Geotechnical: Subsurface and Hazardous Materials

There are over 500 hazardous materials regulatory database listings located within the PSA, though some sites are listed on multiple databases. There is significant potential for subsurface hazardous materials to be found in the PSA due to the area's long history of commercial and industrial use. The At-Grade Emphasis LRT Alternative would be less likely to encounter these materials than the Underground Emphasis LRT Alternative due to the relatively little tunneling required.

Water Resources

Both build alternatives present relatively low potential for water resources impacts, since the project is not located within one-quarter mile of any major water bodies or flood zones, the downtown area already has very few pervious surfaces, and runoff is monitored and treated before discharge. The Underground Emphasis LRT Alternative is more likely to encounter groundwater during construction because it involves extensive tunneling. Also, the tunneling could open a new pathway for contaminated groundwater to spread quickly. Any dewatering that is needed during construction would be conducted in a manner that does not impact water quality or runoff volumes.

Energy

Both build alternatives would be powered by an overhead catenary system, and the trains' energy requirements would be similar. The Underground Emphasis LRT Alternative's stations would present greater energy needs than the at-grade stations because of the extra lighting, HVAC systems, elevators, and escalators. It would also consume more energy resources during construction due to the complexity of the additional tunneling. Whichever alternative yields the highest volume of new transit riders would impart the greatest reduction in vehicle miles traveled and regional fuel consumption.

Historic, Archaeological & Paleontological Resources

There are hundreds of known historic resources located within one-quarter mile of each build alternative. Because the routes are located close to each other, the lists are largely the same. There are 21 known archeological resources within one-quarter mile of the At-Grade Emphasis LRT Alternative, versus 11 near the Underground Emphasis LRT Alternative. However, construction of the Underground Emphasis LRT Alternative's tunnels is more likely to disturb these known sites as well as unknown sites that may be uncovered. The increased tunneling involved with the Underground Emphasis LRT Alternative also makes it more likely to damage surrounding historic buildings during construction, and the damage may not be detected until years later. The stations and catenary poles needed for the at-grade alignment could alter the character of any historic districts in which they are located, and potentially alter nearby historic buildings if the wires need to be anchored to their exterior walls. Either construction project would need to be conducted in consultation with a qualified architectural historian and archeologist.

Los Angeles' historic City Hall, as seen from the corner of Main and Temple Streets, adjacent to the alignment of the At-Grade Emphasis LRT Alternative.

Parklands and Other Community Facilities

Public transit service generally enhances access to nearby parklands and community facilities. However, the construction of new light rail infrastructure could impede access to facilities located adjacent to the rights-of-way. The list of nearby community facilities and parklands are similar for both build alternatives, and both call for a potential station portal in the vicinity of the Central Library park space. The At-Grade Emphasis LRT Alternative would require restricted vehicle and pedestrian access at certain points along the alignment, which could impede trips to and from community facilities. The grade crossings could also delay emergency vehicles, which may have to wait for trains to pass. The At-Grade Emphasis LRT Alternative also calls for the removal of 88 curb parking spaces, thus reducing ease of access to community facilities for people arriving by car.

Park space outside of Central Library

The Underground Emphasis LRT Alternative would have fewer impacts on access to community facilities via the road network and circulation of emergency vehicles, although the need for more station entrance portals could necessitate placing them in existing park areas.

Economic & Fiscal Impacts

Construction will be temporarily disruptive to economic activity in the PSA, though its effects will be tempered by the creation of temporary construction jobs. These effects are expected to be more pronounced for the At-Grade Emphasis LRT Alternative Couplet A option than for Couplet B or the Underground Emphasis LRT Alternative. For both alternatives, construction could restrict access to nearby businesses and parking facilities, resulting in fewer customers choosing to visit the area. However, many of the businesses in the Civic Center perform government functions, and do not rely on customers being able to reach their offices.

Both build alternatives will require tunneling, and the method used will determine the extent of the surface street closures and associated access restrictions. The Underground Emphasis LRT Alternative will involve more tunneling and the lane closures will be temporary, whereas the At-Grade Emphasis LRT Alternative calls for permanent removal of curb parking and traffic lanes. The Underground Emphasis LRT Alternative will also require more property acquisitions than the At-Grade Emphasis LRT Alternative, and the loss of tax revenue will be higher. However, the loss of tax revenue associated with both alternatives would be of similar magnitude, and is insignificant when compared to the overall tax revenue generated in the PSA. Over time, the new transit service will cause economic activity in the area to increase, and this is expected to be most noticeable for the At-Grade Emphasis LRT Alternative Couplet A option.

Safety and Security

Pedestrian and vehicular traffic volumes are high in the PSA, and there are significant safety concerns associated with adding light rail trains to the area. The At-Grade Emphasis LRT Alternative is particularly susceptible to pedestrian and automobile safety issues due to the open arrangement of the trackway and stations. Pedestrians could easily walk along the tracks and risk being struck by trains. Also, because trains would cross intersections and crosswalks without crossing arms, there would be no physical barriers to keep the trains from colliding with pedestrians or automobiles. Motorist error could cause an automobile to accidentally swerve into the rail right-of-way and collide with a train. The risk of collision increases with the number of pedestrians, trains, automobiles, and train passengers in the area. Pedestrians may also risk being struck by automobiles when using crosswalks to access stations located in roadway medians. Signal phase timing could be adjusted and additional warning devices could be placed at grade crossings to mitigate the safety hazards.

The Underground Emphasis LRT Alternative presents no pedestrian or motorist safety hazards because the tracks would be located underground for nearly the entire length of the alignment and there would be no grade crossings. Pedestrians might still be injured or struck by a train if the platforms become too crowded or if they are not adequately cautious when trains enter the stations. The stations and tracks along the Underground Emphasis LRT Alternative are concealed from view, and it would be difficult for passersby and local law enforcement officers to notice potential security problems. Underground stations and tracks may also create venues for crime, trespassing, and refuge from the elements for non-domiciled persons. One security benefit, however, is that the Underground Emphasis LRT Alternative would not encounter service delays during demonstrations, civil unrest, and public events taking place on the surface.

Potential for Conflicts between Trains, Automobiles, and Pedestrians will Exist at-grade.

Construction Impacts

Intensive construction activity would be needed for both build alternatives. The heaviest construction activities, including tunneling, trenching, sidewalk construction, and roadway refinishing would last for two to three years. Both projects involve tunneling and the installation of at-grade tracks, and construction staging areas will need to be established. During construction, traffic and emergency vehicle circulation could be impeded, and vibration, noise, dust, and localized short-term air pollution could occur. These effects would be felt over a longer period of time for the Underground Emphasis LRT Alternative, since the construction effort would be more complex.

Growth-Inducing Impacts

New transit service does not typically cause growth. It may, however, redistribute the locations of new growth within a region or cause the growth to be more transit-oriented. Downtown Los Angeles already operates as a transit-oriented area and is well-served by the existing transit system, so the Regional Connector is unlikely to spur additional growth in the PSA. However, the addition of more transit stations to the PSA would help nearby development projects attain their goals of having as many patrons as possible arrive by transit. Since the growth-inducing impacts of the Regional Connector would be minimal, there are no significant differences between the effects of the Underground and At-Grade Emphasis LRT Alternative.

Environmental Justice

The demographic characteristics of the areas within one-quarter mile of the two build alternatives are similar, since the two potential routes are located very close together. Year 2000 census data for both alignments reveals that about 80% of the population within the PSA belongs to a minority group, the median annual household income is approximately $15,000-$19,000, 35% live below the poverty threshold, and about 24% are unemployed. The PSA is home to over two dozen homeless shelters and single room occupancy hotels. The large numbers of low-income residents are likely to be benefited by improved transit service, as this group typically demonstrates the highest degree of transit dependency.

In accordance with federal regulations, several community meetings have been held within the PSA to invite public participation and receive comments about the project. During the public input process, issues of transit service equity, disproportionate impacts borne by low-income or minority communities, health impacts, social and economic impacts, neighborhood impacts, noise, vibration, displacement, and construction impacts were considered. One major difference between the two build alternatives is that the At-Grade Emphasis LRT Alternative would bypass the Little Tokyo neighborhood and add a significant amount of new street-running tracks to the Civic Center area. The Underground Emphasis LRT Alternative would travel through Little Tokyo and the Civic Center beneath 2nd St. and transition to at-grade tracks in the block southwest of 1st and Alameda Streets.

Major Utilities

Both build alternatives will involve tunneling under Flower St., where there are large storm drain and gravity lines spanning the entire route from 3rd St. extending south of 7th St. The deepest of these lines is 15 feet below-grade. The location of these large utility lines will make cut-and-cover tunneling difficult. The Underground Emphasis LRT Alternative will face more conflicts with utilities than the At-Grade Emphasis LRT Alternative, especially in the vicinity of stations. Utilities on 2nd St. extend as far at 16 feet underground, and will need to be relocated or bypassed using tunnel boring machines.

ES.10 Financial Analysis

The At-Grade Emphasis LRT Alternative and the Underground Emphasis LRT Alternative are approximately the same length (1.8 miles). The capital costs are estimated to be $795.7 million in year 2008 dollars for the At-Grade Emphasis LRT Option A, $709.3 million for Option B and $910.4 million for the Underground Emphasis LRT Alternative. The shuttle bus TSM Alternative would cost $62.7 million (Table ES-16).

Table ES-16 Capital Costs of Each Alternative (in millions of dollars)

Alternative	2008 Dollars
No Build	$0.00
TSM	$62.74
At-Grade Emphasis LRT Alternative – Option A	$795.67
At-Grade Emphasis LRT Alternative – Option B	$709.30
Underground Emphasis LRT Alternative	$910.36

For all of the build alternatives, about 62 percent of the capital costs will go toward construction. Two to seven percent would pay for new light rail vehicles, about 21 percent would pay for professional services, and nine percent would be reserved for unallocated contingencies.

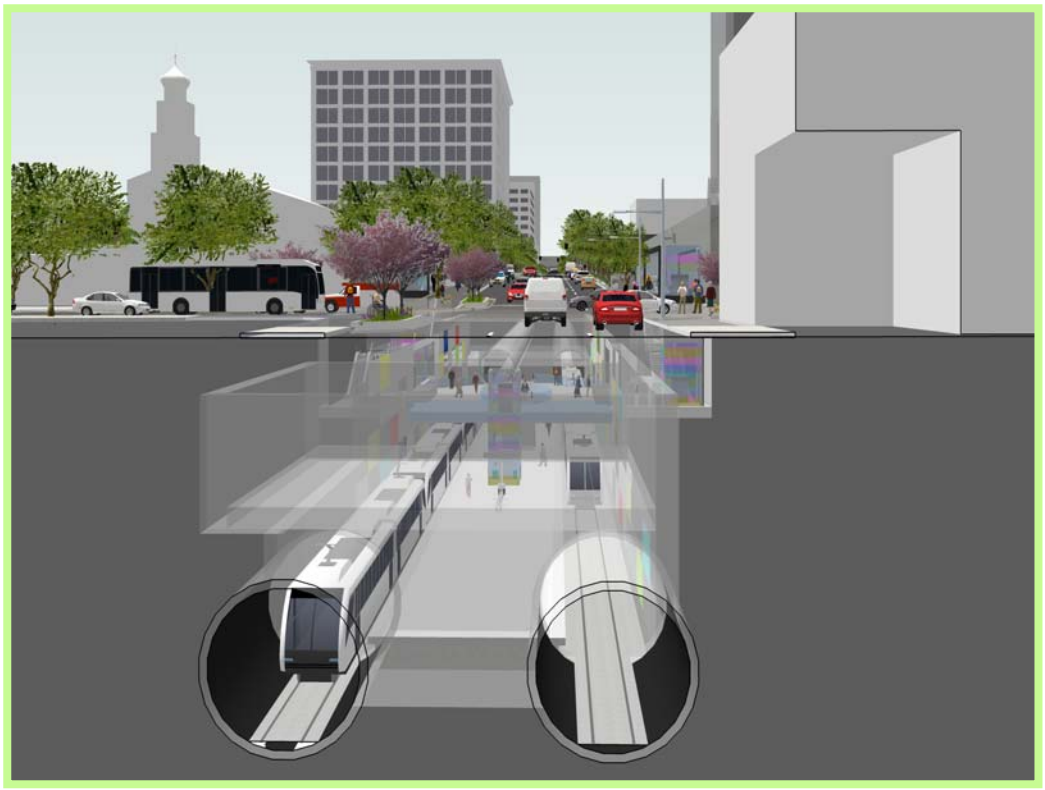
The potential funding sources assume 50 percent local funding through transportation sales taxes, benefit assessment districts, and Mello-Roos community facilities districts. Potentially, local congestion pricing revenues and transportation impact mitigation fees may also be used. The strategies also call for at least 50 percent federal funding through the New Starts program, and in the case of the TSM Alternative, the Section 5309 Bus Discretionary Program. Federal Congestion Management and Air Quality Program (CMAQ) funds could potentially be used to finance the Regional Connector, as the project will be capable of reducing congestion and thereby improving air quality. On the state level, a potential source of funding is the California High-Speed Rail Project, which will offer money to connect existing regional rail services to the new project should it be constructed.

ES.11 Issues to be Resolved

Upon Metro Board Authorization, environmental analysis and continued engineering will support further identification and resolution of project challenges. The following lists current identified issues and the need for further study for both of the alternatives.

- Metro will continue to review safety and security considerations in order to make the Regional Connector a reliable, safe, and secure system for pedestrians, riders, autos, and bicyclists.
- Traffic conditions for the At-Grade Emphasis LRT Alternative will continue to be evaluated during the environmental process in close collaboration with LADOT. The use of the 2nd St., including the 2nd St. tunnel, for LRT operations would transform the roadway into a transit mall. This would mean fewer autos, but not necessarily fewer people, using 2nd St. Street. Parking would be removed in this location, but possibly replaced nearby. An additional station on 2nd St. will be analyzed for potential benefits.
- Construction methods will continue to be evaluated for safety, expediency, and impacts on the environment.
- The environmental process will be completed (Environmental Impact Statement/Environmental Impact Report) based on NEPA and CEQA guidelines.
- Approval from the California Public Utilities Commission will be sought for the proposed grade crossings.
- Further engineering will be undertaken to develop detailed estimates of costs, environmental impacts, utility relocation needs, and potential mitigation measures.
- Station entrance locations will be evaluated based on how well certain locations perform in terms of attracting riders, visibility, close proximity to activity centers, and impacts to surrounding properties.
- Station construction and construction staging will be described in more detail during the environmental process.
- Property impacts will be identified.

2nd and San Pedro Streets, looking west - Before



2nd and San Pedro Streets, Looking West – After (Underground Emphasis LRT Alternative)

ES.12 Conclusion

Metro has completed this AA Study in a collaborative effort with the community to determine the need and benefit of linking three rail lines serving the region, to identify alternatives and evaluate which alternatives achieve certain goals and criteria, and to provide the Metro Board of Directors the information needed to select alternatives to be further engineered and analyzed in a Draft Environmental Impact Statement/Draft Environmental Impact Report per NEPA and CEQA. The engineering and environmental analysis for Board selected alternatives will also be used to prepare documents and submission consistent with the requirements of project pursuing FTA New Starts funding, including the request for authorization from the FTA to initiate preliminary engineering.

The following Table ES-17 provides a quick glance summary comparison of the potential alternatives based on the AA analysis.

Table ES-17 Summary Comparison of Alternatives

Alternative	Transportation	Environment	Cost/Public Support
No Build	No additional transportation benefits beyond Metro's Long Range Transportation Plan	No project would be constructed	No capital costs, and no additional operating costs
Transportation System Management (TSM)	- Smallest increase in transit trips (1,000 daily) - No reduction in transfers for rail users - Greatest travel time - Most stops along route	- No parking impacts outside of peak hours, no reduced roadway capacity - Overall fewer impacts than build alternatives - No property acquisitions needed	- Little public support expressed - Lowest capital cost ($63 million) - Greatest annual operating costs ($13.6 million) - Highest cost per hour of user benefit ($97)
At-Grade Emphasis LRT	- Increase in transit trips (7,600-8,400 daily) - Eliminates up to two transfers for some rail trips - Improved travel time from Union Station to 7th St./Metro Center over No Build and TSM (12 minutes)	- Parking impacts and reduced roadway capacity along segments of Flower, 2nd, Main, Los Angeles, and Temple Streets. - Greatest visual and noise impacts - Most alterations to existing streets - Most property acquisitions	- Public concerns over grade crossings and loss of parking - Capital costs range from $709-$796 million - Moderate annual operating costs ($9.6-9.8 million) - Cost per hour of user benefit ranges from $20-25
Underground Emphasis LRT	- Largest increase in transit trips (10,200 daily) - Eliminates up to two transfers for some rail trips - Shortest travel time from Union Station to 7th St./Metro Center (10 minutes)	- Parking impacts and reduced roadway capacity at intersection of 1st and Alameda only - Fewer visual and noise impacts than At-Grade Alternative - Fewer alterations to existing streets than At-Grade Alternative - Fewest property acquisitions of the build alternatives	- Strongest public support, concerns over 1st and Alameda crossing - Highest capital cost ($910 million) - Lowest annual operating costs ($5.2 million) - Lowest cost per hour of user benefit ($19)

Section 1 Purpose and Need

1.1 Introduction

This report describes the purpose and need for transportation investments in the Regional Connector Project Study Area (PSA). The Regional Connector is a transit project planned by the Los Angeles County Metropolitan Transportation Authority (Metro) to provide more convenient transfers between Metro Rail Lines, dozens of bus lines, and regional commuter rail service for passengers traveling to, from, and through downtown Los Angeles.

There are currently no direct trains for Metro Blue Line light rail passengers from Long Beach travelling to the Metro Gold Line to Pasadena, or vice-versa. These passengers must transfer through the Metro Red or Purple Lines and travel between 7th St./Metro Center Station and Union Station for the connection. When the Metro Expo Line from 7th St./Metro Center Station to Washington/National Station in Culver City opens in 2010, its riders will also need to transfer at 7th St./Metro Center Station and Union Station to reach the Gold Line. The Regional Connector would extend the shared Metro Blue/Expo Line tracks from their present terminus at 7th St./Metro Center Station to a junction with the Metro Gold Line near the Little Tokyo/Arts District Station with continuing service to Union Station and beyond. This would provide a one-seat ride for Metro Blue Line passengers travelling from Long Beach to Pasadena. Metro Expo Line passengers would also be able to ride from Washington/National Station in Culver City to East Los Angeles without transferring, via the Regional Connector and the Metro Gold Line Eastside Extension.

The Regional Connector would also provide increased transit coverage of the Civic Center, Bunker Hill, Historic Core, Little Tokyo, and Financial Core as it travels between 7th St./Metro Center Station and the Metro Gold Line.

See Figure 1-1 for a map of the PSA and Figure 1-2 for an overview map of the Metro Rail system.

This Alternatives Analysis (AA) presents an evaluation of alignments, modes, configurations, and station locations under consideration for the Regional Connector. The alternatives are then screened based on defined criteria to identify preferred alternatives. A final AA Study will provide decision makers the information needed to approve further investigation in the form of a Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR).

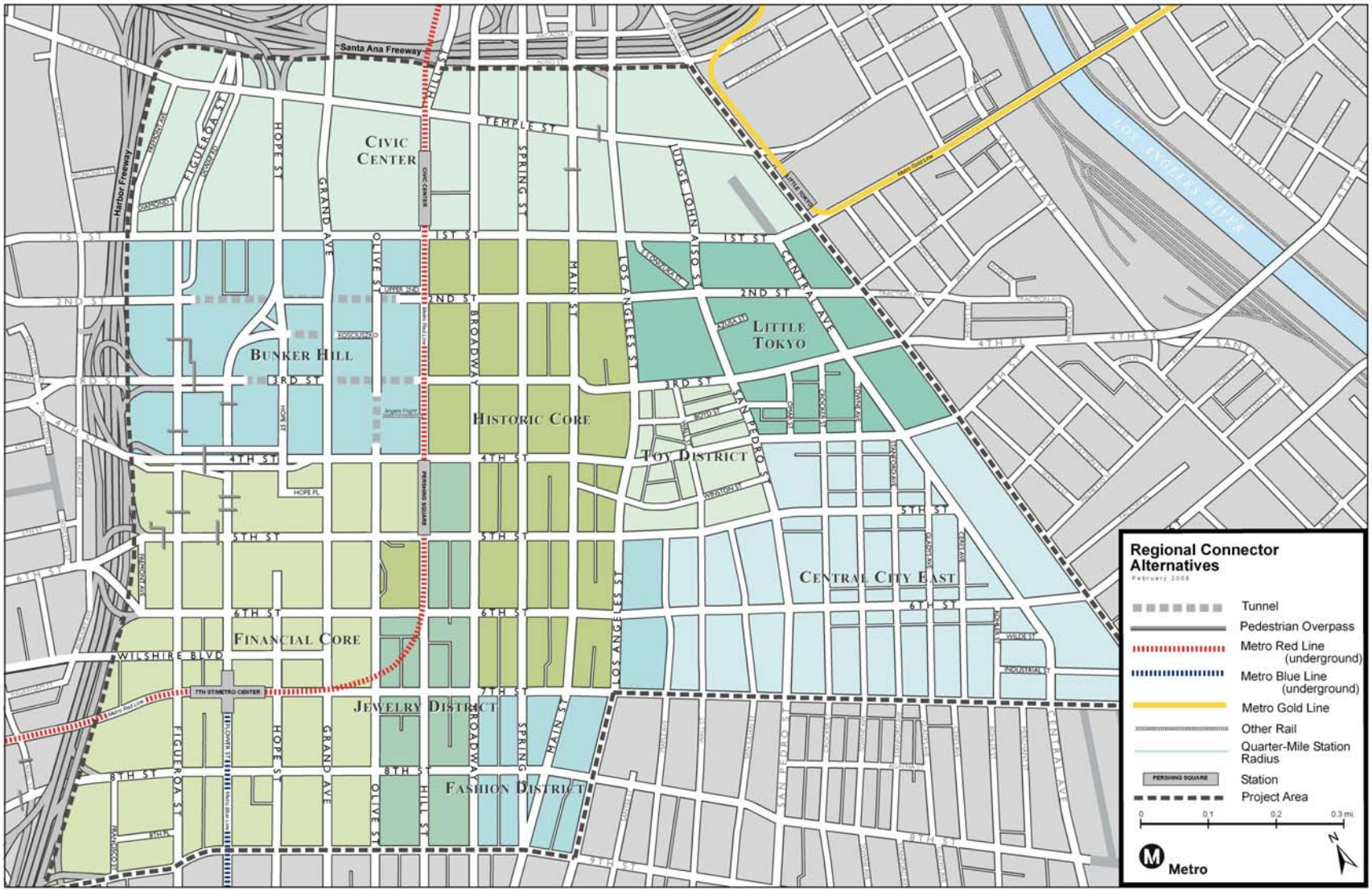


Figure 1-1 Project Study Area (PSA)

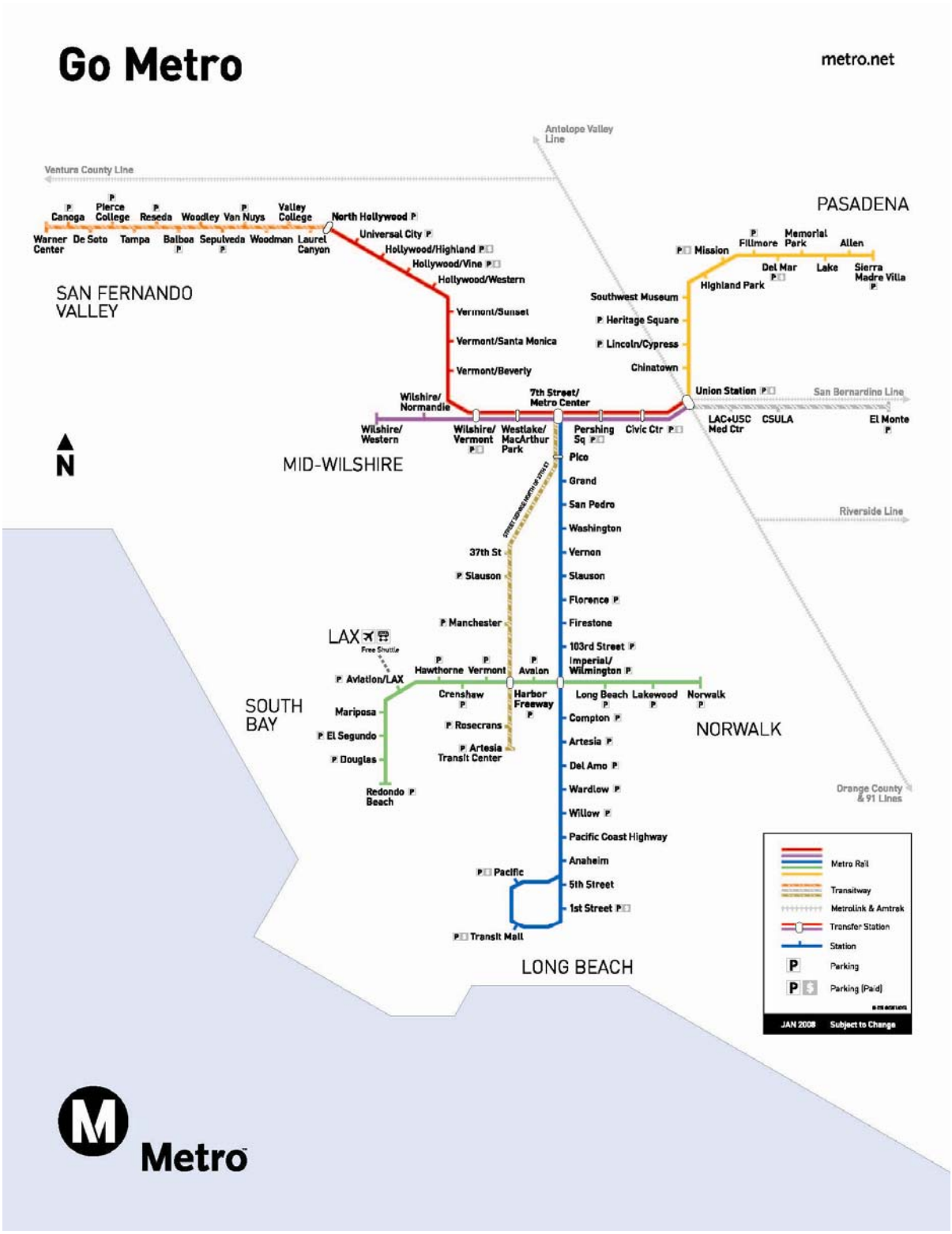


Figure 1-2 Metro Rail Map - Operational System, Fall 2008

1.2 Background

1.2.1 Location

The PSA is located in the downtown area of the City of Los Angeles. The PSA is bounded by the Harbor Freeway (SR-110) on the west, the Santa Ana Freeway (US-101) on the north, Alameda St. on the east, and 7th and 9th Streets on the south. The PSA is within the Central Business District (CBD) of Los Angeles, consisting of a dense urban core with an active Financial District lined with skyscrapers of 40 stories or more, a reviving Historic Core and a thriving cultural and civic center. Because the PSA is built-out, there are no particularly underdeveloped areas that are clear candidates for the Regional Connector. Therefore, all streets and roadways within the PSA are potential candidates for the Regional Connector route.

To the northeast of the PSA lies the Metro Gold Line extending from Union Station south to 1st St. and Alameda St., then heading east on 1st St. with one station just north of 1st St. and east of Alameda. To the southwest of the PSA lies the Metro Blue Line terminus of 7th St./Metro Center Station at 7th St. between Flower and Figueroa Streets.

Because of its central location, the Regional Connector will improve the operation of the entire Metro Rail transit system and provide benefit to the greater Los Angeles County (County) region. The Regional Connector may also replace duplicative bus lines with a single high-capacity link between 7th St./Metro Center Station and Union Station, thus improving bus operations in the County as well.

1.2.2 History

Rail transit in Los Angeles dates to 1872, when Southern Pacific began construction on a passenger rail line from downtown to San Pedro, with the intent of eventually monopolizing the regional transportation system. By the 1920s, the Southern Pacific and Pacific Electric systems had nearly 800 cars in service and hundreds of miles of tracks. Los Angeles Railway also operated a local streetcar system serving the downtown core and the nearby neighborhoods, which carried the bulk of Los Angeles' urban ridership. Notable busy lines included the Aiso St. service to Boyle Heights, the Temple and 2nd St. cable cars on Bunker Hill, and the Angels Flight funicular railway. Pacific Electric's Hollywood, Glendale, and San Fernando Valley trains entered the one-quarter-mile long Belmont Tunnel at the tail end of their trips to the Subway Terminal Building at 4th and Hill Streets in downtown.

Despite the extensive track and power infrastructure, Los Angeles' rail transportation system would last only four more decades. Americans traded streetcars for private automobiles with record speed and moved to neighborhoods beyond the railroads' reach. Rail transit's final zenith came during World War II, when fuel, metal, and rubber rationing briefly forced millions of Americans back onto streetcars to get to their jobs.

With the end of the war came a period of economic and industrial prosperity and the pent-up demand for new automobiles could finally be met. With few rail riders remaining and new diesel bus technology offering a cheap substitute for streetcar service, cash-strapped transit operators nationwide began canceling routes and removing tracks. Los Angeles' system closed entirely, with the last train making its trip from downtown to Long Beach in 1963.

Freed by the heightened mobility that private cars offered, people began working in increasingly suburbanized settings, and the old downtown core plunged into decline for several decades. In recent years, with traffic congestion mounting, the mobility that supported geographically-dispersed job and housing patterns has become increasingly constrained. Longer commute times, ever-climbing gas prices and increased concern about vehicle greenhouse gas emissions leading to climate change have prompted many Los Angeles residents to seek a return to the transit-friendly urban form of decades past. Downtown Los Angeles has seen a recent surge in development and many residents are rediscovering the forgotten urban core.

During the mid-1980s, the Los Angeles County Transportation Commission and Southern California Rapid Transit District began piecing together the railroad rights-of-way abandoned decades earlier with the intent of bringing rail transit back to Los Angeles.

Today, the Metro Rail system consists of 73 track miles and downtown Los Angeles is once again served by a radial network of rail transit lines. The Metro Red Line has assisted in the resurgence of the downtown area, including the PSA, by improving accessibility and facilitating movement between various districts.

In addition, the Southern California Regional Rail Authority has gradually purchased its own right-of-way and developed a 512-mile commuter rail system over the course of the past two decades, linking commuters throughout the region to their downtown jobs.

1.3 Past Studies

Pasadena – Los Angeles Light Rail Transit Project EIR 1988-1993

The concept of a light rail link through the downtown core from 7th St./Metro Center Station to Union Station originated from the Environmental Impact Report (EIR) for the Pasadena-Los Angeles Light Rail Transit Project. This study explored extending the Long Beach-Los Angeles Light Rail Transit line, now the Metro Blue Line, from downtown through Pasadena.

After environmental clearance and public approval, the Pasadena-Los Angeles Light Rail Transit Project, now the Metro Gold Line, was built. The Metro Gold line now runs from the Sierra Madre Villa Station in Pasadena to Union Station.

It was specifically indicated in the study that a Gold Line rail connection is possible between Union Station and 7th/Metro Center Station to reduce transfers between the Metro Red, Gold and Blue Lines.

Blue Line Connection Preliminary Planning Study

In 1993, Metro completed a preliminary planning study to analyze alternatives for connecting the Long Beach Blue Line, already in operation, to the Pasadena Blue Line (now the Metro Gold Line), which was not yet under construction at that time. Although the Metro Gold Line provides a viable service as stand-alone transit from downtown Los Angeles to Pasadena, a potential capacity problem for the Metro Red Line was identified, as it was the sole rail connection between Union Station and the 7th St./Metro Center Station. Metro officials recognized that building a connection between the Long Beach and Pasadena light rail lines would alleviate the capacity issues, and increase the overall usefulness of the system.

Los Angeles Eastside Corridor Final Supplemental EIR/EIS 2002

At the time of the Blue Line Connection Preliminary Planning Study, an extension of the Metro Red Line to Boyle Heights was also being considered. The preferred alternative was a 3.1-mile long heavy rail transit (HRT) subway with 4 stations.

In February 2002, Metro approved the Metro Gold Line Eastside Extension using Light Rail Transit (LRT) in lieu of the Red Line Eastside Extension. Running from Union Station to Atlantic Station in East Los Angeles, this six-mile, eight-station extension traverses Alameda St., 1st St., Indiana St., and 3rd St. A new bridge connects Union Station to the eastern edge of downtown by going south over the US-101 freeway to the intersection of Alameda St. and Temple St. The route is at grade on the eastern side of Alameda St. from Temple St. to 1st St. An at-grade station at 1st and Alameda Streets is sited on the northeast corner of the intersection to minimize traffic impacts.

Regional Light Rail Connector Study 2004

Based on new alignment opportunities created by the approval and construction of the Metro Gold Line Eastside Extension, Metro initiated an engineering study to identify potential alignment, station and configuration alternatives for a new LRT connection between the Metro Blue and Gold Lines. The new alternatives connected the Metro Gold Line Eastside Extension in the vicinity of the Little Tokyo/Arts District Station at 1st and Alameda Streets to the 7th St./Metro Center Station.

Forty-one initial alternatives were developed and initial screening reduced the number of alternatives to 16. The screening was based on characteristics, service area, cost, complexity of engineering and other similar criteria. There was no public input process performed and no preferred alternative identified in this study.

This AA includes several of the alternatives identified in the 2004 study. Some of the other 2004 alternatives are no longer feasible due to changed conditions along the proposed alignments.

1.4 Project Study Area Demographics

Data presented in this section were obtained from the Southern California Association of Governments (SCAG, 2005) and the U.S. Census Bureau (2000). Data are representative of demographic conditions at the time of data-gathering and are used as the basis of evaluation in this AA.

The Regional Connector PSA covers 1.6 square miles, or 0.03 percent of the 4,752 square miles of the County. The total residential population of the PSA is 17,795, or 0.18 percent of the total County population. The average population density within the PSA is 11,685 per square mile, 5.5 times that of the County.

Despite its small size and residential population, the Regional Connector PSA sustains 3.62 percent of the County's Total Employment with 168,328 jobs. Employment density in the PSA is 110,529 employees per square mile which is more than 100 times the County-wide employment density.

Table 1-1 summarizes the PSA and County population and employment information for 2005. Population and employment growth are discussed further with respect to transit dependency in Sections 1.7.4 and 1.7.5.

Table 1-1 Population and Employment

Demographics	PSA	L.A. County	Percent of County
Population	17,795	10,010,315	0.18%
Population Density (people/sq. mi.)	11,685	2107	NA
Total Employment	168,328	4,644,010	3.62%
Employment Density (jobs/sq. mi.)	110,529	977	NA

Source: SCAG, 2005

According to 2000 Census data, the PSA has higher proportions of Asian and Black residents than the County. Black residents compose 30.6 percent of the PSA, compared with 9.6 percent of the County; they reside in the PSA primarily east of Hill St. and south of 1st St.

Asian residents, who live primarily between 1st St. and 5th St., compose 23.5 percent of the PSA, compared with 11.9 percent of the County.

The PSA has significantly lower compositions of White and Hispanic populations when compared to the County.

Table 1-2 shows the racial and ethnic breakdown of the PSA. Figures 1-3 through 1-8 illustrate the population's racial and ethnic distribution throughout the PSA.

Table 1-2 Racial and Ethnic Composition				
Demographics	PSA		Total LA County	
	Number	%	Number	%
Race				
Total Population	17,795	100%	9,519,338	100%
White	4,968	27.9%	4,622,759	48.6%
Black/African American	5,441	30.6%	916,907	9.6%
American Indian	180	1.0%	68,471	0.7%
Asian	4,187	23.5%	1,134,263	11.9%
Pacific Islander/Hawaiian	9	0.1%	27,221	0.3%
Some other race	2,139	12.0%	2,262,925	23.8%
Two or more races	917	5.2%	486,792	5.1%
Ethnicity				
Total Population of PSA	17,795	100%	9,519,338	100%
Hispanic or Latino (regardless of race)	4,258	23.9%	4,242,213	44.6%

Source: U.S. Census Bureau, 2000

Residences in the PSA are categorized in SCAG data as single-family homes, multi-family homes, or group quarter residences, which include military barracks, dormitories, and institutional housing. Data for the number of low, medium, and high-income households in the PSA were available for single-family and multi-family residences only. In 2005, there were 9,673 of these households with a median household income of approximately $45,000. Group quarters added 5,466 residences.

Based on these 2005 data, the PSA is primarily composed of low-income households, with a moderate portion of medium-income household population, as shown in Table 1-3.

Table 1-3 Project Study Area Income Status		
Demographics	PSA	Percent
Total Residences	15,136	N/A
Total Households	9,673	100%
Low Income Households	7,244	75%
Medium Income Households	2,009	21%
High Income Households	417	4%

SCAG, 2005

According to data presented in Table 1-4, only 5.5 percent of the population in the PSA is age 18 or younger, compared to 29.4 percent of the population of the County. The PSA also has a higher percentage of elderly residents (19.7 percent) compared to the County (9.7 percent).

Table 1-4 Population Age				
Age	PSA	%	L.A. County	%
18 and under	976	5.5%	2,798,604	29.4%
65 and over	3,497	19.7%	926,670	9.7%

Source: U.S. Census Bureau, 2000; SCAG, 2005

The young and the elderly have a higher propensity for using public transportation, since these groups are less likely to have driver's licenses or access to private automobiles.

Children and seniors living outside of the PSA will also benefit from the improved mobility and transit access provided by the Regional Connector, especially if they travel to downtown Los Angeles frequently.

The PSA is currently undergoing significant changes in terms of housing and demographics. Within the last four years, new market-rate condominium towers have been completed, historic buildings have been converted to loft housing, and new entertainment centers have been approved for construction, bringing renewed interest to downtown. These activities continue to bring about demographic changes that may not be reflected in data from 2005.

PSA residents use transit more than people in other areas of the County. Twenty-three percent (or 1,025 people) of people age 16 and older who both live and work in the PSA commute via public transportation, compared to seven percent of the entire County.

Figure 1-9 shows the distribution of public transportation users within the PSA. They tend to live in areas where there are high percentages of zero-vehicle households, as shown in Figure 1-10. A much higher proportion of households in the PSA lack vehicle access (69 percent) than in the County as a whole (12 percent).

1.5 Public Transportation Facilities and Services

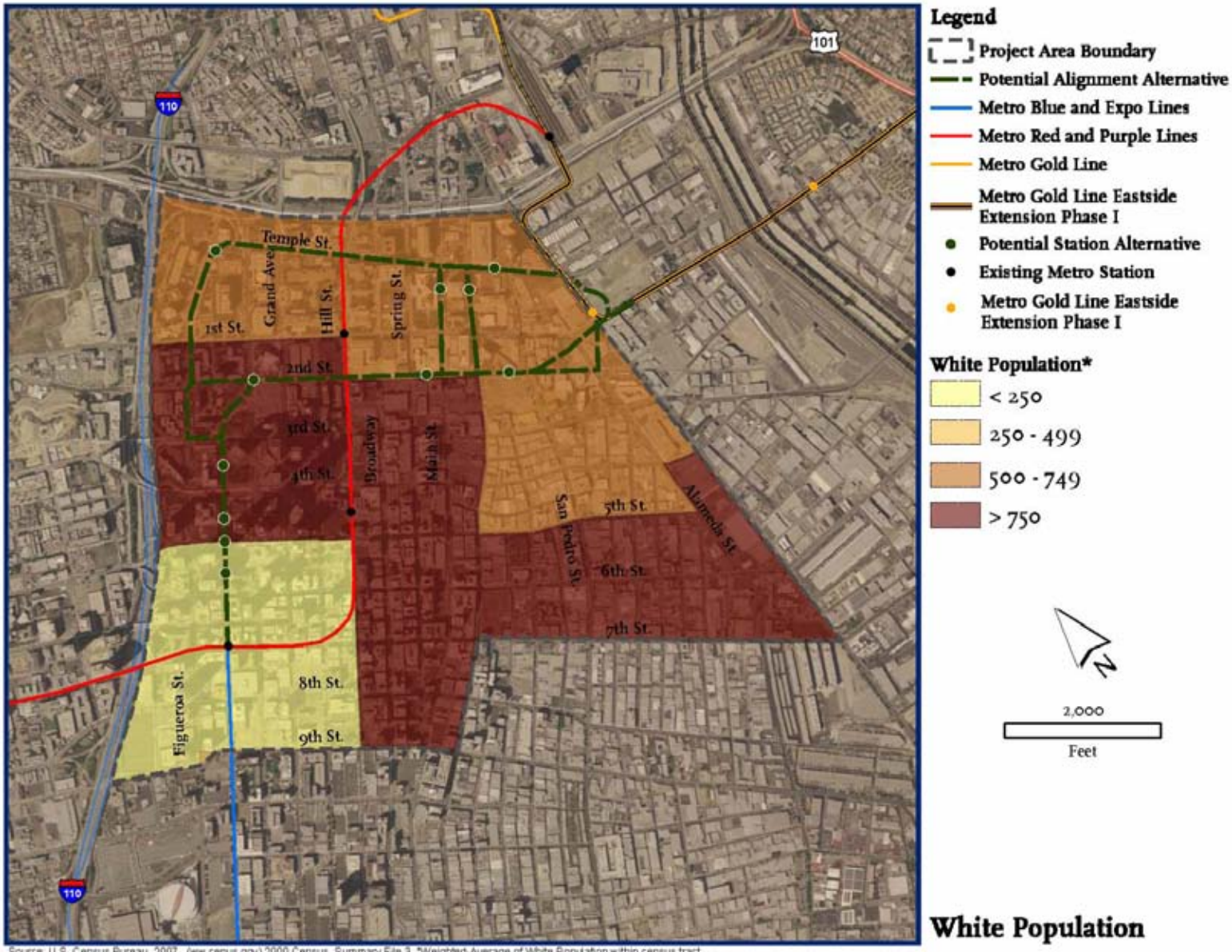
1.5.1 Project Study Area Public Transit Context

Downtown has the highest concentration of transit service of any area in the County. At present, ten transit operators provide service along 112 bus routes and four Metro Rail lines within the PSA, as illustrated in Figure 1-11. There is also heavy pedestrian activity throughout the PSA. The bus and rail lines branch out in all directions from the PSA to many destinations in Los Angeles County. Freeway express service also allows riders to reach destinations in Orange, San Bernardino, and Ventura Counties during peak commute hours.

1.5.2 Transportation Facilities and Services in the Project Study Area

1.5.2.1 Metro Rail

Metro provides rail service to the PSA with the Metro Red Line from Union Station to North Hollywood, the Metro Purple Line from Union Station to Wilshire Center, the Metro Blue Line from the 7th St./Metro Center Station to Long Beach, and the Metro Gold Line from Union Station to Pasadena. The rail service consists of 62 rail stations and 73 track miles.



Source: U.S. Census Bureau, 2007. (ww.cenus.gov) 2000 Census, Summary File 3. *Weighted-Average of White Population within census tract.

Figure 1-3 Race, White Population in PSA

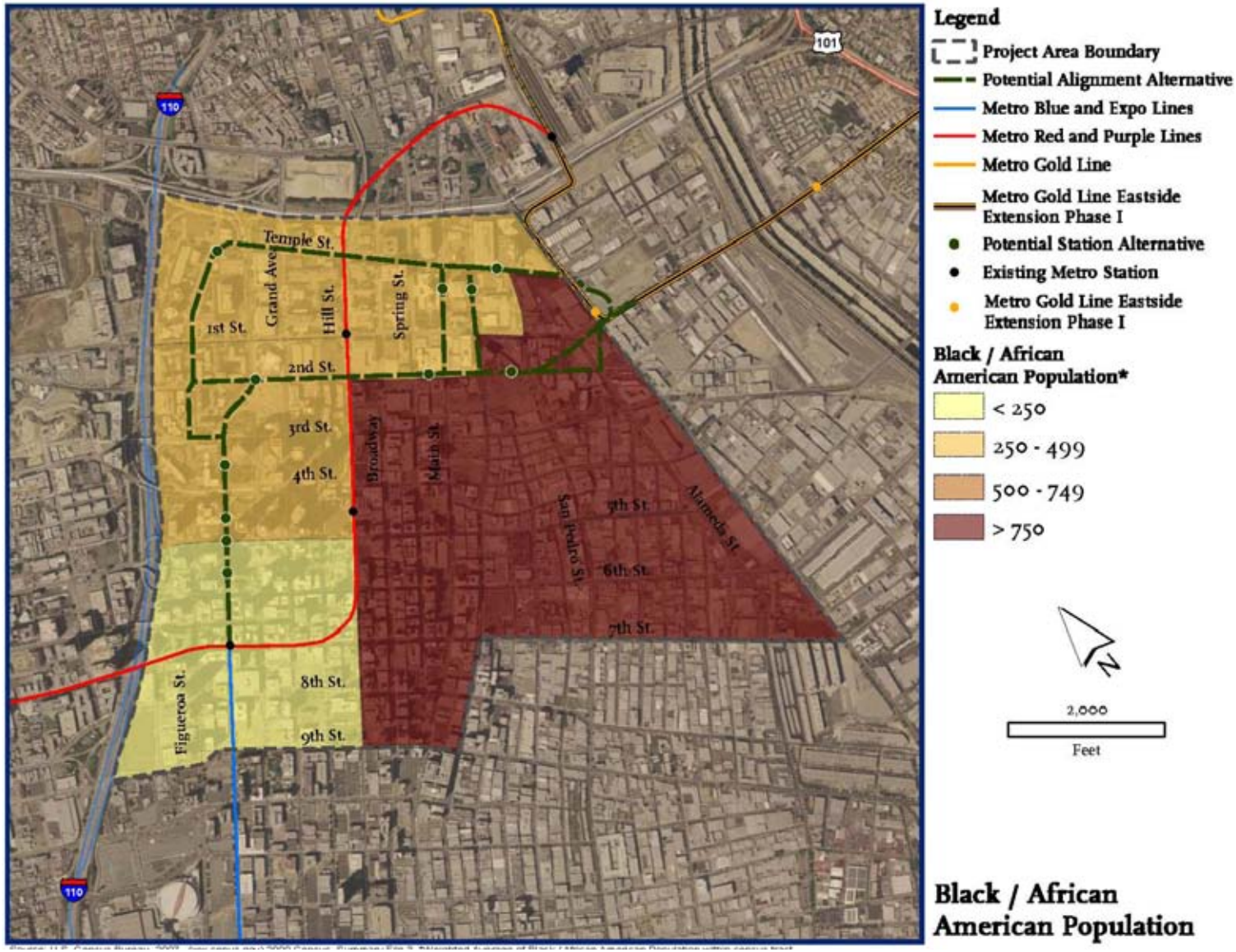
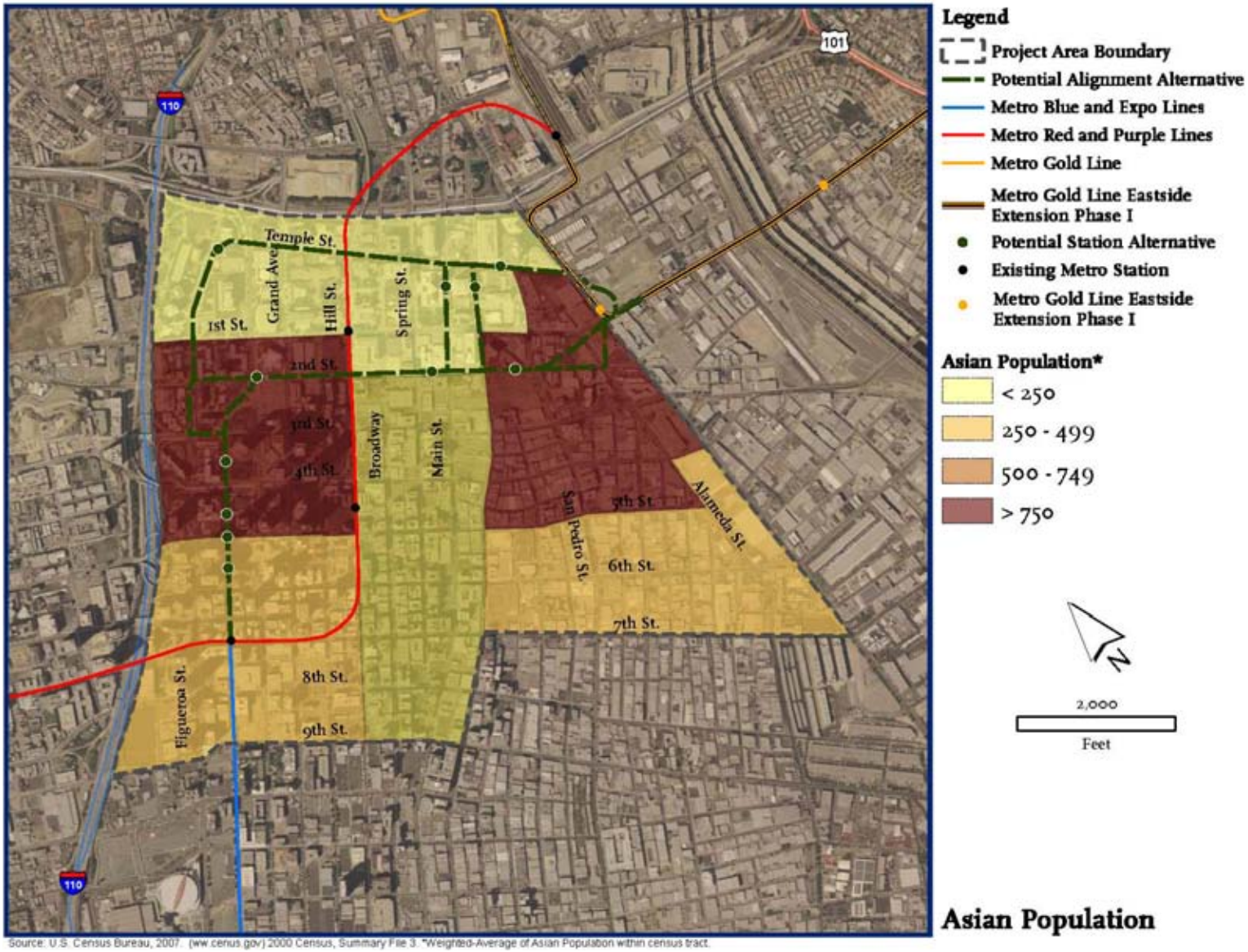
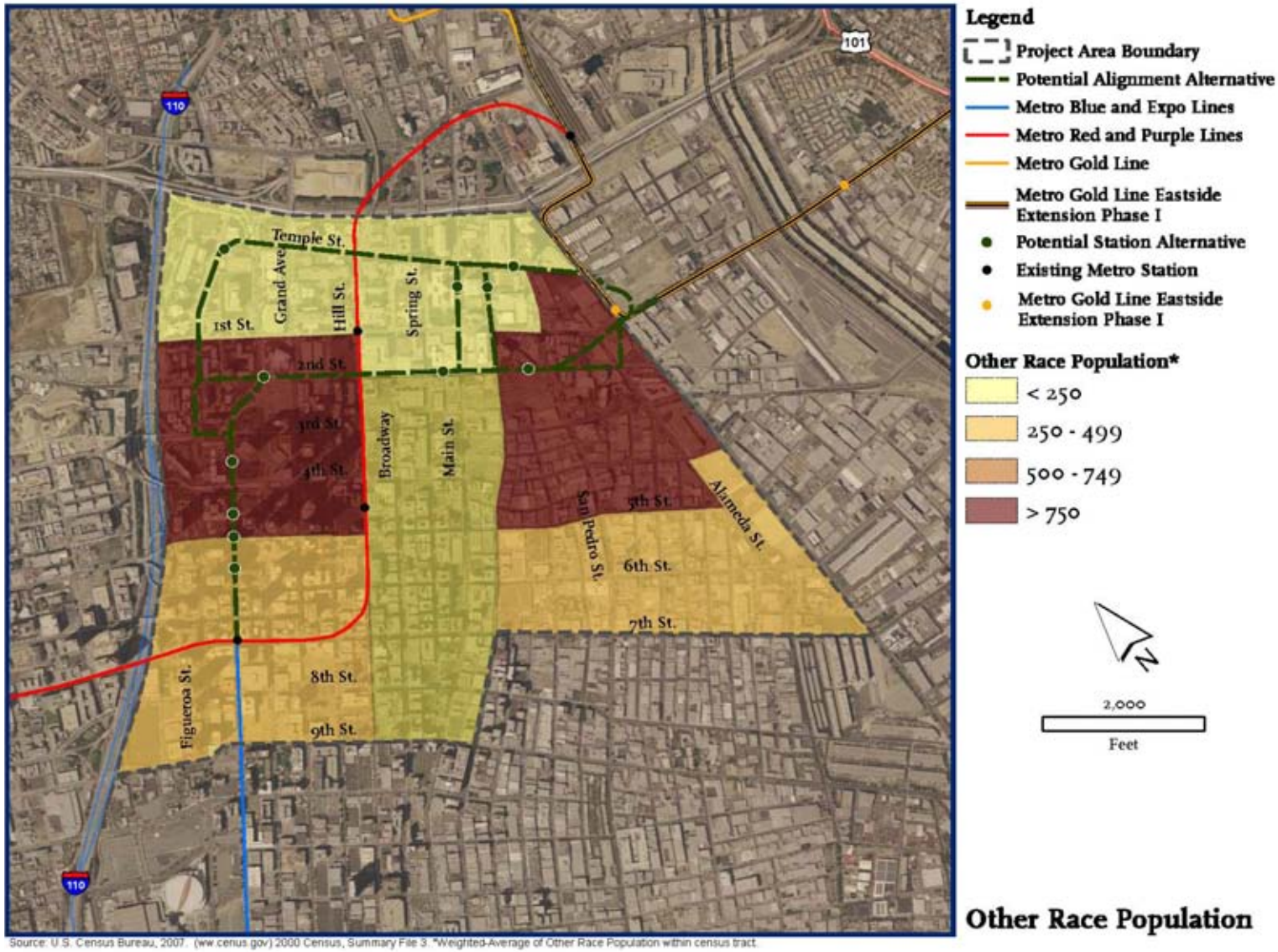


Figure 1-4 Race, Black/African-American Population in PSA



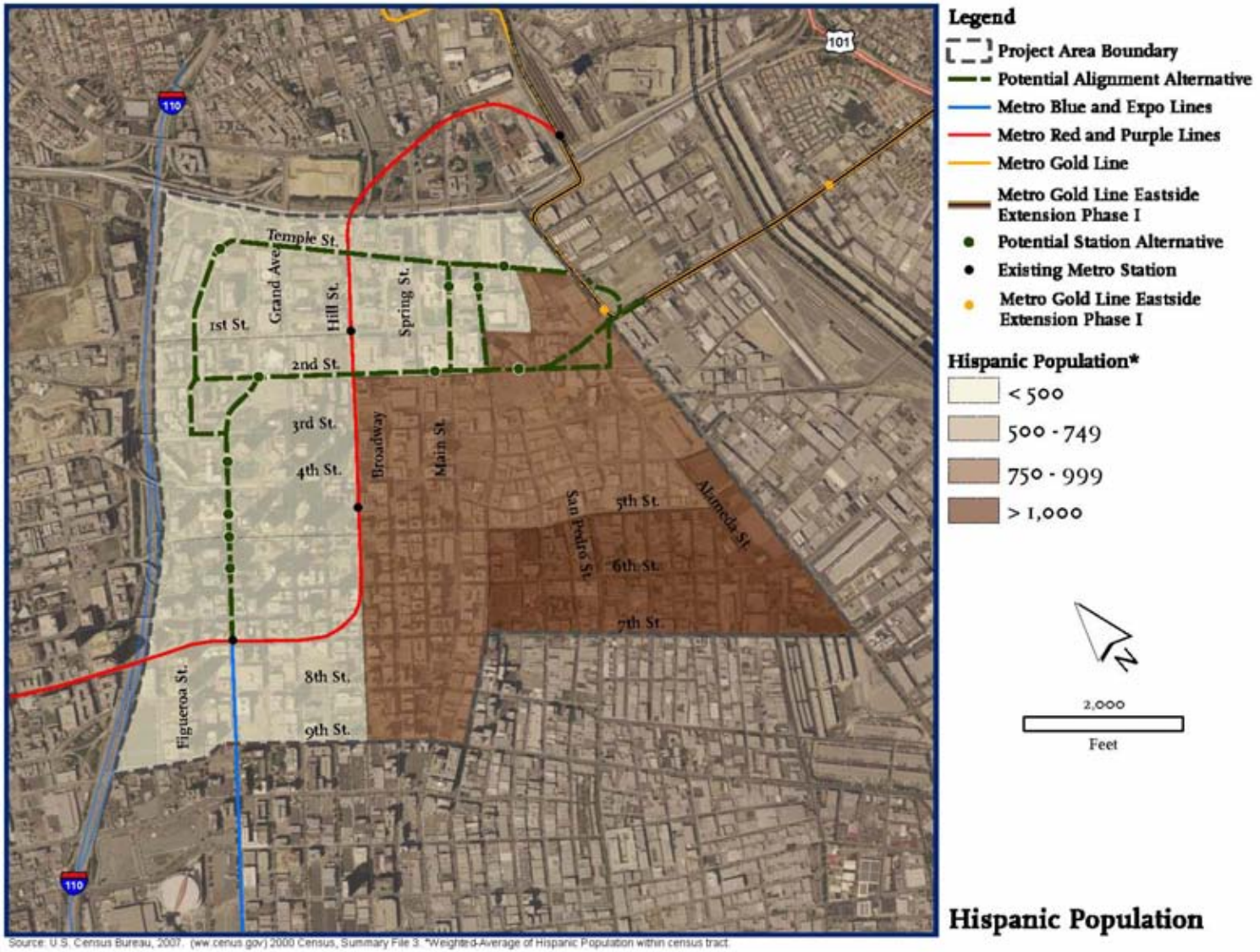
Source: U.S. Census Bureau, 2007. (ww.cenus.gov) 2000 Census, Summary File 3. *Weighted-Average of Asian Population within census tract.

Figure 1-5 Race, Asian Population in PSA



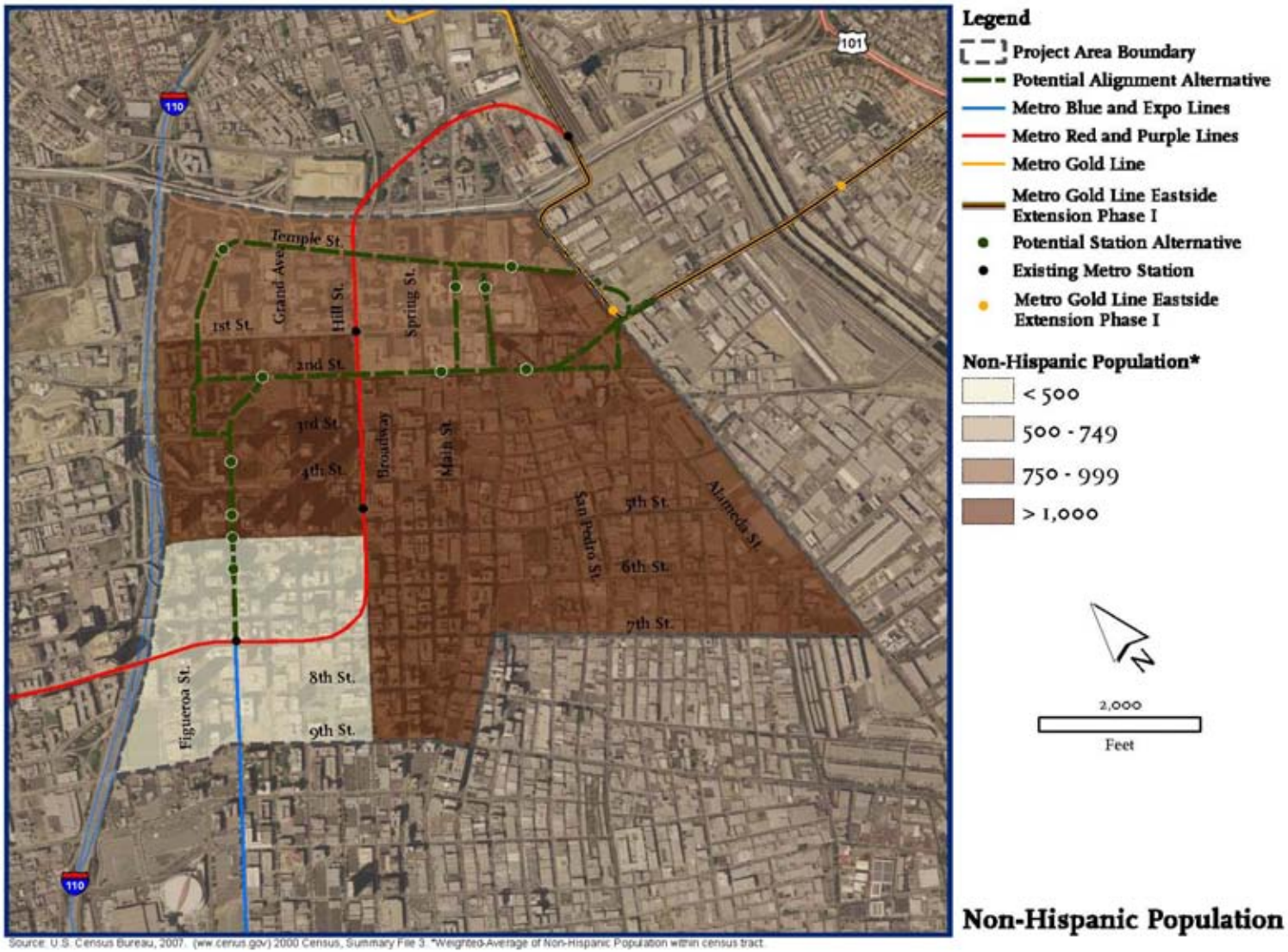
Source: U.S. Census Bureau, 2007. (ww.cenus gov) 2000 Census, Summary File 3. *Weighted-Average of Other Race Population within census tract.

Figure 1-6 Race, Population Identified as "Other Race" in PSA



Source: U.S. Census Bureau, 2007. (ww.cenus.gov) 2000 Census, Summary File 3. *Weighted-Average of Hispanic Population within census tract.

Figure 1-7 Ethnicity, Hispanic Population in PSA



Source: U.S. Census Bureau, 2007. (ww census.gov) 2000 Census, Summary File 3. *Weighted-Average of Non-Hispanic Population within census tract.

Figure 1-8 Ethnicity, Non-Hispanic Population in PSA

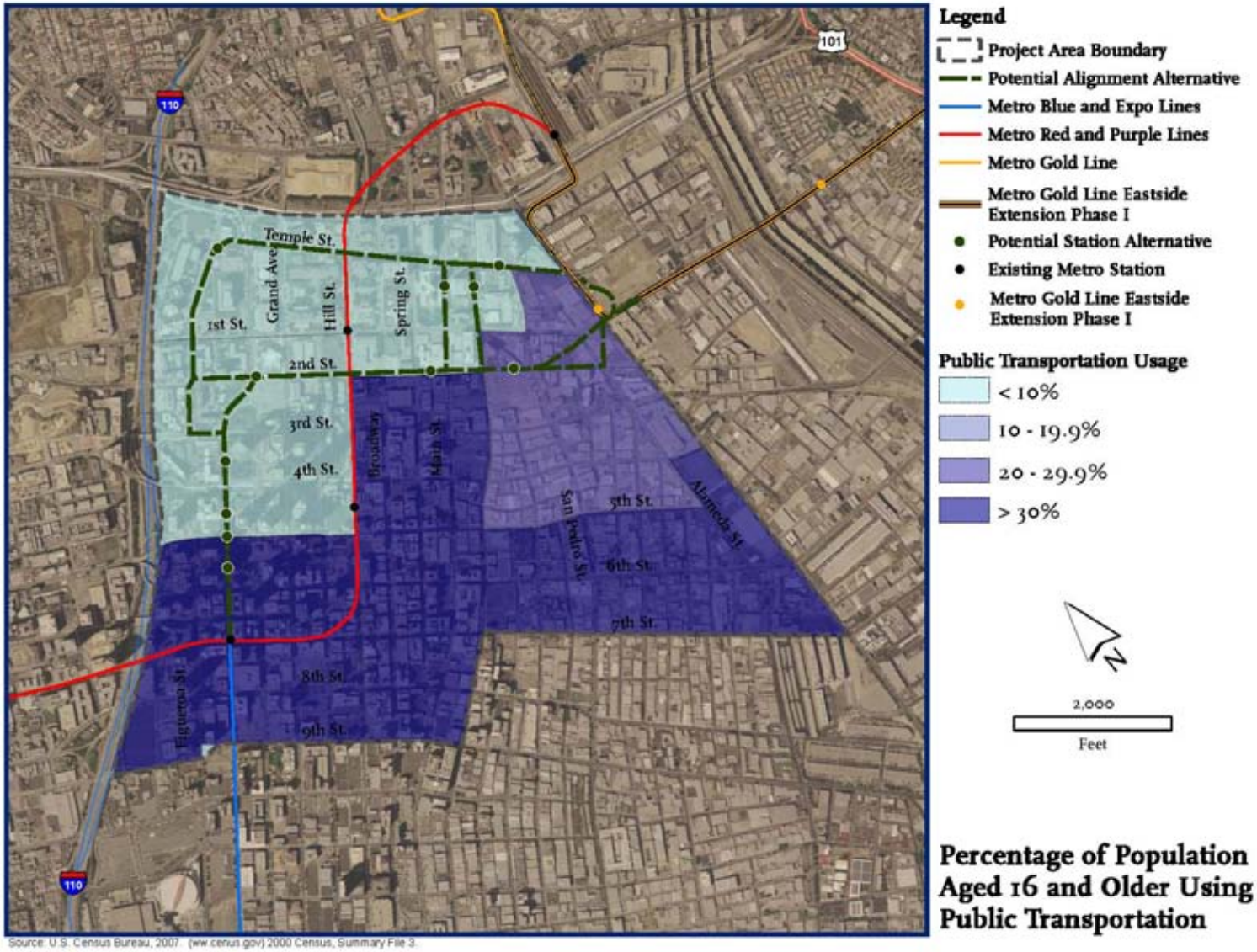
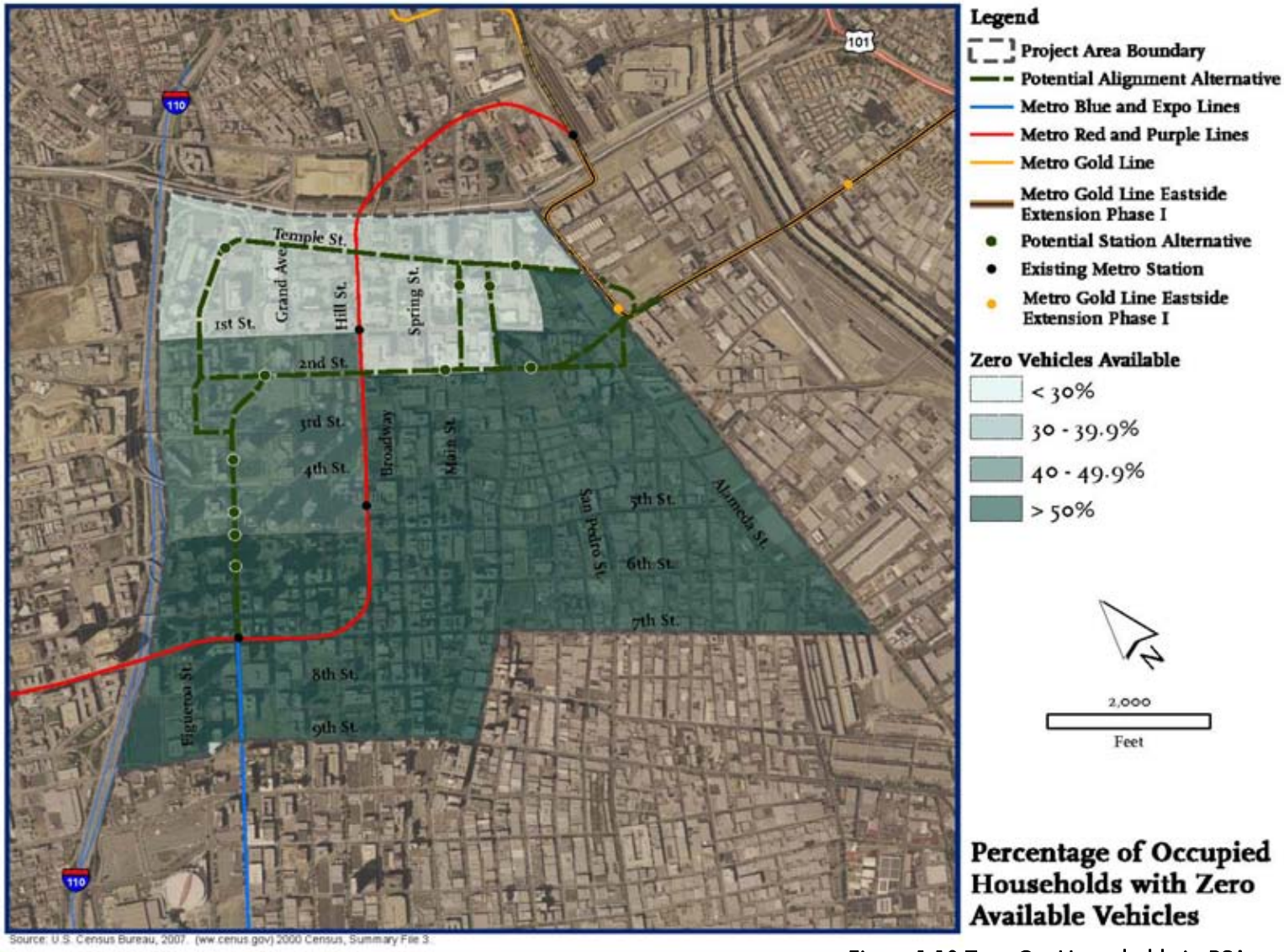


Figure 1-9 Public Transportation Users in PSA



Source: U.S. Census Bureau, 2007. (ww.census.gov) 2000 Census, Summary File 3.

Figure 1-10 Zero-Car Households in PSA

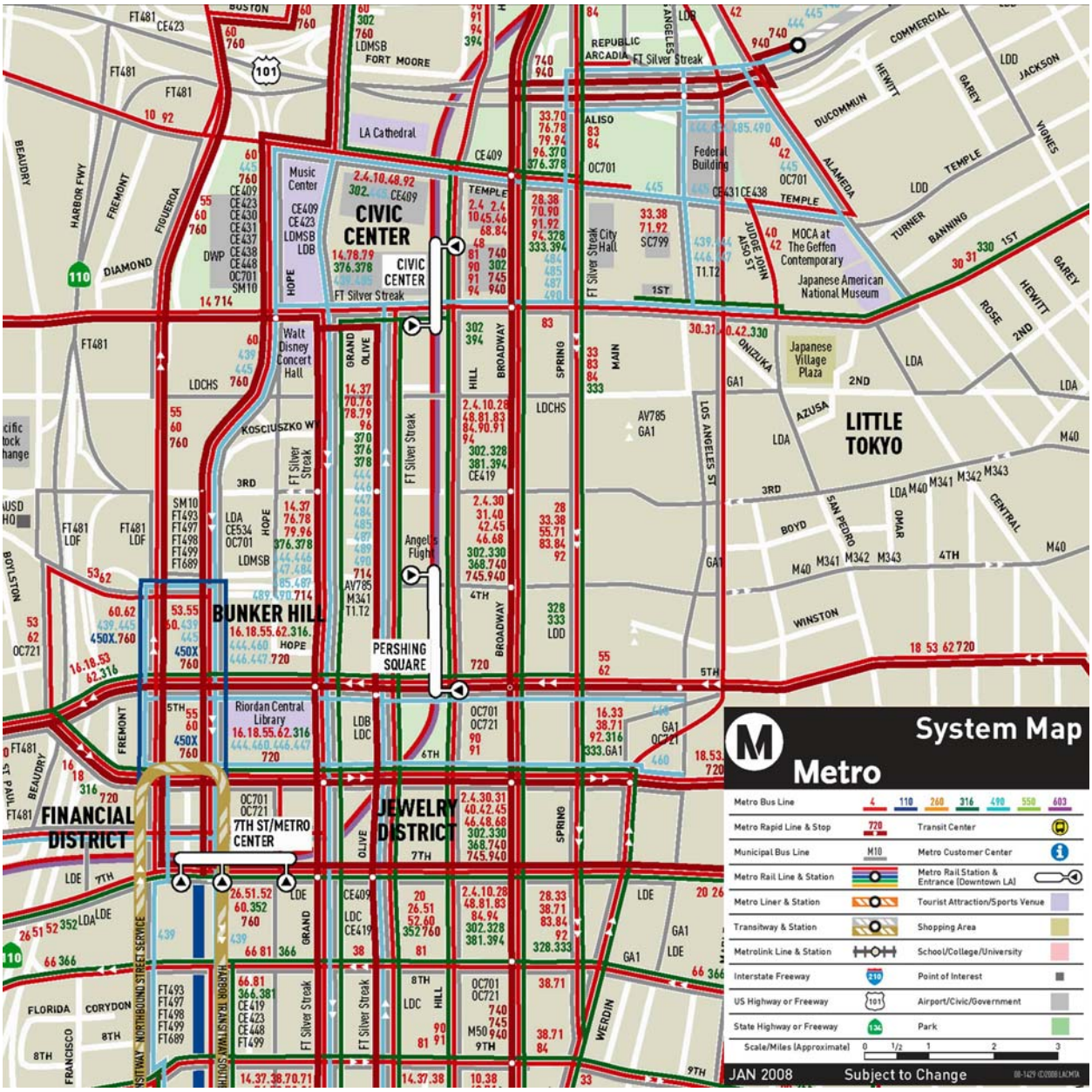


Figure 1-11 Transit in the PSA

Future service will be provided by the light rail extensions currently under construction to East Los Angeles (Metro Gold Line Eastside Extension, scheduled to open in late 2009) and Culver City (Metro Expo Line, scheduled to open in 2010). All Metro Rail stations provide connections to additional public transportation options, including Metrolink and Amtrak commuter rail services and bus service provided by Metro and other transit operators. Table 1-5 summarizes existing and future Metro Rail Lines currently under construction in the PSA.

Table 1-5 Existing and Future Metro Rail Lines in the PSA					
Existing Metro Rail Lines					
Line	Mode	Route	Length	Weekday Ridership	Year Completed
Red/Purple	HRT	Union Station to North Hollywood, Wilshire/Western	17.4 Miles	136,355	1993-2000
Blue	LRT	7th St./Metro Center to Long Beach	22 Miles	77,834	1990-1991
Gold	LRT	Union Station to Sierra Madre Villa	13.6 Miles	19,579	2003
Future (Under Construction) Metro Rail Lines					
Line	Mode	Route	Length	Expected Year 2020 Ridership	Year Complete
Gold	LRT	Union Station to East Los Angeles	6 Miles	23,000	2009
Expo	LRT	7th St./Metro Center to Culver City	8.5 Miles	43,600	2010

Metro Red Line – This HRT subway line originates from Union Station and travels west (Figure 1-12). The line began operating with service between Union Station and Westlake/MacArthur Park station (5 stations) in 1993. An extension to Wilshire/Western station, part of which was later renamed the "Metro Purple Line," was completed in 1996. The extension of the Metro Red Line northwest from Wilshire/Vermont station to Hollywood/Vine station with an additional 5 stations opened in 1999. Three more stations were added with the opening of the extension to North Hollywood in 2000.

Figure 1-12 Metro Red Line

Metro Purple Line – This HRT line originated as an extension of the Metro Red Line with 3 stations from the Wilshire/Vermont Station west to the Wilshire/Western Station. It opened in 1996 and was renamed the Metro Purple Line in 2006. As of the 2007 fiscal year, the Red and Purple Lines experienced approximately 136,355 weekday boardings on 17.4 miles of track.

Metro Blue Line – This line opened in 1990 and was the first LRT system in Los Angeles since the previous rail transit system closed in the 1960s. The 22-mile line has 22 stations and runs from 7th St./ Metro Center Station south to Long Beach. The Blue Line averaged 77,834 weekday boardings in the 2007 fiscal year.

Metro Gold Line – This LRT line from Union Station to Pasadena has 13 stations, 13.6 miles of track, and began operating in 2003 (Figure 1-13). In the 2007 fiscal year, the line averaged 19,579 weekday boardings.

Metro Gold Line Eastside Extension – The first phase of this LRT project is expected to open in 2009, making stops in Little Tokyo, Boyle Heights, and East Los Angeles. The six-mile line will feature eight new stations and connect with the existing Metro Gold Line to Pasadena without requiring riders to transfer at Union Station. Metro estimates that there will be 23,000 riders each weekday on the Eastside Extension by 2020.

Metro Expo Line – The first phase of the Exposition Light Rail Transit line is expected to open in 2010. The 8.5-mile line will run primarily at grade and serve 11 stations from 7th St./Metro Center Station in downtown to the intersection of Washington Blvd. and National Blvd. in Culver City. Average weekday ridership is expected to reach 43,600 by 2020[1].

Figure 1-13 Metro Gold Line

There are three Metro Rail stations located within the PSA. The HRT Metro Red and Purple Line stations are Civic Center Station (Hill St. between Temple and 1st Streets), Pershing Square Station (Hill St. between 4th and 5th Streets), and 7th St./Metro Center Station (7th St. between Figueroa and Hope Streets, and Flower St. between Wilshire Blvd. and 8th St.). The 7th St./Metro Center Station serves as a transfer point to the LRT Metro Blue Line as well. The LRT Little Tokyo/Arts District Station (Alameda St. between Temple and 1st Streets) will be a fourth station when it opens in 2009 as part of the Metro Gold Line Eastside Extension.

The Regional Connector will provide an alternate route between 7th St./Metro Center Station and Union Station, where the existing Metro Red and Purple Lines increasingly experience crowding and capacity issues. The Regional Connector will also provide more capacity to accommodate Metro Blue and Expo Line trains in the downtown area, and will thus enable the planned combined frequency of these two services. It would also reduce the need for Red and Purple Line transfers for downtown-bound Metro Gold, Blue, and Expo Line passengers, who would otherwise need to transfer to reach many destinations in the PSA. Should the Regional

1 www.buildexpo.org, FEIR, 7-123

Connector be constructed as a LRT link, it would allow five-minute headways in each direction. Combined, there could be trains as frequently as every 2 ½ minutes along the Regional Connector.

1.5.2.2 Metro Bus

Because downtown Los Angeles is a regional employment hub, there are numerous bus operators serving the area. These operators are:

- Antelope Valley Transit Authority (AVTA)
- City of Gardena (Gardena Municipal Bus Lines)
- City of Santa Clarita Transit
- City of Santa Monica (Big Blue Bus)
- Foothill Transit
- City of Los Angeles Department of Transportation (LADOT)
- Los Angeles County Metropolitan Transportation Authority (Metro)
- City of Montebello (Montebello Bus Lines)
- Orange County Transportation Authority (OCTA)
- City of Torrance (Torrance Transit)

With the exception of Metro, LADOT, Montebello Bus Lines, and Gardena Municipal Bus Lines, these transit operators run mostly peak commute (rush) hour, peak-direction commuter bus service in and out of the PSA. LADOT provides both long-distance freeway commute service as well as frequent Downtown Area Short Hop (DASH) service along short, mostly circular shuttle routes within the downtown area. In addition to public transit services, several high-rise office tenants within the PSA offer shuttle bus service to Union Station for their employees.

The majority of bus transit service in the PSA, as well as the Los Angeles region, is provided by Metro, which operates a number of short and long-distance radial lines, as well as cross-town service, express service, and limited overnight service. The combined number of transit vehicle boardings and alightings in the PSA on Metro buses alone totals 185,000 on a typical weekday. The 91,823 weekday boardings account for 7.75 percent of the 1,184,720 bus boardings system-wide.

Metro's bus transit services vary considerably in speed and capacity. The most basic routes provide line-haul service to and from downtown along arterial streets. Heavily-traveled routes often have overlaid limited-stop or Metro Rapid bus service.

Metro Rapid bus service includes traffic signal priority, short headways, and limited stops, which increase corridor average bus speeds by about 3-4 mph compared to local service, which typically operates in the 9-12 mph range. Metro currently provides Rapid service into the Regional Connector PSA from major intersections along Beverly Blvd. (during peak hours only), Wilshire Blvd., Whittier Blvd., South Broadway, and Hawthorne Blvd. Six additional Metro Rapid bus lines are scheduled to open by June 2008. Of these future routes, lines 730 (Pico Blvd.) and 753 (Central Ave.) will serve the PSA.

Additionally, Metro Rapid Express rush hour service to downtown commenced in June 2007 with the opening of line 940 (Hawthorne Blvd. Rapid Express). Rapid Express service is essentially the same as Rapid service, but serves only one third of the Rapid route's stops, providing a slight increase in speed.

The Regional Connector will offer the opportunity to consolidate some of this overlapping bus service into one new high-capacity route, thus reducing operating expenses.

The majority of the publicly-provided commuter services originating east of downtown use the El Monte Busway. Constructed in 1976, these high capacity bus-carpool lanes parallel the San Bernardino Freeway (I-10) between the City of El Monte and downtown. Similarly, the commuter buses coming from points south and southeast of downtown primarily use the Harbor Transitway, completed in 1996, which runs along the median of SR-110 between Artesia Blvd. and Adams Blvd.

By linking the Metro Gold, Blue, and Expo Lines, which roughly parallel several of the bus lines along the transitways, the Regional Connector will potentially make the rail system more attractive than the transitway bus service. The Regional Connector would provide better links between the existing LRT stations, many of which are centrally located in dense neighborhoods and business districts. The busway stations are unattractive by comparison because they are located in freeway medians, which are uninviting to pedestrians and usually not immediately adjacent to activity centers.

1.5.2.3 Commuter Rail

Commuter rail service to downtown is provided primarily by Metrolink and Amtrak, with connections to Metro Rail service at Union Station, located one-tenth-mile outside of the PSA. Most passengers arriving at Union Station on Metrolink are bound for the CBD and presently use the Metro Red Line, DASH buses, or employer-provided shuttles to complete their trips. Some passengers may use the Regional Connector if it reduces trip times or transfers.

Metrolink has operated under the Southern California Regional Rail Authority (SCRRA) since 1992, serving the counties of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura. Metrolink provides 512 miles of service (including tracks shared with Amtrak) to 55 stations on seven routes. Average weekday ridership on Metrolink trains from October through December 2007 was over 42,000 daily boardings, with the majority of trips (56.4 percent) beginning or ending at Union Station.

Amtrak is an inter-city rail system providing passengers at Union Station with regional, statewide, and nationwide service.

1.6 Performance of the Travel System

Southern California is faced with multiple mobility challenges that hinder the region's ability to effectively meet additional travel demand. One of the most pressing issues is population growth. The County alone is expected to increase by 2.2 million people, nearly twice the population of the City of San Diego, to a total of 12.2 million people from 2005 to 2030. This expected population growth will lead to increased travel demand throughout the region.

The transportation network includes 9,000 lane-miles of freeway, more than 42,000 lane-miles of arterials, and several large public transit service providers.[2] Yet growth of the transportation system has not kept pace with population growth and increases in transportation demand. As the population in the region doubled from 1960 to 2000, highway miles increased by less than 30 percent.[3] The congestion caused by insufficient transportation lanes affects both personal travel and goods movement. The majority of the congestion is from travel on the highways and local arterial network regardless of transportation mode. If the current trend persists, travel delays are expected to rise to 5.4 million person hours by 2030, more than double currently experienced delays, which will deeply affect highway productivity.[4]

If inadequately addressed, these challenges could hamper future population growth, economic development, commuter safety, existing infrastructure, goods movement, air quality, and other environmental conditions. If no action is taken to improve transportation mobility, SCAG estimates that daily person hours of delay would increase from 2.2 million hours under the 2000 Base Year to 5.4 million hours under the 2030 Baseline.

To define and address mobility issues, SCAG developed regional performance indicators that help in understanding the problem, setting goals for improvement, and measuring progress towards the goals. The following section describes regional performance indicators and baseline estimates of performance. By providing more attractive alternatives to the automobile, improving transit connections in the downtown Los Angeles area becomes one part of a larger, comprehensive strategy to meet regional travel demand.

1.6.1 Traffic Volumes and Operating Conditions

This section summarizes traffic volumes and operating conditions at key roadway segments and intersections within the PSA. Existing daily, AM peak and PM peak traffic volume data were obtained from LADOT. An analysis of existing conditions was

[2] SCAG 2004 RTP Chapter 2
[3] SCAG 2004 RTP Executive Summary
[4] SCAG 2004 Draft RTP PEIR

performed for the key roadway segments using daily traffic volumes and the key intersections using AM and PM peak hour turning movement data.

The roadway segment analysis was performed using a Volume-to-Capacity (V/C) ratio of the average daily traffic (ADT). Existing volumes were obtained from LADOT and the capacity was based on the roadway's General Plan facility type classification.

For intersections, the AM and PM peak hour volumes were analyzed using the Intersection Capacity Utilization (ICU) methodology, which determines a V/C ratio based on the critical intersection approach movements and a corresponding Level of Service (LOS). LOS is a qualitative measure used to describe traffic flow conditions, ranging from excellent flow (LOS A) to overloaded, stop-and-go conditions (LOS F). Level of service definitions and corresponding V/C ranges are presented in Table 1-6.

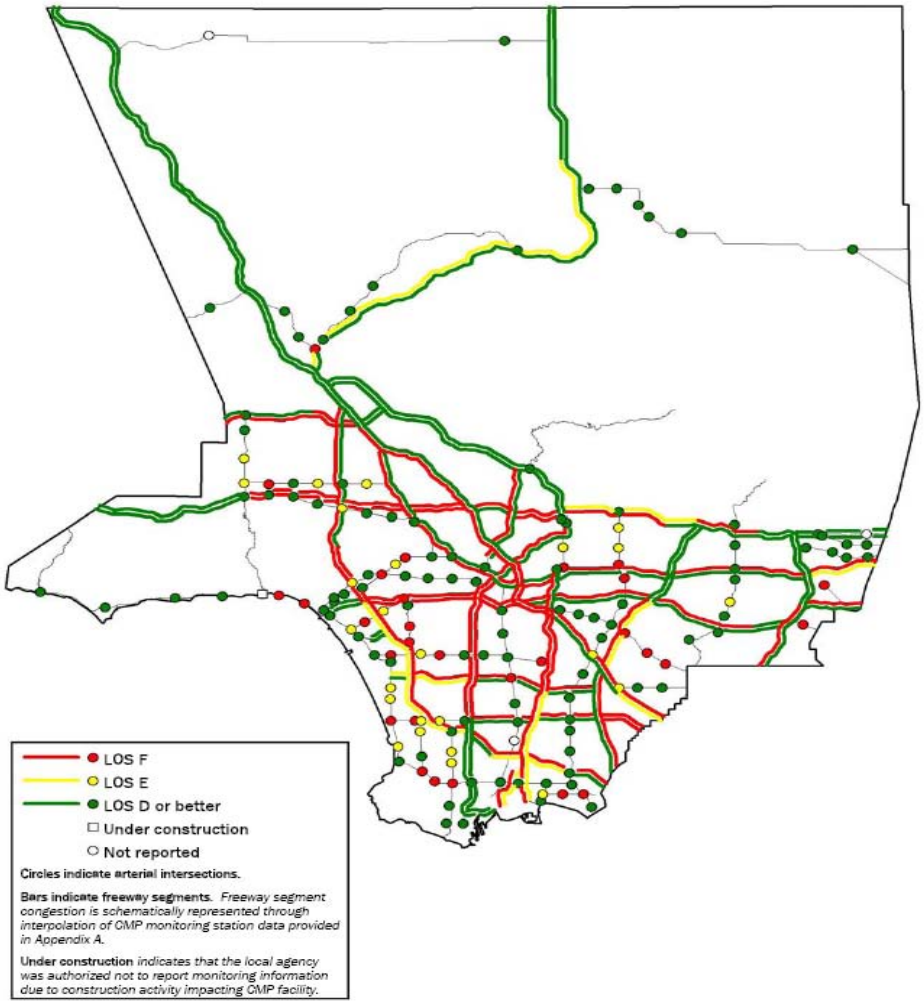
Table 1-6 Level of Service Definitions

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

Source: Transportation Research Board, Highway Capacity Manual, 2000

Freeways within the PSA already operate at LOS F during peak hours and, if not addressed, this trend is expected to worsen through the year 2030. Nearly all areas of the County experience freeway congestion during peak hours. However, the congestion on freeways within the PSA is among the worst and occurs during both the morning and evening rush hour periods, as illustrated in Figure 1-14.

2003 CMP HIGHWAY AND ROADWAY SYSTEM AM PEAK HOUR LEVELS OF SERVICE



2003 CMP HIGHWAY AND ROADWAY SYSTEM PM PEAK HOUR LEVELS OF SERVICE

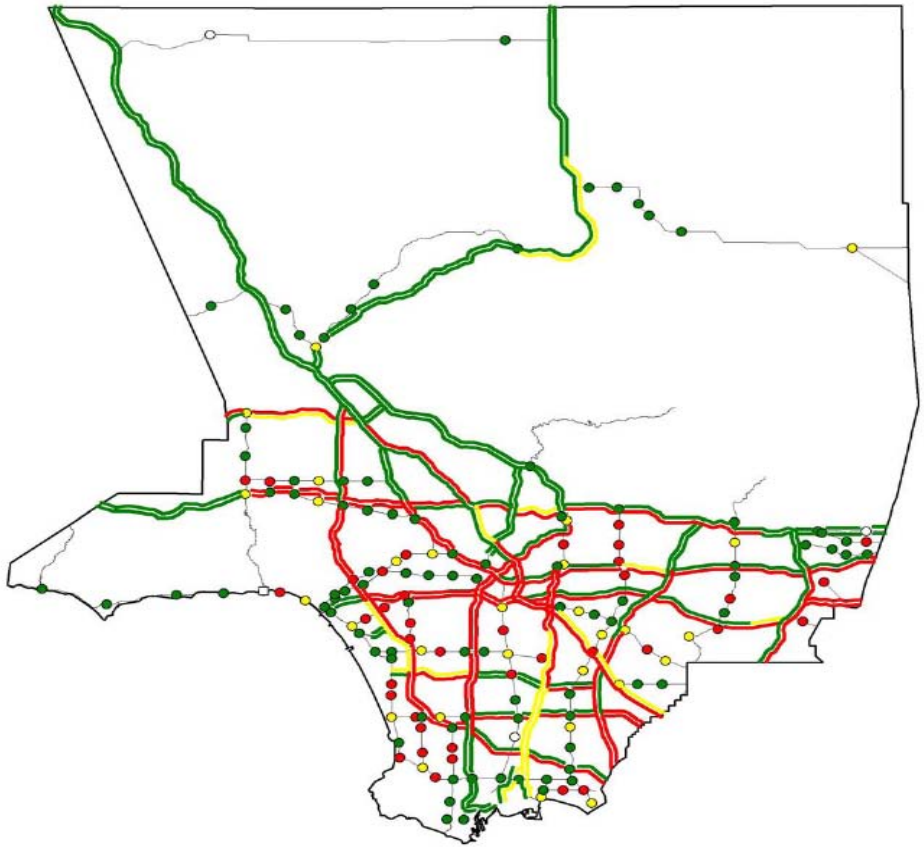


Figure 1-14 Freeway Levels of Service

Table 1-7 and Table 1-8 summarize the existing operating conditions for the key intersections and roadway segments in the PSA. All of the key intersections currently operate at LOS D or better during both the AM and PM peak hours. The only exception is the intersection of Alameda and 1st Streets, which currently operates at LOS F in the AM peak hour.

Table 1-7 Existing (2007) Intersection Level of Service

Intersection	AM Peak Hour		PM Peak Hour	
	V/C Ratio	LOS	V/C Ratio	LOS
Hill St. / 1st St.	0.62	B	0.73	C
Broadway / 1st St.	0.63	B	0.56	A
Spring St. / 1st St.	0.54	A	0.45	A
Main St. / 1st St.	0.44	A	0.55	A
Los Angeles St. / 1st St.	0.53	A	0.58	A
Judge John Aiso St. / 1st St.	0.60	A	0.69	B
Alameda St. / 1st St.	1.03	F	0.88	D
Broadway / 2nd St.	0.84	D	0.46	A
Spring St. / 2nd St.	0.48	A	0.40	A
Main St. / 2nd St.	0.30	A	0.62	B
Los Angeles St. / 2nd St.	0.46	A	0.59	B
San Pedro St. / 2nd St.	0.40	A	0.52	A
Central Ave. / 2nd St.	0.39	A	0.54	A
Alameda St. /2nd St.	0.67	B	0.67	B
Broadway / 3rd St.	0.72	C	0.60	A
Spring St. / 3rd St.	0.59	A	0.55	A
Main St. / 3rd St.	0.53	A	0.73	C
Los Angeles St. / 3rd St.	0.66	B	0.57	A
San Pedro St. / 3rd St.	0.63	B	0.44	A
Central Ave. / 3rd St.	0.58	A	0.41	A
Alameda St. / 3rd St.	0.78	C	0.57	A
Figueroa St. / 3rd St.	0.65	B	0.84	D
Hope St. / Temple St.	0.75	C	0.82	D
Grand Ave. / Temple St.	0.65	B	0.68	B
Broadway / Temple St.	N/A	N/A	0.76	C
Spring St. / Temple St.	0.58	A	0.42	A
Main St. / Temple St.	0.39	A	0.69	B
Los Angeles St. / Temple St.	0.55	A	0.63	B
Judge John Aiso St. / Temple St.	0.36	A	0.50	A
Alameda St. / Temple St.	0.64	B	0.65	B

Most of the key roadway segments currently operate at LOS D or better except for three locations which operate at LOS E. Two of these locations are on 2nd St. and the third location is on Alameda St.

Table 1-8 Existing (2007) Roadway Segment Average Daily Traffic (ADT) Analysis							
Primary Street	Cross Street	Facility Type	Number of lanes	Capacity	ADT	V/C Ratio	LOS
Flower St.	3rd St.	Secondary	4	28,000	11,177	0.399	A
	5th St.	Secondary	6	45,000	19,920	0.443	A
	6th St.	Secondary	4	30,000	17,386	0.580	A
	Wilshire Blvd.	Secondary	4	30,000	19,434	0.648	B
	7th St.	Secondary	4	30,000	18,908	0.630	B
2nd St.	Alameda St.	Secondary	3	21,000	8,176	0.389	A
	Central Ave.	Secondary	2	14,000	10,452	0.747	C
	Los Angeles St.	Secondary	3	21,000	16,244	0.774	C
	Main St.	Secondary	3	21,000	19,630	0.935	E
	San Pedro St.	Secondary	2	14,000	13,371	0.955	E
	Spring St.	Secondary	4	28,000	14,394	0.514	A
Los Angeles St.	1st St.	Secondary	4	28,000	18,559	0.663	B
	2nd St.	Secondary	4	28,000	17,156	0.613	B
	Temple St.	Secondary	5	35,000	22,036	0.630	B
Main St.	1st St. 1-Way	Major Class II	3	25,500	12,079	0.474	A
	2nd St. 1-Way	Major Class II	3	25,500	13,711	0.538	A
	Temple St.	Major Class II	4	34,000	25,626	0.754	C
Temple St.	Judge John Aiso St.	Major Class II	4	32,000	17,114	0.535	A
	Los Angeles St.	Major Class II	4	32,000	16,809	0.525	A
	Main St.	Major Class II	4	32,000	17,032	0.532	A
1st St.	Alameda St.	Secondary	4	28,000	21,538	0.769	C
	Central Ave.	Secondary	4	28,000	23,081	0.824	D
	Los Angeles St.	Secondary	6	42,000	22,099	0.526	A
	Main St.	Secondary	6	42,000	23,908	0.569	A
	Spring St.	Secondary	6	42,000	20,205	0.481	A
3rd St.	Flower St.	Secondary	4	30,000	19,133	0.638	B
	Spring St.	Secondary	3	22,500	17,564	0.781	C
	Los Angeles St.	Secondary	3	22,500	17,965	0.798	C
	Main St.	Secondary	3	22,500	16,151	0.718	C
Alameda St.	1st St.	Major Class II	4	32,000	30,514	0.954	E
	2nd St.	Major Class II	4	32,000	27,881	0.871	D

1.6.2 Transit Operating Conditions

Bus service runs in a grid pattern through the downtown area, with most lines terminating at the downtown periphery after having passed through. Nearly all streets within the PSA have bus service during peak hours.

On several routes, headways shrink to less than five minutes during rush hour. Some stops are served by over a dozen lines during peak hours. Some of the most heavily transit-served streets in the PSA are 1st St., the 4th St./5th St. couplet, Hill St., Broadway, the Main St./Spring St. couplet, and the Grand St./Olive St. couplet. Downtown streets with the highest bus ridership include Broadway, Hill St., Spring St., Main St., Flower St., and Grand Ave.

Of the numerous bus routes serving downtown, 28 pass within one block of both Union Station and the 7th St./Metro Center Station, the termini of the Regional Connector corridor. Eighteen of these lines are operated by Metro, with nearly 16,000 daily passenger boardings and alightings within the PSA.

Table 1-9 shows the bus lines provided by each bus operator, and the frequency of available service for each bus route.

The four busiest Metro bus lines serving the downtown area all originate in West Los Angeles or Santa Monica. The Metro bus lines with the highest number of boardings within the PSA serve areas east and south of downtown. This establishes the Westside, the Eastside, and South Los Angeles as primary origins and destinations for current bus passengers traveling in and out of the PSA. See Table 1-10 for a summary of Metro bus transit ridership by line and direction.

Of the 18 Metro bus lines that pass within a block of both Regional Connector termini (Union Station and 7th St./Metro Center Station), 11 are freeway commuter lines, and all have only low-to-moderate ridership. Even the busiest of these lines only exhibit a modest number of boardings within the PSA, ranging from 50 to 1400 per day.

Four of the five Metro bus lines with the lowest ridership in downtown are also within a block of both Regional Connector termini (442 – Hawthorne via Harbor Transitway, 489 – Temple City via El Monte Busway, 439 – Aviation Green Line via Culver City, and 445 – San Pedro via Harbor Transitway).

Please see Table 1-11 for a summary of ridership on these lines.

Most of the lines paralleling the Regional Connector route (serving both Union Station and 7th St./Metro Center Station) originate from points east of downtown, and five of them use the El Monte Busway. Most of the lines function primarily as peak hour commuter buses; low ridership compared to other Metro bus lines may be attributable to their lack of off-peak service.

Metro operates 125 bus stops within the PSA. The five busiest Metro bus stops, each with 3,800-7,200 daily boardings, are located along Hill St. and Broadway between 5th and 7th Streets (Table 1-12). All of these stops are within one-quarter mile of the existing Pershing Square Station. If the Regional Connector stops near Broadway, Hill, and Spring Streets, it will enable transfers to the busiest north-south bus corridors in the area.

Table 1-9 Bus Transit Routes and Frequency of Bus Service in Project Study Area					
Operator	*Line*	*Mode*	*Weekday Hours of Operation*	*Peak Hour Frequency*	*Route Description*
AVTA	785	Freeway Express Bus	4AM-6AM, 3PM-6PM	20 mins	Palmdale/Lancaster
BBB	10 Express	Freeway Express Bus	6AM-8PM	15 mins	Santa Monica
Gardena	1	Freeway Express Bus	5AM-12AM	15 mins	Gardena/Lawndale
Foothill	481	Freeway Express Bus	6AM-9AM, 3PM-6PM	20 mins	El Monte/Wilshire Center
Foothill	493	Freeway Express Bus	5AM-8AM, 2PM-8PM	10 mins	Pomona/Phillips Ranch
Foothill	497	Freeway Express Bus	5AM-8AM, 2PM-7PM	12 mins	Chino
Foothill	498	Freeway Express Bus	5AM-8AM, 2PM-7PM	7 mins	Covina/Azusa
Foothill	499	Freeway Express Bus	5AM-8AM, 2PM-7PM	12 mins	San Dimas
Foothill	699	Freeway Express Bus	4AM-8AM. 2PM-7PM	9-12 mins	Montclair
Foothill	Silver Streak	Freeway Express Bus	24 Hours	10 mins	Montclair
LADOT	CE 409	Freeway Express Bus	6AM-9AM, 4PM-6PM	15 mins	Sylmar/Sunland/Tujunga/Montrose/Glendale
LADOT	CE 413	Freeway Express Bus	7AM-9AM, 4PM-6PM	25 mins	Van Nuys/North Hollywood/Burbank
LADOT	CE 419	Freeway Express Bus	7AM-9AM, 4PM-7PM	15 mins	Chatsworth/Northridge/Granada Hills/Mission Hills
LADOT	CE 422	Freeway Express Bus	5AM-9AM, 4PM-8PM	8 mins	Hollywood/San Fernando Valley/Agoura Hills/Thousand Oaks
LADOT	CE 423	Freeway Express Bus	7AM-9AM, 4PM-7PM	15 mins	Encino/Woodland Hills/Agoura Hills/Thousand Oaks/Newbury Park
LADOT	CE 430	Freeway Express Bus	6AM-7AM, 5PM-6PM	30-50 mins	Brentwood/Pacific Palisades
LADOT	CE 431	Freeway Express Bus	7AM-9AM, 5PM-6PM	30 mins	Westwood/Rancho Park/Palms
LADOT	CE 437	Freeway Express Bus	7AM-9AM, 4PM-6PM	15-30 mins	Venice/Marina del Rey/Culver City
LADOT	CE 438	Freeway Express Bus	7AM-9AM, 4PM-6PM	15 mins	Redondo Beach/Hermosa Beach/Manhattan Beach/El Segundo
LADOT	CE 448	Freeway Express Bus	7AM-9AM, 4PM-6PM	15 mins	Rancho Palos Verdes/Torrance/Lomita/Wilmington Harbor City

Table 1-9 Bus Transit Routes and Frequency of Bus Service in Project Study Area					
Operator	*Line*	*Mode*	*Weekday Hours of Operation*	*Peak Hour Frequency*	*Route Description*
LADOT	CE 534	Freeway Express Bus	7AM-8AM, 4PM-5PM	30 mins	Century City/Westwood
LADOT	DASH A	Circulator Bus	7AM-7PM	7 mins	Little Tokyo/City West
LADOT	DASH B	Circulator Bus	6AM-7PM	8 mins	Chinatown/Financial District
LADOT	DASH C	Circulator Bus	7AM-7PM	7 mins	Financial District/South Park
LADOT	DASH D	Circulator Bus	6AM-7PM	5 mins	Union Station/South Park
LADOT	DASH E	Circulator Bus	7AM-7PM	5 mins	City West/Fashion District
LADOT	DASH F	Circulator Bus	7AM-7PM	10 mins	Financial District/Exposition
LADOT	DASH CH	Circulator Bus	6AM-6PM	6 mins	City Hall Shuttle
LADOT	DASH DD	Circulator Bus	Weekend Only	20 mins	Downtown Discovery
LADOT	DASH MBH	Circulator Bus	7AM-9AM, 3PM-6PM	10 mins	Metrolink/Bunker Hill
Metro	2/302	Local/Limited Stop Bus	24 Hours	5 mins	Pacific Palisades via Sunset Blvd.
Metro	4	Local Bus	24 Hours	7 mins	Santa Monica via Santa Monica Blvd.
Metro	10	Local Bus	5AM-12AM	7 mins	West Hollywood via Temple St. and Melrose Ave.
Metro	14/37	Local Bus	24 Hours	10 mins	Beverly Hills via Beverly Blvd./West LA via Adams Blvd.
Metro	16/316	Local/Limited Stop Bus	4AM-1AM	3 mins	Century City via 3rd St.
Metro	18	Local Bus	24 Hours	3 mins	Wilshire Center - Montebello via 6th St. and Whittier Blvd.
Metro	20	Local Bus	24 Hours	4 mins	Santa Monica via Wilshire Blvd.
Metro	26/51/52/352	Local/Limited Stop Bus	24 Hours	4 mins	Hollywood - Compton - Artesia Blue Line via Avalon Blvd.
Metro	28	Local Bus	5AM-1AM	8 mins	Century City via Olympic Blvd.
Metro	30/31/330	Local/Limited Stop Bus	24 Hours	4 mins	Pico-Rimpau - Monterey Park via Pico Blvd. and E 1st St.
Metro	33/333	Local/Limited Stop Bus	24 Hours	2 mins	Santa Monica via Venice Blvd.
Metro	38	Local Bus	24 Hours	8 mins	Fairfax and Washington via Jefferson Bl.
Metro	40	Local Bus	24 Hours	6 mins	South Bay Galleria via Hawthorne Blvd., Crenshaw Blvd., and MLK Blvd.
Metro	42/42A	Local Bus	5AM-12AM	12 mins	LAX via MLK Blvd., Stocker St., and La Tijera Blvd.
Metro	45	Local Bus	24 Hours	6 mins	Montecito Heights - Rosewood via Broadway and Mercury Ave.
Metro	48	Local Bus	5AM-11PM	7 mins	Avalon Green Line via Main St. and S. San Pedro St.

Table 1-9 Bus Transit Routes and Frequency of Bus Service in Project Study Area					
Operator	*Line*	*Mode*	*Weekday Hours of Operation*	*Peak Hour Frequency*	*Route Description*
Metro	53/350	Local/Limited Stop Bus	24 Hours	5 mins	Carson via Central Ave.
Metro	55/355	Local/Limited Stop Bus	24 Hours	4 mins	Imperial Blue/Green Line via Compton Ave.
Metro	60	Local Bus	24 Hours	6 mins	Artesia Blue Line via Long Beach Blvd.
Metro	62	Local Bus	5AM-11PM	15 mins	Hawaiian Gardens via Telegraph Rd.
Metro	66/366	Local/Limited Stop Bus	4AM-1AM	2 mins	Wilshire Center - Montebello via 8th St. and Olympic Blvd.
Metro	68/84	Local Bus	24 Hours	8 mins	West LA - Montebello via Washington Blvd. and Cesar Chavez Ave.
Metro	70/71/370	Local/Limited Stop Bus	24 Hours	5-9 mins	El Monte via Garvey Ave.
Metro	76/376	Local/Limited Stop Bus	24 Hours	10 mins	Arcadia via Valley Blvd., Huntington Dr. and Las Tunas Dr.
Metro	78/79/378	Local/Limited Stop Bus	5AM-1AM	10 mins	Arcadia via Huntington Dr. and Las Tunas Dr.
Metro	81/381	Local/Limited Stop Bus	5AM-1AM	5 mins	Eagle Rock - Exposition Park via Figueroa St.
Metro	83	Local Bus	24 Hours	10 mins	Eagle Rock via York Ave.
Metro	90/91	Local Bus	5AM-12AM	10 mins	Sunland via Foothill Blvd., Cañada Blvd., and Glendale Ave.
Metro	92	Local Bus	24 Hours	12 mins	Burbank via Glendale
Metro	94/394	Local/Limited Stop Bus	5AM-1AM	5 mins	Sylmar via San Fernando Rd. and Spring St.
Metro	96	Local Bus	5AM-8PM	20 mins	Sherman Oaks via Griffith Park Dr. and Riverside Dr.
Metro	439	Freeway Express Bus	5AM-9PM	40-60 mins	Aviation Green Line via Culver City
Metro	442	Freeway Express Bus	6AM-8AM, 4PM-6PM	30 mins	Hawthorne via Harbor Transitway, Manchester Blvd., and La Brea Ave.
Metro	444	Freeway Express Bus	5AM-8PM	10-20 mins	Rancho Palos Verdes via Harbor Transitway and Hawthorne Blvd.
Metro	445	Freeway Express Bus	5AM-7PM	30 mins	San Pedro via Harbor Transitway, 1st St., and Pacific Ave.
Metro	446/447	Freeway Express Bus	5AM-12AM	15 mins	San Pedro via Harbor Transitway, Avalon Blvd., and Pacific Ave.
Metro	450X	Freeway Express Bus	6AM-9AM, 4PM-6PM	15 mins	South Bay Express via Harbor Transitway
Metro	460	Freeway Express Bus	5AM-12AM	30 mins	Disneyland via Harbor Transitway, I-105, and I-5
Metro	484	Freeway Express Bus	5AM-12AM	5 mins	Pomona via El Monte Busway and Valley Blvd.
Metro	485	Freeway Express Bus	5AM-12AM	20 mins	Altadena via El Monte Busway, Oak Knoll Ave., and Lake Ave.

Table 1-9 Bus Transit Routes and Frequency of Bus Service in Project Study Area					
Operator	*Line*	*Mode*	*Weekday Hours of Operation*	*Peak Hour Frequency*	*Route Description*
Metro	487	Freeway Express Bus	6AM-9PM	30 mins	Sierra Madre Villa Gold Line via El Monte Busway
Metro	489	Freeway Express Bus	6AM-8AM, 3PM-5PM	12 mins	Temple City via El Monte Busway and Rosemead Blvd.
Metro	490	Freeway Express Bus	5AM-11PM	10 mins	Pomona via El Monte Busway and Ramona Blvd.
Metro	704	Rapid Bus	6AM-8PM	8 mins	Santa Monica Blvd. Rapid
Metro	714	Rapid Bus	6AM-9AM, 3PM-6PM	15 mins	Beverly Blvd. Rapid
Metro	720	Rapid Bus	4AM-1AM	4 mins	Wilshire Blvd. - Whittier Blvd. Rapid
Metro	728	Rapid Bus	5AM-8PM	8 mins	Olympic Blvd. Rapid
Metro	740	Rapid Bus	5AM-8PM	10 mins	Hawthorne Blvd. Rapid
Metro	745	Rapid Bus	5AM-8PM	5 mins	South Broadway Rapid
Metro	760	Rapid Bus	5AM-8PM	8 mins	Long Beach Blvd. Rapid
Metro	770	Rapid Bus	6AM-6PM	12 mins	Garvey Ave. - Cesar Chavez Ave. Rapid
Metro	940	Rapid Express Bus	6AM-8AM, 4PM-6PM	30 mins	Hawthorne Blvd. Rapid Express
Metro	Blue Line	Light Rail	5AM-12AM	5 mins	Long Beach via South Los Angeles, Willowbrook, and Compton
Metro	Red Line	Heavy Rail	5AM-12AM	5 mins	Wilshire Center and North Hollywood
Montebello	40	Local Bus	5AM-10PM	8 mins	Montebello and Whittier via Beverly Blvd.
Montebello	50	Local Bus	5AM-12AM	30 mins	Whittier and La Mirada via Washington Blvd.
Montebello	341	Limited Stop Bus	7AM-9AM, 4PM-6PM	30 mins	Montebello and Whittier via Beverly Blvd.
Montebello	342	Limited Stop Bus	7AM, 5PM	One Trip	Montebello and Whittier via Beverly Blvd.
Montebello	343	Limited Stop Bus	7AM-8AM, 5PM-6PM	30 mins	Montebello and Whittier via Beverly Blvd.
OCTA	701	Freeway Express Bus	5AM-6AM, 4PM-5PM	20 mins	Huntington Beach
OCTA	721	Freeway Express Bus	6AM-9AM, 3PM-6PM	30 mins	Fullerton
Santa Clarita	799	Freeway Express Bus	5AM-7AM, 3PM-7PM	20 mins	Valencia/Santa Clarita
Torrance	1	Freeway Express Bus	6AM-9AM, 4PM-10PM	30 mins	Torrance via Harbor Transitway and Artesia Transit Center
Torrance	2	Freeway Express Bus	7AM-7PM	60 mins	Torrance via Harbor Transitway

Source: Antelope Valley Transit Authority, City of Santa Monica, Foothill Transit, City of Los Angeles Department of Transportation, Los Angeles County Metropolitan Transportation Authority, Montebello Bus Lines, Orange County Transportation Authority, Santa Clarita Transit, Torrance Transit, 2007-2008