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2008 Long Range Transportation Plan

DRAFT

TECHNICAL DOCUMENT



Metro



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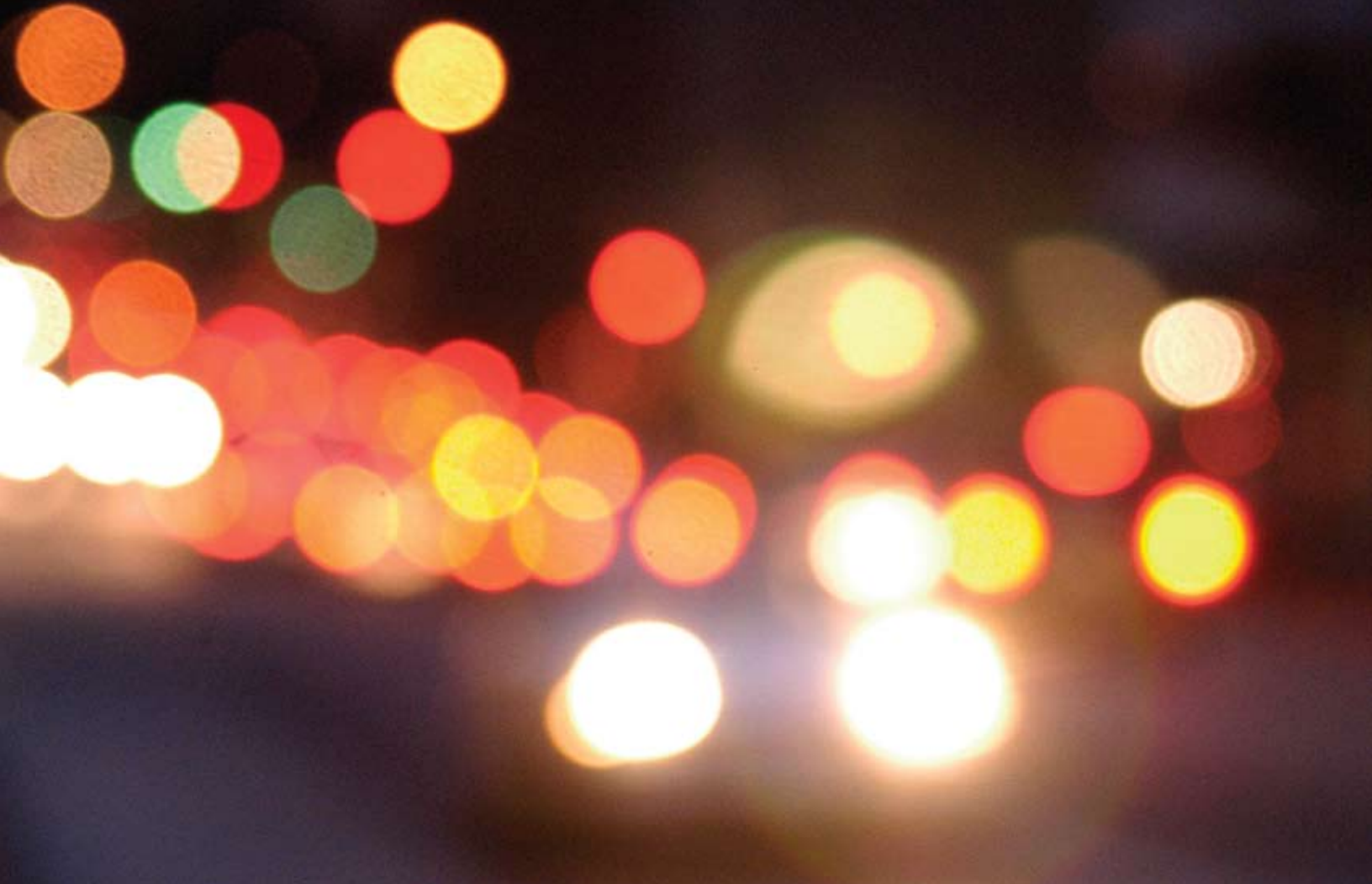


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The Draft 2008 Long Range Transportation Plan Technical Document (Draft Technical Document) is a supplemental document to the Los Angeles County Metropolitan Transportation Authority's Draft 2008 Long Range Transportation Plan (Draft Plan).

This Draft Technical Document provides additional information regarding various technical components of the Draft Plan, including sub-regional needs; climate change and sustainability issues; financial modeling and assumptions, travel demand modeling and assumptions, and performance analysis. For more information on Draft Plan recommendations, please refer to the Draft Plan document, available under separate cover.

Plan Overview

Metro is responsible for planning and programming in Los Angeles County, in accordance with California Government Code Section 130051. In order to meet these responsibilities, Metro develops a Long Range Transportation Plan for Los Angeles County. Metro is in the process of updating its Plan. The Plan is periodically updated to maintain at least a twenty-year planning horizon, and to reflect changes since the last Plan was adopted. The Draft 2008 Plan extends the planning horizon by an additional five years, from 2025 to 2030. It also updates the Plan for a variety of factors, such as socio-economic data, financial conditions, and changes in travel patterns. Updating the Plan also provides an opportunity to assess whether new projects can be added to the Plan given anticipated funding resources, as well as to identify projects that could be done if more money was available.

Community Outreach, Environmental Justice, and Title VI Analysis

In developing the Draft Plan, Metro coordinates with a wide range of interests. Metro is conducting community outreach meetings for the Draft Plan at locations throughout the County, and is providing an opportunity for public review through a 45-day comment period. Metro also coordinates with its transportation partners, including the sub-regional agencies, the Southern California Association of Governments (SCAG), Caltrans, Metrolink, and municipal and local transit operators. Finally, Metro regularly consults with the Metro Technical Advisory Committee and its subcommittees.

Metro complies with federal environmental justice and Title VI requirements to include transit-dependent and minority communities in its community outreach and to analyze the benefits and impacts of the Draft Plan on the transit-dependent and minority communities. Metro meets these programs through the following: 1) through many community meetings on the Draft Plan; 2) through coordination with nine subregions comprising local elected officials and staff; 3) through media awareness of the Draft Plan and its development; 4) through periodic

presentations on Plan development to the Metro Board, 5) through the 45-day public review period for the Draft Plan; and 6) through demographic analysis of the Draft Plan's alternatives and recommendations, in particular looking at performance measures for mobility and transit access. Extensive community involvement also occurs on major transportation projects at the project-level and through planning and environmental review activities. The Draft Plan has performed well in meeting the needs of transit dependent and minority communities. In fact, the analysis indicates that transit services are available at a higher service level in these communities than in the County at large. Further information regarding this analysis is found in the Travel Demand Model chapter.

Relationship of the Draft 2008 Plan to the SCAG Regional Transportation Plan

As mentioned above, Metro has coordinated the development of its Draft Plan with the Southern California Association of Governments. Projects recommended for funding in the Draft Plan have been provided to SCAG for inclusion in their 2008 Regional Transportation Plan Update. Any changes to the Plan as it is adopted by Metro Board in June 2008 will also be provided to SCAG for amendment into the 2008 Regional Transportation Plan at that time.

Draft Technical Document Contents

This document includes the following sections, as described below:

- > **Chapter 1 – Introduction**
- > **Chapter 2 – Sub-regional Partners**
This chapter highlights Los Angeles County's various sub-regions in their own voice, describing transportation needs and unfunded subregional projects recommended by each subregion.
- > **Chapter 3 – Climate Change and Sustainability**
This chapter takes a look at the climate change and sustainability issues and how Metro is addressing these issues.
- > **Chapter 4 – Financial Model and Assumptions**
This chapter describes the financial model and analysis that supports the Draft Plan.
- > **Chapter 5 – Travel Demand Model and Assumptions**
This chapter describes the travel demand model and assumptions used to assess the performance of the Draft Plan.
- > **Appendix A – Glossary**



Subregional Partners



- > The nine subregions have identified their transportation challenges and unfunded priorities.
- > A mobility project implemented in one subregion may also benefit the other subregions due to regional travel patterns.
- > Understanding each subregion's mobility challenges and needs can improve coordination throughout the regional system and expand the benefit of subregional enhancements.
- > Strengthening the subregional partnerships will improve the flow of communication and increase the responsiveness to issues.

Los Angeles County is comprised of nine subregions, each containing many jurisdictions, communities, and neighborhoods with a combined population approaching 10 million. Although each subregion has distinct characteristics, each one shares common needs and challenges, particularly when it comes to transportation, and their quality of life.

The partnership between the subregions and Metro is an interdependent one that has resulted in developing and implementing creative transportation solutions for the residents of the County.

The Draft 2008 Plan, once again, has enabled the nine subregions to identify their transportation challenges and unfunded priorities.

The list of unfunded transportation priorities and sub regional perspectives contained in this Draft 2008 Plan are the result of input received from each subregion over the last two years. Metro will be offering each of the nine sub regions an opportunity again to review and revise their chapters when staff meets with them during the 45-day public review period for this Draft 2008 Plan from March 12 through April 25, 2008.

Planning Process

For planning purposes, Los Angeles County cities and communities are identified geographically by nine distinct, diverse and vibrant subregions based generally on the existing Councils of Government (COGs) boundaries that range from 60 to 2,500 square miles in areas. Some are small, cooperative efforts staffed by city representatives; others are formalized COGs with paid staff; and some are geographic sub-sections of the City of Los Angeles.

In developing this chapter, subregional agencies were engaged early in the process to receive their input to capture the unique transportation issues and challenges facing each subregion. The subregions are:

- > Arroyo Verdugo Cities
- > Central Los Angeles
- > Gateway Cities
- > Las Virgenes/Malibu
- > North Los Angeles County
- > San Fernando Valley
- > San Gabriel Valley
- > South Bay Cities
- > Westside Cities

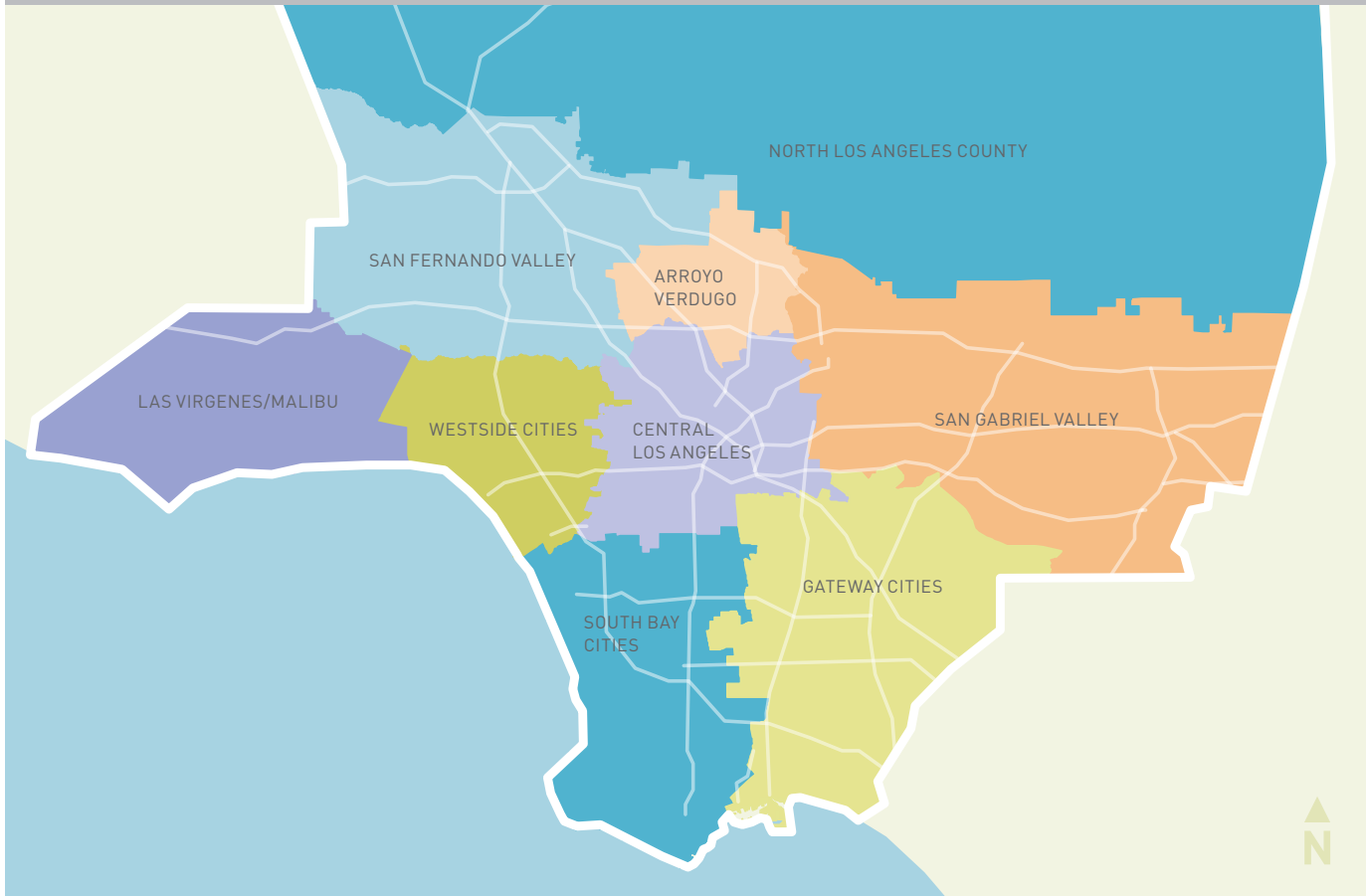
Figure 2.1 illustrates the subregions in the County.

The Results

Every day, millions of people throughout the County travel for work, school, play and shopping, originating from and passing through, virtually every subregion in the County, as well as circulating within their own neighborhoods and

FIGURE 2.1

Los Angeles County Subregions



surrounding communities. Every mode traveled, including transit, relies on streets, sidewalks, bikeways, highways and freeways. This chapter addresses the unique transportation challenges throughout the County and identifies a number of additional transportation solutions that are candidates for funding, if additional funding becomes available.

This chapter reflects the views and perceptions of the subregions themselves. While Metro provided the general framework for input, the subregions, and the cities that comprise them, invested their time and effort to consider the issue of transportation in their subregion over the next 25 years to develop this subregional policy framework. Metro is committed to working with all of the subregions and cities to address transportation priorities based upon the issues and objectives they have developed, as well as any other issues that may arise.

The following discussion identifies the needs and priorities expressed by each subregion.

ARROYO VERDUGO CITIES SUBREGION

Cities

Burbank, Glendale and La Canada Flintridge

Setting

Arroyo Verdugo sits against a dramatic backdrop of the

San Gabriel Mountains between the San Fernando and San Gabriel Valleys. It is located on the northern edge of the Los Angeles Basin, and is bounded to the north by the Angeles National Forest, to the west and south by the City of Los Angeles, and on the east by the City of Pasadena. Figure 2.2 illustrates the Arroyo Verdugo subregion.

Major Transportation Facilities

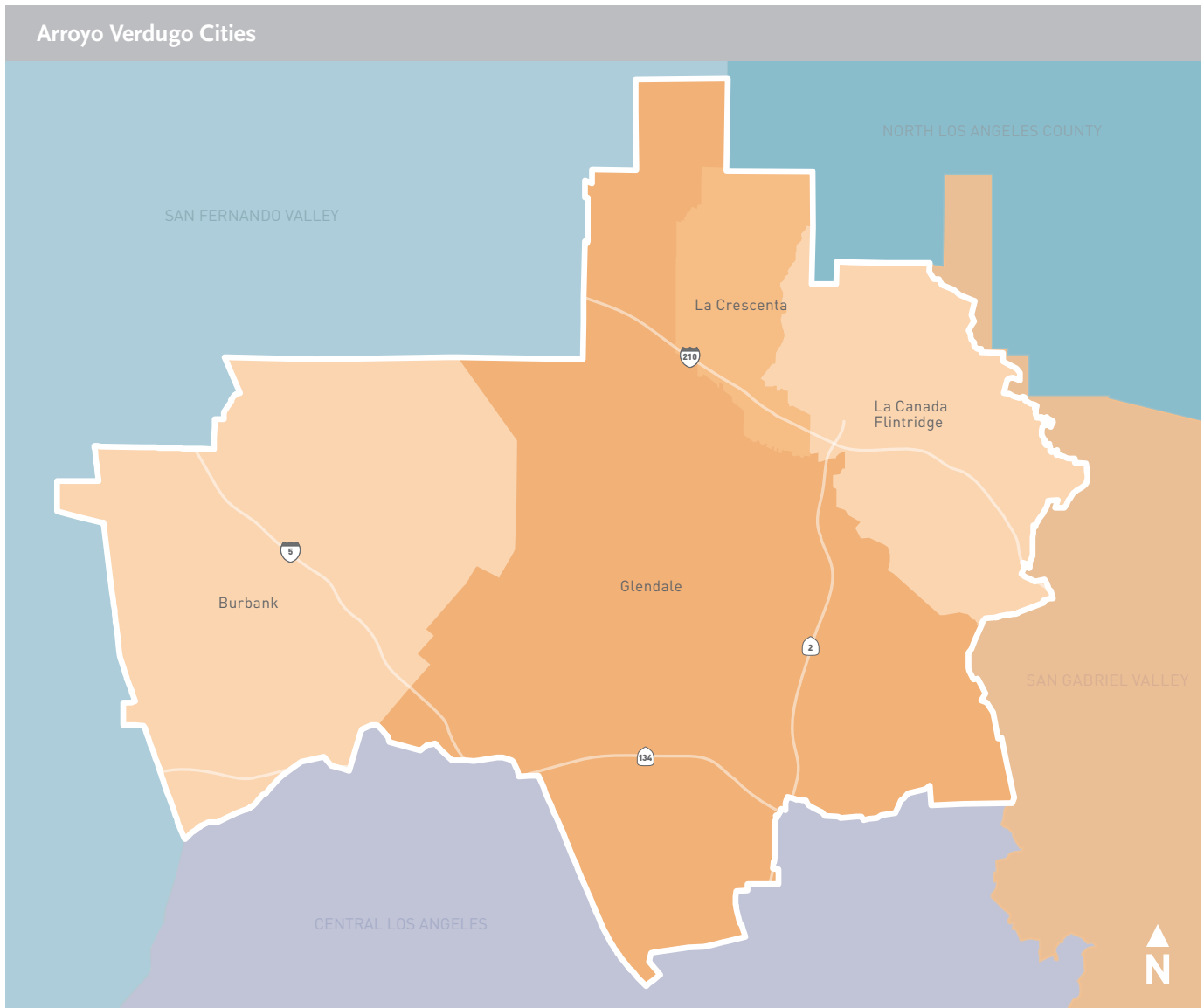
Several major freeways traverse this subregion including the Foothill (I-210), Glendale (SR-2), Golden State (I-5) and Ventura (US-101 and SR-134) Freeways. The northern portion of the Hollywood Freeway (SR-170) extends northwesterly to the south and west of the subregion.

Bus service in the subregion is provided by Metro and LADOT, as well as by local transit service providers in each of the member cities. Metrolink's Ventura County and Antelope Valley Lines provide commuter rail services to Burbank and Glendale. Limited Amtrak service is also available.

Burbank, Glendale, and La Canada Flintridge also provide paratransit services within their cities for the elderly and persons with disabilities. Service in La Canada Flintridge is administered by the City of Glendale. Access Services, Inc. provides paratransit service in Arroyo Verdugo as part of its region-wide service.

FIGURE 2.2

Arroyo Verdugo Cities



Mobility Challenges

Local freeways serve residents and commuters in the subregion, but worsening congestion on the surface streets limits access at freeway interchanges. Growing employment densities in Glendale and Burbank have led to substantial arterial congestion intruding into neighborhoods, as drivers seek short-cuts through residential areas. This problem is especially acute on Foothill Bl in La Canada Flintridge.

Metrolink service does not extend to Burbank and Glendale's highest density employment centers, but shuttle service links passengers with key locations. The possibility of linking this area with high-speed rail is also being considered.

What The Future Holds

To address the subregion's mobility challenges, many transportation improvement projects have been undertaken that are expected to be operational by 2030. These include:

- > Implementation of two new Metro Rapid bus lines;
- > I-5 carpool lanes from the SR-134 to SR-170 with Empire Av (design only); and
- > Metrolink locomotive and passenger coach purchases.

Metro has also awarded funding through the Call for Projects process for several additional local priorities that are expected to proceed, subject to funding availability:

- > **Freeway** – Carpool lanes on SR-134 from SR-2 to I-210, and I-5/Empire Av access;
- > **Arterials** – Burbank Bl/Victory Bl Intersection Improvements, and Burbank RITC South Front St Improvements;
- > **Signal Synchronization** – Burbank Media District ITS Phases I & II, Arroyo Verdugo ATSAAC Interface, and Arroyo Verdugo TOC Fiber optic Communications System;
- > **Transportation Demand Management** – Citywide Metrolink Shuttle Program – Media District Area, Glendale Metrolink Express Shuttle, and Glendale TMA Parking Management Project;

- > **Bikeway and Pedestrian Improvement Projects** – Burbank-LA Chandler Bl Access way;
- > **Transportation Enhancements** – Burbank Transit Center Landscaping Enhancements, and Burbank RITC Pedestrian Bridge; and
- > **Transit** – Purchase of eight 35-foot, low-floor, CNG heavy-duty transit vehicles for use in Glendale and purchase of two electric buses for Burbank.

Stakeholder Recommendations

During the development of the Draft 2008 Plan, Metro met with Arroyo Verdugo cities to gather input on additional subregional needs and priorities. These represent potential strategies that could be explored should additional funds become available prior to 2030.

These strategies include, but are not limited to:

- > Reducing arterial congestion and through traffic in residential areas;

- > Increasing Metrolink access and service;
- > Constructing soundwalls on local Route 210 segments;
- > Secure additional funding for transportation system preservation to keep pace with the growing cost of rehabilitating and improving the existing local roadway network;
- > Providing bikeways linking employment and activity centers and other transportation modes;
- > Providing or encouraging independent bus service for the subregion and adjacent portions of the San Fernando Valley; and
- > Improving freeway access to relieve traffic congestion by widening/reconfiguring on- and off-ramps.

The Draft 2008 Plan is a living document that will be continually updated. Metro will work with the Arroyo Verdugo subregion on an ongoing basis to ensure that its priorities are taken into consideration during each update. Figure 2.3 lists a variety of unfunded subregional priorities that are identified by the Arroyo Verdugo COG.

FIGURE 2.3

Arroyo Verdugo Cities		
City	Route	Project Limits/Description
Freeway		
Glendale	SR-134	SR-134 Corridor – Analyze SR-134 off/on-ramps to increase capacity and reduce congestion. Prepare conceptual design alternatives.
South Pasadena	I-710	Perform a feasibility study of the ‘tunnel alternative’ for the proposed I-710 extension
Pasadena	210	Soundwall Construction – North 210 Freeway, Orange Grove to Arroyo Parkway
Glendale	SR-134	Construct a grade-separation structure to extend Doran St westerly over San Fernando Road and the Metrolink railroad tracks – SR 134 at Doran St
Glendale	SR-210	Reduce excessive Noise due to the extension of SR-210 to I-15/I-210 – Pennsylvania Av to Lowell Av exits
Glendale	Route 2	Traffic Signals at on/off Ramps
Transit		
Arroyo Verdugo Cities	SR-134 corridor	Conduct a feasibility/alignment study for a Burbank-Glendale-Pasadena High Capacity Transit Corridor Study to connect Pasadena Gold Line to Red Line in North Hollywood/Universal via a LRT or BRT system
Pasadena		Design and Construction of Gold Line Foothill Extension; Pasadena to Claremont
La Canada Flintridge	Metro Line 177	Provide funding to increase headways on Metro Line 177 Connecting the Metro Gold Line to Jet Propulsion Laboratory
Glendale		Glendale Downtown Streetcar System: PS&E – Major Arterials in Glendale
Glendale		CNG and Maintenance Facility for Glendale Beeline transit Services
Glendale		Purchasing Buses to increase bus service and improve frequencies for Glendale Beeline Transit Services – City Wide
Burbank	Downtown Burbank Metrolink Station	Expand the Downtown Burbank Metrolink Station to include additional bus layovers, vehicle maintenance facility, Bike Station, enclosed passenger waiting areas
Rail Grade Separation		
Burbank	Buena Vista St/ SCRRRA Metrolink Valley Line	Railroad Grade Crossing, Buena Vista St./San Fernando Bl and SCRRRA Metrolink Valley Line – This project is part of a larger Interstate 5 HOV improvement and Empire Interchange project
Burbank	Vanowen St – Empire Av	Realign Vanowen St to directly connect with Empire Av and provide a rail grade separation at the existing Clybourn St Rail Crossing. Vanowen St west of Clybourn to Empire Av east of Clybourn

FIGURE 2.3 CONTINUED

Arroyo Verdugo Cities		
City	Route	Project Limits/Description
Glendale	San Fernando Rd	Improve At Grade Crossing Safety Improvements
TSM/TDM		
Pasadena	210/710	Implementation of the City's ITS Master Plan including upgrades to the transportation management center, installation of fiber optic traffic signal interconnect, video cameras, a parking guidance system, and technology upgrades to the city's bus system. Corridor-wide.
Arterial		
Burbank	I-5/SR-134	Implement short-term and long-term improvements to the I-5, SR- 134 interchange area as identified in the 5/134 Congestion Management System Study – Area bounded by I-5, SR-134, Alameda Av, Victory Bl
TSM/TDM		
Los Angeles County	Various Arterial Streets	Unincorporated La Crescenta Signal Synchronization Program – Unincorporated Areas of La Crescenta
Los Angeles County		La Crescenta Av between Foothill Bl and Prospect Av – Unincorporated Areas of La Crescenta
Los Angeles County		Montrose Av between Florencita Av and Del Mar Rd – Unincorporated Areas of La Crescenta
Los Angeles County		Oceanview Bl between Foothill Fwy and Florencita Av – Unincorporated Areas of La Crescenta
Los Angeles County		Pennsylvania Av between Foothill Bl and Foothill Fwy – Unincorporated Areas of La Crescenta
Los Angeles County		Ramsdell Av between Community Av to Montrose Av – Unincorporated Areas of La Crescenta
Los Angeles County		Rosemont Av between Foothill Bl and Montrose Av – Unincorporated Areas of La Crescenta
Bridge		
Burbank	Downtown Burbank Metrolink Station	Provide a bicycle and pedestrian bridge over I-5 and the SCRRR Metrolink Tracks, connecting the Downtown Burbank Station with Downtown Burbank at Palm Av
Burbank	Olive Avenue	Widen the Olive Av Overpass with I-5 to provide eastbound dual left and right turn lanes at First St
Soundwall		
La Canada Flintridge	I-210	Construct Soundwalls along I 210 between Berkshire and Ocean View Exits
Bicycle		
Los Angeles County	Various	Projects Identified in Metro Bicycle Strategic Plan – Arroyo Verdugo Cities Subregion
Other		
Burbank	Burbank Airport	Alternative Fuel: Design and Construct a Compressed Natural Gas Refueling Station in the vicinity of the Burbank Airport

CENTRAL LOS ANGELES SUBREGION

Communities

Atwater Village, Baldwin Hills, Boyle Heights, Central City, Chinatown, Eagle Rock, Echo Park, Glassell Park, Hancock Park, Highland Park, Hollywood, Hollywood Hills, Korea Town, Leimert Park, Little Tokyo, Arts District, Miracle Mile, Mt. Washington, Silver Lake, University Park, West Adams, Wilshire Center, portions of South Los Angeles, and the unincorporated County area of East Los Angeles

Setting

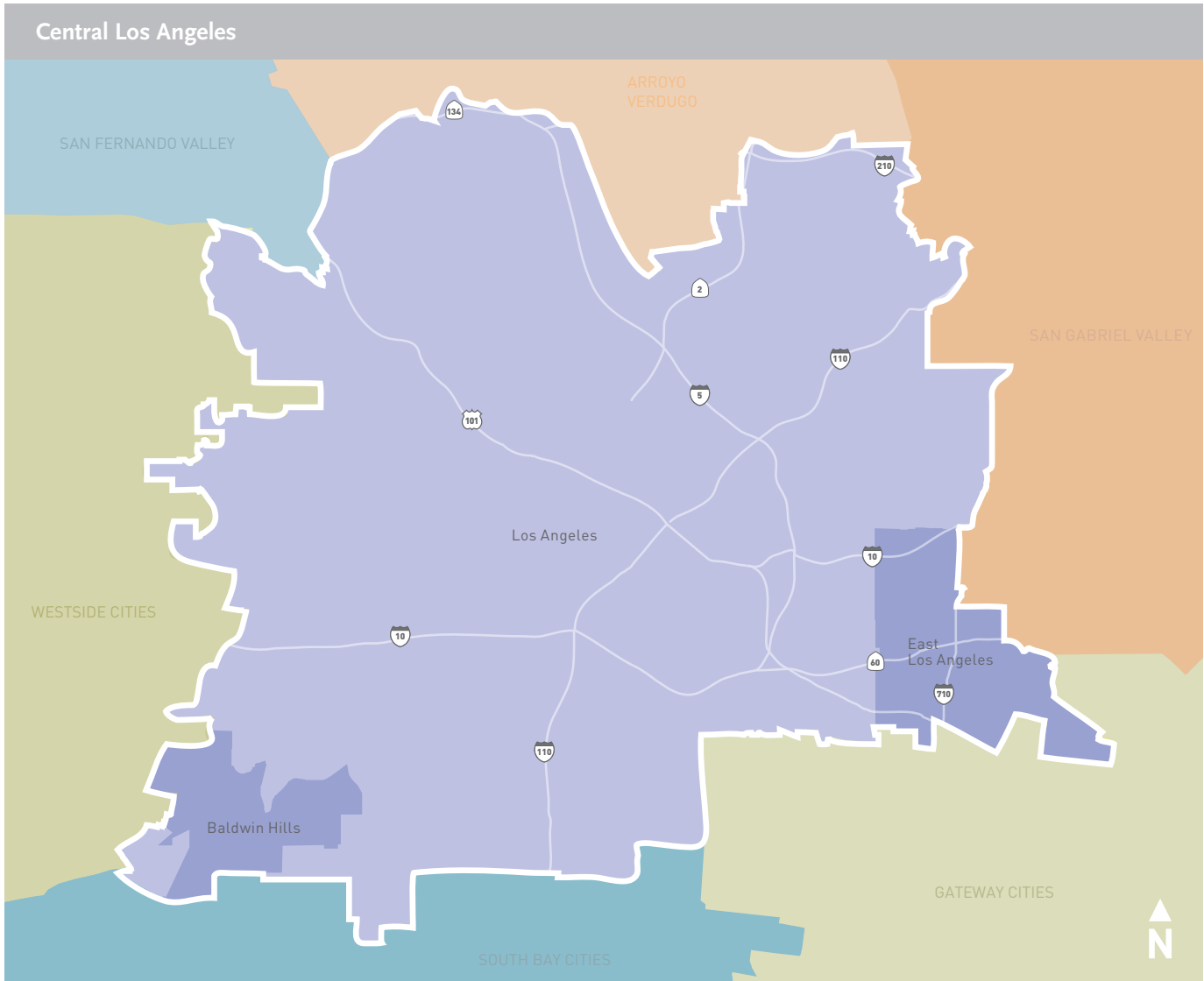
The Central Area is generally bounded by the City of Glendale to the north; the cities of Inglewood, Vernon, and Commerce to the south; and the cities of West Hollywood, Beverly Hills, and Culver City to the west. Figure 2.4 illustrates the Central Area subregion.

The Central Area contains a diverse land use pattern that includes the County's heaviest concentration of commercial and government offices; major industrial areas along the Los Angeles River; the most densely populated residential communities in the region; western U.S. wholesale marts; and many of the region's recreational and cultural facilities. Downtown Los Angeles is the county's largest employment district and over the past decade the site of a considerable expansion of residential, entertainment, and retail development. The Central subregion's road infrastructure is built-out and cannot accommodate more road capacity without adverse community impacts.

Major Transportation Facilities

A total of eight freeways pass through the Central Area. They include I-110 (Harbor Freeway), SR-2 (Glendale

FIGURE 2.4



Freeway), I-5 (Golden State/Santa Ana Freeway), I-10 (Santa Monica/San Bernardino Freeway), SR-60 (Pomona Freeway), SR-134 (Ventura Freeway), US-101 (Hollywood Freeway), and the I-710 (Long Beach Freeway). The El Monte Busway runs along the San Bernardino Freeway's median and terminates at Alameda St. The Harbor Transitway runs along the Harbor Freeway's median and terminates at Adams Bl.

Downtown LA is the focal point of the County's transportation system. Union Station is the County's largest transit facility and center of the region's Metrolink rail operations. Existing rail transit service at Union Station includes the Metro Red Line, Metro Gold Line, five Metrolink commuter rail lines, Metro Rapid, and fixed-route bus service. Amtrak also operates 24 weekday trains out of Union Station across the country.

The Metro Red Line operates between Union Station and North Hollywood. The Metro Purple Line operates between Union Station and Wilshire/Western. The Metro Gold Line operates between Union Station and Pasadena. The Metro

Blue Line operates between the 7th St/Metro Center Station and Long Beach.

Over the next two years, Metro is opening two new Metro Rail lines that will add approximately 20 miles of new service. The Metro Gold Line Eastside Extension is scheduled to begin operation in late 2009 while the Exposition Light Rail Transit Project (Phase I) is scheduled to open in 2010. These two lines will provide additional service connecting Culver City, through Downtown Los Angeles, with the East San Gabriel Valley. At Downtown, they will connect with the Metro Red Line and be linked to the rest of the Metro System. Also, 10 municipal bus operators serve the Central Area. They include Metro, Antelope Valley Transit, Foothill Transit, Gardena Municipal Bus Lines, LADOT (Dash and Commuter Express), Montebello Municipal Bus Lines, OCTA, Santa Clarita Transit, Santa Monica Municipal Bus Lines, and Torrance Transit. Currently, Metro operates four Metro Rapid lines within the Central Area (Wilshire/Whittier Bls, South Broadway, Vermont Av and Florence Av). Service is planned to begin on 28 additional lines that will serve the Central Area through 2030.

Mobility Challenges

Downtown LA is the Central Area's primary travel destination. All freeways that pass through the Central Area, along with major arterials connecting downtown LA with neighboring communities, experience delay during both morning and evening peak periods. The Central Area's built-out urban setting limits the ability to expand or add capacity to the existing freeway and arterial networks. As a result, projects that improve the existing transportation system's efficiency, provide multimodal capacity, or that influence travel behavior to decrease the reliance on automobile travel are key components of the strategy to meet the Central Area's mobility challenges.

What The Future Holds

To address the subregion's mobility challenges, the City of LA and Metro have undertaken many transportation improvement projects that are expected to be completed prior to 2030. These include:

- > Metro Gold Line Eastside Extension from Union Station to Pomona/Atlantic;
- > Exposition Light Rail Transit line from 7th St/Metro Center to Santa Monica;
- > Bus Rapid Transit along Wilshire Corridor from Western Av to the City of Santa Monica;
- > Corridor improvements along the Crenshaw Corridor, including a potential for bus or rail improvements (schedule for other elements is subject to future funding availability);
- > An Alternatives Analysis for a Regional Connector through the Central Business District, including a potential light rail line;
- > Implementation of the Route 2 Glendale Freeway;
- > Implementation of 24 new Metro Rapid bus lines across the subregion;
- > Improvements to Metrolink's San Bernardino Line;
- > Metrolink rolling stock Maintenance facility in San Bernardino Phase 1A (Phase 1B is subject to future funding availability);
- > Metrolink locomotive and passenger coach purchases; and
- > Traffic Signal Forums.

Metro has also awarded funding through the Call for Projects process for several additional local priorities that are expected to proceed, subject to funding availability:

- > **Freeways** – Projects include the design of the US-101 Ramirez flyover interchange;
- > **Arterials** – Major arterials and intersections have been improved to decrease congestion, improve transit access, and improve freight movement. Specific projects include the Los Angeles St Realignment near El Pueblo, the Alameda/North Spring realignment, the East Downtown Truck Access Improvements project, and the Figueroa Corridor Improvement project. In addition, grade separation and bridge widening projects have been undertaken at Valley Bl, Riverside Dr, 1st St, North Spring St, and Soto St;

- > **Signal Synchronization** – The traffic signals on many of the Central Area's major arterials have been synchronized in recent years. Traffic flow has been improved and congestion reduced in the communities of Boyle Heights, West Adams and South Park as a result. In the future the City of Los Angeles will be equipped to be connected to LA County's Information Exchange Network, which allows for the sharing of traffic signal data across jurisdictional boundaries to allow for improved traffic management;
- > **Transportation Demand Management** – A number of innovative projects, policies, or programs that focus on reducing the dependency on automobile use or modifying travel behavior have been implemented to improve the efficiency of the Central Area's transportation system. These projects/programs include improved transit information signage, installation of bike racks on all buses that serve LA County, development of local land use policies that help influence travel behavior by concentrating different land uses next to transit facilities, and the development of transportation information web pages and kiosks;
- > **Bikeway and Pedestrian Improvement Projects** – Metro has funded numerous bicycle and pedestrian projects within the Central Area to promote bicycling and walking as viable alternatives to automobile travel. Bicycle projects include the Los Angeles River Bike Path projects, the Arroyo Seco Bike Path, and the Taylor Yard bike bridge. Pedestrian projects include the Northeast Community Linkage projects, El Pueblo Angeles Walk Pedestrian Improvements from Union Station to the Civic Center Mall, Vermont Av Sidewalk Widening project, the Little Tokyo Pedestrian Linkages, the Chinatown Pedestrian improvements, and the Hollywood Pedestrian/Transit Corridors project;
- > **Transportation Enhancements** – A number of transportation enhancement projects have been undertaken to enhance the quality of life in many the highly urbanized communities within the City of LA and parts of LA County. These projects include walking brochures, landscaping in the medians along major arterials, gateway signs, pocket parks, street runoff catch basins, tree planting, improved and enhanced bus stops, and a law enforcement bike safety program; and
- > **Transit** – Metro, along with LADOT, is working to improve transit access to the Central Area by implementing bus stop improvements and employing new transit technologies. The Metro Board approved bus signal priority projects for each of the Central Area's four Metro Rapid lines. Additional bus signal priority projects are planned for each of the new Metro Rapid lines scheduled for implementation by 2008. Additionally, Metro worked with LADOT to implement an am-peak bus High Occupancy Vehicle Lane on Figueroa St to improve transit access between the Harbor Transitway and downtown LA. Two Metro Service Sectors, the Central/Westside, and the San Gabriel Valley cover the Central Area.

Stakeholder Recommendations

During the development of the Long Range Transportation Plan, Metro met with the City of LA to gather input on additional subregional needs and priorities. These represent potential strategies that could be explored should additional funds become available through 2030. These strategies include, but are not limited to:

- > Improving mobility and capacity on arterials through innovative signal synchronization, transit coordination and other ITS technologies;
- > Improving transit access to downtown LA by improving connections to the Harbor Transitway and the El Monte Busway;
- > Working with appropriate city and county agencies to develop policies that encourage mixed-use, transit-oriented development along major transit corridors (the majority of Metro’s constructed and planned joint development projects are located in the Central Area);
- > Continued improvement to pedestrian connections between transit facilities and major destinations/activity centers;
- > Working with municipal transit operators to expand transit service within the Central Area to accommodate changing travel patterns resulting from downtown LA’s continued redevelopment and to coordinate with Metro’s expanding rail systems;
- > Improving access from the I-5 freeway to Downtown LA;
- > As recommended by the US-101 Freeway Corridor Study, improve operation of US-101 corridor by improving freeway exit lanes, freeway auxiliary lanes, parallel arterials, bus and rail transit enhancements/expansions, park-and-ride/transit center expansions, and provide continued

support for transportation demand management strategies, following community review, refinement and modification by affected agencies;

- > Increase capacity and consider installation of HOV lanes on the I-10 between the I-110 and I-405;
- > Add capacity to the connectors from northbound SR-110 to northbound I-5 and from northbound SR-110 to northbound US-101;
- > Improve the terminus of I-710 at Valley Bl;
- > Reconfigure freeway ramps in Boyle Heights to reduce impacts on residential communities;
- > Improve the SR-110 between I-10 and US-101 to improve access to Downtown Los Angeles;
- > Improve bicycle connections between the Los Angeles River trail and downtown LA;
- > Coordinating TEA projects in conjunction with major Central Area investments such as the Cornfields and Taylor Yards State Parks, the LA River, the new LAUSD’s schools construction program, and loft conversions within downtown LA;
- > Metro will continue to coordinate with subregional and other regional partners to reach consensus in identifying the most appropriate and technical approach for identifying a regional high-speed transit system for the county and region.

The Draft 2008 Plan is a living document that will be continually updated. Metro will work with the Central Los Angeles County subregion on an ongoing basis to ensure that its priorities are taken into consideration during each update. Figure 2.5 lists a variety of unfunded subregional priorities that are identified by the City of Los Angeles.

FIGURE 2.5

Central Los Angeles			
City	Subregion	Route	Project Limits/Description
FREEWAYS			
LA	Central Los Angeles	SR-2	Additional lane SB between 134 Fwy and 5 Fwy
LA	Central Los Angeles	SR-2	Construct a fly-over/half cloverleaf for the SB traffic exiting at San Fernando Rd and for SB San Fernando Rd traffic accessing the NB Fwy
LA	Central Los Angeles	SR-2	Construct an elevated 4 lane San Fernando Rd bypass between SR-2 and I-5 Fwy for access to Downtown LA
LA	Central Los Angeles	I-5	Provide direct 4 lane connection to downtown LA from s/o 110 Fwy interchange. Alameda Bypass, already studied by Caltrans.
LA	San Fernando Valley	I-5	Additional lane NB and SB between 14 Fwy and 405 Fwy
LA	Central Los Angeles	I-5	Additional lane NB and SB between 134 and 110 Fwys
LA	Central Los Angeles	I-10	Additional lane EB and WB between 110 and 405 Fwys
LA	Westside Cities, Central Los Angeles, San Gabriel Valley	I-10	Corridor-wide Expansion of Freeway Service Patrol
LA	Central Los Angeles	I-10	Modify EB off-ramps at Western Av, Arlington Av, Crenshaw Bl

FIGURE 2.5 CONTINUED

Central Los Angeles			
City	Subregion	Route	Project Limits/Description
LA	Central Los Angeles	I-10/US-101	Widen Cesar Chavez Av over crossing over I-10 and relocate NB 101 Fwy ramps at Cesar Chavez Av
LA	Westside	I-10	Lincoln Bl ramps improvement
LA	Westside	I-10	Centinela Av ramps improvement
LA, Beverly Hills, Culver City	Central Los Angeles, Westside Cities	I-10	Major ramp reconfiguration at Robertson and Venice
LA	Central Los Angeles	US-101	Widen Edgeware bridge on SB US-101 between Glendale Bl on-ramp and US-101/I-110 interchange to provide auxiliary lanes
LA	Central Los Angeles	US-101	Construct a new NB on-ramp at Cahuenga Bl
LA	Central Los Angeles	US-101	Construct a new SB on-ramp from Cahuenga Bl West between Caltrans maintenance yard and Pilgrimage Bridge (fly-over or fly-under)
LA	Central Los Angeles	US-101	Construct direct NB on and off-ramps to the Hollywood Bowl parking lots
LA	Central Los Angeles	US-101	Build new SB US-101 on- and off-ramps at Campo de Cahuenga Wy (Ventura Bl exit from northbound direction)
LA	Central Los Angeles	US-101	Add lanes NB and SB between the Ventura Bl exit and the 134 Fwy Interchange
LA	Central Los Angeles	US-101	Reconfigure WB on- and off-ramps at Van Nuys Bl as hook ramps connecting at Riverside Dr just east of Van Nuys Bl
LA	San Fernando Valley	US-101	Add new WB on-ramp and EB off-ramp at Hayvenhurst Av
LA	San Fernando Valley	US-101	Add new WB on-ramp and new EB off-ramp at Canoga Av
LA	San Fernando Valley	US-101	Widen Canoga Av under the freeway overpass to full standard
LA	San Fernando Valley	US-101	Add on- and off-ramps at Fallbrook Av
LA	Central Los Angeles	I-110	Between US-101 and I-10 – reconfigure freeway ramps to provide additional NB lane and SB lane in the downtown area
LA	San Fernando Valley	I-210	Additional NB lane between 118 Fwy and Hubbard St
LA	San Fernando Valley	I-210	Additional lane on the connector from NB I-210 to NB I-5
LA	Westside	I-405	Construct a 4 lane tunnel, to provide toll expressway for access to LAX, between Victory Bl and SR-90 under I-405 Fwy
LA	Westside	I-405	Construct LAX Expressway parallel to I-405 Fwy between SR-90 and Arbor Vitae St
LA	Westside	I-405	Reconfigure/reconstruct Sunset Bl/NB I-405 Fwy ramps
LA	Westside	I-405	Reconstruct the Skirball Center Dr ramps
LA	Central Los Angeles	I-710	Extend the I-710 Fwy between Valley Bl and I- 210 Fwy
Freeway-to-Freeway Interchanges			
LA	Central Los Angeles	I-5	Improve I-5 and I-10 interchange
LA	Central Los Angeles	I-5	Improve I-5 and SR-134 interchange
LA	Central Los Angeles	I-5	Improve I-5/SR-14/I-210
LA	Central Los Angeles	I-5	Improve I-5 and I-405 interchange
LA	Central Los Angeles	I-5	Improve I-5/SR-2 interchange
LA	Central Los Angeles	I-5	Improve I-5 and SR-110 interchange
LA	West Los Angeles	I-10	Improve I-10 and I-405 interchange
LA	Central Los Angeles	I-10	Improve I-10 and I-110 interchange
LA	Central Los Angeles	I-10	Improve I-10/SR-60/I-5 interchange
LA	San Fernando Valley	US-101	Improve US-101 and I-405 interchange
LA	San Fernando Valley	US-101	Improve US-101/SR-134/SR-170 interchange, Including new connector from NB US-101 to EB SR-134
LA	Central Los Angeles	US-101	Improve US-101 and I-110 interchange
LA	Central Los Angeles	US-101	NB I-110 connector to NB I-101: Extend 2 lanes to Glendale Bl off-ramp (eliminate merging of 2 lanes into 1 lane)
Auxiliary Lanes			
LA, LA Co	Central Los Angeles	I-5	Construct SB auxiliary lane on I-5 from Ditman Av to Calzona St
LA	Central Los Angeles	I-5	Construct SB auxiliary lane on I-5 from Marietta St to Lorena St
LA	Central Los Angeles	US -101	Add NB and SB auxiliary lanes from Glendale Bl to Cahuenga Bl

FIGURE 2.5 CONTINUED

Central Los Angeles

City	Subregion	Route	Project Limits/Description
LA	San Fernando Valley	US -101	Add NB and SB auxiliary lane between Laurel Canyon Bl and Sepulveda Bl
LA	San Fernando Valley	US -101	Add NB and SB auxiliary lanes between Hayvenhurst Av and Valley Circle Bl
HOV Lanes			
LA	Central Los Angeles	I-5	Add HOV lane in both directions between SR-134 and I-110
LA	Central Los Angeles	SR-2	Construct 4 lane tunnel for HOV between SR-2 Terminus and I-10 Fwy
Industry, LA, LA Co, Montebello, Monterey Park, South El Monte	San Gabriel Valley, Central Los Angeles	SR-60	Add HOV lane from US-101 to I-605 (both directions)
LA	Central Los Angeles	US-101	Add HOV lanes in both directions between 170 and 110 Fwy
LA	Central Los Angeles	US-101	Add HOV lanes in both directions between Topanga Canyon Bl and City Boundary
LA	San Fernando Valley	SR-27	Construct HOV lane connector from 101 Fwy to east-west busway
LA	Central Los Angeles	I-405	Add HOV lane NB between I-10 and US-101
ARTERIALS			
Corridor Capacity Improvements			
LA	Central Los Angeles	I-5	Implement SR-2 terminus improvements at Glendale Bl and SR-2
LA	San Fernando Valley	Osborne St	Widen Osborne St between Foothill Bl and San Fernando Rd for pedestrian safety and improved traffic capacity
LA	San Fernando Valley	San Fernando Rd	San Fernando Rd Sierra Hwy to Sepulveda Bl/Roxford St Widen and install reversible lane.
LA	Central Los Angeles	San Fernando Rd	Widen San Fernando Rd from SR-2 to I-5 to Major or Secondary Highway standard; construct streetscape, lighting, and parking
LA	San Fernando Valley	San Fernando Rd	Widen San Fernando Rd from Tyburn St to SR-2 to Major Highway standard
LA	Westside	Sepulveda Bl	Widen Sepulveda Bl between Olympic Bl and Pico Bl to Major Highway standard
LA	San Fernando Valley	Sepulveda Bl	Extend Sepulveda Bl from Rinaldi St to Roxford St
LA	North Co Cities	Foothill Bl	Widen Foothill Bl between Sierra Hwy and Balboa Bl to increase capacity
LA	Westside	Wilshire Bl	Widen Wilshire Bl between Federal Av and Centinela Av to Major Highway standard
LA	Central Los Angeles	Sunset Bl	Widen Sunset Bl between Las Palmas and Mansfield from 70' to 78'
LA	Central Los Angeles	Sunset Bl	Sunset Bl – Virgil Av to Vermont Av Widen to increase capacity
LA	San Fernando Valley	Burbank Bl	Burbank Bl – Cleon Av to Clybourn Av – Widen to provide 2 lanes in each direction
LA	San Fernando Valley	Burbank Bl	Burbank Bl between Balboa Bl and Sepulveda Bl. Elevate Burbank Bl in the flood control basin to avoid closures during rainy season
LA	Central Los Angeles	Figueroa St	Figueroa St – Cypress Av to 5 Fwy. Widen to add southbound capacity
LA	San Fernando Valley	Chatsworth St	Chatsworth St – De Soto Av to Topanga Canyon Bl. Widen to increase capacity
LA	Central Los Angeles	Beaudry Av	Widen Beaudry Av to permit northbound left turn lane and to maintain two full-time northbound lanes on Beaudry Av between Temple and Sunset
LA	Central Los Angeles	Santa Fe Av	Santa Fe Av – 8th St to Olympic Bl. Widen to increase capacity and access to I-10 ramps
LA	Central Los Angeles	Van Ness St	Sunset Bl at SB 101 off-ramp. Widen Van Ness St from the off-ramp to Sunset Bl to add a right-turn-only lane

FIGURE 2.5 CONTINUED

Central Los Angeles			
City	Subregion	Route	Project Limits/Description
LA	Central Los Angeles	Melrose Av	Melrose Av between Vermont Av and Western Av. Remove on-street parking; widen to have 1 left-turn lane and 2 through lanes each way with 10-foot sidewalks
LA	Central Los Angeles	Melrose Av	Widen south side of Melrose Av between Western Av and US-101 by 10 ft to increase capacity
LA	Central Los Angeles	Fountain Av	Widen Fountain Av between Sunset Bl and Western Av to increase capacity
LA	Central Los Angeles	Cahuenga Bl	Widen Cahuenga Bl West between Highland Av and Barham Bl; widen/cantilever over the Fwy to provide two lanes in each direction with pedestrian sidewalk and bicycle lane, and left turn lanes at Mulholland and Oakcrest
LA	Central Los Angeles	Cahuenga Bl	Cahuenga Bl East. Add a NB lane from Odin St to Barham Bl
LA	Central Los Angeles	Barham Bl	Widen Barham Bl between Cahuenga and Burbank City limit to increase capacity
LA	San Fernando Valley	Riverside Dr	Riverside Dr from Van Nuys Bl to Sepulveda Bl – Extend Riverside Dr from Van Nuys Bl to Sepulveda Bl
LA	San Fernando Valley	Van Nuys Bl	Improve capacity along southbound Van Nuys Bl SB between Burbank Bl and US-101
LA	San Fernando Valley	Hayvenhurst Av	Hayvenhurst Av between Magnolia Bl and Ventura Bl. Widen or realign the jutouts on the west side to City standards
LA	San Fernando Valley	Magnolia Bl	Extend Magnolia Bl from Hayvenhurst Av to Libbit Av. Extend Magnolia Bl from Haskell Av to Sepulveda Bl
LA	Central Los Angeles	Magnolia Bl	Widen Magnolia Bl from Colfax Av to Laurel Canyon Bl to increase capacity
LA	San Fernando Valley	Oxnard St	Extend Oxnard St. from Sepulveda Bl to Woodley Av and build a half interchange to northbound I-405
LA	San Fernando Valley	Victory Bl	Widen Victory Bl between White Oak Av and Sepulveda Bl to add capacity
LA	San Fernando Valley	Victory Bl	Widen Victory Bl from Topanga Canyon Bl to Desoto Av to Major Highway Class I standard
LA	San Fernando Valley	Topanga Canyon Bl	Widen to provide six through lanes all day between 101 Fwy and 118 Fwy
LA	San Fernando Valley	Mulholland Dr	Widen Mulholland Dr from San Feliciano Dr to Flamingo St to reduce congestion
LA	San Fernando Valley	Sepulveda Bl	Widen/restripe Sepulveda Bl from Rinaldi St to Mulholland Tunnel to provide peak hour reversible lanes
LA	San Fernando Valley	Alvarado St	Widen Alvarado St (SR-2) under US-101 to create a SB left turn lane onto EB US-101 on-ramp
LA	San Fernando Valley	Sherman Way	Sherman Way Capacity Improvements
Intersection Widening			
LA	San Fernando Valley	Coldwater Cyn Av	Coldwater Cyn Av At 101 Fwy – Widen to provide dual left-turns to two on-ramps
LA	Central Los Angeles	Monterey Rd	Monterey Rd North of Huntington Dr – Widen and realign intersection, possibly close access to Browne Av
LA	Central Los Angeles	Fletcher Dr	Fletcher Drive at Glendale Bl – Widen to increase capacity
LA	Central Los Angeles	Barham Bl	Barham Bl at Cahuenga Bl West – Increase intersection capacity
LA	Westside	Stocker St	Widen Stocker St at Victoria Av to increase capacity
LA	Westside	Sunset Bl	Widen Sunset Bl at La Brea Av to provide dual left turn lanes
LA	San Fernando Valley	Riverside Dr	Widen Riverside Dr at southbound SR-170 off-ramp to provide double right turns onto SB Tujunga Av (freeway columns are in the way)
Bridges			
LA	Central Los Angeles	Barham Bl	Widen Barham Bl Bridge at Hollywood Fwy to increase traffic capacity that matches a street widening project programmed in 2001 Call for Projects

FIGURE 2.5 CONTINUED

Central Los Angeles			
City	Subregion	Route	Project Limits/Description
LA	Central Los Angeles	Los Angeles St	Los Angeles St Bridge over US-101: Replace with longer bridge for increased lateral underclearance; cover NB on-ramp with a portal frame for increased open space for proposed park
LA	San Fernando Valley	Colfax Av	Replace Colfax Av bridge over LA River with signature span and widen to Ventura Bl
LA	Central Los Angeles	Grand Av	Widen Grand Av bridge between Cesar Chavez and Temple St over US-101 to improve access to US-101 and I-110 on-ramps
LA	Central Los Angeles	Hyperion Av/ Glendale Bl	Widen Hyperion Av/Glendale Bl bridge over I-5 Fwy to include bike lanes, shoulders, and sidewalks
LA	Central Los Angeles	College St	College St Bridge over 110 Fwy – Replace with wider bridge to improve capacity. Raise the superstructure to resolve underclearance deficiency
LA	San Fernando Valley	Tujunga Av	Widen Tujunga Av Bridge (HBRR project – design complete, construction postponed to FY 2007-08)
LA	Westside	Lincoln Bl (SR-1)	Widen Lincoln Bl bridge over the Ballona Creek, including reconstruction of the Culver Bl bridge over Lincoln Bl
Tunnels and Grade Separation			
LA	San Fernando Valley	Sepulveda Bl	Sepulveda Bl Tunnel at Mulholland Bridge – Widen existing tunnel to provide additional bike and traffic lanes
LA	San Fernando Valley	Saticoy St	Build a tunnel on Saticoy St underneath the Van Nuys Airport between Woodley St and Hayvenhurst Av
LA	San Fernando Valley	Saticoy St	Saticoy St between Van Nuys Bl and Woodman Av – Construct grade separation between street and RR tracks for improved safety
LA	Central Los Angeles	N. Main St	N Main St Grade Separation with LA River/Metrolink/ Union Pacific Railroad
LA	San Fernando Valley	Sunland Bl	Construct grade separation on Sunland Bl near San Fernando Rd
LA	Westside	Sepulveda Bl	Construct grade separation (underpass) at the Sepulveda Bl and Wilshire Bl intersection
LA	Central Los Angeles	El Monte Busway	Provide grade separation at Alameda St for direct access of transit buses from Downtown LA to El Monte Busway
LA	Westside	La Cienega Bl	Construct grade separations on La Cienega Bl at Jefferson Bl, Rodeo Bl, La Tijera Bl, and Manchester Bl to improve travel time along La Cienega between I-10 and LAX area.
TRANSIT			
Rail			
LA	Central Los Angeles	Downtown LA	Downtown Connector Light Rail Transit – 7th St/Metro Center Station to Union Station
LA Co, Montebello, Pico Rivera, Whittier	Central Los Angeles, Gateway	East LA Corridor	Eastside Gold Line-extend from Atlantic to Norwalk/Whittier
Culver City, LA, Santa Monica	Westside Cities, Central Los Angeles	I-10	Exposition Light Rail Transit: Phase I – Downtown to Culver City
LA, Culver City, Santa Monica	Central Los Angeles, Westside Cities	I-10	Exposition Light Rail Transit: Phase II – Culver City to Santa Monica
LA, Beverly Hills	Central Los Angeles, Westside Cities	Wilshire Bl	Metro Red Line – extend from Wilshire/Western to Westside
LA, LA Co	Central Los Angeles	Vermont Corridor	Metro Green Line – I-105 to Hollywood Bl along Vermont Av
LA, Glendale	Central Los Angeles	Alameda Corridor North	Alameda Corridor North between SR-2 and SR-134 – Grade separation (trench) for commuter and freight rail lines
LA	San Fernando Valley	Red Line	Extend Red Line from North Hollywood to Sylmar
LA	Westside	Metro Green Line	Extend Metro Green Line from LAX to City of Santa Monica
LA	Westside	I-405	Build Rail Connection from LAX to Sylmar along 405 Fwy
LA	Westside	Florence Av/ BNSF	Build rail to connect Harbor and Crenshaw Corridors to LAX utilizing existing BNSF rail line

FIGURE 2.5 CONTINUED

Central Los Angeles			
City	Subregion	Route	Project Limits/Description
Metro Bus			
LA, Santa Monica	Westside Cities, Central Los Angeles	I-10	SR-1 to I-5 parallel to I-10. Improved Transit Services by increasing frequency, signal priority, dedicated transit lanes and high-capacity buses
Burbank, Glendale, LA, Lancaster, Palmdale, Santa Clarita, San Fernando	North Co Cities, SFV, Central Los Angeles	I-5	Expand Metrolink service and capacity on existing trains at various locations to be determined
LA	Central Los Angeles, Gateway, Arroyo Verdugo, SFV	I-5	Increase transit services throughout the I-5 corridor at various locations to be determined
LA	SFV, Central Los Angeles	US -101	Add local community transit service connections to Metro Red Line stations between US-101/SR-134/SR-170 interchange and Downtown LA: Hollywood/Western (2 routes), Vermont/ Santa Monica/LACC (3 routes), Vermont/Beverly (6 routes), Westlake/MacArthur Park (3 routes)
LA	SFV, Central Los Angeles	US -101	Increase Metrolink services between Moorpark and Union Station
LA	San Fernando Valley	US-101	Add Planned North-South Busway Project
DASH			
LA	Central Los Angeles, San Fernando Valley, Westside	I-5, I-10, US-101, I-405, I-110, SR-170	10 new DASH routes Citywide
TSM/TDM			
TSM			
LA	Westside Cities, Central Los Angeles, San Gabriel Valley, San Fernando Valley	Citywide	Vehicle Infrastructure Integration – to integrate vehicle navigation system with Intelligent Transportation System (ITS)
LA	Central Los Angeles, San Fernando Valley	North San Fernando Valley, South Central Los Angeles	Complete Citywide ATSAC system
LA	Westside Cities, Central Los Angeles, San Fernando Valley, San Gabriel Valley	Citywide	Restripe various arterials for turn pockets and additional lanes. Arterial reconfiguration to facilitate directional flow such as reversible lanes.
TDM – Ridesharing			
LA	Central Los Angeles, Gateway, Arroyo Verdugo, SFV	Citywide	Create a Transportation Management Association to champion TDM programs
LA	Central Los Angeles, Westside Cities, San Fernando Valley, San Gabriel Valley	Citywide	Add/expand park-and-ride facilities
TDM – Bicycles/Pedestrians			
LA	Westside Cities, Central Los Angeles, San Gabriel Valley	Citywide	Enhance/expand/coordinate pedestrian, bicycle, and transit information and amenities
LA	Central Los Angeles	US-101	Decking over 101 Fwy between Bronson Av and Vermont Av for pedestrian linkage and open space

FIGURE 2.5 CONTINUED

Central Los Angeles			
City	Subregion	Route	Project Limits/Description
GOODS MOVEMENT			
Freeways			
Bell, Bell Gardens, Commerce, Compton, Long Beach, Lynwood, Monterey Park, Paramount, South Gate, Vernon	Gateway, Central Los Angeles	I-710	Add truck lanes to I-710 between I-405 and I-10
Arterials			
LA	Central Los Angeles	Alameda St	Alameda St widening and reconstruction between US-101 and 26th St. Rebuild street and repave to heavy duty vehicle standards; install channelization and widen curb returns to facilitate truck movements between US-101 and 26th St
LA	San Fernando Valley	Roxford & Sepulveda	Capacity Enhancements and ramp improvements at Roxford St/Sepulveda Bl/I-5. Widen Roxford St/Sepulveda Bl at I-5 to facilitate truck movements
LA, Glendale	Central Los Angeles	San Fernando Rd West	Capacity Enhancements at San Fernando Rd West/Brazil St and San Fernando Rd West/Doran St. Widen and improve north and south sides of Brazil St and Doran St to create additional lanes, curb and gutter in each direction; increase curb returns to facilitate truck movements
LA	Central Los Angeles	Main & Daly	Capacity Enhancement at Daly St and Main St. Increase curb returns at NW and SW corners of Daly and Main to facilitate truck movements
Projects submitted by the Port of LA			
City	Route	Project Limits/Description	
Freeway/NHS			
LA	I-110/SR-47	110 Fwy/SR-47/Harbor Bl Interchange Improvements – Improve 110 Fwy/SR-47 Harbor Bl Ramps Interchange. Improve interchange in two phases.	
LA	Navy Wy/SR-47	Navy Way Connector to Westbound Seaside Av (SR-47) – Flyover from northbound Navy Way to westbound Seaside Av (SR-47).	
LA	Vincent Thomas Bridge	Vincent Thomas Bridge (SR-47) studies for increased capacity. Develop and analyze alternatives to increase needed capacity, including modification of the existing bridge, construction of a second parallel bridge, construction of a second bridge at a new location, replacement of the existing bridge, or construction of a tunnel crossing.	
LA	Various Locations	Advanced Transportation Management Systems Ph. 2 – Throughout the Ports of Los Angeles and Long Beach properties, the adjacent freeways and arterial facilities. Enhanced communications infrastructure and devices, and enhanced system interfaces.	
Arterial			
LA	Fries Av	Fries Av from Harry Bridges Bl to Pier A St grade separation from active rail lines. Provides grade-separated vehicular access the heavily utilized rail line; improves the intersection of Harry Bridges Bl & Fries Av intersection.	
LA	Broad Av	Broad Av from Harry Bridges Bl to Water St grade separation from active rail lines. Provides grade-separated access to waterfront area from heavily used rail line; extends Broad Av to Water St, provides bike lanes and sidewalks on both sides of Broad Av.	
LA	I-110/C St	110 Freeway/“C” St Interchange Improvements. Improve the existing sub-standard and under designed interchange currently operating at poor levels of service.	
LA	Waterfront – Bridge to Breakwater	Waterfront Redevelopment. Key elements: scenic highway, historic rail line, historic transportation museum, pedestrian and bike paths, redesign of local street system, and inter-modal transportation center (serving cruise ships, water taxis, trolley, light rail lines, charter buses, taxi and “ped” cabs, hotel shuttles and transit linkages with regional bus, rail and high occupancy vehicle facilities).	

FIGURE 2.5 CONTINUED

Projects submitted by the Port of LA		
City	Route	Project Limits/Description
Rail		
LA	Fries Av	West Basin East Inter-modal Container Transfer Facility (ICTF) – South of Fries Av to the south end of marine terminal at Berth 147. On-dock railyard where containers will be loaded onto train directly at the marine terminal.
LA	Sepulveda Bl & PCH	Near Dock Inter-modal Container Transfer Facility (ICTF) South – Near dock inter-modal container transfer facility west of the SR-103, north of Sepulveda Bl, south of PCH.
LA	Various Locations	California Highway Patrol (CHP) Truck Inspection Station – Port of Los Angeles. Locations to provide the CHP with permanent inspection facility sites for mobile units.

GATEWAY CITIES SUBREGION

Cities

Artesia, Avalon, Bell, Bell Gardens, Bellflower, Cerritos, Commerce, Compton, Cudahy, Downey, Hawaiian Gardens, Huntington Park, La Habra Heights, La Mirada, Lakewood, Long Beach, Lynwood, Maywood, Montebello, Norwalk, Paramount, Pico Rivera, Santa Fe Springs, Signal Hill, South Gate, Vernon, and Whittier. Gateway Cities also includes the following unincorporated communities of Los Angeles County: East Los Angeles, Florence, Rancho Dominguez, East Rancho Dominguez, Rosewood (portion), South Whittier, Walnut Park, and Willowbrook (portion).

Setting

The Gateway Cities form the southeastern boundary of Los Angeles County. This subregion is bounded to the south by the Pacific Ocean and Ports of Long Beach and Los Angeles; the Orange County Line on the east; the I-110 (Harbor Freeway) on the west; and SR-60 (Pomona Freeway) on the north. Figure 2.6 illustrates the Gateway Cities subregion.

This subregion has an approximate resident population of 2 million people. The Gateway Cities have a highly diverse population that has formed and retained a unique identity throughout various cities. The subregion is home to highly urbanized areas including Long Beach, the County’s second largest city, and industrial-oriented cities such as Vernon and Commerce, traditional residential suburbs such as La Habra Heights and a broad spectrum of balanced communities that fall between. The Port of Long Beach is located within this subregion and serves as an important industrial center and economic driver for all of Southern California.

Major Transportation Facilities

The SR-60 (Pomona Freeway), SR-91 (Artesia Freeway), and I-105 (Glenn Anderson Freeway) serve as major east-west freeway corridors in this subregion. The I-5 (Santa Ana Freeway), I-405 (San Diego Freeway), I-710 (Long Beach Freeway), and I-605 (San Gabriel River Freeway) freeways serve as the major north-south corridors. An airport located in the City of Long Beach

serves as a hub of corporate activity as well as being one of the busiest airports in the world. The subregion is home to the Port of Long Beach. The Port of Long Beach combined with the adjacent Port of Los Angeles constitutes the fifth busiest port in the world and the largest container port in the US. The Ports are served by the Alameda Corridor, a 20-mile railway designed to speed cargo and containers from the Ports to the rest of the country. The Ports are also served by the freeway network described above.

The subregion is served by the Metro Blue and Green Light Rail Lines as well as the Harbor Transitway running along the I-110 to the subregion’s western boundary. These major transit infrastructure investments help move people to the Ports and other employment areas within the subregion. The subregional bus system consists of: Metro Gateway Cities Service Sector, Long Beach Transit, Norwalk Transit, Commerce, and Montebello Municipal Bus Lines. In addition, many cities operate transit and dial-a-ride services, such as Cerritos on Wheels (COW), La Mirada Dial-a-Ride, within their cities. Metrolink’s Orange County Line provides commuter service with stops in Norwalk/ Santa Fe Springs and the City of Commerce.

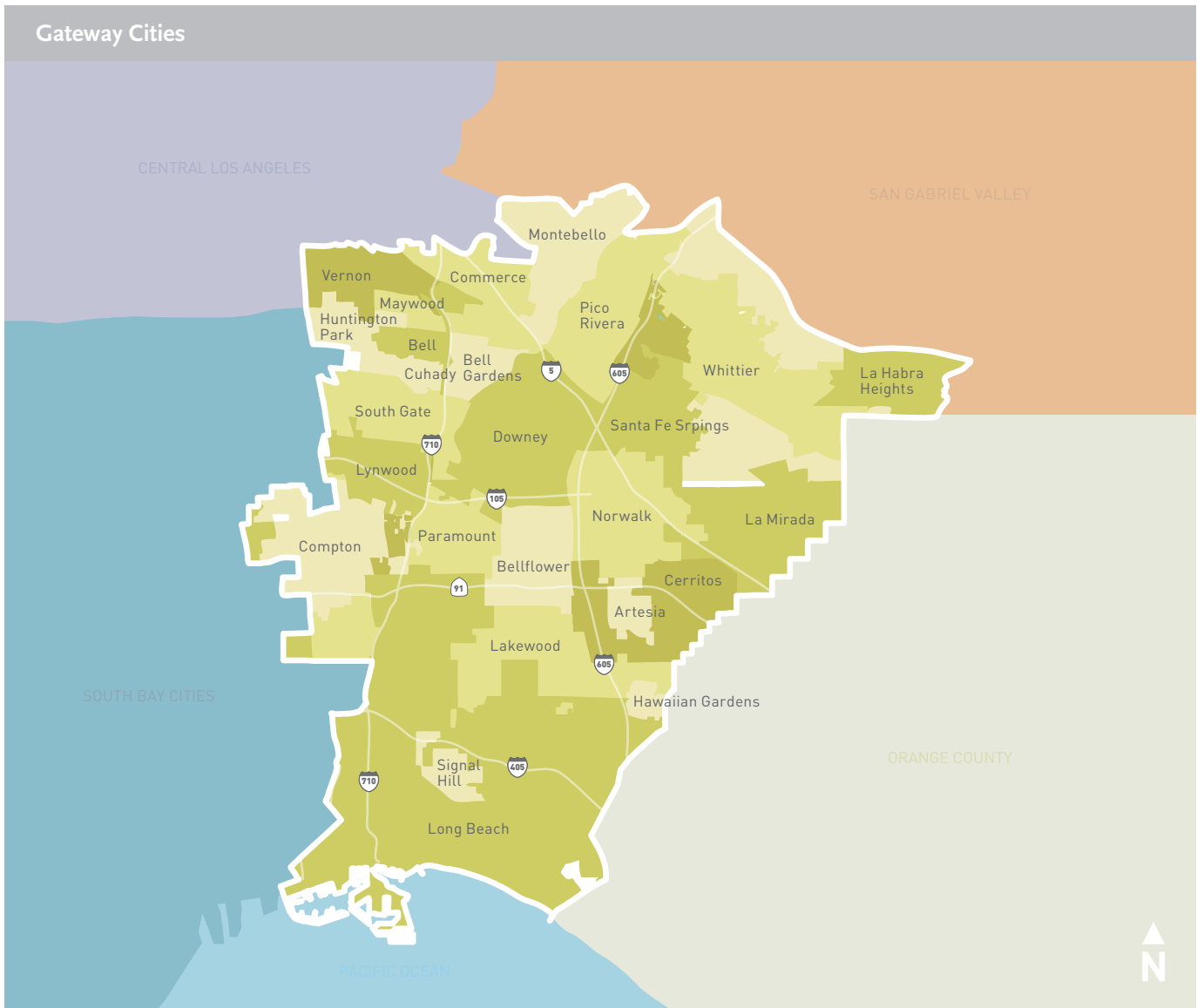
Mobility Challenges

The Gateway Cities subregion has one of the largest all-weather ports in the world. As the 13th busiest cargo container port in the world, the Port of Long Beach moved \$92 billion worth of cargo in 2004. When the Port of Long Beach is combined with the Port of Los Angeles, they comprise the fifth largest port in the world, making goods movement the greatest mobility challenge for the subregion. About 60% of all goods imported to the United States from Asia arrive via the two Ports and travel on to their final destinations on gateway freeways and rail.

Currently, goods movement-related traffic is growing at a faster rate than that of automobiles. Daily truck traffic on the I-710 alone is expected to dramatically increase from 30,000 to approximately 100,000 trucks a day by the year 2025. The trucks transporting cargo to and from the Port of Long Beach use Ocean Bl, I-710, SR-47/103 (Terminal Island Freeway), and I-110. Truck traffic on SR-91 east of the I-710

FIGURE 2.6

Gateway Cities



is expected to increase from 13,000 daily trips to 42,000 daily trips in 2030. The heavy congestion generated by this truck traffic also has a significant impact on the traffic flow of I-710, I-405, SR-60, SR-91 and I-605 freeways.

Air quality degradation is a critical issue as maritime, railroad, and port-related truck traffic results in significant diesel emissions, including diesel particulate matter pollution. This condition is exacerbated by trucks idling in traffic congestion. Numerous health impact studies have been done and the subregion is characterized by pollution-related health risks attributable to Port- and freeway-related diesel usage. Reducing and mitigating air quality impacts is one of the subregion's leading goals.

Safety is also an issue due to aging and inadequate design of transportation infrastructure that requires trucks to weave across multiple lanes in short distances, especially at major freeway interchanges. Railroad and arterial grade crossings cause traffic queues, delays and accidents in this subregion. Identification, prioritization of such locations, and providing funding for improvement at

regionally significant railroad/arterial grade crossings remain very important elements in improving the transportation infrastructure.

What The Future Holds

To address the subregion's mobility challenges, many transportation improvement projects have been undertaken that are expected to be operational by 2030. These include:

- > Implementation of a major congestion relief strategy as the outcome of the Major Corridor Study along I-710 freeway, along with an air quality plan;
- > Rail/Highway grade separations in Commerce and Santa Fe Springs and Pico Rivera;
- > Implementation of seven new Metro Rapid bus lines;
- > I-5 carpool and mixed-flow lanes from I-605 to SR-91 construction to begin in 2010;
- > Construction of the Carmenita Rd interchange improvements;
- > I-5 carpool and mixed-flow lanes from I-605 to I-710 (currently in the environmental phase);

- > I-710 freeway improvements from Pacific Coast Hwy to Downtown Long Beach;
- > Metrolink locomotive and passenger coach purchases;
- > Metrolink rolling stock maintenance facility in San Bernardino Phase 1A (Phase 1B is subject to future funding availability);
- > Traffic signal timing projects on numerous arterials; and
- > High Speed Rail Transit Service – The privately-funded Orangeline Corridor Development Project, which would provide a high-speed rail, environmentally-friendly grade-separated transit project that will also allow for bicycle and pedestrian uses on the Pacific Electric West Santa Ana Branch right-of-way; and
- > Multi-modal transportation improvements expected to be generated from the OCTA/Metro cross-county study.

Metro has also awarded funding through the Call for Projects process for several additional local priorities that are expected to proceed, subject to funding availability:

- > **Freeways** – Interchange improvement and carpool lane construction on I-5 (Santa Ana Freeway), including the Carmenita and Valley View interchanges;
- > **Arterials** – Projects designed to increase capacity and improve mobility by reducing traffic congestion and problematic conditions at major arterials and intersections are currently underway. Examples are the Terminal Island Freeway interchange improvement at Ocean Bl., and arterial carpool projects in Long Beach and northbound I-710 off-ramp reconstruction at Firestone Bl in South Gate;
- > **Signal Synchronization** – In order to improve traffic flow throughout the subregion, major arterial corridor signals have been or will be synchronized in cities such as Cerritos, Compton, Downey and Lakewood. Additionally, the subregion will be among the first in the County to be equipped with the Information Exchange Network (IEN), which allows for the sharing of traffic signal data across jurisdictional boundaries to allow for improved traffic management;
- > **Transportation Demand Management** – The capacity and inter-modal efficiency of transportation systems are improved through projects that involve change or improvement in policies or actions with focus on modification of travel behavior. Such projects have already been implemented or are in the planning stages. Examples are Parking Demand Management in Bellflower and a Southeast Regional Transit Information Network in Long Beach;
- > **Bikeway and Pedestrian Improvement Projects** – In an effort to encourage use of alternate forms of transportation, a number of bikeway and pedestrian transportation projects have been funded through the Call for Projects. Such projects include Buena Vista Pedestrian Trail project in Avalon, the Coyote Creek trail, the Artesia Metro Blue Line Station Pedestrian Access Improvement in Compton and the Class I Bike Path in the West Santa Ana Branch rail right-of-way;

- > **Transportation Enhancements** – Transportation Enhancement Activities projects often involve rail corridor and streetscape improvements and station rehabilitation. Currently, some Transportation Enhancement projects are underway in the cities of Compton, Whittier, and Downey; and
- > **Transit** – In an effort to improve transit facilities and services, Metro and the municipal transit operators are providing transit centers, bus stop improvements and utilizing new transit technologies. Projects include a Transit Center Expansion/Multimodal Transportation Boulevard in Compton, Long Beach Transit Center Improvement at Pine Av and 1st St, Santa Fe Springs Transit Center, and a Bus Stop Improvement Project in Long Beach.

Stakeholder Recommendations

During the development of the Draft 2008 Plan, Metro met with cities and the Gateway Cities Council of Government to gather input on additional subregional needs and priorities. These represent potential strategies that could be explored should additional funds become available through 2030. These strategies include, but are not limited to:

- > Arterial and traffic signal improvements;
- > Ramp widening and extended carpool lanes;
- > More efficient, environmentally friendly goods movement strategies;
- > Strategies to mitigate port traffic congestion on the SR-91, I-605 and I-405 Freeways;
- > Improving safety, increasing capacity enhancement on the Metro Blue Line;
- > More timed connections and circular routes between municipal operators, including designating regionally significant “transit hubs”;
- > Implementation of advanced ITS technology to maximize capacity on arterial streets and freeways with emphasis on goods movement; and
- > Seek opportunities for public/private partnerships, user fees, and other non-traditional sources to fund nationally and regionally significant goods movement projects.

The Draft 2008 Plan is a living document that will be continually updated. Metro will work with the Gateway Cities on an on-going basis to ensure that their priorities are taken into consideration during each update. Figure 2.7 lists a variety of unfunded subregional priorities identified at the Gateway COG.

FIGURE 2.7

Gateway Cities

City	Route	Project Limits/Description
Freeway		
Commerce, Downey, Montebello	I-5	Add 1 HOV lane each direction from I-605 to SR-60
Downey, Santa Fe Springs	I-5	HOV connector at I-5 and I-605 (partial connector – from west to south & from west to north)
Norwalk	I-605	HOV connector at I-105 and I-605 (partial connector – from west to south & from west to north)
Cerritos	I-605	HOV connector at SR-91 and I-605 (all)
Bellflower	SR-91	Reconfigure interchange to tight diamond at Lakewood Bl/SR-91 interchange
Artesia, Bellflower, Cerritos, Compton, Downey, Hawaiian Gardens, Lakewood, Long Beach, Norwalk, Paramount, Pico Rivera, Santa Fe Springs, Whittier, LA County	SR-91/I-605	Alameda St eastward to Orange County Line and SR-60 southward to Orange County Line – Freeway improvements to be determined by needs assessment in progress
Downey, La Mirada, Norwalk, Santa Fe Springs	I-5	Orange County Line to I-605: add two HOV lanes and two mixed-flow lanes
Bell, Vernon	I-710	Extend 26th St to improve interchange operations at Atlantic Bl/Bandini Bl: interchange modifications
	I-710	Deployment of Intelligent Transportation System Improvements (approx. 7 Ramp Meter sites, approx. 25 CCTV sites)
Bell, Bell Gardens, Commerce, LA, Long Beach, Lynwood, Monterrey Park, Paramount, South Gate	I-710	Ocean Bl to PCH and I-405 to I-10: Pavement and median rehabilitation, selected bridge widenings (no add'l capacity)
Long Beach	SR-47	at Ocean Bl: interchange improvement
Long Beach	Interchanges/Arterials	I-710 ramp terminus/arterial improvements – Redesign Shoemaker Bridge and realign/consolidate Broadway, 3rd, 6th and 7th St ramps
Bell, Bell Gardens, Commerce, Compton, Long Beach, Lynwood, Monterrey Park, Paramount, South Gate, Vernon	I-710	Ports of Long Beach and Los Angeles and SR-60 – Bring general purpose lanes to 10 total. Add 4-lane exclusive truck facility Ports and Rail yards. Improve specified interchanges in accordance with MCS. Improve arterials. Synchronize traffic and implement TSM/TDM measures. Construct truck inspection facility.
Long Beach, Signal Hill	I-405	Interchange modifications to provide access from NB 405 to SB Cherry at Cherry Av interchange
Arterial		
Cerritos, Hawaiian Gardens, Cypress	I-605	Widen Del Amo Bl bridge over Coyote Creek
Bellflower	I-605	Widen Rosecrans bridge over the San Gabriel River channel
	I-405	Implement bikeway projects throughout the I-405 corridor (approx. 24 miles of Class II and 1.6 miles of Class I) Corridor-wide
Cerritos, Downey, La Mirada, Norwalk, Santa Fe Springs	I-5	Develop arterial route parallel to I-5 to be used as a preferred arterial alternative to I-5 – Lakewood/Rosemead Bl and Orange County Line
Cerritos, Downey, La Mirada, Norwalk, Santa Fe Springs	I-5	Improve 50 arterial intersections – Lakewood/Rosemead Bl and Orange County Line
Cerritos, Downey, La Mirada, Norwalk, Santa Fe Springs	I-5	Improvements of 6 interregional arterial corridors to “Smart Street” operational standards – Lakewood/Rosemead Bl and Orange County Line
Commerce, Pico Rivera, Vernon	I-710	Widen 38th/37th/Bandini Bl: Alameda to I-5
Vernon	I-710	Upgrade traffic signal at the intersection of Atlantic Bl and Bandini Bl
Compton, Long Beach	I-710	Widen existing Atlantic Bl bridge at the Los Angeles River (from 68' to 100')
Bell, Commerce, Compton, Cudahy, LA Co, Long Beach, Lynwood, Maywood, South Gate, Vernon	I-710	Improvements and/or capacity enhancements Atlantic Bl: PCH to SR-60
	I-710	Upgrade traffic signals and install signal synch along Atlantic, Cherry/Garfield

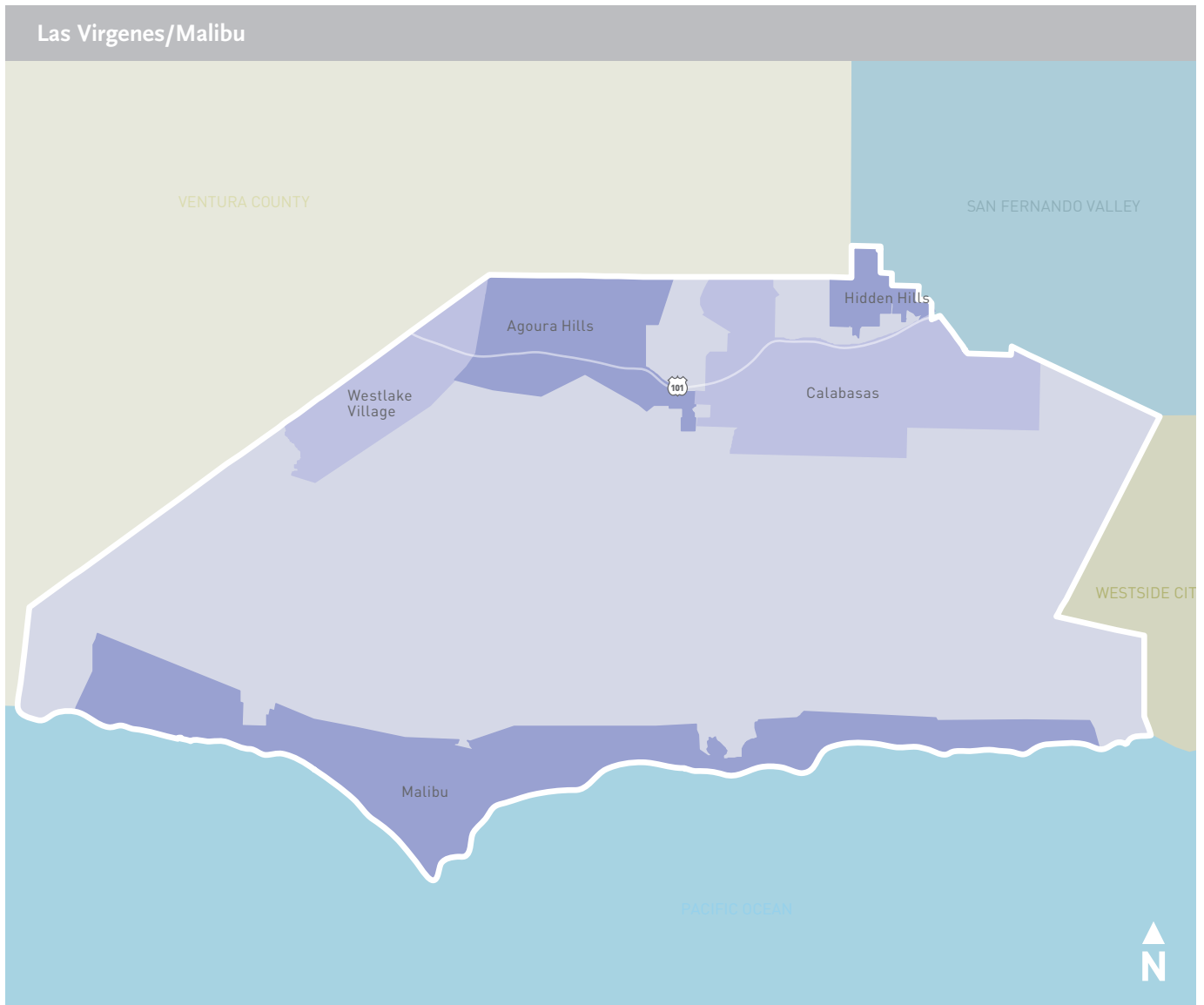
FIGURE 2.7 CONTINUED

Gateway Cities		
City	Route	Project Limits/Description
Lakewood, Long Beach	I-710	Improvements and/or capacity enhancements Cherry Av: PCH to 70th St
Carson, LA Co, Long Beach	I-710	Improvements and/or capacity enhancements Del Amo Bl: Alameda to Cherry
Bell, Bell Gardens, Downey	I-710	Widen Eastern Av: Garfield to Atlantic
Downey, South Gate	I-710	Improvements and/or capacity enhancements Firestone Bl: from Atlantic to Paramount
Bell, Bell Gardens, Downey	I-710	Florence: Atlantic to Paramount
Bell Gardens, Commerce, LA Co, Montebello, Paramount, South Gate	I-710	Improvements and/or capacity enhancements Garfield Av: 70th to Pomona
South Gate	I-710	Widening and/or capacity enhancements Long Beach Bl, from South City Limit to North City Limit
South Gate	I-710	Southern Avenue Extension – Southern Avenue extension over LA River/I-710 corridor
South Gate	I-710	Garfield Avenue bridge widening over Rio Hondo channel
South Gate	I-710	Atlantic/Firestone Pedestrian bridge
Bellflower, Paramount	I-710	Upgrade traffic signals to improve traffic flow at intersections of Lakewood and Artesia, Alondra and Somerset
Long Beach	I-710	Improve Anaheim St from Terminal Island Freeway to PCH
Long Beach	I-710	Improve Broadway from I-710 to Alamitos
Long Beach	I-710	Improve 3rd St from I-710 to Alamitos
Long Beach	I-710	Improve 6th St from I-710 to Alamitos
Long Beach	I-710	Improve 7th St from I-710 to I-605
Long Beach	I-710	Improve Long Beach Bl from Ocean Bl to North City Limit
Long Beach	I-710	Improve Santa Fe Av from southern terminus to I-405
Long Beach	I-710	Improve Pacific Av from Ocean Bl to I-405
Long Beach	I-710	Improve Ocean Bl from I-405 to Redondo Av
Downey, Lakewood, Long Beach, Paramount	I-710	Improvements and/or capacity enhancements Paramount Bl: Carson to I-5
Long Beach	I-710	Improve PCH: from Terminal Island Freeway to the Long Beach Traffic Circle
Port of Long Beach	I-710	Replace Gerald Desmond Bridge – SR-47 and Pico Av
Commerce, LA Co, Vernon	I-710	Widen Washington Bl: Alameda to I-5
Long Beach, Signal Hill	I-710	Improve and/or widen Willow: Terminal Island Fwy to Cherry
Vernon/Los Angeles	I-710	Improve and/or widen Soto St from 37th St to SR-60
Long Beach	Alamitos Av	Ocean Bl to PCH: operational and aesthetic improvement
LA Co	Atlantic Bl	Olympic Bl to Whittier Bl: widen from four to six lanes
LA, Carson	Del Amo Bl	Main St to Vermont Av: widen from two to six lanes
	I-710	Phase I (approx. 31) and Phase II (approx. 45) intersection improvements for most “truck impacted” intersections
	I-710	Signal System upgrades and signal synchronization for several major arterials throughout the I-710 Study Area
Carson	Sepulveda Bl	Alameda St eastward to the Carson city limits: widen from two to four lanes
Carson		New Four-Lane connector road to Del Amo Bl: Avalon Bl to Main St (at I-405 junction)
Transit		
LA Co, Montebello, Pico Rivera, Whittier	East LA Corridor	Extend from Atlantic to Norwalk/Whittier
	Gateway	Implement results of Metro Connections recommendations – Bus service adjustments and improvements
LA, Long Beach, Redondo Beach, Torrance	I-405	Add express bus service to downtown Long Beach from South Bay Galleria
Long Beach	I-405	Increase service frequency on bus routes connection Long Beach to the CSULB campus
Long Beach	I-405	Increase service frequency on bus routes connecting downtown Long Beach to Orange County
Downey, LA, LA Co, Lynwood, Norwalk, Paramount	I-405	Increase feeder bus service to Metro Green Line (Lines 439, 561, 232, 40), Harbor Transitway (Lines 442, 444, 445, 447, 448, 550)
	I-5	Increase frequency and add bus signal priority at key intersections on Metro Bus lines 362 and 460 – from downtown LA along Telegraph Rd to San Antonio; 460 – from East LA south along Telegraph Rd
Commerce	I-5	Upgrade Commerce Station to 100% of 91 Line service (current service ~ 75%)

FIGURE 2.7 CONTINUED

Gateway Cities		
City	Route	Project Limits/Description
	I-5	Reduce bus service headways Corridor-wide
	I-5	Add reverse commute service to OCTA express bus lines Corridor-wide
	I-5	Increase Metro Bus service (up to 10%) Corridor-wide
	I-5	Improve coordination of service between local bus service and longer-haul service Corridor-wide
Cerritos, Downey, La Mirada, Norwalk, Santa Fe Springs	I-5	Procure and install transit systems equipment to implement transit vehicle priority capability to Lakewood/Rosemead Bl and Orange County Line
Norwalk	I-5	Provide Airport Fly-away Service Norwalk Transportation Center
	I-5	Increase Metrolink service and add capacity to existing trains in Orange County, Riverside, and 91 Lines
	I-5	Increase transit services throughout the I-5 corridor
SCRTTC	Regional	Through the Southern California Regional Transit Training Consortium support community college transit maintenance curricula
LB Transit	I-605	New transit route connecting CSULB/VA Hosp to Metro Green Line Lakewood Station
Artesia, Bell, Bellflower, Cerritos, Cudahy, Downey, Huntington Park, Maywood, Paramount, South Gate, Vernon	Gateway, Central Los Angeles	Construct environmentally-friendly high-speed transit along “Santa Ana West Branch” ROW from Union Station to Orange County
TSM/TDM		
	I-405	Expand operations of Freeway Service Patrol Corridor-wide
	I-5	Support existing and expand TDM programs Corridor-wide
	I-5	Create a Transportation Management Association to champion TDM programs Corridor-wide
Commerce, LA Co	I-5	Expand Freeway Service Patrol throughout the corridor From SR-134 to I-710
Cerritos, Downey, La Mirada, Norwalk, Santa Fe Springs	I-5	Implement ITS strategies for optimizing corridor traffic flow – Lakewood/Rosemead Bl and Orange County Line
Cerritos, Downey, La Mirada, Norwalk, Santa Fe Springs	I-5	Installation of Central Control and Communications Centers at each of five I-5 corridor cities at Lakewood/Rosemead Bl and Orange County Line
Burbank, LA, San Fernando	I-5	Install ramp metering on more on-ramps throughout the I-5 corridor – Throughout Segment B of I-5
	I-5	Add/expand park-and-ride facilities throughout the corridor
Bicycle		
Cerritos, Artesia, Paramount, Bellflower	I-105	Construct class 1 Bikeway within “Santa Ana West Branch” ROW
	various	Incorporate other elements of Bicycle Transportation Strategic Plan upon completion
Downey, El Segundo, Hawthorne, LA, LA Co, Lynwood, Norwalk	Green Line	Miscellaneous capital and operational improvements to existing line
	I-710	Bus service Improvements: miscellaneous operational improvements to existing systems (approx. 20% increase in service levels)
Compton, LA Co, Long Beach	Los Angeles Blue Line	Downtown Long Beach to 7th St/Metro Center in Downtown Los Angeles: platform and operational improvements to existing line*
POLB	Goods Movement	empty container management through “virtual container yard” program
GCCOG	Goods Movement	expanded drayage truck emission reduction program
POLB/POLA	Goods Movement	extended gate hours at the ports
Long Beach, Paramount, Commerce, Monterey Park	I-710	continuous high mast illumination (at freeway-to-freeway interchanges: 405/710, SR-91/710, 105/710, I-5/710, SR-60/710)
LA Co, Long Beach, POLA, POLB, GCCOG	ITS	Complete corridor signal synchronization; Develop area-wide connectivity among LACDPW systems, Caltrans, Ports, municipalities, private goods movement industry, and ATIS type systems to maximize mobility in port area
POLA/POLB	ITS	Advanced Transportation Management Info and Security System (ATMIS)
various	I-710	additional Metro Blue/Green line bus feeder shuttles
La Mirada, Santa Fe Springs, Norwalk, La Mirada	I-5	Establish TMA, enhance local circulator service and connectivity
various	I-710	enhanced community bus service (local circulators)

FIGURE 2.8



LAS VIRGENES/MALIBU SUBREGION

Cities

Agoura Hills, Calabasas, Hidden Hills, Malibu and Westlake Village

Setting

The Las Virgenes/Malibu subregion occupies the westernmost portion of Los Angeles County, and is bordered by Malibu and the Pacific Ocean to the south and Ventura County to the west and north. The area's most prominent feature is the strikingly rugged Santa Monica Mountains, which divide this subregion. The Las Virgenes cities occupy the north-facing foothills and valleys adjacent to the Santa Monica Mountains State Park and National Recreation Area. Figure 2.8 illustrates the Las Virgenes/Malibu subregion.

Major Transportation Facilities

The Ventura Freeway (US-101) is the subregion's dominant transportation corridor, around which most commercial/research park development and employment opportunities have clustered. This generally low-density area has a limited

network of arterial roadways, of which Pacific Coast Highway (SR-1) is the most heavily traveled. A series of north-south arterials connect the two highways, which include Decker/Westlake (SR-23), Kanan Dume/Kanan, Las Virgenes/Malibu Canyon Rd, and Topanga Canyon Bl (SR-27).

Regional bus service is provided by Metro and LADOT. Calabasas runs a community shuttle while the other cities in the subregion operate dial-a-ride services. There is currently no rail service in the subregion.

Mobility Challenges

The transportation system in the Las Virgenes/Malibu subregion has substantial capacity problems. As home to some of the nation's most-visited beaches and recreational sites, severe weekend and summertime traffic are frequent occurrences. Weekday traffic volumes have also grown as development and employment opportunities have extended into Ventura County. The unavoidable reliance on two primary routes presents substantial challenges to this area and yields the anticipated outcomes: traffic delays, disruptions and unreliable service levels.

Due to the region’s topography, size, modest roadway network, and limited transportation alternatives, congestion has become commonplace. While all the cities in the Las Virgenes/Malibu subregion provide dial-a-ride or community shuttle services, coordination of these services is limited. Bus service does not traverse the mountains in a north-south direction. This significantly reduces access to employment opportunities by day-workers and access to Pepperdine University by students traveling from other areas of the region.

What The Future Holds

To address the subregion’s mobility challenges, many transportation improvement projects have been undertaken that are expected to be operational by 2030. These include:

- > Development of Multimodal Strategies to alleviate the east-west congestion in the San Fernando Valley and Las Virgenes area; and
- > Enhanced Commuter Service between Las Virgenes/ Malibu subregion and the Metro Orange Line.

Metro has also awarded funding through the Call for Projects process for several additional local priorities that are expected to proceed, subject to funding availability:

- > **Arterials** – Complete construction of the US-101 Freeway/ Kanan Rd Interchange Improvements and Old Town Calabasas Rd Improvements;
- > **Signal Synchronization** – Complete the City-wide Centralized Traffic Signal Control System in the City of Calabasas;
- > **Transportation Enhancements** – Complete the Freeway Landscape Project in the City of Agoura Hills; and
- > **Transit** – Complete the Agoura Hills’ park-and-ride lot.

Stakeholder Recommendations

During the development of the Draft 2008 Plan, Metro met with cities and the Las Virgenes/Malibu Council of Governments (COG) to gather input on additional subregional needs and priorities. These represent potential strategies that could be explored should additional funds become available through 2030. These strategies include, but are not limited to:

- > Enhance transit access to the Metro Orange Line.
- > Increase capacity of US-101 by adding freeway and carpool lanes, and improving access to and provision of other modes of transportation, such as light rail;
- > As recommended by the US-101 Freeway Corridor Study, improve operation of US-101 corridor by improving local freeway interchanges and parallel arterials, subject to further community review and refinement and modification by affected agencies;
- > Improve access to emergency services; and
- > Increase transportation alternatives in this subregion, such as adding smart shuttles, and increasing the number of transportation “hubs.”

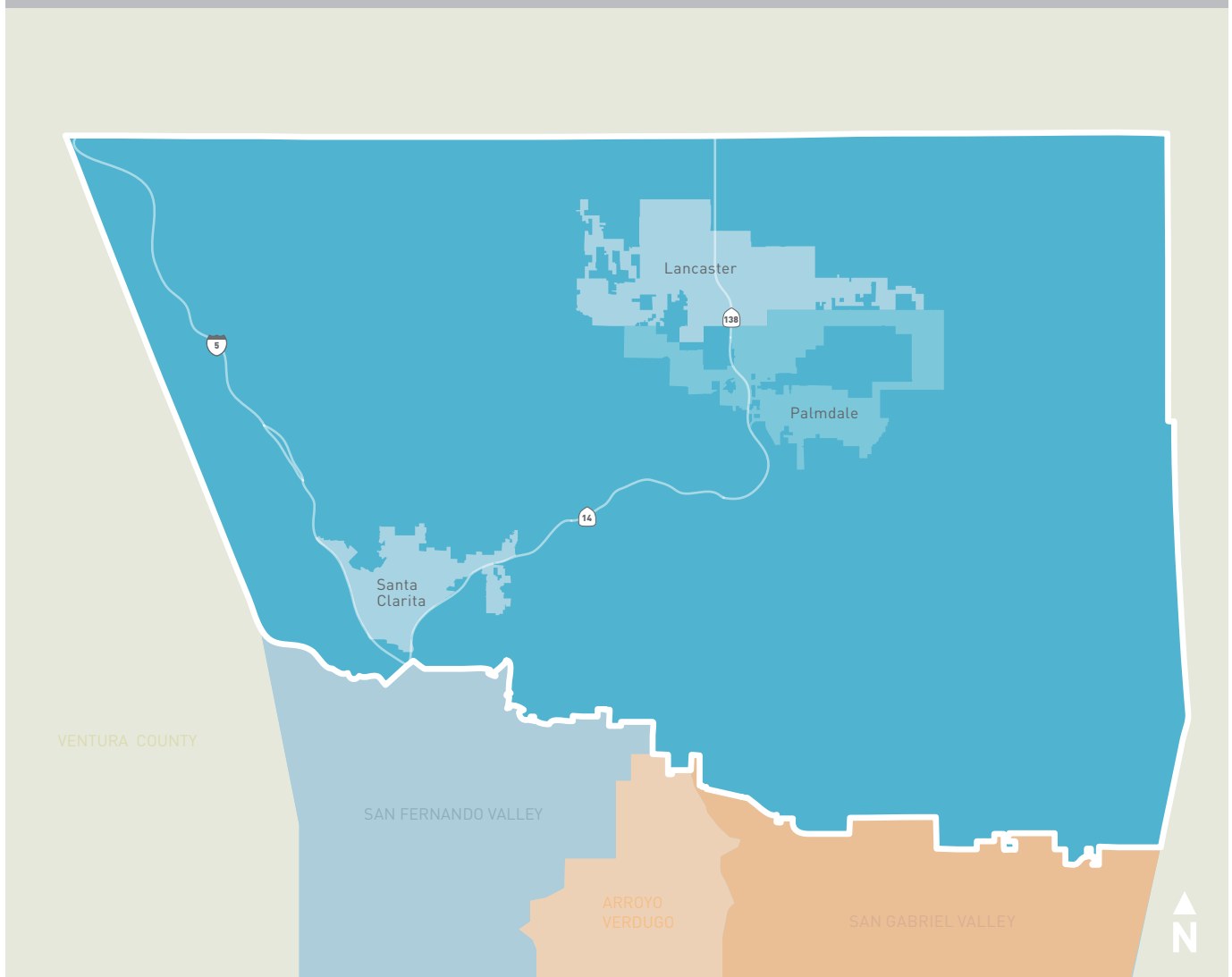
The Draft 2008 Plan is a living document that will be continually updated. Metro will work with the Las Virgenes/Malibu COG and its member cities on an ongoing basis to ensure that their priorities are taken into consideration during each update. Figure 2.9 lists a variety of unfunded subregional projects identified by the Las Virgenes/Malibu COG.

FIGURE 2.9

Las Virgenes/Malibu		
City	Route	Project Limits/Description
Freeway/Interchange		
Agoura Hills	US -101	Improve interchange at Agoura Rd/Chesebro Rd
Agoura Hills	US -101	Improve interchange at Kanan Rd
Calabasas	US -101	Improve interchange at Las Virgenes Rd
Westlake Village	US -101	Improve interchange at Lindero Cyn Rd
Calabasas	US -101	Improve interchange at Lost Hills Rd
Agoura Hills	US -101	Improve interchange at Reyes Adobe Rd
LA City, Agoura Hills, Calabasas, LA Co, Westlake Village	US-101	Re-striping to add additional lane to Ventura County line.
Arterial		
Agoura Hills, Calabasas, LA Co, Westlake Village	Hampshire Rd/ Agoura Rd	Improve Hampshire Rd/Agoura Rd from Thousand Oaks Bl to Las Virgenes Rd
Calabasas	Agoura Rd & Calabasas Rd	Complete the connection of Agoura Rd and Calabasas Rd between Valley Circle Bl/ Mulholland Dr and Las Virgenes Rd

FIGURE 2.10

North Los Angeles County



NORTH LOS ANGELES COUNTY SUBREGION

Cities

Lancaster, Palmdale, Santa Clarita, and parts of unincorporated Los Angeles County.

Setting

This subregion comprises all of Los Angeles County north of the San Fernando Valley and includes the Angeles National Forest. The two most populous areas of the subregion are the Santa Clarita and Antelope Valleys. Santa Clarita, in the southern portion of the subregion, is divided from Lancaster and Palmdale in the Antelope Valley to the north, by the breathtaking natural beauty and open space of the Angeles National Forest. Figure 2.10 illustrates the North Los Angeles County subregion.

Major Transportation Facilities

Area freeways include the Golden State (I-5) and the Antelope Valley (SR-14). SR-126 and SR-138 also impact the region. Antelope Valley Transit Authority and Santa Clarita Transit provide local bus services. Metrolink operates commuter rail services with stations located in

the cities of Lancaster, Palmdale, and Santa Clarita and in unincorporated LA County.

Mobility Challenges

The steady growth in population in the North County is expected to continue. Commuters traveling into the Los Angeles County basin area comprise the bulk of transportation facilities users in North Los Angeles County. SR-14, running from just south of Santa Clarita to Lancaster and Palmdale, is an extremely congested freeway. In addition, I-5, which feeds SR-14 into North Los Angeles County from the south, experiences slow-moving heavy-duty trucks negotiating the steep grade along the Newhall Pass which causes intermittent stop-and-go traffic conditions. These traffic conditions will have an even larger impact on worsening travel conditions as overall traffic volumes increase over the next several decades.

The Angeles National Forest, which straddles the center of this subregion, is also a magnet for day-trippers, weekenders and vacationers.

Because of this subregion’s location at the northern-most reaches of Los Angeles County, transportation linkages with destinations south to the Los Angeles basin are of key concerns for the region’s residents and businesses.

What The Future Holds

To address the subregion’s mobility challenges, many transportation improvement projects have been undertaken that are expected to be operational by 2030. These include:

- > Metrolink Antelope Valley Line Improvements;
- > Metrolink Antelope Valley Line Track Curve Straightening (Project is subject to future funding availability);
- > SR-14 carpool lanes from Pearblossom Hwy to Avenue P-8;
- > I-5/SR-14 carpool lane direct connector (North to/from South) (Design only, construction is subject to future funding availability);
- > Metrolink locomotive and passenger coach purchases; and
- > HOV Reversible Lane Study on SR-14.

Metro has also awarded funding through the Call for Projects process for several additional local priorities that are expected to proceed, subject to funding availability:

- > **Freeway** – Carpool Direct Connector lanes at I-5/SR-14 interchange and interchange improvements at I-5/Magic Mountain Pkwy, I-5/Hasley Cyn Rd, and SR-126/Commerce Center Dr;
- > **Arterials** – Cross Valley Connector Gap Closure from I-5 to Copper Hill Dr, I-5/Magic Mountain Parkway (SR-126) Interchange Reconstruction;
- > **Signal Synchronization** – North County/Antelope Valley Traffic Improvement, and Automated Incident Management System in the City of Santa Clarita;
- > **Bikeway and Pedestrian Improvement Projects** – Sierra Highway Bikeway Gap Closure, Avenue K-8 Regional

- Commuter Bikeway, Avenue S Class I Bikeway, and Santa Clara River Regional Commuter Trail; and
- > **Transit** – Improvements to the Palmdale Transportation Center, as well as the Santa Clarita and Lancaster Metrolink Stations.

Stakeholder Recommendations

During the development of the Draft 2008 Plan, Metro met with the North County cities to gather input on additional subregional needs and priorities. These represent potential strategies that could be explored should additional funds become available through 2030. These strategies include, but are not limited to:

- > Seek to ensure that it receives a “fair” share of resources to fund transportation improvements in the subregion;
- > Promote alternate routes in addition to SR-14 to ultimately relieve demands on congested corridors, including High Speed Rail, magnetic levitation, new highways, airport access, and goods movement;
- > Secure additional funding for transportation system preservation to keep pace with the growing cost of rehabilitating and improving the existing local roadway network;
- > Improve access for key trips within the subregion and to major employment centers outside of the subregion; and
- > Implement the various projects named within the North County Combined Highway Corridor Study – the major corridor study for the I-5/SR-14/SR-138.

The Draft 2008 Plan is a living document that will be continually updated. Metro will work with the North Los Angeles County subregion on an ongoing basis to ensure that its priorities are taken into consideration during each update. Figure 2.11 lists a variety of unfunded subregional priorities identified by the North County cities.

FIGURE 2.11

North Los Angeles County		
City	Route	Project Limits/Description
Freeway		
LA Co, Lancaster, Palmdale	High Desert Fwy	From I-5 to San Bernardino County Line
LA Co, Santa Clarita	I-5	Add 1 mixed flow lane from SR-14 to SR-126 (both directions)
LA Co, Santa Clarita	I-5	Improve interchange between I-5 and SR-14
LA Co, Santa Clarita	I-5	Add HOV lane from SR-14 to SR-126 (both directions)
LA Co, Palmdale	SR-138	Add 1 expressway lane from SR-14 to San Bernardino Co Line (both directions)
LA Co, Lancaster, Palmdale, Santa Clarita	SR-14	Add 1 mixed flow lane from I-5 to Kern Co Line (both directions)
LA, LA Co	I-5	I-5/SR-14 SB merge
LA	I-5	SB merge of I-5 and SR-14. Separate SR-14 connectors to I-5 with a physical barrier to prevent weaving and queuing
LA Co, Santa Clarita	I-5	SR-126/I-5 interchange. Add HOV and truck lanes to SR-126/I-5 interchange
LA Co, Santa Clarita	I-5	SR-14 and SR-126. Add HOV and truck lanes on I-5

FIGURE 2.11 CONTINUED

North Los Angeles County		
City	Route	Project Limits/Description
LA, LA Co	I-5	SR-14/I-5 interchange. Add HOV and truck lanes to SR-14/I-5 interchange
LA Co	I-5	Weldon Canyon Rd to SR-14. Add mixed-flow lane on I-5
LA	I-5	I-405 and SR-14. Add mixed-flow and HOV lanes
LA	I-5	SR-14 and I-210. Modify/rebuild I-5 (SB)/I-210 (EB) transition – by braiding over the SR-14 southbound connector ramps
Lancaster	SR-14	Avenue G and SR-14. Construct interchanges with High Desert Corridor at the subregional level by the City of Lancaster at Avenue G and SR-14
Lancaster	SR-14	Avenue H and SR-14 Interchange. Construct interchanges with High Desert Corridor at the subregional level by the City of Lancaster at Avenue H and SR-14
Lancaster	SR-14	Avenue I and SR-14 Interchange. Construct interchanges with High Desert Corridor at the sub-regional level by the City of Lancaster at Avenue I and SR-14
Lancaster	SR-14	Avenue L and SR-14 Interchange. Construct interchanges with High Desert Corridor at the sub-regional level by the City of Lancaster at Avenue L and SR-14
Lancaster	SR-14	From SR-138 to Avenue P. Construct HOV lane in each direction on SR-14 from SR-138 to Avenue P
LA Co	SR-14	Golden Valley Rd – Widen Over crossing at Golden Valley Rd
LA, LA Co, Santa Clarita	SR-14	I-5/SR-14 Interchange – Redo/restripe the transition from SB SR-14 to SB I-5 to allow a continuous two-lane truck route and separate SR-14 connectors to I-5 with a physical barrier to prevent weaving and reduce queuing
Palmdale, Santa Clarita	SR-14	Sand Canyon Rd/Avenue P – Add a mixed-flow lane on SR-14 at San Canyon Rd and Avenue P
LA Co, Lancaster, Palmdale, Santa Clarita	SR-14	Expansion of Freeway Service Patrol (FSP) Throughout the SR-14 corridor
	HDC E-W (Avenue P-8)	I-15 to SR-18 – Add 2 lanes
LA Co	HDC E-W (Avenue P-8)	US 395 to I-15 – Add 2 lanes
Palmdale	HDC E-W (Avenue P-8)	SR-14 to 50th St E – 3 + 1 HOV
LA Co, Palmdale	HDC E-W (Avenue P-8)	50th St E to US 395 – Add 3 lanes
	HDC N-S	SR-14 to HDC SR-138 – Add 2 lanes
LA Co, Santa Clarita	I-5	Calgrove Av to SR-126 West – Add 2 Truck and 2 HOV lanes
LA Co	I-5	Lake Hughes Rd to Kern County Line – Add 1 Truck Climb
LA Co, Santa Clarita	I-5	SR-126 West to Lake Hughes Rd– Add 1 Truck Climb and 1 HOV
LA Co	I-5	SR-14 to Calgrove Av – Add 2 Truck and 2 HOV lanes
LA Co, Lancaster	SR-14	Avenue L to Kern Co Line – Add 1 mixed flow lane
LA Co, Lancaster, Palmdale	SR-14	Avenue P to Avenue L – Add 1 mixed flow lane and 1 HOV
LA Co, Santa Clarita	SR-14	I-5 to San Fernando Rd – Add 2 HOV and 1 Truck for a total of 3 consistent reversible HOV lanes
LA Co, Palmdale	SR-14	Pearblossom to Avenue P – Add 1 mixed flow lane and 2 HOV for a total of 3 consistent reversible HOV lanes
LA Co, Santa Clarita	SR-14	Placerita Canyon to Sand Canyon – Add 1 mixed flow lane and 2 HOV for a total of 3 consistent reversible HOV lanes
LA Co, Santa Clarita	SR-14	San Fernando Rd. to Placerita Canyon – Add 1 mixed flow lane and 2 HOV and 1 Truck for a total of 3 consistent reversible HOV lanes
LA Co, Santa Clarita	SR-14	Sand Canyon to Avenue P-8. Fitting the gap, making it a consistent 3 lane cross section in each direction plus 3 consistent reversible HOV lanes on SR-14
LA Co	SR-138	I-5 to SR-14 – Add 2 lanes
LA Co, Palmdale	SR-138	Avenue T (Pearblossom Hwy) to I-15. SR 138 widening
LA Co, Lancaster	SR-14	Avenue L to Kern Co Line – Add 1 mixed flow lane
Arterial		
LA	I-5	Balboa Bl and Sierra Hwy Widen/add lanes on Foothill Bl
LA	I-5	San Fernando Rd and Roxford St. Widen/add lane on Sepulveda Bl with direct access to I-5 SB on-ramp

FIGURE 2.11 CONTINUED

North Los Angeles County		
City	Route	Project Limits/Description
LA	I-5	San Fernando Rd/Sierra Hwy intersection. Widen intersection (bridge over Metrolink tracks) by adding two lanes on Sierra Hwy
LA	I-5	SR-14/Sierra Hwy and Roxford St – Add a reversible lane on The Old Road/San Fernando Rd/Sepulveda Bl
LA Co	I-5	Weldon Canyon Road and SR-14/Sierra Highway. Add a reversible lane on The Old Road/San Fernando Road
LA	I-5	SR-14 and I-405. Add truck lane on I-5
LA Co, Santa Clarita	Golden Valley Road	Cross Valley Connector. Construct Golden Valley Rd from Soledad Canyon to Newhall Ranch Rd (includes bridge over Santa Clarita River)
LA Co, Santa Clarita	Golden Valley Road	Cross Valley Connector. Newhall Ranch Rd to Plum Canyon, Newhall Ranch Rd from Golden Valley Rd to Bouquet Canyon Rd
LA Co, Santa Clarita	I-5	Cross Valley Connector gap closure: I-5 to Copper Hill Dr
LA Co, Santa Clarita		Via Princessa from Circle J to Magic Mountain Pkwy; Via Princessa from Golden Valley Rd to Rainbow Glen
LA Co, Santa Clarita	I-5	Interchange reconstruction: S/B auxiliary lane to the off-ramp. Widen Magic Mountain Parkway at Freeway.
LA Co, Santa Clarita		Gap closure connection on Magic Mountain Parkway from San Fernando Rd to Via Princessa
LA Co, Santa Clarita		New road construction of Santa Clarita Pkwy from Bouquet Canyon Rd to Soledad Canyon Rd
LA Co, Santa Clarita		New road construction of Santa Clarita Pkwy from Soledad Canyon Rd to Via Princessa
LA Co, Santa Clarita		New road construction of Santa Clarita Pkwy from Via Princessa to SR-14
LA Co, Lancaster, Santa Clarita	SR-14	Install Traffic Signal Synchronization and Other Improvements along major arterial roads serving SR-14 (Sierra Highway, Agua Dulce Canyon Rd, San Canyon Rd, Soledad Canyon Rd, San Fernando Rd)
Transit		
LA Co, Santa Clarita	I-5	Additional local bus routes serving the Castaic Lake area and SR-126
Lancaster, Santa Clarita	I-5	Increase Shuttle service from Metrolink Stations to employment destinations (Newhall, Santa Clarita, Via Princessa, Vincent Grade, Lancaster)
LA, Santa Clarita	I-5	Initiate fixed-route transit service between Santa Clarita and San Fernando Valleys
Santa Clarita	I-5	Increase frequency on existing Santa Clarita Transit routes: 794, 798, 799 (Express Bus)
Burbank, San Fernando, Santa Clarita, Valencia	I-5	Add late night and weekend service to specific destinations in Santa Clarita, Valencia, San Fernando and Burbank
Burbank, Glendale, LA, San Fernando, Lancaster, Palmdale, Santa Clarita	I-5	Increase Shuttle service from Metrolink Stations to employment destinations (Glendale, Burbank, Sun Valley, Sylmar, Central LA, San Fernando)
Burbank, Glendale, LA, Lancaster, Palmdale, Santa Clarita, San Fernando	I-5	Antelope Valley Metrolink Service. Add reverse commute service on Antelope Valley line
	I-5	Corridor-wide Reduce bus service headways
	I-5	Corridor-wide Add reverse commute service to AVTA express bus lines
	I-5	Corridor-wide Increase Metro Bus service (up to 10%)
	I-5	Corridor-wide Improve coordination of service between local bus service and longer-haul service
	I-5	Increase transit services throughout the I-5 corridor various locations to be determined.
LA Co, Lancaster, Palmdale, Santa Clarita	SR-14	SR-14 Corridor. Improve bus transit services along SR-14 corridor
Lancaster, Palmdale, Santa Clarita	SR-14	SR-14 Corridor Metrolink Service. Expansion of Metrolink services and capacity on existing trains
LA Co, Santa Clarita	I-5/SR-14	Express Bus
LA Co, Santa Clarita	I-5/SR-14	Metrolink. 4 trains/24 cars
LA Co, Santa Clarita	I-5/SR-14	Park-and-ride
Palmdale	SR-138/HDC E-W	Express Bus. 3 E-W Routes, 9 buses per hour
Palmdale	SR-138/HDC E-W	Local Bus. 75% Increase over no build
Palmdale	SR-138/HDC E-W	Park-and-ride. 11 new lots 4,000 total spaces

FIGURE 2.11 CONTINUED

North Los Angeles County		
City	Route	Project Limits/Description
TSM/TDM		
LA Co, Santa Clarita	I-5	From SR-126 to SR-14. Expand Freeway Service Patrol throughout the corridor
LA, Lancaster, Palmdale, Santa Clarita	I-5	In Los Angeles, SR-14 to Kern County Line. Install CCTV and Communications System from SR-14 to the Kern Co. line
LA	I-5	Intersection of Sierra Hwy and Foothill Bl (NB I-5/SR-14 on-ramp). Install new traffic signal at the intersection of Sierra Hwy and Foothill Bl (NB I-5/SR-14 on-ramp)
LA	I-5	Intersections of San Fernando Rd with Sierra Hwy and Sierra Hwy with Foothill Bl/NB I-5/SR-14 ramp. Install traffic signals at intersections of San Fernando Rd with Sierra Hwy and Sierra Hwy with Foothill Bl/NB I-5/SR-14 ramp
LA	I-5	San Fernando Rd/The Old Road and Sierra Hwy intersection. Install new traffic signal at San Fernando Rd/The Old Road and Sierra Hwy intersection
Burbank, San Fernando, LA	I-5	From SR-14 to SR-134. Expand Freeway Service Patrol throughout the corridor
	I-5	Corridor-wide. Support existing and expand TDM programs
	I-5	Corridor-wide. Create a Transportation Management Association to champion TDM programs
Burbank, LA, San Fernando	I-5	Throughout Segment B of I-5. Install ramp metering on more on-ramps throughout the I-5 corridor
LA Co, Lancaster, Palmdale	SR-14	Deployment of 4 ITS projects along the proposed SR-14 HOV lanes. I-5 to Avenue P along SR-14
LA, LA Co, Santa Clarita	SR-14	In Los Angeles to Santa Clarita, Rte 5 to Sand Canyon Rd. Install CCTV and Communications System from Los Angeles to Santa Clarita (I-5 to Sand Canyon Rd)
	SR-14	SR-14 Corridor. Add and/or expand park-and-ride facilities

SAN FERNANDO VALLEY SUBREGION

Cities and Communities

San Fernando Valley portion of the City of Los Angeles and City of San Fernando

Setting

The San Fernando Valley is bounded by the Westside to the south, the Las Virgenes subregion to the west, the Arroyo Verdugo subregion to the East, the North County subregion to the North. Figure 2.12 illustrates the San Fernando Valley subregion.

Major Transportation Facilities

A number of freeways crisscross this subregion, including the Golden State (I-5), Ventura (US-101 and SR-134), Simi Valley (SR-118), Hollywood (SR-170), San Diego (I-405) and Foothill (I-210) freeways. There are carpool lanes on the SR-118, SR-134, and SR-170 and portions of the I-405.

Municipal operators as well as Metro provide bus service to the subregion. The Metro Red Line serves this area via stations at Universal City and North Hollywood. Metrolink’s Antelope Valley and Ventura County Lines provide commuter rail service.

Metro opened the Metro Orange Line in October 2005. The 14-mile landscaped transitway, with 13 stations spaced about a mile apart runs between the North Hollywood Metro Rail station and Warner Center.

Mobility Challenges

This subregion is growing fastest at its east and west extremities, and transportation service and investment should be adjusted accordingly with changing demographics and travel patterns.

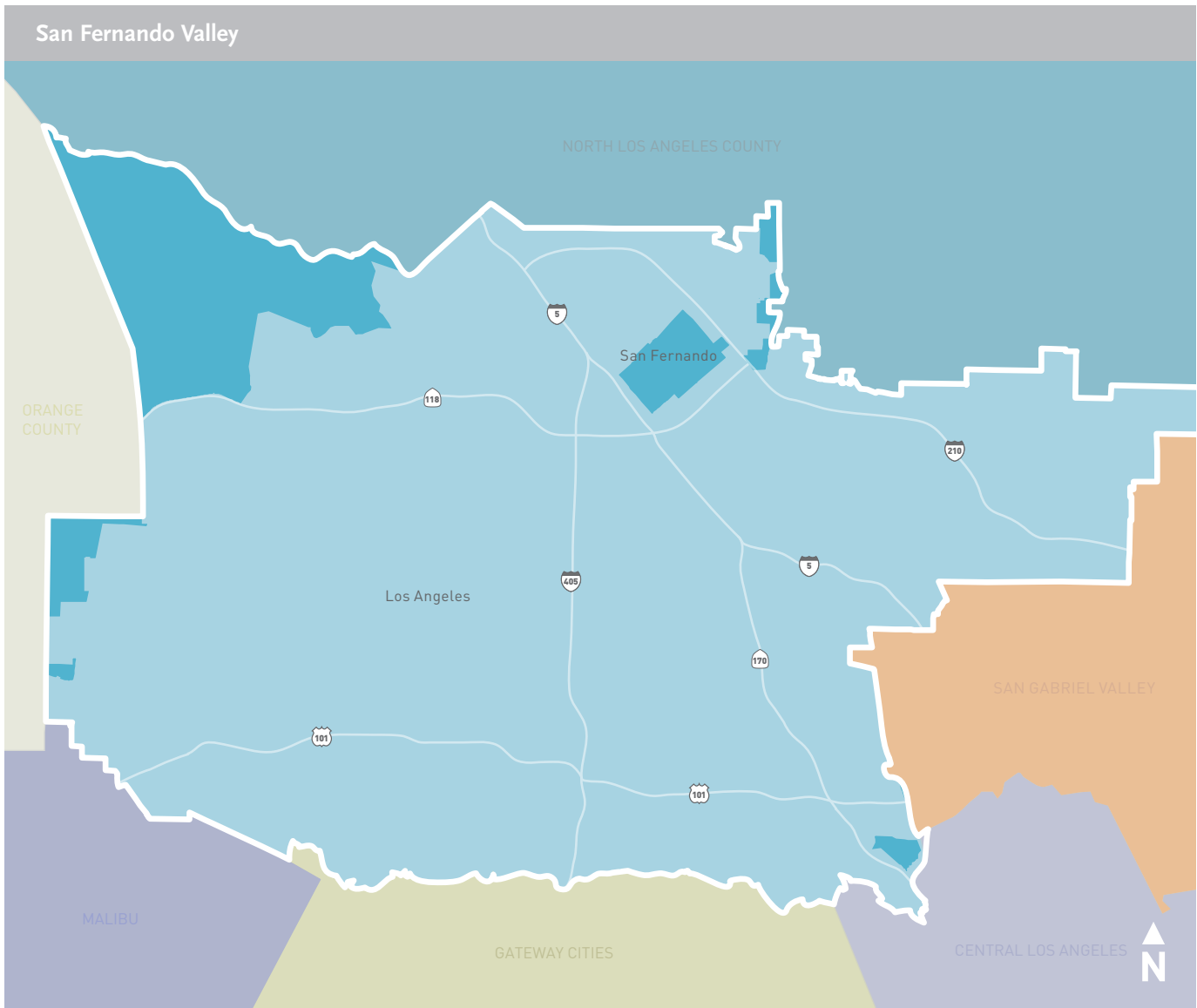
The I-405 is the major conduit between the San Fernando Valley and the Westside Cities, carrying several hundred thousand vehicles per day through the Sepulveda Pass. Currently, there is only one carpool lane for southbound traffic. The 405/101 and 405/10 interchanges at either end of this section are two of the 10 busiest interchanges in the nation. Due to capacity limitations on the I-405 through the Pass, Sepulveda Bl, Laurel Canyon Bl, Coldwater Canyon Dr, and Beverly Glen Bl carry significant traffic between the San Fernando Valley and the Westside, impacting local residents. The I-405 is also the primary route to LAX from the San Fernando Valley and the North County sub-region.

What The Future Holds

To address the subregion’s mobility challenges, many transportation improvement projects have been undertaken that are expected to be operational prior to 2030. These include:

- > Implementation of two new Metro Rapid bus lines;
- > I-5 carpool lanes from SR-118 to SR-14;
- > I-405/US 101 Connector Gap Closure;
- > I-405 northbound carpool lane from Mulholland Dr to I-10;

FIGURE 2.12



- > I-5 carpool lanes from SR-170 to Hollywood Way; and
- > Metrolink locomotive and passenger coach purchases.

Metro has also awarded funding through the Call for Projects process for several additional local priorities that are expected to proceed, subject to funding availability:

- > **Freeway** – Carpool lanes on I-5 (SR-170 to SR-118), I-405/US-101 Connector Gap Closure, and partial funding of I-405 carpool and auxiliary lanes;
- > **Arterials** – Bridge widening and/or replacements at Tampa, Winnetka and Vanowen. Intersection improvements at Balboa and Victory Bls; the widening of Moorpark Av from Woodman to Murietta and Magnolia Bl from Cahuenga to Vineland.
- > **Signal Synchronization** – North Hollywood ATSAC Project;
- > **Transportation Demand Management** – Northridge Metrolink Station/Northridge Shuttles;
- > **Bikeway and Pedestrian Improvement Projects** – San Fernando Road ROW Bike Path Phase II, and Chandler Bikeway Extension; and

- > **Transportation Enhancements** – East San Fernando Valley Scenic Corridors Vista Points.

Stakeholder Recommendations

During the development of the Draft 2008 Plan, Metro met with cities in the San Fernando Valley to gather input on additional subregional needs and priorities. These represent potential strategies that could be explored should additional funds become available. These strategies include, but are not limited to:

- > As recommended by the US-101 Freeway Corridor Study, improve operation of US-101 corridor by improving freeway exit lanes, freeway auxiliary lanes, parallel arterials, bus and rail transit enhancements/expansions, park-and-ride/transit center expansions, and provide continued support for transportation demand management strategies, subject to further community review and refinement and modification by affected agencies;
- > Add one mixed-flow lane on US-101 between Topanga Canyon Bl and the Los Angeles/Ventura County line;

- > Improve Balboa Bl Corridor between Rinaldi Bl and San Fernando Rd;
- > Improve the US-101/SR-170/SR-134 interchange, including a new connector between the northbound US-101 and eastbound SR-134;
- > Make operational improvements to the I-5/SR-14 interchange;
- > Widening arterial streets and improving arterial/freeway interchanges;
- > Implementing low-cost signal synchronization and TSM projects to improve transportation system capacity; and
- > Improving street landscaping and promoting pedestrian and bicycle mobility.

The Draft 2008 Plan is a living document that will be continually updated. Metro will work with the San Fernando Valley subregion on an ongoing basis to ensure that its priorities are taken into consideration during each update. San Fernando Valley unfunded subregional priorities identified by the City of LA are shown in Figure 2.5.

SAN GABRIEL VALLEY SUBREGION

Cities

Alhambra, Arcadia, Azusa, Baldwin Park, Bradbury, Claremont, Covina, Diamond Bar, Duarte, El Monte, Glendora, Industry, Irwindale, La Puente, La Verne, Monrovia, Monterey Park, Pasadena, Pomona, Rosemead, San Dimas, San Gabriel, San Marino, Sierra Madre, South El Monte, South Pasadena, Temple City, Walnut, and West Covina.

Setting

The San Gabriel Valley is located in the easternmost portion of Los Angeles County. This subregion is bounded on the west by the Cities of Pasadena, South Pasadena, Alhambra and Monterey Park, on the north by the San Gabriel Mountains, on the east by the Los Angeles County/San Bernardino County line, and on the south by the City of Diamond Bar as well the communities of Hacienda Heights and Rowland Heights. Figure 2.13 illustrates the San Gabriel Valley subregion.

The area covers approximately 355 square miles and is approximately 99% built-out, leaving very little undeveloped land for commercial or industrial uses. The subregion encompasses 31 jurisdictions and a portion of an unincorporated county area whose combined population represents 18% of the total population of Los Angeles County. The sub-region is home to 750,000 jobs within Los Angeles County (or 20%). The San Gabriel Valley subregion is characterized by socioeconomic and ethnic diversity and is comprised of some of the most affluent as well as the lowest income communities within Los Angeles County.

Major Transportation Facilities

One of the unique transportation features of this subregion is the significant number of freeways that traverse it; namely, San Bernardino (I-10), Foothill (I-210), Pasadena (SR-110), Orange (SR-57), Pomona (SR-60), Chino Valley (SR-71), San Gabriel River (I-605) and the Long Beach (I-710) Freeways.

The Foothill Freeway has a carpool lane in each direction through the entire San Gabriel Valley subregion. Carpool lanes also exist on portions of I-10, I-605 and SR-60. The El Monte Busway on the I-10 serves both buses and carpools and is the highest-volume carpool facility in Los Angeles County.

The Alameda Corridor East (ACE) Project generally parallels the San Bernardino and Pomona Freeways along the Union Pacific and former Southern Pacific rail lines. The ACE project's aim is to improve mobility, reduce air pollution, foster economic vitality, enhance safety and mitigate the effects of increased rail freight traffic from the ports. Phase I of the ACE project, currently underway, includes safety upgrades, traffic signal control measures and roadway widening at 42 railroad crossings as well as 10 grade separations throughout the corridor.

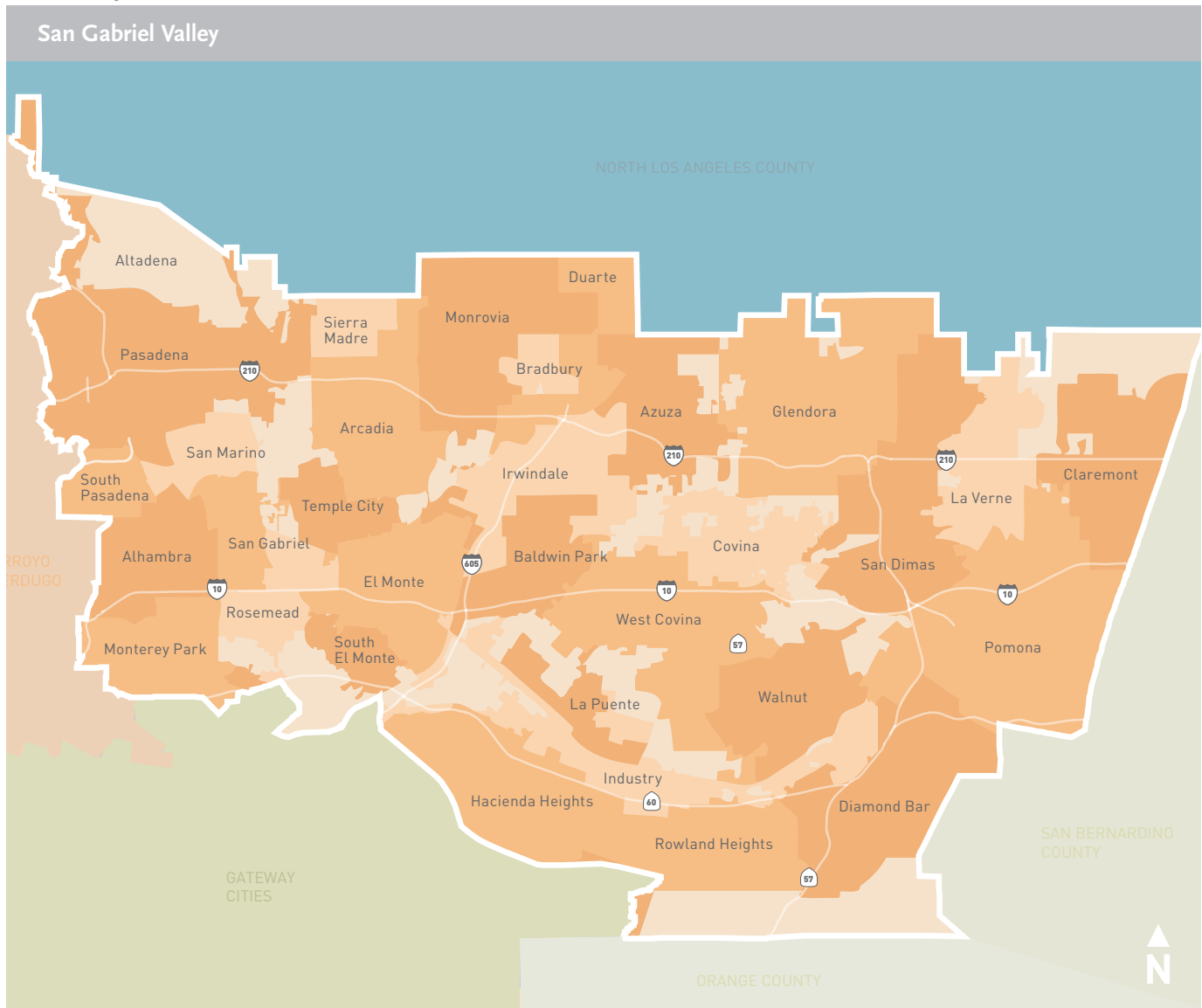
The San Gabriel Valley subregion is served by the San Bernardino and Riverside Metrolink lines whose combined ridership accounts for approximately 42% of the system's total weekday ridership. The Metro Gold Line, which opened in July 2003, serves the subregion with seven stations located in the cities of South Pasadena and Pasadena.

Metro, Foothill and Montebello Transit provide bus service to the subregion. Most cities in this subregion provide dial-a-ride services within their city limits to seniors and persons with disabilities, with some providing additional service to the general public through community shuttle programs.

Mobility Challenges

Mitigating the impacts of traffic generated by the movement of goods via trucks and rail is one of the foremost mobility challenges for the subregion. More than 40% of the nation's freight traffic carrying goods from the ports of Los Angeles and Long Beach to the eastern states traverse the subregion. About 50% of the goods move via the area's freeways, specifically SR-60 and I-10, en route to neighboring counties and other major cities in the nation. Railroads carry the other 50% of the goods leaving the subregion. Blocked arterial grade crossings often create traffic delays and accidents and remain a priority for the subregion. To this end, the subregion supports completion of the Metro Multimodal Action Plan for identifying how to further reduce congestion on severely crowded freeways.

FIGURE 2.13



A high percentage of traffic within this subregion is interregional commuter traffic from neighboring counties (i.e., San Bernardino, Riverside and Orange) destined for employment sites in downtown Los Angeles as well as other subregions of Los Angeles County. This is problematic at the SR-57 and SR-60 interchange, where the commuter traffic merges from the neighboring counties. In the westernmost portion of the subregion, north/south mobility is severely hindered by SR-710 freeway gap. Both Metro and SCAG performance criteria indicate that connecting SR-710 from the I-10 to the I-210 would perform very well in terms of reducing overall freeway congestion and air pollution. The majority of jurisdictions within the subregion are interested in a viable alternative with minimal impact to residences that will allow extension of SR-710 to close this gap.

What The Future Holds

To address the subregion’s mobility challenges, many transportation improvement projects have been undertaken that are expected to be operational by 2030. These include:

- > Gold Line Foothill Extension Sierra Madre Villa to Montclair (Preliminary Engineering);
- > Ten Grade separations of the Alameda Corridor East program;
- > Implementation of new Metro Rapid bus lines;
- > Improvements to Metrolink’s San Bernardino Line (rolling stock Phase 1B is subject to future funding availability);
- > Complete Multi-County Goods Movement Action Plan;
- > Complete SR-57/SR-60 carpool lane direct connectors;
- > Complete the SR-57/SR-60 Improvements Study;
- > SR-60 carpool lanes from I-605 to Brea Canyon Rd.;
- > I-10 carpool lanes from Puente Av to SR-57;
- > Metrolink rolling stock Maintenance facility in San Bernardino Phase 1A (Phase 1B is subject to future funding availability);
- > Metrolink locomotive and passenger coach purchases;
- > Traffic Signal Forums concentrating on synchronization;
- > Traffic signal timing coordination on numerous arterials; and
- > Complete Feasibility Study of I-710 Gap Closure Tunnel and determine the next steps for this gap in the freeway network.

Metro has also awarded funding through the Call for Projects process for several additional local priorities that are expected to proceed, subject to funding availability:

- > **Freeways** – The I-210/SR-30 Freeway Gap Closure Project opened a new 8-lane freeway through the cities of La Verne and Claremont in Los Angeles County. Carpool lanes on I-10 through the communities of El Monte, Pomona and Claremont are currently being constructed and on SR-60 through the communities of Industry, Hacienda Heights and Rowland Heights are currently being designed;
- > **Arterials** – To increase capacity and enhance mobility by reducing congestion, major arterials and intersections have undergone various improvements. These include: Garfield Av, Fremont Av, Mission Rd, Valley Bl, Towne Av, Beverly Bl, Atlantic Bl, and Azusa Av;
- > **Signal Synchronization** – To improve traffic flow throughout the subregion, major arterial corridor signals have been or will be synchronized in cities such as Pasadena, Diamond Bar, Covina, and Pomona. Additionally, the subregion is the first in the County to begin implementing the Information Exchange Network, which allows for the sharing of traffic signal data across jurisdictional boundaries to allow for improved traffic management. The Los Angeles County Department of Public Works has located their regional traffic management center in Alhambra. Intelligent Transportation System (ITS) technology is also being deployed in an effort to squeeze additional capacity out of the arterials by allowing for improved traffic management through the sharing of traffic and other types of information both within and outside the subregion. Along with the County and the San Gabriel Valley Traffic Forum, cities such as Pasadena and Arcadia are currently working on ITS projects;
- > **Transportation Demand Management** – To improve the capacity and inter-modal efficiency of the transportation system, a number of projects that involve policies, programs or actions that focus on reducing dependency on automobile use or modifying travel behavior have been or will be implemented including South Pasadena’s Mission Meridian multi-use transit-oriented parking which will serve Metro Gold Line users, mixed-use transit-oriented development around current and future Metro Gold Line Stations, SCRRA’s GPS and Software for Paging and Internet Voice Response, and El Monte’s San Gabriel Valley Metro Hub project;
- > **Bikeway and Pedestrian Improvement Projects** – To encourage residents and commuters to use alternate forms of transportation, the Metro has funded several bikeway and pedestrian transportation projects including the East San Gabriel Valley Bike Trail, Duarte Bike Trail Improvements, Diamond Bar’s Brea Canyon Road Class 1 Bike Trail and Monterey Park’s Pedestrian Facilities at East LA College;
- > **Transportation Enhancements** – A number of projects have been undertaken to enhance the quality of life and provide more livable communities including South Pasadena’s

Oaklawn Bridge Restoration project, Pomona’s Mission Bl Corridor Landscape Enhancements and West Covina’s South Azusa Av Median Landscaping Phase I; and

- > **Transit** – Metro and the subregion’s municipal transit operators are working to improve transit facilities by providing transit centers, bus stop improvements and utilizing new transit technologies. Foothill Transit recently completed two state-of-the-art transit facilities in Pomona and Arcadia.

Stakeholder Recommendations

During the development of the Draft 2008 Plan, Metro met with the San Gabriel Valley Council of Governments to gather input on additional subregional needs and priorities. These represent potential strategies that could be explored should additional funds become available through 2030. These strategies include, but are not limited to:

- > I-710 Gap Closure with preliminary engineering by 2009 and constructed by 2030;
- > Complete all carpool lane gaps within the subregion;
- > An East-West Corridor Goods and Freight Movement Improvement Study (including the impacts of truck lanes);
- > Metro Gold Line Foothill extension construction completed by 2011 to Azusa (by the Authority) and operated (by Metro) within 90 days of completion. Construction completed (by the Authority) to Montclair by 2015 and operated (by Metro) within 90 days of completion;
- > Interchange upgrade of SR-57/SR-60;
- > Implement SR-71 freeway upgrade;
- > Implement I-10/I-605 interchange upgrade;
- > Increase transit services along major corridors by implementing bus signal priority and expanding Metro and municipal operator services in the subregion;
- > Expand Metrolink service and capacity on San Bernardino and Riverside lines;
- > Mitigate the impacts of traffic generated by the movement of goods;
- > Continue to implement TDM and bicycle and pedestrian improvements to provide connections to transit and to provide a viable alternative to the single occupant drivers;
- > Improve mobility and capacity on arterial streets through signal synchronization, transit coordination and other ITS technologies;
- > Increase the capacity of major east-west and north-south arterials through improvements such as roadway widening, grade separations, gap closures and intersection improvements; and
- > Revitalize local communities to ensure a more livable environment within the San Gabriel Valley region.

The Draft 2008 Plan is a living document that will be continually updated. Metro will work with the San Gabriel Valley region on an ongoing basis to ensure that its priorities are taken into consideration during each periodic update. Figure 2.14 lists a variety of unfunded subregional priorities identified by the San Gabriel Valley subregion.

FIGURE 2.14

San Gabriel Valley		
City	Route	Project Limits/Description
Freeway		
Baldwin Park, Irwindale	I-605	Add HOV lane from I-10 to I-210
Industry	I-605	HOV connector at SR-60 and I-605 (partial connector – from east to south & from east to north)
Alhambra, LA, South Pasadena	I-710	Gap Closure. Tunnel Feasibility Study
Diamond Bar, Pomona	SR-57	Add HOV lane from SR-60 to I-210 (both directions)
Industry, LA, LA Co, Montebello, Monterrey Park, South El Monte	SR-60	Add HOV lane from US-101 to I-605 (both directions)
West Covina, Covina, Pomona, San Dimas	I-10	Citrus Av to SR-57. Add HOV lane on I-10 between Citrus and SR-57
LA	I-10	Expansion of Freeway Service Patrol Corridor-wide
Alhambra, Baldwin Park, El Monte, Rosemead, San Gabriel, West Covina	I-10	Conduct Eastern Gateway Freeway Corridor Improvement Study I-710 to San Bernardino County Line
Baldwin Park, West Covina	I-10	Design and construction of carpool lane along I-10 from I-605 to Puente Av in each direction.
Alhambra, Baldwin Park, El Monte, Rosemead, San Gabriel, West Covina	I-10	Expand Freeway Service Patrol (FSP) for San Gabriel Valley
Baldwin Park	I-10	Modify interchanges along I-10 in Baldwin Park-Walnut Grove & I-10 (at Fraser, Francisquito and others in Baldwin Park)
Pomona, San Dimas	I-10	Construct truck climbing lane on WB I-10 to WB SR-57 connector, modify off-ramp
Baldwin Park, West Covina	I-10	Add HOV lane to I-10 between I-605 and Puente Av
Baldwin Park, West Covina, LA Co, Pomona, San Dimas	I-10	Add HOV lane on I-10 between Puente Av and Citrus Av
	I-10/SR-60	I-710 to San Bernardino County Line. Conduct Eastern Gateway Freeway Corridor Improvement Study
Baldwin Park, West Covina	I-10	Widen overcrossing and relocate ramps at Cesar Chavez Dr
Diamond Bar	SR-60	Construct a new interchange at Lemon Av and SR-60
LA Co	SR-60	Add a WB auxiliary lane along SR-60 from Hacienda Bl to 7th Av
Montebello, Rosemead	SR-60	Widen SR-60 to add EB 5th lane from Paramount to San Gabriel
City of Industry, LA Co	SR-60	Add storage lane from WB SR-60 to I-605 Connector
City of Industry, LA Co	SR-60	SR-60/I-605 interchange. Carry WB 4th lane through the I-605 interchange, which is currently 3 lanes
City of Industry, LA Co	SR-60	SR-60/I-605 interchange. Merge two lanes SB I-605 connector to WB SR-60 prior to merging with WB SR-60 mainline
Pomona	SR-60	Convert expressway to freeway mixed flow and HOV on SR-71 from I-10 to Mission
LA	SR-60	Expand Freeway Service Patrol (FSP) throughout San Gabriel Valley
LA	I-10	Redesign on-ramp shoulders to accommodate Express Bus service Corridor-wide
Arterial		
LA	I-10	Restripe various arterials for turn pockets and additional lanes Corridor-wide
LA	I-10	Arterial reconfiguration to facilitate directional flow such as reversible lanes Corridor-wide
LA	I-10	Implement direction-based traffic signal coordination Corridor-wide
Rosemead	I-10	Improve signal coordination along I-10 at City of Rosemead
El Monte, Rosemead	I-10	Implement signal coordination along I-10 near Santa Anita Race Track.
City of Industry, Diamond Bar, El Monte, LA Co, La Puente, Walnut	I-10/SR-60	Review signal timing for synchronization on Valley to Colima
City of Industry, Diamond Bar, El Monte, LA Co, La Puente, Walnut	I-10/SR-60	Upgrade signals on Valley and Colima
City of Industry, Diamond Bar, LA Co	SR-60	Widen Colima from Hacienda to Diamond Bar

FIGURE 2.14 CONTINUED

San Gabriel Valley		
City	Route	Project Limits/Description
Alhambra, El Monte, Monterrey Park, Rosemead, South El Monte	SR-60	Add one lane each direction on Garvey Bl (from Atlantic to Rosemead Bl)
Alhambra, El Monte, Rosemead, San Gabriel	SR-60	Add one lane each direction on Valley Bl (from I-710 to Santa Anita)
City of Industry, La Puente, Walnut, West Covina	SR-60	Widen Valley Bl from I-605 to SR-57
Transit		
Arcadia, Azusa, Claremont, Duarte, Glendora, La Verne, Monrovia, Pasadena	Gold Line Phase II Ext.	Extend Metro Gold Line from Sierra Madre to Claremont
	I-10	Expand Bus Service along El Monte Busway by increasing route and line capacity with high occupancy buses along El Monte Busway
	I-10	Implement the Foothill Transit Bus Priority Project, which includes increased service, improved service coordination with Metro & other transit services, and new express bus routes. Bus transit priority – Foothill Transit
LA	I-10	Install bike racks on buses along I-10 parallel arterials Corridor-wide
LA	I-10	Additional bus service along I-10 corridor Corridor-wide
Alhambra, El Monte, San Gabriel	I-10	Expand Bus Service along El Monte Busway by increasing route and line capacity with high-occupancy buses.
	I-10/SR-60	Bus transit priority – Foothill Transit. Implement the Foothill Transit Bus Priority Project, which includes increased service, improved service coordination with Metro and other transit services, and new express bus routes
	SR-60	Add trains to Metrolink’s Riverside Line. Expand Metrolink’s Riverside Line
	SR-60	Expand Inland Empire Metrolink Service. Expand Metrolink’s San Bernardino Line
	SR-60	Increase bus service/Metro Rapid/BSP I-5 to County Line
	SR-60	Add/expand various park-and-ride lots from I-605 to San Bernardino County Line throughout SR-60 corridor
	SR-60	Construct multimodal station with Metrolink, Foothill Transit, HOV direct connection to Brea Canyon Station at various locations to be determined
LA, South Pasadena	Pasadena Gold Line	Union Station to Sierra Madre Villa: new LRT line*
TSM/TDM		
LA	I-10	Promotion of Ridesharing and Transportation Demand Management Strategies throughout the corridor Corridor-wide
LA	I-10	Coordinate pedestrian, bicycle, and transit information and amenities Corridor-wide
LA	I-10	Expansion of park-and-ride facilities Corridor-wide
LA	I-10	Corridor-wide. Install CCTV and other communications systems
LA	I-10	Corridor-wide. Upgrade surveillance system throughout this segment of I-10
LA	I-10	Corridor-wide. Coordinate construction schedules to avoid additional traffic conflicts
Long Beach, Paramount, Monterrey Park	I-710	Continuous high mast illumination (at freeway-to-freeway interchanges: 405/710, SR-91/710, 105/710, I-5/710, SR-60/710)
Bell, Bell Gardens, Commerce, Long Beach, Lynwood, Monterrey Park, Paramount, South Gate, Vernon	I-710	Improved signage on I-710 (added overhead signs, advanced notification)

SOUTH BAY CITIES SUBREGION

Cities

Carson, El Segundo, Gardena, Hawthorne, Hermosa Beach, Inglewood, Lawndale, Lomita, City of Los Angeles–San Pedro/Wilmington Harbor Corridor, Manhattan Beach, Palos Verdes Estates, Rancho Palos Verdes, Redondo Beach, Rolling Hills, Rolling Hills Estates, Torrance, and parts of unincorporated Los Angeles County

Setting

The South Bay cities are located at the southern end of the Santa Monica Bay – bounded by the Pacific Ocean on the west and south; the Port of Los Angeles and the Harbor Freeway (I-110) on the east and the Marina Freeway (SR-90) and the City of Los Angeles and Los Angeles International Airport on the north. Figure 2.15 illustrates the South Bay Cities subregion.

The area is almost entirely built-out in terms of residential uses and has somewhat limited growth available for commercial and industrial uses. However, because of the desirability of the South Bay, re-development of both housing and business stock is occurring at higher densities than the existing land use. Typically, residential development follows a general pattern where the communities in the Beach cities and on the peninsula are largely high-income areas, and the central and eastern portions of the subregion contain middle-income communities.

Major Transportation Facilities

The Glenn Anderson (or Century, I-105), Harbor (I-110) and the San Diego (I-405) Freeways serve the South Bay area. The Artesia Freeway (SR-91) weaves in and out of the easternmost portion of the subregion. A transitway, which provides elevated carpool lanes and a busway, runs down the center of the Harbor Freeway from USC in Central Los Angeles southwards to SR-91. A unique feature of the carpool lanes on the I-110 and I-105 freeways is that they flow directly into each other via an elevated direct connector interchange, bypassing the at-grade interchange used by other traffic.

In addition, the South Bay is traversed with major arterials that carry equal capacity to the local freeway system. These major arterials include Hawthorne Bl, Pacific Coast Hwy, Sepulveda, Crenshaw, Artesia, Lomita Bl, Manhattan Beach Bl, Douglas St, Rosecrans Av, and 190th St as well as others.

The Metro Green Line runs in the median of the I-105 Freeway from Norwalk in the east to the southern edge of Los Angeles International Airport then south to Redondo Beach. A long segment of the Alameda Corridor runs along the subregion’s eastern border.

The area has regional and local transit services provided by Metro, Torrance Transit, Municipal Area Express (MAX), Gardena Municipal Bus Lines, Long Beach Transit, Palos Verdes Transit, Beach Cities Transit, Carson Circuit, Lawndale Beat, and LADOT’s Commuter Express. In addition, many local jurisdictions operate transit and dial-a-ride services within their boundaries.

Mobility Challenges

The South Bay has two major transportation hubs on its borders — Los Angeles International Airport (LAX), and the Ports of LA and Long Beach. LAX passenger trips substantially add to traffic volumes on the freeways and surface streets traversing the area. Cargo and truck traffic also impact the subregion’s transportation system. During the economic downturn in the 1990s, the South Bay adapted existing business structures to warehousing, which has led to increased truck traffic, added congestion and associated pavement damage on arterials and freeways (I-405 and I-110). At the same time, transporting goods into and out of the subregion has added traffic volumes to the freeways, placing additional capacity pressure on the

aging on-ramps. In addition, major trip generators/ attractors such as the Los Angeles Air Force Base, Home Depot Center, The Forum, and Hollywood Park, add to the considerable demand for commuter and entertainment travel and overall travel mobility needs of the subregion.

The greatest needs for the subregion are to upgrade the east-west and north-south arterials so they can provide alternative routes to I-405 and I-105, to improve freeway on- and off-ramps to accommodate increasing traffic volumes and to alleviate bottlenecks. Transit connections are also important. These highway and transit projects are embodied in the Coastal Corridor Transportation Initiative.

What The Future Holds

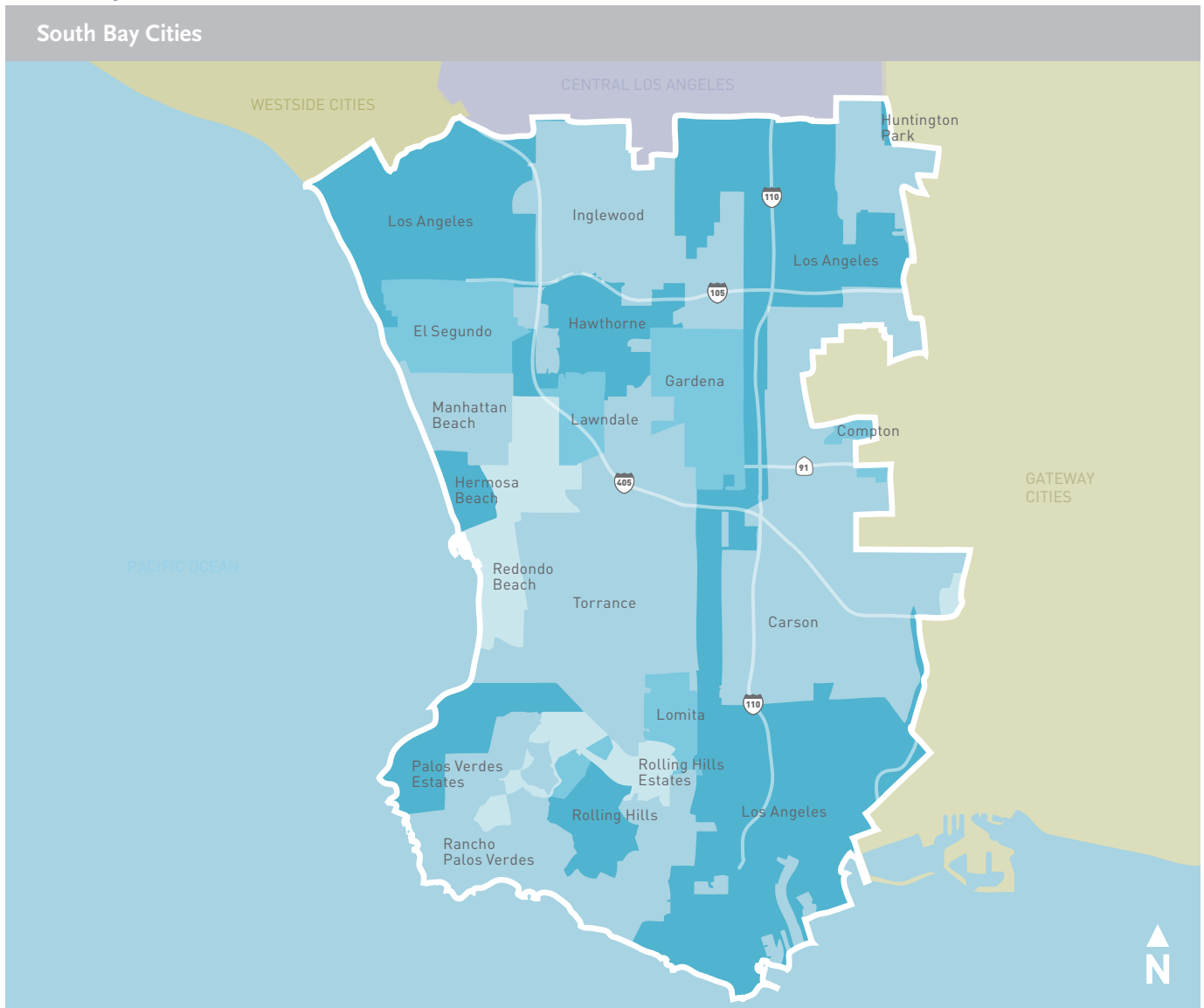
To address the subregion’s mobility challenges, many transportation improvement projects have been undertaken that are expected to be operational prior to 2030. These include:

- > Implementation of four new Metro Rapid bus lines; and
- > Major arterial traffic signal synchronization and intelligent transportation system improvements.

Metro has also awarded funding through the Call for Projects process for several additional local priorities that are expected to proceed, subject to funding availability:

- > **Freeways** – Widening the I-105 Freeway off-ramp at Sepulveda Bl;
- > **Arterials** – To increase capacity and improve mobility by reducing congestion, major arterials and intersections have been improved, or are currently underway. These include: Hawthorne, Rosecrans, Torrance Bl and Aviation and Manhattan Beach Bl widening. In addition, some grade separation and bridge widening projects have also been undertaken at Del Amo Bl;
- > **Signal Synchronization** – To improve traffic flow throughout the subregion, major arterial corridor signals have been or will be synchronized in cities such as Torrance, El Segundo, Inglewood, Hawthorne and the communities of San Pedro, Wilmington and Westchester within the City of LA. Additionally, the subregion will be among the first in the county to be equipped with the LA County Information Exchange Network (IEN), which allows for the sharing of traffic signal data across jurisdictional boundaries to allow for improved traffic management. Intelligent Transportation System (ITS) technology to squeeze additional capacity out of the arterials by allowing for improved traffic management through the sharing of traffic and other types of information both within and outside the subregion is also being deployed. The City of Inglewood’s Transportation Management Center will be hosting the IEN corridor server for the subregion. Along with the County and the South Bay Traffic Forum, the City of Inglewood is currently working on ITS projects;
- > **Transportation Demand Management** – To improve the

FIGURE 2.15



capacity and inter-modal efficiency of the transportation system, policies, programs, and actions focused on reducing dependency on automobile use or modifying travel behavior have been or will be implemented in the South Bay;

- > **Neighborhood Vehicle Pilot** – To promote more environmentally friendly local travel, funding for a neighborhood vehicle pilot project in at least one of the South Bay identified mixed use centers will be sought;
- > **Bikeway and Pedestrian Improvement Projects** – To encourage residents and commuters to use other alternate forms of transportation, Metro has funded several bikeway and pedestrian transportation projects including Bike trail improvements at Playa del Rey and pedestrian and bikeway improvements along Del Amo and the Dominguez Channel.
- > **Transportation Enhancements** – A number of transportation enhancement projects has been undertaken to enhance the visual impact of the roadways including the landscaping in the medians along major arterials, gateway signs indicating the entry into particular South Bay cities, and Deep Valley Drive streetscape in Rolling Hills Estates; and

- > **Transit** – Metro and the municipal transit operators are working to improve transit facilities in the subregion by providing transit centers, bus stop improvements and utilizing new transit technologies. The Metro Rapid Crenshaw Corridor began operation in early 2004. The bus signal priority system piloted on this line is being used to expand Metro Rapid service throughout the South Bay.

Stakeholder Recommendations

During the development of the Draft 2008 Plan, Metro met with local jurisdictions, stakeholders, and representatives of the South Bay Cities Council of Governments to gather input on additional subregional needs and priorities. These represent potential strategies that could be explored should additional funds become available through 2030. These strategies include, but are not limited to:

- > Improve mobility and capacity on arterial streets through innovative signal synchronization, bus signal priority, and other ITS technologies;
- > Increase the capacity of major east-west and north-south

- arterials through improvements such as roadway widenings, grade separations, gap closures and intersection improvements;
- > Increase transit services along major corridors by providing bus signal priority, expanding the Metro Rapid program along major South Bay corridors such as Hawthorne Bl, Sepulveda Bl and Manchester Av, and expanding express bus service provided by municipal operators and Metro to the region’s major activity centers and destinations such as LAX, the Galleria and the beaches;
 - > Improve mobility on arterials through completion of projects in the Coastal Corridor Initiative, which is a living document that will be updated on a periodic basis. The Initiative consists of transportation projects throughout the South Bay including those identified in the Rosecrans and I-405 studies.
 - > Work with Metro to expedite the completion of a major investment study to extend the Metro Green Line to Long Beach using the Harbor Subdivision right-of-way owned by Metro to the extent feasible. Immediate stops would also be identified which could include the South Bay Galleria, Lomita Av and an extension from the right-of-way to the Harbor Transitway Pacific Coast Highway Station. Upon completion of the Major Investment study, secure a

- schedule for implementation of the project;
- > Promote the Harbor Transitway;
- > Construct the Crenshaw Transit Corridor;
- > Improve the southbound and northbound I-405 on- and off-ramps at numerous locations including those identified in the I-405 Corridor Study such as Avalon and Wilmington by re-configuring, widening and altering metering/signalization timing;
- > Improve traffic flows along Western Av between Ninth St and the I-405 Freeway
- > Construct or widen auxiliary lanes at various locations along I-405 primarily in the northbound direction;
- > Address increased truck traffic on the I-110 (Harbor Freeway) and arterials impacted from trucks diverting from the I-710; and
- > Revitalize local communities to ensure a more livable environment within the South Bay region by piloting a neighborhood vehicle project.

The Draft 2008 Plan is a living document that will be continually updated. Metro will work with the South Bay Cities subregion on an on-going basis to ensure that its priorities are taken into consideration during each update. Figure 2.16 lists a variety of unfunded subregional priorities identified by the South Bay COG.

FIGURE 2.16

South Bay Cities		
City	Route	Project Limits/Description
Freeway		
Lawndale, Redondo Beach (SB on-ramp)	I-405	Inglewood and I-405. Widen NB on-ramp at Inglewood Av
LA, Inglewood	I-405	South of SR-90 near LAX. realign I-405 south of SR-90, where it bends sharply just north of Manchester Bl
LA	I-405	Widen SB on-ramp from Western Av/190th St and I-405
Carson	I-405	Widen the SB off-ramp at Wilmington to two lanes, and widen the intersection at off-ramp and Wilmington.
LA, Inglewood	I-405	Construct SB auxiliary lane on I-405 from Manchester Bl to Century Bl.
LA, LA Co, Inglewood	I-405	Add connector metering between I-105 and SR-90 interchanges
LA, Inglewood	I-405	Construct auxiliary lane on SB I-405 from Florence Av to Howard Hughes Pkwy
Carson	I-405	Modify the SB on-ramp at Avalon Bl at I-405
Torrance	I-405	Modify NB off-ramp at Crenshaw and I-405
Torrance	I-405	Widen NB off-ramp to Crenshaw/182nd St and I-405
Caltrans	I-405	Add NB auxiliary lane on I-405 from Inglewood Av to Rosecrans
Lawndale	I-405	Add NB auxiliary lane on I-405 from Redondo Beach Bl to Hawthorne
LA	I-405	Widen SB on-ramp at 190th (just west of Western Av) From Western Av to 190th St
Hawthorne	I-405	Widen SB off-ramp to Hindry Av and I-405 at I-405 (at Rosecrans)
Hawthorne	I-405	Implement I-405 at Rosecrans Access Point improvement project
Lawndale	I-405	Add NB auxiliary lane on I-405 from Hawthorne to Inglewood Av.
Caltrans	SR-91	HOV connector at SR-91 and I-110 (partial connector – from east to south & from east to north)
Hawthorne	I-105	Add EB auxiliary lane from Yukon to Crenshaw
Hawthorne	I-105	Add WB auxiliary lane Crenshaw off to Crenshaw on

FIGURE 2.16 CONTINUED

South Bay Cities		
City	Route	Project Limits/Description
Inglewood	I-105	Add WB auxiliary lane from Crenshaw on to Crenshaw off
Caltrans	I-405	Add NB auxiliary lane from Inglewood Bl to Rosecrans Av
Lawndale	I-405	Add NB auxiliary lane from SR-107 to Inglewood Bl
Hawthorne, Lawndale, Redondo Beach	I-405	Add NB lane from Hawthorne to I-105
Hawthorne	I-405	Signalize intersection at bottom of SB Rosecrans off-ramp
LA	I-405	Widen from 3 to 4 lanes through I-10 interchange
Lawndale, Redondo Beach	I-405	Widen NB Inglewood loop on-ramp
Arterial		
Torrance	I-405	Modify the NB on-ramp at Artesia by adding a third lane (I-405)
Inglewood	I-405	Channelize and raise Manchester Bl median at Ash Av and La Cienega Bl
Torrance	I-405	Street widening (including add'l ROW) – Crenshaw and 182nd, Signal upgrades. 2 NB right-turn on Crenshaw, 1 WB right turn/1 EB through lane to I-405 NB on-ramp
Torrance	I-405	Reconstruct intersection (remove median and restripe) – add on Crenshaw a NB left turn Crenshaw Bl and 190th St
Torrance	I-405	Street widening (including add'l ROW) – Crenshaw and Carson St. Add 4th through lane on Crenshaw at intersection; and transition to merge back to 3 NB lanes
Torrance	I-405	Street widening (including add'l ROW) – Crenshaw at Sepulveda Bl. On Crenshaw: add dual NB right-turn on Sepulveda: add dedicated EB right-turn lane and 4th through lane
Torrance	I-405	Street widening (including add'l ROW) – Crenshaw and Torrance Bl. Provide dedicated SB right turn lane
LA, LA Co	I-405	Complete the missing segment of Del Amo Bl between Denker Av and Normandie Av; complete missing segment from Normandie to Vermont Av
Lawndale	I-405	I-405 ramp improvements at Hawthorne Bl. (1) Reopen SB Hawthorne to NB I-405 (2) Upgrade signalization at I-405 SB and NB off-ramps Hawthorne Bl
Lawndale Redondo Beach	I-405	Widen Inglewood Av from Manhattan Beach Bl to I-405 to add right-turn lane, SB – Redondo Beach, NB – Lawndale
Hawthorne, Lawndale	I-405	Inglewood Av from Rosecrans to Marine Av within ROW. Widen Inglewood Av 4 feet to the west
Torrance	I-405	Street widening and restripe to add SB through lane and signal modifications (for concurrent (NB/SB left-turns) –Intersection Anza Av and Pacific Coast Hwy
Lomita, Torrance	I-405	Street widening (including add'l ROW) – Crenshaw and Lomita Bl. On Crenshaw: add dual NB right-turn and a single SB lane. Lomita: add dedicated WB right-turn lane and 4th through lane
Lawndale	I-405	Add dedicated right turn lanes and left turn pockets to intersection of Hawthorne Bl and PCH
Torrance	I-405	Street widening (including add'l ROW) – Prairie Av and 190th. On 190th add dual NB right-turn and restriping to provide 3 through lanes for WB and EB. Also prohibit on-street parking (Intersection Prairie Avenue and 190th St)
Inglewood	I-405	Reconfigure La Brea Av/La Brea Dr/Market St/Spruce Av from six-legged intersection to T-intersection and eliminate dog-leg in La Brea Av alignment and replace with a continuous S-curve alignment (La Brea Av intersection with La Brea Dr, Market St, and Spruce Av)
Inglewood	I-405	Widen NB-405 off-ramp to Manchester Bl and close Ash Av
	I-405	Intersection Improvement – Construct SB right turn pocket – Maple Av at Sepulveda Bl
LA	I-405	Widen and restripe to provide dual EB left turn lane and WB right turn lane – Sepulveda Bl at Western Av
Torrance	I-405	Widen Torrance Bl to 3 WB through lanes from Crenshaw to Madrona Av
Torrance	I-405	Widen signalized intersection at Van Ness Av and 190th. On 190th, restripe to add 3 through lanes for both WB and EB and prohibit on-street parking and upgrade traffic signal
	I-405	Implement bikeway projects throughout the I-405 corridor (approx. 24 miles of Class II and 1.6 miles of Class I) Corridor-wide
LA County		Torrance Bl/I-110 Undercrossing Widening
Inglewood	La Brea Av	LA Brea Avenue realignment improvement

South Bay Cities

City	Route	Project Limits/Description
Inglewood	La Cienega Bl	La Cienega Bl at La Tijera Bl. & Centinela Av
Inglewood		2 projects funded: ITS Deployment of Integrated Intelligent Transportation Infrastructure in Inglewood
El Segundo, Hawthorne, Manhattan Beach	Developer improvements of approx. \$5M will be made in next 5 years – Rosecrans Av Corridor improvements	
Transit		
Lawndale, Redondo Beach	Metro Green Line	Extend Metro Green Line from Marine/Redondo to South Bay Galleria
Downey, LA, LA Co, Lynwood, Norwalk, Paramount	I-405	Increase feeder bus service Metro Green line and Harbor Transitway- Metro Green Line (Lines 439, 232, 40), Harbor Transitway (Lines 442, 444, 445, 447, 550)
El Segundo, Hermosa Beach, Manhattan Beach, Redondo Beach	I-405	Increase Airport express bus service from LAX to South Bay
	I-405	Increase Express bus service (Torrance Transit), Connect to South Bay Activity Centers
LA, Long Beach, Redondo Beach, Torrance	I-405	Add transit service connection to downtown Long Beach to South Bay Galleria
	I-405	Additional bus service in South Bay and LAX
LA, LA Co, Inglewood	I-405	Increase Metro Rapid Service: Crenshaw
	I-405	Reduce peak period headways on selected local and express transit at Various locations to be determined
TSM/TDM		
	I-405	Expand Artesia Station park-and-ride facility
LA	I-405	Expand operations of Freeway Service Patrol Throughout I-405 corridor
	I-405	Expand operations of Freeway Service Patrol throughout Segment B of I-405
	I-405	Expand operations of Freeway Service Patrol Corridor-wide
Bikeways – Tier I		
Inglewood	Crenshaw Bl	I-105 to 90th St
El Segundo	Douglas St	Imperial Hwy to Utah St
LA, LA Co	Imperial Hwy	Aviation Bl to Arlington Av
Torrance	Prairie Av	Artesia to Redondo Beach Bl
Redondo Beach	Torrance Bl	Catalina Av to Redondo Beach city boundary
Torrance	Cabrillo Bikeway	On Cabrillo from Sepulveda to Torrance
Redondo Beach	Western Av	223rd St to 190th St
Hawthorne	135th St	Isis St to Crenshaw Bl
Torrance, Hermosa Beach, Redondo Beach	190th St/ Herondo Anita	South Bay Bike Trail to Western Av
Inglewood	90th St	Prairie Av to Crenshaw Bl.
Torrance	Anza Av	Sepulveda to PCH
LA, Inglewood	Arbor Vitae St	Crenshaw Bl to Arlington Av
LA, Inglewood	Arbor Vitae St	Sepulveda Bl to Prairie Av
	AT & SF Rail ROW	Imperial Hwy to Central Area boundary
Gardena, Torrance	Dominguez Creek Channel	Near El Camino College to Western Av
El Segundo	Grand Av	Douglas St to Whiting St
LA, Inglewood	La Brea Av	Exposition Bl to Imperial Hwy
Lomita	Lomita Bl (east segment)	Crenshaw to Western Av
Torrance	Lomita Bl (west segment)	Anza Av to Hawthorne Bl
LA, Lawndale, Manhattan Beach, Redondo Beach	Manhattan Beach Bl	South Bay Bike Trail to Dominguez Channel

FIGURE 2.16 CONTINUED

South Bay Cities		
City	Route	Project Limits/Description
County of LA, Lawndale, Gardena, Torrance	Redondo Beach Bl	Hawthorn to Western Av
Torrance	Torrance Bl (east segment)	Cabrillo Av to Western Av
Grade Crossing		
Carson, City of LA, LA Co, Torrance	Carson St	improve striping
Torrance	Crenshaw Bl	Adjust signal timing to relieve queuing at Torrance Bl crossing
	Imperial Hwy	Additional signage and improved striping
Redondo Beach, Lawndale	Inglewood Av	Adjust signal timing and install raised median
	La Brea Av	Installation of a pre-signal, additional signage and improved striping
	La Cienega Bl	Additional signage and improved striping
Lawndale	Manhattan Beach Bl	Improve drainage to prevent failure of crossing gates
Redondo Beach, Hawthorne	Marine Av	Additional signage and improved striping
LA, Torrance (Caltrans)	Sepulveda Bl	(and intersection modification) Adjust signal timing at Western/Sepulveda to reduce queuing over tracks
	Western Av	Revise warning time and gate down operations related to train switching maneuvers
Metro	Metro Green Line	Miscellaneous capital and operational improvements to existing line
Manhattan Beach, El Segundo, Hawthorne	Aviation & Rosecrans	
ITS		
Torrance		Intelligent Transportation System (ITS) short term deployment
Torrance		Intelligent Transportation System (ITS) long Term deployment

WESTSIDE CITIES SUBREGION

Cities

Beverly Hills, Culver City, Santa Monica, West Hollywood, parts of the City and County of Los Angeles including Pacific Palisades, Brentwood, Century City, Westwood, Westchester, LAX, Baldwin Hills, Ladera Heights, Marina del Rey, and Venice

Setting

The Westside subregion covers an area of approximately 102 square miles and is bounded by Mulholland Dr to the north, the Pacific Ocean to the west, the South Bay Cities subregion to the south and the Central Los Angeles subregion to the east. The subregion is a series of developed and mature communities with a mix of low, medium and dense residential, employment and activity centers clustered within close proximity of each other. Some of the Westside cities almost triple in population during the day as they attract hundreds of thousands of people to employment, educational, commercial, cultural and recreational destinations from all over the Los Angeles region. Some of the Westside’s neighborhoods (such as parts of Santa Monica, West Hollywood, Westwood and Venice) have population densities almost 10 times the county average, and more people will be calling the Westside home in future years. Figure 2.17 illustrates the Westside Cities subregion.

The Westside cities’ road infrastructure is completely built-out and cannot accommodate any more road capacity without adverse community impacts.

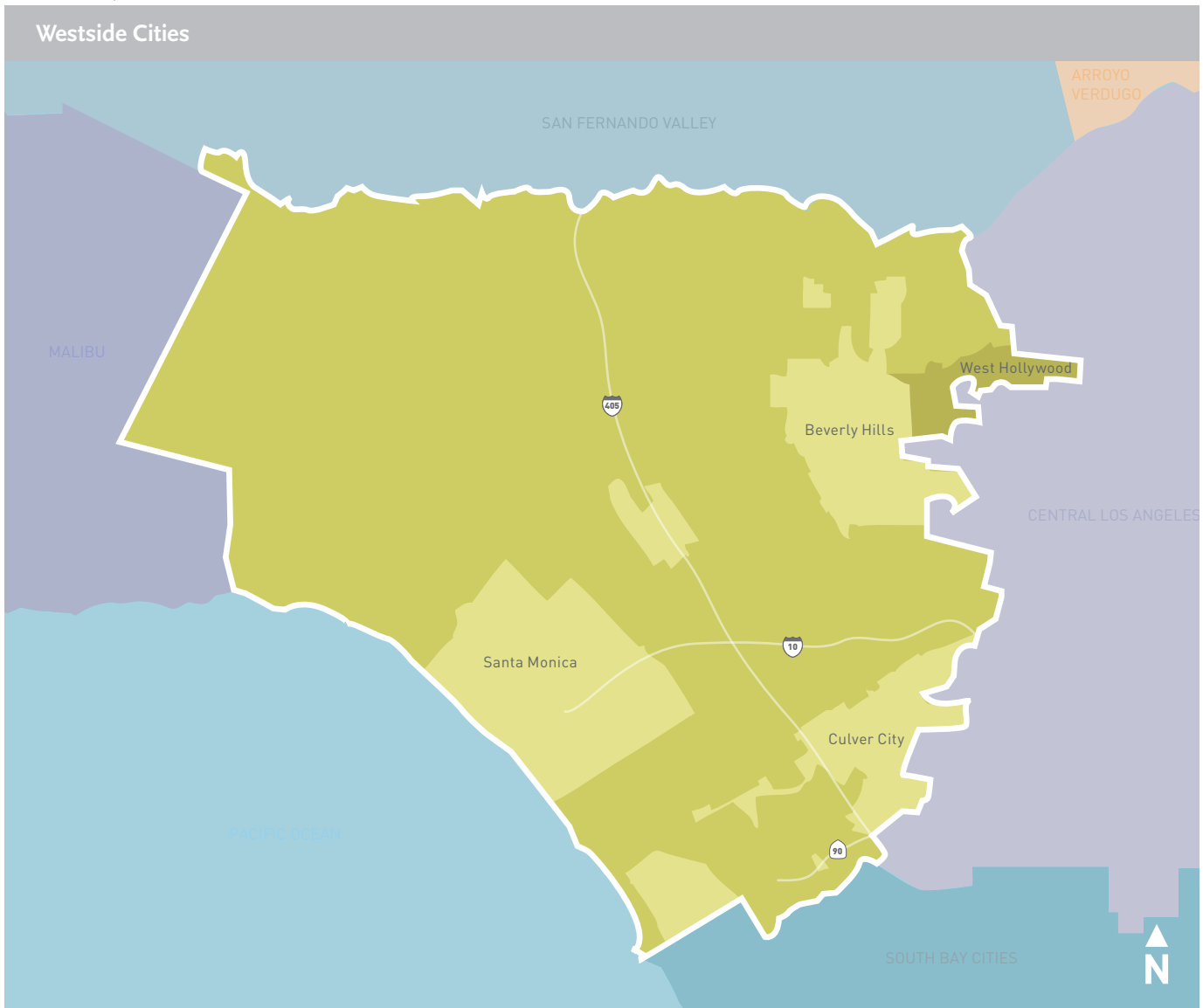
Major Transportation Facilities

The Santa Monica (I-10), the San Diego (I-405) and Marina (SR-90) freeways serve the Westside area. Several major east-west and north-south boulevards parallel I-10 and I-405, providing primary access to and within the Westside area. While the subregion has no fixed guideway transit, the area has an extensive network of regional and local transit services provided by Metro, LADOT’s Commuter Express, Santa Monica Big Blue Bus and Culver City Bus. Community shuttles such as LADOT’s DASH, the Santa Monica Breeze and West Hollywood’s Cityline provide neighborhood transit service. In addition, several local jurisdictions operate dial-a-ride services within their boundaries. Currently, Metro Rapid bus service operates along Wilshire Bl, La Cienega Bl, and parts of Sepulveda Bl. Big Blue Bus operates Metro Rapid service along Lincoln Bl. These lines provide connections to the Metro Red Line at the Wilshire/Western station, the LAX City Bus Center, the Metro Green Line, and the Downtown Santa Monica transit center. More lines and transit centers are scheduled to be connected within this Plan’s time frame.

Mobility Challenges

The greatest needs for the subregion are to improve access

FIGURE 2.17



within and around the subregion while ensuring that the quality of life is maintained. The subregion will look at giving more priority for multimodal transportation options to increase the people-moving capacity on the heavily-traveled arterial roads and provide more vertically mixed land use developments. Nine of the County's 20 highest volume bus routes are within the subregion and collectively provide up to 30 percent additional people-moving capacity along these corridors. Transit plays a vital role in the Westside's mobility. However buses operating in mixed-flow traffic are challenged to provide reliable service on these ever-increasing congested roads, making transit less effective. Improving the connectivity between arterials and the freeway system is also a key concern. In addition, closing the gaps to complete the I-405 carpool lanes through the Westside and over the northbound Sepulveda Pass is vital for the region's mobility.

What The Future Holds

To address the subregion's mobility challenges, many transportation improvement projects have been undertaken. These include:

- > Construction of the Exposition Light Rail Transit line from 7th St/Metro Center to Culver City by 2010 and planning for the extension to the City of Santa Monica by 2010;
- > Metro Rapid Transitway along Wilshire Corridor from Western to the City of Santa Monica;
- > Implementation of the Crenshaw Transit Corridor;
- > Completion of the I-405 carpool lanes in northbound direction; and
- > The Metro Red Line Westside Extension study.

Metro has also awarded funding through the Call for Projects process for several additional local priorities that are expected to proceed, subject to funding availability:

- > **Freeways** – To improve the traffic management of the freeways and increase freeway service patrols;
- > **Arterials** – To increase the people-carrying capacity and improve mobility, major arterials and intersections have been improved, or are currently underway;
- > **Signal Synchronization** – To improve people-carrying capacity throughout the subregion, major arterial corridor signals have been or will be synchronized in the cities of

Los Angeles, Beverly Hills, Culver City, and Santa Monica. Intelligent Transportation System (ITS) technology to squeeze additional people-carrying capacity out of the arterials by allowing for improved traffic management through the sharing of traffic and other types of information both within and outside the subregion is also being deployed;

- > **Transportation Demand Management** –To improve the capacity and inter-modal efficiency of the transportation system, a number of projects that involve policies, programs or actions that focus on reducing dependency on automobile use or modifying travel behavior;
- > **Bikeway and Pedestrian Improvement Projects** – To encourage residents and commuters to use cleaner forms of transportation, Metro has funded several bikeway and pedestrian transportation projects in Culver City, Los Angeles, Santa Monica and West Hollywood. A regional bikeway facility is being implemented as a part of the Exposition Light Rail Transit Project;
- > **Transportation Enhancements** – A number of transportation enhancement projects have been undertaken to enhance the quality of life and provide more livable communities including the landscaping in the medians along major arterials, and gateway signs indicating the entry into particular Westside cities; and
- > **Transit** – Metro and the municipal transit operators are working to improve transit facilities in the subregion by providing transit centers, bus stop improvements and utilizing new transit technologies. The Metro Board approved a 24-line expansion of the Metro Rapid system of which 10 additional lines will serve the Westside with the help of the municipal operators including along Beverly, Olympic, Pico, Santa Monica, Florence and Crenshaw/LAX, La Cienega, Sepulveda and Lincoln Bls. The Westside cities formed a Council of Governments.

Stakeholder Recommendations

During the development of the Draft 2008 Plan, Metro met with the Westside cities to gather input on additional subregional needs and priorities. These represent potential strategies that could be explored should additional funds become available through 2030. These strategies are identified in the Westside Mobility Study and include, but are not limited to:

- > Increase access via fixed guideway rail and bus transit (Exposition LRT, LAX rail and BRT connection and Metro Red/Purple Line subway extensions) and expand bus service provided by municipal operators to the region’s major activity centers;
- > Improve mobility and person-carrying capacity on the major east-west and north-south arterial roads identified by the Westside cities as “grand boulevards” through transit signal synchronization, transit coordination, dedicated bus and bike lanes, and other ITS technologies;
- > Expand the Metro Rapid program in the Westside, providing transit patrons with clean, comfortable and convenient service both at the transit stop and on the transit vehicle;
- > Improve the I-10 and I-405 on and off ramps at numerous locations by re-configuring, widening and altering metering/signalization timing; and, constructing or widening auxiliary lanes at various locations along the I-405;
- > Continue to implement Transportation System Management options and identify Clean Mobility Transit Centers with electric bicycle and car sharing and LAX access facilities in Santa Monica, Culver City, Westwood, Century City, Beverly Hills, and West Hollywood;
- > Improve transit vehicles to be able to provide for cross-mountain transit connections from the Valley to the Westside and to accommodate needs such as luggage-carrying capacity for buses bound for LAX;
- > Implement TDM/ITS systems such as car parking information management to reduce vehicle miles traveled;
- > Continue to implement bicycle lane gap closures and pedestrian linkage improvements in Beverly Hills, Los Angeles, and Santa Monica to provide connections to transit and to provide viable options to single occupant drivers; and
- > Promote transportation improvements in local communities that promote a more livable and sustainable transportation environment within the Westside subregion.

The Draft 2008 Plan is a living document that will be continually updated. Metro will work with the Westside subregion on an ongoing basis to ensure that its priorities are taken into consideration during each update. Figure 2.18 lists a variety of unfunded subregional priorities identified by the Westside Cities subregion.

FIGURE 2.18

Westside Cities		
City	Route	Project Limits/Description
Freeway		
LA	I-10	EB Bundy Dr on-ramp – Install ramp metering on both lanes of the EB Bundy Dr on-ramp to I-10
LA	I-10	I-10 freeway on- and off-ramps at Robertson – Elimination of auto/pedestrian conflicts at Robertson and Exposition terminus

FIGURE 2.18 CONTINUED

Westside Cities		
City	Route	Project Limits/Description
LA	I-10	Overland Av – Widen over-crossing and modify ramps at Overland Av
LA	I-10	Harcourt Av to Overland Av – Add WB lane to I-10 from Harcourt Av to Overland Av
LA	I-10	Corridor-wide – Expansion of Freeway Service Patrol
LA, Culver City	I-405	Howard Hughes to Sepulveda – Add NB 405 auxiliary lane on I-405 from Howard Hughes on-ramp to Sepulveda off-ramp
Culver City	I-405	I-405 at SR-90 – Modify NB and SB collector/distributor from SR-90 off-ramp to SR-90 on-ramp
LA, Culver City	I-405	I-405: SR-90 to I-10 HOV Lanes – Construct NB High Occupancy Vehicle (HOV) lane on SR-90 to I-10
LA	I-405	La Tijera to Howard Hughes– Add NB 405 auxiliary lane on I-405 from La Tijera on-ramp to Howard Hughes on-ramp
LA	I-405	Skirball Center Dr & I-405 – Widen SB onramp at Skirball Center Dr and I-405
Culver City	I-405	SR-90 at I-405 – Add connector metering at SR-90 connector ramps to I-405
LA	I-405	Sunset Bl & I-405 – Reconfigure both NB and SB on/off-ramps at Sunset Bl & I-405
LA, Inglewood	I-405	between Manchester Bl to Century Bl on I-405 – Construct SB auxiliary lane on I-405 from Manchester Bl to Century Bl
LA, LA Co, Inglewood	I-405	I-105 IC and SR-90 IC – Add connector metering between I-105 and SR-90 interchanges
LA, Inglewood	I-405	SB I-405 from Florence Av to Howard Hughes Parkway – Construct auxiliary lane on SB I-405 from Florence Av to Howard Hughes Parkway
LA	I-10	Corridor-wide – Redesign on-ramp shoulders to accommodate Express Bus service
LA	I-10	Add #5 lane to E/B through LA Brea Av interchange
LA	I-10	Add an additional W/B lane from Harcourt Av to Overland Av
LA	I-10	Add E/B lane through interchange. Construct Bundy Dr on-ramp fly-over to E/B I-10
Santa Monica	I-10	Add W/B auxiliary lane from Cloverfield to Centinela Av
	I-10	Install CCTV and other communications systems
LA	I-10	Meter 2-SOV lanes at E/B Bundy Drive on-ramp
LA	I-10	N/B 405 to E/B I-10 connector to Overland Av
LA	I-10	Realign and widen E/B on-ramp at Bundy
LA	I-10	Realign and widen E/B on-ramp at Robertson
LA	I-10	Realign and widen W/B off-ramp at Bundy North
Santa Monica	I-10	Realign and widen W/B off-ramp at Cloverfield Bl
LA	I-10	Realign and widen W/B off-ramp at Robertson
LA	I-10	Realign and widen W/B off-ramp to National
	I-10	Upgrade Surveillance System
LA	I-10	Widen E/B Barrington on-ramp
LA	I-10	Widen Overland Av. bridge and improve W/B on-ramp
LA	I-405	Add additional lane at National on-ramp
Culver City, Hawthorne, LA, LA Co	I-405	Add auxiliary lanes from SR-90 to I-105
LA	I-405	Add N/B auxiliary lane from Florence to Hughes Parkway
Culver City, LA	I-405	Add N/B auxiliary lane from LA Tijera to Culver Bl
Culver City, LA, Inglewood	I-405	Add S/B auxiliary lane from Culver Bl to Manchester Av
Inglewood	I-405	Add S/B auxiliary lane from Manchester Bl to Century Bl
Culver City	I-405	Construct new N/B collector-distributor road at Jefferson Bl Ramps
Culver City, Hawthorne, LA, LA Co	I-405	Install connector metering at I-105 and SR-90 interchanges
LA, Beverly Hills, Culver City	I-10	Major interchange reconfiguration on I-10 at Robertson and Venice; explore other possible reconfigurations along I-10 and I-405
Beverly Hills, LA, Santa Monica, Culver City	I-405, I-10	Added HOV capacity on I-405 Frwy and I-10 Frwy corridors (subject to detailed consideration of major investment possibilities)
LA	I-10	Corridor-wide – Restripe various arterials for turn pockets and additional lanes
LA	I-10	Corridor-wide – Arterial reconfiguration to facilitate directional flow such as reversible lanes
LA	I-10	Corridor-wide – Implement direction-based traffic signal coordination
LA	I-405	Sepulveda Bl between SR-118 and I-10 – Additional arterial improvement to Sepulveda Bl, including signal synchronization

FIGURE 2.18 CONTINUED

Westside Cities		
City	Route	Project Limits/Description
Arterial		
LA	I-405	Sepulveda Pass (between US-101 and Getty Center Dr) – Add a reversible peak period transit lane on Sepulveda Bl
LA, Culver City	I-405	Fox Hills Area – Upgrade 11 existing traffic signals to ATSC standards in the Fox Hills area of Culver City (Jefferson Bl, Slauson Av, Centinela Av, Bristol Pkwy, Sepulveda Bl)
Culver City, LA, Inglewood	I-405	Various locations – Impose peak period parking restrictions along major connecting and parallel arterials (Sawtelle Bl, Santa Monica Bl, Centinela Av, La Cienega Bl)
	I-405	Corridor-wide – Implement bikeway projects throughout the I-405 corridor (approx. 24 miles of Class II and 1.6 miles of Class I)
Culver City	Culver Bl	Culver Bl from Sepulveda Bl to Elenda
Culver City	Sepulveda Bl	Sepulveda Bl from Playa St to Green Valley Circle
LA Co	SR-90	Extension from Lincoln Bl to Admiralty Way
LA Co		Admiralty Way widening from Via Marina to Fiji Way
Santa Monica		Lincoln Bl and Pico Bl
Santa Monica		Lincoln Bl corridor improvements (Santa Monica & Los Angeles)
Beverly Hills	Wilshire Bl	Regional street corridor capacity enhancements at appropriate intersections such as Wilshire/Santa Monica in Beverly Hills
Beverly Hills, Culver City, LA, Santa Monica, West Hollywood	Added multimodal capacity in Lincoln Bl corridor, Venice Bl corridor, and Robertson/ La Cienega/ Fairfax corridors	
Transit		
LA, Beverly Hills	Wilshire Bl	Extend Metro Red Line from Wilshire/Western to Century City
LA, Santa Monica	I-10	Lincoln, Sepulveda and Pico – Implement Rapid Bus Transit Improvements along major arterials (Lincoln, Sepulveda and Pico)
Culver City, LA, Santa Monica	I-10	Exposition Light Rail initial segment – Downtown to Culver City and Santa Monica – Construction of Exposition Light Rail Line
Culver City, LA, Santa Monica	I-10	Metro Rapid Service on Pico Bl, Venice Bl, Jefferson, Sunset Bl – Expand Metro Rapid bus service along Pico Bl, Venice Bl, Jefferson Bl, Sunset Bl
LA, Santa Monica	I-10	SR-1 to I-5 parallel to I-10 – Improved Transit Services by increasing frequency, signal priority, dedicated transit lanes and high-capacity buses
Beverly Hills, Montebello, LA, Santa Monica	I-10	Wilshire Bl Bus Rapid Transit – Increase service frequency of Wilshire Metro Rapid (Line 720)
LA	I-10	Corridor-wide – Install bike racks on buses along I-10 parallel arterials
LA	I-10	Corridor-wide – Additional bus service along I-10 corridor
LA	I-405	Coldwater Canyon Dr, Beverly Glen Bl, Benedict Canyon Dr – Implement cross mountain bus service along Coldwater Canyon Dr, Beverly Glen Bl, Benedict Canyon Dr
LA, Santa Monica	I-405	On Lincoln Bl – New express bus Big Blue Bus (Santa Monica’s Big Blue Bus)
LA, Culver City	I-405	On Sepulveda Bl – Implement BRT Service on Sepulveda Bl (Culver City Bus)
Beverly Hills, LA, West Hollywood	I-405	Robertson Bl – Increase headways to Airport bus service between Beverly Hills, West Hollywood and LAX
LA, Culver City	I-405	Sepulveda Bl – Increase Metro Rapid Service: Sepulveda Bl
LA	I-405	Sepulveda Pass – Increase express bus service over Sepulveda Pass, with collector/ feeder service throughout West Los Angeles and the San Fernando Valley
LA	I-405	Various locations to be determined – Increase service frequency of high capacity buses, bus signal priority and/or Metro Bus service on parallel bus routes
LA	I-405	Various locations to be determined – Increase frequency and add bus signal priority at key intersections on existing service: Santa Clarita, San Fernando Valley, the Westside
LA, LA Co, Inglewood	I-405	Crenshaw Bl – Increase Metro Rapid Service: Crenshaw
	I-405	Various locations to be determined – Reduce peak period headways on selected local and express transit
LA, Culver City, Santa Monica	I-10	Exposition Light Rail from downtown LA through Culver City to downtown Santa Monica

Westside Cities		
City	Route	Project Limits/Description
Culver City, Santa Monica, LA	I-405	Express Bus Improvements (e.g. peak period shoulder lane) on I-405 Santa Monica Fwy
Culver City, LA, Santa Monica	I-405	Rail Line in I-405 Frwy corridor from LAX to Westside and San Fernando Valley
LA, Beverly Hills, Culver City, Santa Monica, West Hollywood		Major transportation hubs in strategic locations on the Westside to link Metro, pedestrian, bicycle, parking and car-sharing resources
LA, West Hollywood		Rail Line through West Hollywood and connected to the regional rail system and other areas of the Westside
Beverly Hills, Culver City, LA, Santa Monica, West Hollywood		Extensive local public transit circulators on fixed or flexible routes to move people between neighborhoods and major bus and rail transit lines without use of private vehicles
TSM/TDM		
Santa Monica	I-10	Corridor-wide: Santa Monica Smart Corridor System Phase II
LA	I-10	Lincoln Bl and Pico Bl: Install fiber optics infrastructure to signal coordination on Lincoln and Pico Bls
LA	I-10	Corridor-wide: Promotion of Ridesharing and Transportation Demand Management Strategies throughout the corridor
LA	I-10	Corridor-wide: Coordinate pedestrian, bicycle, and transit information and amenities
LA	I-10	Corridor-wide: Expansion of park-and-ride facilities
LA	I-10	Corridor-wide: Install CCTV and other communications systems
LA	I-10	Corridor-wide: Upgrade surveillance system throughout this segment of I-10
LA	I-10	Corridor-wide: Coordinate construction schedules to avoid additional traffic conflicts
LA	I-405	Throughout I-405 corridor: Expand operations of Freeway Service Patrol
	I-405	Throughout Segment B of I-405 – Expand operations of Freeway Service Patrol
	I-405	Corridor-wide: Expand operations of Freeway Service Patrol
Bikeways – Tier I		
LA, Culver City	Exposition Right-of-Way	I-10 to La Brea Av
LA	Motor Av	I-10 to Venice Bl
Santa Monica	Pearl St	16th St to Bundy Dr
LA	Pershing Dr	Culver Bl to Imperial Hwy
LA	Sepulveda Flood Control Channel	I-10 to Ballona Creek
LA, Santa Monica	23rd St/ Walgrove Av	Pearl St to Venice Bl
LA, Inglewood	Arbor Vitae St	Crenshaw Bl to Arlington Av
LA, Inglewood	Arbor Vitae St	Sepulveda Bl to Prairie Av
LA	Beach Bikeway	Washington Bl to Ballona Creek
LA	Culver Bl	Braddock Dr to Vista Del Mar
Culver City	Culver Bl	Elenda St to Venice Bl
LA	Fiji Way	Admiralty Way to western terminus
LA, Inglewood	La Brea Av	Exposition Bl to Imperial Hwy
LA, Santa Monica	Lincoln Bl	I-10 to Westchester
LA, Culver City	Slauson Av	Jefferson Bl to Arlington Av

FIGURE 2.18 CONTINUED

Westside Cities		
City	Route	Project Limits/Description
LA	Teale St (Bluff Creek Dr)	Lincoln Bl to Centinela
LA, Culver City	Washington Bl	West of Lincoln Bl to Sepulveda Bl
Culver City, LA, Santa Monica	I-405	Alternative multimodal linkage from the Westside to the San Fernando Valley and LAX, taking pressure off of the I-405
Beverly Hills, Culver City, LA, Santa Monica, West Hollywood	Land use and parking incentives coordinated among the cities in selected areas along grand boulevards	

While not a subregion, the County of Los Angeles unincorporated area is adjacent to each subregional agency and impacts each subregion. As such, the County of Los Angeles has identified unfunded subregional priorities in Figure 2.19.

FIGURE 2.19

Other Subregional Projects submitted by the County of Los Angeles		
City	Route	Project Description
Signal Synchronization		
Los Angeles County	1st St	From Indiana St to Mednik Av
	Alameda St	From Manville St to Laurel Park Rd
	Alameda St	From 25th St to Del Amo Bl
	Anza Av	From 190th St to Pacific Coast Hwy
	Arrow Hwy	From Wheeler Av to Mills Av
	Arrow Hwy/Live Oak Av	From Santa Anita Av to San Dimas Canyon Rd
	Atlantic Av	From Rosecrans Av to Myrrh St
	Avalon Bl	From El Segundo Bl to Alondra Bl
	Baldwin Av	From Arboretum to Camino Real Av
	Barranca Av	From Mauna Loa Av to Rowland St
	Barranca Av	From Cortez St to Workman St
	Beverly Bl	From 3rd St to Gerhart Av
	Bouquet Canyon Rd	From Plum Canyon Rd to Soledad Canyon Rd
	Broadway	From 124th St to 157th St
	City Terrace Dr	From Pomeroy St to Eastern Av
	Colima Rd	From Camino Del Sur to Royal Vista Golf Course
	Compton Av	From Florence Av to 89th St
	Compton Av	From 118th St to 120th St
	Compton Bl	From Atlantic Av to Gibson Av
	Crenshaw Bl	From Gate 16 to Crestridge Rd
	Del Amo Bl	From Wilmington Av to Susana Rd
	Del Amo Bl	From Avalon Bl to Bloomfield Av
	Duarte Rd	From Sunset Bl to Buena Vista St
	E Victoria St	From Santa Fe Av to Susana Rd
	El Segundo Bl	From Broadway to N Central Av
	El Segundo Bl	From Isis Av to Alameda St
	El Segundo Bl	From Illinois St to Douglas St
	Floral Av	From Eastern Av to Mednik Av
	Florence Av	From Hooper Av to Holmes Av
	Florence Av	From Hooper Av to Telegraph Rd
	Foothill Bl	From Ramsdell Av to Raymond Av
	Foothill Bl	From Baldwin Av to Shamrock Av

Other Subregional Projects submitted by the County of Los Angeles

City	Route	Project Description
	Gage Av	From Hooper Av to Holmes Av
	Grand Av	From Gladstone St to Holt Av
	Grand Av	From Mauna Loa Av to I-210 Fwy
	Hasley Cyn Rd/ Commerce Center	From Burlwood Dr to I-5 Fwy
	Hawthorne Bl	From 104th St to 111th St
	Holmes Av	From Slauson Av to Manchester Av
	Hooper Av	From 60th St to 92nd St
	Huntington Dr/Foothill Bl	From I-210 Fwy to Base Line Rd
	Indian Hill Bl	From Gateway Center Dr to Holt Av
	Inglewood Av	From 104th St To 111th Pl
	Irwindale Av	From I-210 Fwy to Gladstone St
	La Crescenta Av	From Foothill Bl To Prospect Av
	Laurel Park Rd	From E Victoria St to Alameda St
	Lennox Bl	From Inglewood Av to Freeman Av
	Lone Hill Av	From Petunia St to Overland Center
	Lyons Av	From Wiley Canyon Rd to Newhall Av
	Main St	From El Segundo Bl to Redondo Beach Bl
	Main St/Las Tunas Dr	From Huntington Dr to Live Oak Av
	Manchester Av	From Hooper Av to Ivy St
	Manhattan Beach Bl	From Manhattan Av to Van Ness Av
	McBean Pkwy/ Stevenson Ranch Pkwy	From Copper Hill Dr to The Old Rd
	Miramonte Bl	From 76th St to 83rd St
	Montebello Bl/ Greenwood Av	From Paramount Bl to Union St
	Montrose Av	From Florencita Av to Del Mar Rd
	Myrtle Av/Peck Rd/ Workman Mill Rd/ Norwalk Bl/San Antonio Bl/Pioneer Bl	From Huntington Dr to Carson St
	Nadeau St	From Hooper Av to Crocket Bl
	Normandie Av	From 89th St to El Segundo Bl
	Norwalk Bl	From Rosecrans Av to Carson St/Wardlow Rd
	Oceanview Bl	From Foothill Fwy to Florencita Av
	Olympic Bl	From Indiana St to Concourse Av
	Olympic Bl	From Indiana St to Atlantic Bl
	Pacific Bl	From Live Oak St to Broadway
	Pennsylvania Av	From Foothill Bl to Foothill Fwy
	Pico Canyon Rd	From Dead Horse Cyn to I-5 Fwy
	Prairie Av	From 118th St to Redondo Beach Bl
	Ramona Bl – Badillo St	From I-605 Fwy to I-210 Fwy
	Ramsdell Av	From Community Av to Montrose Av
	Redondo Beach Bl	From Freeman Av to Woodruff Av
	Rosecrans Av	From Broadway to Aprilia Av
	Rosecrans Av	From Highland Av to Santa Gertrudes Av
	Rosemead Bl	From Colorado Bl to Huntington Dr
	Rosemont Av	From Foothill Bl to Montrose Av
	Rye Canyon Rd/ Copper Hill Rd	From The Old Rd to McBean Pkwy
	San Gabriel Bl	From Duarte Rd to Town Center Dr
	San Pedro St	From El Segundo Bl to 157th St
	Santa Anita Av	From 210 Fwy to Longdon Av
	Santa Fe Av	From Nadeau St to Sale Pl
	Seville Av	From Grand Av to Broadway
	Slauson Av	From Corning Av to La Brea Av
	Slauson Av	From Compton Av to Stamy Rd

FIGURE 2.19 CONTINUED

Other Subregional Projects submitted by the County of Los Angeles

City	Route	Project Description
	Soledad Canyon Rd	From Golden Oak Rd to Gateton Rd
	South St	From Atlantic Av to Carmenita Rd
	Stevenson Ranch Pkwy	From Pico Cyn to I-5 Fwy
	Stocker St	From La Cienega Bl To La Brea Av
	Susana Rd	From Victoria St to Del Amo Bl
	Telegraph Rd	From Olympic Bl To Atlantic Bl
	The Old Road	From Hasley Cyn to Pico Cyn
	Union Pacific Av	From Indiana St to Marianna Av
	Washington Bl	From Grand Vista Av to Sorensen Av
	Whittier Bl	From Indiana St to Garfield Av
	Willow St	From I-710 Fwy to I-605 Fwy
	Willowbrook Av	From 124th St to Stockwell St
	Wilmington Av	From 118th St to 124th St
	Wilmington Av	From Charles Willard St to Del Amo Bl
PARTIALLY FUNDED PROJECTS		
ITS		
	South Bay Forum ITS Improvements	Various
	Gateway Cities Forum ITS Improvements	Various
	San Gabriel Valley Forum ITS Improvements	Various
	Route 91 Corridor	
Grade Separation Improvements		
	SR 126/Commerce Center Drive	Widening and Interchange Reconfiguration
	EL Segundo Bl over UPRR and LACMTA at Willowbrook Av	EL Segundo Bl over UPRR and LACMTA at Willowbrook Avenue
	Fairway Drive under UPRR (north of Walnut Drive)	Fairway Drive under UPRR (north of Walnut Drive)
	Turnbull Canyon Rd under UPRR (at Salt Lake Av)	Turnbull Canyon Road under UPRR (at Salt Lake Av)
	Sierra Highway/Barrel Springs Rd Under SCRRA	Sierra Highway/Barrel Springs Rd Under SCRRA
	Nogales St under UPRR	Nogales St under UPRR
	Avenue S without Sierra Highway	Avenue S and Metrolink Rail tracks without Sierra Highway
Bridge Seismic Retrofit		
	City of Long Beach	Various Bridges in City of Long Beach
Los Angeles County Bridge Seismic Retrofit (Funds Required for Local Match)	6th St Bridge over Los Angeles River	
	Del Amo Bl	Normandie Ave to New Hampshire Av
	Gale Av Widening	Widen from Four to Six Lanes from Fullerton Rd to Nogales St at Gale Av
	Colima Rd at Fullerton	Intersection Improvements; Colima Road at Fullerton
	Various Bridges Countywide	Various Bridges within Los Angeles County
ARTERIALS – UNFUNDED PROJECTS		
	I-5 Lake Hughes Rd	Intersection Improvements and widening to provide additional lanes on East Bound and West Bound Approaches
	I-5 Parker Road	Intersection Improvements including bridge widening and lane additions
	Hacienda Bl at Gale Av Et Al.	Intersection Improvements
	Fullerton Rd at Pathfinder Rd, Et Al.	Intersection Improvements

FIGURE 2.19 CONTINUED

Other Subregional Projects submitted by the County of Los Angeles		
City	Route	Project Description
	Colima Rd – Halliburton Rd/City of Diamond Bar CB	Road Widening
	The Old Road	From Hillcrest Pkwy to Lake Hughes Rd
	SR-90 Extension to Admiralty Wy	Extension from Lincoln Bl. To Admiralty Wy
	Admiralty Wy Widening	Admiralty Way Widening from Via Marina to Fiji Way
BIKE PATH PROJECTS		
	San Jose Creek Bike Trail Phase 2B	Bike Trail Class 1 Facility/Connector
	Dominguez Channel Bike Trail	Bike Trail Class 1 Facility/Connector From Main St to Wilmington
	Compton Creek Bike Trail	Bike Trail Class 1 Facility/Connector
	Inclusion of all Projects identified in Metro Developed Bike Trail Strategic Plan BTSP	All Regional Bike Trail Projects Identified in BTSP
SAN GABRIEL COG FREEWAY PROJECTS		
City of San Gabriel	I-10 at San Gabriel Bl	I-10 at San Gabriel Bl: Study, design and reconstruct the off-ramps to provide signalized control
	I-10 at Del Mar Av	I-10 at Del Mar Av: Study, design and reconstruct the off-ramps to provide signalized control
	I-10 at New Av	I-10 at New Av: Study, design and reconstruct the off-ramps to provide signalized control
City of Pomona	SR 71 Expansion Project from I-10 to I-60	
	SR 71/Mission Bl over pass project	

While not a subregion, Caltrans has identified unfunded subregional priorities in Figure 2.20.

FIGURE 2.20

Caltrans		
City	Route	Project Limits/Description
Freeway Improvements		
Los Angeles County	I-210	From Rosemead Bl to SR-57
	I-210	From SR-57 to San Bernardino Co. Line
	I-10	I-10 Busway
	SR-138	From I-5 to SR-14
	I-5	From I-10 to SR-2
	I-5	From SR-2 to SR-134
	I-710	From I-5 to I-10
	I-110	From Adams Bl to US-101



Climate Change and Sustainability

- > More than 83 percent of Los Angeles County residents surveyed in 2007 agree that air pollution is a serious problem, and the threat of climate change to the economy and our quality of life is serious.
- > This Draft 2008 Plan builds upon Metro's actions as a leader in more sustainable transportation options, transit-oriented development, and renewable power.
- > The single most effective action a household can take to reduce their carbon emissions footprint* (up to 30 percent) is replacing one car in a two-car family with transit and bicycling.
- > Metro is exploring all conservation and smart growth opportunities at our transit stations to meet the environmental challenge.

* A carbon footprint is the total amount of carbon dioxide (CO₂) and other greenhouse gases emitted over the full life cycle of a product or service consumed.

Introduction

Los Angeles County depends on a well-functioning transportation system that is safe, clean, reliable and accessible. Transportation cuts across all facets of our life, and our transportation choices affect our ability to participate in society. The way we plan, build, operate and maintain this system can have profound impacts on our natural and built environment.

The Draft 2008 Plan is supportive of many transportation initiatives that contribute to the reduction of air quality emissions, including greenhouse gases. Many of the Draft 2008 Plan's strategies are designed to provide an alternative to the single occupant automobile. Examples of environmentally-friendly strategies include expanding our carpool lane system, new transit corridors, implementing the Metro Rapid program, rideshare and vanpool programs, as well as bike, pedestrian and transit-oriented development programs, and support for local Smart Growth initiatives.

This chapter explores recent actions related to climate change and sustainability, the impacts of greenhouse gases in California and Los Angeles, the benefit of the Draft 2008 Plan in reducing greenhouse gases, and further steps that Metro is taking to address this important issue.

Key Greenhouse Gas Emissions In California

As reported by the California Energy Commission (CEC), carbon dioxide (CO₂) makes up most of our greenhouse gas emissions in California, primarily due to the use of gasoline and diesel to power our transportation fleet. The transportation sector is the leading contributor to greenhouse gas emissions (GHGe) in California and Los Angeles County.

Our individual travel behavior and our decisions on how much and when we drive clearly affect the amount of greenhouse gases that are emitted. According to the Air Resources Board (ARB), the transportation sector is directly contributing to over 41% of California's GHGe or 206 metric tons of carbon dioxide equivalent (CO₂e), the general reporting protocol metric established by the Intergovernmental Panel on Climate Change (IPCC).

Studies show that a more compact mixed-use neighborhood, with adequate pedestrian and bicycle facilities linked to transit, is more likely to result in shorter, fewer car trips and greater walking, bicycling and transit commute trips than in a typical single-use suburban neighborhood. If local land use is dominated by housing-only areas separated from employment, shopping and services, these transportation choices are reduced to driving, for most trips. In the area of climate change planning, the relationship between land use and transportation is undeniably linked and it will take coordination between many agencies to ensure that the two categories are more synchronized with the funding policies that provide complete transportation choices to the public.

The area of climate change requires the analysis of energy usage. Our transportation GHGe footprint can be calculated by multiplying vehicles miles traveled (VMT) with fuel economy. According to the Department of Energy (DOE), the transportation sector is currently consuming approximately 27 percent of the world's total energy production and is the fastest growing sector as developing economies rapidly urbanize and motorize. Autos and trucks in the US consume more than 59 percent of our nation's total transportation fuels, according to the US DOE.

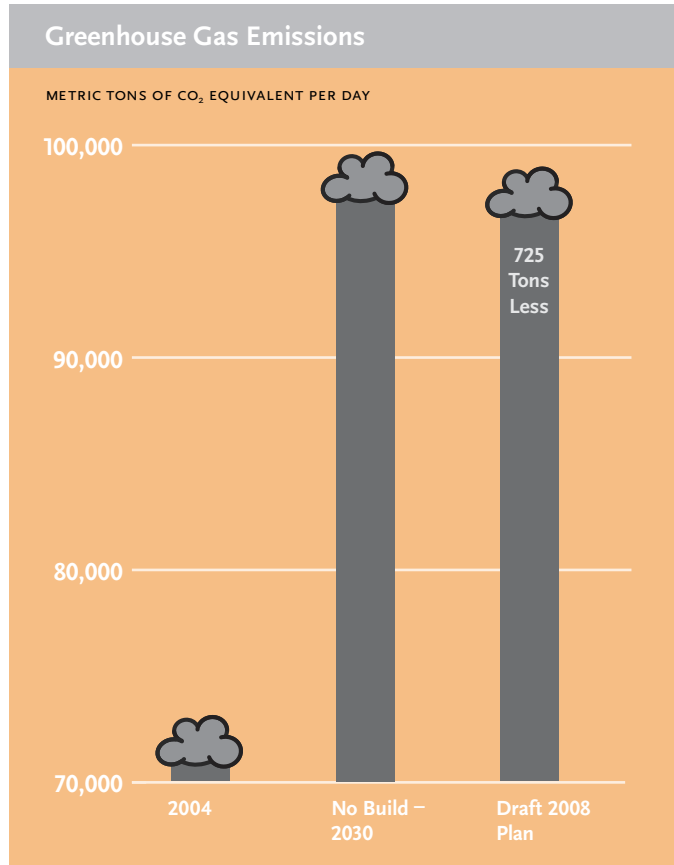
On December 19, 2007, the President signed the Energy Independence and Security Act (EISA) of 2007 into law. The Act is intended to improve vehicle fuel economy and help reduce U.S. dependence on oil. The Act sets a national fuel economy standard of 35 miles per gallon by 2020, which will increase fuel economy standards by 40 percent for vehicles. This is the first increase in the fuel efficiency standard for cars and light trucks since 1975. In addition, it increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.

California Climate Change and Sustainability Actions

California has historically been a national and international leader when it comes to the environment and has taken bold leadership in Global Warming Reduction and Climate Change programs. These actions include the following:

- > In October 2001, the California Climate Action Registry (CCAR) was established to help companies and organizations with operations in the state establish GHGe baselines and credits, against which any future reduction requirements may be applied. Since then, more than 360 organizations, representing the public, private and community sectors, have registered their baseline emissions and are developing programs to monitor and reduce their emissions. The registry is now developing a national program based on the California model and more than 31 states have already joined.
- > In March 2005, the Governor's GoCalifornia initiative identified the linkages between Smart Growth and VMT reduction strategies as key elements to sustainable transportation infrastructure development.
- > The Executive Order S-03-05, signed by Governor Arnold Schwarzenegger, established greenhouse gas targets for the state, which are as follows:
 - > By 2010, reduce to 2000 GHGe Levels,
 - > By 2020, reduce to 1990 GHGe Levels, and
 - > By 2050, reduce to 80 percent below 1990 Levels.
- > AB 32 was approved by the legislature and enacted in January 2007 as an overarching law to protect the state from serious economic, environmental and social consequences of global climate change. The Act requires ARB to:
 - > Establish a statewide GHGe cap for 2020, based on 1990 emissions by January 1, 2008.

FIGURE 3.1



- > Adopt mandatory reporting rules for significant sources of GHGe by January 1, 2009.
- > Adopt a plan by January 1, 2009 indicating how emission reductions will be achieved from significant GHG sources via regulations, market mechanisms and other actions.
- > Adopt regulations by January 1, 2011 to achieve the maximum technologically feasible and cost-effective reductions in GHGe, including provisions for using both market mechanisms and alternative compliance mechanisms.

Calculating Los Angeles County's Transportation Footprint

The VMT proxy calculates GHGe from the transportation fleet. It combines fuel economy and CO₂ emissions to determine the carbon dioxide equivalent (CO₂e) per mile in metric tons.

In 2004, LA County residents drove almost 159,900,000 vehicle miles daily. This resulted in the release of about 72,670 metric tons of CO₂e. By 2030, the daily VMT could reach 219,200,000 and the surface transportation GHGe could rise to 100,000 metric tons of CO₂e if left unabated.

The Draft 2008 Plan is expected to generate about 217,600,000 VMT and 98,900 metric tons of CO₂e. Figure 3.1 illustrates the CO₂e results for LA County.

For this analysis, regional highway and arterial VMT results were used that were available from the travel demand model. Based on the projects recommended for funding in the Draft 2008 Plan, the Draft Plan results in

the removal of approximately 200,000 annual metric tons of CO₂e from the highway system. It is conceivably possible that up to an additional 200,000 annual metric tons of CO₂e could be removed in 2030 from the local road system.

It is clear from this analysis that the Draft 2008 Plan is heading in the right direction in reducing greenhouse gases. Within existing funding limitations, it is also clear that Metro's actions alone cannot reach the levels required by AB 32 or the Governor's Executive Orders to reduce the state's GHGe to 1990 levels by 2020 or 80 percent below 1990 levels by 2050.

Metro's Future Emissions Analyses

Metro is in the process of developing a more comprehensive analysis for its operator and employer emissions. This effort will guide the agency in its emissions inventory and help it take steps to reduce those levels. These broad responsibilities require a comprehensive approach that relies on many external partnerships to ensure effective and successful outcomes.

Metro understands that the climate change challenge requires further strengthening of the relationships with our land-use partners and coordinating with them to ensure we can achieve the AB 32 2020 goals in a realistic and collaborative effort, with each of us doing our part. These partnerships are well under way. Over the past year, through several Task Forces and Ad Hoc Committees, Metro has been developing a comprehensive and ambitious sustainability program, with a focus on clean air management.

Due to Metro's multiple roles, and in part because our actions alone cannot get us to the 2020 goals, the program will include a corporate element focusing on Metro as an employer (building construction, operations and maintenance, product procurement, administration and human resources) and a regional planning and programming element focusing on Metro's role as a regional planner, designer, builder, operator and funding partner to coordinate the regional transportation activities. Examples could include encouraging funding priority for demand management (e.g., pricing, parking, and ITS), public-private partnerships, strategic capacity expansion for transit, and "green" complete streets (e.g., green construction, landscaping, sidewalks, bicycle lanes, bus lanes, and safe pedestrian crossings).

These two parallel programs, described above, will be presented in an Annual Sustainability Report that will begin in late-2008. As part of this report, a preliminary set of sustainable mobility indicators are also being developed. These indicators will be used to track progress towards our parallel goals. The information in the report will also help guide the development of a comprehensive GHGe inventory footprint in concert with the CCAR. In 2008, the

CCAR will be developing the local government protocols that will be required as part of local government's GHGe inventory to create a standard process for data collection. The coordination with the 43 municipal operators and 89 local governments in the County will ultimately provide the total GHG footprint information (land-use, transportation, energy, waste management, water, industry, and trade) to develop the regional Climate Change Mitigation and Adaptation Plan and will be evaluated for inclusion in the next LRTP.

Sustainable Revenue Sources Needed to Meet AB 32 and Sustainability Goals

Metro programs more than three-quarters of available funds for sustainable transportation (transit, carpool/vanpool, bicycling and pedestrian improvements). The remainder of funds are pass-through funds, which are not in Metro's direct control, or they are for debt service. Even if Metro could use all the funds for sustainable transportation, the AB 32 goal still could not be achieved without the parallel change in land use, parking management and wide-scale adoption of congestion demand management.

The issue of sustainable revenues is a significant concern, as the state and federal government funding programs continue to fall far short (due to flat fuel taxes and budget deficits) of what is needed to maintain the existing networks and provide for new infrastructure. Due in part to these ongoing funding shortfalls, this Draft 2008 Plan was not able to add new projects from the strategic list of projects. These strategic unfunded projects could provide reductions in GHGe and air pollution; however, there is no funding to pay for them.

In order to reduce GHGe, significant resources will be needed to create the world-class multi-modal transportation system that we need. The next federal re-authorization will be an opportunity to prioritize the funding policies toward sustainable transportation modes and revenues. It is clear that any additional resources may require a mixture of increases in current fees, including, potentially, new carbon-based and congestion-based user fees to ensure a nexus between the user and the emissions generated. This will be critical if we are to generate adequate resources combined with travel behavior influences to achieve a low-carbon transportation system. Metro is also working through its Mobility 21 efforts to raise awareness of these funding issues and garner support for new revenues.

Sustainability – Metro Accomplishments to Date

As the transportation planner, designer, builder, operator and funding partner of our regional transportation system, Metro's role is significant in regards to the transportation choices provided to the region. Our core mission statement is the continuous improvement of an efficient and effective transportation system for Los Angeles County. Metro is also at the forefront of

environmental responsibility, and we pride ourselves in running the largest compressed natural gas (CNG) bus fleet in the nation, years before regulation required the use of alternative fuel-powered vehicles.

The role of transit, rideshare and other demand management strategies that are currently being implemented play a significant role in reducing GHGe. Metro's continued leadership in environmentally cutting-edge transportation technology and innovative transportation programs was recognized by the American Public Transportation Association in 2006, by being awarded the best transportation agency in the nation.

In its most basic definition, sustainability is the ability to meet the needs of the present generation without compromising the ability of future generations to meet their own needs.

In 2006, Metro created a Clean Air Task Force to maximize its efforts in improving air quality, gathering emissions data, and supporting regional clean air initiatives. In 2007, the Metro Board also created the Ad Hoc Sustainability and Climate Change Committee to create a new focus on climate change and sustainability issues and an Ad Hoc Congestion Reduction Pricing Committee to explore the feasibility of congestion pricing.

Metro has also taken a number of steps to promote sustainability through its day-to-day actions. Examples of these are as follows:

METRO GREENER FLEETS

- > Nation's first and largest CNG Fleet – 2,500 and 97 percent cleaner than retired diesel buses
- > All buses have bike racks for multi-modal accessibility

METRO GREENER BUILDINGS AND DEVELOPMENTS

- > LEED-Silver minimum on all new Metro projects and transit-oriented development
- > Uses 33% less electricity and 50% less water
- > Over 20 transit-oriented developments providing greater access to transit, walking and bicycling options

METRO GREENER POWER

- > Largest solar installation (850 KW) in the transit industry
- > Metro saves more than \$400,000 on electricity costs annually
- > More than 1 Megawatt of solar power under construction

METRO GREENER COMMUTES

- > Partnerships with employers and businesses to increase transit, carpooling, vanpooling, walking, biking, car-sharing and telecommuting among employees

METRO GREENER TRANSPORTATION CORRIDORS

- > Metro Orange Line Integrated Transitway, Bikeway and Landscaped Pathway

- Used recycled materials, thousands of trees and drought-tolerant plants
- One-third of new riders are former auto commuters along US-101
- Similar elements are being adopted for the Canoga Transportation Corridor Extension, Metro Gold Line Eastside Extension and Expo Line

GREENER OPERATIONS – SUSTAINABILITY MANAGEMENT SYSTEM

- > Pilot Sustainable Management System (SMS) to coordinate Metro's best management practices under one system
- > Continuous improvement and positive impact on the environment, employees and customers.

Additionally, Metro's Ad Hoc Sustainability and Climate Change Committee has adopted the following sustainability vision and mission statement.

Sustainability Vision:

Metro will be the transportation industry leader in maximizing sustainability efforts and its benefits for Los Angeles County's people, economy, and environment

Sustainability Mission:

Metro will provide leadership in sustainability within the Los Angeles region by complementing our core mission of moving people efficiently and effectively.

Sustainability – Developing a Framework

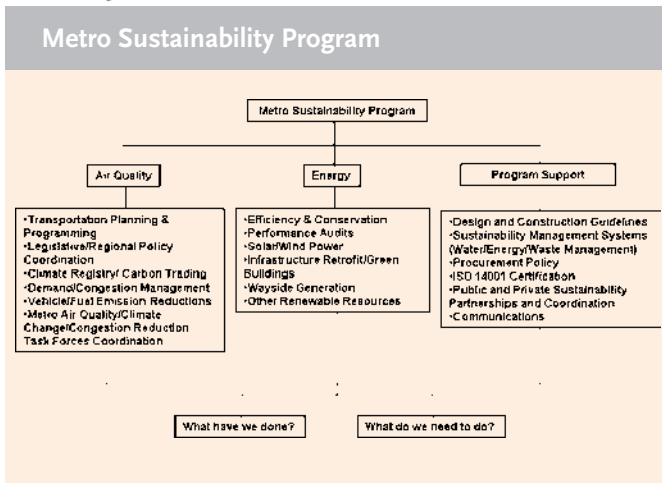
Metro's Sustainability Program is comprised of three core areas: Air Quality, Energy and Program Support. This approach is illustrated in Figure 3.2. The following discussion highlights potential roles that Metro could take in supporting sustainability in these three areas.

Sustainability – Air Quality

The Los Angeles basin suffers from the highest levels of air pollution in the United States, with the pollution caused mainly by vehicle emissions. There are four main types of air pollutants, and unlike greenhouse gases, are highly toxic and are considered cancer risks: (1) Smog; (2) carbon monoxide (CO); (3) ground-level ozone (O3); and (4) particulate matter (PM). Smog includes ground-level ozone (smog's main ingredient), particulate matter, CO, and nitrogen oxide (NOx). Ozone is formed by a chemical reaction between volatile organic compounds (VOC) and NOx in the presence of sunlight. The primary source of ground-level ozone is vehicles.

On the other hand, Los Angeles has made dramatic progress in air pollution over the last 25 years. According to the ARB, the average of the top 30 daily peak one-hour readings of ambient ozone (a leading indicator of smog) across the County's nine continuously-operated monitoring stations, declined 55 percent from 0.21 to 0.095 parts per million between 1980 and 2002. The number of days per year exceeding the federal one-hour ozone standard

FIGURE 3.2



days per year, at the worst locations during the early 1980s, down to 20 to 30 days per year in 2006.

These pollution gains are especially notable because Los Angeles County's population grew by 29 percent between 1980 and 2000, while according to Caltrans, total automobile mileage grew by 70 percent. For air quality to improve as total vehicle mileage increases, indicates that emissions per mile of driving are declining sharply. The single most effective action to reduce greenhouse gas emissions is to reduce VMT.

Sustainable Transportation Planning and Programming

Metro is pursuing an integrated approach to improving air quality by coordinating with local governments, employers and other key stakeholders to initiate land-use/ transportation linkage programs that incorporate the principles of “universal design” (smart land uses and streets, green construction, operations and maintenance, and funding policies). This ongoing and iterative effort may include stakeholder partnerships with local, regional and federal agencies to support planning and programming decisions that could:

- > Review the current Call for Projects evaluation criteria to possibly incorporate sustainable mobility
- > Encourage and designate transit-oriented development (TOD) land uses near well-served transit routes
- > Include transportation demand management (TDM)/ parking strategies in developments around transit centers
- > Re-design and plan new streets to support transit, bicyclists and pedestrians
- > Integrate bike, park-and-ride and car-sharing into transit centers
- > Provide transit services to commercial neighborhood centers
- > Look at sustainable mobility guidelines for funding. Examples could include encouraging funding priority for demand management, public-private partnerships, strategic capacity expansion for transit, and “green” complete streets, as discussed earlier
- > Increase sustainable commute options for employers

Regional Policy Coordination

Metro is coordinating with the California Transportation Commission (CTC), Air Resources Board (ARB), CEC, Office of Planning and Research (OPR), CCAR, Caltrans, SCAG, Councils of Governments, other local agencies and key stakeholders to:

- > Organize a Sustainability and Climate Change Summit at Metro in 2008 that will bring together these various agencies and businesses to start a dialogue and develop a clearinghouse for sustainable mobility best practices, develop GHGe reduction goals for the region, and participate in ARB's AB 32 Scoping Plans.
- > Explore new modeling capabilities that can capture land use, energy use, parking management, and congestion pricing, and perform energy analysis of transportation projects.
- > Work with cities and other stakeholders to coordinate our climate change plans, programs and adaptation efforts.
- > Coordinate these efforts with the Climate Registry as it develops the local government protocols for GHGe inventories.
- > Coordinate with APTA, Transportation Research Board and other stakeholders to develop carbon fee and carbon trading opportunities and emissions inventory protocol standards for the transit/transportation sector. The Climate Registry must adopt the protocols prior to Metro participating in Carbon Trading programs.
- > Explore the use of blended fuels and pool our resources for the procurement of advanced hybrid-drive transit vehicles.
- > Partner with the six Los Angeles Leadership in Environmentally Efficient Design Neighborhood Development (LEED ND) pilot recipients to incorporate sustainable mobility principles.
- > Assist APTA, Climate Registry and CARB in developing transit/transportation industry protocols for registering carbon emissions and offsets from the transportation sector.
- > Assist the Transportation Research Board/Department of Transportation efforts to develop nationwide sustainable transportation indicators to be applied to transportation planning and programming processes. These indicators will be part of an Annual Sustainability Report to provide input for the LRTP, Call for Projects and other planning and programming documents.

Sustainability – Energy

Transit facilities, stations, rights-of-way and vehicles require energy, and energy, for the most part, is still from fossil fuels. Metro has the nation's largest CNG fleet, and natural gas is the lowest carbon-content fossil fuel. While Metro does not exert any control over energy supplies, it is exploring new renewable energy sources for on-site production and transit fleet operations and greener rights-of-way.

To date, Metro has built the most solar power generation (1.8 Megawatts) in the transit industry and is continuing to explore the expansion of its renewable energy portfolio to

include solar power, biofuels, hydrogen-electric, regenerative braking technology, and other energy sources, in addition to its aggressive conservation efforts by:

- > Incorporating energy efficiency and conservation as a guiding principle in the planning, design and construction of new and remodeled facilities including: transit divisions; support facilities; transit stations; Metro headquarters; and, service sector offices.
- > Conducting comprehensive energy and environmental compliance audits to identify opportunities for savings at all Metro-owned facilities.
- > Integrating energy efficiency enhancements with ongoing facility maintenance.
- > Developing a policy of becoming a dual-fuel generator/ user with a potential of up to 30 megawatts of solar power production on Metro-owned real estate.
- > Partnering with the United States Green Building Council to develop LEED Linear Infrastructure certification for transportation projects.
- > Identifying wayside energy storage opportunities and regenerative power feasibility on the Metro rail system.
- > Exploring peak electricity consumption reduction methods such as traction power substations to reduce peaks.
- > Ensuring all new buildings will be built to LEED silver rating minimum or higher.

In June 2007, Metro adopted an Energy and Sustainability Policy that affirmed its commitment to control energy consumption and embrace energy efficiency, energy conservation, and sustainability. The policy will help lower electrical and water bills and provide the baseline and business case to further sustainability goals at Metro.

Sustainability – Program Support

Metro collects various types of data for different reasons. These data sets are important and assist Metro in understanding what it does and how it does it.

Metro has identified policies and programs that will act as program support to the Air Quality and Energy Sustainability Program efforts.

Metro Sustainability Management System (SMS)

Metro has been leading in many ways and currently it is in the process of developing a Sustainability Management System (SMS) that will capture Metro's, and the industry's, best management practices in planning, operations, procurement, administration, construction, and human resources under one system. Initially conceived as an Environmental Management System and approved by Metro's Ad Hoc Sustainability and Climate Change Committee, the unique nature of Metro has required the effort to be broadened to ensure a more integrated environment, health and safety, and quality management system approach with the objective to obtain third-party certifications with the:

- > International Organization for Standardization Certification [ISO 14001 (Environment) and ISO 9001 (Quality)], and
- > Occupational Health and Safety Administration Standard 18001 certification.

The first phase of the program includes a pilot program at Metro Bus Division 10.

The SMS will provide opportunities for continuous improvement and positive impacts on the environment, employees, customers, and finances. ISO certification improves the bond rating of the agency, as it is seen as a proactive leader in reducing risk and reducing material, energy and water consumption, and waste. This could ultimately make the financing of Metro's projects less costly.

The SMS will be the key information tool to assist in the development of Metro's Annual Sustainability Report that will measure the sustainability performance and progress of the agency's efforts. Once completed and ISO-certified, Metro will be eligible to be a Charter signatory to the International Association of Public Transport (UITP). This charter membership would recognize Metro as a leader in sustainable transportation efforts internationally by collaborating with transit agencies worldwide and learning and sharing best management practices.

Metro will be participating in another program created by the FTA to assist public transportation agencies in developing their own Environmental Management Systems. This program will begin in the spring of 2008.

Metro Recycling and Reuse Policy and Sustainability Design Guidelines

Metro recently adopted a Recycling and Re-use Policy that ensures all materials and recycling are to be considered in all aspects of planning, design, construction, and procurement for all Metro and Metro-funded projects. Metro will ensure that all recyclable and disposable materials are only disposed at, or diverted to, licensed or permitted facilities. In addition, Metro has one of the highest water and waste oil recycling rates at its transit vehicle washing facilities in the nation and is pursuing increased water-recycling opportunities throughout the agency.

As part of the program support, Metro is in the process of developing Sustainability Design Guidelines (SDG) for future construction and retrofit projects that are either Metro owned or Metro-funded. The SDG document will be used in all design and construction activities and is based on 15 basic elements. The SDG will be a flexible and living document in that new and additional elements and best management practices will be incorporated as they become available.

Metro Sustainability Design Guidelines Elements

- > Project Management
- > Site Selection
- > Stormwater Management and Erosion Control
- > Landscape Design
- > Water Efficiency and Conservation
- > Heat Island Reduction
- > Interior/Exterior Lighting Quality
- > Noise Pollution Reduction
- > Energy Efficiency/Conservation
- > Atmosphere Protection
- > Materials Use and Reuse
- > Indoor Air Quality
- > Post Construction Maintenance, Monitoring, and Reporting
- > Community Involvement
- > Additional Design Elements

Spreading the Message – Metro Communications

Metro launched the Global Warming Campaign in November 2007 to a wide audience and received very positive feedback, suggesting the importance to people in the County for sustainable transportation solutions. In addition to the ad campaign, Metro developed a brochure titled “Metro is Getting Greener” that outlines Metro’s current efforts to achieving sustainability. This is one of the tools being developed for public outreach campaigns to raise the awareness of sustainable mobility options and to gather support in state and federal legislature on the importance of Metro’s programs. Other tools under development include:

- > Developing a Sustainability and Climate Change portal on Metro’s website www.metro.net/sustainability.
- > Exploring the possibility of transitioning toward 100% recycled paper and soy-based non-toxic inks for all Metro brochures, timetables, and other public information materials.
- > Exploring the possibility of increasing the amount of recycled, recyclable and organic material merchandise at the Metro store to promote sustainability.
- > Developing procurement practice details to transition toward use of 100% recycled paper, purchase of high recycled content stationery and other energy-efficient office products and the full recycling of printer cartridges and other items.

Next Steps

AB 32-related actions, regulations and outcomes are continuing to evolve. Metro will continue to monitor these issues very closely and work with our partners in the region to identify opportunities, solutions and strategies that will ensure we are a step closer to meeting the 2020 goals.

The standards of calculating GHGe are in the development phases in California as this Draft 2008 Plan is being produced. Metro will update the LRTP and this Technical Document with the methodology and results as this process evolves.

Metro is also exploring the following projects:

- > LACMTA and Countywide Greenhouse Gas Emissions Management to develop nationwide transit industry protocols for registering carbon emissions
- > Energy Sustainability Initiatives
- > Development of Sustainability Design Guidelines
- > Development and Implementation of Sustainable and Environmental Management Systems

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Financial Model and Assumptions

- > We will spend more than \$152 billion over the next 25 years to keep Los Angeles County moving. However, it won't be enough to meet all of our mobility goals.
- > We need Sacramento to return the gasoline sales tax funding the voters ratified twice to improve the transportation system, first in 2002 (Proposition 42), and again in 2006 (Proposition 1A).
- > We also need to use our collective imagination to explore new sources of funding, such as public-private partnerships, congestion pricing strategies, congestion mitigation fees, and all self-help approaches that would help pay for new projects that reduce gridlock and keep us moving.
- > In the end, we must all re-double our efforts to increase transportation funding. Our region's mobility and quality of life depend on it.

Introduction

As the Regional Transportation Planning Agency (RTPA) for Los Angeles County, the Los Angeles County Metropolitan Transportation Authority (Metro) has authority to plan and program transportation funds for Los Angeles County. The Countywide Financial Forecasting Model forms the fiscal basis of the Draft Long Range Transportation Plan and provides financial information to Metro's executive management through the Plan period of Fiscal Year (FY) 2005-2030. Metro will program billions of dollars in funds over the Plan period. The Plan period was extended to FY30 from the previous FY25, and since no official funding or transportation policies for FY26-30 have been established by the Metro Board of Directors, these years are shown for planning purposes.

Financial policies, standards, assumptions and the Financial Forecasting Model are management tools for evaluating the impacts of contemplated transportation programs or projects. This is an ongoing process of updating funding availability and budgetary constraints while planning for the future of transportation in Los Angeles County.

The Financial Forecasting Model assumes State law regarding transportation funds and California Transportation Commission (CTC) funding policies. Also, existing Metro policies, including the Financial Standards and Debt Policy, guide the development of many of these assumptions. These assumptions reflect the best available estimate of future trends in revenues (sources) and costs (uses) through the end of FY30 (June 30, 2030).

Although these assumptions do not replace Metro Board actions or policies, certain future policies are assumed based on prior Plans and recent actions of the Metro Board of Directors. The assumptions and the countywide financial forecast will be updated periodically to reflect specific Metro actions, changes in policy, and priority setting. Prior to the Metro Board of Directors making specific policy and project decisions, those decisions will be analyzed for their impact on the countywide Financial Forecasting Model and adjustments will be made to the model to reflect Board actions.

Metro also administers the local transportation sales tax revenues. By having fund programming and management authority, it is common for large amounts of funds to be carried in Metro accounts. Balances, however, are not to be confused with those funds actually available to Metro for bus and rail capital and operations. For example, balances shown in Metro accounts such as the Proposition C 25%, Transit-Related Highway funds, are awaiting disbursement to prior year Call for Projects recipients. Other accounts may have balances but the funds can only be used for a specific purpose such as security (Proposition C 5%) or commuter rail, transit centers, and park-and-ride lots (Proposition C 10%).

FIGURE 4.1

Financial Assumptions

M = MILLIONS B = BILLIONS

Source	Description
INFLATION ASSUMPTION	
Consumer Price Index (CPI) for L.A. County	2.20% average, based on August 2007 UCLA Anderson Forecast
MAJOR REVENUE ASSUMPTIONS	
Local	
Local Sales Tax Revenues	3.80% average annual growth FY05-30
Metro Fare Revenues	Fares increase every 2 years to maintain a 33% fare recovery ratio, beginning FY12 Ridership growth: rail 2.5%, bus 0.7%
Metro lease and advertising revenues	Annual growth at CPI
Bond Financing	Substantial new financing assumed, 5.5% interest rate, 30-year term
State	
Proposition 1B - The Highway Safety, Traffic Reduction, Air Quality, and Port Security Bonds Act of 2006	\$5.463 B assumed for Los Angeles County \$2.156 B for previously planned Metro capital projects
State Transit Assistance	Approximately 2.1% annual growth, no "Spillover"
State Transportation Improvement Program (STIP)- Regional Improvement Program (RIP)	Approximately \$100 M each in FY12 and FY13, \$200 M per year beginning FY14
Traffic Congestion Relief Program (TCRP)	\$1.2 B of project allocations and reimbursed Letters of No Prejudice assumed in FY05-14
Federal	
Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU)	Reauthorization is assumed of this Federal surface transportation act which expires FY09
Congestion Mitigation & Air Quality (CMAQ)	No increase after FY09, 50% reduction in FY21
Regional Surface Transportation Program	1.4% annual growth beginning FY10
Section 5307 Urbanized Formula	1.4% annual growth beginning FY11
Section 5309 Fixed Guideway Modernization	1.4% annual growth beginning FY12
Section 5309 New Starts	\$80-\$100 M/yr assumed for new projects
Transportation Enhancements (TE)	10% of Surface Transportation Program funds; \$13-16 M per year for FY11-30
MAJOR EXPENDITURE ASSUMPTIONS	
Metro bus operations	1.88% annual escalation, 2.9% beginning FY17, 7.8M revenue service hours FY08
Metro rail operations	Annual escalation at CPI, plus new service, 654,000 revenue service hours FY08
Municipal bus operations	2.4% approximate annual escalation
Municipal Operator Service Improvement Program (MOSIP)	\$ 17.9 M for FY08, then 3% annual escalation
Access Services, Incorporated (ASI) [paratransit]	Metro subsidy escalation is 6.5% through FY16, 2% thereafter
MetroLink operations and rehabilitation	4% annual escalation
New rail/fixed guideway projects	Eastside, Exposition Phases I and II, Crenshaw, Wilshire, San Fernando Valley North-South (3% annual escalation)
Contingency for rail yards and rail cars	\$225 M through FY14
Rail Rehabilitation and Replacement	\$3.953 B, FY05-30
Transit project cost contingency	\$1B contingency through FY14 if escalation is 7.5% in FY08-10, 5% in FY11-13
New freeway projects	\$5.9 B (3% annual escalation)
Freeway project cost contingency	\$817.7 M contingency if escalation is 7.5% in FY08-10, 5% in FY11-13
Call for Projects	\$4,215 B for 2007 and future Calls
Retrofit Soundwalls – Phase I	\$978.8 M, FY05-30
Freeway Service Patrol	CPI annual escalation
Rideshare/Vanpool Program	\$349.9 M, FY05-30
Debt Service – Proposition C 10%	Debt service percent of revenues limit changed from 40% to 50%
Debt Service – Proposition C 25%	Debt service percent of revenues limit changed from 60% to 75%

The financial modeling assists in evaluating the financial capacity of Metro to construct and operate four new fixed-guideway projects (Eastside, Exposition Phases I and II, and Crenshaw) and two Metro Rapid bus projects (San Fernando Valley North-South and Wilshire BRT).

Delivery and implementation of all projects and programs are dependent on the availability of local, state, and federal revenues at the projected levels. Changes in local, state, federal policies or shifts in the state/national economy could impact implementation of the proposed projects and programs. The loss of state transportation funds taken by the State over the last few years to close its General Fund deficit has impacted near-term funding. Funding sources have been changed for some projects to keep them on schedule and minimize inflationary cost increases while the time line for other projects has been delayed to a later program year. Such changes maintain the priorities set by the Metro Board of Directors and the 2001 adopted Long Range Transportation Plan. Table 4.1 summarizes the assumptions in the Countywide Financial Forecasting Model, including assumptions for inflation, revenue sources for local, state, and federal funds, and expenditures.

MAJOR REVENUE ASSUMPTIONS

No new revenue sources are assumed to be available over and above those local, state, and federal revenue sources that are currently obtainable or identified by law to become available. The Financial Forecasting Model assumes that Metro will maintain the historical growth level of funding provided by current revenue sources, except for certain fund sources such as fares, RIP, and CMAQ. If projected levels of funding are not reached, projects and programs will be reduced or delayed accordingly, unless comparable cost savings are achieved or alternative revenues are allocated. If Federal or State funds increase, projects and services will be added in accordance with the available revenue and priorities of the Metro Board of Directors.

Local Sales Tax Revenues

Sales Tax Revenues

Growth is based on the August 2007 taxable sales forecast for Los Angeles County by the University of California at Los Angeles (UCLA) Anderson Forecast. The real growth projections in this independent forecast have been further reduced to achieve an average sales tax growth rate of 4% through 2017. This rate represents the average sales tax revenue growth annually from FY88 through FY07 and reflects a request of the Federal Transit Administration (FTA). The actual percentage growth varies each year to capture fluctuations in the economic market as the independent forecast depicts. From 2005 through 2030, the annual growth averages 3.80%. The sales tax forecast is based on FY05 audited values of \$619.5 million for Proposition A and \$619.6 million for Proposition C. Once FY06 audited actual values became available, they were substituted for projected amounts. However, due

to an unusually high growth rate that year, it was decided to maintain the projections based on FY05 values.

Proposition A, Proposition C, and Transportation Development Act

These sales tax revenues are assumed to grow at an average annual rate of 3.80%.

Proposition A

A half-cent sales tax, passed by Los Angeles County voters in 1980, is to be used to improve public transit throughout Los Angeles County. A portion of the revenues is returned to local jurisdictions, based on population, for use in public transit projects. Revenues are divided as follows:

Local Return Program	25%
Rail development and operations	35%
Discretionary (bus operations only per Metro Board policy)	40%

All Proposition A 40% discretionary funds are used for bus operations in accordance with established formulas. Proposition A Local Return revenues are spent on bus operations expenditures that are based on the Short Range Transit Plans of the local municipal operators and plans of the cities.

Proposition C

A half-cent sales tax, passed by Los Angeles County voters in 1990, is to be used for public transit purposes in Los Angeles County. Revenues are divided as follows:

Rail and bus security	5%
Commuter rail/transit centers/park and ride	10%
Transit-related streets/state highways	25%
Local return (direct to cities and county)	20%
Discretionary	40%

The 40% discretionary funds are assumed split among rail capital and operations, bus capital and operations and bus service expansion (Consent Decree through October 2006). Allocations between bus and rail capital and operating requirements shift over time as capital projects are built and operations begin. These funds are also used for planned replacement and rehabilitation of capital items including buses, facilities and rail cars.

An allocation to Municipal Operators for bus expansion to offset Metro's use of Proposition C 40% for the Consent Decree was directed by the Metro Board of Directors. This MOSIP program is assigned Proposition C 40% discretionary funds in FY06 through FY07 and escalates at 3% annually thereafter from \$17.4 million through FY30.

A Proposition C 40% capital allocation to the non-Metro Operators of \$88.5 million is assumed for FY08-13 as mitigation for Proposition 1B State Infrastructure Bonds as directed by the Metro Board of Directors, to provide a

bridge between the identified Proposition 1B funding according to the STA formula and the FAP.

Most of the 25% transit-related highway funds are programmed for highway-related projects, such as carpool or high occupancy vehicle (HOV) lanes. These funds are also eligible for portions of transit projects that are on a state highway or freeway and for public mass transit improvements to railroad rights-of-way.

The Proposition C 10% funds are used for Metrolink commuter rail, debt service, and regional park-and-ride facilities and transit centers through the Call for Projects. Metrolink receives approximately 57% of the Proposition C 10% funds directly through the annual Metro budget.

Transportation Development Act (TDA Article 4)

Revenues are derived from one-quarter cent of the 7.25 cent statewide retail sales tax. The funds are apportioned to each county by the State Board of Equalization according to the amount of tax collected in the county. Each year, the actual funds are allocated according to the Metro Formula Allocation Procedure (FAP), but generally, Metro receives approximately 73% and the Municipal Operators receive 27%. TDA Article 4 funds are available for bus and rail capital and operations.

Other Local Revenues

Benefit Assessments

A benefit assessment district has been in place for Metro Red Line Segment 1 since 1985 and expires in 2009 (FY10). Revenues in FY05-10 are used only for debt service and are not included in the Financial Forecasting Model. Metro was not required to conduct an election to assess levies on property owners. However, per State Proposition 218 in 1996, new assessment districts require a vote of property owners. The Forecasting Model no longer assumes this revenue source for new projects.

Bonds/Financing Mechanisms: (Propositions A and C Bonds)

The Forecasting Model assumes that local funds are bonded for capital needs if necessary, consistent with the project and program priorities established by the Metro Board of Directors. Given all other assumptions used in the Financial Forecasting Model, debt financing is necessary for the completion of scheduled major capital construction projects and to fully fund recognized priorities in the adopted 2001 Long Range Transportation Plan, the 2003 Short Range Transportation Plan, and this Draft 2008 Plan update. The Forecasting Model assumes that bonds will be issued each year they are needed to fund major capital projects. At the time of actual need, bond issuances are analyzed separately from the Financial Forecasting Model assumptions and must be approved by separate Metro Board action. Bond debt service is assumed to be paid with Proposition A and Proposition C cash revenues.

Substantial bonds at 5.5% interest are assumed to be issued as needed throughout the forecasting period to support bus, rail and highway capital requirements. Assumed bond issuances do not substitute for any specific Board actions required to issue bonds. The bonds proposed are for planning purposes only and to assist in making large-scale, long-range, financial decisions.

It is also assumed that the current Metro Debt Policy will be changed by the Metro Board to allow more Proposition C 25% and Proposition C 10% cash to be used for debt service. The debt service limits are assumed to increase as follows: Proposition C 25% - from 60% to 75% and Proposition C 10% - from 40% to 50%.

Capital Grant Receipts Revenue Bonds for the Eastside Light Rail Line were issued in 2005 in anticipation of future Federal New Starts funds. This bond is for \$264.9 million and is repaid over seven years (by 2012).

Bonds/Financing Mechanisms: Certificates of Participation (COPs)

No future COP issuances are assumed. Debt service is included for previous COPs pledged with Federal Section 5307 capital formula funds and TDA Article 4 funds.

City of Los Angeles Funds

As recommended by the Los Angeles City Council and to continue the obligations made by the City for the Metro Rail System in the 1990s, City contributions of \$39 million are assumed for the Exposition Light Rail Line Phase I to Culver City. Metro will pursue local funding for all planned light rail and bus rapid transit projects similar to previous Metro Red Line agreements.

Metro Fare Revenues

The Metro transit fare revenue forecast adjusts with inflation, media changes, and base recovery ratio of 33%. The actual fare recovery ratio varies annually but averages 33% of bus and rail operations costs during the plan period. A new fare policy was implemented in May 2007 for FY08 and FY10. A fare adjustment is also assumed at the beginning of FY12 to maintain the 33 percent fare recovery ratio. Fares are assumed adjusted every two years thereafter to maintain the fare recovery ratio of 33%. Fares are forecasted to increase: 1) based on expected growth in overall ridership at 1.0% annually, 2) every two years to maintain the 33 percent fare recovery ratio, and 3) with the opening of new rail projects.

The Metro operating plan assumes annual ridership growth of 0.7% for bus (except in years where a new rail line opens, in which case no growth is assumed for bus operations that year) and 1.25% for rail. This is a conservative estimate. The adopted 2001 Long Range Transportation Plan states that fare recovery would be adjusted to reflect cost increases associated with operations over the life of the plan through 2025 and this has likewise

been carried forward and extended to 2030. The historical growth of fares over the last ten years has averaged 2.47% annually and the fare recovery ratio over the last twenty years has averaged 35%.

Municipal Operators Fare Revenues

Passenger fare revenues for the Municipal Operators are based on projections in their Short Range Transit Plans and FY06 operating budgets. The fare recovery ratio for the Plan period is approximately 22%. For FY07 and beyond, fare revenues are escalated annually by CPI.

Metrolink Fare Revenues

Passenger fare revenues for the Los Angeles County portion of Metrolink's service are based on Metrolink's FY06 budget and are escalated annually by 3.5% through FY16 and thereafter by CPI.

Lease Revenues, Advertising and Available Short-Term Funds

Annually, Metro receives approximately \$12.0 million in leases of property and assets and \$13.5 million in advertising. From time to time as conditions allow, Metro leases equipment and receives funds back as payments; these funds are limited in scope. Lease and advertising revenues are assumed to be available to fund programs including some capital needs. Metro has used the fund balances from these sources to offset costs associated with the Consent Decree and various other one-time allocations on an as-needed basis.

State Revenues

Proposition 1B State Infrastructure Bonds

The Highway Safety, Traffic Reduction, Air Quality, and Port Security Bonds Act of 2006, approved by the voters in November 2006, authorizes \$19.925 billion statewide over the next ten years to fund existing and new transportation infrastructure capital programs and projects. For Los Angeles County, the financial forecast assumes \$5.463 billion from 10 of the 12 bond programs. Of this amount, \$2.156 billion represents funding for Metro for previously-planned capital projects.

Proposition 42 sales tax on gasoline funds

Proposition 42, approved by the voters in March 2002, amended the State Constitution to permanently dedicate the revenues from the state sales tax on gasoline to specified state and local transportation purposes. Proposition 42 funds are allocated 40% to the STIP, 20% to the Public Transportation Account (PTA), and beginning in FY09, 40% to cities and counties for improvements to local streets and roads.

In 2006, California voters approved Proposition 1A to amend the State Constitution to limit future suspensions of Proposition 42. The suspensions would only be allowed twice in any ten-year period and would require repayment within three years and before any additional suspensions

could be made. Proposition 1A also provides that an equal share of any remaining debt related to the suspension of the Proposition 42 transfers in FY03-04 and FY04-05 be repaid in every year beginning FY06-07. The countywide Financial Forecasting Model assumes annual continuation of Proposition 42 funds.

Regional Improvement Program (RIP) Funds

California state transportation funding is programmed in the STIP. The STIP is divided into a 75% regional local county share and a 25% interregional statewide share. The 75% RIP share allows Metro to select projects for funding upon approval by the CTC. Metro uses its local Call for Project process and the Metro Long and Short Range Transportation Plans to select the projects to receive such funding and be programmed in the STIP. The Metro Board approves the programming of the RIP share for capital improvements to eligible highway, bus, rail, fixed guideway and other capital projects. The actual funding sources for the STIP are Federal Surface Transportation Program (STP) funds allocated to the State of California and State funds from the PTA.

The Financial Forecasting Model incorporates the RIP component of the 2006 STIP. The 2006 STIP added two new years (FY10 and FY11) to prior programming commitments but added no new programming capacity. This generally resulted in the rescheduling of projects already programmed, delaying many projects by two years or more. The CTC developed annual RIP programming targets for each agency and Metro reprogrammed all of its STIP projects to conform to the revised targets. Most of the funding in the 2006 STIP is PTA funds, which are restricted to transit uses and Metro has assigned such funds accordingly. Senate Bill 717, which changed the formula for FY09 such that the STIP receives 25% of PTA funds instead of 50%, is assumed to be continued throughout the Plan period. RIP funding is assumed to be reduced by approximately 25% and remain at that constant level beginning in FY16.

South Coast Air Quality Management District (AQMD)

This agency administers state and federal funds for air quality improvement throughout Southern California. One funding program, created as part of State Assembly Bill 2766, is targeted to assist bus-operating companies in purchasing alternative-fueled buses. The source of funds is the additional \$4 motor vehicle registration fee and 30% of these funds are awarded annually on a discretionary basis. Another funding program is the Carl Moyer Memorial Air Quality Standards Attainment Program that provides incentive grants for the incremental cost of cleaner-than-required engines and equipment.

Based on Metro's past experience receiving these funds, the Financial Forecasting Model assumes that Metro will continue to receive grants from these two programs. In some years, grants may range around \$4 million and

are forecasted to be available every few years for alternative-fueled vehicles and other air quality enhancement activities.

State Gas Tax Subventions to Cities

These revenues reflect 6.46 cents per gallon of the state gas tax which is paid directly by the State Controller to the cities in Los Angeles County for local streets and roads. No growth is assumed since the gas tax is not indexed to inflation and revenues tend to remain flat.

State Highway Account Funding for Caltrans Operations

These revenues reflect Caltrans District 7's administration, planning, operations and maintenance costs for Los Angeles County. These revenues are based on Caltrans' FY05 budget, escalated by 2.5% per the FY05-FY06 State Budget.

State Transit Assistance (STA)

STA Funds are derived from one-half of the State's PTA, which is funded mostly from sales tax statewide on gasoline and diesel fuels. The PTA also includes "Spillover" funds. "Spillover" generally reflects higher gasoline prices and occurs when revenue derived from gasoline sales taxes is proportionately higher than revenue derived from all taxable sales. Due to its uncertainty and volatility, future "Spillover" is not assumed beginning FY10. Senate Bill 717, which changed the formula for FY09 such that STA receives 75% of PTA funds instead of 50%, is assumed to be continued throughout the Plan period.

The regional STA allocation for Los Angeles County is based on the County's shares of population and transit operator revenue compared to the rest of the state. The population portion of STA is used for Metro rail operations and the operator revenue share is used mostly for Metro and municipal operator bus operations.

Traffic Congestion Relief Program (TCRP) of 2000 Funds

This program provided funding for needed highway and transportation capital projects throughout Los Angeles County totaling \$1.7 billion. The FY07-08 State Budget includes \$929 million statewide for the TCRP program and the program will be budgeted for only \$83 million in each of the subsequent nine years. The Financial Forecasting Model has assumed all TCRP funding not already allocated by the CTC will be available for the TCRP projects. Metro received Letters of No prejudice for certain projects which allowed Metro to advance its own local funds to maintain project schedules and be reimbursed later by the State. All approved Letters of No Prejudice are assumed to be reimbursed by FY17.

Federal Revenues

Current federal funding programs continue

Reauthorization of SAFETEA-LU, the Federal surface transportation legislation, is assumed after its expiration at the end of federal FY09 (September 30, 2009). The provisions and funding programs specified in

SAFETEA-LU, which includes all Federal highway, transit, and transportation programs, are assumed in the financial forecast. In the absence of clear federal transportation funding policy, existing funding levels for individual programs other than CMAQ are assumed to grow annually beyond the SAFETEA-LU period at 1.4%.

The Surface Transportation Program (STP) and CMAQ are flexible programs that allow funds to be exchanged between highway and transit modes. These programs and their flexibility are assumed to continue. Portions of these funds are assumed to be flexed to transit capital and operating uses, in accordance with federal regulations, for either bus purchases or for the actual costs of the first three years of operating new transit segments.

Several small federal programs are not assumed in future years at this time. Among these are Section 5316 (Job Access and Reverse Commute), Section 5317 (New Freedom), and technical grants for specific purposes.

Congestion Mitigation and Air Quality (CMAQ)

CMAQ program funding has been adjusted to reflect air quality improvements in Los Angeles County. Metro is part of the South Coast Air Quality Basin in Southern California and the deadline for compliance with the latest updated air quality standards is 2020. Metro forecasts continuation of CMAQ funds at \$12 million below SAFETEA-LU levels from FY10-14. The annual forecast is further reduced by \$20 million beginning FY15, by another \$20 million beginning FY20, and by another \$20 million beginning FY26.

The CMAQ program is designed to fund projects that contribute to attainment of national ambient air quality standards. CMAQ funds cannot be used to construct facilities providing additional capacity for single-occupancy vehicles. It is assumed that the new transit lines of Eastside, Exposition Light Rail Line Phases I and II, Crenshaw Transit Corridor and various Metro Rapid bus projects will receive CMAQ funding for their actual operating costs for the first three years of operation.

Earmarks

Earmarks through FY09 are included for the following SAFETEA-LU programs: High Priority Projects, Projects of National and Regional Significance, Transportation Improvement Projects, and the National Corridor Infrastructure Improvement Program. Because Earmarks are discretionary, they are not assumed in future years.

Homeland Security Grants

Metro regularly receives Federal Homeland Security grants for transit security improvements. Future receipt of such grants is assumed.

Section 5307 Urbanized Formula

Funding is assumed as determined by Federal and Southern California Association of Governments (SCAG)

formulas. Funding is assumed to increase by 1.4% after the expiration of SAFETEA-LU.

Federal regulations allow Section 5307 funds to be used for preventive maintenance costs as well as capital costs. The Financial Forecasting Model assumes the continued usage of these funds by Metro for eligible bus preventive maintenance costs in the operating budget. These funds account for approximately 12% of the Metro bus operating funds for preventive maintenance through 2030.

The Forecasting Model also assumes that these funds will be allocated to all eligible bus operators by formula for identified capital requirements, pursuant to the current Capital Allocation Procedure (85% by formula and 15% discretionary). For financial modeling purposes only and to determine potential funds for the agencies, future discretionary funds are assumed split between the Municipal Operators and Metro based on the average of the last five years. The actual allocation of the 15% discretionary funds will occur annually and may vary from this modeling assumption.

The Municipal Operators use their formula portion of Section 5307 for capital facilities and purchasing replacement buses on a 12-year cycle. 195 new buses for fixed route expansion are planned along with 31 smaller vehicles for the Municipal Operators, coupled with capital facilities to support this expansion program. In the event that the Municipal Operators convert from diesel fuel to cleaner-burning fuels, provisions for alternative fueling facilities are provided in the capital facilities funding component; several have initiated this conversion.

Section 5309 Bus and Bus Facilities/Section 5308 Clean Fuel Program

SAFETEA-LU Section 5309 bus earmarks are included in the year approved by Congress. Using Metro's estimated share of the national formula in the Clean Fuel Program (which references the CMAQ formula), an average of \$4.0 million is assumed annually. This forecast is based on the intent of the Clean Fuel Program and assumes that federal funding will be available to meet clean air requirements in Los Angeles County. For the last five years, Congressional appropriations have transferred the Clean Fuel Program allocation to the Section 5309 Bus and Bus Facilities discretionary section of the annual funding bill. These discretionary earmarks result in generally the same amount each year to Metro.

Section 5309 Fixed Guideway Modernization

This is used for rail operations, rail rehabilitation and other minor rail expenses. After the expiration of SAFETEA-LU in FY09, the program is estimated to grow at 1.4% annually. Additional miles will be included annually as Metrolink and Metro Red, Green and Gold Line service miles become eligible and are applied to the federal formula. This added revenue is assumed based on current

formulas. Additional funding is expected seven years after the Exposition Light Rail Phases I and II and Crenshaw Transit Corridor lines become operational.

Section 5309 New Starts and Small Starts

Metro Red Line Segments 1, 2 and 3 received annual amounts of New Starts funds in the past and the forecast assumes continued discretionary FTA Section 5309 New Starts Funds for future major New Starts-eligible construction projects. The Full Funding Grant Agreement (FFGA) signed on June 1, 2004 for the Eastside Light Rail project allocates \$490.7 million in New Starts funds to the \$899 million project.

New Starts Funds and FFGAs are assumed for new projects. Congress allocates Section 5309 New Starts Funds to specific projects and generally follows the annual payment schedules in the FFGAs. After the Eastside Light Rail Line fully utilizes previously pledged New Starts funding of \$490.7 million, \$80 million New Starts funds per year through FY25 are assumed for the Exposition Phase II to Santa Monica and the Crenshaw Transit Corridor projects. Since matching funds are not currently assumed to be available after FY25, New Starts funds are not assumed in FY26-30. If matching funds become available, Metro will evaluate future capital projects for inclusion in New Starts applications and to fully implement a comprehensive countywide bus and rail capital program. This will be included in future amendments to the Long Range Transportation Plan.

No funding has been assumed from the Small Starts program since this is a new program with no specified parameters or rules governing the distribution of the funds. Metro will pursue funding from this program in the future for projects such as limited-cost rail projects under \$250 million or Bus Rapid Transit projects that can be implemented in twelve to eighteen months.

Section 5340 Growing State Program

This new SAFETEA-LU program is based on the amount of population growth anticipated and averages \$7.7 million per year. Until a future census estimate is available, the 2000 census is used to determine the amount of revenue for Los Angeles County. This new revenue source is assumed for rail purposes. The actual award of funds is done through the Section 5307 requirements and grant management procedures of the Federal Transit Administration.

Surface Transportation Program (STP)

STP funds are appropriated by Congress for highway improvements but are flexible and eligible for transit capital projects, Transportation Demand Management (TDM), and improvements to highways and arterial roads. Half of the STP allocation to the State is assumed to go to the California State Highway Account with the remainder allocated to the regions by formula in accordance with Section 182.6 of the

California Streets and Highways Code. Metro's Regional Surface Transportation Improvement Program (RSTP) share of STP funding is assumed mostly for paratransit by Access Services, Incorporated. Some RSTP funds have been assumed for carpool lanes and freeway gap closures/arterial widening in Los Angeles County.

MAJOR EXPENDITURE ASSUMPTIONS

Operating and Capital Inflation

Escalation is based on the August 2007 UCLA Anderson Forecast for Los Angeles County which forecasts the average annual inflation rate from FY05-30 at 2.16%. The Financial Forecasting Model applies the annual inflation rate from the forecast to various operating costs. Metrolink operations and rehabilitation costs are increased at 4% annually based on commuter railroad cost history.

Transit and highway capital projects generally are escalated annually by 3%. However, due to recent high commodity and land cost increases for capital projects, a cost escalation reserve is assumed for major capital projects in case annual escalation exceeds 3%. A rate of 7.5% was assumed in FY08-10 and 5% in FY11-13.

BUS PROGRAM ASSUMPTIONS

Bus Capital

Transit Operators – Funding is assumed for clean fuels, vehicle replacement, facilities, support equipment, COP payments, and bus bonds as described below. All assumptions for planned acquisitions of buses and divisional facility improvements, including new divisions, came from the Metro Bus Fleet Management Plan dated August 6, 2004. Municipal Operators developed a capital summary dated June 21, 2005 for guiding future purchases, facilities and capital components of their fleets and grounds.

Clean Fuels – AQMD requirements are met by:

- > converting vehicles and facilities to clean fuels (i.e. alternative fuel vehicles and 15% zero-emission bus purchases after 2010);
- > increasing transit service incrementally so that work trips on transit as a percentage of all regional trips are enhanced by the year 2020 [the year for which compliance is planned for air quality in the South Coast Air Basin; the previous compliance date was 2010]; and
- > programming funds for the local bus operators (Municipal Operators) which currently use diesel fuel so they can convert fueling facilities and transition buses to cleaner-burning fuels in the event such decisions are made. Such funding was assumed in the Section 5307 funds allocated to the Municipal Operators.

Vehicle Replacement Schedule – Vehicle replacement is based on the following retirement schedule:

> Transit Buses (40 foot and Articulated) Metro/Municipal Operators fleets average 6+ years old (some Metro composite buses are funded for overhaul at mid-life)	12 to 13 years 18 years
> Heavy-Duty Smaller Buses (25-35 foot range)	10 years
> Dial-A-Ride Vehicles (light-duty, mid-sized buses, less than 25 feet long)	5-7 years
> Dial-A-Ride Vehicles (light-duty, small buses, cutaways, or modified vans less than 25 feet in length)	4 years

Vehicle Costs – Total vehicle costs, including wheelchair lifts, taxes, labor force accounts, spare parts and air conditioning are presented below. These costs assume replacements with alternative-fueled vehicles and are escalated annually by CPI starting in FY06.

2006 Costs of Buses and Vehicles

> Articulated (60 feet in length)	\$735,000
> Buses – 45 feet	\$472,500
> Buses – 40 feet, Metro and Municipal (Smart Bus) – price varies	\$409,500
> Mid-Sized Buses (mostly 25 feet and some 35 feet but they cost slightly more)	\$213,000
> Small Buses (less than 25 feet)	\$ 80,700
> Vans (price varies)	\$40-60,000

Based on Metro's recent compressed natural gas bus procurements, the price in 2005 was \$390,000 per standard 40-foot bus (includes extra parts from plant assembly, sales tax and labor force account of Metro expenses) and is escalated annually by CPI thereafter through 2030. An articulated bus is priced at \$735,000 based on recent bids received by Metro and costs are escalated by CPI. A varying price is assumed for Metro and Municipal Operators for a forty-foot bus purchase, based on actual recent purchases, then escalated through 2030 by CPI. Since Municipal Operators purchase buses separately using criteria unique to their own needs and standards, the actual price may vary from the countywide Forecasting Model assumptions.

It is assumed that 200 buses (40-foot buses or large capacity equivalents) will be purchased annually to replace Metro's active bus fleet. The exact amount may vary by year, based on actual purchases and contract completion dates. However, the assumed planning average provides for the optimum efficient delivery of new buses and allows for equally spreading the age of the basic bus fleet over time. The 200 buses purchased annually have been adjusted through FY12 to reflect the purchase of up to 500 articulated buses instead of the 200 standard 40-footers. The use of articulated buses will increase the number of seats in the Metro active fleet.

Facilities and Support Equipment – The countywide Financial Forecasting Model assumes that costs for bus

capital projects are based on Metro's Office of Management and Budget (OMB) Ten-Year Forecast, including the adjustments for articulated bus purchases in FY06-15. Beyond FY15, an average annual expenditure projection is used based on CPI and an expanded depreciation schedule through 2030. Funding for a new Metro Bus Division has been assumed in FY15-17, in addition to the Union Division being built by 2009. These two new Divisions have been projected, based on the changing Metro bus fleet and emergence of articulated buses in the Metro active fleet.

The Financial Forecasting Model also includes the adopted Metro Capital Program (CP) costs through FY10. These cost projections include expenditures for bus maintenance overhaul and rehabilitation, CNG fueling facilities, bus maintenance facilities improvements, non-revenue vehicles and communications support. For the Municipal Operators, a capital facilities and bus purchase assessment, completed in June 2005, outlines needed facilities, an expansion program for 195 fixed-route buses, and 31 smaller buses added through 2030. The Bus Operations Subcommittee of the Technical Advisory Committee assisted with that report as well as assumptions about future growth and expenditure needs.

Bus Capital Bonds – Bonds will be issued, as needed, to support bus capital requirements within the Metro debt policy limits. The bond interest rate assumed is 5.5%. Annual debt service payments are assumed for 30 years with some limited 12-year bonds for bus purchases.

Major Metro Rapid Bus Projects – In October 2005, Metro opened the 14-mile Metro Orange Line rapid bus project along an exclusive fixed guideway at a budget of \$313 million. The right-of-way was an abandoned railroad site that blended well physically with a fixed guideway for buses only. This project runs in an east-west direction in the San Fernando Valley area of the City of Los Angeles and operates 27 articulated buses daily.

Several other Metro Rapid bus capital projects are assumed for construction and operation over the term of the plan, including:

- > A major investment study was completed in April 2003 for several north-south corridors in the San Fernando Valley
- > A \$200 million project along Wilshire Boulevard is scheduled for completion by July 2016
- > A potential extension of the Orange Line, tentatively known as the Canoga Extension. Total costs of \$298.5 million are assumed for the Canoga Extension and four other projects to be determined. The Canoga Extension should be completed by FY16 with the remainder completed by FY26. Funding for operating costs is assumed to come from existing operations being phased out as new service is introduced.

Bus Operations

New Buses and Added Service – The Financial Forecasting Model assumes the continued implementation of the Consent Decree using the passenger counting calculations methodology identified in the January 2003 ruling of the Special Master. New buses and additional service as ordered by the ruling are included in the financial plan. The forecast includes an additional 208,250 revenue service hours that were put in place in FY05 (annualized to 332,080 revenue service hours for future years of the forecast) and also includes the costs required to purchase an additional 75 buses as ordered by the Special Master and federal court.

Although the current financial modeling assumptions include the added Consent Decree service costs, those costs are subject to change based on actual conditions experienced during service implementation. The current estimate is for planning purposes only and does not commit Metro to any specific expenditure level or continuation of the service if restructured service can achieve the same passenger seat deployment or similar service delivery. Since usage of high-capacity buses will become a major component of the Metro bus fleet, it is assumed that total countywide bus and rail seats will increase although the number of buses will be reduced.

An average of 200 new replacement Metro buses are proposed for purchase annually and, when averaged with the Municipal Operators' fleet, establishes a Metro and countywide bus fleet average age of approximately six to seven years that will gradually increase as the thirteen-year replacement cycle is implemented by Metro. The Metro Bus Fleet Management Plan dated August 6, 2004 allows a bus to be operated for a thirteen-year period before a replacement is anticipated. The funding assumes this replacement cycle. While funding has been set aside for 200 40-foot buses annually or their equivalent in large capacity buses, Metro is now contemplating the purchase of 500 articulated buses (60 feet long) over the next five years. Funding has been proposed to accomplish this through a cash flow plan based on existing contracts and options.

Metro Bus Operations – assumptions through 2030 are outlined below:

- > Operations and maintenance cost projections are based on the Metro FY08 budget and the Metro OMB Ten-Year Forecast and are assumed to grow with the rate of inflation after 2016. There is additional service planned to accommodate population growth, congestion relief, and feeder buses as new light rail lines open, in accordance with the 2001 Long Range Transportation Plan. The most recent decision regarding the Consent Decree, which added 332,080 annualized revenue hours in FY05, has been included each year through 2030. The number of buses assumed in this forecast is lower than the 2001 Plan due to the purchase of 500 articulated buses and the increase in

- seats countywide from that of the Metro FY06 budget.
- > Funds for TDA Article 4, Proposition A, and STA will continue to be allocated through the FAP in future years.
- > Section 5307 funding of preventive maintenance is continued through FY30.
- > The Metro Rapid bus program provides fast, frequent regional bus service throughout Los Angeles County. Key features of Metro Rapid include simple route layouts, frequent service, fewer stops, low-floor buses to facilitate boarding and alighting, color-coded buses and stations, headway-based operations, and traffic signal priority. The continuation and expansion of the Metro Rapid bus program is assumed as described below. No new capital funding is assumed beyond the initial \$92 million assumed in the adopted Short Range Transportation Plan. Service expansion is achieved as a cost-neutral endeavor by transferring service to the Metro Rapid program from other routes.

The program's success has garnered national acclaim from both the federal government and major transit providers. Passenger travel times have been reduced by an average of 25%, and nearly 300 buses are in service today, representing over 400 corridor miles in the City of Los Angeles, Los Angeles County, and 34 other cities. Demand for Metro Rapid service has increased significantly, with ridership up by as much as 40% in some corridors. Patrons who previously used the automobile have generated one-third of this ridership increase.

- > The Consent Decree has been implemented with some services being contracted out. The Consent Decree expired in October 2006, although the court retains jurisdiction over the New Service Plan section until November 2010. Continuation of the Special Master's passenger overcrowding methodology ruling in January 2003 is assumed.
- > Articulated buses are assumed to total 500 by FY10. Funding for these higher-cost articulated buses is provided in later years by allowing for an increased cost per replacement bus as 500 buses are converted to the higher-capacity articulated buses. Articulated buses have already entered the Metro fleet (Orange Line and some Metro Rapid bus corridors) and, as transit corridor capital budgets allow, up to 500 additional articulated buses will be added. No increase in operating costs is assumed when articulated buses become operational since potentially fewer buses are needed which offsets the higher cost of maintenance and facilities to accommodate the articulated buses. Funding of \$85 million is assumed for a new Union Bus Division by FY10 to accommodate some of the new active fleet of articulated buses.

Municipal Operators – Operations and maintenance costs were based on the capital facilities report prepared in conjunction with the Municipal Operators and their FY06 operating budgets. These cost estimates are used as the basis for future years' cost projections and escalated using CPI. The Forecasting Model assumes TDA Article 4, Proposition A, and STA funds will continue to be allocated

via the FAP. Proposition C 40% for expansion buses has likewise been assumed for the entire planning period through 2030. Municipal transit operators receiving formula funding include:

- > Antelope Valley Transit Authority
- > Arcadia
- > Claremont
- > Commerce Municipal Bus Lines
- > Culver City Municipal Bus Lines
- > Foothill Transit
- > Gardena Municipal Bus Lines
- > La Mirada Transit
- > Long Beach Transit
- > Los Angeles Department of Transportation (LADOT)
- > Montebello Municipal Bus Lines
- > Norwalk Transit
- > Redondo Beach
- > Santa Clarita Transit
- > Santa Monica Municipal Bus Lines
- > Torrance Transit

Expansion Services – Subsequent to the Consent Decree (FY07), the Financial Forecasting Model provides for ongoing operations for Metro services and the planned transit corridor projects. Operating funding of \$2.4 billion is planned for expansion routes and new corridor service. Transportation System Management (TSM) and other techniques are assumed to ensure rapid movement of buses along highways.

The Municipal Operators are planning for 195 fixed-route expansion buses and 31 smaller expansion buses through 2030. Facilities and buses have been planned to accommodate this growth. This expansion is related to projected population growth and is assumed to be funded from existing capital sources. Operating funds to implement the expansion will require extensive coordination between Metro and Municipal Operators to overcome projected countywide transit operating deficiencies and duplicative service.

Access Services, Incorporated (ASI) – The Forecasting Model assumes the continued usage of Regional Surface Transportation Program (RSTP) funds programmed for ASI as the countywide paratransit provider. Allocating RSTP instead of Proposition C 40% Discretionary funds for ASI allows Metro to make Proposition C 40% funds available for capital bonding. The funding level assumed in this financial forecast is that reflected in the adopted Short Range Transportation Plan and the February 2004 action of the Metro Board to program exact funding to ASI through 2009. ASI has subsequently completed a comprehensive study by an independent consultant that indicates the need for increased funding beyond that of the adopted Short Range Transportation Plan. Such increases in funding will be evaluated on an annual budgetary basis and are not assumed in this forecast. Proposed increases

are in the six to seven percent range annually, according to ASI projections for the plan period.

RAIL PROGRAM ASSUMPTIONS

Rail Capital

Rail Projects Capital Cost Estimates – Costs for rail projects approved by the Metro Board are based on the Metro capital budget which extends through FY09 and identifies major capital expenditures. A Metro Fleet Rail Management Plan dated February 25, 2004 is used to target and fund needed new rail cars and other major rail capital needs. Costs for rail projects with no existing approved budget are calculated based on Metro’s cost estimation guidelines from the Metro Construction Division and specialized consultants. The cost estimation process considers factors such as projected construction cost in current dollars (escalation is added by Metro financial modeling staff), construction start date, construction duration and cash demand curve during construction based on experience with past and current projects.

Six Transit Projects on five corridors will be fully constructed through FY26 and operating through 2030. The Metro Rapid bus projects were described previously in the Bus Capital section. Details for each rail project follow.

- > Eastside Light Rail Line is currently under construction extending from Union Station to the intersection with Pomona and Atlantic Bls and is planned to open in FY10;
- > Exposition Light Rail Line Phase I between Downtown Los Angeles and Culver City extending generally along Exposition Bl is in early construction stages and is scheduled for completion in FY10;
- > Exposition Light Rail Phase II extending from Culver City to Downtown Santa Monica is scheduled for completion by FY16;
- > Wilshire Boulevard Bus Rapid Transit Line is scheduled to open by FY26 and be done in conjunction with the City of Los Angeles;
- > North/South San Fernando Valley Bus Rapid Transit Lines representing a multi-phased program of bus lines on several routes within the San Fernando Valley will be phased in between FY16 and FY26; and
- > Crenshaw Transit Corridor Light Rail Line extending from Exposition Light Rail Station to Los Angeles International Airport/Green Line Light Rail Line is assumed to be completed by FY25.

Metro Gold Line Eastside Extension (scheduled to open FY10) – The Eastside project is a 6-mile light rail transit project running from Union Station to the intersection of Pomona and Atlantic Bls in East Los Angeles. A Full Funding Grant Agreement with the FTA was signed on June 1, 2004 which allocates \$490.7 million in Section 5309 New Starts funds. From Union Station, the proposed alignment extends across US-101 along an aerial structure

approximately 1,000 feet long, continues on Alameda St to the intersection with First St, then proceeds easterly to First and Lorena Sts, and then transitions south along Indiana St to Third St and proceeding east via Third St/Pomona Bl to the Pomona/Atlantic Bls terminus. The system will operate primarily at-grade, but will include a tunnel segment along First St between First/Gless and First/Lorena Sts for about 1.8 miles.

The Eastside project will include 8 stations plus the main station at Union Station, which is also the station for the Pasadena Gold Line. The stations are: Union Station, First and Alameda Sts, First and Utah Sts, First St and Boyle Av, First and Soto Sts, Third and Indiana Sts, Third St and Ford Bl, Third and Mednik Sts, and Pomona and Atlantic Bls. In addition, the Eastside project will provide approximately 200 parking spaces (adjacent to the Pomona/Atlantic Bls Intersection) and will acquire 10 light rail vehicles. The estimated escalated capital cost is \$898.8 million:

Source	Amount	% Breakdown
Local Funds	\$149.5 million	16.6 %
State Funds	\$225.2 million	25.1 %
Federal Funds	\$524.1 million	58.3 %
Total Project Cost	\$898.8 million	100 %

Exposition Light Rail Transit Project Phase I to Culver City – Blue Line Extension (scheduled to open FY10) – This light rail line, extending 8.6 miles from 7th and Flower Sts in downtown Los Angeles to Venice/Robertson Bls in Culver City, has an anticipated revenue operation date of June 2010. The first segment of the line would share 1.9 miles of trackway and three stations with the existing Long Beach Blue Line. The Expo Line would branch off the existing Long Beach Blue Line at Washington Bl and Hill St, and a new guideway would continue south on Hill St and west on the Metro-owned Exposition right-of-way to Venice and Robertson Bls.

Seven new stations will be provided at Figueroa St, Vermont Av, Western Av, Crenshaw Bl, La Brea Av, La Cienega Bl, and Venice/Robertson Bls. Except for a planned aerial station at La Cienega Bl, all stations are proposed at-grade. This line would also include three existing stations in Downtown Los Angeles at 7th/Metro, Pico/Flower-Staples Center and Washington/Grand. These stations would be upgraded to include increased levels of service generated by the Exposition Line. The Exposition project will provide more than 1400 parking spaces at four parking facilities. These are located at the Crenshaw, LaBrea, LaCienega and Venice/Robertson stations.

In accordance with State law, the Exposition Metro Line Construction Authority is overseeing the actual construction. This project is utilizing a design-build construction contract that will expedite completion and

allow for cost savings. Several innovative contract oversight provisions and milestone concepts have been utilized to ensure smooth construction while ensuring cost containment.

The project includes 16 light rail vehicles, which will be serviced at an overnight storage and light maintenance facility built as part of project. Heavy maintenance will be performed at existing Metro facilities. The capital cost estimate, including the Culver City station, is \$862.3 million:

Source	Amount	% Breakdown
Local Funds	\$63.9 million	7.4 %
State Funds	\$782.8 million	90.8 %
Federal Funds	\$15.6 million	1.8 %
Total Project Cost	\$862.3 million	100 %

Exposition Light Rail Transit Project Phase II to Santa Monica (scheduled to open FY16) – This project would extend the Exposition Light Rail Transit Project from Culver City to Santa Monica for 6 to 7 miles. The project would utilize an abandoned railroad right-of-way that was purchased by Metro in 1990. The right-of-way extends the full distance from Culver City to Santa Monica, except for a one-mile segment at the western end where the right-of-way ends. The alignment would then follow existing city streets and the edge of the I-10 (Santa Monica Freeway) to reach the terminus station near the Santa Monica Pier. In accordance with State law, the Exposition Metro Line Construction Authority will also manage the construction of this project.

Since Federal Section 5309 New Starts funds are assumed for this project, a Full Funding Grant Agreement with the FTA will be necessary. This will require the submission of annual reports to the FTA as the project proceeds from the planning stages to construction as well as meeting national New Starts standards for ridership, cost effectiveness and overall financial capacity of Metro to maintain existing operations while constructing this line.

Historically, two routes have been considered for this extension:

Railroad Right-of-Way Alignment – This route is approximately 6 miles in length and follows the existing railroad right-of-way. Possible station sites have been identified at Venice/Robertson, Motor, Overland, Sepulveda, Pico/Sawtelle, Bundy, 26th/Cloverfield and 5th/Colorado.

Venice/Sepulveda Alignment – This route is approximately 7 miles in length and diverts from the existing railroad right-of-way in the eastern segment between Culver City and the I-405/San Diego Freeway where it follows existing

city streets in the median of Venice and Sepulveda Bls. The route would rejoin the railroad right-of-way near the crossing of the I-405 freeway. Possible station sites have been identified at Venice/Robertson, Venice/Overland, Venice/Sepulveda, Sepulveda/National, Pico/Sawtelle, Bundy, 26th/Cloverfield and 5th/Colorado.

For purposes of the Long Range Transportation Plan, the rough order of magnitude escalated capital cost estimate for an aerial alternative is \$1,631.7 million:

Source	Amount	% Breakdown
Local Funds	\$579.3 million	35.6 %
State Funds	\$343.8 million	21.0 %
Federal Funds	\$708.6 million	43.4 %
Total Project Cost	\$1,631.7 million	100 %

Crenshaw Transit Corridor Project (scheduled to open FY25) – The Crenshaw project has not undergone environmental analysis and there is not yet a locally preferred alternative. A Major Investment Study (MIS) was completed for the Crenshaw-Prairie Transit Corridor in January 2003 reflecting a light rail project in combination with other alternatives. A Bus Rapid Transit project in lieu of a light rail line was identified in that study and may become the actual project, depending on final planning and public participation. This Plan update reflects the light rail alternative for purposes of ensuring that Metro can construct and operate it.

The Crenshaw Transit Corridor Project is approximately 8.3 miles in length, extending south from the Exposition Light Rail Station at Crenshaw Bl some three miles to the Metro-owned Harbor Subdivision (formerly the BNSF Railroad) right-of-way and then extending westerly along the railroad right-of-way for about four miles to 98th Street before finally turning south to the Metro Green Line Aviation Station. The line will have two park-and-ride lots, one at Century and Aviation Bls and one at Imperial Hw and Aviation Bl. Depending upon the LAX Master plan, this line will potentially integrate with a major public transit line serving the airport (People Mover or similar transit). Overall, the light rail line will have 6 new stations and two modified existing stations.

Since Federal Section 5309 New Starts funds are assumed for this project, a Full Funding Grant Agreement with the FTA will be necessary. This will require the submission of annual reports to the FTA as the project proceeds from the planning stages to construction and the meeting of national New Starts standards for ridership, cost effectiveness and overall financial capacity of Metro to maintain existing operations while constructing this line.

The costs assumed if a light rail line is developed are:

Source	Amount	% Breakdown
Local Funds	\$397.0 million	37.5 %
State Funds	\$2.7 million	0.3 %
Federal Funds	\$657.0 million	62.2 %
Total Project Cost	\$1,056.7 million	100 %

Fleet Procurement – Fifty additional light rail cars are assumed in FY05-09, including 10 rail cars for the Eastside Light Rail Project programmed at \$3.8 million each. The Eastside rail cars are funded as part of the overall Eastside project construction budget. Metro may utilize an option available in the existing fifty-car purchase described above to acquire the 16 new rail cars for the Exposition Light Rail Line Phases I and II and the Crenshaw Transit Corridor Line. The costs for additional rail cars to meet opening day demand are included in the individual capital project budgets for each new rail line. In 2012 and 2013, an additional five rail cars each year have been proposed for overall fleet purchase to accommodate growth from the new rail lines. These ten rail cars are funded outside of the project budgets.

Sixteen additional Metro Red Line heavy rail cars are planned for purchase in FY16-18 and seventeen light rail cars are planned for purchase in FY27-28 to ensure full implementation of the Rail Fleet Management Plan. These cars are in addition to those light rail vehicles described above.

Project	Number of Rail Cars
Eastside LRT	10
Exposition Phase I LRT	16
Exposition Phase II and Crenshaw Corridor	34
Five cars per year in FY12-13	10
Red Line heavy rail cars in FY16-18	16
Light rail cars in FY27-28	17

LA Rail Car – The Los Angeles light rail car procurement consisted of a base order of 50 standard cars and two prototype vehicles for a total of 52 light rail vehicles. The 52-car procurement of \$201.4 million, including prior years, was funded with Proposition 116, State STP, Regional STP, and Proposition C funds. The standard cars are being used on the Metro Blue and Gold Lines. Of the total cost, \$3.1 million is included in the period FY05-30.

Metrolink Commuter Rail – The Southern California Regional Rail Authority (SCRRA) is a Joint Powers Agency that plans, constructs, and operates Southern California’s commuter rail system. Metro funds a portion of the capital and operating costs for commuter rail lines and projects located within Los Angeles County, including:

- > Los Angeles/San Bernardino & Los Angeles/Riverside
- > Los Angeles/Oxnard
- > Los Angeles/Santa Clarita/Palmdale /Lancaster
- > Los Angeles/Oceanside & Fullerton/LA UPT
- > Los Angeles/Riverside (Union Pacific)
- > Shared Facility

The current Metrolink system includes 388 unduplicated route miles, 186 of which are in Los Angeles County, and 55 stations, 26 of which are in Los Angeles County. The Financial Forecasting Model assumes continued funding for the current commuter rail system. SCRRA staff has provided operating cost projections. Los Angeles County’s share of commuter rail costs is funded with Proposition C 10% revenues, which is consistent with Metro’s funding policies in the proposed FY08 budget. The Metro allocations for Metrolink are:

- > \$33.1 million, which is escalated by 4% in subsequent years, for FY08 operating subsidy;
- > \$15 million for FY08 capital maintenance, which is escalated by 4% in subsequent years;
- > Funding for new capital projects is no longer determined through the Call for Projects process; and
- > \$372 million through 2030 for capital.

Other – Systemwide Rail Capital/Other Projects/Station Enhancements – In addition to the costs associated with the construction of individual rail lines, there are costs related to developing the overall rail system. These include the procurement of computer software and hardware, safety and security measures, legal support, insurance, radio upgrades, feasibility studies, facilities, Americans with Disabilities Act (ADA) requirements, and transit station access.

Rail Rehabilitation and Replacement – Projected rehabilitation and replacement costs are based on a methodology developed by Robert Peskin of KMPG Peat Marwick (commonly called the Peskin Model). This methodology was based on actual rehabilitation and replacement costs experienced by the Washington Metropolitan Area Transit Authority (WMATA) and are compared to original installation capital costs.

The Metro rail rehabilitation and replacement costs were calculated in the same manner, based on the original installation capital costs of the Metro Blue, Red, Gold and Green Lines (details follow on these projects), plus the four planned light rail lines (Eastside, Exposition Phases I and II and Crenshaw Transit Corridor Project) as they are completed. The rehabilitation and replacement costs are estimated to begin six years after a rail line begins revenue operations. Some limited capital costs are assumed in the Forecasting Model for the first few years, as reflected in the five-year Metro CP and from Metro Rail Operations for specific items.

The costs for rehabilitation and replacement of rail capital are mostly funded with Propositions A/C bond proceeds. Based on the Metro Office of Management and Budget near-term forecast and the Peskin Model in the later years, the rail rehabilitation and replacement costs through 2030 are:

Metro Facilities	Amount
Heavy Rehabilitation and Replacement	\$3,953.0 million
Wayside Systems	\$182.6 million
Facilities Maintenance	\$487.0 million
Vehicle Maintenance	\$148.9 million
Total Cost	\$4,771.5 million

Previous Rail Projects – shown for information

Metro Red Line Subway Segment 1 (opened in January 1993)

– This heavy rail line extends 4.4 miles with five stations through downtown Los Angeles, from Union Station/ Gateway Transit Plaza to the Westlake/MacArthur Park station. Costs included:

Source	Amount	% Breakdown
Local Funds	\$516 million	36 %
State Funds	\$228 million	16 %
Federal Funds	\$696 million	48 %
Total Project Cost	\$1,440 million	100 %

Metro Red Line Subway Segment 2 (opened in two phases in July 1996 and June 1999) – Totalling 6.7 miles, this heavy rail segment consists of two rail corridors:

- > *Wilshire Corridor* – Opened in July 1996, this corridor extends from the Westlake/MacArthur Park station northwest to Wilshire Boulevard and Vermont Avenue intersection, and west along Wilshire Boulevard, terminating at the Wilshire and Western station, and Wilshire Boulevard. This corridor is now known as the Purple Line.
- > *Vermont/Hollywood Corridor* – Opened in June 1999, this corridor extends north from Wilshire/Vermont intersection along Vermont Avenue, turning west along Hollywood Boulevard to the Hollywood/Vine station.

The costs for Metro Red Line Segment 2 were:

Source	Amount	% Breakdown
Local Funds	\$935.8 million	53 %
State Funds	\$133.0 million	7 %
Federal Funds	\$719.1 million	40 %
Total Project Cost	\$1,787.9 million	100 %

Metro Red Line Subway North Hollywood Segment 3 (opened in June 2000) – This heavy rail segment is 6.3 miles with three stations beginning just west of the

Segment 2 Hollywood/Vine station and continuing west under Hollywood Boulevard to the Hollywood/Highland station and north under the Santa Monica mountains to the Universal City station, finally terminating in North Hollywood. The costs for Segment 3 were:

Source	Amount	% Breakdown
Local Funds	\$276.7 million	20 %
State Funds	\$333.4 million	24 %
Federal Funds	\$761.6 million	56 %
Total Project Cost	\$1,371.7 million	100 %

Metro Green Line (opened in August 1995) – This light rail line extends 20 miles with 14 stations along the center of the 105 Freeway (Studebaker Rd) and the 605 Freeway (in Norwalk) to Freeman Bld and Marine Av in Redondo Beach. The total costs were:

Source	Amount	% Breakdown
Local Funds	\$612.1 million	85.3 %
State Funds	\$105.9 million	14.7 %
Federal Funds	\$0 million	0 %
Total Project Cost	\$718.0 million	100 %

Metro Blue Line (Opened in July 1990) – This light rail line extends 22 miles, with 22 stations, from the Downtown Los Angeles station (Metro/7th Street station) to Long Beach. The Blue Line was expanded to three-car train lengths in 2002, funded through Metro’s annual budgetary process. The original construction costs were:

Source	Amount	% Breakdown
Local Funds	\$877 million	100 %
State Funds	\$0 million	0 %
Federal Funds	\$0 million	0 %
Total Project Cost	\$877 million	100 %

Metro Gold Line - Pasadena (opened July 2003) – This light rail line extends 13.5 miles from Sierra Madre Villa in the City of Pasadena to Union Station in downtown Los Angeles and has 14 stations. The “Pasadena Metro Blue (renamed “Gold Line”) Line Construction Authority” (PMBLCA) constructed the project and Metro operates it. The capital project budget was:

Source	Amount	% Breakdown
Local Funds	\$430.5 million	50.1 %
State Funds	\$428.5 million	49.9 %
Federal Funds	\$0 million	0 %
Total Project Cost	\$859.0 million	100 %

Metro programmed CMAQ funds for the first three years of operations. In October 1999, Metro presented a “Full

Funding Operational Plan” for FY04-10 for the Pasadena Gold Line to the CTC, which accepted the plan. Full implementation of that operating plan is assumed continuing to 2030.

Rail Operations

Rail operations costs are based on an operating and maintenance (O&M) cost model that was also used in the adopted 2001 Long Range Transportation Plan and recent Metro annual budget process. The model is consistent with the methodology specified by the FTA for Alternatives Analysis studies. Staffing requirements, labor costs, and non-labor expenses are calculated based on the projected quantity of service supplied (e.g., peak vehicles, revenue vehicle-miles) and the physical size of the system (e.g., route-miles, number of stations). A build-up calculation for future rail lines based on the FY06 Metro budget was completed. A precise analysis for each new rail line will be conducted as part of the environmental document preparation as the project nears construction. Operating costs are included for all four planned rail lines based on the revenue service hours and rail cars needed, and escalated by CPI in future years.

HIGHWAY PROGRAM ASSUMPTIONS

The highway component of the Forecasting Model focuses on mobility and air quality. Spending from the local funding sources (Proposition C 10% and 25%) is forecasted on a cash flow basis. State and federal funding sources are forecasted on a programming basis.

Environmental Enhancement & Mitigation (EEM) – The Financial Forecasting Model assumes that Los Angeles County will receive \$1.0 million annually from FY08-30 for EEM projects. The State did not budget for this program in FY06 and FY07. The CTC awards funds for projects and Caltrans administers the program.

Freeway Carpool Lanes [High Occupancy Vehicle Lanes (HOV)] – The Financial Forecasting Model provides for the implementation of Option 2 of the HOV Systems Integration Plan for Los Angeles County. The unescalated costs were provided by Caltrans District 7. Carpool lanes are assumed funded in the model for over \$4.5 billion (escalated) through 2030.

Freeway Gap Closures, Interchanges, & Arterial Widening – The unescalated costs for these projects were provided by Caltrans District 7. These projects are assumed funded for over \$1.3 billion (escalated).

Freeway Service Patrol – Continued funding for the Freeway Service Patrol (FSP) Program is assumed. This program is funded primarily through Proposition C 25%, Freeway Service Patrol State Highway Account Funds, and HOV violation funds. The Proposition C 25% funding is assumed to grow annually by CPI.

Freeway Traffic Systems Management (TSM) & Traffic Operations System (TOS) – The Forecasting Model assumes Caltrans will continue providing the operating costs for the freeway TSM measures. Project completion is funded by Proposition C 25% funds.

Intelligent Transportation System (ITS) – This program aims to efficiently utilize advanced technologies in Southern California’s transportation systems. For the regional integration of the Intelligent Transportation Systems, the Financial Forecasting Model assumes \$1.3 million of Proposition C 25% funds beginning FY09, with subsequent years escalated by CPI. Federal ITS funds are not assumed.

Local Streets and Roads – Estimated State Gas Tax subventions and Proposition 42 funds of \$10.6 billion are assumed received by the County and the cities in Los Angeles County.

Operations, Caltrans – Estimated State Highway Account funds of \$5.4 billion are assumed for Caltrans District 7 operations.

Retrofit Soundwalls – The Retrofit Soundwalls program encompasses freeways previously constructed without necessary soundwalls. This program and its nearly \$2 billion backlog of projects has been a Metro responsibility since Senate Bill 45 took effect in 1998. Funding has been included for Soundwall projects programmed in previous STIPs or Calls for Projects. In April 2000, the Board adopted the \$88 million Phase I HOV Retrofit Soundwall project priority list and adopted the Post 1989 HOV Retrofit Soundwall Program Funding Plan. The program is divided into three phases with three priorities within each phase. Proposition C 25% funding of \$20 to \$30 million per year is assumed. A total of \$978.8 million from FY05-30 from all funding sources is assumed which will complete Phase I.

Rideshare/Vanpool Program – Since FY03, Metro has directly operated countywide rideshare services currently with over 100,000 registrants. In May 2007, the Vanpool Program was added, providing lease and fare incentives to new and existing vanpools. Total funding of \$349.9 million (mostly Proposition C 25%) is assumed through FY30.

Service Authority for Freeway Emergencies (SAFE) – A separate legal entity that is housed within Metro, SAFE operates 4,300 call boxes along the freeways. It is funded by a \$1 surcharge on each registered vehicle in the County. Cost estimates and assumptions are based on the SAFE ten-year Financial Plan and include capital requirements and operations and maintenance expenses. An increase in the number of registered vehicles in the county would be the only mechanism, other than legislation, to increase revenues.

State Highway Operation and Protection Program (SHOPP) – Freeway Rehabilitation – Every four years, Caltrans prepares a SHOPP plan that identifies needed projects for maintenance and safety repairs. Caltrans administers this program and allocates funding throughout California on an as-needed basis. An estimated amount allocated to Los Angeles County is assumed for reference and comparison to other areas of California.

Traffic Congestion Relief Program (TCRP) – Metro received Letters of No prejudice for certain projects which allowed Metro to advance its own local funds to maintain project schedules and be reimbursed later by the State. By FY17, all approved Letters of No Prejudice are assumed to be reimbursed and all remaining unallocated projects are assumed to be allocated.

MULTIMODAL PROGRAM ASSUMPTIONS

Call For Projects Categories

The Call for Projects is Metro's process for allocating discretionary regional capital funds to local jurisdictions, transit operators, Metro, and other public agencies for regionally significant multimodal transportation projects. After completion of a competitive merit-based evaluation, projects are selected and approved by the Metro Board of Directors. The program is divided into seven modes. Individual freeway projects are funded directly in the Plan. Funding is also included for Call projects previously approved.

For the 2007 and future Calls, \$4.215 billion regional funding for the six non-freeway modes is assumed mostly beginning in FY11. The ultimate share for each of these seven modes will be determined through the Long Range Transportation Plan process. Funding sources assumed are Proposition C 25%, Proposition C 10%, RIP, TE, CMAQ, and RSTP funds. In addition, local agencies must provide matching funds.

Regional Bikeways and Pedestrian Improvements – Funding sources consist of TDA Article 3 funds, RSTP, TE funds, federal SAFETEA-LU earmarks, and local agency matching funds.

Regional Surface Transportation Improvements (RSTI) – generally arterial street projects. Funding sources are Proposition C 25%, local agency matching funds, RIP, CMAQ, SAFETEA-LU earmarks, and TCRP Funds. The major projects in this category are the Alameda Corridor East, widening of State Route 138, the Mission Bl Interchange at State Route 71, the south Arbor Vitae Interchange at I-405, Western Avenue access at I-5, and Playa Vista access. The Alameda Corridor East is a two-phase \$1.614 billion program in the San Gabriel Valley to install railroad grade separations to mitigate traffic congestion once the Alameda Transportation Corridor was complete. Metro has agreed to contribute

funding for up to 17% (\$274.3 million) of the costs as other funding is secured.

Signal Synchronization and Bus Speed Improvements-Local Transportation Systems Management (TSM) – Funding sources consist of Proposition C 25%, local agency matching funds, CMAQ, and RSTP funds.

Transit Capital (Park and Ride Facilities/Transit Centers) – Funding sources are primarily Proposition C 10%, local matching funds, TE, CMAQ, SAFETEA-LU earmarks, and TCRP.

Transportation Demand Management (TDM) – Funding sources consist of Proposition C 10%, Proposition C 25%, CMAQ, RSTP, TE, RIP, and local agency matching funds.

Transportation Enhancement Activities (TE) – Ten percent of each state's federal STP apportionment must be used for projects eligible for Federal TE funds such as pedestrian and bicycle facilities, acquisition of scenic easements and sites, landscaping and other scenic beautification, historical preservation and rehabilitation, and transportation museums. There are separate targets in the STIP for TE-eligible projects and Los Angeles County's share of the regional 75% portion is assumed. Specific projects are determined through the Call for Projects process.



Travel Demand Model and Assumptions

- > Whether you're going to work or to the grocery store, everyone wants faster travel, more transportation options, and less traffic.
- > However, freeway traffic speeds could drop an average of 14 miles per hour by 2030, largely because of population and employment growth.
- > This Draft 2008 Plan will invest more than \$152 billion over the next 25 years to develop a balanced transportation system that will provide new options for travel.
- > This Draft 2008 Plan calls for investments to expand the Metro Rail system by another 32 miles and build 160 more miles of carpool lanes.
- > This Draft 2008 Plan also advocates for and implements incentives and disincentives to encourage alternatives to driving alone.

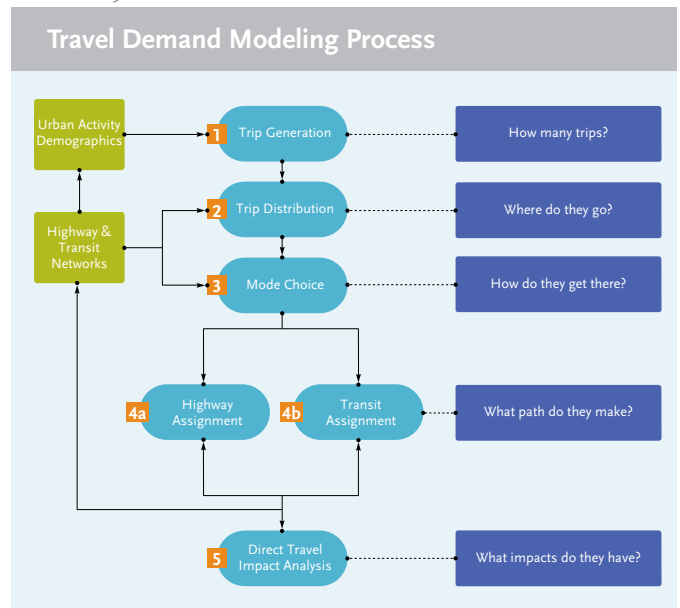
Metro Model Overview

The development of the Draft 2008 Plan was preceded by a rigorous assessment of the analytical tools, assumptions and performance criteria that would be employed in the evaluation of potential Plan alternatives. The primary analysis tool is the Metro Travel Demand Simulation Model. This report provides a technical summary of the travel demand modeling process and performance measure analyses conducted as part of the Draft 2008 Plan effort.

Model Structure

The Metro Travel Demand Simulation Model uses the traditional four-step process generally employed by travel forecasting modelers throughout the United States. The four steps are trip generation, trip distribution, mode choice, and network assignment. Figure 5.1 is a conceptual representation of the four-step modeling process. The implementation of the travel demand modeling process is achieved through a series of 17 computer simulation modules. Figure 5.2 is a flowchart that illustrates the process.

FIGURE 5.1



Each module has been calibrated from observed data, typically from a sample of household interviews from which detailed demographic and travel characteristics are collected through written questionnaires. The current Metro Travel Demand Simulation Model is the Year 2004 Model that was developed for the Draft 2008 Plan. The 2004 Model is the latest and most sophisticated evolution of the Metro Model originally developed in the early 1970s.

The trip generation component of the Metro Model is primarily based on the 1967, 1976, and 1991 home interview surveys for the Los Angeles metropolitan area that were conducted by Caltrans and the Southern California Association of Governments (SCAG). The trip distribution and mode choice modules were updated using

FIGURE 5.2

Metro Long Range Transportation Plan Base Year (2004) Model Flowchart

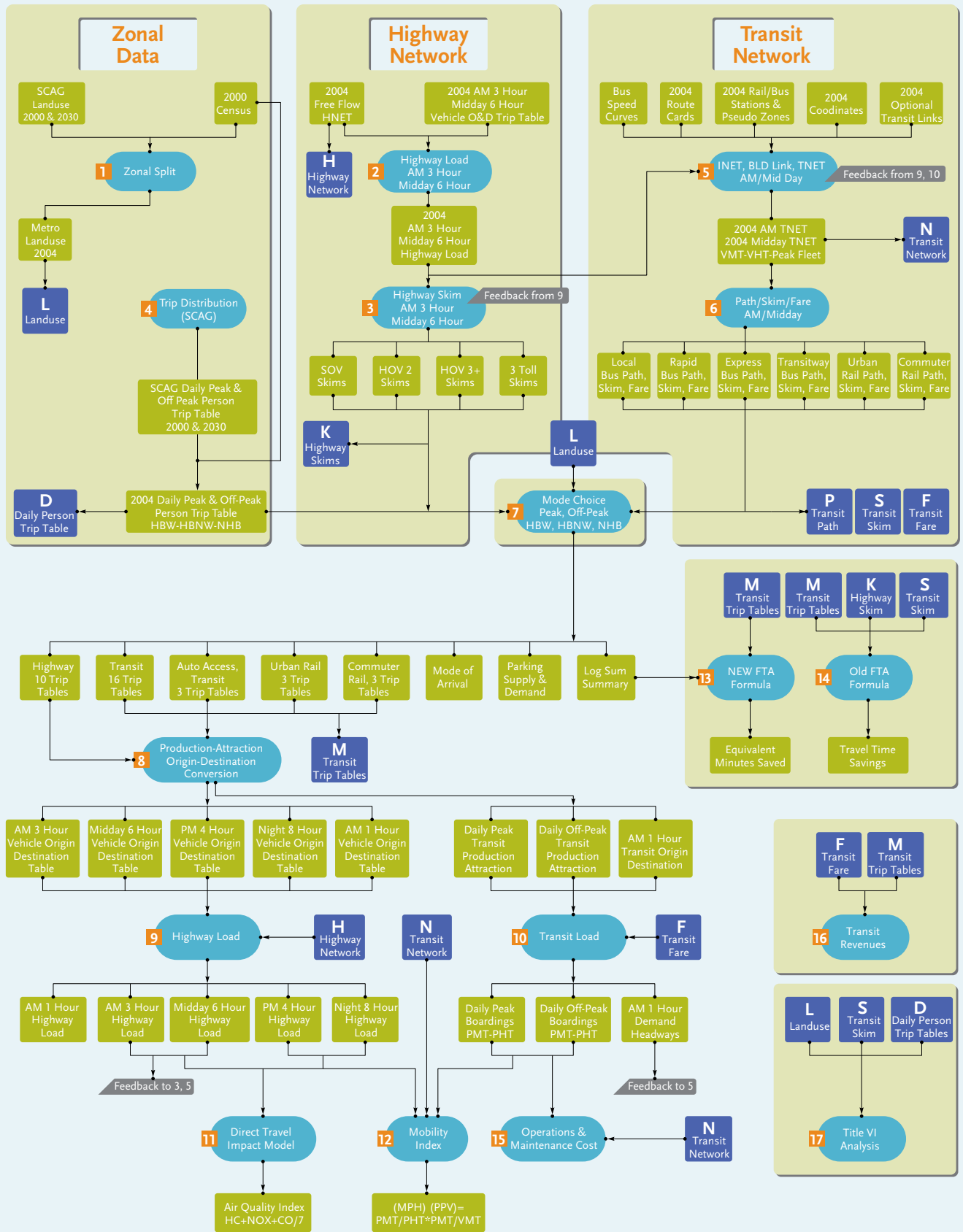
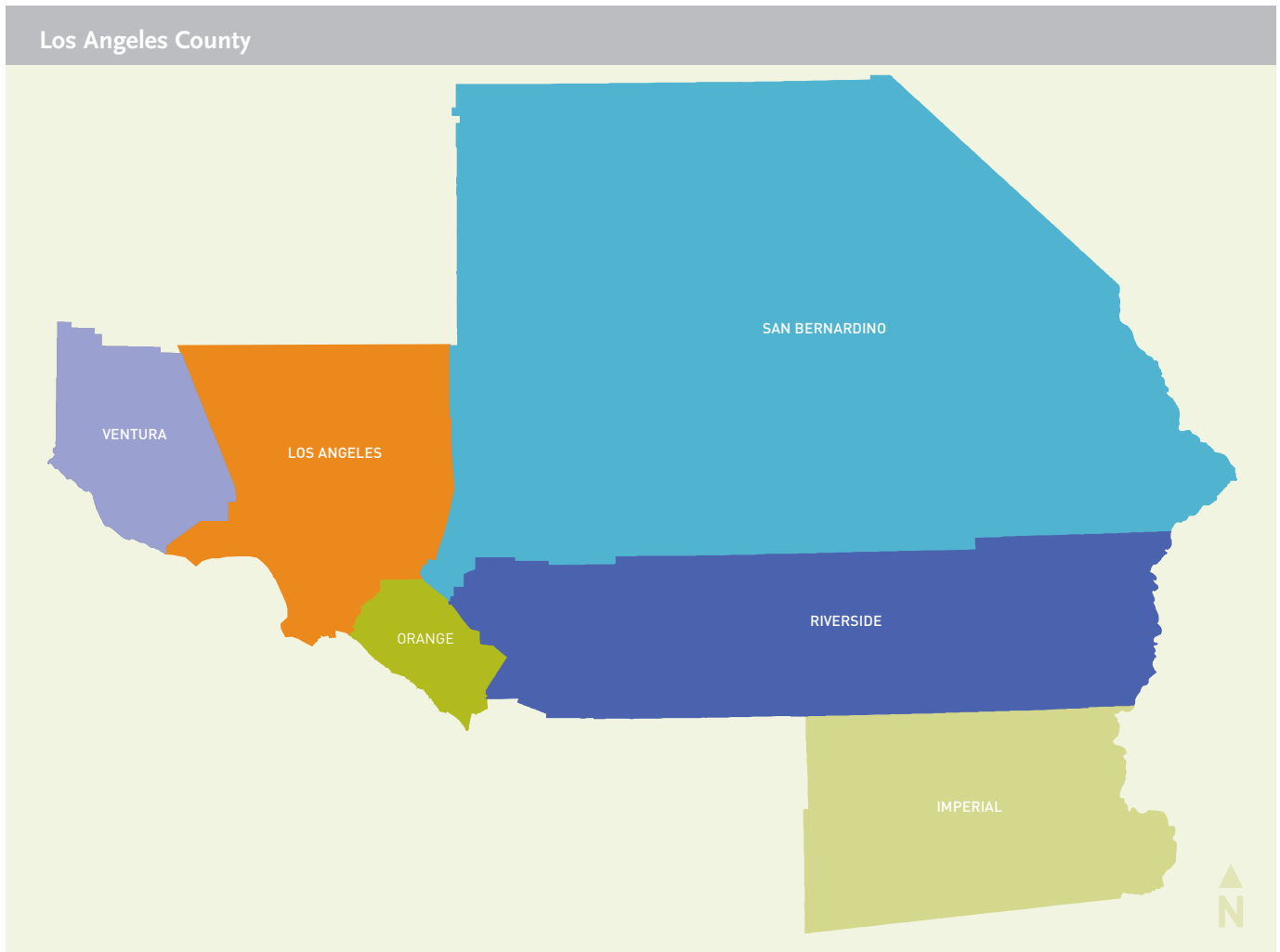


FIGURE 5.3A



the 2000 Census, the Year 2000 Post-Census Regional Travel Survey, the 2001 on-board surveys on light-rail, heavy-rail and bus patrons, and the 2002 on-board survey of commuter-rail patrons.

The 2004 Model was validated for its ability to replicate 2001 travel patterns and conditions using the survey data from which it was calibrated as well as transit ridership statistics. The model performed within standard limits for all components including average trip length, mode shares, and comparisons of transit boardings.

For the Draft 2008 Plan, the 2004 Model has been updated to reflect 2004 as the base year and 2030 as the forecast year. The process includes updating the input socioeconomic data and the modification of highway and transit networks for the years 2004 and 2030.

The Metro modeling area is identical to the SCAG modeling area which encompasses six counties, namely Los Angeles, Orange, Riverside, San Bernardino, Ventura, and Imperial counties. It is illustrated in Figure 5.3A. The area is represented by a total of 3,720 transportation analysis zones (TAZs), of which 3,010 are in the internal modeling area, 40 represent cordons, and 670 are pseudo zones. 2,261 TAZs are located in Los Angeles County and

illustrated in Figure 5.3B. They are aggregated into nine subregions and are illustrated in Figure 5.3B.

Model Assumptions

Each input to the Metro Model is a representation of the characteristics of the trip, the trip maker or the transportation system. This information is usually employed at the census tract level, but may include some distributions of characteristics within the census tract. All inputs for the 2004 validation used empirical data compiled from a variety of sources as described in Figure 5.4.

Projections for the planning horizon year 2030 were obtained from many of the same sources. The model then uses its econometric and behavioral formulations to project travel response and transportation system impacts under a variety of transportation system environments and conditions. However, there are several major assumptions that either reflect a continuation of existing trends or fall into the policy arena. If the future varies from these assumptions, the projected future year results will likely be different from those projected by the model. These assumptions are:

- > The growth and distribution in population, employment, income, and vehicle ownership will occur in accordance

FIGURE 5.3B

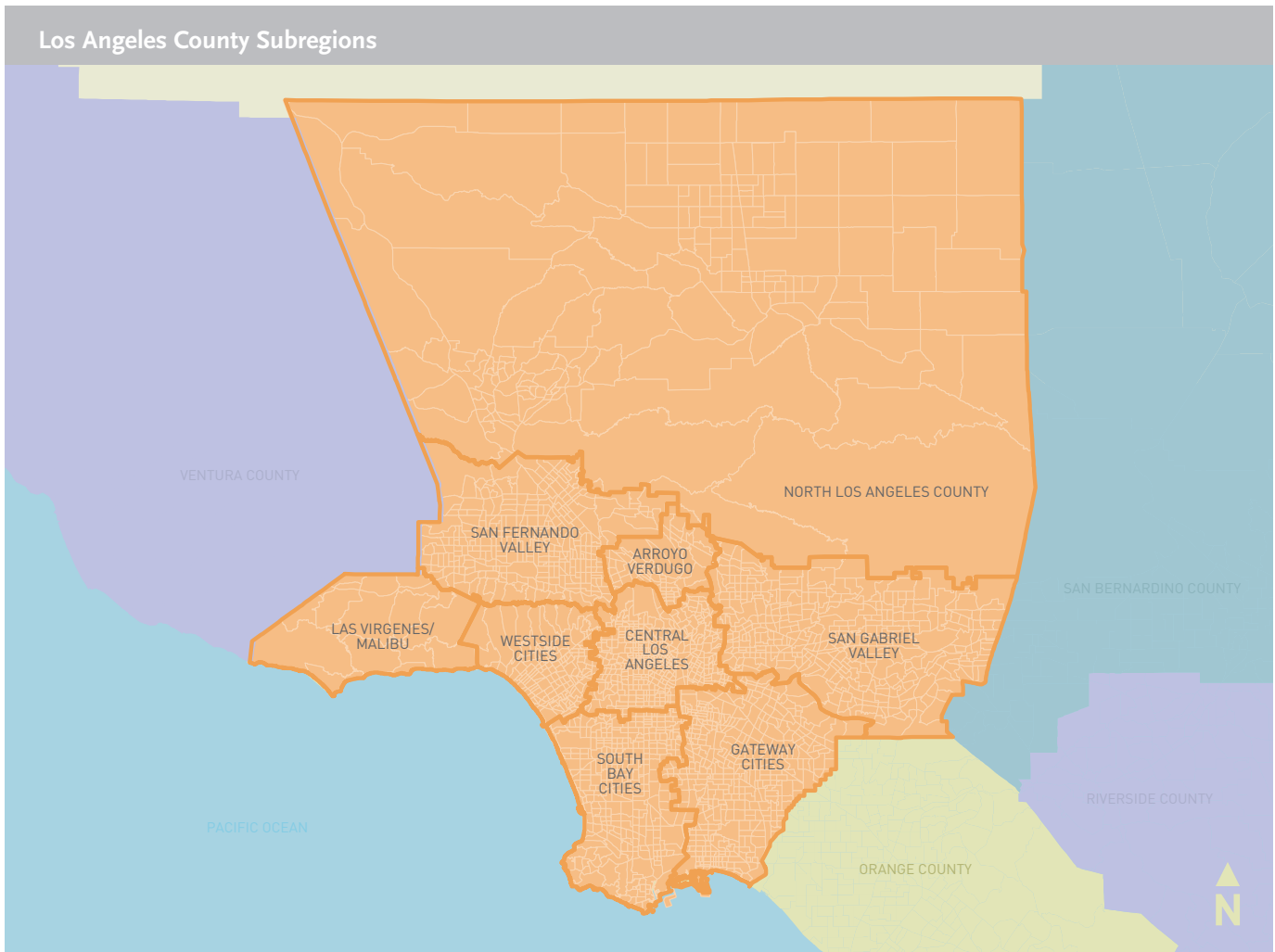


FIGURE 5.4

Model Validation Data			
Model Component	Input Data	Data Source	Output Data
Urban Activity	General Plans, Population, Employment, Licensed Drivers	Municipalities, Census Bureau, Bureau of Labor Statistics, Dept. of Economic Development	Population, Employment, household demographic data by Zone
Highway & Transit Networks	Highway facilities, Transit services	Caltrans, Municipalities, Transit Operators	Zone-to-zone travel time and cost by time period
Trip Generation	Population, employment, household demographics	Southern California Association of Governments	Trip productions and attractions by zone
Trip Distribution	Trip productions and attractions by Zone & Zone-to-zone travel time	Southern California Association of Governments	Zone-to-zone trip volumes by purpose
Mode Choice	Zone-to-zone trip volumes, Zone-to-zone travel time, Zone demographic data, Parking costs, Fuel/auto operating costs, Transit fares	Trip Distribution Model, Transportation Networks, Urban Activity Model, Parking Posted Rate, Surveys Transit Operators	Zone-to-zone trips by purpose and mode of travel
Network Assignment	Transportation Networks, Zone-to-zone trips by purpose and mode	Transportation Networks, Mode Choice Model	Volumes on highway facilities and patronage on transit services

- with the projection adopted by SCAG in 2004;
- > The per-mile vehicle operating cost will not change in constant dollars (i.e., changes in fuel prices and fuel economy offset one another but rise with inflation);
- > The November 2003 transit fare structure was fully implemented and the regular inflationary adjustments will be made;
- > Parking costs will rise with inflation and the location and application of parking costs will not change significantly from today (that is, the location of free versus pay parking and employer subsidies);
- > The need or distribution of travel will not change dramatically due to a major movement to a round-the-clock business day or a major displacement of work trips by telecommuting; and,
- > The current highway and transit levels-of-service will not change dramatically from today (except for planned system improvements and the projected congestion effects) due to potential large scale Intelligent Transportation System implementation.

1. 2001 Existing (and Calibration Year);
2. 2004 Base (and Validation Year);
3. No Build (2030) – the 2030 demand on the base condition (2004), assuming implementation of no further projects;
4. Constrained Plan (2030) – the 2030 demand on the transportation system identified in the 2001 LRTP. As the Draft 2008 Plan does not fund any transportation investments beyond those identified in the 2001 LRTP, this is also the Recommended Alternative for the Draft 2008 Plan; and
5. Strategic Plan (2030) – the 2030 demand on the Strategic Projects proposed in the Draft 2008 Plan. This includes projects listed in the Draft 2008 Plan for both Tier 1 and Tier 2 projects.

Figures 5.5 and 5.6 summarize and illustrate the highway and transit projects that comprise the Constrained Plan. Several of the highway and transit projects in the Constrained Plan have opened since the 2004 base year model and are noted as such in Figures 5.5A and 5.6A. Each run assumes all of the projects from the previous runs.

Alternatives Modeled

Five full model runs were conducted during the course of the study. These include:

FIGURE 5.5

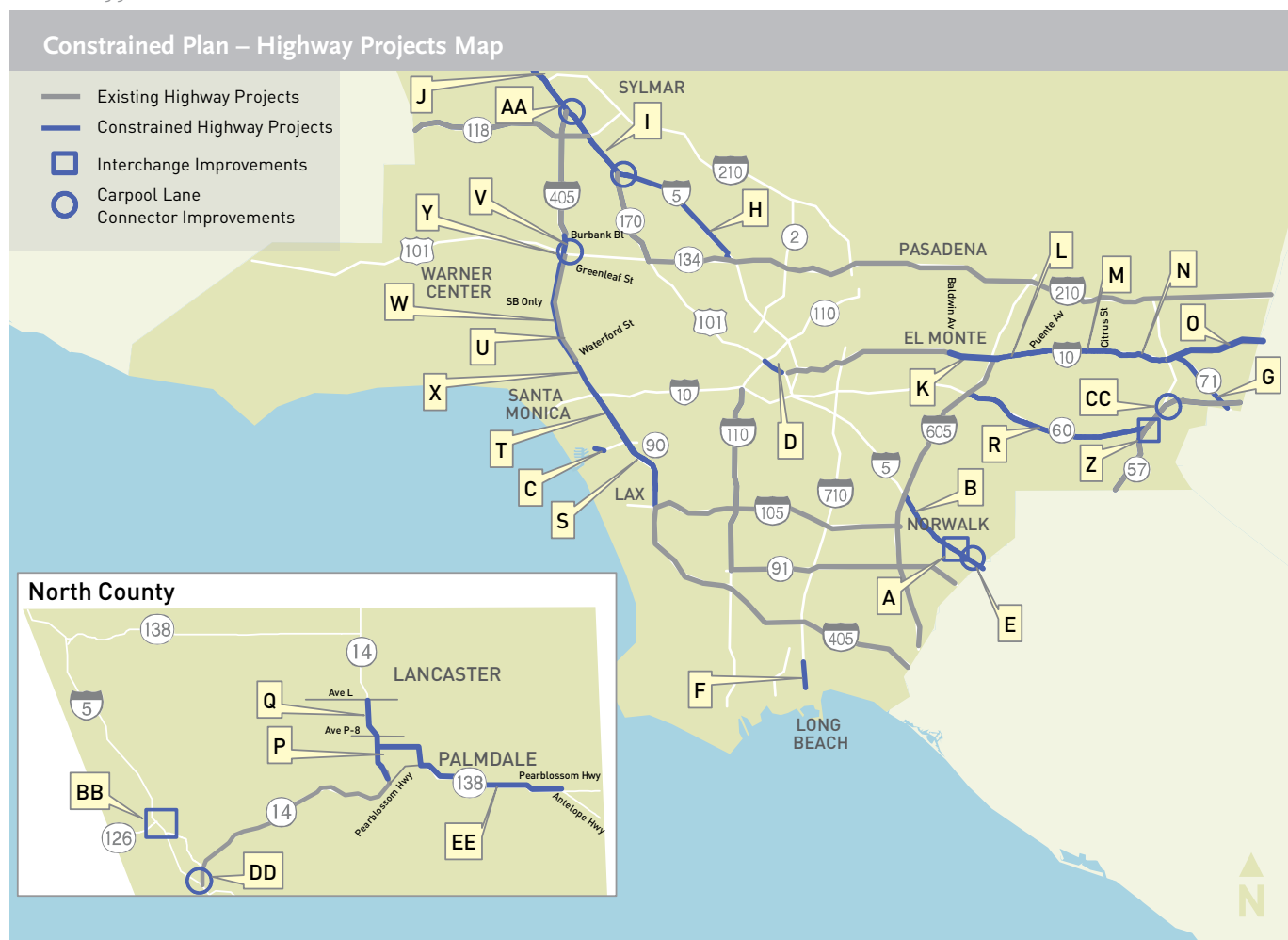


FIGURE 5.5A

Constrained Plan – Highway Projects List

Map Label	Project Type	Description/Limits
A	Freeway Widening/Upgrade	I-5 at Carmenita Road Interchange Improvement
B	Freeway Widening/HOV Lane	I-5: I-605 to OC Line (widen from 3MF to 4MF+1HOV)
C	Freeway	SR-90 Freeway Extension to Mindanao Way (4MF)
D	Freeway Upgrade	US-101 Fwy and Ramp Realignment at Center St
E	Freeway Upgrade	I-5 at Valley View Interchange Improvement
F	Freeway Upgrade	I-710: PCH to Downtown Long Beach
G	Freeway Upgrade	SR-71: I-10 to Rio Rancho Rd (widen from 2 lanes to 2MF+1HOV)
H	HOV Lane	I-5: SR-134 to SR-170 w/ Empire (widen from 4MF to 4MF+1HOV)
I	HOV Lane	I-5: SR-170 to SR-118 (widen from 5MF to 5MF+1HOV)
J	HOV Lane	I-5: SR-118 to SR-14 SR-118 to Mission Blvd (widen from 4MF to 4MF+1HOV) Mission Blvd to I-405 (widen from 3MF to 3MF+1HOV) I-405 to SR-14 (widen from 5MF to 5MF+1HOV)
K	HOV Lane	I-10: Baldwin Ave to I-605 (completed since FY04) (widen from 4MF to 4MF+1HOV)
L	HOV Lane	I-10: I-605 to Puente Ave (widen from 4MF to 4MF+1HOV)
M	HOV Lane	I-10: Puente Ave to Citrus St (widen from 4MF to 4MF+1HOV)
N	HOV Lane	I-10: Citrus St to SR-57 (widen from 4MF to 4MF+1HOV)
O	HOV Lane	I-10: SR-57 to SB Co Line (completed since FY04) (widen from 4MF to 4MF+1HOV)
P	HOV Lane	SR-14: Pearblossom Hwy to Ave P-8 (widen from 2MF to 2MF+1HOV)
Q	HOV Lane	SR-14: Ave P-8 to Ave L Ave P-8 to Ave M (widen from 3MF to 3MF+1HOV) Ave M to Ave L (widen from 2MF to 2MF+1HOV)
R	HOV Lane	SR-60: I-605 to Brea Canyon Rd (widen from 4MF to 4MF+1HOV)
S	HOV Lane	I-405: I-105 to SR-90 I-105 to La Tijera Blvd (widen from 4MF to 4MF+1HOV) La Tijera Blvd to Howard Hughes Pkwy (widen from 5MF to 5MF+1HOV NB and 4MF to 4MF+1HOV SB) Howard Hughes Pkwy to SR-90 (widen from 5MF to 5MF+1HOV)
T	HOV Lane	I-405: SR-90 to I-10 (widen from 4MF to 4MF+1HOV)
U	HOV Lane	I-405 (NB): I-10 to US-101 Phase I I-10 to Pico Blvd (widen from 5MF to 5MF+1HOV) Pico Blvd to Santa Monica Blvd (widen from 4MF to 4MF+1HOV) Santa Monica Blvd to Mulholland Dr (widen from 5MF to 5MF+1HOV) Mulholland Dr to US-101 (widen from 4 MF to 4MF+1HOV)
V	HOV Lane	I-405 (NB): Greenleaf to Burbank (widen from 4MF to 4MF+1HOV)
W	HOV Lane	I-405 (SB):US-101 to Waterford (widen from 4MF to 4MF+1HOV)
X	HOV Lane	I-405 (SB): Waterford St to I-10 Waterford St to Pico Blvd (widen from 4MF to 4MF+1HOV) Pico Blvd to I-10 (widen from 5MF to 5MF+1HOV)
Y	Mixed Flow Connector	I-405/US-101 Widening (completed since FY04)
Y	Mixed Flow Connector	I-405/US-101 Connector Gap Closure
Z	Mixed Flow Connector	SR-57/SR-60 (Mixed Flow Interchange Improvement)
AA	Mixed Flow Connector	I-5/I-405 (Partial connector south to north)
BB	Mixed Flow Connector	I-5/SR-126 Interchange (Magic Mtn Pkwy) Phase III
CC	HOV Connectors	SR-57 and SR-60
DD	HOV Connectors	I-5/SR-14 (N to/from S)
EE	Street Widening	SR-138: widen from 2 to 4 lanes from 60th St to Ave T
	Street Widening	SR-138: widen from 2 to 4 lanes from 77th St to 89th St
	Street Widening	SR-138: widen from 2 to 4 lanes from 96th St to 106th St
	Street Widening	SR-138: widen from 2 to 4 lanes from 126th St to Longview
	Street Widening	SR-138: widen from 2 to 4 lanes from Longview to 146th St
	Street Widening	SR-138: widen from 2 to 4 lanes from 146th St to 165th St
	Street Widening	SR-138: widen from 2 to 4 lanes from 175th St to Largo Vista
The following projects are not depicted on Figure 5.5		
	Soundwalls	Phase I
	Street Upgrade	Sepulveda Blvd: provide 6 full-time lanes from Lincoln to Manchester

Constrained Plan – Highway Projects List		
Map Label	Project Type	Description/Limits
	Street Widening	Centinela Av: widen from 6 to 8 lanes from Washington to Short
	Street Widening	Aviation Bl: widen from 4 to 6 lanes from Marine to 33rd St
	Street Widening	Arbor Vitae St: widen from 4 to 8 lanes from La Brea to I-405
	Street Widening	Ave G: widen from 4 to 8 lanes from Rte 14 to 25th St W
	Street Widening	Overland Av: widen from 2 to 4 lanes from Palms to Washington
	Street Widening	Fremont Av: widen from 6 to 8 lanes from Valley to Commonwealth
	Street Widening	SR-1/Lincoln Bl: widen 1L NB (for 4NB/3SB) from La Tijera to LMU
	Street Widening	SR-1/Lincoln Bl: widen from 6 to 8 lanes from LMU to Fijj
	Street Upgrade	Nash/Douglas: convert to 2-way operation from El Segundo to Imperial
	Street Widening	Ave S: widen from 2 to 4 lanes from SR-14 to Ave 25
	Street Widening	National Bl: widen 1L EB/WB (for 3EB/4WB) from Sawtelle to Sepulveda
	Street Upgrade	Sepulveda Bl: add reversible center lane from Mulholland to Wilshire
	Street Widening	Alameda St/Spring St: widen from 4 to 6 lanes from Arcadia to LA River
	Street Widening	Arbor Vitae St: widen from 4 to 6 lanes from La Cienega to Airport
	Street Widening	Commercial St: widen from 2 to 4 lanes from Alameda to Center
	Street Widening	Beverly Bl: widen from 4 to 6 lanes from Montebello to Rio Hondo River
	New Street	Cross-Valley Connector: 8 lanes from Newhall Ranch to Copper Hill
	Street Widening	Magnolia Bl: widen from 2 to 4 lanes from Cahuenga to Vineland
	Street Widening	Anaheim St: widen from 4 to 6 lanes from Farragut to Dominguez Channel
	Street Widening	Santa Monica Bl N: widen 1L WB (for 2EB/3WB) from Doheny to Wilshire
	Street Widening	Moorpark Av: widen from 2 to 4 lanes form Woodman to Murietta
	Street Widening	Burbank Bl: widen from 2 to 4 lanes from Lankershim to Cleon
	Street Widening	Cherry Av: widen from 2 to 4 lanes from 19th St to PCH
	Street Widening	San Fernando Mission Bl: widen from 2 to 4 lanes from Sepulveda to I-5

FIGURE 5.6

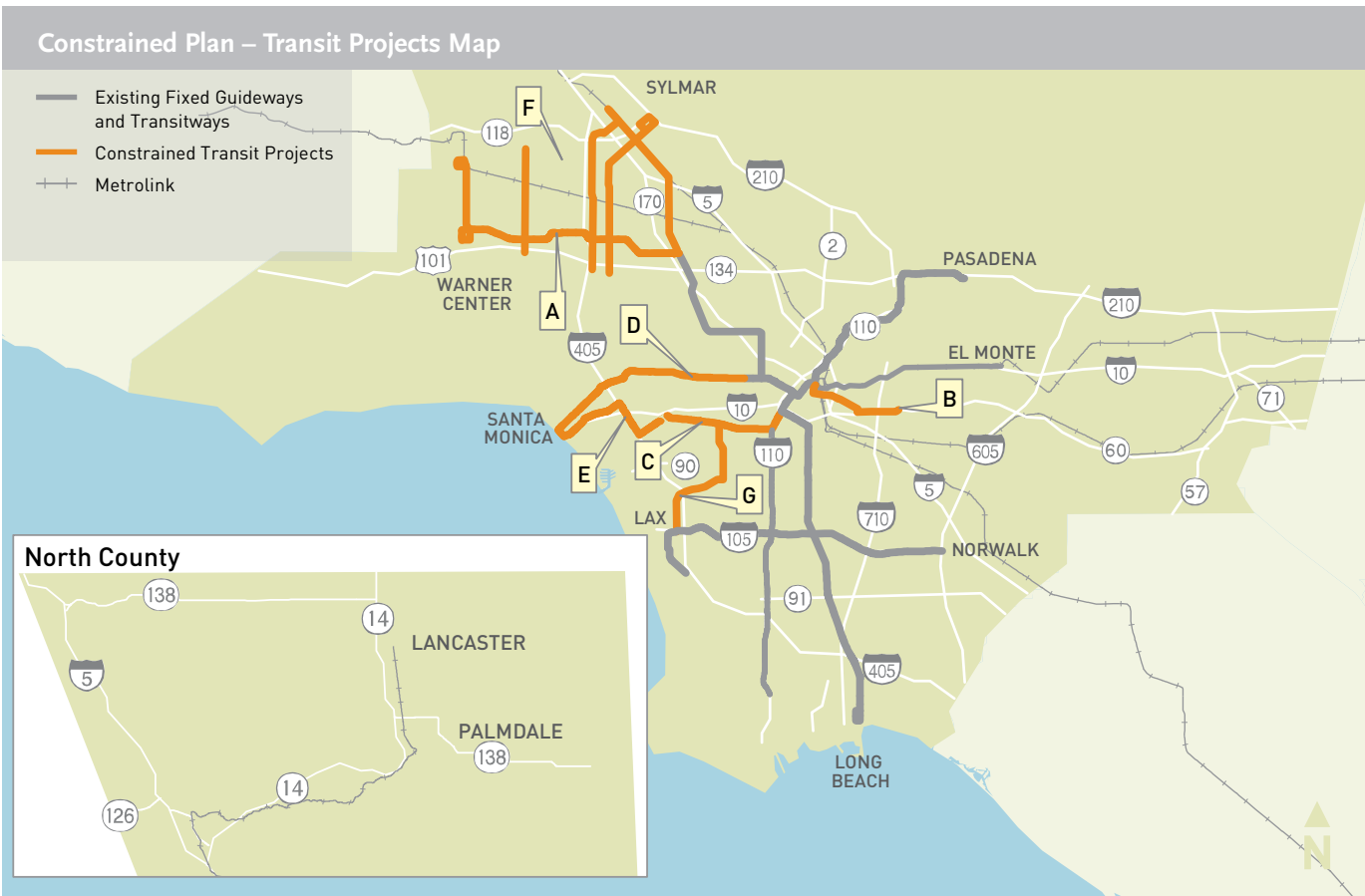


FIGURE 5.6A

Constrained Plan – Transit Projects List

Map Label	Project Type	Description/Limits
A	Bus Rapid Transit	Metro Orange Line (completed since FY04)
B	Light Rail Transit	Metro Gold Line Eastside
C	Light Rail Transit	Exposition LRT Phase I to Culver City
D	Bus Rapid Transit	Wilshire Boulevard BRT
E	Light Rail Transit	Exposition LRT Phase II to Santa Monica
F	Bus Rapid Transit	San Fernando Valley North/South BRT
G	Fixed Guideway	Crenshaw Corridor (Technology to be determined)

Model Inputs

The basic inputs to a travel demand simulation model include socioeconomic data and the transportation networks (both highway and transit). This section describes the socioeconomic data and the network information used in the Model for the Draft 2008 Plan.

Socioeconomic Forecast

The socioeconomic input data to the Metro model are consistent with the SCAG forecast. The latest official forecast released by SCAG is the “2004 RTP” version, used to develop the 2004 Regional Transportation Plan adopted by the Regional Council. Population and employment are the main socioeconomic input to a travel demand model. For the Draft 2008 Plan, population and employment estimates by TAZ for 2001, 2004, and 2030 were derived from the population and employment data contained in SCAG’s 2004 RTP.

Population Forecasts

The analysis of population growth was conducted regionally by county and at the subregional level for Los Angeles County. Figure 5.7A shows that Los Angeles County’s population is forecast to grow by 24 percent from approximately 9.8 million in 2004 to 12.2 million in 2030. The region’s population will grow by 32 percent during the same period. Los Angeles County’s share of the regional population is estimated to be 58 percent in 2004 and will decrease slightly to 54 percent in 2030.

Population growth trends by subregion within the county are summarized in Figure 5.7B. Gateway Cities was the most populous subregion in the county with 1.89 million in 2004. The San Gabriel Valley is expected to become the most populous subregion with 2.33 million forecast for 2030. North County will see the highest growth with population growing from 0.59 million in 2004 to 1.19 million in 2030, a growth of about 101 percent.

Employment Forecasts

Figure 5.8A shows that while the region’s employment is expected to grow by 35 percent between 2004 and 2030, the growth for Los Angeles County will be 24 percent. Projected growth for other counties is much higher, as high as 102 percent for Riverside County. Employment

FIGURE 5.7A

Population Growth by County (2004-2030)

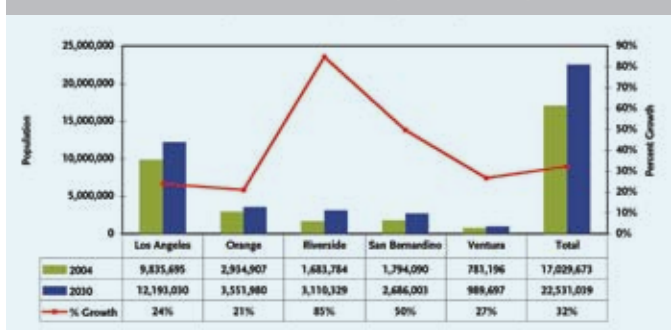


FIGURE 5.7B

Population Growth by Subregion (2004-2030)

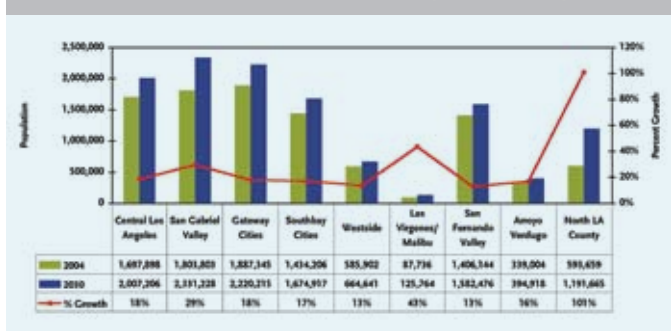
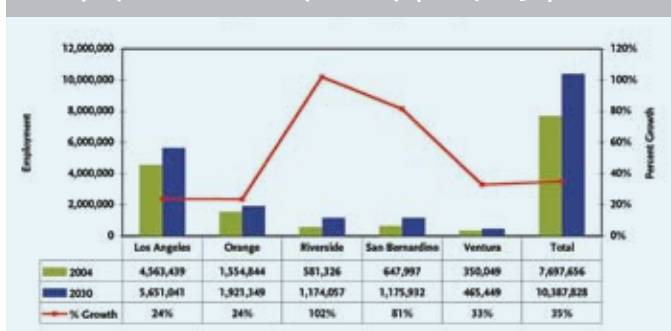


FIGURE 5.8A

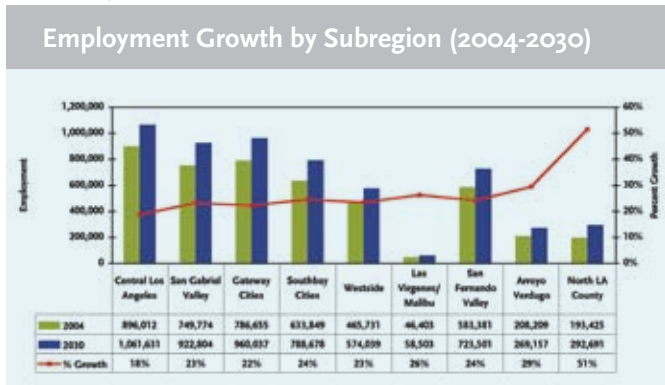
Employment Growth by County (2004-2030)



share of Los Angeles County is expected to decrease from 60 percent of the regional total in 2004 to 54 percent in 2030.

As shown in Figure 5.8B, within Los Angeles County, the Central subregion will continue to be the subregion with the most jobs, with over one million employment projected in 2030. The highest-growth subregion is North County with 51 percent growth estimated.

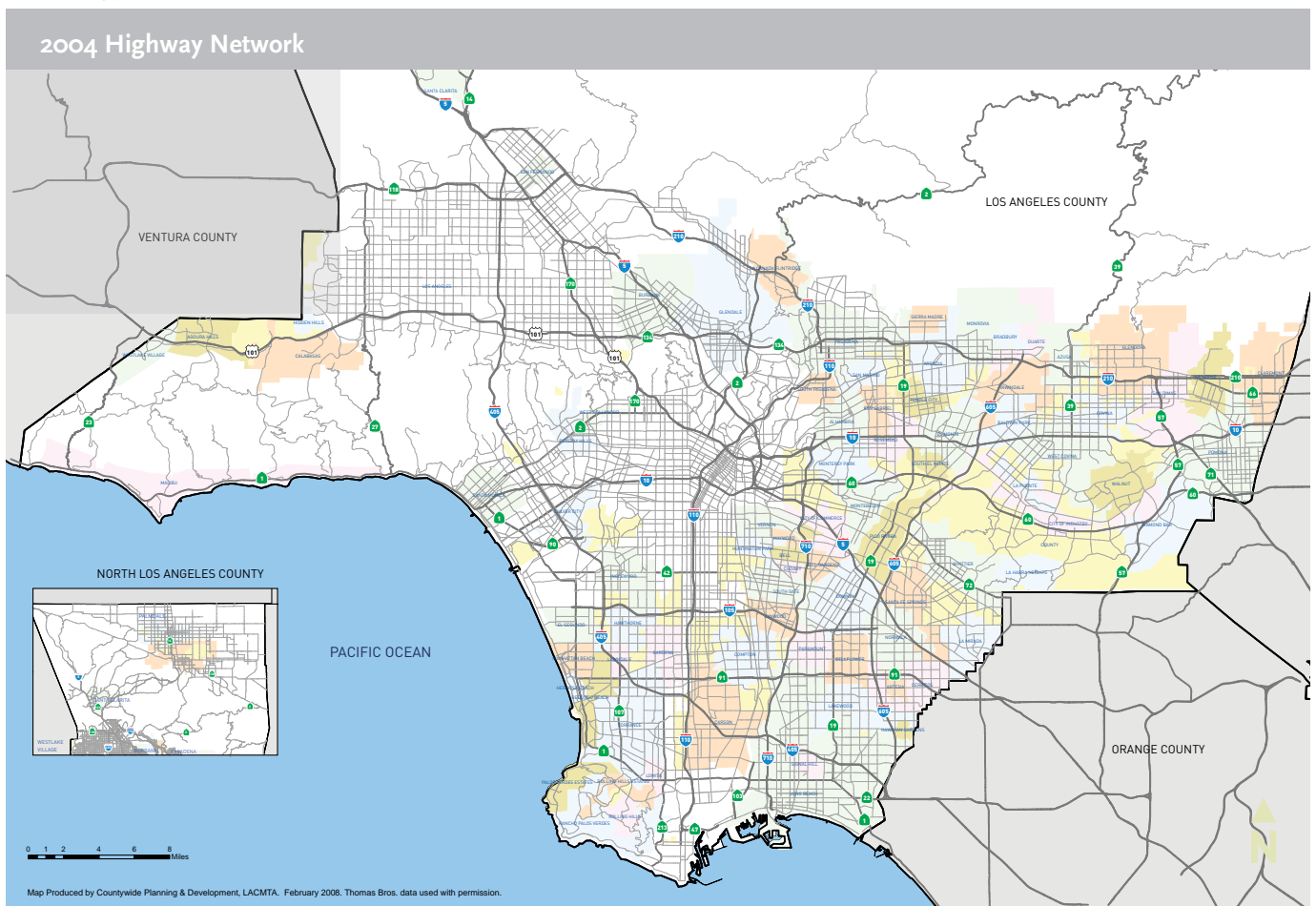
FIGURE 5.8B



Transportation Networks

The transportation networks in the 2004 Model were updated from representing 2001 conditions to 2004 conditions. Networks representing year 2030 with adopted 2001 LRTP improvements were also developed.

FIGURE 5.9



2004 Base Year Conditions

Figure 5.9 depicts the highway links included in the computer network file representing the year 2004 highway network. The network consists of 20,971 nodes and 66,257 links. They cover all freeways as well as major, primary and secondary arterials within the five-county modeling area.

A summary of the 2004 highway network by facility type for each subregion is provided in Figure 5.10. Countywide, a total of 21,100 lane-miles of roadway are represented in the network. Among them, 4,550 lane-miles, or 21 percent are freeway. The San Gabriel Valley subregion has the highest amount of freeway lane-miles while the Gateway Cities subregion has the highest concentration of arterial facilities.

Constrained Plan (2030 Future Year)

The Constrained Plan includes highway and transit improvement projects listed in Figures 5.5A and 5.6A. These projects are assumed to be completed by 2030. The 2004 Base Year highway network and transit network were modified to reflect the completion of these projects.

The highway projects included in the Constrained Plan will add 275 lane-miles of freeways and 76 lane-miles of new/

FIGURE 5.10

Summary of Highway Lane-Miles by Facility Type and Subregion in Los Angeles County (2004)

Subregion	2004			2030		
	FWY	ARTL	Total	FWY	ARTL	Total
Arroyo Verdugo	165	450	615	176	450	626
Central Los Angeles	577	1,966	2,542	578	1,970	2,548
Gateway Cities	697	2,751	3,448	741	2,750	3,492
Las Virgenes/Malibu	86	286	373	86	286	372
North LA County	643	2,664	3,306	675	2,716	3,391
San Fernando Valley	721	2,297	3,018	762	2,301	3,063
San Gabriel Valley	992	2,730	3,721	1,086	2,721	3,808
Southbay Cities	477	2,452	2,929	485	2,461	2,946
Westside	171	929	1,100	208	936	1,144
Total	4,527	16,526	21,053	4,797	16,592	21,390

County	2004			2030		
	FWY	ARTL	Total	FWY	ARTL	Total
Los Angeles	4,548	16,652	21,200	4,823	16,728	21,551
Orange	1,351	4,711	6,062	1,462	4,747	6,209
Riverside	1,038	2,443	3,482	1,366	2,703	4,069
San Bernardino	971	2,853	3,824	1,223	2,910	4,134
Ventura	480	1,749	2,229	520	1,784	2,304
Imperial	2,399	6,843	9,243	2,502	6,952	9,454
Total	10,788	35,251	46,039	11,897	35,824	47,720

upgraded arterials. Combined, they represent a six percent increase in freeway lane-miles and 0.5 percent increase in arterial lane-miles in Los Angeles County.

In addition, the Draft 2008 Plan will add substantial transit infrastructure to the network.

Model Outputs

The basic outputs from a travel demand simulation model include trip productions and attractions, trip tables between TAZs, trip tables by mode, and trip assignments. This section describes the outputs of the Model for the Draft 2008 Plan.

Trip Generation

Trip generation is the process of estimating how many daily person trips are generated by households within each TAZ. SCAG’s trip generation model generates trips for the following thirteen (13) purposes:

1. Home-Based Work Direct – Low-Income
2. Home-Based Work Direct – Middle-Income
3. Home-Based Work Direct – High-Income
4. Home-Based Work Strategic – Low-Income
5. Home-Based Work Strategic – Middle-Income
6. Home-Based Work Strategic – High-Income
7. Home-Based School
8. Home-Based University
9. Home-Based Shop
10. Home-Based Social/Recreation

11. Home-Based Other
12. Work-Based Other
13. Other-Based Other

Using the population and employment estimates for 2001 and 2030 as input, SCAG’s trip production model and trip attraction model are applied to estimate the trips produced from and trips attracted to each TAZ.

Trip Productions

The results of trip production are summarized in Figure 5.11A. Figure 5.11A shows that productions in Los Angeles County are expected to grow from 29.2 million in 2004 to 35.9 million in 2030, a growth of 23 percent. Riverside County is expected to experience the highest growth, at 91 percent. Figure 5.11B illustrates the growth by subregions in Los Angeles County. North County is expected to experience the highest growth in trip production at 81 percent while the San Gabriel Valley is expected to produce the largest number of trips, at 6.5 million.

Trip Attractions

Figures 5.12A and 5.12B illustrate the results of trip attraction. Figure 5.12A shows that Los Angeles County is expected to be the largest trip attractor in the region in 2030, with 36.8 million trips, a growth of 23 percent over 2004. Riverside County is expected to experience the highest growth, of 90 percent. Figure 5.12B shows that the

FIGURE 5.11A

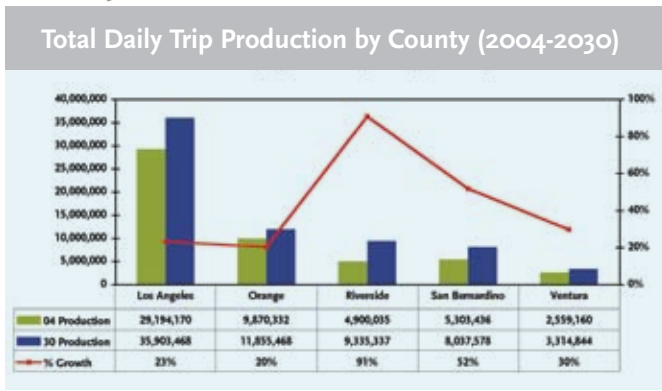


FIGURE 5.11B

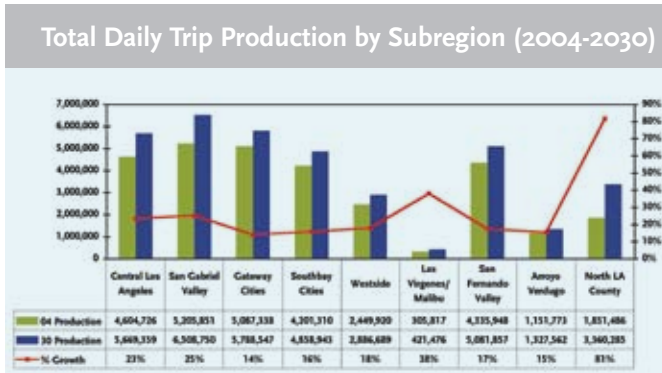


FIGURE 5.12A

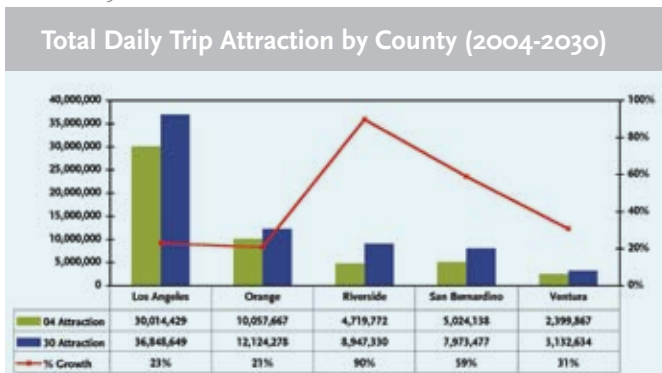
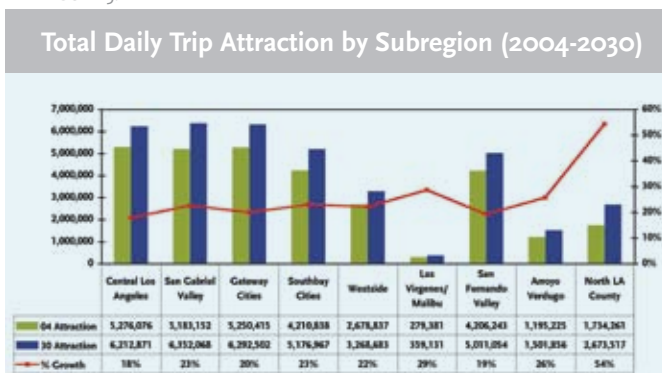


FIGURE 5.12B



San Gabriel Valley is expected to attract the largest number of trips – 6.4 million. North County is projected to experience the largest growth – 54 percent.

Trip Distribution

Trip distribution is the process where person trip productions (for each TAZ) are linked to specific attraction TAZs, thereby creating a “trip table” of trip interchanges between TAZs. The SCAG trip distribution model created trip tables for 2001 and 2030. Those trip tables were interpolated to create the 2004 trip tables.

Years 2004 & 2030

Figure 5.13A summarizes the trip distribution patterns for 2004 daily peak period home-based work trips, produced in each subregion of Los Angeles County. The large pie in the lower left corner of the Figure shows the number of home-based work trips produced by each subregion. The San Gabriel Valley subregion produces the largest number of home-based work trips—781,000. The Gateway Cities subregion produces the next highest number at 766,500.

Figure 5.13A also displays the home-based work trip production activity within each subregion, as represented by the smaller pies. The largest interaction within each subregion occurs intra-subregion; that is, the largest percentage of home-based work trips within each subregion stays internal to that subregion. For the San Gabriel Valley subregion, the second highest interaction occurs with Central Los Angeles (at 14 percent), followed by trips destined outside Los Angeles County (at 13 percent).

Figure 5.13B displays the trip distribution patterns for 2030 daily peak period home-based work productions in the subregions of Los Angeles County. The San Gabriel Valley subregion continues to produce the largest number of home-based work productions, at 1 million trips, with the Gateway Cities subregion following at 943,000 trips. Within the San Gabriel Valley subregion, the largest number of trips to leave the subregion is destined outside of Los Angeles County, 17 percent.

Figure 5.14A summarizes the daily peak period home-based work trip attractions within each subregion in year 2004. The Central Los Angeles subregion attracts the largest number of home-based work trips in the County (838,000), followed by the Gateway Cities subregion at 753,000 and San Gabriel Valley subregion at 734,700. Within Central Los Angeles, 13 percent of trips originate in the San Gabriel Valley subregion and 11 percent from the South Bay Cities subregion.

Figure 5.14B illustrates the trip distribution patterns for 2030 daily peak period home-based work attractions. The Central Los Angeles subregion is expected to continue attracting the largest number of daily peak period home-based work trips, at 988,000 trips, followed closely by the Gateway Cities subregion at 916,000 and the San Gabriel Valley subregion at 903,000. Within the Central Los Angeles subregion, 13 percent of trips originate in the San Gabriel Valley subregion.

FIGURE 5.13A

Peak Period Home to Work Trip Productions by Subregion (2004)

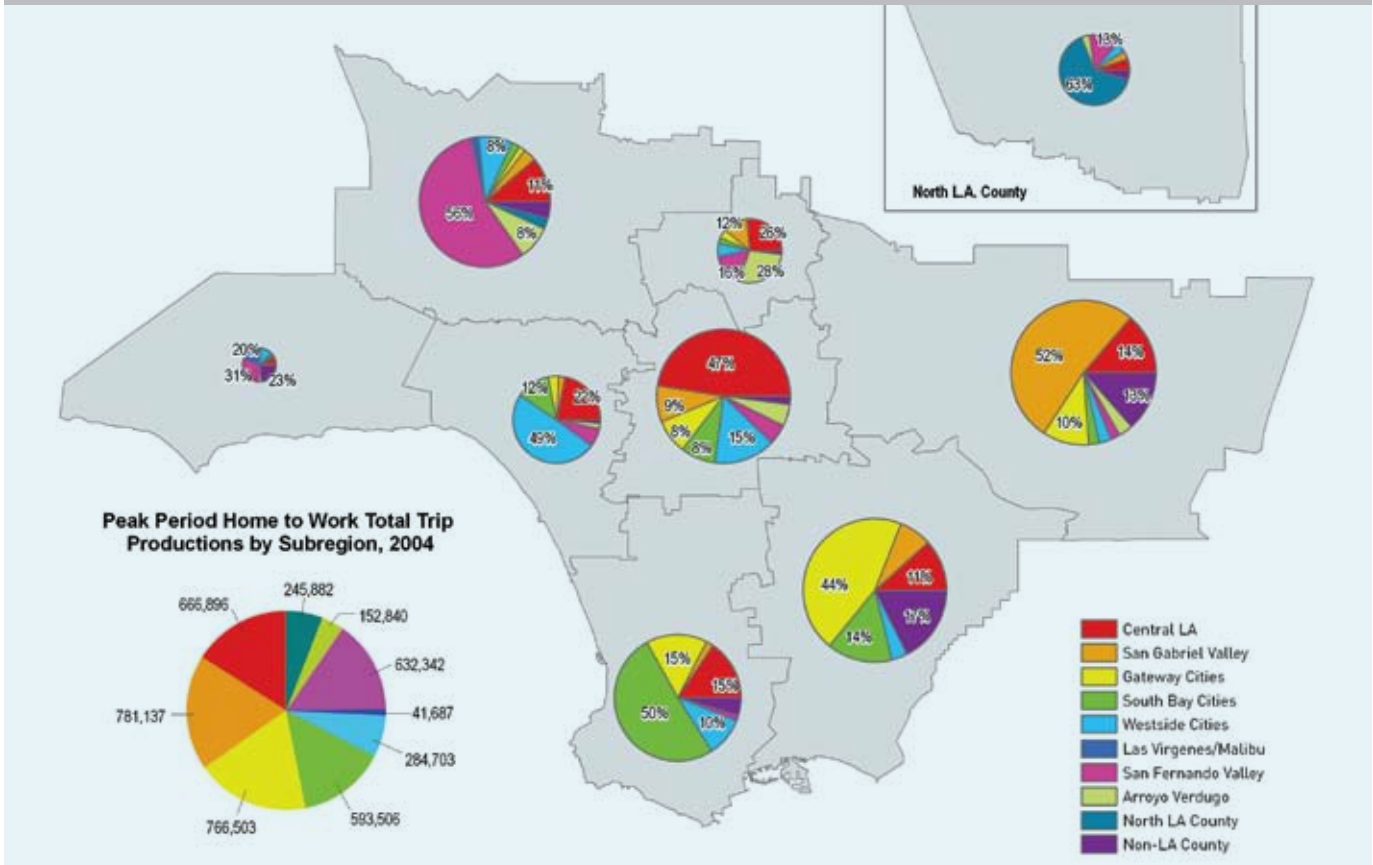


FIGURE 5.13B

Peak Period Home to Work Trip Productions by Subregion (2030)

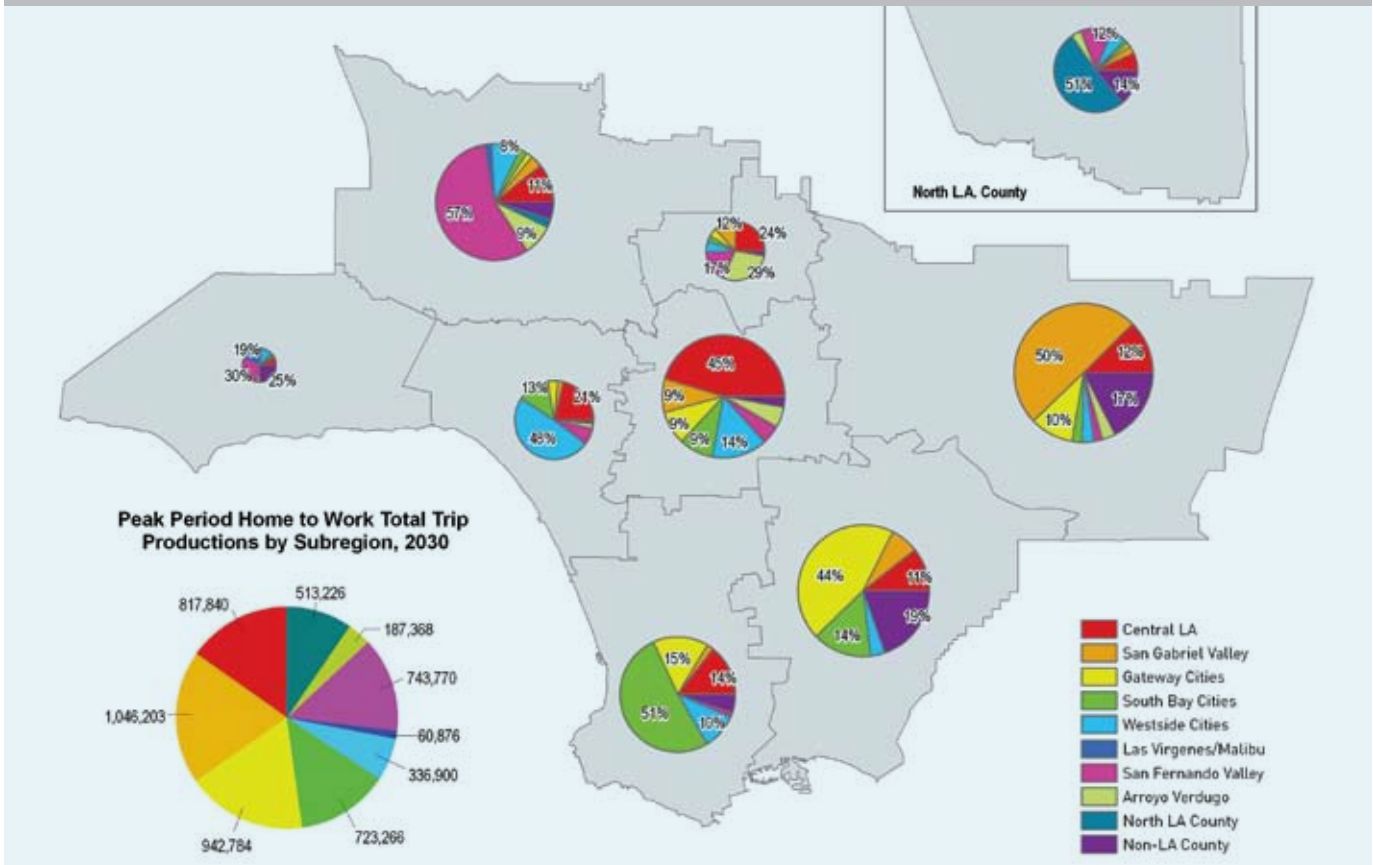


FIGURE 5.14A

Peak Period Home to Work Trip Attractions by Subregion (2004)

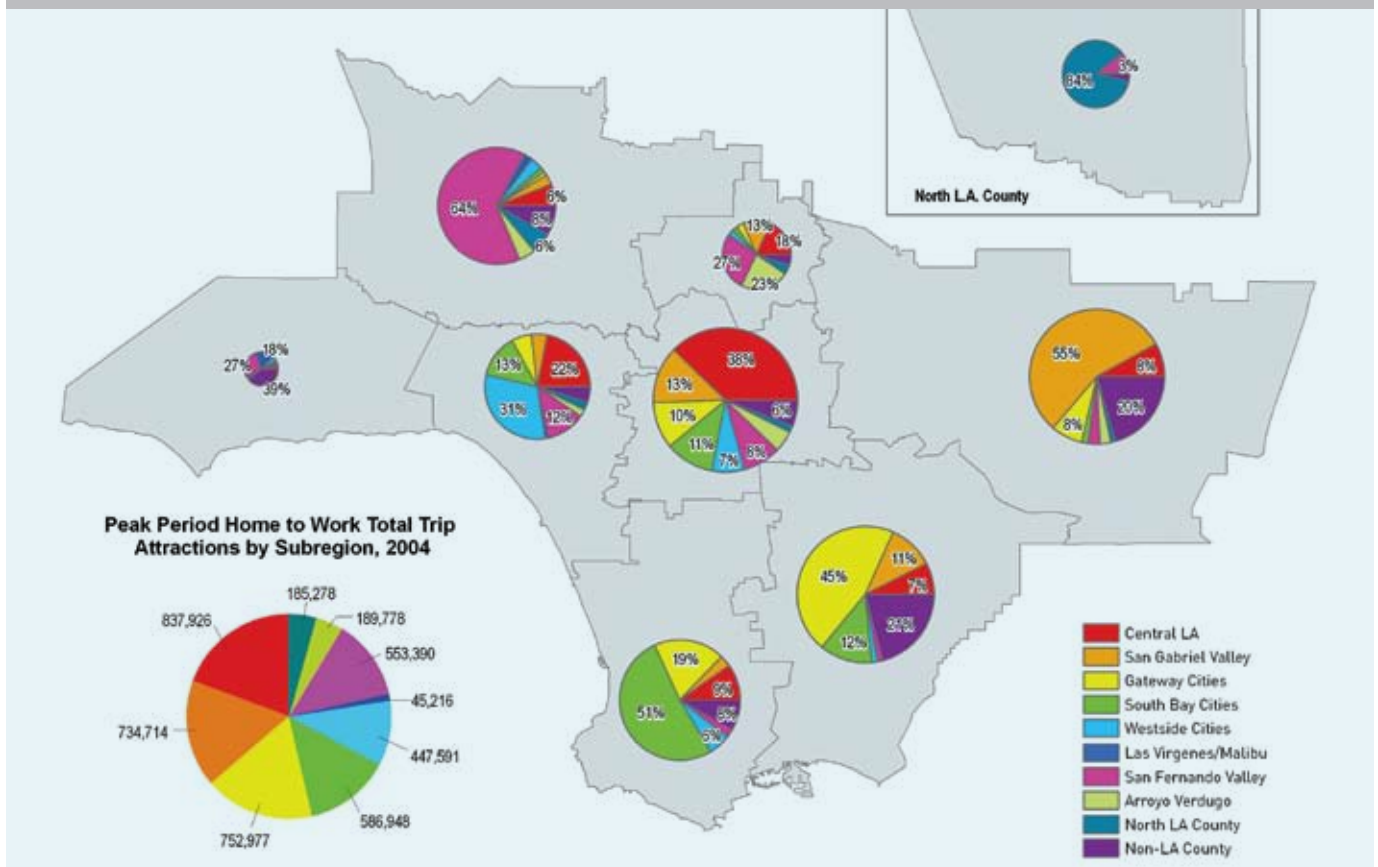


FIGURE 5.14B

Peak Period Home to Work Trip Attractions by Subregion (2030)

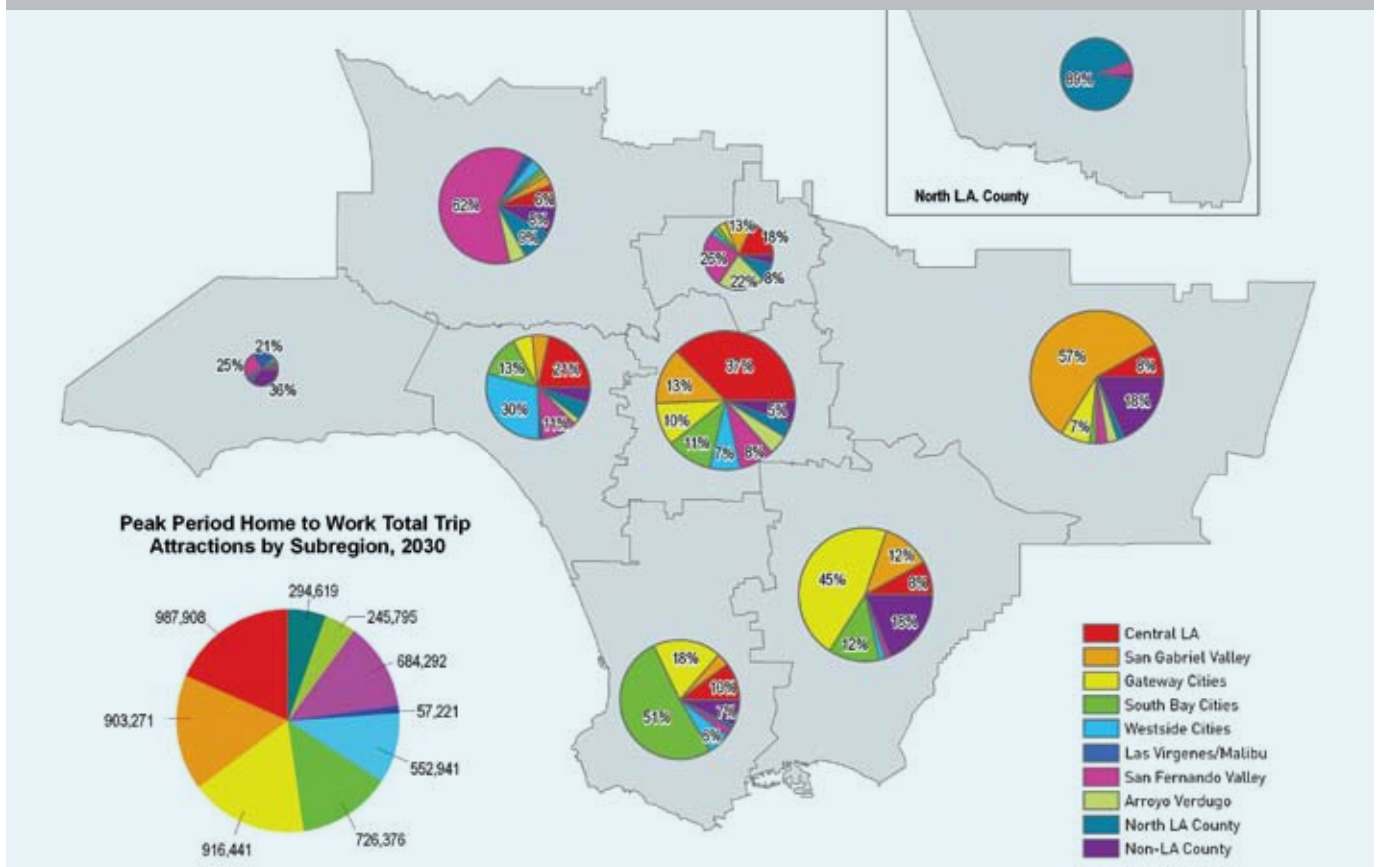


FIGURE 5.15A

Daily Trip Productions by Subregion (2004)

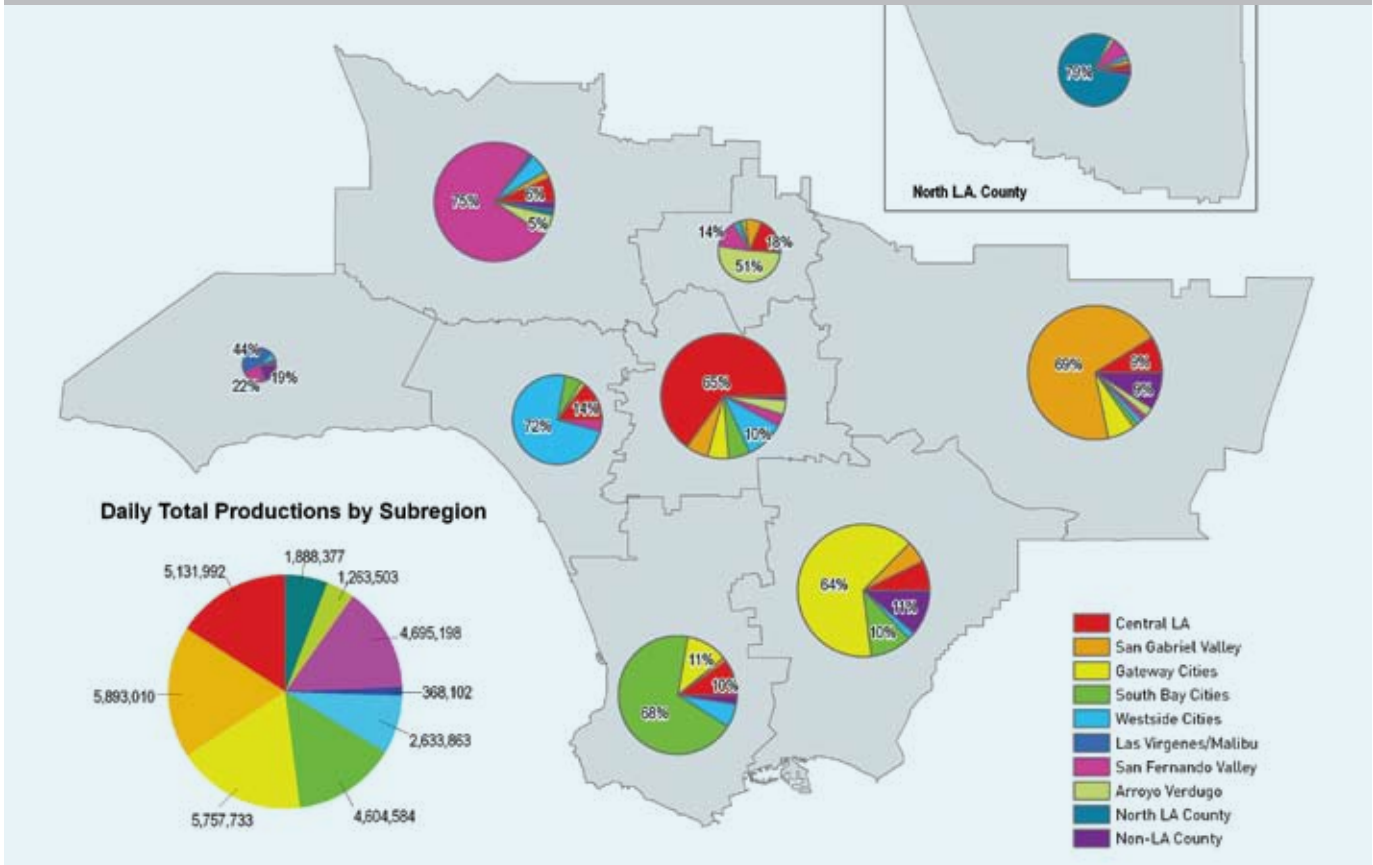


FIGURE 5.15B

Daily Trip Productions by Subregion (2030)

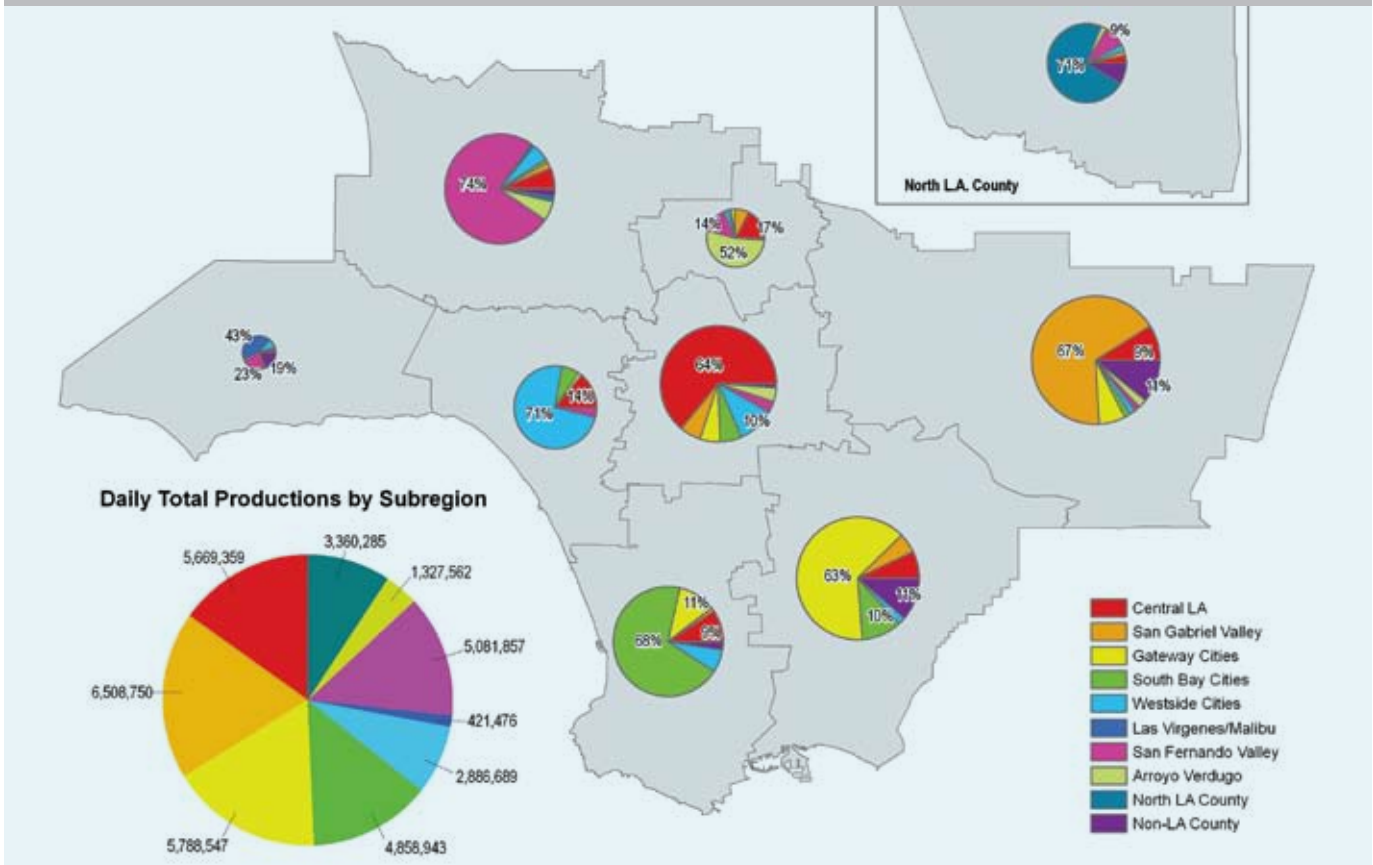


FIGURE 5.16A

Daily Trip Attractions by Subregion (2004)

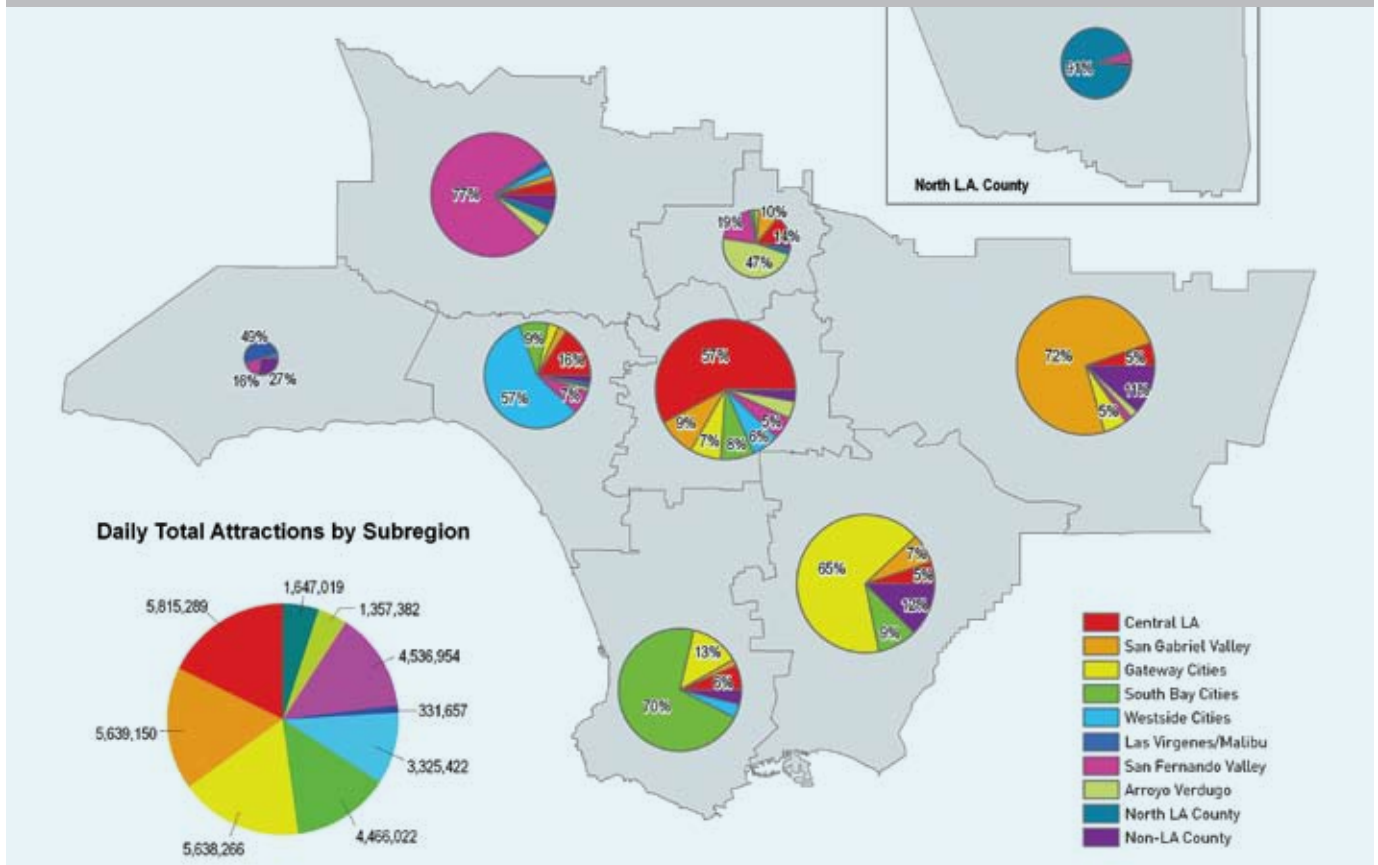


FIGURE 5.16B

Daily Trip Attractions by Subregion (2030)

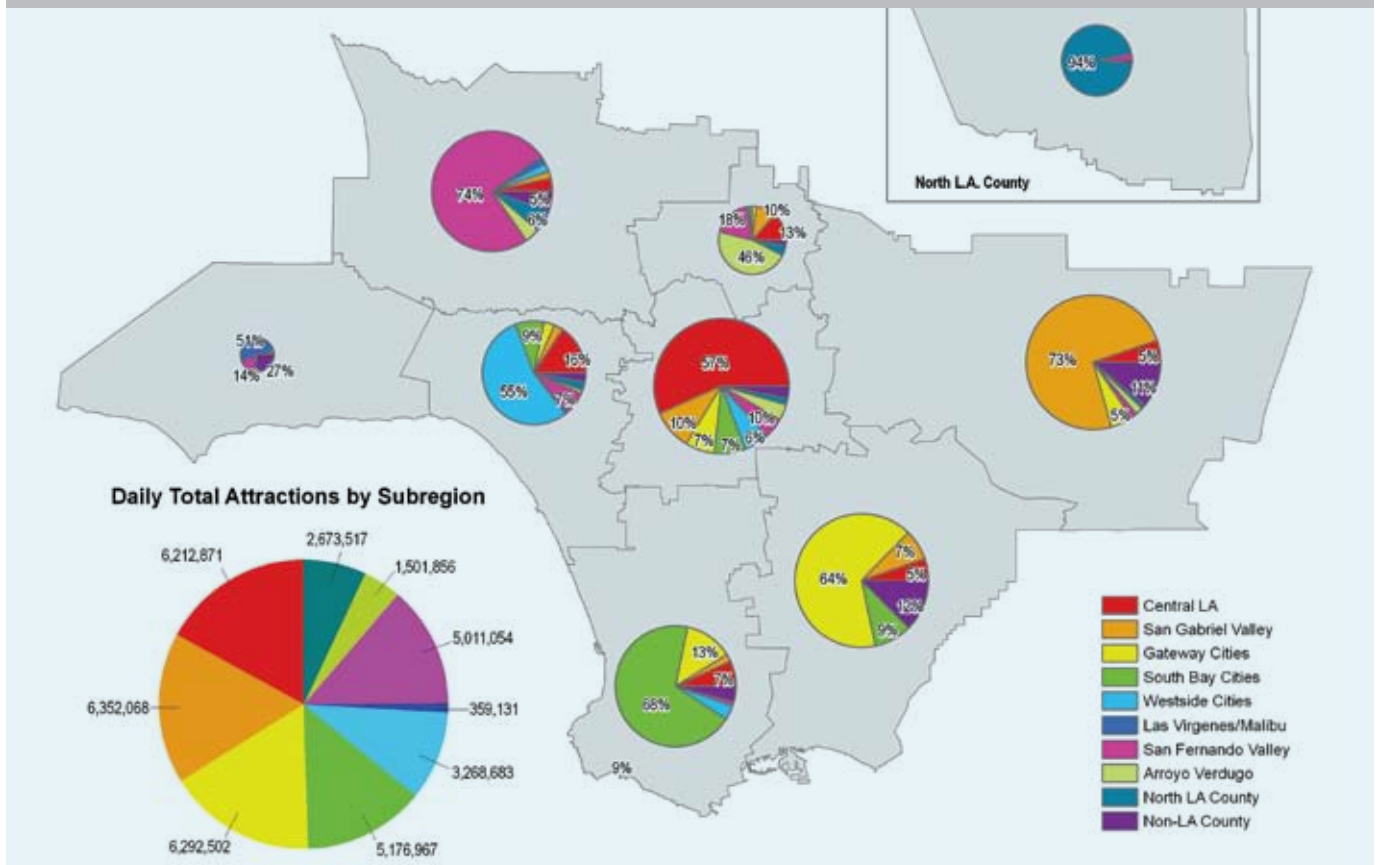


Figure 5.15A illustrates the total daily trip productions within each subregion for year 2004. The San Gabriel Valley subregion produces the highest number of total daily trips at 5.9 million, followed by the Gateway Cities subregion at 5.8 million. Within the San Gabriel Valley subregion, nine percent of the trips are destined to the Central Los Angeles subregion and also outside Los Angeles County.

Figure 5.15B shows the total daily trip productions by subregion expected for year 2030. The San Gabriel Valley subregion is expected to continue producing the largest number of total daily trips, 6.5 million. Within that subregion, 11 percent are destined to leave Los Angeles County.

Figure 5.16A illustrates the total daily trip attractions within each subregion for year 2004. The Central Los Angeles subregion attracts the highest number of total daily trips, at 5.8 million, followed closely by the San Gabriel Valley and Gateway Cities subregions at 5.6 million each. Within the Central Los Angeles subregion, the largest number of trips originates in the San Gabriel Valley subregion (nine percent), followed by the South Bay Cities subregion at eight percent.

Figure 5.16B illustrates the total daily trips attracted by subregion expected for year 2030, with the San Gabriel Valley, Gateway Cities, and Central Los Angeles subregions each expected to attract 6.4, 6.3, and 6.2 million trips, respectively. Within the San Gabriel Valley subregion, 11 percent of trips are destined to leave Los Angeles County.

Mode Choice

The mode choice process determines the share of person trips taking various modes of transportation. The modes in the Metro Travel Demand Model are automobile and transit. The submodes under automobile include single-occupancy and high-occupancy vehicles (two-person carpools and three persons or more carpools) while the submodes under transit are bus (including local bus, rapid bus, express bus, and transitway bus) and rail (including urban rail and commuter rail).

Traffic Assignment

Traffic assignment is the process of loading vehicle trips onto a highway network and transit trips onto a transit network. This process produces traffic volumes and resulting congested speeds on each road segment represented in the highway network as well as passenger volumes on the transit network.

Metro uses a four time-period equilibrium highway assignment process. Separate vehicle trip tables are generated for the AM peak period, midday period, PM peak period, and night period. These trip tables are assigned to the appropriate highway network, using equilibrium assignment procedures. The assignment

results were reviewed for reasonableness and minor adjustments were made when required. For fixed-guideway extensions (such as the Gold Line Eastside extension to Whittier), boardings were adjusted to include trips on the fixed-guideway facility that continue on the extended facility.

Performance Measures

Performance measures evaluate the highway and transit systems for the base year and a series of future year alternatives. This analysis is intended to determine the effectiveness of alternative transportation strategies and assist in the development of program and project recommendations.

Two types of performance measures have been analyzed—system measures and corridor measures. The system measures assess the performance of the Plan as a whole and how the transportation system benefits from implementation of the Plan, as compared with the existing and No Build scenarios. The corridor measures assess the performance of individual projects that are shown in the Strategic Plan.

System-Level Performance

The system measures include:

- > **Speed** – a measure of mobility and how the Plan improvements impact the average speed of the highway system.
- > **Mobility Index** – a measure of system throughput that adjusts speed by factoring in the vehicle occupancy of automobiles and transit. The higher the index number, the more effective the transportation system in moving people.
- > **Cost-Effectiveness** – a measure of the cost of reducing delay for planned improvements at the system level.
- > **Access for the Transit Dependent** – a measure required by federal Title VI that assesses the Plan's impact on mobility benefits for minority and transit-dependent communities.

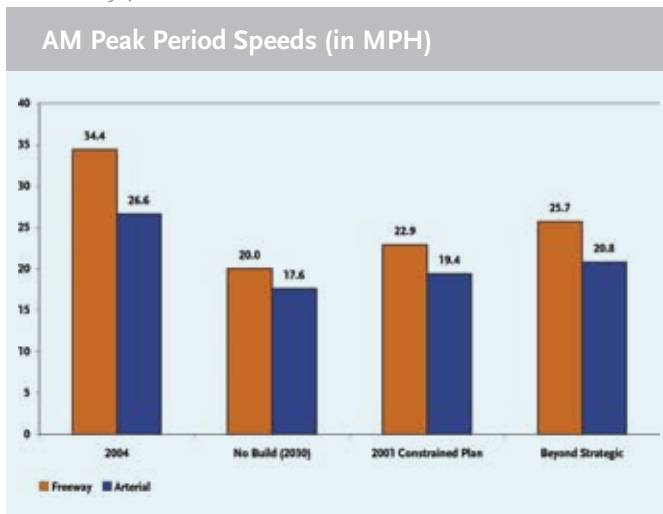
AM Peak Period Speeds

Figure 5.17A compares the peak freeway and arterial speeds between the base year (2004) and two scenarios for the forecast year of 2030 (No Build and Constrained Plan). The AM peak period speeds on the freeways are expected to deteriorate from 34.4 MPH in 2004 to 20.0 MPH in the No Build Scenario and improve slightly to 22.9 MPH with the Constrained Plan. Arterial speeds are expected to deteriorate from 26.6 MPH in 2004 to 17.6 MPH in the No Build scenario and improve slightly to 19.4 MPH in the Constrained Plan.

Mobility Index

The mobility index is a performance measure of the throughput of a multimodal transportation system. It takes into consideration the volume of people moved and their travel speed. It is a function of both speed and vehicle occupancy and focuses on the movement of people rather

FIGURE 5.17A



than vehicles. The higher the index, the faster the speeds and the higher the vehicle occupancies.

The formula is specified as:

Throughput = (PMT/PHT) X (PMT/VMT) where

PMT = Person-Miles Traveled for automobile and transit modes

PHT = Person-Hours Traveled for automobile and transit modes and

VMT = Vehicle-Miles Traveled for automobile and transit modes.

Mathematically, the first half of this formula, PMT/PHT, can be expanded to represent the difference between the average personal flow speed and a weighted variance of the speed between all link pairs. PMT/PHT is equal to the average personal flow speed when the weighted variance is zero and all links have the same speed (meaning there is no variation in the speed). Since speed does not stay constant across the highway and transit networks, PMT/PHT is always lower than the average personal flow speed.

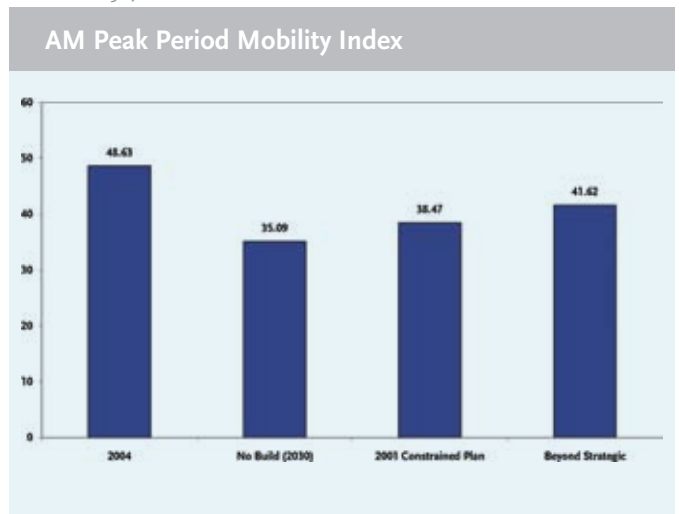
Likewise, the second half of the formula, PMT/VMT, can be expanded to represent the difference between the average vehicle occupancy and a weighted variance of the vehicle occupancy of all link pairs. Since the occupancy does not vary much from one link to the next, the weighted occupancy variance is not a large number. Thus, PMT/VMT is similar to the average vehicle occupancy.

Figure 5.17B illustrates the mobility index for the AM peak period in Los Angeles County. The mobility index in 2004 is 48.63, dropping to 35.09 in the No Build, and increasing somewhat to 38.47 for the Constrained Plan.

Cost-Effectiveness Index

The cost-effectiveness index is defined as the capital and operating costs to be expended by Metro to achieve an hour savings of travel time. The lower the index, the less money is required to achieve a unit savings of travel time and therefore, the higher the cost-effectiveness.

FIGURE 5.17B



The cost-effectiveness index for the Constrained Plan for Los Angeles County is \$2.18. This is lower, and therefore, better, than the criterion of \$4.00 to \$6.00 per hour used by the Federal Transit Administration (FTA) in the 1990s. The favorable score can be mainly attributed to the severe congestion in the No Build. In traffic engineering theory, it has been found that when traffic volumes reach the range of highway capacity, the travel time increases exponentially. Because the traffic in the No Build is severely congested, a small improvement in the system would result in a substantial reduction in travel time and a favorable cost-effectiveness index.

Title VI Analysis

The Title VI analysis was performed to assess the transportation impacts on distinct socioeconomic groups in Los Angeles County. The transportation impacts analyzed include:

- > Job accessibility within 60 minutes via transit; and
- > Mode choice by income quintile.

The distinct socioeconomic groups include:

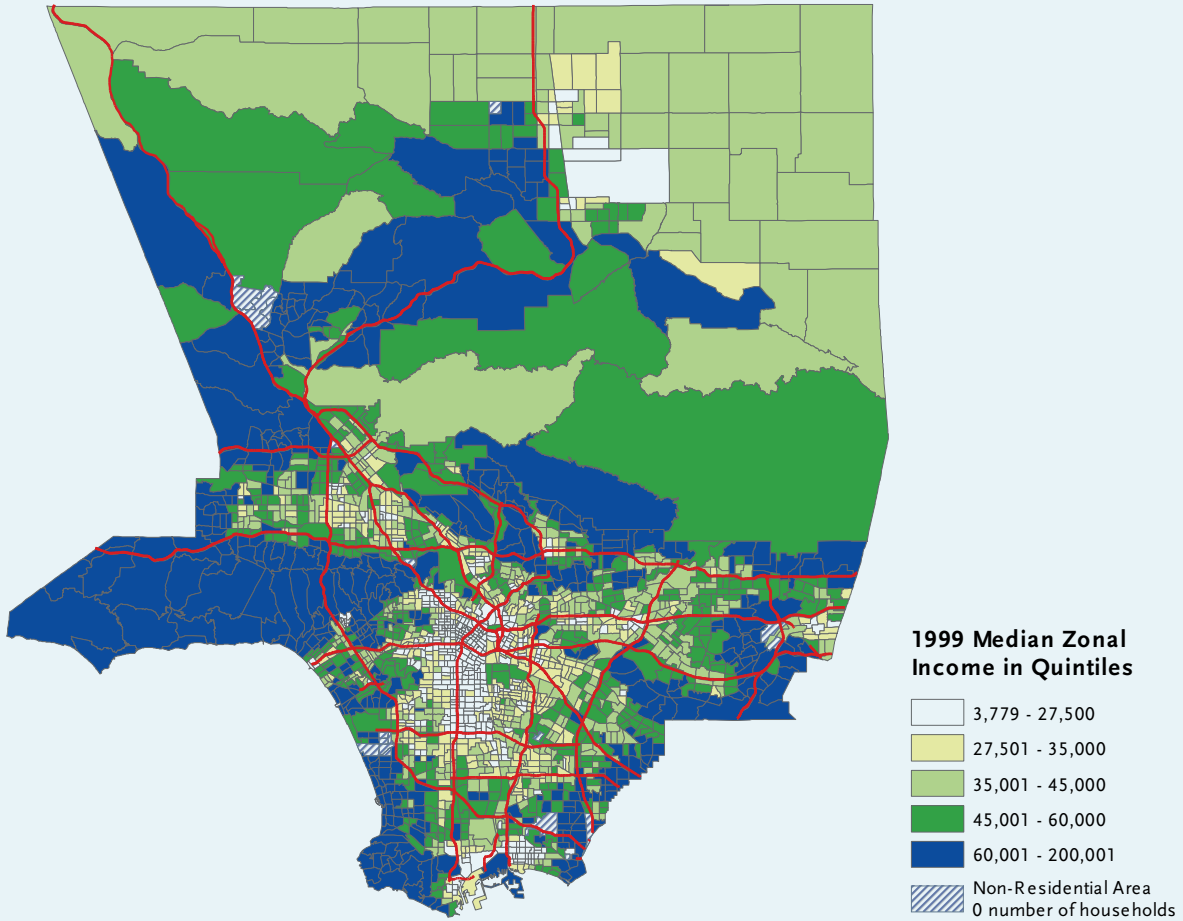
- > Transit dependent;
- > African American;
- > Hispanic; and
- > Asian/Pacific Islander.

Using information from the 2000 Census, a transportation analysis zone (TAZ) was designated as transit-dependent if it met one or more of the following criteria:

- > Zero-car ownership – 13.5% or more of the households do not own a car;
- > Low-income – 17.6% or more of the households have income of \$15,000 or less (in 1999 dollars); or
- > Senior citizen without high car ownership – 21.7% or more of the households include individuals aged 65 or older and less than 34.1% of households have two cars and less than 17.1% of households have three or more cars.

FIGURE 5.19

1999 Median Zonal Income in Quintiles



TAZs were also designated with a specific socioeconomic group, if its population exceeded the socioeconomic group's average for Los Angeles County (e.g., a TAZ with ten percent of households comprised of African Americans would be deemed an African American TAZ since that exceeded the 9.5 percent average for Los Angeles County). Figure 5.18 summarizes the ethnic population of Los Angeles County, based on the 2000 Census. Hispanics, at 44.6 percent of the population, comprise the largest minority group in the County.

FIGURE 5.18

Ethnic Population Based on 2000 Census

	Population	Percent
African American	901,472	9.5%
Hispanic	4,242,213	44.6%
Asian/Pacific Islander	1,147,834	12.1%
Non-Minority	2,959,614	31.1%
Other Race Alone	45,544	0.5%
Two or More Races	222,661	2.3%
Total	9,519,338	100%

In addition to transit-dependency and socioeconomic group, TAZs were also classified by household income quintiles. The quintiles represent:

- > Low income – less than \$27,500
- > Moderate income –\$27,501 to \$35,000
- > Medium income –\$35,001 to \$45,000
- > Above average income –\$45,001 to \$60,000
- > High income – greater than \$60,000

TAZs by income quintiles are illustrated in Figure 5.19.

Median household income, as defined in the 2000 Census, is \$42,189 (in 1999 dollars). A TAZ is designated with a specific income quintile, if its median household income falls into the range for that quintile (e.g., a TAZ with a median household income of \$25,000 would be designated as a low-income TAZ).

Geographic Distribution of Socioeconomic Groups

Figures 5.20A, 5.20B, 5.21A, and 5.21B illustrate the distribution of transit dependent, African American, Hispanic, and Asian/Pacific Islander populations throughout Los Angeles County.

FIGURE 5.20A

Transit Dependent Population

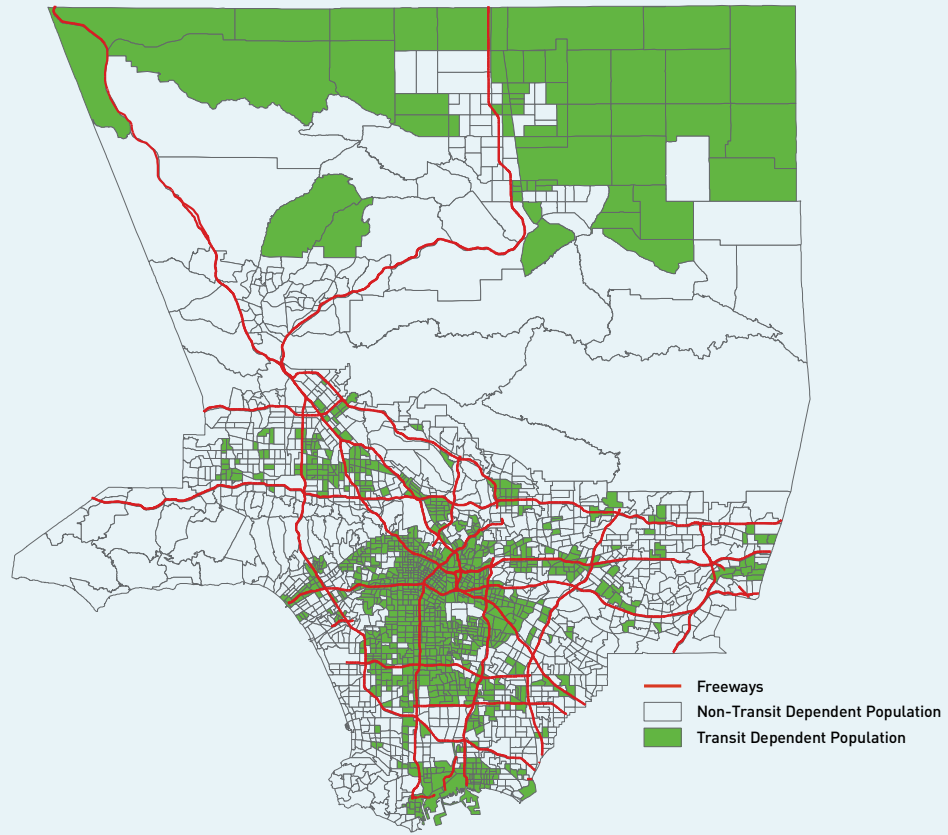


FIGURE 5.20B

African American Population

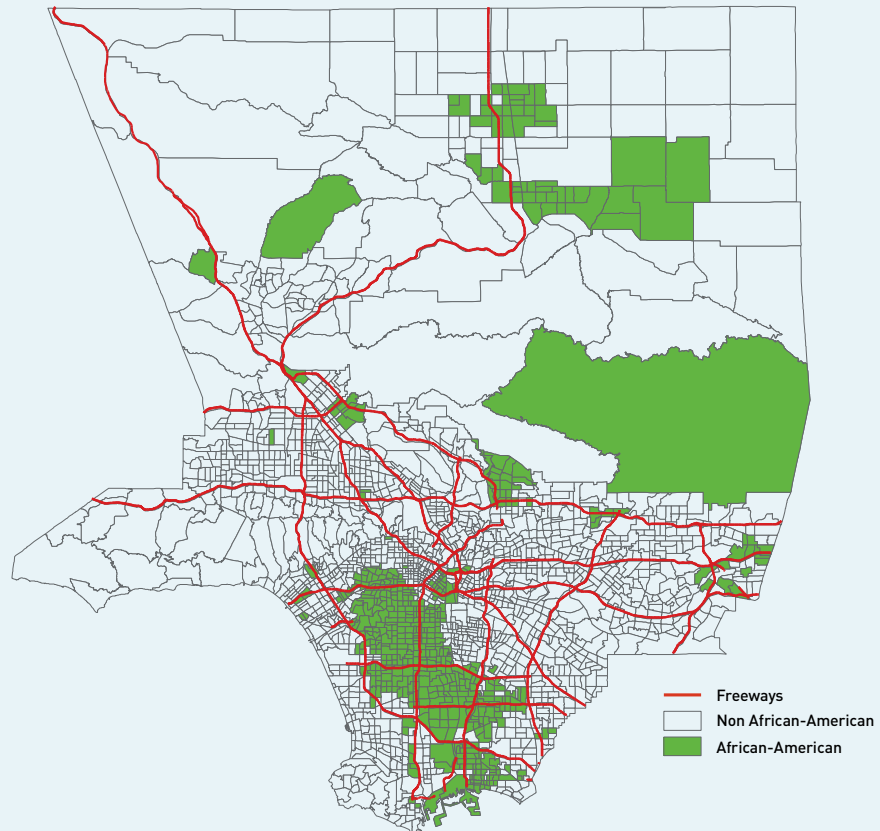


FIGURE 5.21A

Hispanic Population

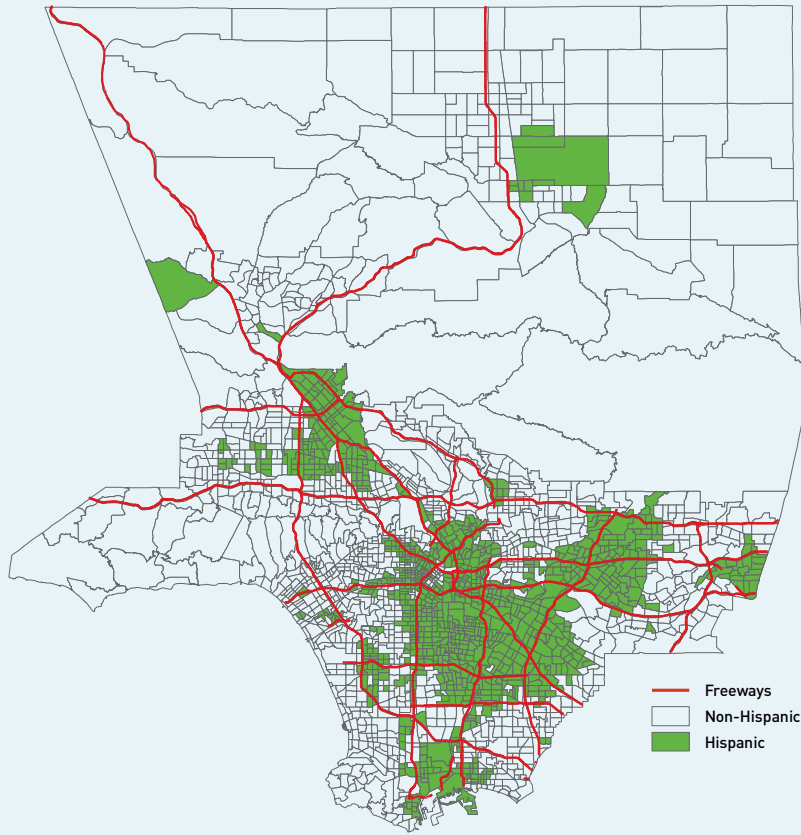


FIGURE 5.21B

Asian/Pacific Islander Population

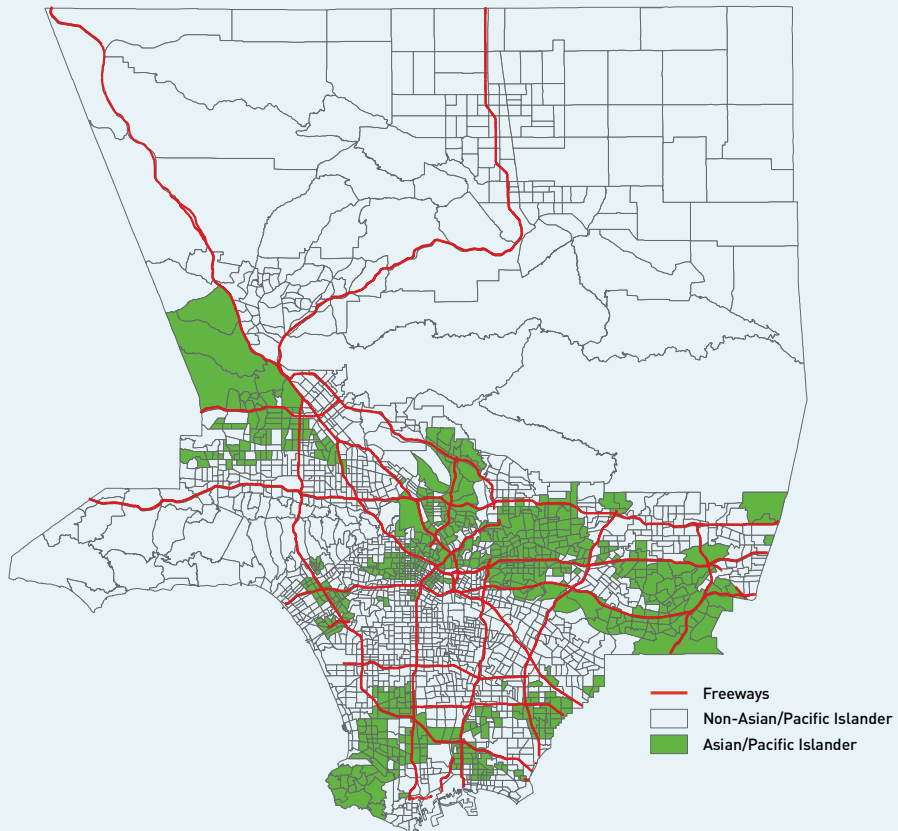


FIGURE 5.22A

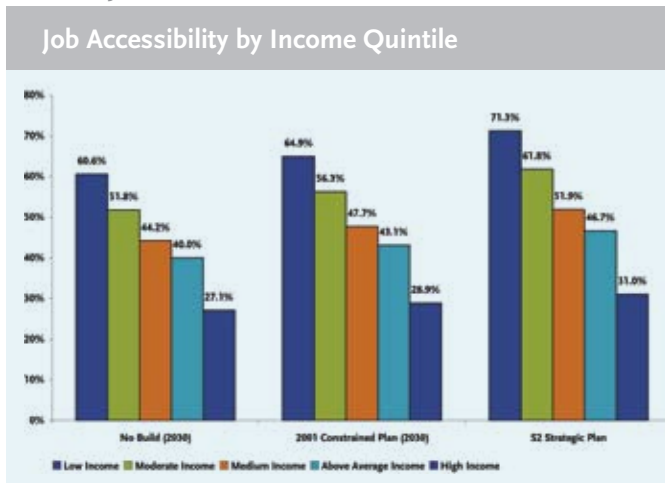


FIGURE 5.23A

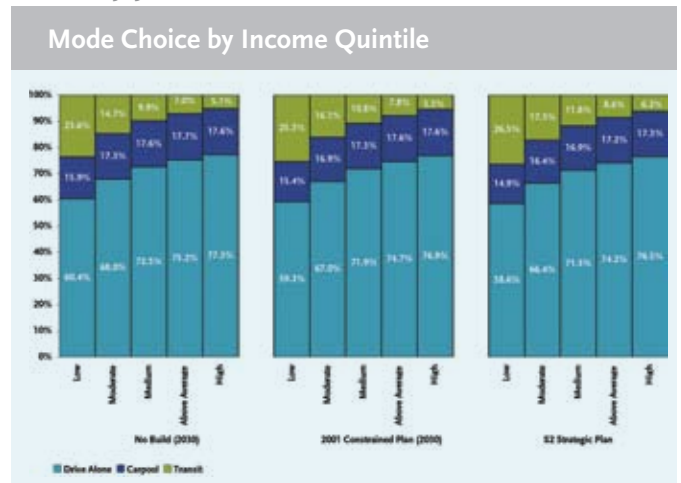


FIGURE 5.22B

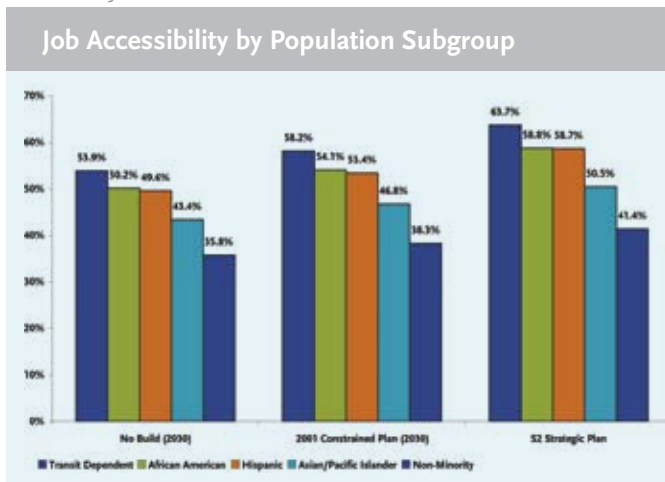
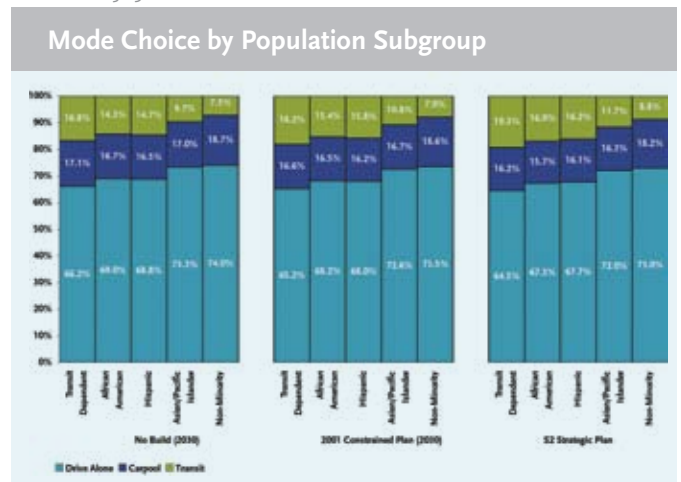


FIGURE 5.23B



Job Accessibility

Figure 5.22A summarizes the percentage of home-based work peak period trips that can be made via transit in a sixty-minute period, disaggregated by income quintile. Low-income TAZs benefit the most from transit accessibility (60.6% of trips can be made via transit in No Build) and will improve to 64.9% in the Constrained Plan and to 71.3% in the Strategic Plan. All income quintiles are expected to see an improvement in transit accessibility with implementation of the Constrained Plan and Strategic Plan.

Figure 5.22B summarizes the job accessibility by population subgroup. The transit-dependent work is expected to benefit the most from transit accessibility, with almost 54% of work trips accessible within 60 minutes of transit in No Build, increasing to 58% in the Constrained Plan and to almost 64% in the Strategic Plan. All population subgroups are expected to see an increase in transit accessibility with the Constrained Plan and Strategic Plan.

Mode Choice

Figure 5.23A illustrates the mode split of home-to-work trips by income quintile. Transit usage is expected to be heaviest for low-income households in No Build (23.6%) and is expected to increase to 25.3% for the Constrained

Plan and to 26.5% in the Strategic Plan. The other income quintiles are also expected to see an increase in transit use.

Figure 5.23B summarizes the Mode Choice by population subgroup. The highest transit usage is expected to be in the transit dependent population, at 16.8%, followed by the Hispanic population at 14.7%. Transit usage is expected to increase for all income quintiles for the Constrained Plan (reaching 18.2% for the transit dependent population and 15.8% for the Hispanic population) and the Strategic Plan (reaching 19.3% for transit dependents and 16.9% for African Americans).

Project-Level Performance

The corridor measures include:

- > Hours of Highway Delay Savings per Mile (for highway projects)
- > Number of Daily Boardings per Mile (for transit projects)
- > Cost-Effectiveness – cost of reducing highway delay or increasing transit boardings

The highlights of the findings are described below.

Major Highway Projects

Figure 5.24 summarizes the distance, cost in 2015 dollars

Performance Measures – Highway

Highway Projects	Distance	Cost (in 2015 million \$)		Annual Hrs Saved	Annual Hrs Saved/Mile	Annual Hrs Saved/ Million \$
		low	high			
HDC E-W: SR 14 to LA/SB Co Line (add 3 MF+1 HOV fwy/expressway)	28.12	1,343		1,034,530	36,793	770
HDC N-S: SR14 to SR138 - add 2 MF expressway**					4,981	209
I-10: Add one HOV lane in each direction on Santa Monica Freeway between Lincoln Blvd. (in Santa Monica) and the I-5 Frwy interchange. *	16.09	2,530	3,163	6,439,300	400,134	2,291
I-405: Add N/B lane from Hawthorne to I-105	3.62	373		941,372	259,909	2,524
I-405: Add S/B lane from Rosecrans to Inglewood	3.62	373		941,372	259,909	2,524
I-5 Carpool & Mixed Flow Lanes: I-605 to I-710 *	6.93	2,530	3,163	2,693,619	388,537	959
I-5: SR-14 to Kern Co Line (HOV and Truck Lane Improvements)	47.53	1,255		13,920,288	292,844	11,092
I-605 HOV lanes: I-210 to I-10	5.56	161		1,717,785	309,140	10,669
I-710 Corridor Study Recommendations: (Add Mixed Flow lanes to make uniform 10 lanes from Ports to SR-60; Add 2 Truck lanes in each direction from Ports to Hobart/ ICTF Railyards- Cities of Vernon, Commerce)	19.61	6,958		8,229,819	419,620	1,183
SR-57 HOV lanes: Rt. 60 to I-210	3.38	161		1,173,275	347,406	7,287
SR-60 HOV lanes: Rt. 101 to I-605	11.14	461		2,260,661	203,009	4,904
SR-138: I-5 to SR-14 - Add 2 MF lanes in each direction	37.13	1,064		206,305	5,557	194
SR-138: Pearblossom Hwy to SB Co Line - Widen existing SR-138 to 4 lanes.	27.06	390		381,040	14,079	977
SR-14: I-5 to Kern County Line (HOV & Mixed Flow Improvements)	52.16	1,592		8,127,265	155,810	5,105
SR-710 North Extension: Add 3 Mixed Flow + 1 HOV lane in each direction*	4.55	2,151	2,783	3,408,808	749,853	1,405
US-101 Corridor: Add HOV lane in each direction between Rt. 27 (Topanga Canyon) and Rt 2 in Downtown LA and restripe for mixed flow lane in each direction between Rt 27 and the Ventura Co Line. *	22.70	1,834	2,530	10,125,149	446,126	4,762
US-101: Add HOV lane in each direction between Rt 27 and the Ventura Co Line (This HOV lane would be in addition to the mixed flow lane proposed on the 2001 LRTP Strategic list.) *	12.83	760	1,013	6,972,171	543,389	8,029

* For each project in which estimated cost was provided in the form of a range rather than a single estimate, the midpoint of the range was used for evaluation purposes.

** The Hours of Delay Savings for the HDC N-S project were provided through off-model analysis. The delay savings for this segment was calculated from the HDC E-W project through a comparison of projected daily trip volumes. The HDC N-S carries approximately 44% of the volumes of the HDC E-W, therefore the delay savings were calculated to be 44% that of the HDC E-W segment.

(several projects provide a range of costs), and time savings (in annual hours saved). Costs are provided in 2015 dollars to serve as a midpoint for the 25-year plan. It also provides annual hours saved per mile and cost-effectiveness (in annual hours saved per million dollars) associated with each of the seventeen highway corridor projects. The annual hours saved per mile range from 5,557 on the SR-138 to 749,853 on the SR-710 north extension. The annual hours saved per million dollars range from 194 on SR-138 to 11,092 on I-5 from SR-14 to the Kern County line.

Major Transit Projects

Figure 5.25 summarizes the distance, annual boardings, and cost in 2015 dollars associated with each of the eighteen transit corridor projects. In addition, it also provides annual boardings per mile and cost-effectiveness (in annual boardings per million dollars). The annual boardings per mile range from 268,781 on the Metro Gold line Foothill Extension from Sierra Madre Villa to Montclair to 4,180,892 on the Regional Connector. The annual boardings per million dollars range from 1,398 on the Metro Green Line Extension between Norwalk and Norwalk Metrolink to 9,547 on the Regional Connector.

Corridor Analysis

In addition to the systemwide analysis above, and in order to assess the performance of the Draft 2008 Strategic Plan, Metro examined various corridor performance measures for corridor mobility and corridor need. This analysis allowed projects to be prioritized based on their performance.

For highway projects, the quantitative performance measures included:

- > Annual Hours Saved;
- > Annual Hours Saved per mile; and
- > Annual Hours Saved per millions of dollars.

For transit projects, the quantitative performance measures included:

- > Annual Boardings;
- > Annual Boardings per mile; and
- > Annual Boardings per millions of dollars.

In addition to the quantitative measures, qualitative criteria were used to assist in the prioritizing of projects. These

FIGURE 5.25

Performance Measures – Transit					
Transit Projects	Distance	Cost (in 2015 million \$)	Annual Boardings	Annual Boardings/ Mile	Annual Boardings/ Million \$
Burbank/Glendale Light Rail from LA Union Station to Burbank Metrolink Stn	10.79	1,277.0	6,355,348	589,004	4,977
Harbor Subdivision DMU btwn LA Union Station and Metro Green Line Aviation Stn	11.52	666.0	4,502,782	390,731	6,761
I-405 Corridor Busway between Metro Orange Line Sepulveda Station and Metro Green Line Aviation Station	20.28	772.8	6,310,451	311,166	8,166
Metro Gold Line Eastside Extension from Atlantic/Pomona Station to City of Whittier (At-grade light rail)	9.07	1,088.8	4,157,010	458,325	3,818
Metro Gold Line Eastside Extension to City of Whittier (Aerial light rail)	9.07	1,616.1	5,074,007	559,427	3,140
Metro Gold Line Foothill Extension from Sierra Madre Villa Stn to Azusa (JPA cost)	10.50	485.2	3,310,750	315,310	6,827
Metro Gold Line Foothill Extension from Sierra Madre Villa Stn to Azusa (Metro cost)	10.50	773.4	3,310,750	315,310	4,281
Metro Gold Line Foothill Ext. from Sierra Madre Villa Stn to Montclair (JPA cost)	23.57	1,237.2	6,334,353	268,781	5,120
Metro Gold Line Foothill Ext. from Sierra Madre Villa Stn to Montclair (MTA cost)	23.57	1,771.8	6,334,353	268,781	3,575
Metro Green Line Extension btwn LAX/Aviation Station to Expo Santa Monica Station	12.49	1,828.5	7,184,974	575,258	3,929
Metro Green Line Extension btwn Norwalk Stn and Norwalk Metrolink Stn (Elevated)	2.27	480.2	1,495,006	658,593	3,113
Metro Green Line Ext. btwn Norwalk Stn and Norwalk Metrolink Stn (Underground)	2.27	1,069.6	1,495,006	658,593	1,398
Metro Green Line Extension between South Bay Galleria and Pacific Coast Hwy Harbor Transitway Station	7.55	877.6	2,635,680	349,328	3,003
Metro Green Line Extension from Redondo Beach Station to South Bay Galleria	2.72	266.5	1,268,906	466,509	4,761
Metro Red Line Extension from North Hollywood Station to Burbank Airport Metrolink Station	2.39	933.3	5,350,818	2,236,029	5,733
Metro Red Line Westside Extension from Century City to City of Santa Monica	6.78	2,326.5	11,074,701	1,634,160	4,760
Metro Red Line Westside Extension from Wilshire/Western Stn to Century City	6.44	2,512.8	14,721,048	2,286,587	5,858
Regional Connector Light Rail in tunnel from LA Union Station to 7th St/Metro Center	1.65	722.6	6,898,472	4,180,892	9,547
Silver Line Light Rail between Metro Red Line Vermont/Santa Monica Station and City of La Puente	24.25	2,975.7	9,077,269	374,320	3,050
SR 134 Transit Corridor BRT between Metro Red Line North Hollywood Station and Metro Gold Line Del Mar Station	15.74	901.6	5,102,593	324,180	5,659
Vermont Corridor Subway	9.24	3,627.9	12,991,868	1,406,198	3,581
West Santa Ana Branch ROW Corridor Mag Lev between LA Union Station and Santa Ana Metrolink Station	20.15	4,764.8	9,056,274	449,443	1,901
Yellow Line Light Rail between Metro Red Line North Hollywood Station and Regional Connector 3rd/Flower St Station	17.23	1,957.8	7,418,664	430,567	3,789

(1) Several projects were evaluated with differing technologies and alignments

qualitative criteria assessed corridor need and included:

- > Population and Employment Density;
- > Percentage of Transit-Dependent Census Tracts (transit projects only);
- > Number of Major Activity Centers per mile;
- > Annual Boardings per mile (transit projects only); and
- > Highway Congestion Score (highway projects only).

It was assumed that the affected corridor for each project represented a ten-minute trip to the project. For highway projects, that equates to a five-mile buffer around the project (a two-and-a-half mile band on either side of the project) while for transit projects, that equates to a one-mile buffer (a one-half mile band on either side of the project).

In order to assess the performance of different projects, a transit matrix and a highway matrix were developed, based on all of the project-specific performance measures. The numerical range for each criterion was divided into thirds,

to establish high, medium, and low categories. A value of “3” was assigned to high projects, “2” to medium projects, and “1” to low projects. An equal weighting was given to future Project Performance and existing Corridor Need. Given the number of criteria in both the future performance and existing need categories are not the same, the categories were normalized in both the transit and highway matrices to maintain a 50-50 weighting. Each project then received a score for Project Performance and Corridor Need. Finally, a total score was calculated by adding the scores for Project Performance and Corridor Need. Projects were ranked in the order of their total scores from high to low.

Figure 5.26 summarizes the Performance Analysis that was conducted for the transit projects while Figure 5.27 summarizes the analysis for the highway projects. Tier 1 Strategic Projects are considered high-priority projects and are displayed in Figures 5.28 and 5.29. Tier 2 Strategic Projects are candidates for additional study or funding in the longer-term and are illustrated in Figures 5.30 and 5.31.

FIGURE 5.26

Performance Analysis – Transit

Transit Projects* (Alphabetical Order by Score)	Project Performance – 50%			Corridor Need – 50%									
	Annual Boardings per Mile	Annual Boardings per Million \$	Total Score	Pop & Employment Density	% of Transit Dependent Census Tracts	Major Activity Centers/ Mile	Boardings/ mile (2004)	Total Score	Total Combined Score				
Regional Connector Light Rail in tunnel from LA Union Station to 7th St/Metro Center**	4,180,892	3 9,547	3 12	41.16	3 100.0%	3 36.97	3 77,907	3 12	24				
Metro Red Line Westside Extension from Wilshire/Western Station to Century City	2,286,587	3 5,858	2 10	17.56	3 70.4%	3 8.39	3 9,363	3 12	22				
Harbor Subdivision DMU between LA Union Station and Metro Green Line Aviation Station	390,731	1 6,761	3 8	12.53	2 85.9%	3 8.50	3 8,150	3 11	19				
Metro Red Line Westside Extension from Century City to City of Santa Monica	1,634,160	3 4,760	2 10	15.70	2 45.3%	2 9.15	3 4,127	2 9	19				
Metro Red Line Extension from North Hollywood Station to Burbank Airport Metrolink Station	2,236,029	3 5,733	2 10	11.91	2 64.7%	2 4.60	1 7,636	3 8	18				
Vermont Corridor Subway	1,406,199	2 3,581	1 6	22.27	3 97.5%	3 6.93	2 8,845	3 11	17				
Burbank/Glendale Light Rail from LA Union Station to Burbank Metrolink Station	589,004	1 4,977	2 6	11.43	2 66.4%	2 6.77	2 8,496	3 9	15				
Metro Gold Line Eastside Extension from Atlantic/Pomona Station to City of Whittier (At-grade light rail)	458,325	1 3,818	2 6	10.74	2 56.2%	2 5.62	2 681	1 7	13				
Yellow Line Light Rail between Metro Red Line North Hollywood Station and Regional Connector 3rd/Flower St Station	430,567	1 3,789	2 6	14.49	2 64.0%	2 5.22	1 3,984	2 7	13				
I-405 Corridor Busway between Metro Orange Line Sepulveda Station and Metro Green Line Aviation Station	311,166	1 8,166	3 8	8.36	1 37.3%	1 4.04	1 1,308	1 4	12				
Silver Line Light Rail between Metro Red Line Vermont/Santa Monica Station and City of La Puente	374,320	1 3,050	1 4	13.98	2 67.3%	2 5.77	2 4,167	2 8	12				
Metro Gold Line Eastside Extension to City of Whittier (Aerial light rail)	559,427	1 3,140	1 4	10.74	2 56.2%	2 5.62	2 681	1 7	11				
Metro Green Line Extension from Redondo Beach Station to South Bay Galleria	466,509	1 4,761	2 6	9.50	1 23.9%	1 6.99	2 3,062	1 5	11				
Metro Green Line Extension between LAX/Aviation Station to Expo Santa Monica Station	575,258	1 3,929	2 6	9.32	1 14.1%	1 4.48	1 1,299	1 4	10				
SR 134 Transit Corridor BRT between Metro Red Line North Hollywood Station and Metro Gold Line Del Mar Station	324,180	1 5,659	2 6	7.61	1 41.2%	1 4.89	1 2,147	1 4	10				

FIGURE 5.26 CONTINUED

Performance Analysis – Transit											
Transit Projects* (Alphabetical Order by Score)	Project Performance – 50%				Corridor Need – 50%						
	Annual Boardings per Mile	Annual Boardings per Million \$	Total Score		Pop & Employment Density	% of Transit Dependent Census Tracts	Major Activity Centers/ Mile	Boardings/ mile (2004)	Total Score		Total Combined Score
Metro Green Line Extension between Norwalk Station and Norwalk Metrolink Station (Elevated)	658,593	1 3,113	1	4	11.00	2 20.9%	1 4.85	1 2,136	1	5	9
Metro Green Line Extension between Norwalk Station and Norwalk Metrolink Station (Underground)	658,593	1 1,398	1	4	11.00	2 20.9%	1 4.85	1 2,136	1	5	9
Metro Gold Line Foothill Extension from Sierra Madre Villa Station to Montclair (MTA cost/JPA Ridership)	268,781	1 2,855	1	4	4.85	1 14.7%	1 4.58	1 236	1	4	8
Metro Green Line Extension between South Bay Galleria and Pacific Coast Hwy Harbor Transitway Station	349,328	1 3,003	1	4	9.58	1 28.1%	1 3.71	1 355	1	4	8
Metro Gold Line Foothill Extension from Sierra Madre Villa Station to Azusa (JPA cost/JPA Ridership)	315,310	1 6,827	3	8	5.50	1 19.0%	1 5.05	1 345	1	4	12
Metro Gold Line Foothill Extension from Sierra Madre Villa Station to Azusa (Metro cost/JPA Ridership)	315,310	1 4,281	2	6	5.50	1 19.0%	1 5.05	1 345	1	4	10
Metro Gold Line Foothill Extension from Sierra Madre Villa Station to Montclair (JPA cost/JPA Ridership)	268,781	1 5,120	2	6	4.85	1 14.7%	1 4.83	1 249	1	4	10
West Santa Ana Branch ROW Corridor Mag Lev between LA Union Station and Santa Ana Metrolink Station	449,443	1 1,901	1	4	11.96	2 58.8%	2 4.67	1 3,321	2	7	11

1 Metro costs revised for Gold Line Foothill Extension. Slight changes to some total scores reflect minor technical corrections.

* Light rail projects using heavy rail lines may be required to negotiate exclusive use agreements to share tracks. If at-grade or aerial alignments require right-of-way purchases, cost estimates could increase substantially.

** The Regional Connector Light rail project received the highest score in each category. Because the scores for this project were significantly higher than the field in most categories they were not considered in the range of scores when assigning points to the other projects, in order to achieve a more balanced distribution.

FIGURE 5.27

Performance Analysis – Highway															
Highway Projects (Alphabetical by Score)	Project Performance – 50%					Corridor Need – 50%									
	Annual Hrs of Delay Savings / Mile	Annual Hrs Saved Per Million \$			Total Score	Pop & Emp Density	Major Activity Centers/ Mile	Highway Congestion Score	Total Score		Total Combined Score				
		low/mid	low	high											
SR-710 North Extension: Add 3 Mixed Flow + 1 HOV lane in each direction	749,853	3	1405*	1,225	1,585	1	12	9.70	2	39.16	3	5	3	16	28
I-605 HOV lanes: I-210 to I-10	309,140	2	10,669			3	15	7.17	2	24.30	2	4	2	12	27

FIGURE 5.27 CONTINUED

Performance Analysis – Highway															
Highway Projects (Alphabetical by Score)	Project Performance – 50%						Corridor Need – 50%								
	Annual Hrs of Delay Savings / Mile	Annual Hrs Saved Per Million \$			Total Score		Pop & Emp Density	Major Activity Centers/ Mile		Highway Congestion Score		Total Score	Total Combined Score		
		low/mid	low	high											
I-405: Add N/B lane from Hawthorne to I-105 (Approximate length = 3.5 miles)	259,909	2	2,524			1	9	11.33	2	54.67	3	6	3	16	25
I-405: Add S/B lane from Rosecrans to Inglewood (Approximate length = 1.0 mile)	259,909	2	2,524			1	9	11.33	2	54.67	3	6	3	16	25
US-101 Corridor: Add HOV lane in each direction between Rt. 27 (Topanga Canyon) and Rt 2 in Downtown LA and restripe for mixed flow lane in each direction between Rt 27 and the Ventura Co Line.	446,126	2	4762*	4,002	5,521	2	12	12.54	2	22.82	2	4	2	12	24
US-101: Add HOV lane in each direction between Rt 27 and the Ventura Co Line (This HOV lane would be in addition to the mixed flow lane proposed on the 2001 L RTP Strategic list.)	543,389	3	8029*	6,883	9,174	3	18	2.92	1	7.79	1	3	1	6	24
I-10: Add one HOV lane in each direction on Santa Monica Fwy btwn Lincoln Bl (in Santa Monica) and the I-5 Frwy interchange.	400,134	2	2291*	2,036	2,545	1	9	19.48	3	33.56	2	4	2	14	23
I-5 Carpool & Mixed Flow Lanes: I-605 to I-710	388,537	2	959*	852	1,065	1	9	10.66	2	30.72	2	5	3	14	23
SR 57 HOV lanes: Rt. 60 to I-210	347,406	2	7,287			2	12	3.71	1	17.77	1	5	3	10	22
I-5: SR-14 to Kern Co Line (HOV and Truck Lane Improvements)	292,844	2	11,092			3	15	0.27	1	1.07	1	2	1	6	21
I-710 Corridor Study Recommendations: (Add Mixed Flow lanes to make uniform 10 lanes from Ports to SR-60 : Add 2 Truck lanes in each direction from Ports to Hobart/ ICTF Railyards- Cities of Vernon, Commerce)	419,620	2	1,183			1	9	11.08	2	21.87	2	4	2	12	21
SR 60 HOV lanes: Rt. 101 to I-605	203,009	1	4,904			2	9	11.10	2	26.04	2	4	2	12	21
SR-14: I-5 to Kern County Line (HOV & Mixed Flow Improvements)	155,810	1	5,105			2	9	0.89	1	2.89	1	2	1	6	15
HDC E-W: SR 14 to LA/SB Co Line- (add 3 MF+1 HOV freeway/ expressway)	36,793	1	770			1	6	0.03	1	2.38	1	2	1	6	12
HDC N-S: SR14 to SR138 - add 2 MF expressway**	4,981	1	209			1	6	0.07	1	0.18	1	2	1	6	12
SR-138: I-5 to SR-14 - Add 2 MF lanes in each direction	5,557	1	194			1	6	0.54	1	0.03	1	2	1	6	12
SR-138: Pearblossom Hwy to SB Co Line - Widen existing SR-138 to 4 lanes.	14,079	1	977			1	6	0.30	1	1.15	1	2	1	6	12

1 Slight change to total score for US-101 project (from Rt. 2 to Ventura County Line) reflects minor technical correction. Hours of Delay Savings is calculated by modeling delay savings throughout a defined corridor. Where there are multiple freeway projects located in a corridor they share the same delay savings results.

* For each project in which estimated cost was provided in the form of a range rather than a single estimate, the midpoint of the range was used for evaluation purposes.

** The Hours of Delay Savings for the HDC N-S project were provided through off-model analysis. The delay savings for this segment was calculated from the HDC E-W project through a comparison of projected daily trip volumes. The HDC N-S carries approximately 44% of the volumes of the HDC E-W, therefore the delay savings were calculated to be 44% that of the HDC E-W segment.

FIGURE 5.28

Tier 1 Strategic Plan Unfunded Transit Projects



FIGURE 5.29

Tier 1 Strategic Plan Unfunded Highway Projects

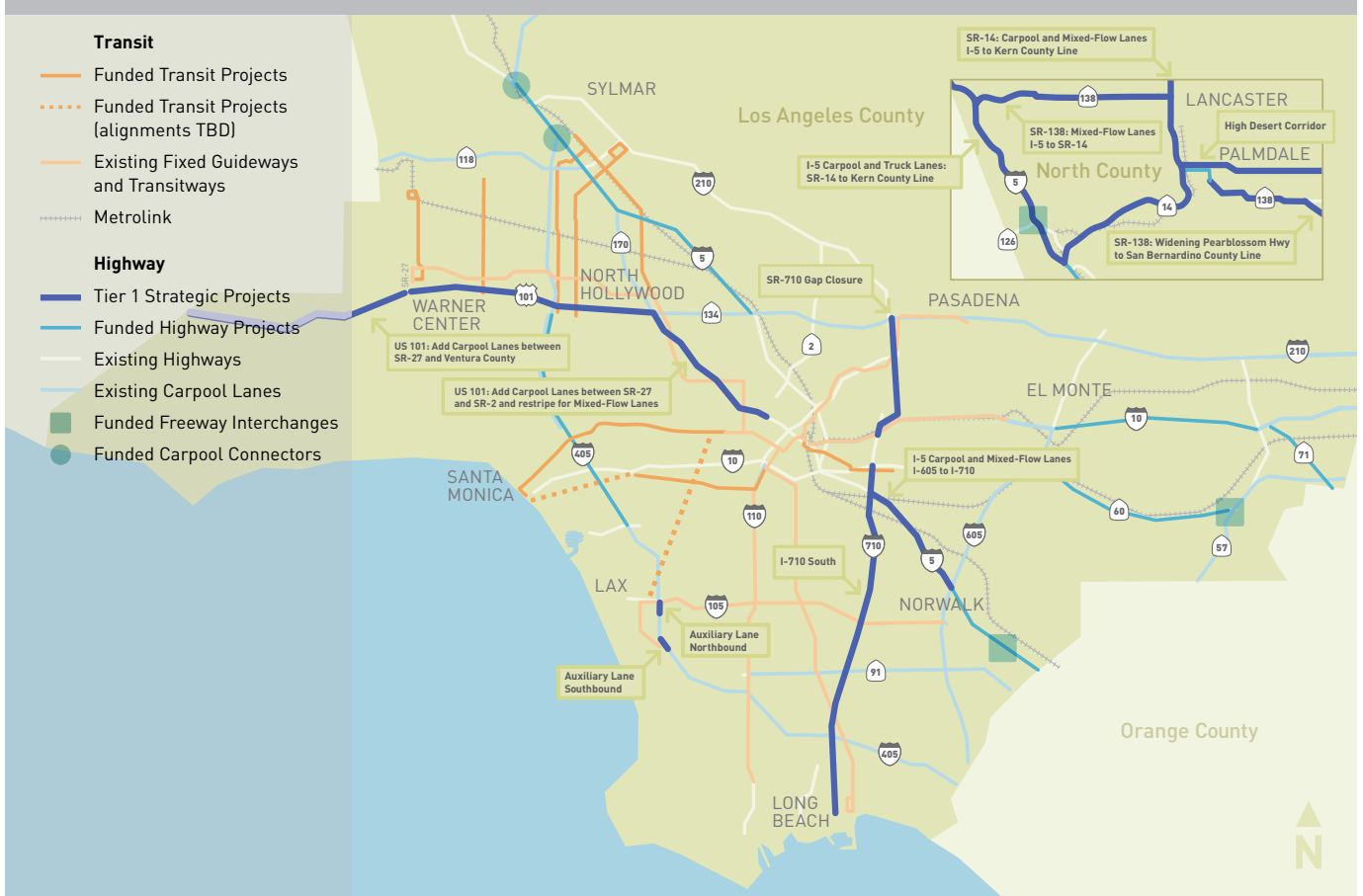


FIGURE 5.30

Tier 2 Strategic Plan Unfunded Transit Projects



FIGURE 5.31

Tier 2 Strategic Plan Unfunded Highway Projects



511 — The National Traveler Information phone number that will provide local freeway, transit, rideshare, airport, general emergency, and other traveler related services. 511 is targeted for deployment in Los Angeles County in mid-2008 and will ensure that our region complies with this requirement of the federal SAFETEA-LU authorization program.

ADA AMERICANS WITH DISABILITIES ACT — Federal civil rights legislation for disabled persons passed in 1990. It mandates that public transit systems make their services more fully accessible to the disabled. If persons with disabilities are not capable of accessing general public transit service, the law requires agencies to fund and provide for delivery of paratransit services which are capable of accommodating these individuals.

ADT AVERAGE DAILY TRAFFIC — The average number of vehicles passing a specified point during a 24-hour period.

AIR QUALITY INDEX — A measure of the total weight of mobile source pollutant emissions (carbon monoxide, oxides of nitrogen, and reactive organic gases) from transportation modes. Both the emission factors and the formula that enables the composite index to be calculated are provided by the California Air Resources Board (CARB). The emission factors are sensitive to the number, length and speed of vehicle trips and take into account projected emission reductions due to such improvements as alternative fuels and electric vehicles.

AMTRAK NATIONAL RAILROAD PASSENGER CORPORATION — National passenger rail service which shares track with Metrolink under contract with the Southern California Regional Rail Authority (SCRRA) to provide passenger rail service in Orange and Ventura Counties. Metrolink monthly passes can be used as proof of payment on duplicating service offered by Amtrak.

AQMD AIR QUALITY MANAGEMENT DISTRICT — An intergovernmental agency established to monitor air quality within a region and to implement state and federal air quality standards through the development of regional air quality plans and regulations.

AQMP AIR QUALITY MANAGEMENT PLAN — A plan for attaining state air quality as required by the California Clean Air Act of 1988. The plans are adopted by air quality districts and subject to approval by the California Air Resources Board.

ARTERIAL STREET — A major thoroughfare, used primarily for through traffic rather than for access to abutting land, that is characterized by high-vehicular capacity and continuity of movement. The street is either divided or undivided and its main function is to carry non-local traffic at medium speeds.

ARTICULATED BUS — A bus with an increased passenger capacity due to its significantly longer length. The increased length is accommodated by the fitting of an extra axle and joint into the design of the bus, allowing it to efficiently navigate turn movements in city traffic.

ASSEMBLY BILL 32 — The California Global Warming Solutions Act of 2006. California's landmark bill that establishes a first-in-the-world comprehensive program of regulatory and market mechanisms to achieve real, quantifiable, cost-effective reductions of greenhouse gases.

ATSAC AUTOMATED TRAFFIC SURVEILLANCE AND CONTROL SYSTEM — ATSAC is a computer-based traffic signal control system operated by the City of Los Angeles that monitors traffic conditions and system performance on the existing arterial street system, selects appropriate signal timing (control) strategies, and performs equipment diagnostics and alert functions. Sensors in the street detect the passage of vehicles, vehicle speed, and the level of congestion. This information is received on a second-by-second (real-time) basis and is analyzed on a minute-by-minute basis at the ATSAC Operations Center, to determine if better traffic flow can be achieved by changing the signal timing. To supplement the information from electronic detectors, closed-circuit television (CCTV) surveillance equipment is installed at critical locations.

AVO AVERAGE VEHICLE OCCUPANCY — The average number of persons occupying a passenger vehicle along a roadway segment, intersection, or area and monitored during a specified time period. For purposes of the California Clean Air Act, passenger vehicles include autos, light-duty trucks, passenger vans, buses, passenger rail vehicles and motorcycles.

AVR AVERAGE VEHICLE RIDERSHIP — The number of employees who report to a worksite divided by the number of vehicles driven by those employees, typically averaged over an established time period. This calculation includes crediting vehicle trip reductions from telecommuting, compressed workweeks and non-motorized transportation.

BIKE-TRANSIT HUB — Locations served by numerous transit or rail lines that have been designated by Metro as prime candidates for bicycle access improvements with the goal of allocating bikeway resources to areas that will improve both bicycle and transit ridership in the form of linked trips.

BLD LINK BUILD LINK — A series of programs that create walk access links for the transit network building process.

BRT BUS RAPID TRANSIT — BRT combines the quality of rail transit with the flexibility of buses. It can operate on exclusive transitways, HOV lanes, expressways, or ordinary streets. A BRT system combines Intelligent Transportation

Systems (ITS) technology, priority for transit, lower emissions, quieter vehicles, rapid and convenient fare collection, and integration with land use policy.

BUS SPEED IMPROVEMENTS – Evaluation of means of improving bus speeds in Los Angeles County through use of ITS and identification of locations where speeds could be improved through the establishment of bus-only lanes.

BUSWAY – A street lane which is reserved for the exclusive use of buses, either in a separated right-of-way or on a city street.

BTA BICYCLE TRANSPORTATION ACCOUNT – The Caltrans BTA provides state funds for city and county projects that improve safety and convenience for bicycle commuters.

CAA CLEAN AIR ACT – Federal legislation that requires each state with areas that have not met Federal air quality standards to prepare a State Implementation Plan (SIP). The sweeping 1990 amendments to the CAA established new air quality requirements for the development of metropolitan transportation plans and programs. The California Clean Air Act (CCAA) sets even tougher state goals.

CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006 – Legislation passed by the California Assembly and signed by the Governor (AB 32) that requires major industrial producers of carbon dioxide to reduce emissions 25% by 2020.

CALTRANS CALIFORNIA DEPARTMENT OF TRANSPORTATION – Caltrans is responsible for the design, construction, maintenance and operation of California Highway System, including the Interstate Highway System within the state's boundaries.

CARB CALIFORNIA AIR RESOURCES BOARD – CARB was established by the California Legislature in 1967 to attain and maintain healthy air quality, conduct research into the causes of, and solutions to, air pollution, and systematically attack the serious problem caused by motor vehicles, which are the major causes of air pollution in the State. Since its formation, the CARB has worked with the public, the business sector, and local governments to protect public health, the economy, and state ecological resources through cost-effective reduction of air pollution.

CARBON FOOTPRINT – A measure of the impact human activities have on the environment in terms of the amount of greenhouse gases produced, measured in units of carbon dioxide. It is meant to be useful for individuals and organizations to conceptualize their personal (or organizational) impact in contributing to global warming.

CARPOOL – Arrangement in which two or more people share the use, cost or both of traveling in privately owned automobiles between fixed points on a regular basis.

CARPOOL LANE – A highway or street lane reserved for carpools and other high occupancy vehicles.

CARPOOL LANE CONNECTORS – Dedicated freeway lanes that permit direct transfer of high occupancy vehicles from one HOV lane to another, thereby minimizing weaving conflicts and enabling ridesharing vehicles to maintain their speed advantage through freeway interchanges. These lanes make it possible for carpoolers using more than one freeway to travel without leaving the HOV lane to change freeways.

CARPOOL LANE MILES – Total number of freeway lane miles dedicated to high occupancy vehicle (HOV) use.

CCAR CALIFORNIA CLIMATE ACTION REGISTRY – Non-profit organization that provides leadership on climate change by developing and promoting credible, accurate, and consistent greenhouse gas reporting standards and tools for organizations to voluntarily measure, monitor, and reduce their greenhouse gas emissions.

CEQA CALIFORNIA ENVIRONMENTAL QUALITY ACT – A statute that requires all jurisdictions in the State of California to evaluate the extent of environmental impact due to a proposed development or project.

CFP CALL FOR PROJECTS – Primary process for the selection of transportation improvement projects for funding with discretionary federal, state and local revenues.

CHP CALIFORNIA HIGHWAY PATROL – The major statewide law enforcement agency responsible for the management and regulation of traffic on Caltrans-designated freeways and highways to achieve safe, lawful and efficient use of the highway system.

CIP CAPITAL IMPROVEMENT PROGRAM – The CIP is a comprehensive agency-wide five-year program that adds and replaces capital assets such as buildings, buses, rail cars, equipment and furniture. A CIP provides detailed justifications, cost estimates, funding type and priority listing of new and replaced equipment based on life cycle, safety, need and related criteria.

CLIMATE CHANGE – A shift in global weather patterns resulting in an increase in the variability of temperature, precipitation, and wind in a region over a period of time. Recent studies suggest that emissions from gasoline-powered internal combustion engines have contributed to global climate warming.

CMAQ CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM — Federal funds available for either transit or highway projects that contribute significantly to reducing automobile emissions which cause air pollution. Established by the Intermodal Surface Transportation Efficiency Act.

CMP CONGESTION MANAGEMENT PROGRAM — As the Congestion Management Agency for Los Angeles County, Metro is responsible for implementing the CMP for Los Angeles County. State statute requires that a congestion management program be developed, adopted, and updated for every county that includes an urbanized area, and shall include every city and the county government within that county. Statutory elements of the CMP include Highway and Roadway System monitoring, multi-modal system performance analysis, the Transportation Demand Management program, the Land Use Analysis program, and deficiency plans for all the county's jurisdictions.

CNG COMPRESSED NATURAL GAS — The type of fuel used by the majority of Metro's bus fleet. CNG is considered to be an environmentally clean alternative to diesel fuel. Metro's CNG powered vehicles reduce our region's production of greenhouse gases with an average reduction in ozone-forming emissions of 80% compared to gasoline engines.

CNG-POWERED BUSES — Vehicles that run on compressed natural gas. CNG is becoming an alternative to the diesel fuel commonly used in transit buses. The attraction of CNG is due to its ability to meet the low emission regulations being imposed upon the transit industry and the abundant supply of the fuel in the United States. CNG is pressurized to 3,600 pounds per square inch (psi) and stored in carbon fiber containment vessels aboard the vehicles.

CO CARBON MONOXIDE — A colorless, odorless, poisonous gas produced mostly by the incomplete combustion of fuels used for transportation, heating, and electric power generation, and as a by-product of some industrial processes.

CO₂E CARBON DIOXIDE EQUIVALENT — A measuring technique for determining the global warming potential of a greenhouse gas as compared to the amount of carbon dioxide that would be required to cause the same impact.

COG COUNCIL OF GOVERNMENTS — COGs are subregional cooperative and advocacy associations of city governments.

COMMITTED PROJECTS — Committed projects include any project for which funding has been approved by the Metro Board.

COMMUTER RAIL — Fixed-rail public transit system, generally utilizing heavy rail and track. Metrolink is the commuter rail service in Los Angeles County.

COMPLETE STREET — Street design methodology that enables safe street access for all users. Pedestrians, bicyclists, motorists, and bus riders of all ages and abilities are able to safely move along and across a complete street.

CONGESTION MITIGATION FEE — A one-time impact fee applied to all types of new development to fund transportation improvements.

CONGESTION PRICING — Congestion pricing is the concept of charging for the use of a transportation facility, such as a roadway, based on the level of congestion. The greater the level of congestion, usually occurring during morning and evening rush hours, the higher the cost to use the facility.

CONSTRAINED PLAN — The element of Metro's Long Range Transportation Plan that is funded with available resources.

CONTAINER — A single rigid receptacle without wheels usually measuring approximately 20 feet to 53 feet long by 8 ½ feet wide and 8 feet tall that is used for the transport of goods hauled on a truck, rail car, and ship (or a type of carrier equipment into which freight is loaded).

CONTAINER FEES — Fees that could be imposed on freight containers to finance infrastructure and environmental clean-up projects.

COST EFFECTIVENESS INDEX — Measures the cost of transportation system improvements as compared to the travel-time savings and air pollution reductions that are the result of the improvement.

CRASH ENERGY MANAGEMENT PROGRAM — A program that will work to minimize the impact of collisions on the passenger compartments of commuter rail (Metrolink) trains.

CROSSOVER — Railroad switchover tracks allowing trains to cross from one track to another, improving the efficiency of train operations.

CSAN COUNTYWIDE SIGNIFICANT ARTERIAL NETWORK — A regional arterial network developed by Metro and Cities to assist in determining the performance of the system, guiding future transportation planning and helping target arterial improvements through the Call for Projects.

CTC CALIFORNIA TRANSPORTATION COMMISSION — A state-level commission consisting of eleven members (nine appointed by the Governor and two appointed by the Legislature) that establishes priorities and allocates state and federal funds for highway, passenger rail and transit investments throughout California.

DEADHEAD — The movement of a transit vehicle to or from its designated and scheduled route. It is not in passenger

service, but rather is traveling between routes, or to/from the transit yard or to/from its route.

DEDICATED FREIGHT GUIDEWAYS – Roadways or railways used exclusively by vehicles carrying freight.

DESIGN-BUILD – A construction project delivery system in which the design and construction aspects of a project are contracted for with a single entity known as the design-builder or design-build contractor. This system is used to minimize project risk for an owner and to reduce the delivery schedule by overlapping the design phase and the construction phase of a project.

EIR ENVIRONMENTAL IMPACT REPORT – A detailed report required under the California Environmental Quality Act (CEQA) describing and analyzing the significant environmental effects of a proposed project, identifying alternatives and discussing ways to reduce or avoid the possible environmental impacts.

EIS ENVIRONMENTAL IMPACT STATEMENT – An EIS is a full disclosure document required under the National Environmental Policy Act that details the process through which a transportation project was developed, includes consideration of a range of reasonable alternatives, analyzes the potential environmental impacts resulting from the alternatives, and demonstrates compliance with other applicable environmental laws and executive orders.

EMS ENVIRONMENTAL MANAGEMENT SYSTEM – A set of environmental planning processes and practices that enables an organization to reduce its environmental impacts and increase its operating efficiency through pollution mitigation and resource conservation.

ENVIRONMENTAL JUSTICE – The term stems from a 1994 presidential executive order to promote equity for disadvantaged communities and promote the inclusion of racial and ethnic populations and low-income communities in decision-making. Local and regional transportation agencies must ensure that services and benefits, as well as burdens, are fairly distributed to avoid discrimination.

EZ TRANSIT PASS – The regional EZ pass is a monthly pass offered to customers that provides seamless riding among Los Angeles County's sixteen Municipal transit operators and Metro bus and rail services.

FAP FORMULA ALLOCATION PROCEDURE – Formula used to allocate federal and state bus transit funds among the various transit agencies in Los Angeles County.

FARE BOX RECOVERY – The amount of revenue generated through fares by paying customers as a fraction of the total Metro operating expenses.

FFGA FULL FUNDING GRANT AGREEMENT – Funding pact approved by the Federal Transit Administration (FTA) that guarantees federal funding for a specified transportation project.

FHWA FEDERAL HIGHWAY ADMINISTRATION – A branch of the Federal Department of Transportation that administers and funds the nation's highway system.

FIXED GUIDEWAY – System of vehicles that can operate only on its own guideway constructed for that purpose (e.g. commuter rail, light rail).

FREEWAY RAMP METERING – A freeway to which access is controlled by entrance ramp signals that use fixed-time signal settings or is regulated by a computerized surveillance system. This procedure is used to prevent freeway congestion.

FSP FREEWAY SERVICE PATROL – Towing services funded by Metro to remove stalled vehicles from freeway lanes, especially during peak periods. The FSP also assists stranded motorists who may have run out of gas or need to change a tire.

FTA FEDERAL TRANSIT ADMINISTRATION – The agency of the Federal Government which provides funding for national policy, technical assistance, and transit programs.

FUEL CELL – An energy conversion device that produces electricity in hybrid electric and hydrogen-powered vehicles.

FY FISCAL YEAR – The annual period for which a business entity establishes a budget for spending. In California government, the fiscal year is from July 1st until June 30th each year; the same fiscal year that Metro uses. The federal government's fiscal year (FFY) is from October 1st until September 30th of each year.

GHGe GREENHOUSE GAS EMISSIONS – Greenhouse gas emissions are gases that trap heat in the atmosphere. Some greenhouse gases such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities. Other greenhouse gases (e.g. fluorinated gases) are created and emitted solely through human activities.

GLOBAL WARMING – Term used to describe the increase in the average temperature of the Earth's surface air and oceans in recent decades and its projected continuation. Studies have shown that much of this warming is attributable to greenhouse gases emitted into the atmosphere by industrial and mechanical exhaust.

GREENHOUSE EFFECT – The process by which the emission of ozone into the atmosphere warms Earth's surface.

GUIDEWAY — Facility housing a transit system, either a subway tunnel, at-grade trackway or busway, or aerial structure. Also see Fixed guideway.

HBNW HOME-BASED NON-WORK — A trip with one end at home and the other end at a non-work location.

HBW HOME-BASED WORK — A trip with one end at work and the other end at home.

HC HYDROCARBON — Organic compound that contains hydrogen and carbon. Hydrocarbons produce energy when burnt and are currently the world's primary source of electrical energy and heating. The emissions produced by the combustion of petroleum in gasoline engines is understood to be a major source of greenhouse gas, and is contributory to global climate warming.

HIGHWAY — A freeway or expressway which provides limited access for inter-regional or interstate travel or a major arterial which has been designated as part of the state highway system.

HOT LANE HIGH-OCCUPANCY/TOLL LANE — A designated carpool lane that motorists driving alone can use if they pay a toll, allowing them to avoid traffic delays in the adjacent regular lanes. Toll-paying drivers and toll-free carpools/vanpools share the lane, increasing the number of total vehicles using the HOV/HOT lane and generating revenues that can be used for transportation improvements.

HOV HIGH OCCUPANCY VEHICLE — Any transportation vehicle carrying more than one person for travel purposes. This may include an automobile, bus, or train.

HOV LANE HIGH OCCUPANCY VEHICLE LANE — A freeway lane reserved for use by vehicles carrying more than one passenger, including buses, taxis, and carpools. Motorcycles and certain alternatively fueled vehicles are also permitted to use the lanes.

HYBRID ELECTRIC — A vehicle that combines a conventional internal combustion gasoline engine with a rechargeable electric energy storage system to achieve better fuel economy.

IENT LOS ANGELES COUNTY INFORMATION EXCHANGE NETWORK — Allows the collection and distribution of arterial street-level operational and planning data to facilitate signal coordination between and through jurisdictions.

INTERMODAL — The term "mode" represents one method of transportation, such as automobile, transit, ship, bicycle or walking. Intermodal refers specifically to transportation trips using one or more modes.

ISTEA INTERMODAL SURFACE TRANSPORTATION

EFFICIENCY ACT — Landmark federal legislation signed into law in 1991 that initiated broad changes in the way transportation decisions are made. ISTEA emphasized diversity and balance of modes, as well as the preservation of existing systems before construction of new facilities. ISTEA expired in 1997, and much of its program structure was carried forward in successor federal legislation (see TEA-21 and SAFETEA-LU).

ITS INTELLIGENT TRANSPORTATION SYSTEMS — Technical innovations that apply communications and information processing to improve the efficiency and safety of ground transportation systems.

ITS INITIATIVES — Can include closed-circuit video monitoring of freeway traffic conditions and the use of automatic vehicle location technology to provide real-time transit and traffic information to the 511 telephone and Web-based information service. ITS initiatives are also used to coordinate traffic signals and speed emergency vehicle response times.

JPA JOINT POWERS AUTHORITY — A voluntary association of government entities formed into a special purpose agency to deal with a common problem or problems, carry out a specific project, or provide a specific service.

LACDPW — Los Angeles County Department of Public Works.

LADOT — Los Angeles Department of Transportation.

LEED LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN — The green building standards rating system. LEED is administered by the U.S. Green Building Council, a Washington DC based, nonprofit coalition of building industry leaders and is designed to promote design and construction practices that increase profitability while reducing the negative environmental impacts of buildings and improving occupant health and well-being.

LRT LIGHT RAIL TRANSIT — The Metro Rail system is an example of a light rail transit system.

LRTP LONG RANGE TRANSPORTATION PLAN — Metro's plan to assess future population increases projected for the county and what such increases will mean for future mobility needs. The plan recommends what can be done within anticipated revenues, as well as what could be done if additional revenues became available. The Draft 2008 LRTP is an update to the 2001 Long Range Transportation Plan for future transportation investments in Los Angeles County through 2030.

MAGLEV — A magnetically levitated transportation system that is suspended, guided, and propelled by electromagnetic force.

MCGMAP MULTI-COUNTY GOODS MOVEMENT ACTION

PLAN – A consensus strategy and implementation plan for Southern California goods movement system developed by Metro, Orange County Transportation Authority, Riverside County Transportation Commission, San Bernardino Associated Governments, Ventura County Transportation Commission, Caltrans Districts 7, 8, 11 and 12, San Diego Association of Governments, and Southern California Association of Governments.

METRO RAIL – Metro’s electrified light rail and subway transit system.

METRO RAPID – Bus service on arterial streets with several attributes to improve service operating speeds including traffic signal priority, level boardings and alighting with low floor buses, fewer stops and active management of service operation.

METROLINK – Regional commuter rail system connecting Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties. Service began in October 1992.

MICROMETER – A unit of measure equal to one millionth of a meter (one thousandth of a millimeter). Airborne particulate matter is measured in micrometers to help determine its level of threat to human respiratory health.

MICRON – Same as micrometer.

MOBILITY INDEX – Measures the ability of a region’s transportation systems (all modes) to move people. Higher indices are reached by transportation projects and systems that move people in either fewer vehicles or faster, or both. This index therefore is calculated by the product of aggregate average vehicle occupancy and aggregate speed of the entire region’s transportation trips.

MODE SHARE – Indicates the share of a transportation mode utilized by people for their transportation trips as compared to other modes and all of a region’s transportation trips as a whole.

MOSIP MUNICIPAL OPERATOR SERVICE IMPROVEMENT PROGRAM – Metro’s program designed to improve bus service for the transit dependent in Los Angeles County by reducing overcrowding and expanding services.

MPH MILES PER HOUR – Speed described as the distance traveled in one hour.

MPO METROPOLITAN PLANNING ORGANIZATION – The organization designated by the Governor and local elected officials as responsible for transportation planning in an urbanized area. It serves as the forum for cooperative decision making by principal elected officials of local government. The Governor designates a MPO in every

urbanized area with a population of over 50,000 people. In the Southern California region, the Southern California Association of Governments (SCAG) is the designated MPO.

MULTIMODAL – Public transportation system which employs a combination of highway, bus, rail, high occupancy vehicles, bikeway, pedestrian land use and demand management systems.

NEPA NATIONAL ENVIRONMENTAL POLICY ACT – Federal law which establishes national policy for environmental protection and provides for the establishment of a Council of Environmental Quality. Requires studies of impacts on the environment before specified projects are undertaken.

NHB NON-HOME BASED – A trip which neither begins nor ends at a trip-maker’s residence.

NHS NATIONAL HIGHWAY SYSTEM – This approximately 160,000-mile network consists of the 42,500 miles of the Interstate system, plus other key roads and arterials throughout the United States. Designated by Congress in 1995 pursuant to a requirement of ISTEA, the NHS is designed to provide an interconnected system of principal routes to serve major travel destinations and population centers.

NO-BUILD SCENARIO – Planning projection of what the future will be like without any new transportation investments added beyond what is currently under construction.

NOX NITROGEN OXIDE – The generic term given for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. These ozone-producing gases are environmental pollutants that form when fuel is burned at high temperatures, as in the combustion process. Sources include automobile emissions, trucks, power plants, and other major industrial sources.

O&D ORIGIN AND DESTINATION – The location or zone where a trip begins and the location or zone where a trip ends.

O&M OPERATIONS AND MAINTENANCE – These are the costs associated with the regular running of a new transportation facility, including labor, vehicle maintenance, and overall facility maintenance.

OMB – The Office of Management and Budget.

OPERATING REVENUES – Monies used to fund general, day-to-day costs of running transportation systems. For transit the costs may include fuel, salaries and replacement parts; for roads, operating costs involve maintaining pavement, filling potholes, and paying workers’ salaries.

PARATRANSIT — Flexible forms of transportation services that are not confined to a fixed route. Paratransit is generally used to provide service for people with disabilities in compliance with the Americans with Disabilities Act of 1990 (ADA).

PEAK PERIOD — The period during which the maximum amount of travel occurs. It may be specified as the morning (AM) or afternoon or evening (PM) peak.

PEDESTRIAN PRIORITY IMPROVEMENT PROGRAM — Metro's Program of projects designed to enhance the pedestrian environment throughout Los Angeles County by developing safe, connected walking environments to promote non-motorized transport options.

PHT PASSENGER HOURS TRAVELED — The aggregate number of hours traveled by each passenger for each trip on a transportation mode such as transit.

PM PARTICULATE MATTER — Mixture of extremely small particles and liquid droplets made up of a number of components, including acids, organic chemicals, metals, and soil or dust particles. The size of the particles is directly linked to their potential for causing health problems. Of particular concern are those particles that are ten micrometers in diameter or smaller that can be inhaled into the lungs and potentially cause serious health effects.

PMT PASSENGER MILES TRAVELED — The aggregate number of miles traveled by each passenger for each trip on a transportation mode such as transit.

PPV PERSONS PER VEHICLE — The number of persons per vehicle.

PROP A — Proposition A is a sales tax initiative approved by the Los Angeles County voters in 1980. The proposition established a one-half cent sales tax to be used for public transportation purposes.

PROP C — Proposition C is a sales tax initiative approved by the Los Angeles County voters in 1990 that established a one-half-cent sales tax to be used for public transportation purposes.

PROP 42 — A statewide initiative approved in 2002 that requires gasoline sales tax revenues to be dedicated to transportation purposes. In Fiscal Year 2006-07, Proposition 42 funds were estimated to provide approximately \$1.4 billion statewide.

PROP 1A — A statewide initiative approved in November 2006 which provides greater assurance that gasoline sales tax revenues will go to transportation. Proposition 1A allows the funds to be loaned to the General Fund only twice in a 10-year period and requires that funds be repaid within three years prior to making a second loan.

PTA PUBLIC TRANSPORTATION ACCOUNT — The State of California transportation trust fund that derives its revenue from sales and use taxes on diesel fuel and gasoline. These funds are distributed to the counties based on a formula.

PUBLIC-PRIVATE PARTNERSHIPS — Public-private partnerships refer to contractual agreements formed between a public agency and private sector entity that allow for greater private sector participation in the delivery of transportation projects. Traditionally, private sector participation has been limited to separate planning, design or construction contracts on a fee for service basis based on the public agency's specifications. Expanding the private sector role is intended to allow the public agencies to tap private sector technical, management and financial resources in new ways to achieve certain public agency objectives such as greater cost and schedule certainty, supplementing in-house staff, innovative technology applications, specialized expertise or access to private capital.

REGIONAL IMPROVEMENT PROGRAM — One of the state funding programs, it is also known as "Regional Choice". Project selection is done by Metro and submitted to the California Transportation Commission for approval. The Regional Improvement Program allocates 75% of State transportation improvement funds. These funds may be used for capital projects including highways, arterials, guideways, rail projects, bikeways, transportation enhancements, and TSM and TDM activities.

RIDESHARE — The term generally refers to carpooling and vanpooling.

RIDESHARING — Two or more persons traveling by any mode, including but not limited to, automobile, vanpool, bus, taxi, jitney, and public transit.

RIITS NETWORK REGIONAL INTEGRATION OF INTELLIGENT TRANSPORTATION SYSTEMS — Metro sponsors the network. Caltrans, LADOT, California Highway Patrol and Metro all contribute information collected through their own Intelligent Transportation Systems. The network supports information exchange in real-time between freeway, traffic, transit and emergency service agencies to improve management of the Los Angeles County transportation system and better serve the traveling public.

ROG REACTIVE ORGANIC GASES — Carbon-based chemical pollutants that react with nitrogen and oxygen in the air in the presence of sunlight to form ozone. It has been shown that excessive ozone concentrations in the lower atmosphere are a cause of respiratory health problems, as well as a contributing factor to global warming.

ROLLING STOCK — Refers to any powered or unpowered vehicle that travels on a railway. This category includes passenger rail cars and locomotives.

RSTI REGIONAL SURFACE TRANSPORTATION

IMPROVEMENTS — A category of improvements in Metro's Call for Projects that includes major capital investments such as street widenings, realignments, grade separations and freeway ramp modifications.

RTIP REGIONAL TRANSPORTATION IMPROVEMENT

PROGRAM — A list of proposed countywide highway and transportation projects which identifies funding sources, construction and timing schedules. In Los Angeles County, it is submitted to the Southern California Association of Governments (SCAG), and incorporates projects identified in the county Transportation Improvement Program (TIP). Each county's transportation commission in California prepares an RTIP and submits it to the salient metropolitan planning organization (MPO). The RTIP has a six-year planning period and is updated every other year.

RTP REGIONAL TRANSPORTATION PLAN — A comprehensive 20-year plan for the region, updated every two years by the Southern California Association of Governments. The RTP includes goals, objectives and policies; and recommends specific transportation improvements.

RTPA REGIONAL TRANSPORTATION PLANNING AGENCY —

A state-designated agency responsible for preparing the Regional Transportation Plan (RTP) and the Regional Transportation Improvement Program (RTIP), administering state funds, and other regional transportation planning tasks.

SAFE SERVICE AUTHORITY FOR FREEWAY EMERGENCIES —

One dollar from each vehicle registration within Los Angeles County is used to provide expanded and improved emergency call box service along the highways. SAFE is a separate legal entity from Metro.

SAFETEA-LU SAFE, ACCOUNTABLE, FLEXIBLE, EFFICIENT

TRANSPORTATION EQUITY ACT — A Legacy for Users. A multi-year federal transportation act, signed into law by President George W. Bush on August 10, 2005. The act authorizes \$286 billion in funding for federal surface transportation programs over five years. SAFETEA-LU maintains the program structure of its predecessor, TEA-21.

SCAB SOUTH COAST AIR BASIN — The geographic area defined by the San Jacinto Mountains to the east, the San Bernardino Mountains to the north, and the Pacific Ocean to the west and south. The entire SCAB is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

SCAG SOUTHERN CALIFORNIA ASSOCIATION OF

GOVERNMENTS — SCAG is the federally-designated Metropolitan Planning Organization (MPO) for six counties (Los Angeles, Orange, San Bernardino, Riverside,

Ventura and Imperial). It is the regional agency responsible for developing a regional transportation plan for the six-county region.

SCAQMD SOUTH COAST AIR QUALITY MANAGEMENT

DISTRICT — A regional agency which adopts and enforces regulations to achieve and maintain state and federal air quality standards. It is responsible for preparing the Air Quality Management Plan (AQMP) for the South Coast Air Basin. Also known as the AQMD.

SCRRA SOUTHERN CALIFORNIA REGIONAL RAIL

AUTHORITY — The five county regional joint powers authority responsible for the operation of the Metrolink commuter train service.

SEALED CORRIDOR — Railroad grade crossing safety improvement plan designed to enhance safety at grade crossings. Metrolink's sealed corridor program will identify rail corridors with several at-grade crossings and work to restrict vehicular access to the right-of-way along the entire stretch.

SELF-HELP APPROACHES — Financing measures initiated at the local level as a means of generating revenue to fund transportation improvements. Typically done when state and federal funds are scarce, these measures are intended to provide a reliable revenue stream.

SHOPP STATE HIGHWAY OPERATIONS AND PROTECTION PROGRAM — The state funding category used by Caltrans to maintain and operate state highways.

SHORT RANGE TRANSPORTATION PLAN — The Short Range Transportation Plan focuses on the phasing of transportation improvements through 2009 and relies on performance-based modeling to identify the best solution for each mobility challenge.

SIDING — A railroad passing track constructed to allow trains traveling on the same track in opposite directions to pass without interruption.

SIGNAL SYNCHRONIZATION — Traffic signal synchronization refers to the functioning relationship between active signals along a corridor. A common cycle length is established. All intersections in the coordinated system have the same cycle length. By maintaining a constant relationship between the signals at all times, there is a greater likelihood that mobility will be improved. This does not mean that the signals will provide a green light at the same time for the entire length of a corridor; rather, that each signal will quite literally be synchronized with the entire system, allowing for more efficient mobility.

- SIP STATE IMPLEMENTATION PLAN** – Metropolitan areas prepare regional air plans showing steps they plan to take to meet federal air quality standards and these are incorporated into the SIP. This is the state’s air quality plan required by the federal Clean Air Act.
- SMART CARD** – A device that is often the same size as a thin plastic credit card with an embedded microprocessor and is “smart” enough to hold its own data and applications and do its own processing. Smart cards can be used to store personal information, hold digital cash or prove identity.
- SMART GROWTH** – A set of policies and programs designed to protect, preserve and economically stimulate established communities while protecting valuable natural and cultural resources and limiting sprawl.
- SOUNDWALL** – Noise control walls and barriers built between highways and nearby homes that can reduce noise levels by 10-15 decibels.
- SOV SINGLE-OCCUPANT VEHICLE** – A vehicle with only one occupant. Also known as a “drive alone.”
- STA STATE TRANSIT ASSISTANCE** – STA funds are derived from half of the State Public Transportation Account which is funded from statewide sales tax on gasoline and diesel fuels. This funding source is distributed based on two factors – population and an agency’s bus/rail operator revenue as a ratio to the rest of the state transit operators.
- STIP STATE TRANSPORTATION IMPROVEMENT PROGRAM** – A program of projects that covers a five- to seven-year span, is updated every two years and determines the transportation projects that will be funded by the state.
- STP SURFACE TRANSPORTATION PROGRAM** – One of the key highway funding programs in TEA 21. STP monies may be spent on mass transit, pedestrian and bicycle facilities as well as on roads and highways. It is intended for use by the states and cities for congestion relief in urban areas. Congress annually appropriates funding for this program.
- STRATEGIC UNFUNDED PLAN** – An element of Metro’s LRTP which includes projects and programs which could be funded and implemented if new revenue sources became available.
- SUBREGIONS** – The nine geographic subregions of Los Angeles County include Arroyo Verdugo, Central Los Angeles, Gateway Cities, Las Virgenes/Malibu, North Los Angeles County, San Fernando Valley, San Gabriel Valley, South Bay Cities and Westside Cities.
- SUSTAINABILITY** – A manner to meet the needs of the present generation without compromising the ability of future generations to meet their own needs.
- TAP TRANSIT ACCESS PASS** – A plastic card the size of a credit card with an embedded microprocessor commonly referred to as a “smart card.” Used as fare media in stored-value collection systems for multi-modal transit operations.
- TCM TRANSPORTATION CONTROL MEASURE** – A measure intended to reduce motor vehicle emissions. Examples of TCMs include programs encouraging ridesharing or public transit usage, city or county trip reduction ordinances, and the use of alternative fuels in motor vehicles.
- TCRP TRAFFIC CONGESTION RELIEF PROGRAM** – A five-year state transportation investment plan passed by the California Legislature and signed into law in 2000.
- TDA TRANSPORTATION DEVELOPMENT ACT** – Created by state law in 1972, the TDA authorized the use of $\frac{1}{4}$ of 1% of the state sales tax for transportation purposes. 1% of this revenue is allocated to Metro for its transportation planning activities.
- TDM TRANSPORTATION DEMAND MANAGEMENT** – Low-cost ways to reduce demand by auto-mobiles on the transportation system, such as programs to promote telecommuting, flextime and ridesharing.
- TEA-21 TRANSPORTATION EQUITY ACT FOR THE 21ST CENTURY** – Passed by Congress in 1998, TEA-21 retained and expanded many of the programs created in 1991 under the Intermodal Surface Transportation Equity Act (ISTEA). The law reauthorized federal surface transportation programs for six years (1998-2003), and significantly increased overall funding for transportation. Its successor is SAFETEA-LU.
- TEA TRANSPORTATION ENHANCEMENT ACTIVITIES** – A SAFETEA-LU funding category where ten percent of STP monies must be set aside for projects that enhance the compatibility of transportation facilities with their surroundings. Examples of TEA projects include bicycle and pedestrian paths, restoration of rail stations or other historic transportation facilities, acquisition of scenic or open space lands next to travel corridors, and murals or other public art projects.
- TEU** – 20-foot equivalent unit is a measure of containerized cargo equal to one standard 20-foot by 8 foot by 8 $\frac{1}{2}$ foot container.
- TIP TRANSPORTATION IMPROVEMENT PROGRAM** – This is the primary spending plan and funding plan listing federal funding expected to flow to the region from all sources for transportation projects of all types.
- TITLE VI REQUIREMENTS** – Title VI is a section of the federal Civil Rights Act, which requires recipients of federal funding to ensure that programs do not have

the effect of subjecting persons to discrimination because of their race, color or national origin. The U.S. Department of Transportation establishes guidance regarding the analysis required to assess the benefits and burdens of transportation programs on various socio-economic groups.

TNET TRANSIT NETWORK – A mathematical representation of an area’s transit facilities, composed of transit lines and non-transit links.

TOD TRANSIT ORIENTED DEVELOPMENT – A type of development that links land use and transit facilities to support the transit system and help reduce sprawl, traffic congestion and air pollution. It calls for locating housing, along with complementary public uses (jobs, retail and services) at strategic points along a transit line.

TOS TRAFFIC OPERATIONS SYSTEM – In Los Angeles County, Caltrans and the CHP monitor traffic flows using detectors embedded in pavement and closed-circuit television cameras. This data enables efficient dispatching of CHP and FSP services. This data also is used for the Freeway changeable message boards and ramp metering.

TRANSITWAY – A transportation corridor dedicated for exclusive or preferential use by public transit vehicles, including rail vehicles, buses, carpools and vanpools.

TRANSPORTATION INFRASTRUCTURE – Transportation infrastructure generally refers to the state’s built transportation system including highways, bridges, railways, ports, and transit facilities. Infrastructure for “transit” systems includes the fixed components of the transit system, such as rights-of-way, buses and rail vehicles, tracks, signal equipment, stations, park-and-ride lots, bus stops and maintenance facilities.

TSM TRANSPORTATION SYSTEM MANAGEMENT – That part of the urban transportation planning process undertaken to improve the efficiency of the existing transportation system. The intent is to make better use of the existing transportation system by using short-term, low-capital transportation improvements that generally cost less and can be implemented more quickly than major capital projects.

TTI TEXAS TRANSPORTATION INSTITUTE – A transportation research group affiliated with Texas A&M University that publishes the annual Urban Mobility Report.

UNLINKED PASSENGER TRIP – A measure for a passenger boarding on a transit service. For example, a passenger using two different bus routes for the same journey would board two different buses and be counted as two unlinked passenger trips.

URBAN MOBILITY REPORT – Annual report released by the Texas Transportation Institute that ranks urban areas by various transportation and mobility indicators including congestion, average hours of highway delay, and regional public transportation investment.

U.S. DOT UNITED STATES DEPARTMENT OF TRANSPORTATION – The federal cabinet-level agency with responsibility for highways, mass transit, aviation and ports headed by the secretary of transportation. The DOT includes the Federal Highway Administration and the Federal Transit Administration.

VEHICLE OCCUPANCY – The number of people aboard a vehicle at a given time; also known as auto or automobile occupancy when the reference is to automobile travel only.

VEHICLE TRIP – A one-way movement of a vehicle between two points.

VMT VEHICLE-MILES TRAVELED – The number of miles that vehicles are driven. VMT are key data for highway planning and management, and a common measure of roadway use. This data allows analysts to estimate on-road vehicle fuel consumption, congestion, air quality, and potential gas-tax revenues.

VSH VEHICLE SERVICE HOURS – The total hours of revenue service operated by transit service vehicles. This does not include deadhead hours.

VSM VEHICLE SERVICE MILES – The total miles traveled by transit service vehicles while in revenue service. This does not include deadhead mileage.

ZERO EMISSIONS – Refers to a type of engine or energy source that emits no waste products that pollute the environment and does not contribute to climate change.

Los Angeles County
Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2952

For copies of this Draft 2008 Plan Technical Document or questions regarding this document, please contact the Long Range Transportation Plan Hotline:

Phone 213.922.2833
Email metroplan@metro.net
Web metro.net/longrangeplan



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