

**CRENSHAW-PRAIRIE CORRIDOR
MAJOR INVESTMENT STUDY**

**Initial Screening
Report**

Final Report: January 2002

Submitted by:

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1.0 INTRODUCTION

The Los Angeles County Metropolitan Transportation Authority (MTA) has initiated a Major Investment Study (MIS) for the Crenshaw-Prairie Corridor. This effort is in response to a July 2000 MTA Board request for preparation of additional Major Investment Studies or Project Study Reports, to better prepare Los Angeles County for future transportation funding opportunities at the state and federal levels. This study will fulfill MTA Board direction by completing the Crenshaw-Prairie Corridor Major Investment Study.

Further support for this Study Corridor was provided with the adoption of the *2001 Long Range Transportation Plan* at the April 2001 MTA Board meeting. This action provided the Crenshaw Transit Corridor – from Wilshire and Crenshaw Boulevards south to the Metro Green Line/Los Angeles World Airport – with \$346.1 million in future funding. The actual transit technology – Metro Rapid, Bus Rapid Transit or Light Rail Transit – was to be determined through a Major Investment Study (MIS) effort.

The overall objective of the Crenshaw-Prairie MIS is to develop and assess a full range of transportation alternatives and identify a preferred strategy, or phasing of strategies. These should address the Corridor mobility needs and capacity requirements in the year 2025 and beyond, while being sensitive to community and environmental concerns. In summary, to be considered a viable alternative, 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; and
- Balance costs with expected benefits within funding availability.

The purpose of this report is to document the development of the Final Set of Alternatives for the Crenshaw-Prairie Corridor MIS. Based on the results of previous Corridor studies, an extensive public and stakeholder outreach process and MTA staff-consultant team work sessions, an Initial Set of Alternatives has been identified, evaluated and reduced to a Final Set of Alternatives for further conceptual level technical and environmental analysis.

1.1 Corridor Overview

The Crenshaw-Prairie Corridor is a north-south oriented travel corridor that covers portions of four cities – Los Angeles, Inglewood, Hawthorne and El Segundo. This study corridor, which is illustrated within its regional context in Figure 1 and in detail in Figure 2, runs from the Park Mile area of Los Angeles along Wilshire Boulevard on the north, south to Downtown Hawthorne and southwest through Downtown Inglewood to the Los Angeles World Airport and El Segundo area.



Figure 1 – Regional Study Area Map

STUDY CORRIDOR



Economic Opportunities

Many expansion, revitalization, and/or redevelopment plans and efforts are underway.

Increasing arterial congestion

During both peak periods, current travel demand exceeds the corridor street system capacity.

Continuing freeway congestion

Currently, 78% of the freeway system serving the corridor operates at level of service F.

Continuing air quality issues

Need to increase Corridor travel capacity without increasing mobile source emissions which result in air quality impacts

Large low income population

More than 49% of Corridor households are designated as low income.

Increasing travel

More than 350,000 additional daily corridor trips are forecast by 2015.

Limited travel options

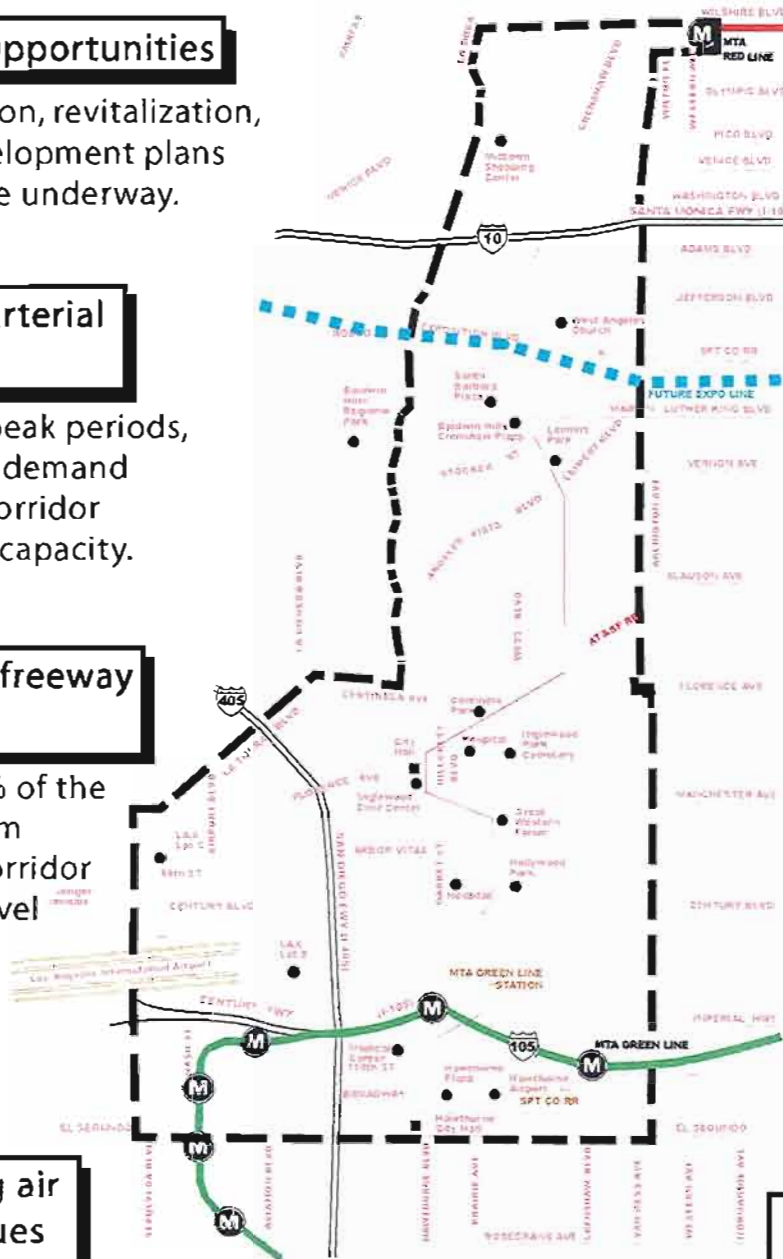
Congested street system and heavily-utilized bus system offer no additional future capacity.

Slowing bus service

Corridor buses are forecast to operate at 10.5 mph by 2015.

Growing transit reliant population

Forecast 55% increase in corridor residents reliant on transit for access to school, shopping, jobs and recreation.



Corridor Overview

Crenshaw - Prairie Corridor M.I.S



2.0 DEVELOPMENT OF THE INITIAL SET OF ALTERNATIVES

Identification of the Initial Set of Alternatives was based on the results of previous Corridor studies, an extensive public and stakeholder outreach process and MTA staff-consultant team work sessions. The resulting set of transportation options incorporates Metro Rapid – a new transportation service that has been implemented successfully by MTA through a demonstration program. A second option that is being considered for future implementation is the Bus Rapid Transit (BRT) alternative. This option provides Metro Rapid service operating in a dedicated lane.

2.1 Previous Study Efforts

Over the past 34 years, the need for transportation improvements in the congested and constrained Crenshaw-Prairie Corridor has been established through a series of transportation plans and studies undertaken by MTA and its predecessor agencies. Starting in 1967, the Crenshaw Corridor was included in the region's first rail system plan. More recently, a *Crenshaw-Prairie Corridor Preliminary Planning Study* was undertaken by the MTA. Intended as the first step in the development of transportation improvements for the Corridor, this study identified and evaluated a range of bus and rail service options. Completed in October 1993, this effort was not intended to result in the recommendation of a specific transportation alternative, but rather to provide a base of information upon which future, more detailed planning efforts would build.

In 1996, MTA initiated the next phase of the corridor transportation planning process – a Major Investment Study (MIS). Due to changing agency priorities in November 1997, the decision was made to defer completion of the time-sensitive MIS process and instead prepare a Route Refinement Study (RRS). Through the RRS process, a wide range of possible transportation strategies were screened to 12 feasible conceptual alternatives through a fatal flaw level of analysis to exclude alternatives that were either technically infeasible or unacceptable to the community. The conceptual alternatives were then reduced to the six most viable options, which included the required No Build and Transportation System Management (TSM) alternatives, as well as two rail options which evaluated two different vertical alignments – maximize or minimize at-grade operations – along two service routes:

- A two-branch option serving Los Angeles World Airport (via the former BNSF Railroad right-of-way) and Downtown Hawthorne/Hawthorne Plaza (via Prairie Avenue); and
- A single branch alternative serving Los Angeles World Airport via Century Boulevard.

Through the RRS process, the previous Initial Set of Alternatives was evaluated through a conceptual level of technical analysis, along with a public outreach process, to identify the following Final Set of Alternatives:

- **No Build Alternative** – This option represented only those Corridor transportation improvements that were already programmed through the year 2015, and provided a baseline for comparison with the other alternatives.
- **Transportation System Management (TSM) Alternative** – This option evaluated implementing various lower capital cost improvements including increases to the type and frequency of Corridor bus transit services, along with providing some bus transit priority operations on local major streets.
- **Rail alternative: Two Branch Option serving LAX and Hawthorne Plaza designed to maximize at-grade operations** – This primarily at-grade, community-oriented alternative evaluated new rail transit service in the Crenshaw-Prairie Corridor. Implementation of this

option would require widening of the existing street right-of-way and/or replacement of travel lanes or parking at some locations.

- **Rail alternative: Two Branch Option serving LAX and Hawthorne Plaza designed to minimize at-grade operations** – This option proposed to minimize the use of at-grade operations with segments of subway and aerial service. It would result in a more regionally-oriented rail service providing faster service through the use of grade-separated operations to reduce traffic and community impacts.

Completed in December 2000, the *Crenshaw-Prairie Route Refinement Study* documents the analytical work conducted through the definition of a Final Set of Alternatives, but did not provide detailed enough technical and environmental information for the public and decision-makers to select among the alternatives.

2.2 This Study Effort

In response to MTA Board motions made at the July 2000 Board meeting, staff recommended preparation of a Major Investment Study or a Project Study Report for nine corridors, including the Crenshaw-Prairie Corridor, to better prepare Los Angeles County for future transportation funding opportunities at the state and federal levels. This study will complete the Crenshaw-Prairie Corridor MIS process by building on the work completed as part of the Route Refinement Study process.

The purpose of this MIS effort is to develop and assess a full range of transportation alternatives and identify a preferred strategy, or phasing of strategies, which addresses the Corridor mobility needs and capacity requirements in the year 2025 and beyond, while being sensitive to community and environmental concerns. The *Crenshaw-Prairie Corridor MIS Evaluation Criteria Report* identified the evaluation process and criteria to be utilized in assessing the alternative transportation investment strategies identified for the Crenshaw-Prairie Corridor. The resulting evaluation criteria will be used at two key study evaluation points:

1. **Initial Screening** to reduce the Initial Set of Alternatives to the most viable Final Set of Alternatives.
2. **Technical/Environmental Setting Analysis** to identify the Locally Preferred Alternative(s).

The Crenshaw-Prairie Corridor MIS will follow the Federal Transit Administration (FTA) guidance on the evaluation process and criteria as it is the most inclusive, and so as not to preclude Federal funding opportunities. In addition, a majority of the public agencies possibly reviewing the resulting MIS document follow Federal guidance to ensure planning consistency. One criterion has been added – public support, both public policy and public/stakeholder acceptability – to reflect the local decision-making focus of the MIS process. The resulting set of criteria provides an analytical framework to identify the impacts and benefits of individual alternatives, as well as the differences between the options. The following seven criterion categories will be used to evaluate the Crenshaw-Prairie 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.

At this first level of analysis, the Initial Set of Alternatives was evaluated for insurmountable engineering, operational, community and environmental flaws, as well as community, city and stakeholder support. This viability check screened out any transportation options, alignment segments, and cross-sections with fatal flaws and/or significant lack of public and/or city support. Initial screening was performed on a “meets/does not meet” level of analysis for the criteria presented below in Table 1. At this stage in the study process, not all of the seven evaluation categories were used as some pertinent information has not yet been identified. “Transportation System Benefits” or cost effectiveness was not assessed as cost and ridership figures will not be developed until the next level of analysis. “Other Factors” will be identified in consultation with stakeholders and affected public agencies as technical and environmental setting analysis work proceeds.

Table 1: Overview of Initial Screening Criteria

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>

The screening of the Initial Set of Alternatives was based on public and stakeholder input along with conceptual level technical and environmental assessment. A full set of possible options was identified and presented in a series of outreach efforts from May through October 2001 in order to refine details of the options, check the public acceptability of the options, and ensure that all feasible transportation options were identified. Alternatives were also reviewed by affected city agencies to ensure that applicable public goals, plans and concerns were reflected. Conceptual level technical and environmental analysis was based on best professional practices and in consultation with the affected public agencies.

3.0 INITIAL SET OF ALTERNATIVES

An Initial Set of Alternatives was identified based on past study efforts, agency and stakeholder 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.

Possible alignments for each transportation improvement were identified and mapped for presentation to and discussion with the public, elected officials, affected public agencies and other stakeholders. The information presented on the following page was developed to explain the differences between the alternatives. A full range of public outreach efforts, including community workshops, stakeholder presentations, elected official briefings and affected agency work sessions, was held between May and October 2001. A written and graphic description of the Initial Set of Alternatives is presented below.

3.1 Local Bus Service

Currently, the Crenshaw-Prairie Corridor is well-served by bus transit operations, and many of the transit routes in the Corridor are heavily utilized. Seven providers offer a combination of community-based, local, limited-stop and freeway express service within the Study Area. Bus service providers include the MTA, Los Angeles Department of Transportation (LADOT), Santa Monica Municipal Bus Lines, Culver City Bus, Torrance Transit, Gardena Bus and Inglewood Transit. The following possible improvements to existing Corridor bus service were identified and presented for public comment:

- More frequent service
- Faster service
- Longer service hours
- More on-time service
- More limited and express service
- More community-based service such as DASH
- Improved connections to other regional transit service
- Any other improvements not listed above.

3.2 Metro Rapid Alternative

Metro Rapid is a new MTA bus service designed to provide faster travel for riders through the provision of the service and operational attributes described below. Implemented through a demonstration project, Metro Rapid services currently operate on Wilshire-Whittier Boulevards and Ventura Boulevard in the San Fernando Valley. The Metro Rapid buses, which are painted a distinctive red, have signal-changing transponders to provide signal priority treatment, with a low floor design for quicker boarding and video cameras for security. The demonstration project has shown a reduction in travel time of 25 percent and a corresponding ridership increase of 30 percent, including the attraction and retention of a significant portion of choice riders. The following Metro Rapid service attributes were implemented with the Phase I Demonstration Project:

1. Simple route layout

Table 2: Alternative Service Attributes

	Existing Service	Metro Rapid	Bus Rapid Transit	Light Rail Transit
Physical Elements – Providing service visibility, convenience and permanence				
Permanent system elements – station/stop shelters,		✓	✓	✓
Permanent system elements – dedicated lane or right-of-way			✓	✓
Permanent system elements – track right-of-way and overhead catenary				✓
Station/stop shelter • Service identity and weather protection		✓	✓	✓
Informational posters and maps • Service timetables • Route maps • Station/stop area maps		✓	✓	✓
Communication system • Service problems/delays • Next vehicle arrival information		✓	✓	✓
Station/stop amenities: lighting, seating, phones		✓	✓	✓
Station/stop amenities: ticket machines, bike racks/lockers and/or artwork		◻	✓	✓
Station/stop area and vehicle security – Cameras and communication system equipment		◻	◻	✓
Station area sidewalk and paving improvements		◻	✓	✓
Parking lots/drop-off facilities		◻	◻	✓
Ease of transfer/interface with other transit services		◻	✓	✓
Landscaping improvements – at stations/stops and along service corridor		◻	✓	✓
Stations/stops located at signalized intersections to provide safe pedestrian crossing		✓	✓	✓
Stations/stops located to effectively serve major activity centers and residential neighborhoods		✓	✓	✓
Land use policies – Supporting increased ridership and community visibility				
Transit-oriented and supportive land uses, activities and development in station/stop area		◻	✓	✓
Mixed use development/higher density residential		◻	✓	✓
Mutually supportive planning and implementation by integrating land use and transit plans		◻	✓	✓
Integrated stations/stops and development		◻	✓	✓
Operational Policies – Improving service speed, frequency and comfort				
Consistent/predictable headways – reliability		✓	✓	✓
Fewer stops – faster service		✓	✓	✓
Signal priority – faster service	◻	✓	✓	✓
Coordination with other rail and/or bus service – seamless transfers	◻	◻	✓	✓
Comfortable, recognizable vehicles ▪ Higher capacity – more seats and standing room ▪ Perceived/actual more interior space ▪ Station/stop and vehicle entry at same level • All doors open (seamless fare system) ▪ Space for wheelchairs, strollers, bicycles, etc. ▪ Unique, color-coded image		✓	✓	✓

✓ Attribute of existing MTA service policy currently implemented or planned for implementation.

◻ Attribute not currently implemented as part of MTA service policy; could be considered in future service phases.

2. Frequent headways
3. Less frequent stops
4. Level boarding and alighting
5. Color-coded buses and stations
6. Enhanced station stops
7. Signal prioritization.

The following Metro Rapid attributes are being evaluated for implementation in future phases:

1. Exclusive lanes
2. Higher capacity buses such as 60-foot articulated buses
3. Multiple door boarding and alighting
4. Off-vehicle fare payment
5. Feeder network
6. Coordinated land use planning.

With the success of the Metro Rapid Demonstration Project, the MTA Board requested information on possible expansion of the system. MTA staff has developed a preliminary four-phase, countywide plan, and implementation of 22 additional Metro Rapid lines has been included in the adopted MTA Long Range Transportation Plan (LRTP). Expansion of the program will explore both increasing the number of routes as well as the range of service attributes. Detailed staff recommendations for the next phases of the Metro Rapid Program are anticipated to be presented for MTA Board approval in early 2002.

As presented in Figure 3, operation of Metro Rapid service on the following Study Corridor streets was presented for public comment:







- Crenshaw Boulevard
- Florence Avenue/Aviation Boulevard
- Century Boulevard
- Hawthorne Boulevard
- Prairie Avenue.

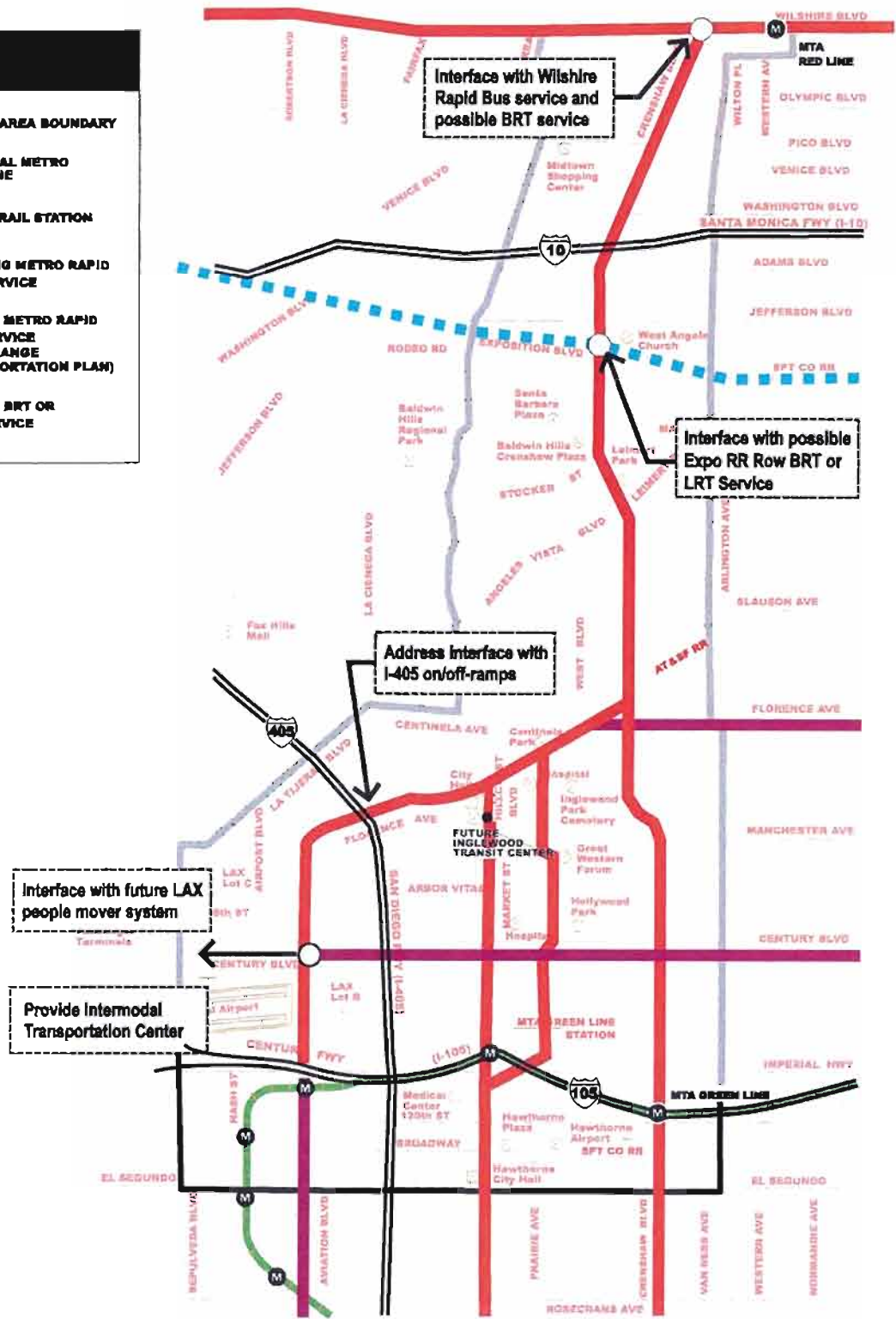
3.3 Bus Rapid Transit Alternative

Bus Rapid Transit (BRT) proposes a new form of rapid transit that combines advanced bus technologies, transit-supportive corridor features and customer-friendly operations management techniques in an integrated system designed to provide an enhanced transportation service similar to that provided by light rail transit system operations. The key attributes of BRT service are similar to those of Metro Rapid service with the addition of dedicated lane operations, which can be located either curbside or in the median. BRT service is intended to further reduce passenger travel times and improve passenger ease of use and access. Similar to the Metro Rapid Program, a future opportunity exists to provide higher capacity service through the use of 60-foot articulated buses. While there is currently no BRT line operating in Los Angeles, this service type was studied for implementation on Wilshire Boulevard and the former Exposition Railroad right-of-way.

The dedicated street lane for exclusive use by buses is provided either during the peak period only or for all day operations, and would also accommodate Metro Rapid and local service vehicles. The former Burlington Northern-Santa Fe (BNSF) Railroad right-of-way, now owned by MTA, represents a unique opportunity for implementing BRT operations in the Study Corridor through the ability to provide a dedicated right-of-way with no vehicular travel or parking impacts along approximately 50 percent of the proposed Crenshaw/LAX service route.

LEGEND

-  STUDY AREA BOUNDARY
-  REGIONAL METRO RAIL LINE
-  METRO RAIL STATION
-  EXISTING METRO RAPID BUS SERVICE
-  FUTURE METRO RAPID BUS SERVICE (LONG RANGE TRANSPORTATION PLAN)
-  FUTURE BRT OR LRT SERVICE



CRENSHAW
TRANSPORTATION
PRAIRIE



Metro Rapid Bus Alternative (Before screening)

Crenshaw - Prairie Corridor MJS



As presented in Figure 4, the following Study Area BRT service operating alignments were presented for public comment:

- **Crenshaw/LAX Service** – BRT service operating south from the existing Wilshire Metro Rapid service along Crenshaw Boulevard and then turning on to the former BNSF Railroad right-of-way providing direct connections to the LAX Intermodal Transportation Center and the Metro Green Line Aviation Station.
- **Crenshaw/Hawthorne Line** – BRT service operating south from the existing Wilshire Metro Rapid service along Crenshaw Boulevard and turning on to the former BNSF Railroad right-of-way, then running south on Hillcrest Boulevard through Downtown Inglewood connecting to the Metro Green Line Hawthorne Station, and then serving Downtown Hawthorne and the Hawthorne Plaza.
- **Crenshaw/Prairie/Hawthorne Service** – BRT service operating south from the existing Wilshire Metro Rapid service along Crenshaw Boulevard to the former BNSF Railroad right-of-way and then south on Prairie Avenue to 111th Street, connecting west to the Metro Green Line Hawthorne Station, and then proceeding south on Hawthorne Boulevard to serve Downtown Hawthorne and the Hawthorne Plaza.

Successful implementation of BRT service requires sufficient street right-of-way width to allow for dedicated lanes for BRT operations without significantly impacting vehicular traffic flow. In some sections of the Study Corridor, sufficient street right-of-way width does not exist to allow for dedicated lanes for BRT operations. For example, between Wilshire and Washington Boulevards, Crenshaw Boulevard has a curb-to-curb width that allows for only two travel lanes in each direction. Dedicating one of those lanes in each direction for bus-only use in this heavily-traveled Corridor was identified as not being viable. In this and other constrained locations, BRT buses are proposed to operate with other traffic in any travel lane. In order to reduce vehicular travel impacts, mixed-flow operations were proposed in the Initial Set of Alternatives at the following constrained Corridor points:










- **Crenshaw Boulevard** – between Wilshire and Washington Boulevards.
- **Hillcrest Boulevard** – between the former BNSF Railroad right-of-way and Manchester Avenue.
- **Prairie Avenue** – between the former BNSF railroad right-of-way and Manchester Avenue.

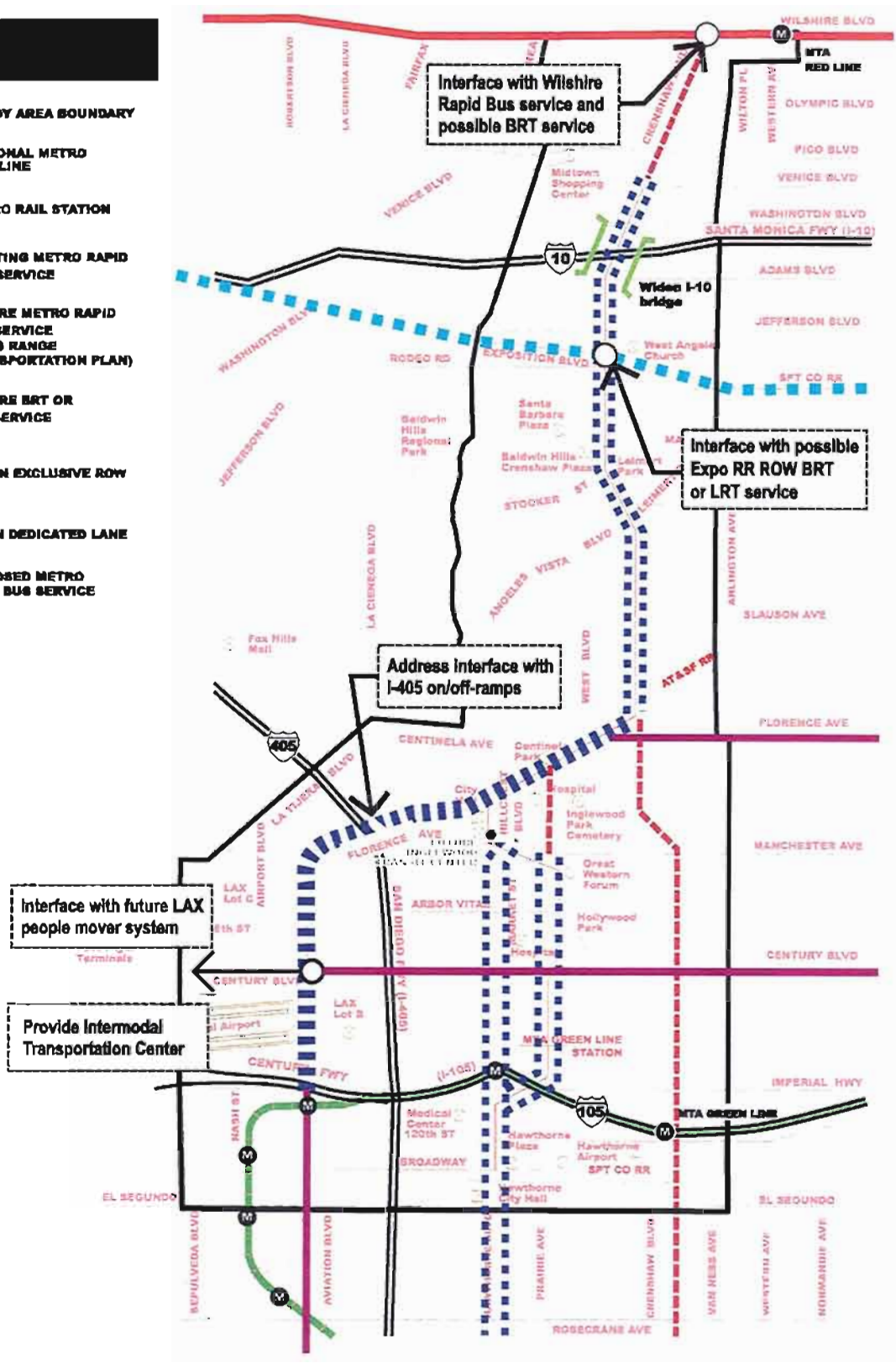
3.4 Light Rail Transit Alternative

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. Key features of light rail service are:

- Simple, permanent route layout
- Frequent headways
- Scheduled stop service
- Less frequent stops with a station spacing of approximately one-mile
- Level boarding and alighting
- Color-coded, recognizable vehicles and stations
- Enhanced station stops including park-and-ride facilities
- Signal prioritization with an electronically controlled signal system
- Exclusive right-of-way

LEGEND

-  STUDY AREA BOUNDARY
-  REGIONAL METRO RAIL LINE
-  METRO RAIL STATION
-  EXISTING METRO RAPID BUS SERVICE
-  FUTURE METRO RAPID BUS SERVICE (LONG RANGE TRANSPORTATION PLAN)
-  FUTURE BRT OR LRT SERVICE
-  BRT IN EXCLUSIVE ROW
-  BRT IN DEDICATED LANE
-  PROPOSED METRO RAPID BUS SERVICE



Bus Rapid Transit Alternative (Before screening) Crenshaw - Prairie Corridor MIS



- Higher capacity vehicles that can accommodate 76 seated passengers and up to 230 seated and standing passengers
- Multiple door boarding and alighting with four, four-foot wide doors opening on each side of the LRT vehicle
- Off-vehicle fare payment
- Feeder network including bus and shuttle service
- Direct connection to the regional rail system
- Coordinated land use planning
- Faster travel speeds of up to 55 mph in exclusive right-of-way operations
- Enhanced passenger security with closed-circuit TV cameras in the stations, security intercoms on the rail cars and a frequent transit police presence (checking fare payment).

In the *Crenshaw-Prairie Route Refinement Study*, Crenshaw LRT service connected in the north to the extension of the Metro Red Line to the vicinity of Venice and San Vicente Boulevards, and in the south with the future northern extension of the Metro Green Line along the former BNSF Railroad right-of-way. As MTA is no longer planning extension either of the Metro Red Line beyond the existing Wilshire/Western Station or the Green Line northward beyond the current Aviation Station, the MIS rail options included in the Initial Set of Alternatives had the following terminus points:

- **Northern** – the Metro Red Line on Wilshire Boulevard
- **Southern** – the Metro Green Line.

During the definition of the Initial Set of Alternatives, the MTA staff-consultant team work sessions explored how to best make the northern connection to the Metro Red Line. The following two options were identified as the most viable:

- **Extend the Metro Red Line west** from the current Wilshire/Western terminus point to a new station and terminus point at Wilshire/Crenshaw. Crenshaw LRT Line passengers would transfer to the Metro Red Line either through an underground platform-to-platform connection, or a street-level LRT transfer to the new subway Metro Red Line Station.
- **Extend the Crenshaw LRT Line east** under Wilshire Boulevard in a subway configuration to provide a platform-to-platform transfer to the Metro Red Line just west of the Wilshire/Western Station. (Street-level LRT operations along Wilshire Boulevard were dropped from further consideration due to the significant impact on the already constrained capacity of Wilshire Boulevard.)

Conceptual level technical analysis supported the decision to extend the Metro Red Line west to meet the Crenshaw LRT service. Extension of LRT service under Wilshire Boulevard to connect with the Wilshire/Western Metro Red Line Station was deleted from further consideration based on cost implications. Future plans, such as the "Strategic Plan" analyzed in MTA's *2001 Long Range Transportation Plan*, call for the Metro Red Line to be extended further west. When that occurs, the approximately \$300 million cost to provide the LRT subway connection from Wilshire/Crenshaw to the Metro Red Line Wilshire/Western Station would be a "throw-away" expenditure. The LRT system components that would be replaced with the future Metro Red Line extension include: 1) an increased tunnel height (13 feet versus 20 feet) to accommodate the light rail catenary system; 2) the LRT subway station; and 3) the LRT subway track connection. It does not appear prudent to expend a majority of the programmed funding on a throw-away investment. Therefore, evaluation of the Corridor LRT option was based on extension of the Metro Red Line to a future Wilshire/Crenshaw Station.












In addition to the horizontal alignments studied in the *Crenshaw-Prairie Corridor Route Refinement Study*, two vertical alignment options were defined. The vertical options were designed to evaluate the benefits and the impacts of implementing a rail system that runs primarily at-grade versus a system that is primarily grade-separated in aerial or subway structures. The operational philosophy of each vertical alignment was described as follows:

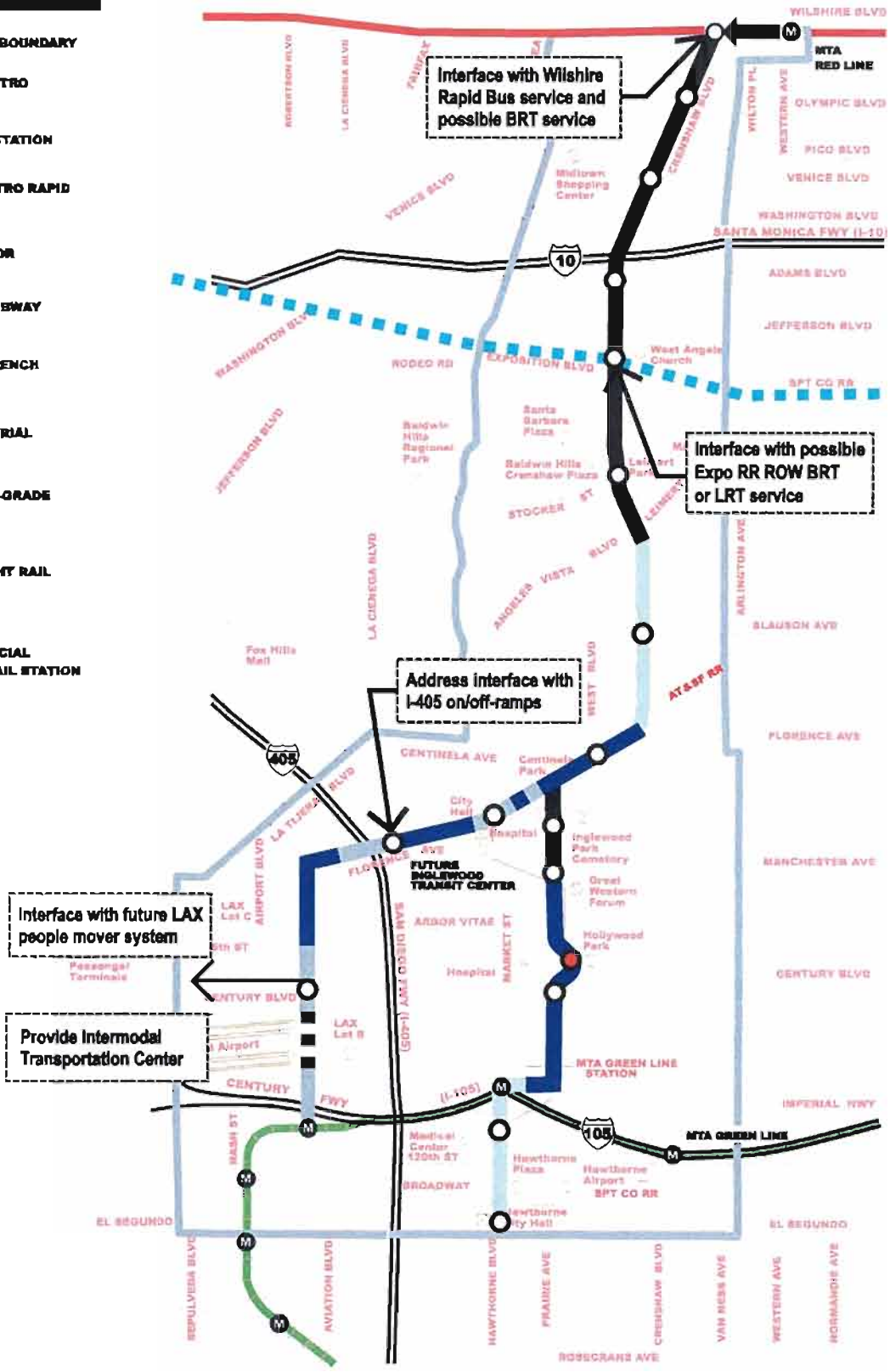
- ***Maximize at-grade operations*** – Provide a primarily Corridor community-based rail service operating within existing street rights-of-way, providing more frequent stations and resulting in slower travel speeds, a lower construction cost and slightly higher operational costs.
- ***Minimize at-grade operations*** – Provide a more regionally-oriented rail service operating above or below existing street rights-of-way, providing wider station spacing and resulting in faster travel speeds, a higher construction cost and slightly lower operational costs.

As presented in Figure 5, LRT service operating either in a minimize- or maximize-at-grade configuration on two Study Area alignments was presented for public comment:

- ***Crenshaw/LAX Service*** – LRT service operating south from the future Metro Red Line Wilshire/Crenshaw station along Crenshaw Boulevard to the former BNSF Railroad right-of-way connecting to the LAX Intermodal Transportation Center and the Metro Green Line Aviation Station.
- ***Crenshaw/Prairie/Hawthorne Service*** – LRT service operating south from the future Metro Red Line Wilshire/Crenshaw station along Crenshaw Boulevard to the former BNSF Railroad right-of-way and then south on Prairie Avenue to approximately 111th Street, connecting west to the Metro Green Line Hawthorne Station and then proceeding south on Hawthorne Boulevard to serve Downtown Hawthorne/Hawthorne Plaza.

LEGEND

-  STUDY AREA BOUNDARY
-  REGIONAL METRO RAIL LINE
-  METRO RAIL STATION
-  EXISTING METRO RAPID BUS SERVICE
-  FUTURE BRT OR LRT SERVICE
-  PROPOSED SUBWAY SERVICE
-  PROPOSED TRENCH SERVICE
-  PROPOSED AERIAL SERVICE
-  PROPOSED AT-GRADE SERVICE
-  PROPOSED LIGHT RAIL STATION
-  PROPOSED SPECIAL EVENT ONLY RAIL STATION



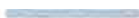










Maximize At-Grade Rail Service (Bellini Engineering)

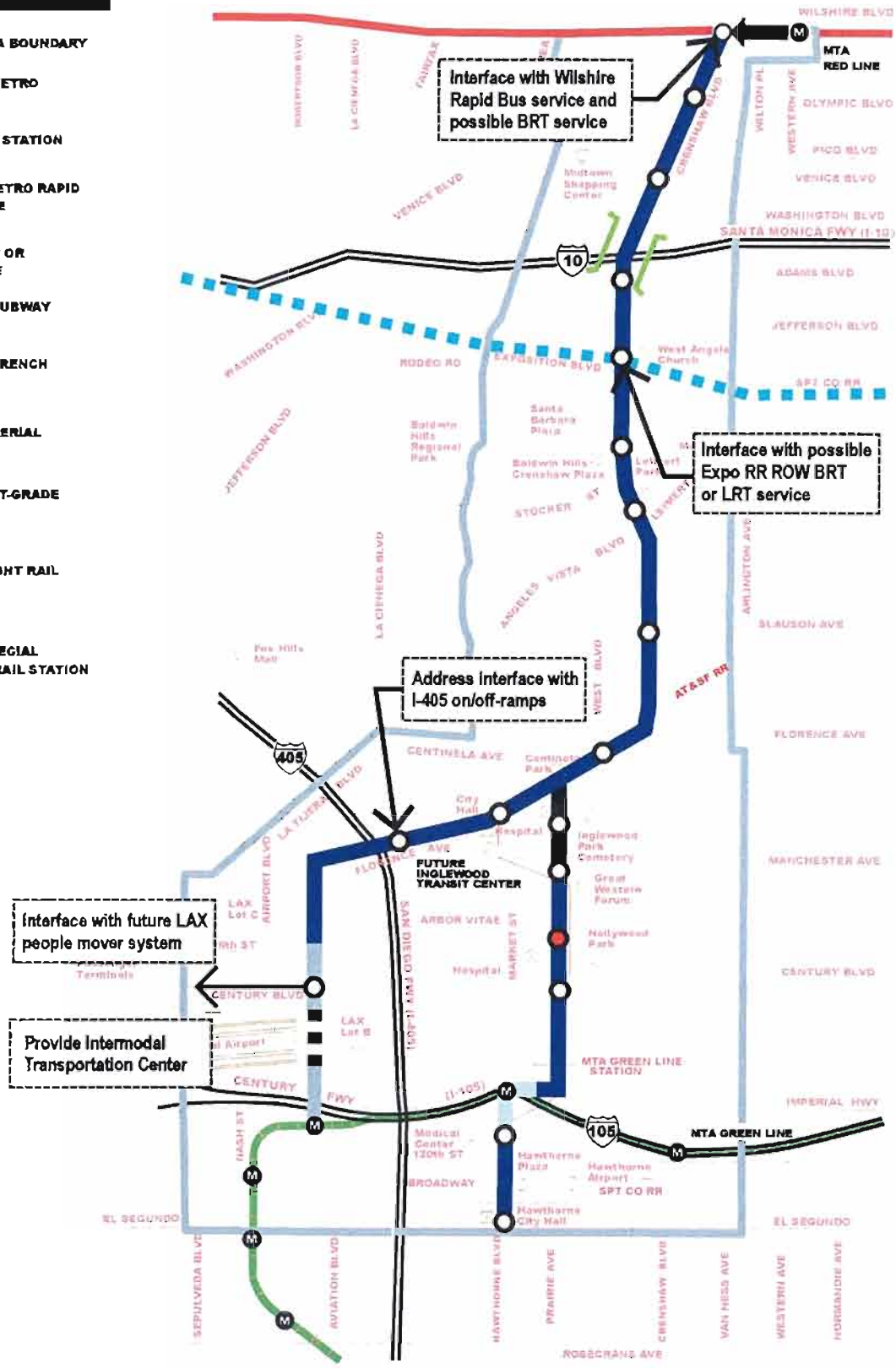
Crenshaw - Prairie Corridor MIS



KORVE ENGINEERING RAW INTERNATIONAL

LEGEND

-  STUDY AREA BOUNDARY
-  REGIONAL METRO RAIL LINE
-  METRO RAIL STATION
-  EXISTING METRO RAPID BUS SERVICE
-  FUTURE BRT OR LRT SERVICE
-  PROPOSED SUBWAY SERVICE
-  PROPOSED TRENCH SERVICE
-  PROPOSED AERIAL SERVICE
-  PROPOSED AT-GRADE SERVICE
-  PROPOSED LIGHT RAIL STATION
-  PROPOSED SPECIAL EVENT ONLY RAIL STATION



Maximize At-Grade Rail Service (Before screening)



Crenshaw - Prairie Corridor MIS



4.0 INITIAL SCREENING RESULTS

The identified Initial Set of Alternatives was evaluated for insurmountable engineering, operational, community and environmental flaws, as well as community, city and stakeholder support. This viability check screened out any transportation options, alignment segments, and cross-sections with fatal flaws, and/or lack of public and/or city support. Initial screening was performed on a “meets/does not meet” level of analysis for the criterion presented below in Table 3. This section summarizes the fatal flaw level of analysis completed to support definition of the Final Set of Alternatives.

A viable set of possible transportation improvement options was identified and presented in a series of outreach efforts from May through October 2001 in order to refine details of the options, check the public acceptability of the options, and ensure that all feasible transportation options were identified. Alternatives were also reviewed with elected officials and their representatives, stakeholders and affected city agencies to ensure that all applicable public goals, future plans and concerns were reflected. Fatal flaw level technical and environmental analysis was based on best professional practices and in consultation with the affected public agencies.

Table 3: Initial Screening Criteria and Performance Measures

Criteria	Performance Measures
<i>Mobility Improvements</i>	<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
<i>Environmental Benefits</i>	<ul style="list-style-type: none"> • Has no environmental and/or community fatal flaws
<i>Operating Efficiencies</i>	<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
<i>Land Use and Economic Considerations</i>	<ul style="list-style-type: none"> • Encourages Corridor economic development
<i>Public Support</i>	<ul style="list-style-type: none"> • Has community and stakeholder support • Has City support for proposed service and/or service alignments

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 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.

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

4.1 Local Bus Service

The proposed improvements to local bus service received minor comments. Given the findings of past studies showing the need for capacity and service improvements, many stakeholders and members of the public may have assumed this service improvement as a given. Some members of the public and stakeholders did express the need to better serve transit dependent Corridor residents, but they were also interested in attracting choice riders in order to reduce vehicular travel and congestion in the Study Area. A majority of the outreach participants were interested in transportation improvements beyond what the Crenshaw-Prairie Corridor already had in place – increasing the range of transportation options – and better connecting to the regional transportation system.

Comments were also received requesting expanded shuttle service similar to the Crenshaw DASH in other Study Corridor locations. This community-based service would provide improved transit connections both within each neighborhood and to the existing regional transit system and future Corridor improvements provided by the Metro Rapid, Bus Rapid Transit and/or Light Rail Transit alternatives.

The City of Inglewood expressed concerns that MTA's efforts to comply with the Consent Decree did not result in a significant number of buses being added to Corridor streets, particularly in the Inglewood/LAX area, without consideration being given to appropriate service planning.

Without service improvements and capacity enhancements, the Corridor's bus transit system will continue to be significantly overburdened, and mobility to and from the Corridor will continue to be constrained. Improvements to the level and quality of local bus service, including expanded shuttle service, will be incorporated in the Final Set of Alternatives as part of the Baseline Alternative.

4.2 Metro Rapid Alternative

The public and members of the Crenshaw Redevelopment Area Citizens Advisory Committee expressed support for Metro Rapid service as an initial strategy to improve Corridor transit service. Resulting features that they cited as being attractive were: the faster service, the distinctive, low floor vehicles and the relatively short implementation timeframe. Many saw the proposed Crenshaw-Prairie Corridor Metro Rapid service as providing an integrated network of high quality bus service.

Within the City of Inglewood, a majority of the discussion focused on the proposed service route alignments. In the Initial Set of Alternatives, Metro Rapid service was proposed on two north-south streets within the City: La Brea and Prairie Avenues.

Two work sessions were held with Inglewood city staff to identify the most appropriate street to provide Metro Rapid service through Downtown Inglewood – the proposed La Brea Avenue or adjacent retail-oriented Market Street. Staff indicated their willingness to consider Metro Rapid operations on La Brea Avenue south from Florence Avenue with an interface at the Inglewood Transit Center that is currently under construction. City staff was strongly opposed to any bus utilization of Market Street due to the narrow right-of-way (one travel lane in either direction), and the recent efforts to create a pedestrian-oriented retail district through the implementation of landscaping and diagonal curb parking improvements.

The City did not see the need for Metro Rapid service on Prairie Avenue which they viewed as only adding to vehicular traffic, and negatively impacting the special event-oriented nature of the street adjacent to the Forum and Hollywood Park. The area's stakeholder group – Partners for Progress – supported the City's position.

To ensure that the latest Metro Rapid Program plans were reflected in the Final Set of Alternatives, a meeting was held with the Director of MTA's Metro Rapid Program. Table 4 presents the proposed lines within the Study Area along with the proposed implementation phase designation as included in the preliminary, four-phase, countywide plan. Final service expansion plans are being developed and will be presented for MTA Board approval in early 2002.

Table 4: Planned Metro Rapid Program Service in Study Area (July 2001)

Street	Current Phase Designation
Wilshire Boulevard	Phase I (in operation)
Crenshaw Boulevard	Phase IIA
Pico Boulevard	Phase IIA
Venice Boulevard – terminates at Mid-City Transit Center	Phase IIA
Florence Avenue/Hawthorne Boulevard to Metro Green Line	Phase IIA
Hawthorne Boulevard – south from Metro Green Line to South Bay Galleria	Phase IIB
Century Boulevard	Phase IIC
Vernon Avenue/La Cienega Boulevard	Phase IIC

On the following page, Table 5 presents the Metro Rapid routes included in the Initial Set of Alternatives and the resulting alternatives to be included in the Final Set of Alternatives. All of the Metro Rapid options included in the Final Set will have a southern terminus point of the Metro Green Line. The Florence/Hawthorne service option is the only exception, with Metro Rapid service continuing south to El Segundo Boulevard to serve the Hawthorne Plaza and Civic Center area.

Metro Rapid service proposed on Prairie Avenue is recommended for deletion from the Final Set based on City, stakeholder and public input. MTA staff also expressed some concern that Prairie Avenue may not have sufficient ridership to justify Metro Rapid service. In addition, the proposed service shift from Prairie Avenue for a portion of the route to Hawthorne Boulevard may be confusing and not provide the simple route layout that Metro Rapid service is designed to provide and that riders expect.

Three east-west Metro Rapid routes not proposed in the Initial Set of Alternatives, but included in the MTA's preliminary Metro Rapid Program, will be included in the Final Set of Alternatives:

- Pico Boulevard
- Venice Boulevard
- Vernon Avenue/La Cienega Boulevard.

The Century and Crenshaw Boulevard options will be included in the Final Set of Alternatives as proposed in the Initial Set of Alternatives. The routing of the two Crenshaw Boulevard options has been clarified as follows:

- **Crenshaw/Hollywood/Vine** – Provides more regionally-oriented Metro Rapid service south from the Metro Red Line Hollywood/Vine Station on Vine Street and Rossmore Avenue to Wilshire Boulevard, then south on Crenshaw to the Metro Green Line Crenshaw Station.

- **Crenshaw/LAX** – Provides more Study Corridor-oriented Metro Rapid service connecting south from the Metro Red Line Wilshire/Western Station along Wilshire Boulevard and south on Crenshaw Boulevard, then west on Florence Avenue through Downtown Inglewood to Aviation Boulevard where this line interfaces with the future LAX Intermodal Transportation Center (Aviation/Century) and the Metro Green Line Aviation Station. This line will allow Corridor residents working in the LAX area to access their jobs without any transfer required.

The following revisions were made to the Metro Rapid routes for inclusion in the Final Set of Alternatives:

- **Florence Avenue/Aviation Boulevard** – No service is proposed on Aviation Boulevard, instead Metro Rapid service would operate south from Florence Avenue on Hawthorne Boulevard (La Brea Avenue in Downtown Inglewood).
- **Hawthorne Boulevard** – Combined into a single service alternative with Florence Avenue.

Table 5: Screening Results for the Metro Rapid Alternative

<i>Initial Set of Alternatives</i>	<i>Final Set of Alternatives</i>
1. Crenshaw – south from Wilshire on Crenshaw to Metro Green Line Crenshaw Station and then south beyond El Segundo Boulevard.	1. Crenshaw/Hollywood/Vine – south from Hollywood/Vine Red Line Station on Vine and Rossmore to Wilshire and then south on Crenshaw to the Metro Green Line Crenshaw Station.
2. Crenshaw/LAX – south from Wilshire on Crenshaw to Florence Avenue, west on Florence Avenue/Aviation Boulevard to LAX Intermodal Transportation Center (Aviation/Century), south to the Metro Green Line Aviation Station and then south beyond El Segundo Boulevard.	2. Crenshaw/LAX – west from Wilshire/Western Red Line Station to Crenshaw, south on Crenshaw to Florence Avenue/Aviation Boulevard to LAX Intermodal Transportation Center (Aviation/Century) and then south to the Metro Green Line Aviation Station.
3. Florence/Hawthorne – west on Florence and then south on La Brea Avenue/Hawthorne Boulevard to the Metro Green Line Hawthorne Station and then south beyond El Segundo Boulevard.	3. Florence/Hawthorne – west on Florence and then south on La Brea Avenue/Hawthorne Boulevard to the Metro Green Line Hawthorne Station and then south to El Segundo Boulevard.
4. Florence/Prairie/Hawthorne – west on Florence and then south on Prairie Avenue.	<i>Deleted</i>
5. Century – west on Florence to LAX Intermodal Transportation Center.	4. Century – west on Century Boulevard to the LAX Intermodal Transportation Center.
	5. Vernon/La Cienega – west on Vernon, north on Crenshaw and west on Stocker and north on La Cienega.
	6. Pico – east on Pico to the Mid-City Transit Center and then east to Downtown Los Angeles.
	7. Venice – east on Venice to its terminus point at the Mid-City Transit Center. Passengers will continue east on the Pico Metro Rapid Line.

4.3 Bus Rapid Transit Alternative

Few public comments were received on the Bus Rapid Transit (BRT) alternative. This may have been due to some confusion as to the difference between Metro Rapid and BRT service. BRT was presented as having the full range of physical and operational attributes of Metro Rapid service – with the addition of dedicated lane operation. If this alternative were to be selected for implementation, it would be operated by MTA under the service name of “Metro Rapid.” City staff, stakeholder groups and the public did express concerns regarding the impact on vehicular traffic and parking resulting from future implementation of this alternative due to dedicated lane operations.

Within the City of Inglewood, discussion focused on whether or not to support this alternative, and if so, the specific route alignments that BRT should operate on within the city. In the Initial Set of Alternatives, BRT service was proposed on two north-south streets within the City: Hillcrest Boulevard and Prairie Avenue.

The two previously-discussed work sessions held with City staff also focused on these two issues related to BRT service. The staff requested deletion of further consideration of Hillcrest Boulevard due to the low-density residential character of the street, and because the BRT option would require removal of the street’s heavily-landscaped median. Staff indicated their willingness to consider BRT operations on La Brea Avenue south from Florence Avenue with an interface at the Inglewood Transit Center.

The City did not support provision of BRT service on Prairie Avenue, which they viewed as only adding to vehicular traffic congestion and negatively impacting the special event-oriented nature of this street which serves the Forum and Hollywood Park. On Prairie Avenue, BRT operations would require replacement of the two median lanes currently used to stack vehicles entering the Hollywood Park and Forum. The area’s stakeholder group, which includes representatives from the Forum and the Hollywood Park, strongly requested the deletion of this modal option from further consideration on Prairie Avenue.

The City of Los Angeles, Department of Transportation (LADOT), who has worked closely with MTA in planning future BRT operations on Wilshire Boulevard, expressed concerns regarding the impacts on Crenshaw-Prairie Corridor parking and traffic capacity. Staff requested a detailed analysis of the capacity impacts on the Corridor’s intersections with implementation of this service option. While this level of analysis will occur in the next phase – preliminary engineering/draft environmental impact analysis – the MIS environmental setting analysis will describe the anticipated impacts. LADOT staff also requested clarification of the proposed BRT operational timeframe – 24 hour or peak period only – and expressed preference for peak period only operations.

The former Burlington Northern-Santa Fe (BNSF) Railroad right-of-way, now owned by MTA, represents a unique opportunity for implementing BRT operations in the Study Corridor. The BNSF Railroad right-of-way offers the ability to provide dedicated BRT service lanes, with no vehicular travel or parking impacts, along approximately 50 percent of the proposed Crenshaw/LAX BRT service route. When MIS work was initiated, and in all previous study efforts, it was the common understanding that the freight rail service currently operating on the MTA-owned railroad right-of-way would cease with the opening of the Alameda Corridor in 2002. Engineering plans developed during the *Crenshaw-Prairie Corridor Route Refinement Study* were based on the assumption that the entire railroad right-of-way would be available for future transit operations. In this study process, it was determined that the railroads had use of the right-of-way in perpetuity. This was a matter of major concern as recent Federal Railroad Administration (FRA) and existing Public Utilities Commission (PUC) requirements would prohibit the joint use of the right-of-way by freight and bus operations.

A non-railroad right-of-way option was identified that would operate south from Wilshire on Crenshaw to Florence Avenue, then south on La Brea Avenue, then west on Century Boulevard to the LAX Intermodal Transportation Center and south on Aviation Boulevard to the Metro Green Line Aviation Station. Without utilization of the railroad right-of-way, it was anticipated that this alternative alignment would not result in the same level of travel time savings as BRT service operating within the dedicated railroad right-of-way.

A subsequent meeting was held between MTA and Burlington Northern-Santa Fe Railroad representatives where the BNSF staff indicated their willingness to consider future abandonment of freight operations on this portion of the Harbor Subdivision with the initiation of Alameda Corridor operations. A decision was made to move forward with BRT planning on the former railroad right-of-way. The non-railroad right-of-way option was deleted from further consideration.

Table 6 below presents the four BRT options included in the Initial Set of Alternatives and subsequent analysis, along with the two alternatives to be included in the Final Set of Alternatives:

- ***Crenshaw/LAX*** – South from Wilshire Boulevard Metro Rapid service on Crenshaw Boulevard to the former BNSF Railroad right-of-way, along the right-of-way to interface with the future LAX Intermodal Transportation Center (RR ROW/Century) and the Metro Green Line Aviation Station.
- ***Crenshaw/Hawthorne*** – South from Wilshire Boulevard Metro Rapid service on Crenshaw Boulevard to the former BNSF Railroad right-of-way, south on La Brea Avenue through Downtown Inglewood, continuing south on Hawthorne Boulevard to the Metro Green Line Hawthorne Station and then south to El Segundo Boulevard to serve the Hawthorne Plaza and Civic Center area.

Successful implementation of BRT service requires sufficient street right-of-way width to allow for dedicated lanes for BRT operations without significantly impacting vehicular traffic flow. In the following sections of the Study Corridor, BRT buses are proposed to operate in mixed-flow conditions along with other traffic:

- ***Crenshaw Boulevard*** – Between Wilshire and Washington Boulevards.
- ***La Brea Avenue*** – Between the former BNSF Railroad right-of-way and Manchester Avenue.

During initial screening efforts, BRT mixed flow operations were added in the following location reflecting the curved and constrained street right-of-way:

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

The BRT alternatives included in the Final Set of Alternatives are presented in detail in the following report section.

Table 6: Screening Results for the Bus Rapid Transit Alternative

<i>Initial Set of Alternatives</i>	<i>Final Set of Alternatives</i>
<p>1. Crenshaw – south from Wilshire on Crenshaw to the former BNSF RR ROW, along RR ROW to Metro Green Line Aviation Station and south beyond El Segundo Boulevard.</p> <p><i>Mixed flow operations:</i></p> <ul style="list-style-type: none"> • Crenshaw – Between Wilshire and Washington Boulevards <p>2. Crenshaw/Hawthorne – south from Wilshire on Crenshaw to former BNSF RR ROW to Hillcrest Boulevard to Market Street and La Brea Avenue Avenue (which become Hawthorne Boulevard), to the Metro Green Hawthorne Station and south beyond El Segundo Boulevard.</p> <p><i>Mixed flow operations:</i></p> <ul style="list-style-type: none"> • Crenshaw – Between Wilshire and Washington • Hillcrest – BNSF RR ROW to intersection of La Brea Avenue/Market Street <p>3. Crenshaw/Prairie – south from Wilshire on Crenshaw to BNSF RR ROW to Prairie Avenue, south to Metro Green Line Hawthorne Station and south on Hawthorne Boulevard beyond El Segundo Boulevard.</p> <p><i>Mixed flow operations:</i></p> <ul style="list-style-type: none"> • Prairie – BNSF RR ROW to Manchester <p><i>Added after Initial Set of Alternatives:</i></p> <p>4. Non-RR ROW – south from Wilshire on Crenshaw to Florence to La Brea, then west on Century Boulevard to the LAX Intermodal Transportation Center, and south on Aviation to the Metro Green Line Aviation Station.</p> <p><i>Mixed flow operations:</i></p> <ul style="list-style-type: none"> • Crenshaw – Between Wilshire and Washington • La Brea – BNSF RR ROW to intersection of La Brea Avenue/Market Street 	<p><i>Operations:</i> 24 hour, curbside dedicated lane operations in streets where possible; mixed-flow operations in constrained street locations; and dedicated lane operations on former BNSF RR ROW.</p> <p>1. Crenshaw/LAX – south from Wilshire on Crenshaw to the former BNSF RR ROW, along RR ROW to Metro Green Line Aviation Station.</p> <p><i>Mixed flow operations:</i></p> <ul style="list-style-type: none"> • Crenshaw – Between Wilshire and Washington Boulevards, and MLK Boulevard and Vernon Avenue <p>2. Crenshaw/Hawthorne – south from Wilshire on Crenshaw to former BNSF RR ROW to La Brea Avenue which becomes Hawthorne Boulevard to Metro Green Line Hawthorne Station.</p> <p><i>Mixed flow operations:</i></p> <ul style="list-style-type: none"> • Crenshaw – Between Wilshire and Washington Boulevards, and MLK and Vernon Avenue • La Brea – BNSF RR ROW to intersection of La Brea Avenue/Market Street <p><i>Deleted</i></p> <p><i>Deleted</i></p>

4.4 Light Rail Transit Alternative

Stakeholder support was expressed for the Light Rail Transit (LRT) alternative, and this option was frequently identified as the preferred alternative in the public survey forms. Strong support was expressed in the southern portion of the Study Area with letters of support submitted to the MTA Board by the Partners for Progress and Inglewood/LAX Chamber of Commerce. The City of Inglewood, both Mayor and staff, expressed support for the LRT option. Conversely, city and public comments were received regarding the impact of this alternative on Corridor parking and traffic capacity as well as construction impacts on businesses.

The Initial Set of Alternatives included two LRT options evaluating alternative service routes operating within two vertical alignment options designed to evaluate the benefits and the impacts of implementing a rail system that runs primarily at-grade versus a system that is primarily grade-separated in aerial or subway structures. City staff and the public strongly supported the minimize at-grade operations alternative, but in recognition of the significantly higher capital cost and the desire to make the Corridor's retail and cultural destinations more "visible" to future system riders, they were willing to consider primarily at-grade operations. Utilization of the MTA-owned BNSF Railroad right-of-way offers a unique opportunity for implementing LRT operations in the Study Corridor through the ability to provide a dedicated right-of-way with no parking or traffic impacts along 63 percent of the Crenshaw/LAX LRT route alternative included in the Final Set of Alternatives.

During the definition of the Initial Set of Alternatives, the MTA staff-consultant team work sessions explored how to best make the Crenshaw LRT connection north to the Metro Red Line. Extension of the Metro Red Line west from the current Wilshire/Western terminus point to a new station and terminus point at Wilshire/Crenshaw was identified as the most viable. This decision was based on the identified "throw away" cost of approximately \$300 million to provide the LRT subway connection east to the Metro Red Line, which would be replaced with future extension of the Metro Red Line.

Both at-grade and subway Crenshaw LRT service options interfacing with the Metro Red Line at the future Wilshire/Crenshaw Station were evaluated in the Initial Set of Alternatives. During initial screening, analysis identified environmental and operational fatal flaws for both options on Crenshaw Boulevard between Wilshire Boulevard and Venice/Washington Boulevards:

- ***At-grade LRT Operations*** – are precluded due to the severely constrained right-of-way which allows for only two travel lanes in each direction. This is the same area where mixed-flow operations would be required for the BRT option. There would be a larger impact resulting with LRT operations requiring an at-grade station, and possibly tail or cross-over tracks to facilitate operations at the Wilshire/Crenshaw intersection. Implementation of a LRT system would result in significant noise and other environmental impacts on the immediately adjacent residential properties, some of which are potentially historically significant. In addition, the LRT option would require the permanent taking of street parking in an area where the older, multi-family housing typically does not have off-street parking.
- ***Subway LRT Operations*** – are precluded by a significant environmental issue – concentrated subsurface hydrogen sulfite – which precluded extending of the Metro Red Line south on Crenshaw Boulevard in the past. This issue may be resolved in the future, but the technology currently does not exist to mitigate this major impact.

From initiation of study efforts in 1992, Corridor planning has been based on identifying transportation system improvements in conjunction with economic development strategies. In framing the LRT alternative to be included in the Final Set, consideration was also given to the Corridor's

cultural, community, economic development and land use context. Currently, there are a significant number of local and regional destinations within the Corridor, and many expansion, development and revitalization plans are underway. Within the Study Corridor:

- ***Crenshaw/Exposition Boulevards*** – Corridor Gateway/Destination being created by West Angeles Church both through a new sanctuary structure and future mixed-use land use plans for adjacent properties.
- ***Crenshaw Boulevard between Martin Luther King, Jr. Boulevard and Vernon Avenue*** – Corridor Destination with the Crenshaw District and Leimert Park providing the cultural and commercial heart of the Crenshaw Area within a pedestrian-oriented environment.
- ***La Brea Avenue/Railroad Right-of-Way*** – Corridor Gateway/Destination provided by Downtown Inglewood with an existing concentration of jobs and retail uses along with future mixed-used development plans.
- ***Century Boulevard/Railroad Right-of-Way*** – Corridor Gateway/Destination at the future Los Angeles World Airports Intermodal Transportation Center.
- ***Prairie Avenue*** – Corridor Destinations including the Great Western Forum, Hollywood Park and Daniel Freeman Hospital all with future development plans, including the development of housing adjacent to Hollywood Park and expanded teaching facilities at the hospital.

Three LRT alternative service concepts were presented for discussion in MTA staff-consultant work sessions which addressed both the operational and community context:

- ***“Streetcar” Concept*** that would allow for primarily at-grade rail operations to provide more community-oriented service. This option would require: 1) mixed flow operations between Wilshire and Venice Boulevards, MLK and Vernon Avenue in the Crenshaw District, and Manchester and Century Boulevards adjacent to the Forum and Hollywood Park; 2) a 30-foot property take on Prairie Avenue south from the railroad right-of-way to Manchester Boulevard in order to accommodate at-grade operations; and 3) widening of the I-10 overcrossing. This alternative would result in a lower operational speed and capital cost than the other two LRT alternatives.
- ***“Regional” Concept*** that would consist of primarily grade-separated operations designed to provide high-speed regional connections to/from the Corridor, LAX and Downtown Los Angeles. This option would not provide rail service north of the future Exposition LRT line; rather Metro Rapid service would provide the north-south connection. LRT service would include a combination of aerial and subway operations, with at-grade operations occurring only on portions of the BNSF railroad right-of-way. This alternative would result in the highest operational speeds and capital cost of the LRT alternatives.
- ***“Mixed” Concept*** proposes a combination of the previous two alternatives with primarily at-grade operations, and grade-separated service only where required to reduce community impacts and/or improve operational speeds. This option would not provide rail service north of the future Exposition LRT line, and is proposed to operate with fewer stops than the “Streetcar” alternative. The major impact of this option is the 30-foot property take required on Prairie Avenue south from the railroad right-of-way to Manchester Boulevard in order to accommodate at-grade operations.

Based on agency and public input, MTA staff-consultant team field visits, and funding and political constraints, the decision was made to study the “Mixed” concept which resulted in the following:

- Deletion of the primarily grade-separated option from further study; and
- Deletion of rail service north of the future Exposition LRT Line – the Crenshaw Corridor connection would be provided at this time by two Metro Rapid Lines – Crenshaw/LAX and Crenshaw/ Hollywood/Vine.

Table 7 below presents the two LRT alignment alternatives, along with the minimize- and maximize-at-grade operational options, included in the Initial Set of Alternatives. The following two alternatives will be included in the Final Set of Alternatives:

- ***Crenshaw/LAX*** – South from the future Exposition Light Rail Line on Crenshaw Boulevard to the former BNSF Railroad right-of-way, along the right-of-way to interface with the future LAX Intermodal Transportation Center (RR ROW/Century) and the Metro Green Line Aviation Station.
- ***Crenshaw/Hawthorne*** – South from the future Exposition Light Rail Line on Crenshaw Boulevard to the former BNSF Railroad right-of-way, south on La Brea Avenue through Downtown Inglewood, continuing south on Hawthorne Boulevard to the Metro Green Line Hawthorne Station and then south to El Segundo Boulevard to serve the Hawthorne Plaza and Civic Center area.

In the following sections of the Study Corridor, LRT vehicles are proposed to operate in mixed-flow conditions along with other traffic:

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

During initial screening, MTA staff-consultant team field visits to the constrained area on Crenshaw Boulevard between Martin Luther King, Jr. Boulevard and Vernon Avenue resulted in adding consideration of below-grade operations in this area. This grade-separated alignment would mitigate traffic and parking impacts, result in a higher travel speed, but would not make Crenshaw District “visible” to future system riders. With this segment operating in a below-grade configuration, along with utilization of the railroad right-of-way, this option would operate in a dedicated right-of-way with no travel or parking impacts along 70 percent of the proposed Crenshaw/LAX LRT service route.

The LRT alternatives included in the Final Set of Alternatives are presented in detail in the following report section.

4.5 Initial Screening Results

Initial Screening has been performed to reduce the identified Initial Set of Alternatives to the most viable Final Set of Alternatives for the Crenshaw-Prairie Corridor. This viability check screened out any transportation options, alignment segments and cross-sections with insurmountable engineering, operational, community and/or environmental flaws, as well as those lacking public, city and/or stakeholder support. For the purpose of initial screening, an insurmountable engineering flaw was identified as a major constructability flaw such as a substantially high cost, or a construction constraint that could not be mitigated. Findings for each of the five evaluation categories used at this level of analysis are summarized below in Table 8.

Table 7: Screening Results for the Light Rail Transit Alternative

<i>Initial Set of Alternatives</i>	<i>Final Set of Alternatives</i>
Minimize At-Grade Operations	
<p>A. Wilshire/Western to Wilshire/Crenshaw – Extension of LRT subway service east along Wilshire to connect with Metro Red Line subway service.</p>	<i>Deleted</i>
<p>B. Wilshire/Western to Wilshire/Crenshaw – Extension of Metro Red Line subway service west along Wilshire to connect with LRT subway service terminating at Wilshire/Crenshaw.</p>	<i>Deleted</i>
Maximize At-grade Operations	
<p>A. Wilshire/Western to Wilshire/Crenshaw – Extension of LRT at-grade service east along Wilshire to connect with Metro Red Line subway service.</p>	<i>Deleted</i>
<p>B. Wilshire/Western to Wilshire/Crenshaw – Extension of Metro Red Line subway service along Wilshire to connect with LRT at-grade service terminating at Wilshire/Crenshaw.</p>	<i>Deleted</i>
	<p>Wilshire/Crenshaw to Crenshaw/Exposition – Served by two <i>Crenshaw Metro Rapid</i> lines: Crenshaw/Hollywood/Vine and Crenshaw/ LAX.</p> <p><i>LRT service/regional system connection</i> via either the future Exposition Line <i>or</i> via the Green Line.</p>
Minimize At-Grade Operations	
<p><u>Crenshaw to LAX/Metro Green Line</u></p> <ul style="list-style-type: none"> • Wilshire/Crenshaw to Crenshaw/Vernon Subway • Crenshaw/Vernon to BNSF RR ROW Aerial • BNSF RR ROW Primarily at-grade* • BNSF RR ROW/Century Existing aerial • 104th to 111th Trench • 111th to Green Line Aviation Station Aerial <p>* Grade separations at: Centinela, La Brea and I-405.</p>	<i>Deleted</i>
<p><u>Crenshaw to Prairie/Hawthorne</u></p> <ul style="list-style-type: none"> • Wilshire/Crenshaw to Crenshaw/Vernon Subway • Crenshaw/Vernon to BNSF RR ROW Aerial • BNSF RR ROW to Manchester Subway • Manchester to 111th Street At-grade • 111th to Metro Green Line Aviation Station and then south to El Segundo Aerial 	<i>Deleted</i>

Table 7: Screening Results for the Light Rail Transit Alternative

<i>Initial Set of Alternatives</i>	<i>Final Set of Alternatives</i>
Maximize At-Grade Operations	
<p><u>Crenshaw to LAX/Metro Green Line</u></p> <ul style="list-style-type: none"> • Wilshire/Crenshaw to Crenshaw/Vernon At-grade • Crenshaw/Vernon to BNSF RR ROW At-grade • BNSF RR ROW At-grade • BNSF RR ROW/Century Existing aerial crossing • 104th to 111th Trench • 111th to Metro Green Line Aviation Station Aerial 	<p><u>Crenshaw to LAX/Metro Green Line-Maximize at-grade operations</u></p> <ul style="list-style-type: none"> • Crenshaw/Exposition to BNSF RR ROW At-grade • BNSF RR ROW Primarily at-grade* • BNSF RR ROW/Century Existing aerial crossing • 104th to 111th Trench • 111th to Metro Green Line Aviation Station Aerial <p>• Grade separations at: Centinela, La Brea and I-405.</p> <p><u>Crenshaw to LAX/Metro Green Line-Maximize dedicated operations</u></p> <ul style="list-style-type: none"> • Crenshaw/Exposition south to MLK At-grade • MLK to Vernon Subway • Vernon to BNSF RR ROW At-grade • BNSF RR ROW Primarily at-grade* • BNSF RR ROW/Century Existing aerial crossing • 104th to 111th Trench • 111th to Metro Green Line Aviation Station Aerial <p>• Grade separations at: Centinela, La Brea and I-405.</p>
<p><u>Crenshaw to Prairie/Hawthorne</u></p> <ul style="list-style-type: none"> • Wilshire/Crenshaw to Crenshaw/Vernon At-grade • Crenshaw/Vernon to BNSF RR ROW At-grade • BNSF RR ROW to Prairie At-grade • Prairie from RR ROW to Manchester Subway • Manchester to 111th Street At-grade • 111th to Metro Green Line Aviation Station then south to approximately 116th Street Aerial • 116th Street to El Segundo At-grade 	<p><u>Crenshaw to Prairie/Hawthorne</u></p> <ul style="list-style-type: none"> • Crenshaw/Exposition to BNSF RR ROW At-grade • BNSF RR ROW to Prairie At-grade • Prairie from RR ROW to Manchester At-grade • Manchester to 111th Street At-grade • 111th to Metro Green Line Aviation Station then south to approximately 116th Street Aerial • 116th Street to El Segundo At-grade

Table 8: Initial Screening Results

<i>Mobility Improvements</i>	
• Defines “build” alternatives that fully assess the benefits and impacts of a new system.	The two “build” alternatives (BRT and LRT) were defined to fully assess the benefits and impacts of a new Corridor transit system.
• Connects with regional transit system (currently or in the future).	All options under study are designed to connect with the regional transit system either directly or indirectly.
• Serves key Corridor activity centers and/or destinations.	All options under study serve key Corridor activity centers and/or destinations to varying degrees.
• Provides faster service (than existing local bus service).	All options under study provide varying degrees of faster service.
• Provides more frequent service.	While ultimately a funding/operations decision – all options under study could provide more frequent service.
• Serves Corridor residents without a car.	Each of the options under study would better serve Corridor residents without a car.
• Increases the range of transportation options.	Each of the options under study increases the range of transportation options.
<i>Environmental Benefits</i>	
• Has no environmental and/or community fatal flaws	Any segments and/or options with fatal flaws identifiable through conceptual level analysis have been deleted from further study.
<i>Operating Efficiencies</i>	
• Has no engineering and/or operational fatal flaws	Any segments and/or options with fatal flaws identifiable through conceptual level analysis have been deleted from further study.
• Meets MTA service criteria	All options under study meet/or will be designed to meet MTA service criteria.
<i>Land Use and Economic Considerations</i>	
• Encourages Corridor economic development	All options under study encourage varying levels of economic development.
<i>Public Support</i>	
• Has community and stakeholder support	All options have support for further study.
• Has City support for proposed service and/or service alignments	All options have support for further study.

5.0 FINAL SET OF 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 has been identified, evaluated and reduced to a Final Set of Alternatives for further conceptual level technical and environmental analysis. The Final Set of Alternatives consists of the Baseline Alternative and two build alternatives described below.

5.1 No Build and TSM Alternatives

Under Federal Transit Administration (FTA) guidance published in December 2000, new direction has been given on the definition of the No Build and Transportation Systems Management (TSM) alternatives in the MIS planning process. This Rule eliminates the requirement for separate No Build and TSM alternatives, and instead requires that the proposed “new start” or “build” options be evaluated against a single “baseline alternative.” The baseline alternative can be defined as all reasonable, cost-effective transit improvements included in the adopted financially constrained regional transportation plan – without the build project. In this study effort, the Metro Rapid service improvements, which are included in the adopted *2001 MTA Long Range Transportation Plan*, will serve as the baseline alternative.

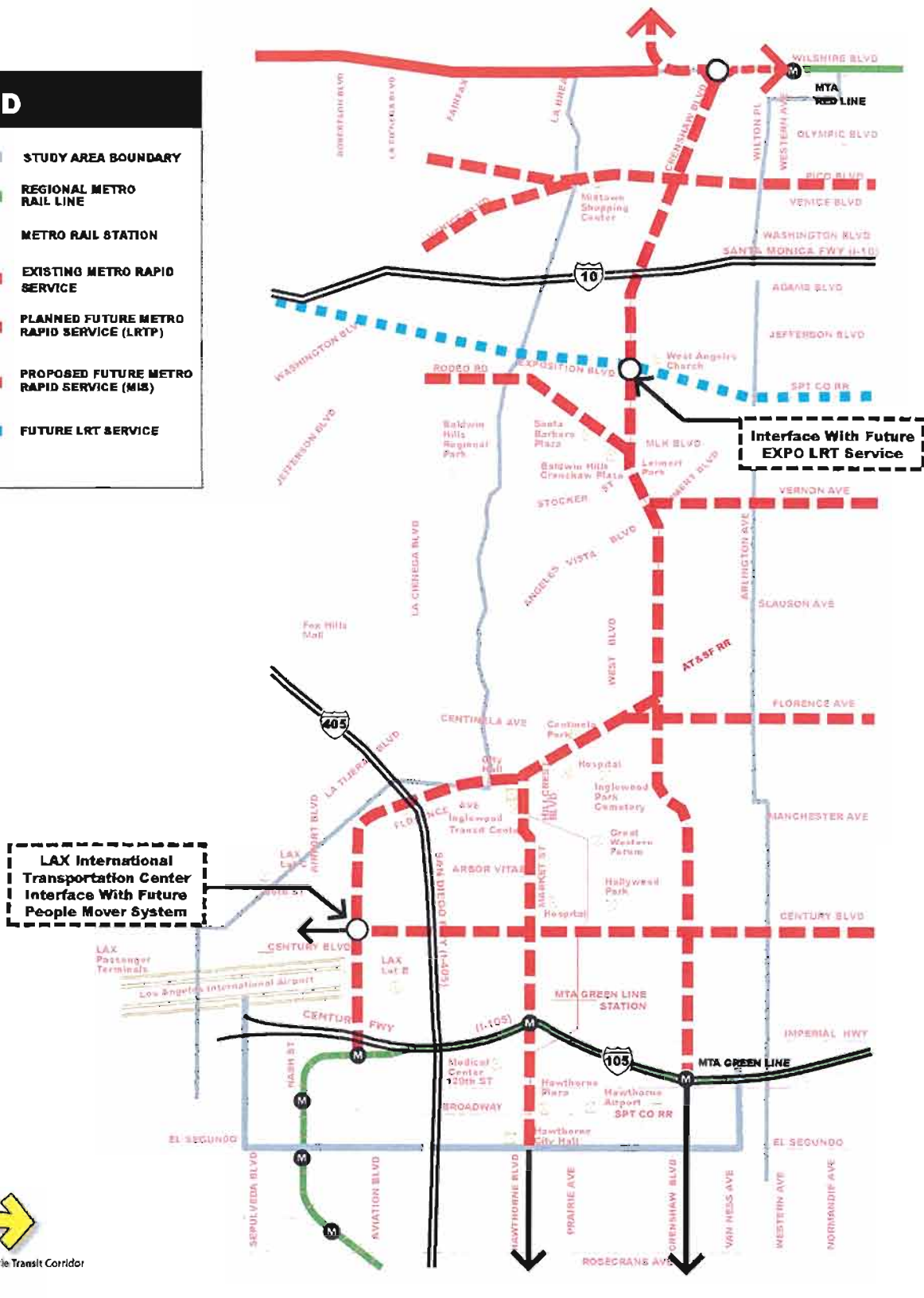
5.2 Baseline Alternative

The Baseline Alternative will consist of the Metro Rapid services identified through the Initial Screening process along with expanded local circulator service providing community linkages. As presented in Figure 7, Metro Rapid service will be evaluated on the following Study Corridor service alignments:

- ***Crenshaw/Hollywood/Vine*** – Operating south from the Metro Red Line Hollywood/Vine Station in Hollywood along Vine Street and then Rossmore Avenue to Wilshire Boulevard, south on Crenshaw Boulevard through the Crenshaw District to terminate at the Metro Green Line Crenshaw Station.
- ***Crenshaw/LAX*** – Operating west from the Metro Red Line Wilshire/Western Station along Wilshire Boulevard, then south on Crenshaw Boulevard through the Crenshaw District where it turns west on Florence Avenue through Downtown Inglewood and becomes Aviation Boulevard where it interfaces with the future LAX Intermodal Transportation Center (Aviation/Century Boulevards) 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 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 to be located at Aviation and Century Boulevards.
- ***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.

LEGEND

- STUDY AREA BOUNDARY
- REGIONAL METRO RAIL LINE
- M METRO RAIL STATION
- EXISTING METRO RAPID SERVICE
- PLANNED FUTURE METRO RAPID SERVICE (LRTP)
- PROPOSED FUTURE METRO RAPID SERVICE (MIS)
- FUTURE LRT SERVICE



- **Pico** – Operating east on Pico Boulevard from Santa Monica and West Los Angeles to the Mid-City Transit Center 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 Mid-City Transit Center. Passengers wishing to travel further east to Downtown Los Angeles would transfer to the Pico Metro Rapid Line.

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

5.3 Bus Rapid Transit Alternative

The Bus Rapid Transit (BRT) will evaluate a “build” alternative for the Study Corridor operating in three service configurations:

- 24 hour curbside dedicated lane operations where possible;
- Mixed-flow operations in constrained street locations; and
- Dedicated lane operations on the former BNSF Railroad right-of-way.

As presented in Figure 8, BRT service will be evaluated on the following Study Corridor service alignments with the stations identified in Table 9:










- **Crenshaw/LAX** – 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 future LAX Intermodal Transportation Center (RR ROW/Century) and the Metro Green Line Aviation Station.
- **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 to the Metro Green Line Hawthorne Station and terminating at El Segundo Boulevard in Downtown Hawthorne.

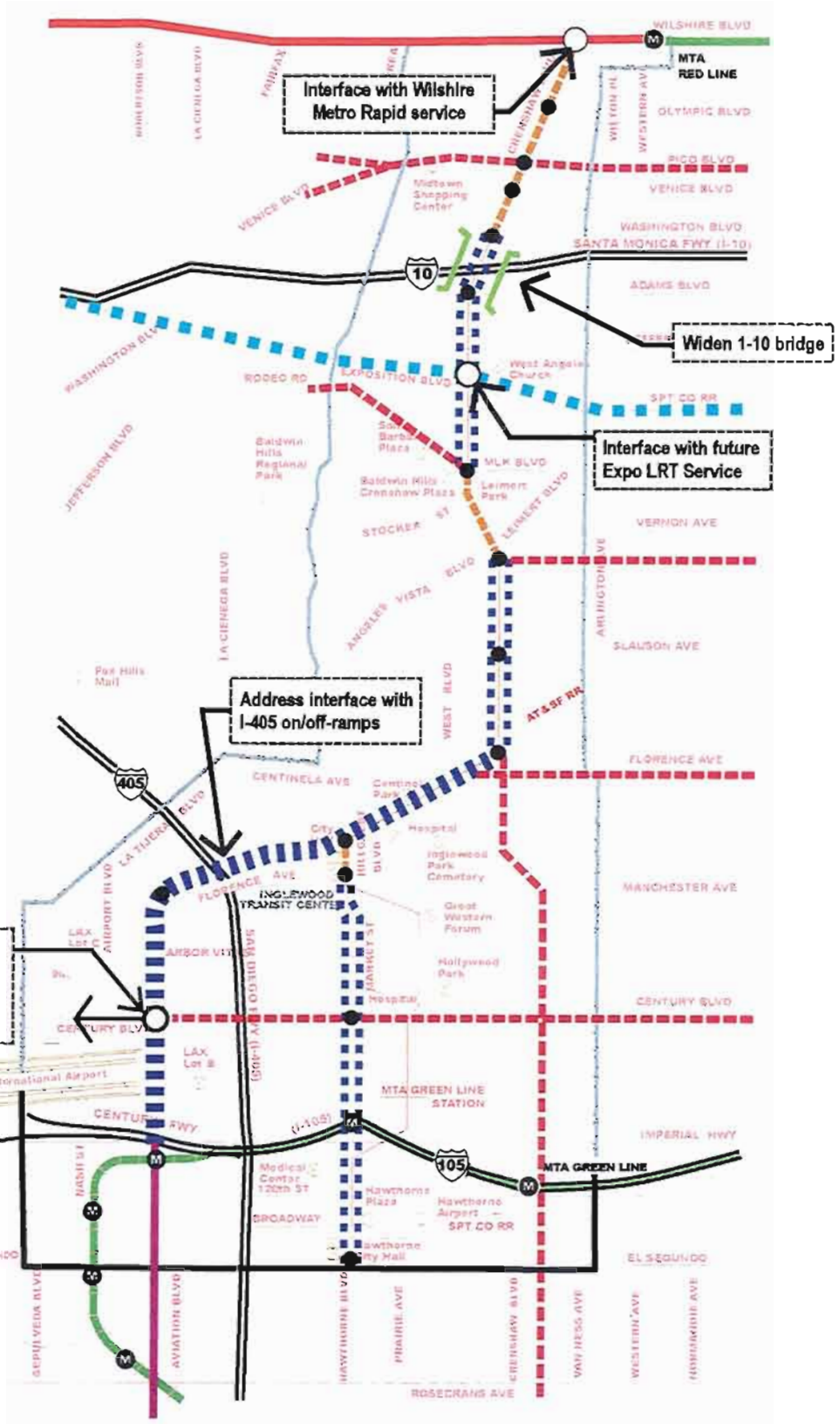
BRT service will operate in mixed-flow conditions with other vehicular traffic in the following sections of the Study Corridor:

- **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.

The BRT alternatives are described in detail in the *Conceptual Engineering Description of the Build Alternatives Report*

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





Bus Rapid Transit Alternative

Crenshaw - Prairie Corridor MIS






8

Table 9: Bus Rapid Transit Alternative – Stations

<p><u>Common to both alternatives:</u></p> <ul style="list-style-type: none"> • Crenshaw/Wilshire • Crenshaw/Olympic • Crenshaw/Pico • Crenshaw/Venice • Crenshaw/Washington • Crenshaw/Adams • Crenshaw/Expo LRT • Crenshaw/MLK • Crenshaw/Vernon • Crenshaw/Slauson
<p><u>1. Crenshaw/LAX Alternative</u></p> <ul style="list-style-type: none"> • Crenshaw/Florence/RR ROW • RR ROW/La Brea • RR ROW/Manchester • RR ROW/Century/LAX Intermodal Transportation Center • Metro Green Line Aviation Station
<p><u>2. Crenshaw/Hawthorne Alternative</u></p> <ul style="list-style-type: none"> • Crenshaw/Florence/RR ROW • RR ROW/La Brea • La Brea/Inglewood Transit Center • La Brea/Century • Metro Green Line Hawthorne Station

5.4 Light Rail Transit Alternative

The Light Rail Transit (LRT) will evaluate a “build” alternative for the Study Corridor operating in a combination of the five service configurations:

- At-grade, median-running operations in 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 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.

As presented in Figure 9, LRT service will be evaluated on the following Study Corridor service alignments with the stations identified in Table 10:

- ***Crenshaw/LAX*** – 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 future LAX Intermodal Transportation Center (RR ROW/Century) and the Metro Green Line Aviation Station.
- ***Crenshaw/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 the Daniel Freeman Hospital, Forum and Hollywood Park) to 111th Street and then west to interface with the Metro Green Line Hawthorne Station, south on Hawthorne Boulevard and terminating at El Segundo Boulevard in Downtown Hawthorne.

LRT service will 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 Manchester Avenue.

LRT service operating in a below-grade configuration will be evaluated in the following section of the Study Corridor:

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

The LRT alternatives are described in detail in the *Conceptual Engineering Description of the Build Alternatives Report*

5.4 Next Steps

The identified Final Set of Alternatives will be evaluated through conceptual technical and environmental setting analysis along with additional public outreach efforts. This final analytical level is intended to provide the public and decision-makers with a technical basis to select the most viable transportation strategy, or phasing of strategies, which addresses 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 will identify the following conceptual technical information for each of the alternatives including the Baseline option:

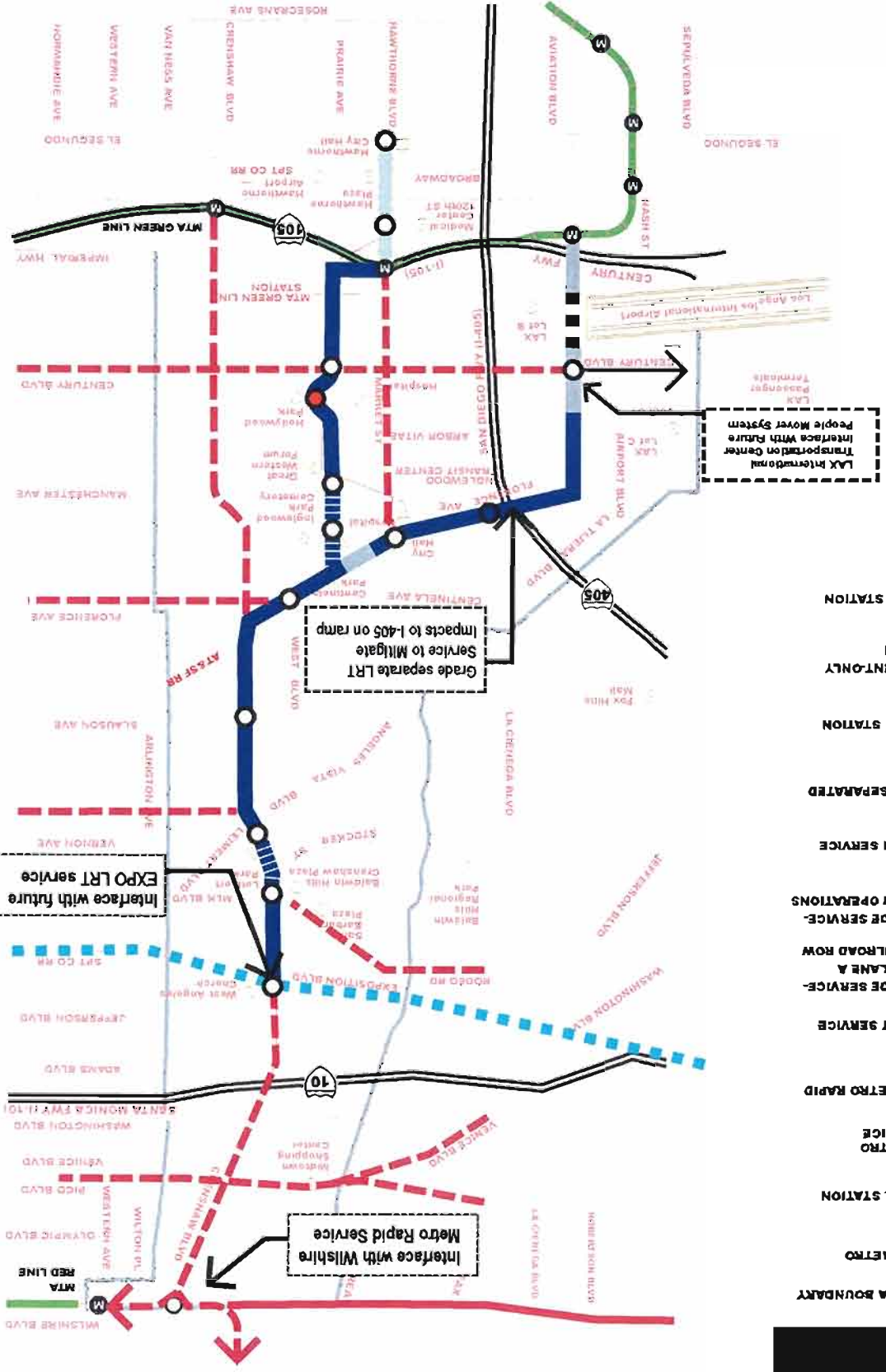
- Capital cost per alternative, phase and passenger-mile
- Annualized operating costs per alternative, phase and passenger-mile
- Peak hour transit capacity
- Daily boardings
- New daily transit trips
- Annualized operating cost per new daily transit trip
- Average and maximum operating speed.

The full set of criteria and performance measures presented below in Table 11 will be used to evaluate and compare the alternatives. Numerical information will be identified and a rating system similar to that used by the FTA will be applied as appropriate. A final round of outreach efforts will identify the level of public and stakeholder support for each of the alternatives.



Light Rail Transit Alternative

Crenshaw - Prairie Corridor MIS



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

LEGEND

Table 10: LRT Alternative – Stations

1. Crenshaw/Green Line Aviation Station Alternative – Maximize at-grade operations*

- Crenshaw/Expo LRT
- Crenshaw/MLK
- Crenshaw/Vernon
- Crenshaw/Slauson
- RR ROW/West
- RR ROW/La Brea
- RR ROW/Century/LAX Intermodal Transportation Center
- Metro Green Line Aviation Station

* 63% of the proposed service alignment would operate in a dedicated right-of-way

2. Crenshaw/Green Line Aviation Station Alternative –Maximize dedicated right-of-way operations**

- Crenshaw/Expo LRT
- Crenshaw/Stocker
- Crenshaw/Slauson
- RR ROW/West
- RR ROW/La Brea
- RR ROW/Century/LAX Intermodal Transportation Center
- Metro Green Line Aviation Station

** 70% of the proposed service alignment would operate in a dedicated right-of-way

3. Crenshaw/Prairie/Hawthorne Alternative – Maximize at-grade operations

- Crenshaw/Expo LRT
- Crenshaw/MLK
- Crenshaw/Vernon
- Crenshaw/Slauson
- RR ROW/West
- Prairie/Grace (Daniel Freeman Hospital)
- Prairie/Manchester
- Prairie/Hollywood Park (special event station)
- Prairie/Century
- Metro Green Line Hawthorne Station
- Hawthorne/118th (RFK Medical Center)
- Hawthorne/El Segundo

Table 11: Corridor Evaluation Criteria and Performance Measures

Criteria	Performance Measures
Mobility Improvements	<ul style="list-style-type: none"> • Number of Corridor activity centers and/or destinations served by each alternative • Travel times for major origin-destination pairs • Number of transfers required for travel between major origin-destination pairs • Aggregate annual travel time savings (hours) • Number of low income households located within one-half mile of boarding points • Number of existing jobs located within one-half mile of boarding points
Environmental Benefits	<ul style="list-style-type: none"> • Identify any adverse community and environmental impacts • Describe any traffic and parking impacts • Forecast net change in criteria pollutant and greenhouse gas emissions • Forecast net change per year in the regional consumption of energy • Current EPA designation for region's compliance with National Ambient Air Quality Standards
Operating Efficiencies	<ul style="list-style-type: none"> • Forecast net change in operating cost per passenger-mile for the entire transit system
Transportation System Benefits (Cost Effectiveness)	<ul style="list-style-type: none"> • Perceived travel times faced by all users of the transportation system divided by the incremental cost of the proposed project (effective September 2001) • Incremental costs of the proposed project divided by the incremental transit ridership (former measure)
Land Use and Economic Considerations	<p>Measures will include:</p> <ul style="list-style-type: none"> • Identification of existing transit-supportive land uses in the Corridor and identified station/stop areas, including existing residential and employment densities • Identification of economic development activities • Assessment of the impact of the alternatives on land use patterns in the Corridor and stations/stops • Identification of existing Corridor transit-supportive and growth-management policies • Identification of transit-supportive Corridor and station/stop area zoning regulations • Identification of existing tools to implement transit-supportive land use and development policies
Public Support	<ul style="list-style-type: none"> • Community and stakeholder support • Public plan and policy support (cities, RTP, LRTP, etc.) • Public support (elected officials) • Public agency support
Other Factors	<p>Factors relevant to success of the proposed project which may include:</p> <ul style="list-style-type: none"> • Existing and forecast future levels of Corridor transit ridership • Phased approach to the LPA decision • Environmental justice considerations and equity issues • Increased access to employment for low income persons • Consideration of alternative land use development scenarios in local evaluation and decision-making • Additional factors relevant to local and national priorities and to the success of the project such as FTA's BRT Demo Program