3.2.4 At-Grade Emphasis LRT Alternative

The alignment of this alternative extends from the underground 7th St./Metro Center Station, heads north under Flower St., resurfaces to at grade north of 4th St. in the case of Option A (or just north of 5th St. in the case of Option B), enters Bunker Hill, and turns northeast through a new entrance to the existing 2nd St. tunnel. The alignment continues along 2nd St. and splits into an at-grade couplet configuration traveling north Main and Los Angeles Streets with one track on each roadway. Then it heads east on Temple St., realigns into a dual track configuration just north of the Little Tokyo/Arts District Station on Alameda St.

Due to the high volume of trains that will traverse the Regional Connector, an automobile underpass and pedestrian overpass would be constructed at the intersection of Temple and Alameda Streets to eliminate pedestrian-train and automobile-train conflicts.

This alignment includes both underground and at-grade configurations, with 46 percent of the route underground (38 percent if the underground tracks on Flower St. surface at 5th St. instead of 4th St.), serving the Civic Center, Grand Ave., and the Financial District. Conversion of 2nd St. to a pedestrian-friendly transit mall is assumed. This alternative will reduce the number of traffic lanes and on-street parking spaces. Under this plan, at-grade LRT construction activities will reduce the automobile capacity of 2nd St. As a result, traffic is likely to divert to adjacent parallel streets such as 1st St. and 3rd St., but the roadway capacity along these streets will remain unchanged, as with the No Build Alternative. Congestion along these streets will likely increase.

3.2.5 Underground Emphasis LRT Alternative

This alignment begins at the underground 7th St./Metro Center Station and heads north under Flower St., then turns northeast under the Grand Avenue Project development and heads east under the 2nd St. tunnel. It continues east under 2nd St. until it rises to street level on the lot northeast of 2nd St. and Central Ave. and crosses Alameda St. to connect to the Metro Gold Line tracks.

This alignment is 94 percent underground, with a single at-grade crossing at 1st and Alameda Streets. This grade crossing will feature an automobile underpass and pedestrian overpass so as to remove nearly all conflicts between pedestrians, automobiles, and trains at this intersection. The underground stations provide service to the Civic Center, Little Tokyo, Grand Ave., and Financial Districts. Due to the fact that this alignment is predominantly underground, permanent impacts on traffic operations, roadway capacity and mobility along 2nd St. will be minimized. Construction impacts would occur at station sites, portals, and above cut and cover tunnel sections, but would be temporary.

3.2.6 Ridership

For all of the alternatives under consideration, ridership is affected by travel time, fares, length of segments, and choice of alignment and configuration. One major benefit of a project like this is the increase in the overall transit ridership that the new service produces. The change in ridership is estimated for all relevant transit services in the area including buses and rail.

Ridership generated by each alternative, based on year 2030 forecasts, was then compared to that produced by the No Build and TSM Alternatives. Model runs were performed for the No Build, TSM, At-Grade Emphasis LRT, and Underground Emphasis LRT Alternatives.

Table 3-5 shows the projected year 2030 total transit trips for each alternative. The build alternatives would increase ridership on urban rail (Metro Rail) while reducing bus ridership and slightly reducing commuter rail (Metrolink) ridership, which can be explained as a shift from other transit services to rail when the Regional Connector is built. For example, a small share of the riders currently using Metrolink's Cal State LA, Montebello, Commerce, and Norwalk stations may switch to the Metro Gold Line Eastside Extension or the Metro Blue and Green Lines to take advantage of the improved trip times to downtown. The results suggest that fewer than 400 passengers would make this switch.

The Regional Connector would attract riders for crosstown trips that can be taken without transferring between transit lines. Since the number of new rail riders is greater than the reduction in bus riders, the Regional Connector is anticipated to attract more commuters to the transit system.

For urban rail trips, the net increases over the No Build Alternative range from about 12,200 daily trips for the At-Grade Emphasis LRT Alternative Option A and 13,500 for the At-Grade Emphasis LRT Alternative Option B to 16,000 for the Underground Emphasis LRT Alternative. When compared to the TSM Alternative, the added daily trips range from 13,000 for the At-Grade Emphasis LRT Alternative Option A, 14,300 for the At-Grade Emphasis LRT Alternative Option B, to 16,900 for the Underground Emphasis LRT Alternative. Commuter rail would experience only a slight decrease in ridership.

Overall, total transit trips under the build alternatives increase by 0.5 to 0.7 percent, or 7,600 to 10,200 new daily trips, when compared to the No Build and TSM Alternatives, respectively, due to the improved transit connectivity and frequency provided by the Regional Connector. The increase in boarding's on the light rail lines feeding into the Regional Connector will be 7 to 10 percent compared to No Build because more people will be attracted to the system by the faster service. The new reduced transfer light rail service will also eliminate 17,000 to 20,000 daily transfers to and from the Metro Red and Purple Lines.

Of the two build alternatives, the Underground Emphasis LRT Alternative tends to capture the greatest amount of new transit trips, in terms of both urban rail trips and total transit trips, while the At-Grade Emphasis LRT Alternative follows closely behind.

Table 3-5 Year 2030 Daily Transit Trips

	No Build	TSM	At-Grade LRT (Option A)	At-Grade LRT (Option B)	Underground LRT
Local Bus	839,375	839,166	837,009	836,702	836,181
Express Bus	30,787	30,512	30,723	30,716	30,698
Transitway Bus	102,396	101,866	101,655	101,597	101,563
Rapid Bus	211,266	214,022	210,295	210,185	209,886
BRT	7,463	7,463	7,428	7,413	7,458
Bus Subtotal	1,191,287	1,193,029	1,187,110	1,186,613	1,185,786
Urban Rail	248,194	247,377	260,391	261,660	264,242
Commuter Rail	76,337	76,362	75,934	75,934	75,989
Transit Subtotal	1,515,818	1,516,768	1,523,435	1,524,207	1,526,017

When comparing the TSM and No Build Alternatives, the TSM Alternative results in a nominal increase in bus ridership of about 1,700 additional daily trips, which appears to be the effect of increased frequency coupled with the shuttle bus connection between 7th St./Metro Center and Union Station.

Since a high concentration of bus service already exists in the downtown area linking the two stations, the proposed shuttle bus service is unlikely to function as an essential improvement. The difference in total transit ridership between the TSM and No Build Alternatives is only 950, which is not as dramatic as the increases associated with the LRT build alternatives. Accordingly, the proposed build alternative shows much better ridership performance than the No Build and TSM Alternatives, with the Underground Emphasis LRT Alternative expected to produce the highest amount of new ridership.

Urban Rail Boardings

Table 3-6 summarizes the year 2030 forecasted rail line daily boardings for each of the alternatives. Daily boardings represent the total number of boardings in the North-South Line and East-West Line connected by the Regional Connector, including the Metro Gold Line to Pasadena, the Metro Gold Line Eastside Extension, the Metro Blue Line and the Metro Expo Line. New boardings are presented for each alternative as increments over the No Build and TSM alternatives.

Although the TSM Alternative has a total daily ridership higher than the No Build Alternative, it has the fewest urban rail boarding's, resulting from the additional transfers needed when using the new shuttle buses to link 7th St./Metro Center Station and Union Station. The build alternatives will result in significant increases in rail boarding's along the North-South and East-West LRT lines, compared to both the No Build and TSM Alternatives, ranging from about 10,900 to 15,500 daily boarding's.

Table 3-6 Year 2030 Urban Rail Boardings on LRT Lines Joined by the Regional Connector

Alternative	Daily Boardings	Incremental New Urban Rail Boardings Over No Build	Incremental New Urban Rail Boardings Over TSM	Boardings at New Stations
No Build	154,805	N/A	962	N/A
TSM	153,843	N/A	N/A	N/A
At-Grade Emphasis LRT Option A	165,691	10,886	11,848	15,098
At-Grade Emphasis LRT Option B	167,615	12,810	13,772	15,057
Underground Emphasis LRT	169,288	14,483	15,445	12,457

As for total daily ridership on the entire transit system, the Underground Emphasis LRT Alternative is expected to produce the highest number of boardings each day, though it will yield fewer boardings at the new stations than the at-grade alternative.

3.3 Roadway Analysis

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 under existing conditions was 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). The 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 3-7.

Tables 3-8 through 3-10 summarize the existing operating conditions for the key intersections, roadway segments, and freeways in the PSA. All of the key study 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 3-7 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 approach 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 settings). 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. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board, Highway Capacity Manual, 2000

Table 3-8 Existing (2007) Intersection Level of Service				
	AM Peak Hour		PM Peak Hour	
Intersection	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

Table 3-8 Existing (2007) Intersection Level of Service				
	AM Peak Hour		PM Peak Hour	
Intersection	V/C Ratio	LOS	V/C Ratio	LOS
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.

All of the freeways serving downtown operate at LOS F during peak hours in at least one direction. As evidenced by the previous tables, traffic congestion on the local freeways is worse than on streets in the PSA. This is largely because freeways congregate both downtown-bound traffic and traffic passing through to other areas. On I-10 east of downtown, and on SR-60 and US-101, traffic operates at a speed acceptable for urban settings in the reverse peak direction during peak hours (i.e., away from downtown in the mornings and toward downtown in the evenings). However, I-10 west of downtown and I-110/SR-110 operate at LOS F in both directions during both commute peaks.

Table 3-9 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

Table 3-10 Existing (2003) Peak Hour Freeway Traffic and Level of Service										
Freeway	Cross Street	Capacity (VPH)	North/East AM (VPH and LOS)		North/East PM (VPH and LOS)		South/West AM (VPH and LOS)		South/West PM (VPH and LOS)	
I-5	Stadium Way	10,000	9,206	D	12,600	F	13,600	F	10,353	F
I-10	Budlong Ave.	12,500	17,000	F	18,250	F	18,250	F	18,250	F
I-10	East LA City Limits	12,000	6,618	C	12,120	F	11,100	D	8,879	C
SR-60	Indiana St.	12,000	4,989	B	15,120	F	16,320	F	6,317	B
US-101	Vignes St.	10,000 N/B	13,600	F	6,561	C				
US-101	Vignes St.	8,000 S/B					5,228	C	10,880	F
SR-110	US-101	8,000	8,121	F	11,771	F	10,913	F	10,913	F

Source: Metro 2004 Congestion Management Program for Los Angeles County

In order to estimate the impacts of the proposed alternatives on the downtown roadway system, future traffic volumes were projected for the year 2030. The travel demand model was used to identify the annual growth rate at key intersections and roadway segments between the model base year and the 2030 forecast year. At most of the key locations, the model's annual growth rate was found to be around one percent or less. Consequently, a conservative annual growth rate of one percent was used to forecast the existing (2007) traffic volumes over 23 years to the year 2030 horizon. However, at several locations where the model growth rate substantially exceeded one percent, the greater rates from the model were utilized. This occurred along Flower St., where an annual growth rate of 1.4 percent was used, and in the southbound direction on Alameda St., where an annual growth rate of 1.75 percent was used.

Based on the future daily and peak hour traffic volumes that were developed, the future LOS at each key intersection and roadway segment location was calculated for the No Build, TSM and build alternatives. In general, the difference in future traffic volumes between the No Build and TSM Alternatives is minimal; for this AA, it is assumed that they will be the same. For each build alternative, the traffic impacts were compared to the No Build and TSM Alternatives. Vehicular circulation through the downtown area will be affected by the proposed project, but the level of impact will depend on the alternative alignment being evaluated, as noted in the following sections.

At-Grade Emphasis LRT Alternative

For the at-grade segments of the At-Grade Emphasis LRT Alternative, the two LRT tracks will typically occupy a 26-foot wide surface right-of-way bordered by mountable curbs. It is expected that this width will increase to 39 feet at center platform station locations. Vehicular and pedestrian crossings would be limited to traffic signal-controlled intersections, with the signal phasing modified to provide adequate green time for the LRT vehicles to safely cross. For safety reasons, no uncontrolled mid-block vehicular crossings of the tracks would be permitted. Access to existing parking structures, parking lots, loading docks and commercial frontage will be affected by the at-grade LRT facilities. Left-turn parking access and egress is presently allowed at many downtown sites. However,

the at-grade LRT facilities will eliminate uncontrolled mid-block left-turns, and thus modify existing approach and departure traffic patterns.

The proposed At-Grade Emphasis LRT alignment travels at-grade along 2nd St. and it is assumed that this street would be dedicated as a transit-only roadway between the tunnel and Los Angeles St. This segment of 2nd St. would be closed to through traffic and provide only emergency vehicle access and local access to adjacent properties. As a result of this proposed change in street circulation, through traffic currently using 2nd St. would be diverted to parallel roadways such as 1st and 3rd Streets. East of Los Angeles St., 2nd St. would maintain its current physical features and operating characteristics.

The one-way transit couplet near City Hall along Main and Los Angeles Streets between 2nd and Temple Streets would consist of a single LRT track along each roadway. Both Main and Los Angeles Streets are wide enough to accommodate a single track and maintain acceptable vehicular operations. The curb-to-curb width of Temple St., between Main and Alameda Streets, is 62 to 71 feet, leaving one lane of traffic in each direction with potentially mountable curbs for use by emergency vehicles. Traffic operations along this segment of Temple St. will be affected by the lane reduction.

To minimize conflicts between rail, vehicular, and pedestrian traffic, and to minimize delays at the intersection of Temple and Alameda Streets, a vehicular underpass and a pedestrian overpass are proposed along Alameda St. to route the through traffic beneath the rail tracks and Temple St. Temple St. and the rail tracks would remain at-grade and the existing at-grade segment of Alameda St. would be lowered to pass under Temple St. Through traffic traveling north and south on Alameda St. would operate unimpeded without being stopped or delayed at the intersection. Through traffic traveling east and west on Temple St. would continue to operate at-grade with a signal to control the movements between the vehicular and rail modes of transportation. In addition, a one-lane southbound at-grade frontage road would be provided along Alameda St. to maintain access to the businesses and properties on the west side of the street.

Underground Emphasis LRT Alternative

The Underground Emphasis LRT Alternative alignment does not affect surface traffic except at the intersection of Alameda and 1st Streets, where the LRT alignment operates in an at-grade configuration. Consequently, vehicular circulation patterns along downtown streets adjacent to most of the alignment will continue to operate at current traffic flow patterns.

The future roadway LOS for this alternative will be the same as the No Build and TSM Alternatives except at the intersection of Alameda and 1st Streets. There, a vehicular underpass and pedestrian overpass are proposed to separate the heavy traffic volumes along Alameda St. from rail traffic to minimize delays. The proposed underpass would result in uninterrupted flow along Alameda St. in the north and south directions between 2nd and Temple Streets. Through traffic traveling east and west on 1st St. would continue to operate at-grade with a signal to control the movements between the vehicular and rail modes of transportation.

In addition, at-grade frontage roads would be provided along on both sides of Alameda St. south of the intersection, and on the southbound side of the street north of the intersection to maintain access to adjacent businesses and properties. A full northbound frontage road is infeasible because of the location of the rail tracks and the Metro Gold Line Eastside Extension's Little Tokyo/Arts District Station on the east (northbound) side of Alameda St.

The results of the future conditions LOS analysis at the key intersections and roadway segments for the No Build, TSM and build alternatives are presented in Tables 3-11, 3-12, and 3-13. During the AM peak hour, five intersections operate at LOS E or F for the No Build, TSM, and Underground Emphasis LRT Alternatives; this increases to seven intersections for the At-Grade Emphasis LRT Alternative.

Similarly, during the PM peak hour, five intersections operate at LOS E or F for the No Build and TSM Alternatives, versus only four for the Underground Emphasis LRT Alternative and 13 for the At-Grade Emphasis LRT Alternative. The roadway segment analysis provides similar results, with 12 segments operating at LOS E or F for the No Build, TSM and Underground Emphasis LRT Alternatives, and 14 for the At-Grade Emphasis LRT Alternative. It should be noted that the No Build, TSM and Underground Emphasis LRT Alternatives have six of the 12 locations operating at LOS F while the At-Grade Emphasis LRT Alternative has 11 of the 14 locations operating at LOS F.

Table 3-11 Future (2030) Intersection Level of Service AM Peak Hour

Intersection	No Build		TSM		Couplet A		Couplet B		Underground	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
Hill St. / 1st St.	0.76	C	0.76	C	0.76	C	0.76	C	0.76	C
Broadway / 1st St.	0.78	C	0.78	C	0.87	D	0.87	D	0.78	C
Spring St. / 1st St.	0.67	B	0.67	B	0.81	D	0.81	D	0.67	B
Main St. / 1st St.	0.54	A	0.54	A	0.69	B	0.69	B	0.54	A
Los Angeles St. / 1st St.	0.66	B	0.66	B	0.71	C	0.71	C	0.66	B
Judge John Aiso St. / 1st St.	0.74	C	0.74	C	0.80	C	0.80	C	0.74	C
Alameda St. / 1st St.	1.36	F	1.36	F	1.36	F	1.36	F	0.96	E
Broadway / 2nd St.	1.05	F	1.05	F	0.82	D	0.82	D	1.05	F
Spring St. / 2nd St.	0.59	A	0.59	A	0.54	A	0.54	A	0.59	A
Main St. / 2nd St.	0.36	A	0.36	A	0.53	A	0.53	A	0.36	A
Los Angeles St. / 2nd St.	0.57	A	0.57	A	0.71	C	0.71	C	0.57	A
San Pedro St. / 2nd St.	0.50	A	0.50	A	0.38	A	0.38	A	0.50	A
Central Ave. / 2nd St.	0.48	A	0.48	A	0.48	A	0.48	A	0.48	A
Alameda St. / 2nd St.	0.91	E	0.91	E	0.91	E	0.91	E	0.91	E
Broadway / 3rd St.	0.90	D	0.90	D	1.20	F	1.20	F	0.90	D
Spring St. / 3rd St.	0.73	C	0.73	C	0.83	D	0.83	D	0.73	C
Main St. / 3rd St.	0.66	B	0.66	B	0.81	D	0.81	D	0.66	B
Los Angeles St. / 3rd St.	0.82	D	0.82	D	0.90	D	0.90	D	0.82	D

Table 3-11 Future (2030) Intersection Level of Service AM Peak Hour										
Intersection	No Build		TSM		Couplet A		Couplet B		Underground	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
San Pedro St. / 3rd St.	0.78	C	0.78	C	0.84	D	0.84	D	0.78	C
Central Ave. / 3rd St.	0.72	C	0.72	C	0.72	C	0.72	C	0.72	C
Alameda St. / 3rd St.	1.04	F	1.04	F	1.04	F	1.04	F	1.04	F
Figueroa St. / 3rd St.	0.80	C	0.80	C	0.80	C	0.80	C	0.80	C
Hope St. / Temple St.	0.98	E	0.98	E	0.98	E	0.98	E	0.98	E
Grand Ave. / Temple St.	0.76	C	0.76	C	0.76	C	0.76	C	0.76	C
Broadway / Temple St.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spring St. / Temple St.	0.67	B	0.67	B	0.67	B	0.67	B	0.67	B
Main St. / Temple St.	0.44	A	0.44	A	0.50	A	0.50	A	0.44	A
Los Angeles St. / Temple St.	0.68	B	0.68	B	1.00	E	1.00	E	0.68	B
Judge John Aiso St. / Temple St.	0.44	A	0.44	A	0.86	D	0.86	D	0.44	A
Alameda St. / Temple St.	0.79	C	0.79	C	1.12	F	1.12	F	0.79	C
No. of LOS E Intersections	**2**		**2**		**3**		**3**		**3**	
No. of LOS F Intersections	**3**		**3**		**4**		**4**		**2**	

Table 3-12 Future (2030) Intersection Level of Service PM Peak Hour										
Intersection	No Build		TSM		Couplet A		Couplet B		Underground	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
Hill St. / 1st St.	0.91	E	0.91	E	0.91	E	0.91	E	0.91	E
Broadway / 1st St.	0.70	B	0.70	B	0.78	C	0.78	C	0.70	B
Spring St. / 1st St.	0.56	A	0.56	A	0.62	B	0.62	B	0.56	A
Main St. / 1st St.	0.67	B	0.67	B	0.91	E	0.91	E	0.67	B
Los Angeles St. / 1st St.	0.71	C	0.71	C	0.88	D	0.88	D	0.71	C
Judge John Aiso St. / 1st St.	0.85	D	0.85	D	1.06	F	1.06	F	0.85	D
Alameda St. / 1st St.	1.10	F	1.10	F	1.10	F	1.10	F	0.87	D
Broadway / 2nd St.	0.57	A	0.57	A	0.54	A	0.54	A	0.57	A
Spring St. / 2nd St.	0.49	A	0.49	A	0.44	A	0.44	A	0.49	A
Main St. / 2nd St.	0.77	C	0.77	C	0.85	D	0.85	D	0.77	C
Los Angeles St. / 2nd St.	0.73	C	0.73	C	0.82	D	0.82	D	0.73	C
San Pedro St. / 2nd St.	0.75	C	0.75	C	0.59	A	0.59	A	0.75	C
Central Ave. / 2nd St.	0.67	B	0.67	B	0.67	B	0.67	B	0.67	B
Alameda St. / 2nd St.	0.89	D	0.89	D	0.89	D	0.89	D	0.89	D
Broadway / 3rd St.	0.74	C	0.74	C	0.92	E	0.92	E	0.74	C
Spring St. / 3rd St.	0.67	B	0.67	B	0.82	D	0.82	D	0.67	B
Main St. / 3rd St.	0.90	D	0.90	D	1.04	F	1.04	F	0.90	D

Table 3-12 Future (2030) Intersection Level of Service PM Peak Hour										
Intersection	No Build		TSM		Couplet A		Couplet B		Underground	
	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
Los Angeles St. / 3rd St.	0.70	B	0.70	B	0.74	C	0.74	C	0.70	B
San Pedro St. / 3rd St.	0.54	A	0.54	A	0.62	B	0.62	B	0.54	A
Central Ave. / 3rd St.	0.51	A	0.51	A	0.51	A	0.51	A	0.51	A
Alameda St. / 3rd St.	0.70	B	0.70	B	0.70	B	0.70	B	0.70	B
Figueroa St. / 3rd St.	1.22	F	1.22	F	1.22	F	1.22	F	1.22	F
Hope St. / Temple St.	0.96	E	0.96	E	0.96	E	0.96	E	0.96	E
Grand Ave. / Temple St.	0.87	D	0.87	D	0.87	D	0.87	D	0.87	D
Broadway / Temple St.	0.92	E	0.92	E	0.92	E	0.92	E	0.92	E
Spring St. / Temple St.	0.51	A	0.51	A	0.51	A	0.51	A	0.51	A
Main St. / Temple St.	0.85	D	0.85	D	1.00	E	1.00	E	0.85	D
Los Angeles St. / Temple St.	0.77	C	0.77	C	1.34	F	1.34	F	0.77	C
Judge John Aiso St. / Temple St.	0.61	B	0.61	B	0.93	E	0.93	E	0.61	B
Alameda St. / Temple St.	0.80	C	0.80	C	1.04	F	1.04	F	0.80	C
No. of LOS E Intersections	**3**		**3**		**7**		**7**		**3**	
No. of LOS F Intersections	**2**		**2**		**6**		**6**		**1**	

Table 3-13 Future (2030) Roadway Segment Average Daily Traffic (ADT) Analysis No Build, TSM and Underground Emphasis LRT Alternative							
Primary Street	Cross Street	Facility Type	Number of lanes	Capacity	ADT	V/C Ratio	LOS
Flower St.	3rd St.	Secondary	4	28,000	15,389	0.550	A
	5th St.	Secondary	6	45,000	27,426	0.609	B
	6th St.	Secondary	4	30,000	23,938	0.798	C
	Wilshire Blvd.	Secondary	4	30,000	26,757	0.892	D
	7th St.	Secondary	4	30,000	26,033	0.868	D
2nd St.	Alameda St.	Secondary	3	21,000	10,279	0.489	A
	Central Ave.	Secondary	2	14,000	13,140	0.939	E
	Los Angeles St.	Secondary	3	21,000	20,421	0.972	E
	Main St.	Secondary	3	21,000	24,679	1.175	F
	San Pedro St.	Secondary	2	14,000	16,810	1.201	F
	Spring St.	Secondary	4	28,000	18,095	0.646	B
Los Angeles St.	1st St.	Secondary	4	28,000	23,331	0.833	D
	2nd St.	Secondary	4	28,000	21,568	0.770	C
	Temple St.	Secondary	5	35,000	27,703	0.792	C
Main St.	1st St. 1-Way	Major Class II	3	25,500	15,185	0.595	A
	2nd St. 1-Way	Major Class II	3	25,500	17,237	0.676	B
	Temple St.	Major Class II	4	34,000	32,216	0.948	E
Temple St.	Judge John Aiso St.	Major Class II	4	32,000	21,516	0.672	B
	Los Angeles St.	Major Class II	4	32,000	21,132	0.660	B
	Main St.	Major Class II	4	32,000	21,412	0.669	B

Table 3-13 Future (2030) Roadway Segment Average Daily Traffic (ADT) Analysis No Build, TSM and Underground Emphasis LRT Alternative							
Primary Street	Cross Street	Facility Type	Number of lanes	Capacity	ADT	V/C Ratio	LOS
1st St.	Alameda St.	Secondary	4	28,000	27,077	0.967	E
	Central Ave.	Secondary	4	28,000	29,016	1.036	F
	Los Angeles St.	Secondary	6	42,000	27,783	0.661	B
	Main St.	Secondary	6	42,000	30,056	0.716	C
	Spring St.	Secondary	6	42,000	25,401	0.605	B
3rd St.	Flower St.	Secondary	4	30,000	24,053	0.802	D
	Spring St.	Secondary	3	22,500	22,080	0.981	E
	Los Angeles St.	Secondary	3	22,500	22,585	1.004	F
	Main St.	Secondary	3	22,500	20,304	0.902	E
Alameda St.	1st St.	Major Class II	4	32,000	42,364	1.324	F
	2nd St.	Major Class II	4	32,000	38,338	1.198	F

Roadway Segments with LOS E = 6
Roadway Segments with LOS F = 6
Total of LOS E & F =12

Table 3-14 Future (2030) Roadway Segment Average Daily Traffic (ADT) Analysis At-Grade Emphasis LRT Alternative							
Primary Street	Cross Street	Facility Type	Number of lanes	Capacity	ADT	V/C Ratio	LOS
Flower St.	3rd St.	Secondary	3	21,000	15,389	0.733	C
	5th St.	Secondary	6	45,000	27,426	0.609	B
	6th St.	Secondary	4	30,000	23,938	0.798	C
	Wilshire Blvd.	Secondary	4	30,000	26,757	0.892	D
	7th St.	Secondary	4	30,000	26,033	0.868	D
2nd St.	Alameda St.	Secondary	3	21,000	10,279	0.489	A
	Central Ave.	Secondary	2	14,000	13,140	0.939	E
	Los Angeles St.	Secondary	1	7,000	4,084	0.583	A
	Main St.	Secondary	1	7,000	4,936	0.705	C
	San Pedro St.	Secondary	2	14,000	16,810	1.201	F
	Spring St.	Secondary	1	7,000	3,619	0.517	A
Los Angeles St.	1st St.	Secondary	3	21,000	23,331	1.111	F
	2nd St.	Secondary	4	28,000	21,568	0.770	C
	Temple St.	Secondary	4	28,000	27,703	0.989	D
Main St.	1st St. 1-Way	Major Class II	3	25,500	15,185	0.595	A
	2nd St. 1-Way	Major Class II	3	25,500	17,237	0.676	B
	Temple St.	Major Class II	3	25,500	32,216	1.263	F
Temple St.	Judge John Aiso St.	Major Class II	2	16,000	21,516	1.345	F
	Los Angeles St.	Major Class II	2	16,000	21,132	1.321	F
	Main St.	Major Class II	3	24,000	21,412	0.892	D
1st St.	Alameda St.	Secondary	4	28,000	27,077	0.967	E
	Central Ave.	Secondary	4	28,000	29,016	1.036	F
	Los Angeles St.	Secondary	6	42,000	35,952	0.856	D
	Main St.	Secondary	6	42,000	39,928	0.951	E
	Spring St.	Secondary	6	42,000	32,639	0.777	C

Table 3-14 Future (2030) Roadway Segment Average Daily Traffic (ADT) Analysis At-Grade Emphasis LRT Alternative							
Primary Street	Cross Street	Facility Type	Number of lanes	Capacity	ADT	V/C Ratio	LOS
3rd St.	Flower St.	Secondary	4	30,000	24,053	0.802	D
	Spring St.	Secondary	3	22,500	29,318	1.303	F
	Los Angeles St.	Secondary	3	22,500	30,754	1.367	F
	Main St.	Secondary	3	22,500	30,176	1.341	F
Alameda St.	1st St.	Major Class II	4	32,000	42,364	1.324	F
	2nd St.	Major Class II	4	32,000	38,338	1.198	F

Roadway Segments with LOS E = 3
Roadway Segments with LOS F = 11
Total of LOS E & F =14

3.3.1 Parking Evaluation

A preliminary parking analysis was performed to assess the number of on-street parking spaces that may be removed for the build alternatives. This section presents the effects that each alternative may have on the curb parking supply. In order to estimate parking losses, a field survey was performed to inventory the number of available on-street parking spaces. The street segments with an at-grade transit alignment were surveyed to collect the number of spaces and parking restriction information.

No Build, TSM, and Underground Emphasis LRT Alternatives

Neither the No Build nor the TSM Alternative would displace any existing parking spaces. The build alternatives will each have different parking impacts. With the proposed alignment almost completely underground, the Underground Emphasis LRT Alternative does not result in any loss of on-street parking spaces along 2nd or Flower Streets. However, the proposed underpass at 1st and Alameda Streets will result in the loss of existing parking spaces along the east side of Alameda St. near the intersection. Approximately 20 on-street spaces would be displaced. Construction of the Underground Emphasis LRT Alternative would temporarily displace parking spaces along the alignment, but they would be restored once work is completed.

At-Grade Emphasis LRT Alternative

The construction of at-grade tracks along 2nd St. and the need for adequate street widths to provide local access lanes will require the elimination of existing on-street parking and loading spaces to accommodate the At-Grade Emphasis LRT Alternative. This loss of parking may result in spill over to adjacent streets if parking on these streets is readily available. As shown in Table 3-15, the total number of parking spaces lost under the At-Grade Emphasis LRT Alternative will total 88, with 35 of the spaces located on 2nd St. between Hill and Los Angeles Streets. All of the lost parking spaces would be in the Civic Center area, and no parking would be displaced in Little Tokyo. In addition, nine spaces may also be lost along the south side of Temple St. west of Alameda St. due to the proposed underpass.

Table 3-15 Number of Existing Parking Spaces on 2nd Street																
Street	Side	Hill to Broadway			Broadway to Spring			Spring to Main			Main to Los Angeles			TOTAL		
		Park	Load	Drive-Way	Park	Load	Drive-way	Park	Load	Drive-way	Park	Load	Drive-way	Park	Load	Drive-way
2nd St	North	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	South	9	1	0	7	0	1	4	4	1	10	0	9	30	5	11
TOTAL		9	1	0	7	0	2	4	4	1	10	0	9	30	5	12

Consequently, it will be necessary to implement mitigation measures, such as off-street parking facilities to replace the lost curb spaces. After the selection of a preferred alternative, Metro would have to work closely with the affected entities to develop plans to minimize the parking losses.

3.4 Summary of Transportation Analysis

In an effort to better inform decisions made on such a significant investment, this section provides a summary of major transportation issues such as ridership, traffic impacts and parking losses related to each alternative based on a comparative evaluation.

No Build Alternative

Implementation of the No Build Alternative will result in the lowest total daily transit ridership of 1.5 million passengers and the second fewest urban rail daily combined boardings of approximately 155,000 for the Metro Blue Line, Pasadena Gold Line, Gold Line Extension, and Expo Line.

For the No Build Alternative, two key intersections operate at LOS E and three operate at LOS F during the AM peak hour. The remaining intersections operate at LOS D or better. The number of intersections operating at LOS E and F is three and two, respectively, during the PM peak hour. In addition, 12 roadway segments operate at LOS E or LOS F.

This alternative will not displace any existing on-street parking or loading spaces or reduce the number of traffic lanes.

TSM Alternative

This alternative has the fewest daily urban rail boardings, about 154,000, for the Metro Blue Line, Pasadena Gold Line, Gold Line Extension, and Expo Line combined, since it consists of shuttle bus service. Although the TSM Alternative results in fewer rail boardings, it will produce approximately 1.5 million total transit trips each day, 950 more daily trips than the No Build Alternative. Thus, the TSM Alternative is expected to slightly improve overall transit service.

Like the No Build Alternative, the TSM Alternative has two key intersections operating at LOS E and three operating at LOS F during the AM peak hour. The remaining intersections operate at LOS D or better. The number of intersections operating at LOS E and F changes to three and two, respectively, during the PM peak hour. In addition, 12 roadway segments will operate at LOS E or LOS F.

Like the No Build Alternative, the TSM Alternative would not require the displacement of any existing on-street parking or loading spaces, or a reduction in traffic lanes.

At-Grade Emphasis LRT Alternative Option A

The At-Grade Emphasis Alternative with Option A ranks lowest with regard to ridership of the build LRT alternatives, with about 1.5 million total daily transit trips. However, it still creates 7,600 more daily trips than the No Build Alternative and 6,700 daily trips over the TSM Alternative. It also results in the fewest daily urban rail boardings of nearly 166,000 compared to Option B and the Underground Emphasis LRT Alternative, but far more than the No Build and TSM Alternatives.

The at-grade operation along 2nd St. will result in the reduction of roadway capacity and the diversion of through traffic to adjacent roadways such as 1st St. to the north and 3rd St. to the south. However, local access will be maintained to serve the adjacent businesses and office buildings. This shift in traffic flow patterns will cause seven key intersections to operate at LOS E or LOS F in the AM peak hour, and 13 during the PM peak hour. A total of 14 roadway segments will operate at LOS E or F, with the majority operating at LOS F.

The operation of at-grade LRT service along 2nd St. will necessitate the removal of 35 on-street parking and loading spaces. In addition, approximately 9 spaces may also be lost along the south side of Temple St. just west of Alameda St.

At-Grade Emphasis LRT Alternative Option B

The At-Grade Emphasis Alternative with Option B ranks second in ridership and urban rail boardings, with 1.5 million total trips and nearly 170,000 boardings each day. A comparison to the No Build and TSM Alternatives reveals that it will produce about 8,400 and 7,500 additional daily transit trips, respectively.

Option B is practically identical to Option A, except it has a longer at-grade section along Flower St. and an at-grade center platform station at the World Trade Center. As noted previously, at-grade operation along 2nd St. will result in the reduction of roadway capacity and the diversion of through traffic to adjacent roadways such as 1st St. to the north and 3rd St. to the south. However, local access will be maintained to serve the adjacent businesses and office buildings. Consequently, seven key intersections will operate at LOS E or LOS F in the AM peak hour, 13 during the PM peak hour. A total of 14 roadway segments will operate at LOS E or F with the majority of these locations operating at LOS F.

The at-grade LRT service along 2nd St. will displace a total of 35 on-street parking and loading spaces. In addition, approximately 9 spaces may be lost along the south side of Temple St. just west of Alameda St.

Underground Emphasis LRT Alternative

The ridership evaluation shows the Underground Emphasis LRT Alternative to be the best performer, producing a total of 1.5 million daily transit trips. This alternative would result in almost 10,200 more daily transit trips than the No Build Alternative, and 9,300 more than the TSM Alternative. It would also yield the most daily urban rail boardings at 170,000.

Due to its mostly underground configuration, this alternative will not compromise existing roadway capacity. Similar to the No Build and TSM Alternatives, five key intersections will operate at LOS E or LOS F during the AM peak period, four during the PM peak hour. The proposed Alameda St. underpass at 1st St. will help improve the operation of the intersection. Like the No Build and TSM Alternatives, a total of 12 roadway segments operate at LOS E or LOS F. Minor diversions of several turn movements at the intersection of Alameda and 1st Streets will occur due to the proposed underpass and associated frontage road configurations.

The proposed underpass along Alameda St. is expected to displace about 20 parking spaces in the northbound direction south of 1st St.

3.5 Conclusions

Each of the alternatives was evaluated in terms of ridership, potential traffic impacts and parking losses. As explored above, the build LRT alternatives will result in significant increases in total transit ridership and urban rail boardings, with the Underground Emphasis LRT Alternative achieving the highest ridership performance.

From a roadway and intersection evaluation perspective, the Underground Emphasis LRT Alternative runs mostly underground, so there will be minimal disruption to traffic operations and flow patterns. The existing downtown roadway capacity will be maintained, and access to businesses and office buildings will not be compromised. In most cases, existing turn movements will be permitted, except at the proposed Alameda St. underpass and frontage roads, where several turn movements will be prohibited and traffic will need to use alternate routes. Overall, the operating conditions at the key intersections and roadway segments will mirror those of the No Build and TSM Alternatives.

On the other hand, the At-Grade Emphasis LRT Alternative will reduce roadway capacity along several segments due to the addition of grade crossings and street-running tracks. The proposed dedication of 2nd St. as a transit roadway will alter traffic flow patterns in the vicinity of the alignment. Local access will be maintained, but through traffic will be diverted to adjacent parallel streets, such as 1st and 3rd Streets. Crossing the rail tracks will be prohibited except at controlled signalized intersections. A vehicular underpass and pedestrian overpass are proposed near the junction with the Metro Gold Line Eastside

Extension tracks at 1st and Alameda Streets to minimize vehicular, pedestrian, and rail conflicts as wells as reduce potential delays along Alameda St. Operating conditions at the key intersections and roadway segments will be worse than the No Build and TSM Alternatives.

With respect to on-street parking and loading spaces, the At-Grade Emphasis LRT Alternative will displace 35 spaces along 2nd St. An additional 9 spaces may be removed along the south side of Temple Street in the block west of Alameda St. to accommodate the underpass. In comparison, the Underground Emphasis LRT Alternative is expected to displace about 20 parking spaces along the east side of Alameda St. south of 1st St. to accommodate the proposed underpass and frontage roads.

Section 4 Affected Environment and Environmental Issues

4.1 Introduction

The alternatives evaluated for the Regional Connector AA would have direct and indirect effects on the physical environment. This section of the AA describes the existing resource environment and analyzes the potential environmental impacts associated with implementation of the promising build alternatives: the At-Grade Emphasis LRT and the Underground Emphasis LRT. At the conclusion of this document – Section 4.20 – is a summary and comparison of the build alternatives with the No Build Alternative and the TSM Alternative.

The specific environmental impact resource areas analyzed in this section include: land use and economic development, displacement and relocation of existing uses, community and neighborhood, visual and aesthetics, air quality, noise and vibration, ecosystems/biological resources, geotechnical (including subsurface and hazardous materials), water resources, energy, historic, archaeological and Paleontological resources, parklands and other community facilities, economic and fiscal, safety and security, construction impacts, growth inducing, environmental justice, and major utilities.

The following analysis discusses the potential environmental impacts from the construction and operation of the alternatives. Construction impacts would be temporary, while operational impacts would be on-going. As appropriate, the potential site-specific impacts are described based on available information and the current planning effort. As subsequent efforts become more detailed, revised and/or further assessments of the potential environmental effects will be prepared, evaluated and described in a future (EIR/EIS) for the project.

4.2 Land Use and Economic Development

This section examines the existing land uses and associated policies within the Regional Connector PSA, and evaluates their compatibility with the build alternatives. The section also identifies areas for potential growth in response to the new transit service, as well as other impacts that the project might have on development within downtown Los Angeles. Refer to Section 4.3, Displacement and Relocation of Existing Uses, and Section 4.4, Community and Neighborhood Impacts, for additional discussion related to land use and economic development.

4.2.1 Affected Environment

4.2.1.1 Regulatory Framework

The following are the land use plans, community plans, and redevelopment plans and projects affecting the PSA, as well as brief assessments of their compatibility with the two build alternatives.

General Plan Framework: The Los Angeles General Plan Framework, adopted in December 1996, is the citywide portion of the City's General Plan, which is intended to guide the City's long-range growth and development. The General Plan Framework anticipates fast-paced population growth and outlines methods for directing growth toward selected high-density areas where infrastructure is readily available, rather than allow all areas of the City to grow in an uncontrolled fashion. The study identifies downtown as one of the key growth areas, and calls for enhancements to the County's rail system, including extensions and additional feeder bus service.

Central City Community Plan: The Land Use Element of the General Plan splits the City into 35 community plan areas, each with detailed programs targeted at local growth and neighborhood improvements. The entire Regional Connector PSA lies within the Central City Community Plan district. This plan calls for creating dense residential neighborhoods with a variety of housing types, improving the functionality of the area's commercial districts, encouraging the development of additional rail transit, retaining the scale and appearance of existing areas, and encouraging job-rich land uses. As shown in Figure 4-1, the Central City Community Plan area is bounded by Cesar Chavez Ave. on the north, the Santa Monica Freeway (I-10) on the south, the Harbor Freeway (SR-110) on the west, and Alameda St. on the east. In response to the recent increase in housing units downtown, the plan seeks to develop neighborhood-supporting businesses and enhance the safety and cleanliness of the area. The plan heavily promotes transit supportive land uses, such as high-density residential developments, regional entertainment and cultural centers, space for small start-up businesses, retail plazas, nighttime entertainment venues, hotels, and dense industrial and wholesale districts. Of particular importance to the Regional Connector, the plan notes that most of the traffic in the area is generated by pass-through travel between areas outside of downtown. As such, the plan expressly recommends providing better connections through downtown from the SR-110 corridor, including a light rail extension from 7th St./Metro Center Station to Union Station via Flower St., Bunker Hill, and Little Tokyo.

Transportation Element: The Transportation Element of the General Plan lists objectives and programs aimed at improving accessibility and long-term mobility within the City of Los Angeles. In the document, the City encourages the development of high capacity transit service along several corridors, including a "Downtown Connector" from either the San Pedro or Washington Stations to Union Station.

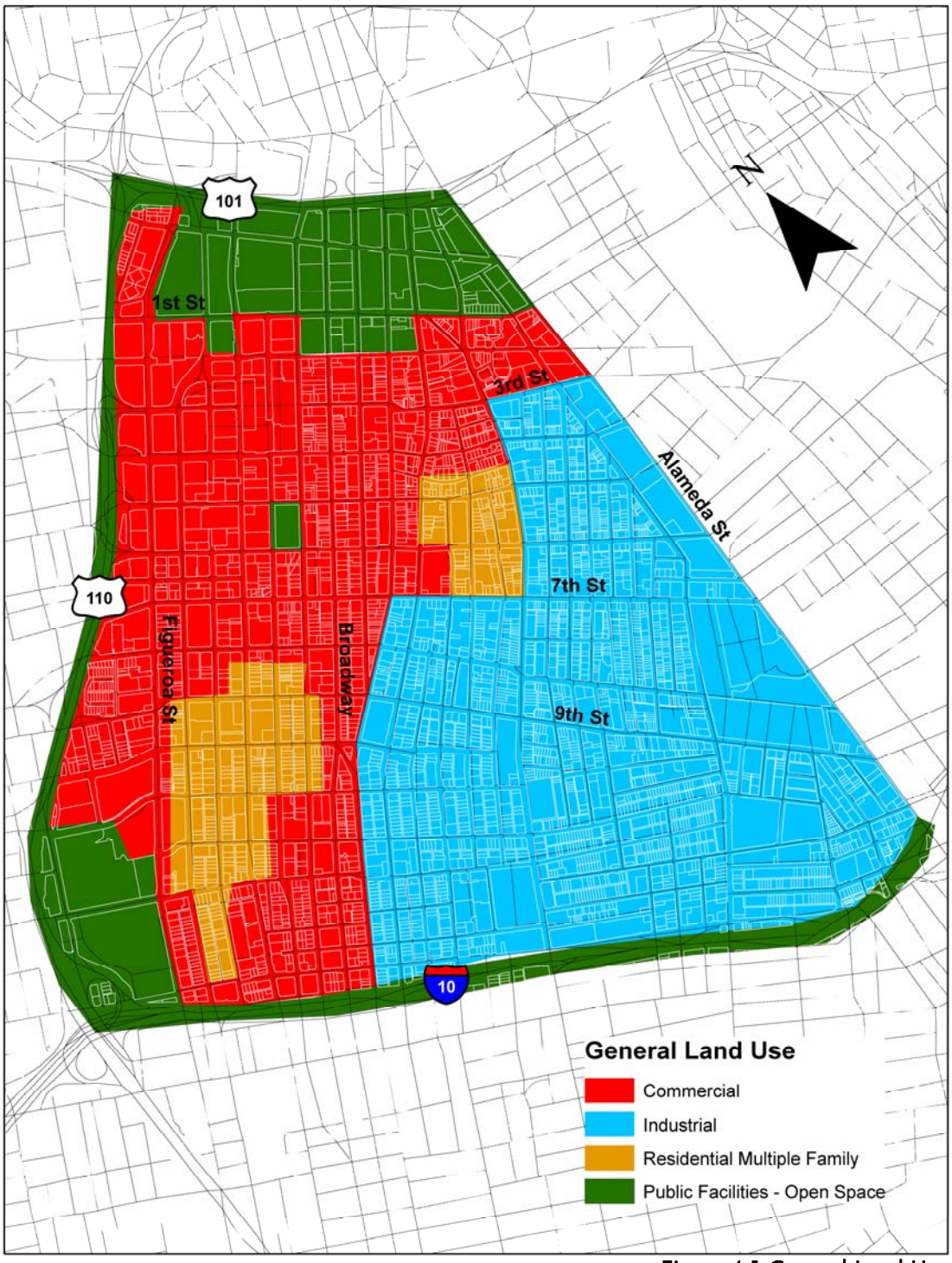

Figure 4-1 General Land Use

Civic Center Shared Facilities and Enhancement Plan: In 1997, the Civic Center Shared Facilities and Enhancement Plan established goals for creating a cohesive concentration of public office buildings linked by visually enhanced streets. The plan outlines a public services and business district which pedestrians could traverse in ten minutes or less. Central to the plan are linkages to other parts of downtown, including Union Station, the Historic Core, and the Music Center.

Feasibility Study for the Resurrection of the Red Car Trolley Services in the Los Angeles Downtown Area: The Community Redevelopment Agency of the City of Los Angeles (CRA) published the Feasibility Study for the Resurrection of the Red Car Trolley Services in the Los Angeles Downtown Area in July 2006, which examines their proposal to introduce a historic streetcar line running in a northeast-southwest direction from Chinatown to the Fashion District. The study discusses the usefulness of additional rail transit coverage within downtown, and emphasizes the importance of connectivity with other Metro Rail lines.

Business Improvement Districts (BIDs): The PSA also contains portions of six BIDs: Fashion BID, Downtown Industrial BID, Toytown BID, Historic Downtown BID, Downtown Center BID, and Little Tokyo BID. These organizations are funded by property assessments, and they seek to improve commerce in their areas through the provision of services such as security patrols, street and sidewalk cleaning, and promotional advertising. Stimulating business growth increases the number of jobs and shopping opportunities, which translates to higher volumes of trips to the district. As such, BIDs are generally supportive of better transit connections, since high quality transit service makes it easier for potential customers to travel to the area.

4.2.1.2 Existing Conditions

The PSA contains the financial core of downtown Los Angeles, and is one of the most job-dense areas in the City. In addition to being a major employment center, the PSA encompasses several retail, entertainment, and residential districts. Income levels of the residents vary greatly, from new luxury condominium developments in the western half of the PSA to single room occupancy hotels and homeless shelters in the eastern portion.

The land use patterns in the PSA consist of mostly commercial office buildings in the southwestern portion, public office buildings in the northern portion, and commercial manufacturing buildings in the southeast. There are pockets of residential uses, including adaptive reuse of older non-residential buildings, scattered through the PSA. The highest floor-area ratio, about 5.0, can be found in the Bunker Hill Redevelopment Area, the area roughly bounded by 1st St., Hill St., 7th St., and SR-110.

Just east of Bunker Hill lies an older office district (Historic Downtown) dating from the early part of the 20th century. Nearly all of the buildings contain ground floor retail establishments, making for a busy streetscape. The buildings in this area are substantially shorter than those on Bunker Hill, due to the city's 12-story height limit at the time of their construction.

In the easternmost part of the PSA lies one of the oldest industrial areas in the region. The buildings are short, usually only one to three stories, and vacant lots are more prevalent than in other parts of the PSA. Many of the empty lots are used as storage yards or surface parking lots. Though zoned for industrial manufacturing, some of the buildings have been converted into loft condominiums and rental housing units.

The PSA is already served by two rail lines and numerous bus lines run by ten operators. Transit riders in the PSA can reach most areas of the county on a single vehicle during peak hours.

As part of the redevelopment plans in the PSA, CRA has undertaken the following projects in the PSA, all of which would yield new transit-supportive land uses:

- 2nd St. Connection – This recently completed project connects two previously un-joined segments of Upper 2nd St. between Grand Ave. and Olive St. The connection was financed mostly by Metro and Surface Transportation Program-Local funds.

- Bunker Hill Design for Development – This proposal would amend the 1971 Design for Development (DFD) and increase the maximum floor area ratio in the Bunker Hill Redevelopment Area from 5.0 to 6.0. This would allow 20 percent more square footage that the current DFD. The proposal is currently in the Environmental Impact Report (EIR) phase.

- Grand Avenue Project – This large-scale redevelopment project is scheduled to break ground in Summer 2008 and will be complete by 2016. The project consists of a full-scale redesign of Grand Ave. as well as the addition of a 16-acre park in the Civic Center and 3.9 million square feet of retail, hotel, and office space.

- Parcel Y-1 Development –The existing Angels' Knoll Park would be developed into a third California Plaza office tower, potentially with retail and residential space. The project is currently in the DFD and EIR phase.

- Los Angeles Sports and Entertainment District/L.A. Live! – This project seeks to create a major sports and entertainment destination just south of the financial district, surrounding the existing Convention Center and Staples Center. Additional auditoriums and theaters, as well as retail and office space will be added by 2009. Condominium and rental apartment buildings are presently under construction. This redevelopment project is located one block south of the PSA.

- Colburn School Phase II – The new expansion to the performing arts school was completed in Fall 2007, and consists of a new dormitory, rehearsal hall, 12-story tower, library, teaching space, and performance lab. This project is located on the southeast corner of 2nd St. and Grand Ave.

- Park Fifth – An EIR is currently being prepared for a new high-rise residential building on 5th St. between Hill and Olive Streets. This project will contain market-rate condominium units, a five-star hotel, and ground floor commercial space.

- 8th & Grand Ave. – This is a condominium project with ground floor restaurants and retail located on 8th St. between Grand Ave. and Olive St. This project was approved by the CRA Board and the City Council in 2006.

- Mangrove Site – CRA issued a request for proposals which closed in late 2007 for the parcel adjoining the future Metro Gold Line Little Tokyo/Arts District Station at 1st and Alameda St. CRA hopes to pursue a mixed-use project on the site with market rate and affordable residential units, commercial space, and public parking. The site is located across Alameda St. from the PSA.

- Block 8 Mixed Use – This parcel in Little Tokyo is located between 2nd, 3rd, San Pedro, and Los Angeles Streets. The proposed development will include affordable rental units, market-rate condominium and rental units, commercial space, and open space. The site plan includes a mid-block walkway between San Pedro and Los Angeles Streets.

- Metropolis Project – Located on the southwest corner of 8th and Francisco Streets, this recently-approved development will add 2.8 million square feet of new condominium, office, hotel, and retail space.

- Little Tokyo Central Avenue Art Park – This project involves redeveloping the closed section of Central Ave. between Temple and 1st Streets into a landscaped community park and underground parking facility linking the existing Museum of Contemporary Art to the Japanese American National Museum.

- The Medallion – This project seeks to replace a surface parking lot with market-rate apartments and commercial space on a site located between Main, Los Angeles, 3rd, and 4th Streets. Construction on Phase 1 of the project has begun, and Phase 2 relies on the demolition of the existing Downtown Women's Center (see the following project).

- Downtown Women's Center Relocation/Expansion – This project will remove the existing Downtown Women's Center on San Pedro St. between 4th and 5th Streets in order to make way for the Medallion project. The city will renovate its Renaissance Building as the new Women's Center, and will provide an additional 75 permanent housing units and eight day rest beds for homeless women. CRA is currently reviewing development plans for the relocation/expansion project.

- Residential Hotels Rehabilitation Program – Under this plan, CRA will acquire approximately 30 single-room occupancy hotels, lease them to non-profit housing operators, and preserve the units as low-income housing. CRA cites public ownership as a means of cleaning up crime-ridden slum hotel areas within the PSA.

4.2.2 Evaluation Methodology

The following analysis addresses the compatibility of each build alternative with the existing land use patterns along the alignment, as well as the compatibility with existing land use plans and potential future development projects and trends. The analysis also reviews the transit coverage provided with each alignment and associated economic costs. The existing land use information is based on land use maps and field surveys.

4.2.3 Environmental Issues

Because the build alternatives – At-Grade Emphasis LRT and Underground Emphasis LRT- follow similar routes through downtown, the land use patterns in the areas they pass through do not vary significantly.

The Underground Emphasis LRT Alternative would have fewer negative impacts on the existing land use patterns than the at-grade alternative, since the Underground Emphasis LRT Alternative would not involve reducing the number of lanes available to automobile traffic on any streets or pose conflicts with the autos, as would the At-Grade Emphasis LRT Alternative. Further, reduction of traffic lanes on some streets associated with the At-Grade Emphasis LRT Alternative could create additional congestion (i.e., fewer lanes of travel) and costs associated with traffic management, which in turn could negatively affect downtown developments. However, the costs associated with construction of at-grade light rail would be less significant than costs associated with construction of the underground alignment.

Additionally, the underground alignment would have lower noise levels than an at-grade alternative during the operation phase. The Underground Emphasis LRT Alternative, as such, would be more compatible with existing and potential future residential development, the pace of which has sharply increased in the area over the last several years. However, an at-grade alignment and at-grade stations would still be consistent with the overall existing urban character of the area. Additionally, the at-grade stations on the At-Grade Emphasis LRT Alternative are more visible to potential riders and would impose fewer impediments to pedestrians quickly moving between the sidewalk and the boarding platform than underground stations.

As presented in Section 4.2.1.1, there are various land use plans, community plans, and redevelopment plans and projects affecting the PSA. The plans and projects are all generally supportive of improved transit linkages and mobility. Both of the build alternatives would be compatible with these goals and policies.

Because the station locations of both the at-grade and underground alternatives are proximate to each other, all of the alignments would provide nearly equivalent levels of transit coverage within the downtown area. Between the build alternatives, the station locations vary by only a block, at most. The At-Grade Emphasis LRT Alternative would incur a longer trip time than the Underground Emphasis LRT Alternative, but the connectivity and the potential for single-vehicle service from Pasadena, Long Beach, East Los Angeles, and Culver City would be the same. It is important to note that downtown Los Angeles is already heavily served by transit, and the Regional Connector's primary

purpose is to improve the connection between the light rail lines in the area and reduce the need for transfers, not necessarily to provide access to areas previously un-served by the transit system. In any event, the density of transit service would be increased in the areas around the stations, and this would bring added development, jobs, and mobility.

4.3 Displacement and Relocation of Existing Uses

This section addresses the land ownership and leasing agreements that may change due to the project. Existing conditions and implications for displacement and relocation of existing uses within the PSA will be addressed in this section. Although the build alternatives under consideration are intended to maximize the use of publicly owned rights-of-way, certain features of these alternatives have the potential to impact persons and businesses on private property within the PSA.

4.3.1 Affected Environment

4.3.1.1 Regulatory Framework

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), mandates that certain relocation services and payments be made available to eligible residents, businesses, and nonprofit organizations displaced as a direct result of projects undertaken by a federal agency or with federal financial assistance. The Uniform Act provides for uniform and equitable treatment of persons displaced from their homes and businesses and establishes uniform and equitable land acquisition policies.

Owners of private property have federal constitutional guarantees that their property will not be taken or damaged for public use unless they first receive just compensation. Just compensation is measured by the "fair market value" of the property taken, where "fair market value" is considered to be the:

> "highest price on the date of valuation that would be agreed to by a seller, being willing to sell, but under no particular or urgent necessity for so doing, nor obliged to sell; and a buyer, being ready, willing and able to buy but under no particular necessity for so doing, each dealing with the other with the full knowledge of all the uses and purposed for which the property is reasonably adaptable and available." (Code of Civil Procedure Section 1263.320a)

The provisions of the California Relocation Act (California Act), applies in the absence of federal funds and/or involvement if a public entity undertakes a project and consequently must provide relocation assistance and benefits. The California Act, which is consistent with the intent and guidelines of the Uniform Act seeks to, (1) ensure the consistent and fair treatment of owners of real property, (2) encourage and expedite acquisition by agreement to avoid litigation and relieve congestion in the courts, and (3) promote confidence in the public land acquisitions. As stated above under federal regulations, owners of private property have similar State constitutional guarantees regarding property takes, damages, and just compensation.

4.3.1.2 Existing Conditions

Section 4.2 describes the existing land uses within the PSA. In addition, Section 4.4, Community and Neighborhood Impacts, describes the neighborhoods within the PSA.

4.3.2 Evaluation Methodology

Table 4-1 shows typical sources and causes of land acquisition and displacement that could potentially occur with the PSA. When an acquisition occurs, it typically results in either a full or partial take of a parcel. A partial taking would occur if the project did not require the acquisition of the entire parcel, but just enough of the parcel to accommodate the proposed project. This would occur if, for example, a portion of a commercial parking lot fronting the alignment is required, but not the adjacent commercial building located away from the alignment. Partial takings may result from the widening of a street or intersections due to inadequate right-of-way widths, limited cross-sections, and vertical circulation needs adjacent to subway stations. The widening of intersections are often required for the addition of left-turn lanes that have been relocated due to the installation of at-grade station platforms within the street median, adjacent to the transit tracks. Street widening may be necessary when the existing horizontal alignment contains insufficient right-of-way. Vertical circulation is needed near underground stations as additional land is needed to bring passengers to the surface.

Table 4-1 Sources and Causes of Displacement

Source	Type of Acquisition	Cause/Process
Horizontal alignment	Full/Partial	Not enough right-of-way for alignment
Vertical circulation above subway station	Partial	Additional area needed adjacent to subway station to bring passengers to surface
Street widening	Partial	Aerial structures requiring columns
Illegal encroachment	Full	Unauthorized use of private property
Access to a businesses (driveway or road)	Full	Damages resulting from reduced or restricted access
Storage Yards	Full	Additional area required to perform maintenance
Widening of intersections	Partial	Additional area to maintain traffic volumes, turn lanes, or platforms
Tunneling easement	Easement	Subway travels off public right-of-way

Source: Terry A. Hayes & Associates, 2008

A full taking would occur under two circumstances: (1) when the majority of the property is required for the horizontal alignment because of insufficient public right-of-way or the need to construct storage or maintenance facilities, and (2) when the damage caused to the property (e.g., driveway access to a property is eliminated or reduced due to the construction of transit that travels down the side of a street, as opposed to the median) is so great that the owner is deprived of all beneficial use. Damages to a property would typically result from restricted access or demolition of improvements.

Metro would need to obtain easements instead of acquiring or displacing the uses on those parcels under which the underground segments would travel.

The analysis below assesses the potential need for acquisition along each alignment.

4.3.3 Environmental Issues

The project would typically use existing rights-of-way when developing the proposed alternatives. However, where the proposed alignments transition from underground to at-grade, as well as at stations, there is the potential to displace properties. Although the Underground Alternative avoids most surface conflicts, property acquisition may be needed for portals and station entrances. Acquisitions for station entrances could occur at underground stations for each alternative. Other potential displacement includes the following:

At-Grade Emphasis LRT Alternative

- Potential right-of-way acquisitions may be necessary at Flower and 3rd Streets. (Option A) or Flower and 5th Streets (Option B) for the tracks to transition from underground to at-grade. Additionally, there are potential right-of-way acquisitions on 2nd St. According to preliminary station and alignment design the stations will need an area approximately five feet deep along the street frontage for the length of the station for construction.

- Potential for parking displacement exists along 2nd, Main, Los Angeles and Temple Streets associated with the At-Grade Emphasis LRT Alternative.

Underground Emphasis LRT Alternative

- Potential acquisition of the entire block bounded by Central Ave., Alameda St., 1st St., and 2nd St. may be necessary for the portal to transition from underground to at-grade to connect to Metro's Gold Line Extension. There are no residences in this block, but it is across the street from the Japanese American National Museum and from residences on Alameda St. Although no displacement is anticipated on the east side of Alameda St. (Arts District), removal of commercial businesses could indirectly impact the residents in the area.

- Parking displacement along areas adjacent to the portal at Little Tokyo may potentially impact businesses and residents of Little Tokyo and the Arts Districts, as well as visitors to the museums, shops, and restaurants located in Little Tokyo.

- As identified in the Initial Screening Report, given the need for acquisitions for underground station entrances, the Underground Emphasis LRT Alternative would require a greater amount of property acquisition than the At-Grade Emphasis LRT Alternative.

- Any potential acquisition or displacement as a result of the project would occur in compliance with the Uniform Act and/or California Act, as applicable.

4.4 Community and Neighborhood Impacts

This section discusses the effects of the build alternatives on the neighborhoods within the PSA. Particular attention is paid to demographic characteristics, community division, and mobility.

4.4.1 Affected Environment

As mentioned earlier, the PSA is an extremely built out area with unique neighborhood characteristics among all the districts. Although the PSA is composed of the central core of downtown, the area of influence includes surrounding communities and the region as a whole, which will benefit from the Regional Connector. Also, the recent resurgence and development, such as the Arts District and the LA Live Development, greatly influence and affect the patterns of development and the characteristics that are introduced into these neighborhoods.

In the same way, the Regional Connector will introduce new elements, not only of physical design, but of mobility and travel characteristics and patterns that may affect the way people interact in these spaces. The proceeding sections provide a detailed description of the districts which make up the Regional Connector PSA as well as the current travel and housing characteristics in each.

4.4.1.1 Existing Conditions

Community and Neighborhoods

The following neighborhoods comprise the PSA:

Bunker Hill

The Bunker Hill District is located generally between 1st St. on the north, Hill St. on the east, 3rd St. on the south, and Figueroa St. on the west. Major downtown destinations located within Bunker Hill include the Walt Disney Concert Hall, Museum of Contemporary Art (MOCA), several high-rise office towers, senior and market rate housing, hotels, and commercial/retail centers. Bunker Hill has over 3,200 residential units, mainly in mid- and high-rise buildings. Large development projects planned for this area include Civic Park and the Grand Avenue Development Project, which will transform this area into a regional arts, entertainment, and residential destination. The Grand Avenue Development is a $3 billion project that includes 3.6 million square feet of development with 449,000 square feet of retail. It is currently planned for 2,600 housing units, almost doubling the existing number of units in the area.

Civic Center

Bordering Bunker Hill to the northeast is Civic Center, which serves as a hub for city, county, state, and federal government offices and services, with the second largest concentration of civic buildings in the country. The Cathedral of Our Lady of the Angels, completed in 2002, the Ahmanson Theater, Mark Taper Forum, and the Dorothy Chandler Pavilion are other major destinations in this district. Civic Center is undergoing active redevelopment as the new headquarters for the state Department of Transportation

(Caltrans) District 7 has recently been completed, development of the new Los Angeles Police Department Headquarters is underway, and construction of a U.S. Federal Courthouse is soon to begin.

Little Tokyo

East of Civic Center is Little Tokyo, which is the center of the largest Japanese-American community in the continental United States. The Japanese American National Museum and Geffen Museum of Contemporary Art are located here, along with a lively shopping district. There is active residential development underway within Little Tokyo, with recently completed and current projects adding more than 2,000 residential units. Significant developments in the early planning stages include a 4.5-acre site adjacent to the Gold Line's future Little Tokyo Arts District Station. Early concepts from developers identified high-density combination of office and housing with a strong connection to the Metro Gold Line.

Toy District

The Toy District is a 12-block shopping area with over 500 retail businesses located south of Little Tokyo and north of Central City East. Development here is primarily comprised of mixed-use projects. The proposed Medallion project will provide 192 residential lofts and over 200,000 square feet of retail space.

Financial Core

The Financial Core District is located south of Bunker Hill and is dominated by high-rise office buildings. The Central Library is located here, and has been recently restored and expanded. Other landmarks in this district include the Millennium Biltmore Hotel and Pershing Square. The proposed 2.7 million square foot Metropolis mixed-use development is located in the southwestern end of the Financial District. Phase I of this project, scheduled to begin construction in 2008, will provide 360 residential units. Park Fifth is another major planned 76-story high-rise development across from Pershing Square and will include over 700 condominiums and a 200 room hotel.

Historic Core

To the east of the Financial Core is the Historic Core District, containing a large concentration of historic and architecturally significant buildings, including the Bradbury Building. The Grand Central Market and the Broadway Historic Theater District are destinations in this district. Development here is focused on conversion of old neglected buildings into lofts and apartments.

Jewelry District

The largest Jewelry District in the U.S. and second largest in the world is located southwest of the Historic Core, comprised of 5,000 businesses with billions of dollars in revenue. Development in this area includes the proposed construction of 875 condominium units at 8th and Grand Streets.

Central City East

Central City East is located south of the Toy District and consists primarily of commercial uses, including wholesale buildings and warehouses. The Flower Market, produce, fish and food processing industries, and import/export businesses employ nearly 20,000 people in this area. Housing in this district consists mainly of the 6,500 single room occupancy hotel units. This area also has social services, including alcohol treatment, mental health services, and job training.

4.4.1.2 Transit-Relevant Demographic Characteristics

The PSA makes up 1.6 square miles, or 0.03 percent of the 4,752 square miles of Los Angeles County. As shown in Table 4-2, in 2005, the total population of the PSA was 17,795, which comprised 0.18 percent of the total Los Angeles County population of over ten million. Despite its small size, the PSA sustained 3.62 percent of the County's employment, or 168,328 jobs, in 2005. The average population density within the PSA was 11,685 people per square mile, significantly higher than the 2,107 people per square mile population density found in Los Angeles County in 2005. Employment density in the PSA was 110,529 employees per square mile, which was also significantly higher than the county's overall employment density of 977 employees per square mile.

Table 4-2 Population and Employment in the Project Study Area

Demographics	PSA	L.A. County	Percent of County
Population	17,795	10,010,315	0.18
Population Density	11,685	2107	NA
Total Employment	168,328	4,644,010	3.62
Employment Density	110,529	977	NA

Source: Southern California Association of Governments (SCAG), 2005

Residences in the area have been categorized 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, of which there were 9,673 households in 2005 with a median household income of approximately $45,000. Group quarters added an additional 5,466 residences. As shown in Table 4-3, based on these 2005 data, the PSA is primarily composed of low-income households, with a moderate medium-income household population. As mentioned above, recent development of the PSA continue to bring about demographic changes that may not be reflected in data from 2005.

Table 4-3 Income Status within the Project Study Area		
Demographics	PSA	Percent of PSA
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

Source: SCAG, 2005

In 2005, only 5.5 percent of the young people in Los Angeles County lived within the PSA. Comparatively, 29.4 percent of the population of Los Angeles County in 2005 was age 18 and under. As downtown resurgence attracts those seeking an urban lifestyle, a rise in the number of young people living downtown will likely occur.

As shown in Table 4-4, the PSA also demonstrates a higher percentage of elderly residents (19.7 percent) when compared to Los Angeles County (9.7 percent). The young and the elderly have a higher propensity for using public transportation since these groups are less likely to have drivers' licenses or access to private automobiles. The Regional Connector is expected to improve transit connectivity and accessibility for members of these groups living outside the PSA who would wish to commute into it.

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

Many of the households in the PSA, approximately 69 percent, have no car and rely on public transit for commuting needs. Additionally, there is a high volume of transit ridership in the PSA, including 23 percent of employed residents age 16 and over, as well as a large number of commuters from outside the PSA who utilize transit to get to employment and other opportunities within the project study area. When comparing vehicle accessibility and public ridership patterns in the PSA, the trends suggest that even households in the PSA with one or more cars have a higher propensity to use public transportation than similar households elsewhere in Los Angeles County.

Table 4-5 presents demographic information for the PSA as compared to the County as a whole.

Table 4-5 Transit Dependent Demographic Information			
	PSA	LA County	PSA % of LA County
Population	17,795	10,010,315	0.18
Under 18 years	976	2,798,604	0.03
Over 65 years	3,497	926,670	0.38
Households	9673	3,298,210	0.29
No vehicle households	8,586	671,214	1.28
Use public transportation	1,025	254,091	0.40
Low income households	7,244	1,481,896	0.49
Total employment	168,328	4,644,010	3.62

Source: SCAG, 2005 data and 2030 projections

4.4.2 Evaluation Methodology

The following analysis considers the potential impacts of the project on demographic characteristics, community division, and mobility within the PSA to assess whether the Project would disrupt, divide, or isolate existing communities or land uses.

4.4.3 Environment Issues

Depending on which alternative is selected, the neighborhoods within the PSA will incur varying levels of potential environmental impacts, particularly along the streets under consideration for rail alignments. Because both alternatives follow similar routes, their impact on transit ridership, employment, residential population, and mobility would be nearly identical.

As discussed in detail in Section 4.16, Construction Impacts, temporary impacts are primarily associated with the construction of the at-grade alignment and underground and at-grade stations, which would last for approximately three to four years. These temporary impacts include significant noise and vibration during business hours, dust, and traffic congestion due to closed streets and the movement of construction vehicles. However, some of these impacts may be less intrusive downtown as they might be in other parts of the City, since there is already a high level of activity and traffic noise throughout the PSA. Also, the temporary environmental impacts would be similar for both the at-grade and the underground alignments, since both would require heavy construction activity.

The impacts of the operation of the project will vary based on whether the at-grade or underground alignment is chosen. The At-Grade Emphasis LRT Alternative involves placing tracks in either the center lanes of the street or the curb lanes, as well as erecting 25-foot tall catenary poles above the street level and placing traction power substations every mile alongside the tracks. High-platform stations with canopies would be located in the roadway medians or curb lanes, and would stretch across the majority of the city block. As such, there would be a visual change to the neighborhoods through which the tracks pass, as well as potential mobility impacts for pedestrians who may lose the ability to use existing crosswalks. Given the placement of tracks along 2nd, Main, and Los Angeles Streets outlined for the At-Grade Emphasis LRT Alternative, it is conceivable that pedestrian mobility from the Civic Center to Little Tokyo and the Historic Core could be

reduced. Also, removing traffic lanes from these streets may also add to auto congestion and bus trip times. Current operating hours for the Metro Rail system are 4 a.m. to 1 a.m. daily, and it is expected that trains will generate noise (bells, horns, public address announcements, and rail squealing) along the project right-of-way during these hours.

The Underground Emphasis LRT Alternative on the other hand, is entirely underground except for a short portion of the tracks, just southwest of the Metros Gold Line's Little Tokyo station at 1st and Alameda Streets. As such, there will be no prominent surface impacts, aside from station portals along the sidewalks or in plazas adjacent to the street. The operational noises discussed above may still emanate from the ventilation shafts embedded in the roadway or sidewalk as well as the portal at 1st and Alameda Streets, but the levels would be minor compared to an at-grade alignment. Overall, the Underground Emphasis LRT Alternative would cause little change in community division and pedestrian mobility within the neighborhood.

4.5 Visual and Aesthetic Impacts

Transportation infrastructure has the potential to enhance pedestrian activity, create pedestrian-friendly environments, enliven streetscape through architecture, signage, lighting, and landscaping and help in the support for revitalizing areas in need of rejuvenation. However, transportation infrastructure also has the potential to negatively alter the visual landscape when a proposed project is out of scale with its immediate surroundings, and results in development of unwanted infrastructure such as overhead wires or structures that may detract from the visual setting or block views of existing scenic vistas, historical structures, or other visual resources.

4.5.1 Affected Environment

4.5.1.1 Regulatory Framework

As discussed in Section 4.2.1.1, the PSA is within the Central City Community Plan of the General Plan's Land Use Element. The Central Community Plan includes an Urban Design chapter that contains objectives and policies support the development and re-enforcement of a pedestrian-friendly environment and streetscape.

4.5.1.2 Existing Conditions

The alternative alignments are located in a highly urbanized setting surrounded by a variety of land uses. The primary visual features in the area are historical buildings, contemporary buildings with notable architecture, and street trees. The street characteristics of the PSA, although concentrated in the dense downtown setting, differ from district to district, from the modern high rise architecture of the financial district to the Art Deco City Hall and the period characteristics of the historic core.

The following section summarizes the characteristics of both alignments and their potential impacts on surrounding environments.

4.5.1.3 Potential Impacts

The development of the At-Grade Emphasis LRT Alternative or the Underground Emphasis LRT Alternative has the potential to affect the immediate surroundings by adding new features to the visual landscape, including the introduction of catenary poles and wires, at-grade track, station platforms, and/or off-street portals leading to underground stations. Roadway modifications to accommodate at-grade track would also change the existing visual landscape.

Aboveground stations and portals to underground stations would also introduce a new source of nighttime lighting.

At-Grade Emphasis LRT Alternative

The At-Grade Emphasis LRT Alternative would run mostly at the same elevation as the surrounding road network and would include tracks located in a dedicated right-of-way or an arterial street median, with catenary wires located above the tracks. Catenary poles would be approximately 25-feet tall above the street level, and traction power substations would be located every mile along the tracks. With the At-Grade Emphasis LRT Alternative Option A, approximately 64 percent of the alignment would operate at-grade and the remaining 34 percent would be underground. With Option B, approximately 79 percent of the alignment would operate at-grade, with the remaining 21 percent located underground.

The At-Grade Emphasis LRT Alternative is located within one-quarter mile of two National Historic Landmarks, five National Register Districts, 75 individual National Register properties/resources, 98 California Register designations, and 37 local landmarks. The total number of potentially impacted notable architectural resources is 217. Of these resources, the greatest potential visual impacts would be on the resources located adjacent to an alignment and in the vicinity of the stations.

The Initial Screening Report describes Option A as being located within one-quarter mile of 13 buildings with notable architecture, and Option B as being located within one-quarter mile of 11 buildings with notable architecture. Of these sites, 11 are located directly adjacent to both of the At-Grade Emphasis LRT Alternative alignment options. The 11 sites are listed below and the relationship to the alignment is briefly described. Any differences between Option A and Option B are noted. For additional information on historical resources, see Section 4.12, Historic, Archeological, and Paleontological Resources.

- Edward R. Roybal Federal Building - located northeast corner of the Temple St. and Los Angeles St. intersection. The alignment would be at-grade to the south of the site along Temple St.
- Fletcher Bowron Square – Los Angeles Mall - located in the 300 block of Main St. between Temple St. and Aiso St. The alignment would be at-grade to the south of the site along Temple St.

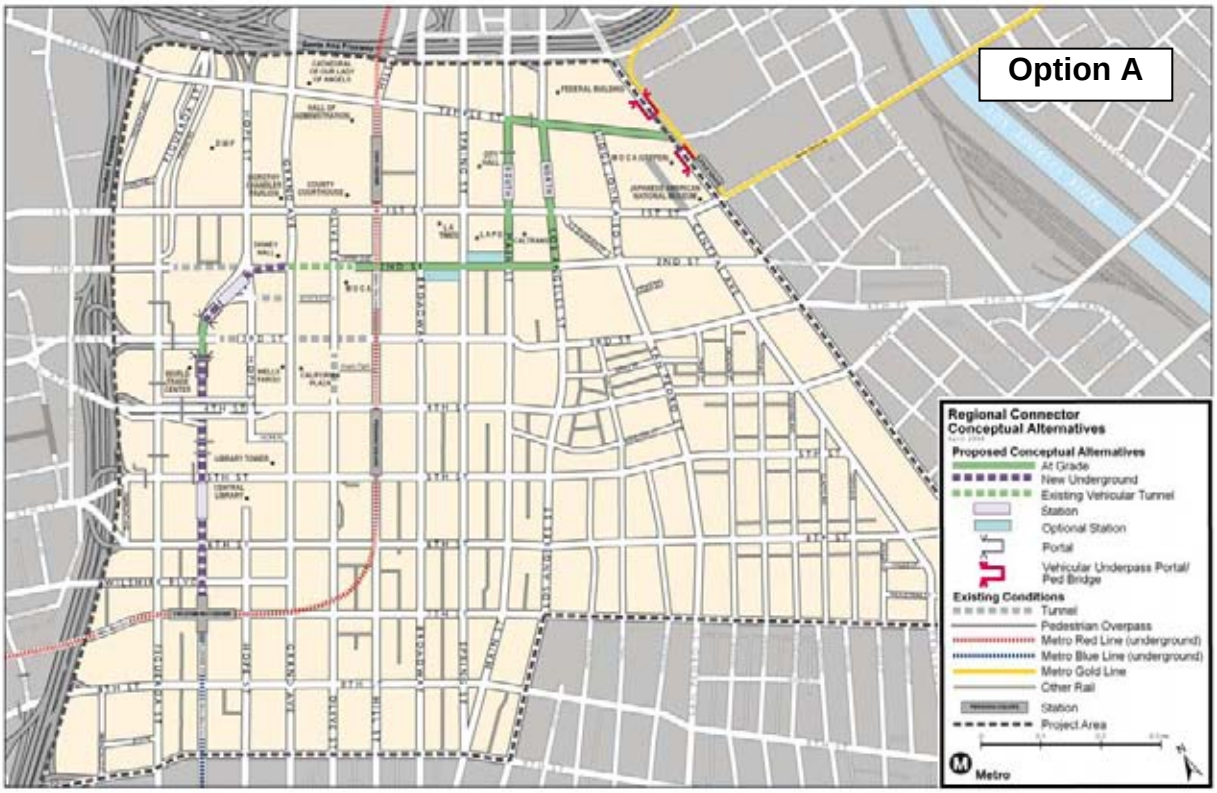

Figure 4-2 At-Grade Emphasis LRT Alternative

- Caltrans Building - located at the north side of 2nd St. between Main St. and Los Angeles St. The alignment would be at grade to the east, west, and south of the site.

- Los Angeles Civic Center - generally located north of 1st St. and south of Aiso St. or Temple St. between Figueroa St. and Alameda St. The alignment would run at-grade through the Civic Center on Main St., Los Angeles St., and Temple St. east of Main St.

- Los Angeles City Hall – located at northwest corner of 1st St. and Main St., within the Los Angeles Civic Center. The alignment would run at-grade to the east of City Hall on Main St.

- Higgins Building – located at the southwest corner of the 2nd St. and Main St. intersection. The alignment would be at-grade to the north of the site along 2nd St. The optional eastbound Spring St. Station platform would be on the north side of 2nd St., opposite the site.

- (Former) Saint Vibiana's Cathedral – located on Main St. south of 2nd St. The alignment would be at-grade to the north of the site along 2nd St. The optional eastbound Spring St. station platform would be on the north side of 2nd St. to the west of the site.

- Disney Concert Hall – located on 2nd St. between Grand Ave. and Hope St. The alignment would be below-grade to the south of the site, and would transition to at-grade at Grand Ave. to the east. A station would be located to the southwest.

- Westin Bonaventure Hotel – located on Flower St. between 4th St. and 5th St. The alignment would run below-grade (Option A) or would transition from at-grade to below-grade (Option B) to the east of the site on Flower St. A below-ground station would be located to the south (Option A) or an aboveground station would be located to the north (Option B) along Flower St.

- Los Angeles Central Library Building and Grounds – located on 5th St. to the east of Flower St. The alignment would run below-grade to the west of the site on Flower St. A station would be located to the west of the library site (Option A).

- California Club Building – located on Flower St. north of 6th St. The alignment runs below-grade to the west of the site on Flower St. A station is located to the north along Flower St. (Option A only).

- Additionally, there are numerous outdoor public works of art, such as sculptures, murals, and fountains, associated with development located along the alignments such as the Civic Center, Central Library, Fletcher Brown Square, and museums. Some of the art works are visible from the adjacent streets and sidewalks.

With the At-Grade Emphasis LRT Alternative, roadway modifications would be necessary to accommodate the at-grade track, including the reduction of lane widths, altering of existing lane configurations, and removal or displacement of left-turn pocket lanes. As Option B has a greater percentage of at-grade service versus underground service, it would require a greater number of roadway modifications.

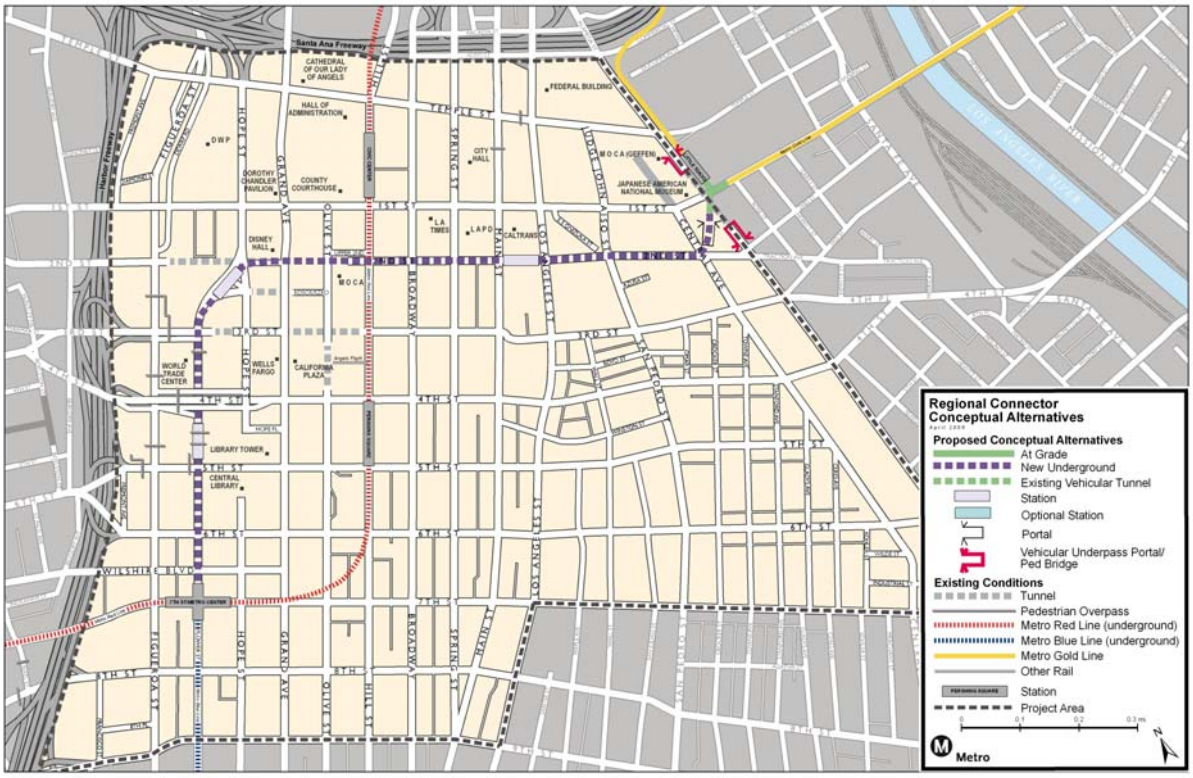

Figure 4-3 Underground Emphasis LRT Alternative

Underground Emphasis LRT Alternative

The Underground Emphasis LRT Alternative is primarily underground (approximately 91 percent) with a small portion operating at-grade (9 percent). Therefore, along most of the alignment, trains and track would not be visible. Furthermore, given the limited portion of track located at-grade, roadway modifications would be minimal. The Underground Emphasis LRT Alternative has three underground stations, all of which would have at-grade portals.

The Underground Emphasis LRT Alternative would be within one-quarter mile of two National Historic Landmarks, four National Register Districts, 78 individual National Register properties/resources, 88 California Register designations, and 31 local landmarks. The total number of notable architectural resources is 203.

The Underground Emphasis LRT Alternative would be located within one-quarter mile of nine buildings with notable architecture. Ten sites with notable architecture are located adjacent to the alignment. The sites are listed below and the relationship to the alignment is briefly described. Unless noted, the alignment is below-ground. For additional information on historical resources, see Section 4.12, Historic, Archeological, and Paleontological Resources.

Japanese American National Museum – located at the northwest corner of 1st and Alameda Streets. The alignment transitions from below-ground to above-ground south of the site and connects to the proposed Little Tokyo/Arts District Station to the east (transfer station to the Gold Line) and proposed maintenance and operations facility. The proposed station would require existing Alameda St. to be constructed below-grade under the Alameda St. and 1st St. intersection where an LRT junction and pedestrian bridges are proposed to be built.

- Little Tokyo Historic District – generally located north of 2nd St. between San Pedro St. and South Central Ave. The alignment would run to the south of the District.
- The Geffen Contemporary at MOCA - located on Alameda St. north of the Japanese American Museum on 1st St. The alignment would end at the proposed Little Tokyo/Arts District Station and maintenance and operations facility on Alameda Ave., to the east of the site. The station and alignment would be at-grade.
- Caltrans Building - located at the north side of 2nd St. between Main and Los Angeles Streets. At least one portal would be located adjacent to the Caltrans building along 2nd St.
- Higgins Building – located at the southwest corner of the 2nd St. and Main St. intersection. The alignment would be to the north of the site along 2nd St. A station would be located to the west of the site.
- (Former) Saint Vibiana's Cathedral – located on Main St. south of 2nd St. The alignment and station would be located to the north of the site along 2nd St. One possible portal location would be on the Saint Vibiana site.
- Disney Concert Hall – located on 2nd St. between Grand Ave. and Hope St. The alignment would be south of the site on 2nd St. A station would be located to the southwest.
- Westin Bonaventure Hotel – located on Flower St. between 4th and 5th Streets. The alignment and a station would be located to the east of the site. An at-grade portal may be located on or near the Westin Bonaventure Hotel site.
- Los Angeles Central Library Building and Grounds – located on 5th St. to the east of Flower St. The alignment would be to the west of the site on Flower St. A station would be located to the north of the library site.

- California Club Building – located on Flower St. north of 6th St. The alignment is to the west of the site on Flower St.

4.5.2 Evaluation Methodology

The evaluation of potential aesthetic impacts involves determining if changes would occur to the aesthetic character of the area surrounding the alignments. This entails reviewing the above-ground infrastructure associated with each alternative and analyzing if it would affect the overall character of the area and result in the obstruction of views or removal of any visual resources along the alignment, and to what degree. Obstruction of important views or introduction of elements inconsistent with the existing visual character would result in visual impacts.

To determine the notable architectural resources within one-quarter mile of each alignment, information was gathered from the City of Los Angeles, Department of City Planning's Historic-Cultural Monument Report for the Central City Community Plan Area, Metro's Angels Walk L.A. Program (a walking trail that links Los Angeles' landmarks with transit), the Los Angeles Convention Center's list of landmarks to visit while in Los Angeles, and a field survey conducted on February 1, 2008.

4.5.3 Environmental Issues

Both alignments would involve some changes to the existing visual landscape; however, the degree to which this would occur varies between the alternatives. Notably, the at-grade alignment has a greater potential for visual impacts as it involves substantially more above-ground infrastructure than the underground alternative. However, given that the existing setting is highly urbanized, the introduction of new infrastructure and roadway modifications associated with any of the alternative would not be out of character with the existing setting. Therefore, substantial degradation of the existing visual quality or impairment of the quality of the pedestrian environment is anticipated. Further, none of the alternatives would result in removal of notable architectural resources. However, potential impacts related to visual resources could involve impeding line of sight of notable architectural resources and removal of street trees. These potential impacts are discussed further below as related to the specific alternatives.

At-Grade Emphasis LRT Alternative

The At-Grade Emphasis LRT Alternative has the potential to impact views through the introduction of new aboveground infrastructure such as train track, catenary wires and poles, and station platforms. Station portals and associated signage would be required for underground stations along the alignment. Catenary poles for the proposed project may in some cases replace existing utility poles. However, given catenary wires and support requirements, the wires and poles could increase visual clutter, particularly at curves and corners. Thus, the catenary wires and poles may obstruct views of notable architectural resources, as well as modifying the visual character of the area.

The At-Grade Emphasis LRT Alternative would also require substantial roadway modifications to accommodate the track and related infrastructure associated with the at-grade segments of the alignment. While roadway modifications and construction would result in visual disruption during the construction period, this new infrastructure would be consistent in character with the existing urban setting.

Views of the individual architectural resources listed in Section 4.5.1 may be interrupted by station platforms, portals to underground stations, and catenary wires and poles. However, the wires, portals, and platforms would not fully impede views. Views may be completely blocked when a train is stopped at a platform when located between an on-looker and the notable structure, but this would occur on a temporary basis. Once a train had departed a station, limited views of the structure would be available. The new infrastructure would be consistent with the overall urban streetscape along the alignments. While it would partially block some views of notable architecture when the infrastructure is between the viewer and the visual resource, views would only be fully impeded temporarily at select locations near station platforms.

Views of public art work from streets and sidewalks on opposite sides of the street could potentially be obscured by at-grade infrastructure associated with the alternative. It is anticipated that public art work would still be accessible for viewing from the sidewalks immediately adjacent to the art work and from within the public sites. However, potential visual obstruction of notable public artwork would require further evaluation.

The At-Grade Emphasis LRT Alternative calls for the construction of an automobile underpass and a pedestrian overpass at the intersection of Temple and Alameda Streets. The pedestrian overpass in particular would impose some visual impacts for onlookers in all directions, though these effects would be limited due to the visual impacts of the existing Metro Gold Line Eastside Extension overpass located immediately northeast of the intersection. Also, pedestrians using the overpass would have a new vantage point for viewing the Little Tokyo and Civic Center areas.

The At-Grade Emphasis LRT Alternative could result in the loss of existing street trees. Mitigation or adoption of project design features to preserve or replace street trees as feasible may be required to ensure that this is not a significant visual impact.

At-grade stations could incorporate urban design elements consistent with surrounding structures and become destination points integrated into the surrounding urban streetscape. The stations would thereby contribute to a pedestrian-friendly environment.

Given the amount of existing lighting sources within the PSA, new lighting associated with the proposed alternatives is not anticipated to result in a noticeable change in the overall lighting levels.

Of the two At-Grade Emphasis LRT Alternative options, a larger percentage of the Option B is located above-ground (79 percent) than Option A (64 percent), and therefore Option B has a greater potential for visual impacts.

Underground Emphasis LRT Alternative

Although the Underground Emphasis LRT Alternative is almost entirely underground, it would have portals and signage directing transit riders to underground stations that would be visible above-ground, and thereby cause some alteration of the existing streetscape. Portals to underground stations would typically be located either on the sidewalk or pedestrian plaza, where passengers enter the station via escalators, elevators, or stairs away from at-grade views. Compared with at-grade stations, portals leading to underground stations would be less visually intrusive and may actually improve the streetscape through the use of lighting, landscaping, plazas, kiosks, public art, and other elements. Further, while portals would alter the existing views, they would be consistent with the urban character of the surroundings and would not be of sufficient size and height to fully block views of the surrounding architecture. Therefore, potential effects on notable architecture are anticipated to be minimal. However, specific portal locations near buildings with notable architecture (i.e., former Saint Vibiana's Cathedral and Caltrans buildings) would need to be further evaluated. In addition, evaluation would also be required to determine if any of the portals would obscure views of notable public art work from streets or sidewalks.

The Underground Emphasis LRT Alternative also calls for an automobile underpass and pedestrian overpass at the intersection of 1st and Alameda Streets. Pedestrians using the overpass would have a new, elevated structure from which to view the Little Tokyo area, but the line of sight between the 1st St. bridge and the historic Little Tokyo retail strip on East 1st St. would be obstructed.

Construction of an underground alignment could have a potentially greater visual impact than at-grade construction due to the longevity of construction and work necessary to create underground tunnels. However, visual disturbance resulting from construction activities would be temporary.

Therefore, while temporary construction impacts may be more visually disruptive under the Underground Emphasis LRT Alternative, the operational impacts would be substantially less with the Underground Emphasis LRT Alternative versus the At-Grade Emphasis LRT Alternative. The Underground Emphasis LRT Alternative entails substantially less aboveground infrastructure, thereby resulting in fewer alterations to the existing visual setting.

4.6 Air Quality Impacts

In response to concerns about air pollution, Federal, State, and local authorities have adopted various rules and regulations requiring evaluation of air quality impacts of projects and appropriate mitigation for air pollutant emissions. The following discussion focuses on ambient air quality standards, the existing setting of the PSA, and potential impacts.