

Community concerns expressed regarding the BRT and LRT alternatives included: traffic and parking impacts, potential property takes, construction impacts, safety concerns, increased noise during operations, and high capital cost to build. The public expressed the strong opinion that these impacts should be addressed with a strong and comprehensive mitigation program developed in consultation with the community and impacted stakeholders.

6.7 Other Factors

Development of an effective multi-modal transportation network serving the Crenshaw-Prairie Corridor is necessary to meet the future mobility needs of residents and businesses by providing vital intra- and inter-corridor linkages and services. By the year 2025, the magnitude and nature of the Corridor's population, employment and transit dependency growth trends are projected to result in continuing transportation challenges in the Corridor. All of the analysis conducted for the Crenshaw-Prairie Corridor, including the *Crenshaw-Prairie Preliminary Planning Study* (MTA, 1994) and the *Crenshaw-Prairie Corridor Route Refinement Study* (MTA, 2000), as well as *Section 1.0, Purpose and Need* of this document, strongly indicate that the Study Area warrants a significant investment for transit system improvements, as supported by the following key facts:

- **The Need for Transit Improvements Has Been Established in Previous Studies.**

Over the past 35 years, the need for transportation improvements in the Crenshaw-Prairie Corridor has been established through a series of transportation plans and studies undertaken by the MTA and its predecessor agencies – the Southern California Rapid Transit District (SCRTD) and the Los Angeles County Transportation Commission (LACTC). Starting in 1967, the Crenshaw Corridor was included in the region's first rail system plan. In 1993, a *Preliminary Planning Study* was undertaken by MTA for the Crenshaw-Prairie Corridor that clearly identified the need for Corridor high-capacity transit system improvements. Completed in October 1994, the *Preliminary Planning Study* identified two viable transit service corridors with related modal

options to be studied further. In 1996, MTA initiated the next phase of the corridor transportation planning process – a Crenshaw-Prairie Corridor Major Investment Study (MIS). In November 1997, changing MTA priorities called for the reconsideration of future transportation improvements not already under construction, and a decision was made by MTA staff to defer completion of the MIS process and to instead prepare a Route Refinement Study (RRS) that would have a longer shelf life. The *Final Crenshaw-Prairie Corridor Route Refinement Study Report*, completed in December 2000, identified the need for and proposed a set of viable Final Study Set of Transportation Strategy Alternatives for the Corridor.

- **There is a Significant Transit Dependent Population in the Study Area.**

More than 49 percent of all Corridor households are designated as low income, with 56 percent identified as low income the Crenshaw subarea. A Corridor-wide average of 16 percent of all households does not have access to an automobile compared to eight percent in the County's urbanized area, with 19 percent having no auto access in the Crenshaw subarea. Forecasts show a growing transit-dependent population with a projected 55 percent increase in Corridor residents reliant on the Study Area's transit system.

- **There is a High Level of Transit Usage in the Study Area.**

The identified demographic indicators contribute to higher than average transit usage in the Crenshaw-Prairie Corridor. Currently, the County's urbanized area transit mode split is eight percent compared to 16 percent in the northern half of the Corridor and 11 percent in the southern portion. By the year 2015, estimates project a transit mode split increase to 27 percent in the northern portion of the Corridor – more than double the expected increase in the County's urbanized area to 11 percent. The transit mode split in the southern portion of the Corridor is forecast to increase to 16 percent – more than 50 percent higher than the countywide average.

- **The Current Corridor Transit System is Operating At-Capacity and with Slowing Speeds.**

Due to the Corridor's higher than average transit ridership – approximately double the mode split of the County's urbanized area – many of the buses serving the Crenshaw-Prairie Corridor are operating at- or over- capacity. Operating beyond capacity results in overcrowding, rider pass-bys and loading delays, which create uneven headways and related schedule adherence problems. Bus service in the Crenshaw Corridor currently operates at 12.5 mph; MTA projections show an average system-wide bus speed of 10 mph in the year 2015.

- **There is a Demonstrated Need for Increased Corridor Transportation System Capacity.**

The MIS identified an increasing number of future trips with a forecast of more than 350,000 additional daily trips that will occur in the Corridor in the year 2015. Currently, 78 percent of the Corridor's freeway system operates at or below Level of Service (LOS) F during the morning peak period, with 92 percent of the system operating at or below LOS F in the evening peak period. During both peak periods, current travel demand exceeds the Corridor's arterial system capacity resulting in significant congestion and delay. Bus service in the Corridor is operating at- or over-capacity, and future projections show a significant increase in transit demand (55 percent) by the year 2015. The Corridor's congested freeway and arterial street system, as well as the heavily-utilized bus system, offer no additional capacity to accommodate the projected 19 percent increase in daily trips.

- **Corridor Residents Have Limited Travel Options.**

The ability to move quickly and efficiently in the Crenshaw-Prairie Corridor can also be expressed in terms of transportation system choice. Currently, Corridor travelers have a limited choice in travel options – auto or bus transit – circulating on the same congested street system. Existing operational issues make bus usage by transit dependent riders daunting, and make utilization undesirable to non-transit dependent residents or choice riders. A multi-modal Corridor strategy would provide all local residents – not just the transit dependent – with more travel options.

- **The Corridor Has Weak Connections with the Regional Transportation System.**

The Study Area currently has weak connections to the regional transportation system, and there is no north-south high-capacity transportation connection within the Corridor. This lack of transit infrastructure limits mobility and transportation choices. The Corridor's only available transit service – bus transit – is constrained in effectiveness and patron convenience by vehicular congestion. The lack of regional transportation system links will become more detrimental to future Corridor travel and economic development as Corridor population and employment continue to grow.

In addition, the Crenshaw-Prairie Corridor transportation improvement has the opportunity to play an important role in the regional transportation system by providing a missing service link. Currently, there is no north-south high-capacity connection west of Downtown Los Angeles and the I-110 Freeway – other than the I-405 Freeway which serves only a corner of the Study Area. In the regional rail system, the Metro Blue Line is the only north-south connection in a growing network of east-west rail lines. A rail system connection operating on Crenshaw Boulevard would provide a much-needed second north-south link enhancing regional and Corridor connectivity, and lessening the system operational impacts on the capacity at 7th/Metro Center.

- **The Crenshaw-Prairie Corridor Houses a Major Set of Activity Centers and Destinations.**

The Crenshaw-Prairie Corridor, covering portions of four cities (Los Angeles, Inglewood, Hawthorne and El Segundo), has a unique combination of regional and local destinations along with a rich mix of single- and multi-family housing. This dense mixed-use Study Area is home to a significant number of regional destinations including LAX and two entertainment venues – the Great Western Forum and Hollywood Park. It serves Corridor communities with civic centers located in Inglewood and Hawthorne, and a high number of shopping districts and centers including Koreatown, the Crenshaw District and Downtown Inglewood. The Corridor also has concentrations of office development along Wilshire Boulevard, in Downtown Inglewood and El Segundo adjacent to the Metro Green Line.

- **Existing High Study Area Population and Employment Densities Support Transit.**

The Corridor's land use patterns result in high levels of residential and employment densities that are supportive of transit service. Current population densities within the Crenshaw-Prairie Corridor are approximately four times the average of the County's urbanized area. In the Mid-City subarea, the population density is more than five times the County's average.

Similar to the Corridor population densities discussed above, the residential densities are also significantly higher than the urbanized area of the County. The Mid-City subarea has the highest residential density with more than five times the dwelling units per acre than the average of the County's urbanized area.

Employment densities within the Crenshaw-Prairie Corridor serve as indicators of the level of economic activity and strength within the Study Area, as well as its potential attractiveness as an employment destination and its future support for a high-capacity transit system. Based on the 2000 Census, the Corridor's employment density is over three times the urbanized Los Angeles County average. The highest employment densities within the Corridor occur in the LAX and Hawthorne subareas with densities ranging from more than five to ten times the County average.

- **The Study Area is Forecast to Continue to Capture a Large Share of Regional Population and Employment Growth.**

By 2025, Crenshaw-Prairie Corridor population density is expected to increase with an approximately 47 percent growth to a Corridor-average that is approximately eight times the projection for the County's urbanized area. The Mid-City subarea was forecast to continue to be the densest portion of the Corridor with a population density of more than eleven times the urbanized County's density.

Reflecting the forecast population change, the residential density was forecast to increase by 52 percent by year 2025. The Mid-City will continue to have a residential density more than ten times the urbanized County average. Though the LAX subarea was forecast to have a 52 percent increase in dwelling units, it will continue to have a significantly low residential density.

Employment within the Corridor is expected to increase with a forecast 21 percent growth in jobs by the year 2025. All of the subareas, excluding LAX, will share in the job growth, with the Inglewood subarea forecast to have the most significant job growth with an increase in the current number of jobs by 86 percent. The Mid-City subarea was projected to be second with a 29 percent expansion in the number of jobs, followed by the Crenshaw subarea with a 26 percent increase in employment opportunities.

Corresponding to the Corridor's projected employment growth, the future employee density was forecast to be more than six times the estimated average density for the County's urbanized area. The highest and most significant employment density increase was forecast to occur in the Inglewood subarea. These future job projections do not reflect any LAX Master Plan revisions as these recommendations are currently being revised. The number of employment opportunities in the LAX subarea may increase with adoption of the final plan. The Mid-City and Crenshaw subareas were also forecast to experience significant increases in employment density to more than triple the future urbanized County average.

- **The Region and the Corridor Have Continuing Air Quality Concerns**

The Corridor is located within the South Coast Air Basin – the airshed with the worst air quality in the nation. Mobile source emissions from vehicles are the single largest contributor to air quality problems in the basin. There is a demonstrated need to increase Crenshaw-Prairie Corridor transportation capacity to serve the forecast trip growth without increasing mobile source ozone emissions in this nonattainment area. Annual regional vehicle miles traveled (VMT) would decrease with implementation of both the BRT and LRT alternatives.

**Crenshaw-Prairie Corridor
Major Investment Study**

7.0 PUBLIC INPUT

7.0 PUBLIC INPUT

The public comment outreach effort has been integral in shaping the Crenshaw-Prairie Corridor MIS process and results. Public comments were received and documented over the course of 18 months at various community, interagency and stakeholder meetings and work sessions. Public comment has been continuously integrated into the MIS process, and has shaped and guided the direction of this project. This section summarizes the consultation approaches, activities and outcomes of the MIS outreach effort.

7.1 Participation Strategies Employed

Prior to initiation of outreach efforts, two documents were prepared to focus and define the public participation efforts for the Crenshaw-Prairie Corridor MIS: the *Cultural Assessment Report* and *Public Participation Plan*. The purpose of the *Cultural Assessment Report* was to provide both an overview of the social communities affected by the proposed transit improvements to be studied in the MIS, and a catalogue of community interests and cultural resources. The report provided a profile for each Corridor community that included the following information:

- Neighborhood and cultural characteristics;
- Neighborhood history;
- Demographic and population trends;
- Future outlook – opportunities and aspirations;
- Primary resources; and
- Landmarks.

The *Cultural Assessment Report* contained a synthesis of information gathered from four types of sources: existing documentation; anecdotal information obtained through surveys and interviews; personal experience and knowledge of the Corridor Study Team; and windshield surveys. Key findings from this effort include the following:

- The communities in this Corridor have been patiently waiting for their needs to be addressed. They have witnessed the reduction or elimination of MTA projects over the years, and endured the growing gridlock on their streets. There was a sense of hope – that the waiting was over and that the MIS process would bring tangible results which would benefit the entire Study Corridor.
- Throughout the years, but particularly since 1992, the Crenshaw community has been constantly studied by governmental entities and foundations, and through private sector initiatives. Unfortunately, there have been few if any implemented projects and initiatives that have resulted from the many studies. Consequently, many residents want action instead of more studies.
- With regard to transit, most people agreed that linkages to the regional transit system and improvements to bus service and local circulators would help Corridor residents travel to employment and activity centers both in and beyond the Study Area. Destinations mentioned included Downtown Los Angeles, Hollywood, Long Beach, South Bay and LAX.
- Many residents mentioned that any transportation solution must be suitable for the local communities and serve their vital transit needs including convenience, affordability and reliability.

- Public transit dependent residents were interested in an immediate increase in the frequency of MTA and DASH services. They requested improved safety measures on buses, cleaner buses and additional Metro Rapid, DASH and MTA bus routes.
- Area residents were very interested in the proposed Crenshaw-Prairie Transit Line, but were concerned about crime prevention, safety measures and aesthetic issues. The most frequently asked questions were “Will it be safe?” and “What will it look like?”
- In Inglewood, people felt that rail transit could blend well with plans for redevelopment of Downtown and Prairie Avenue, and provide regional connections to other rail lines.
- In several communities, transit improvements were viewed as positive for revitalization efforts by providing more “foot traffic.” Transit was also viewed as providing the increased capability of bringing people into the Study Area for special events.
- The Corridor is experiencing changing demographics with Latinos now the fastest growing segment of the Corridor’s ethnic population. Many are employed at LAX and surrounding hotels and identified the need for better, more reliable bus and/or rail service.

Based on community research conducted for the *Cultural Assessment Report*, a *Public Participation Plan* was developed to provide a specific program strategy and schedule for integrating public input with the study milestones, products and decisions. In order to maximize community participation, the outreach program followed two goals:

- All public contact was designed to “leave the participants with something,” i.e., functional information, ideas, workable initiatives and information on current and future transit projects.
- All public contact stressed the need for citizen cooperation, and the need for advocacy measures to ensure project implementation.

The Crenshaw-Prairie Corridor message was that the process was “more than a study.” The MIS was an opportunity to: 1) learn about transit issues; 2) influence area economic development efforts; 3) determine transit alternatives; and 4) increase transit area services. The Corridor Study Team focused the process to assist the community to determine, define and create viable transit improvements in their community.

Numerous participation strategies were utilized to provide project information to communities within the Corridor Study Area, and to maximize public participation and input. Specifically, the following participation strategies were employed:

- ***Elected Official Briefings*** – Briefings were held with the Mayor of Inglewood and Transportation Deputy for the Mayor of Los Angeles. These briefings were intended to solicit their input both on the definition of the alternatives to be studied and on how best to do outreach within their communities.
- ***City Staff Meetings/Work Sessions*** – Briefings/work sessions were held with staff from the cities of El Segundo, Hawthorne, Inglewood and El Segundo. The purpose of these meetings was to inform city staff about the MIS process and schedule and to solicit their input on the alternatives under consideration. Alternatives were reviewed by affected agencies to ensure that all applicable public goals, plans and concerns were reflected in the MIS process and options.

- **Interagency Task Force Meetings** – Interagency Task Force (ITF) meetings were held in order to brief government officials, including elected representatives, city officials from Los Angeles, Hawthorne, Inglewood and El Segundo as well as transportation and other relevant public works representatives. The purpose of these meetings was to present the project work, including the transit alternatives being shown to the public for comment, and to coordinate and share relevant information on a potential future transit project in the Crenshaw-Prairie Corridor.
- **Community Briefings** – Briefings were held in neighborhoods throughout the Corridor. Attendees were presented with information about the initial set of alternatives and encouraged to evaluate each alternative by discussing the possible benefits and drawbacks of each option. A survey form was used to record individual and group preferences.
- **Business-Stakeholder Meetings** – These outreach efforts were targeted meetings with business and stakeholder groups. Meeting presentations were made by the Study Team and input was solicited through discussion and survey forms. These meetings targeted active stakeholders in the community and supplemented the general neighborhood meetings.
- **Neighborhood Meetings** – The neighborhood meetings were open public meetings that were held in the three sections of the Corridor – the Mid-City area in the northern portion, Crenshaw in the central section and Inglewood in the southern segment. Invitations were mailed out using the MTA database and a supporting effort was made to reach out to key stakeholders, elected official and relevant neighborhood groups to encourage participation.

A Crenshaw-Prairie MIS Public Participation Meeting Matrix was prepared and updated weekly in order to document meeting dates, the organization or group, and the type of meeting. The most recent version of this matrix is included at the end of this report section.

The following participation tools were employed in the Crenshaw-Prairie Corridor MIS process:

- **Fact Sheet** – A bi-lingual fact sheet (English/Korean) was developed to outline the transit alternatives and set the framework for the public discussion. These were distributed at all briefings, meetings and work sessions.
- **Project Literature** – A “Get Connected” informational piece was developed to supplement the original fact sheet. The “Get Connected” piece provided photos and descriptions of the transit alternatives as well as key Corridor destinations.
- **Survey Form** – A project survey was developed and used at the work sessions and briefings. The survey asked for participants to rank and comment on the set of alternatives, and to highlight the benefits and drawbacks of each alternative presented using different criteria.
- **Project Information Line** – A project information line was established to receive and respond to public inquiries regarding the project (213/922-5222).
- **Web Site** – A web site with up-to-date information was designed so individuals could log on and view project information, the calendar of upcoming events and submit questions and comments on-line (www.mta.net under “Transit Corridor Studies”).
- **Database** – A MTA project database was developed of Study Corridor individuals and organizations affected by any future transit project. It was utilized to communicate with key

individual stakeholders with meeting and project information. The database was updated as new participants attended meetings and completed surveys.

- **Meeting Notices** – Using the MTA project database, more than 20,000 postcards were mailed out with the dates and locations of the neighborhood meetings.
- **Get Connected Newsletter** – The project newsletter was distributed to the public in March 2002. It summarized the MIS efforts-to-date and provided information on the Final Set of Alternatives and upcoming public opportunities for further input.

7.1.1 Initial Screening

The screening of the Initial Set of Alternatives was based on public and stakeholder input along with an initial technical assessment. The possible options were presented in a series of outreach efforts to refine details of the options, to check the public acceptability of the options, and to ensure that all transportation options are identified. Alternatives were reviewed by affected city agencies to ensure that all applicable public goals, plans and concerns are reflected. The following modal alternatives were presented for review and comment during initial screening:

- Improve local bus service.
- Implement Metro Rapid service.
- Construct and operate a Bus Rapid Transit system.
- Construct and operate a Light Rail Transit system.

Public outreach efforts included more than 20 briefings, meetings and work sessions. Three community workshops were held in the northern, central and southern portions of the Study Area. Briefings were conducted with the Mayor of Inglewood and the Transportation Deputy for the Mayor of Los Angeles. Work sessions were held with staff from the cities of El Segundo, Hawthorne, Inglewood and Los Angeles. An Interagency Task Force, comprised of elected official and agency representatives, was formed and provided input to the process at three meetings. More than 12 presentations were made to stakeholder and business groups including the Crenshaw Redevelopment Area Citizens Advisory Committee, the Korean Chamber of Commerce, the Hyde Park Business Advisory Group, the Inglewood Partners for Progress, the Transportation Oversight Committee of the South Bay Council of Governments and the El Segundo Employers Association.

7.1.2 MIS Review Efforts

The technical analytical results and preliminary recommendations were presented for public and stakeholder input. Public outreach efforts included nine briefings, meetings and work sessions. Three community workshops were held in the northern, central and southern portions of the Study Area. A briefing was conducted with the City of Los Angeles Department of Transportation to present and discuss the parking and traffic capacity impacts identified in the study process. The study results were presented for discussion at a meeting of the Interagency Task Force comprised of elected official and agency representatives. Four presentations were made to stakeholder and business groups including the Crenshaw Redevelopment Area Citizens Advisory Committee, the Inglewood Partners for Progress, the Hyde Park Business Advisory Group and the Hyde Park Organizational Partnership for Empowerment. A summary of the meetings is provided in a chart at the end of this document section.

7.2 Summary of Public Comments

Public comments were received at community, business-stakeholder and interagency task force meetings. Comments were documented through written summaries of the meetings, public comment sheets and project surveys.

7.2.1 Comments Received During Initial Screening

A key initial concern was the public perception that this was yet another study of the Crenshaw-Prairie Corridor and would not result in a tangible transportation project. The MTA-consultant team responded by developing informational pieces such as fact sheets and surveys, setting up a hot line, and making numerous presentations to key stakeholders and community groups to explain the status and viability of the project and the relevance of the MIS process. Once the initial concerns were addressed, there was new level of awareness and increased interest in participating in the MIS process.

There were also major concerns initially about the project dollars not being available until 2019, which appeared to diminish public optimism about the viability of this project. The Team responded by working with the public and identifying present day concerns about public transit and immediate needs for the Corridor. During the later stages of public outreach phase, the Team was able to present MTA's planned Metro Rapid service for the Corridor that would be implemented over the next two to six years (2003-2006). The proposed Metro Rapid service corridors were presented to the public and were met with enthusiasm and strong support.

Language concerns over information dissemination in Koreatown were important, as Koreatown is the northern segment of the Crenshaw-Prairie Corridor extending to the existing Metro Red Line terminus at Wilshire/Western Boulevards. The fact sheet was translated into Korean and input was solicited from this community. The Team made several presentations to individual stakeholders and held a work session with the Korean Chamber of Commerce, one of the most respected and prominent groups in Koreatown.

Public meetings were held throughout the Study Corridor from July through October 2001. Feedback was received through public comment at these meetings, personal contacts with individual stakeholders, calls to the hot line, completion of surveys and letters written by stakeholder groups. The following is a summary of the public comments received regarding the transit alternatives presented to the public during initial screening:

- **Improve local bus service.**

This option regularly ranked last among workshop participants. Although the option to improve local bus service is seen as vital for quality of life improvements within the Corridor communities, with respect to this study, the community felt that there is an opportunity to have greater impact with one of the other transit alternatives. The general sense was that bus improvements should happen irrespective of a Crenshaw-Prairie transit project. If anything, local bus service improvements were viewed as enhancing and complimenting a newly adopted high-capacity project by providing feeder service and increased service coverage.

There was some support for improving local services, but overall it ranked last among the four modal options. Some of the individuals who favored this alternative were critical of existing bus service. Their comments included: the need for more reliable and frequent service while addressing overcrowding issues.

- **Implement Metro Rapid service.**

It was clear that implementing Metro Rapid service made a positive impact in the Corridor communities. Many community members made supportive comments about the existing Metro Rapid service, and were in favor of seeing this system expanded within the Study Corridor. This alternative consistently ranked very high in the surveys and received many first place rankings from participants. Overall it was ranked second among the modal alternatives presented.

- **Construct and Operate a Bus Rapid Transit system.**

The Bus Rapid Transit (BRT) alternative consistently ranked third, behind the Light Rail Transit and Metro Rapid service options. The BRT system was the most difficult for people to comprehend due to a lack of personal experience with this type of system. The Study Team provided explanations and photos of existing and proposed BRT systems, but generally this was not a popular option. Concerns with the BRT option included: traffic and parking impacts, potential property takes, construction impacts, and capital and operating costs.

- **Construct and operate a Light Rail Transit system.**

The Light Rail Transit (LRT) system alternative was consistently ranked first or second by most individuals, and overall was the most popular option. Community members generally favored this system because of service frequency, speed and reliability. Another major factor was the ability to have a direct rail connection with the regional rail system including the Metro Red Line, the future Exposition LRT Line and the Metro Green Line, thereby providing the best alternative for regional connectivity. Other positive comments received were that the rail system virtually cuts emissions and can operate at reduced costs when compared to a bus system. Concerns included: traffic and parking impacts, potential property takes, construction impacts, safety concerns, increased noise during operations, and the higher cost to build. The public felt strongly that these impacts should be addressed with a strong and comprehensive mitigation program developed in consultation with the public.

7.2.2 Comments Received During Final MIS Outreach Efforts

Public meetings were held throughout the Study Corridor from October 2002 through January 2003. Feedback was received through public comment at these meetings, personal contacts with individual stakeholders, completion of surveys and letters written by stakeholder groups. The following is a summary of the public comments received regarding the transit alternatives presented to the public during the final MIS outreach efforts:

- **Improve local bus service.**

The community continued to feel that bus improvements should happen irrespective of a Crenshaw-Prairie transit project. Several comments were received that MTA should more actively involve community transit riders in on-going bus service planning efforts. Community members expressed concerns about: the infrequent service on some lines, the removal of limited stop service along several Corridor routes and the high number of bus system transfers required to access key destinations.

- **Implement Metro Rapid service.**

Community and stakeholder group members were supportive and excited about the scheduled introduction of Metro Rapid service in the Corridor, particularly the Crenshaw Metro Rapid service starting mid-2003. Strong support was voiced for the two lines not included in the adopted MTA *Metro Rapid Five-Year Implementation Plan* – the Wilshire/Western/Crenshaw/LAX and Century Boulevard lines. There was discussion regarding why the funded Crenshaw Line did not start from the Metro Red Line Wilshire/Western Station, which was viewed as preferred destination for Corridor residents. Participants at meetings in the southern section of the Study Area voiced support for the Century Line, which they saw as better serving the significant number of area residents who worked at the hotels and service businesses in the airport area. Stakeholder groups voiced the concern that streetscape improvements be implemented concurrently with service start-up along the Metro Rapid routes to support transit usage and to create visible “transit corridors.”

- **Construct and Operate a Bus Rapid Transit or Light Rail Transit system.**

The Bus Rapid Transit (BRT) and Light Rail Transit (LRT) alternatives were presented as viable future, high-capacity system options worthy of further study. An overview of the MIS initial level findings regarding cost, possible ridership and traffic and parking impacts was presented with the caveat that more study was required to quantify the future impacts. Given the state and federal funding situation, along with the local positioning of the Corridor funding in 2019, Corridor residents were supportive of and understood the need for a phased implementation strategy. There was strong support for the immediate implementation for Metro Rapid service *with* the MTA commitment to continue study of future system capacity improvements. There was preliminary support for the proposed next phase – of operating Metro Rapid service in peak period-only dedicated lanes. Community business leaders wanted more specific information on the possible operation hours and areas of impact as this service phase moved forward towards implementation. Many community members and stakeholders were unclear on or did not support the concept of a BRT system transitioning to an LRT system. There was a concern that this idea was a possible double expenditure of limited funds and why not build for the future from the start. Discussion focused on improving the Metro Rapid system to approximate a BRT system (without the dedicated lane), and moving forward on planning a LRT system. There was a concern that if the community received an enhanced Metro Rapid system that the region would walk away from considering future high-capacity system improvement for the Crenshaw-Prairie Corridor. The proposed recommendation of retaining the MTA Long Range Transportation Plan commitment to the Corridor does address their concerns.

**CRENSHAW-PRAIRIE CORRIDOR MIS
Table 7.1: Meeting Schedule**

Date	Time	Contact and Organization Name	Location	Type of Meeting	Segment	Part. ¹	Meeting Purpose
January 2003							
Jan 9	7 PM	Crenshaw CRA Community Advisory Committee Al Jenkins 323-290-2800	Crenshaw DWP Auditorium 4030 Crenshaw Boulevard Los Angeles, CA 90008	Bus./Stake./ Neighborhood CRA CAC Monthly Meeting	Crenshaw	RAW	MIS technical results, draft study recommendations
December 2002							
Dec 3	10:00-11:30 AM	LADOT Susan Bok 213-580-5425	MTA	Public Agency Briefing	Corridor-wide	MTA Korve RAW	MIS technical results, draft study recommendations
Dec 4	10-12 Noon	Interagency Task Force Meeting	MTA Palos Verdes Conference Room (19 th Floor)	Agency Task Force	Corridor-wide	MTA Korve RAW TSG	MIS technical results, draft study recommendations
Dec 5	9 AM	Inglewood Partners for Progress	Inglewood Park Cemetery	Business/ Stakeholder	Inglewood	MTA RAW	MIS technical results, draft study recommendations
Dec 5	7 PM	Hyde Park Organizational Partnership for Empowerment Helen Coleman 323-750-9842	Hyde Park Elementary School Corner of Hyde Park Bl & 8 th Avenue	Community Meeting	Crenshaw	MTA RAW TSG	MIS technical results
Dec 9	6-8 PM	Hollywood Park	Pavilion Conference & Entertainment Center Breeders Cup Room 3833 Century Blvd. Inglewood 90305	Community Workshop	Inglewood	MTA RAW TSG	Presentation MIS results; input from community
Dec 11	6-8 PM	Crenshaw Plaza Kathryn Alred 323 (290-6636)	Community Room	Community Workshop	Crenshaw	MTA RAW TSG	Presentation of MIS results; input from community

Date	Time	Contact and Organization Name	Location	Type of Meeting	Segment	Part. ¹	Meeting Purpose
December 2002 (continued)							
Dec 16	6-8 PM	Wilshire United Methodist Lori Jones (818) 845-4048	Hall of Fellowship 4350 Wilshire Boulevard Los Angeles, CA 90010 (323) 931-1085	Community Workshop	Northern Mid-City	MTA RAW TSG	Presentation of MIS results; input from community
October 2002							
Oct 9	7 PM	Hyde-Park Crenshaw Merchants' Association Lee Turner 323-298-7115	U.S. Bank 5760 Crenshaw Blvd.	Business/Stakeholder	Crenshaw	RAW	Update on MIS process
June 2002							
Jun 12	2 PM	Hyde Park Business Advisory Group Dwayne Wyatt 213-978-1200	U.S. Bank 5760 Crenshaw Blvd.	Business/Stakeholder	Crenshaw	MTA RAW	Update on MIS process
Jun 13	7 PM	Crenshaw CRA Community Advisory Committee Al Jenkins 323-290-2800	Crenshaw DWP Auditorium 4030 Crenshaw Boulevard Los Angeles, CA 90008	Bus./Stake./Neighborhood CRA CAC Monthly Mtg	Crenshaw	RAW	Update on MIS process
March 2002							
Mar 19	6:30 PM	City of Hawthorne Hawthorne Boulevard Specific Plan Public Workshop	City of Hawthorne Memorial Center	Community Workshop	Hawthorne	RAW	Presentation of MIS alternatives
February 2002							
Feb 12	8:30 AM	City of Hawthorne	City Hall	Briefing	Hawthorne	MTA RAW	Update on MIS process
Feb 20	9 AM	Inglewood Partners for Progress	Inglewood Park Cemetery	Business/Stakeholder	Inglewood	MTA RAW	Update on MIS process
Feb 26	9 AM	City of El Segundo	City Hall	Briefing	El Segundo	MTA RAW	Briefing
December 2001							
Dec 12	2 PM	Hyde Park Business Advisory Group Dwayne Wyatt 213-978-1200	US Bank 5760 Crenshaw Blvd.	Business/Stakeholder	Crenshaw	MTA Korve RAW	Presentation of alternatives

Date	Time	Contact and Organization Name	Location	Type of Meeting	Segment	Part. ¹	Meeting Purpose
November 2001							
Nov 1	11 AM	Interagency Task Force Meeting	MTA Gateway Plaza Conference Room	Agency Task Force		MTA Korve RAW TSG	Presentation of alternatives; input from stakeholders
October 2001							
Oct 9	9 AM	South Bay COG Transportation Committee Jacki Bacharach, Exec. Dir. 310-293-2612	El Segundo City Hall 350 Main Street El Segundo, CA 90245	Business/ Stakeholder	El Segundo	RAW	Presentation of alternatives; input from stakeholders
Oct 10	6-8 PM	City of Inglewood Phoebe Hickman 310-412-5301	Community Room One Manchester Blvd. Inglewood	Open House	Inglewood	MTA Korve RAW TSG	Presentation of alternatives; input from community
Oct 16	3:30 PM	El Segundo Employers Assn. Don Camph, Exec. Dir. 310-417-6660 X225	Kilroy Realty Kilroy Airport Center 2250 east Imperial Highway, 12 th Floor El Segundo, CA 90245	Business/ Stakeholder	El Segundo	RAW	Presentation of alternatives; input from stakeholders
September 2001							
Sep 18	7 PM	Korean American Chamber of Commerce Ernest Lee, Director 213-480-1115	Oxford Palace Hotel Northwest Corner of Oxford and 8 th Street (Near Western)	Business/ Stakeholder	Mid-City	MTA Korve RAW TSG	Presentation of alternatives; input from stakeholders
Sep 20	6:30 PM	Friends of the Green Line	Boston Restaurant Douglas & Rosecrans	Stakeholder/ Neighborhood	Corridor-wide	MTA RAW	Presentation of study process and MIS alternatives
August 2001							
Aug 1	3 PM	Korean American Federation of Los Angeles	981 South Western Avenue	Stakeholder	Mid-City	TSG	Introductory briefing
Aug 2	4:30 PM	Briefing of Brian Williams	Mayor's Office	Elected Official	Los Angeles	RAW	Briefing
Aug 2	2 PM	Partners for Progress Jerry Givens	Hollywood Park Board Room	Business/ Stakeholder	Inglewood	MTA TSG RAW Korve	Presentation of alternatives; input from stakeholders

Date	Time	Contact and Organization Name	Location	Type of Meeting	Segment	Part. ¹	Meeting Purpose
August 2001 (continued)							
Aug 9	7 PM	Crenshaw CRA Community Advisory Committee Al Jenkins 323-290-2800	Crenshaw DWP Auditorium 4030 Crenshaw Boulevard Los Angeles, CA 90008	Bus./Stake./ Neighborhood CRA Monthly Meeting	Crenshaw	TSG RAW Korve	Presentation of alternatives; input from stakeholders
Aug 21	8:30 AM	Inglewood/LAX Chamber of Commerce	Daniel Freeman Hospital Inglewood	Business/ Stakeholder	Inglewood	MTA RAW TSG Korve	Presentation of alternatives; input from stakeholders
July 2001							
Jul 5	10 AM	City of Inglewood	City Hall	Work session with City Staff	Inglewood	MTA RAW	Work Session
Jul 11	2 PM	Inglewood Partners for Progress	Inglewood City Hall	Business/ Stakeholder	Inglewood	Korve RAW TSG	Presentation of alternatives; input from stakeholders
Jul 12	1 PM	Korean Business Association Jong Min Kang (AKA: James Kang) 213-368-0848	3400 West 6 th Street Suite 209A LA, CA 90020	Neighborhood	Mid-City	TSG	Briefing
Jul 19	7:30 PM	Friends of Expo Darrel Clarke Steering Committee Meeting 323-932-3402	Home of Julie Maher	Stakeholder/ Neighborhood	Corridor-wide	MTA RAW	Introductory briefing for Steering Committee members (15-25); some live in the project area.
Jul 26	8:30 – 12:30 PM	LA County Regional Business Assistance Network Libby Thompson 213-236-4823	Magic Johnson Theater Crenshaw	Stakeholder	Crenshaw	TSG	Made MIS process announcement; gathered information and contacts

Date	Time	Contact and Organization Name	Location	Type of Meeting	Segment	Part. ¹	Meeting Purpose
June 2001							
Jun 12	6 PM	Crenshaw DWP Facility Carol Ford 213-367-1381	Auditorium 4030 Crenshaw Boulevard Los Angeles, CA 90008	Community Workshop	Crenshaw	MTA Korve RAW TSG	Presentation of alternatives; input from community
Jun 14	6 PM	Wilshire United Methodist Lori Jones (818) 845-4048	Hall of Fellowship 4350 Wilshire Boulevard Los Angeles, CA 90010 (323) 931-1085	Community Workshop	Northern Mid-City	MTA Korve RAW TSG	Presentation of alternatives; input from community
Jun 28	10 AM	City Staff	Inglewood City Hall	Briefing	Inglewood	MTA TSG RAW Korve	Briefing

¹ Participants:

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Korve – Tony Wang, Hans Korve

RAW – Roland Wiley, Nancy Michali

TSG – Carlos Escobedo, Rebecca Barrantes

**Crenshaw-Prairie Corridor
Major Investment Study**

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