

7.5.1 Initial Screening Criteria

The initial screening criteria for Goal 3, its associated performance measures, and results of the findings for the two build, the No Build, and the TSM alternatives are presented in Table 7-6. Subsequent sections explain each performance measure and the results of each alternative.

Increase in daily transit boarding's

Of the two build alternatives, the underground alternative demonstrates a significant increase in the number of daily transit users, with 19,800 users compared to the at-grade increase of 10,100 users. Some station locations for the At-Grade Emphasis LRT Alternative are not in prime locations where there is an abundance of dense residential, commercial, and office uses.

New daily transit trips compared to No Build and TSM Alternatives

The TSM alternative would result in the smallest increase in daily transit trips (about 1000). This is likely because it does not reduce transfers for any rail passengers, but does provide a convenient new shuttle service through downtown Los Angeles. The Underground Emphasis LRT Alternative would likely attract the most new users to the system because it has the shortest trip time and it directly serves several major destinations in the PSA. The At-Grade Emphasis LRT Alternative would bring between 7,600 and 8,400 new users to the transit system.

Traffic impacts

With the Underground Emphasis LRT Alternative, all of the intersections in the PSA will either remain at the same level of service as under the No Build Alternative or improve. Traffic congestion at 1st and Alameda Streets would lessen by about 20%. Traffic congestion will be largely the same under the TSM Alternative as under the No Build Alternative. However, traffic congestion will worsen at many intersections under the At-Grade Emphasis LRT Alternative, including 1st and Broadway, 1st and Spring, 1st and Los Angeles, 1st and Judge John Aiso, 2nd and Main, 2nd and Los Angeles, 2nd and Spring, 2nd and Main, Los Angeles and 3rd, San Pedro and 3rd, Temple and Main, Los Angeles and Temple, Judge John Aiso and Temple, and Temple and Alameda.

Reduction in number of transfers

Both of the build alternatives would reduce transfers for many Metro Blue, Gold, and Expo Line passengers. The At-Grade Emphasis LRT Alternative would eliminate 16,600 transfers from both existing and new transit trips system-wide. The Underground Emphasis LRT Alternative would attract more new riders to the system due to its faster speeds and favorable station locations. As such, it would eliminate 20,700 transfers daily.

Table 7-6 Improve Mobility and Accessibility Both Locally and Regionally
Initial Screening Criteria

Goal	Performance Measure	No Build	TSM	At-Grade		Underground
				Option A	Option B	
3	Increase in daily transit boarding's (amount of transit users increased compared to No Build)			10,100	10,100	19,800
3	New daily transit trips (compared to No Build)		1000	7,600	8,400	10,200
3	New daily transit trips (compared to TSM)			6,700	7,400	9,200
3	Traffic Impacts (number of intersections with E or F Level of Service)			3	3	1
3	Reduction in number of transfers by operational plan of alignment (daily reductions at Union Station & 7 th St./Metro Center Station)			16,600	16,600	20,700
3	Total number of lanes reduced (cumulative for all streets)			24	27	0
3	Number of potentially impacted intersections			12	13	1
3	Peak period travel time through Regional Connector Alignment (including 5 min. for each transfer)					
	North-South: Union Station to Pico Station	17 min	22 min	14 min	14 min	12 min
	East-West: 1 st St./Utah St. (to Union Station) to Pico Station	23 min	30 min	15 min	14 min	10 min
3	Number of left turn pockets affected			8	10	4
3	Number of on-street public parking spaces affected			88	88	0
3	Number of driveways affected			26	30	2
3	Daily hours of transportation user benefits (compared to No Build)		700	8,900	9,900	12,100

Total number of lanes reduced

The number of lanes reduced is the cumulative number of roadway segments (blocks) where there will potentially be a reduction in the lane width due to an LRT alignment. The At-Grade Emphasis LRT Alternative will have a greater number of possible lane width reductions, with Option A affecting 24 lanes and Option B affecting 27 lanes. Traffic impacts are also considered higher due to the resulting reduction in the existing roadway capacity.

The Underground Emphasis LRT Alternative would not cause a reduction in any street lane widths along the alignment. Although the underground alternative introduces an underpass along Alameda St., the existing lanes would drop below ground while street

level movements would retain the current number of lanes. The At-Grade Emphasis LRT Alternative has a similar underpass proposed at Temple and Alameda Streets, so there would be little difference between the two alternatives in terms of impacts on Alameda St. traffic.

Number of potentially impacted intersections

The number of potentially impacted intersections is the number of intersections that the LRT alignment will pass through that may experience disruption or alteration due to current configuration or physical features. The At-grade Emphasis LRT Alternative options differ at the 4th and Flower St. intersection; Option A may impact a total of 12 intersections, while Option B may potentially impact 13 intersections. The Underground Emphasis LRT Alternative has only one intersection that may be impacted, at 1st St. and Alameda St. These estimates include only permanent impacts, not temporary construction impacts.

Peak period travel time between major origins and destinations

In addition to reducing transfers, one of the objectives of the Regional Connector is to provide faster travel to downtown destinations and to destinations outside of downtown. For north to south movement, the Metro Gold Line and Blue Line would be connected, resulting in reduced travel time between Union Station and Pico Station. Currently, the travel time between these destinations is approx. 17 minutes. The underground alternative lessens this travel by nearly six minutes to 12 minutes total. For the at-grade alternative, the trip from Union Station to Pico Station would take about 14 minutes.

For east to west movements, the Eastside Gold Line and Exposition Line would be connected, reducing travel time between 1st St./Utah St. and Pico Station. When the Eastside Gold Line begins operation in 2009, the travel time between these two destinations will be about 23 minutes. The underground alternative would see a peak period reduction of this trip to 12 minutes. For the at-grade alternative, the trip would take 14-15 minutes.

Number of left turn pockets affected

This performance measure considers the number of left turn pocket lanes that will be removed or displaced by the LRT alignment. The at-grade Option A would displace a total of 8 left-turn pocket lanes, while Option B would displace a total of 10 left-turn pocket lanes. In comparison, the underground alternative would displace a total of 4 left-turn pockets.

Number of parking spaces potentially affected

The total numbers of potentially affected parking spaces are those that exist along the alignment that could potentially be removed and would need to be replaced. Both options for the at-grade alternative could affect 88 parking spaces located along 2nd, Main, Los Angeles, and Temple Streets. Comparatively, the underground alternative has minimal impacts on existing parking spaces due to being predominantly below-grade.

Number of driveways affected

The driveways that would potentially be impacted are those located directly along the alignment corridor. The at-grade alternative Option A would impact a total of 26 driveways along the alignment compared to a total of 30 driveways with Option B. The additional driveways for Option B are located along the Flower St. segment between 5th St. and 3rd St. and are those associated with the World Trade Center, the Westin Bonaventure, and other financial district buildings. The underground alternative does not affect any driveways along the alignment corridor.

7.5.2 Final Screening Criteria

The final screening criteria developed for Goal 3 and its associated performance measures are presented in Table 7-7. The results of the findings for the two build, No Build, and TSM alternatives are presented in subsequent sections.

Goal	Performance Measure	No Build	TSM	At-Grade		Underground
				Option A	Option B	
3	Daily hours of transportation user benefits (compared to No Build)		700	8,900	9,900	12,100
3	Congestion relief (Number of intersections with improved LOS/worsened LOS in both AM and PM peak periods)		Same as No Build	1 improved (AM) 11 worsened (AM) 1 improved (PM) 16 worsened (PM)	1 improved (AM) 11 worsened (AM) 1 improved (PM) 16 worsened (PM)	1 improved (AM) 0 worsened (AM) 1 improved (PM) 0 worsened (PM)
3	Comparison of peak period travel times between major travel pairs (assuming 5 minutes per transfer)					
	Sierra Madre Villa to Long Beach Transit Mall	97 mins	102 mins	94 mins	94 mins	92 mins
	Sierra Madre Villa to Pomona/Atlantic	49 mins	49 mins	58 mins	58 mins	58 mins
	Sierra Madre Villa to Washington/National	70 mins	75 mins	72 mins	71 mins	70 mins
	Pomona/Atlantic to Washington/National	61 mins	66 mins	52 mins	51 mins	48 mins
	Pomona/Atlantic to Long Beach Transit Mall	88 mins	93 mins	84 mins	84 mins	80 mins
3	Peak period travel times (Union Station to Staples Center - Pico Station)	17 mins	22 mins	14 mins	14 mins	12 mins
3	Travel times savings (over No Build)			3 mins	3 mins	5 mins
3	Reduction in VMT			N/A	N/A	N/A
3	Assessment of expandability (Score 1-worst to 5-best)			4	4	2

Hours of transportation user benefits

The Underground Emphasis LRT Alternative would yield about 12,000 daily hours of user benefit, the most of any alternative under consideration. This is partly due to the fact that it would have the fastest travel speeds and is projected to attract the most riders. The At-Grade Emphasis LRT Alternative would generate 8,900 daily hours of user benefit under Option A and 9,900 under Option B. The TSM Alternative would yield the fewest hours of benefit, 665, beyond the No Build scenario, as it would not eliminate any transfers for rail passengers or significantly speed their trips.

Congestion relief

The TSM Alternative would not have any effect on LOS at intersections within the PSA. The Underground Alternative would improve the intersection of 1st St. and Alameda St during both the morning and afternoon peak periods, but would leave LOS at the rest of the PSA's intersections largely unchanged. The At-Grade Emphasis LRT Alternative would yield LOS improvements at the intersection of 2nd St. and Broadway in the morning and at 2nd St. and San Pedro St. in the evening, but would worsen the performance of 14 to 16 other intersections in the PSA. This is likely because the At-Grade Emphasis LRT Alternative would require the conversion of existing traffic lanes to street-running rail right-of-way.

Comparison of peak period travel times between major travel pairs

For the most part, each of the build alternatives would yield a travel time savings of three to eight minutes during peak hours on trips involving the Metro Blue, Gold, or Expo Lines. For some trips, including those involving the Metro Expo Line and the Pasadena Gold Line, trip times would increase by one or two minutes under the build alternatives, but passengers would have one less transfer and would accordingly experience less uncertainty regarding their travel times. All build alternatives would add a new transfer to trips between the Pasadena and East Los Angeles branches of the Metro Gold Line, thus lengthening the trip time by about 9 minutes. The TSM alternative would increase trip times slightly because the shuttle buses would not run as quickly as the existing Metro Red and Purple Line subway.

Peak period travel times

The peak period travel times from Union Station to Pico Station would be 17 minutes under the No Build Alternative. The TSM Alternative would lengthen this time to 22 minutes due to the use of shuttle buses in mixed-flow traffic lanes. The At-Grade Emphasis LRT Alternative would shorten the trip to approximately 14 minutes, and the faster Underground Emphasis LRT Alternative would yield a travel time of 12 minutes. It should be noted that peak hour headways on the Metro Blue, Red, Purple, and Gold Lines are all different, and the actual transfer times between these lines vary from trip to trip. One advantage of the Regional Connector would be the elimination of transfers and the associated trip time uncertainty.

Travel times savings

During peak hours, when headways are short on all Metro Rail lines, the travel time savings over the No Build Alternative would range from three minutes on the At-Grade Emphasis LRT Alternative to five minutes on the Underground Emphasis LRT Alternative. During off-peak and late night hours, when headways are typically 20 minutes, the travel time savings will increase to 15 minutes or more.

Reduction in VMT

Due to the small length of the Regional Connector project, the reduction in VMT are minor compared to the overall system and may not be statistically meaningful in distinguishing one project from the other. However, both build alternatives are considered to provide some level of VMT reductions for the PSA.

Assessment of expandability

Due to the built out nature of the PSA, the existing light rail system and the proposed build alternatives would require significant infrastructure to expand in the future. Metro has identified at least two extensions in its 2007 Draft Long Range Transportation Plan, including an extension to the northwest and an extension south eventually connecting with Metro's Harbor subdivision. While the At-grade Emphasis LRT Alternative provides greater accessibility, at some point either extension will require aerial or underground configurations due to topography, the built environment and traffic considerations. The Underground Emphasis LRT Alternative initiates below-grade, so the cost of extension is already high; however, extension may be feasible depending on growth projections in jobs, population and ridership. The Underground Emphasis LRT Alternative does not currently include provisional design features to facilitate such a future extension.

7.6 Goal 4: Support Efforts to Improve Environmental Quality

- Minimize adverse environmental impacts
- Implement mitigation measures to reduce environmental effects to acceptable levels
- Reduce emissions and improve air quality

7.6.1 Initial Screening Criteria

The initial screening criteria for Goal 4, its associated performance measures, and results of the findings for the two build, the No Build, and the TSM alternatives are presented in Table 7-8. Subsequent sections explain each performance measure and the results of each alternative.

Table 7-8 Support Efforts to Improve Environmental Quality
Initial Screening Criteria

Goal	Performance Measure	At-Grade		Underground
		Option A	Option B	
4	Noise (number of curves for LRT alignment)	6	6	3
4	Potential visual impacts to notable architectural resources within 1/4 mile of alignment (Score 1-worst to 5-best)	1	2	4
4	Number of Potential Sensitive Receptors within 1/4 mile of alignment (Score 1-worst to 5-best)	5	5	5
4	Potential impacts to historically significant locations within 1/4 mile of alignment	217	217	203
4	Geologic and geotechnical issues along alignment (Score 1-worst to 5-best)	2	2	1

Noise

To evaluate noise, the number of required curves in the track is used, as curves have higher potential to generate noise. Curves include on-street turns as well as turns from surface to underground configurations. The At-Grade Emphasis LRT Alternative would require six curves, while the underground alternative surfaces at one location and also contains three directional movements that may impact noise levels. Therefore, the at-grade alternative has a higher potential than the underground alternative for direct noise impacts.

Potential visual impacts to notable architectural resources

Through the initial screening process, current landmarks and notable architecturally significant buildings were identified as potentially sensitive to visual impacts. The underground alternative scores higher than the at-grade alternative in this regard because there is less potential for visual impacts along an underground alignment. The at-grade alternative Option A scores lower than Option B because, although identical in alignment, the differences in configuration cause differences in visual impacts.

Number of potential sensitive receptors along alignment

Sensitive receptors are initially described as individuals with respiratory diseases, children, and the elderly who occupy sensitive land uses such as daycare facilities, libraries, parks, churches. Due to the minimal amount of these sensitive land uses within the PSA, both build alternatives receive a high score for having low potential impacts on sensitive receptors.

Potential impacts to historically significant locations along alignment

Of the two build alternatives, the underground alternative has a higher (less impactful) score in terms of potential impacts to historically significant locations within one-quarter mile of the alignment, which include two National Historic Landmarks, four National

Register Districts, 78 individual National Register properties/resources, 88 California Register destinations, and 31 local landmarks. In comparison, the at-grade alternative has the potential to impact a handful more locations, including two National Historic Landmarks, five National Register Districts, 75 Individual National register properties/resources, 98 California Register designations, and 37 local landmarks.

Geologic and geotechnical issues along the alignment

Geologic and geotechnical issues are generally related to the amount of new underground configuration the alternative includes. Therefore, the underground alternative has the higher potential for these issues since the alignment is over 90% underground. The at-grade alternative also has the potential for geologic and geotechnical issues along the Flower St. tunnel. This portion of the alignment connects with the existing 7th St./Metro Center Station, in a new tunnel segment.

7.6.2 Final Screening Criteria

The final screening criteria developed for Goal 4 and its associated performance measures are presented in Table 7-9. The results of the findings for the two build, No Build, and TSM alternatives are presented in subsequent sections.

Goal	Performance Measure	At-Grade		Underground
		Option A	Option B	
4	Expected level of impacts after mitigation to biological, social, and physical resources will be evaluated per CEQA/NEPA requirements (Score 1-worst to 5-best)	3	3	4
4	Reductions in PM10, NOx, and SOx emissions (Score 1-worst to 5-best)	N/A	N/A	N/A
4	Reduction in carbon footprint for average user (Score 1-worst to 5-best)	N/A	N/A	N/A

Expected level of impacts after mitigation to biological, social, and physical resources will be evaluated per NEPA/CEQA requirements

During the initial study, it was determined that there was no evidence that the proposed alignments would cause significant environmental effects on the following impact areas: biological, land use and planning, and population and housing. Because of existing downtown Los Angeles characteristics, both the at-grade and underground alternatives can be integrated into the existing urban environment. The at-grade alternative receives a point less since it has higher potential for impacts to these resources, being located at-grade versus underground.

During next phases of analysis (EIR/EIS), mitigation measures will be proposed to reduce any significant impacts on issues such as air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, mineral resources, noise, public services, recreation, transportation and traffic, and utilities and service systems, among others.

Reductions in PM₁₀, NO_x and SO_x emissions

There is no difference in reductions in PM₁₀, NO_x, and SO_x emissions under the at-grade or underground alternative.

Reduction in carbon footprint for average user

There is no difference in carbon footprint reduction for the average user under the at-grade or underground alternative.

7.7 Goal 5: Provide a Cost Effective Alternative Transportation System

- Increase ridership on the Metro system
- Minimize cost per passenger
- Maximize travel time savings

7.7.1 Initial Screening Criteria

The initial screening criteria for Goal 5, its associated performance measures, and results of the findings for the two build, the No Build, and the TSM alternatives are presented in Table 7-10. Subsequent sections explain each performance measure and the results of each alternative.

Table 7-10 Provide a Cost Effective Alternative Transportation System Initial Screening Criteria					
Goal	Performance Measure	TSM	At-Grade		Underground
			Option A	Option B	
5	Rough order of magnitude annual O&M (2008 \$) costs per alignment (millions)	\$13.60 M	\$9.80 M	\$9.55 M	\$5.15 M
5	User Cost - Cost Effectiveness compared to No Build (\$/hour of transit user benefit)	\$97.28	\$24.75	\$20.36	\$18.63

Rough order of magnitude (ROM) O&M costs

Operating and maintenance (O&M) costs are correlated with the number of peak LRT vehicles needed for daily operations. Estimating the number of total and peak LRT vehicles for each alternative requires the development of an operating plan for each

alternative, including running times and ‘recovery’ times, the number of cars per train, and the number of vehicles needed for spares and other services. Based on the operating plans for each alternative, the at-grade alternative will require 319 LRT vehicles and the underground alternative will require 303 LRT vehicles (due to the better travel time underground).

The ROM annual operating and maintenance cost for the at-grade alternative would be \$10 Million, while the underground alternative O&M cost would be \$5 Million.

User Cost – Cost Effectiveness

The cost effectiveness index measures the annualized change in capital cost and the annual O&M cost divided by the annual hours of transit-users benefits. FTA currently uses approximately \$24 to \$25 per hour of transit user benefit. The underground alternative rates the highest in cost effectiveness at \$19. The at-grade alternative Option A performs the worst at \$25, with Option B following at \$20.

7.7.2 Final Screening Criteria

The final screening criteria developed for Goal 5 and its associated performance measures are presented in Table 7-11. The results of the findings for the two build, No Build, and TSM alternatives are presented in subsequent sections.

Table 7-11 Provide a Cost Effective Alternative Transportation System
Final Screening Criteria

Goal	Performance Measure	TSM	At-Grade		Underground
			Option A	Option B	
5	Annualized cost per hour of user benefit beyond the No Build Alternative	\$97.28	\$24.75	\$20.36	\$18.63
5	Year 2030 Annual O&M costs (in millions)	\$13.60	\$9.80	\$9.55	\$5.15

Annualized cost per hour of transit system user benefit compared to No Build and TSM Alternatives

The TSM Alternative would have the highest cost per hour of transit system user benefit of all of the alternatives. Even though it has the smallest capital cost, the TSM Alternative does not eliminate any transfers for rail passengers, and would impart a much lower level of benefit than the build alternatives. The At-Grade Emphasis LRT Alternative would have a cost per hour of user benefit of \$20.36 to \$24.75. The Underground Emphasis LRT Alternative would have the lowest cost per hour of user benefit (\$18.63), largely because it serves the same area as the At-Grade Emphasis LRT Alternative but has a shorter travel time and station locations are more conducive to high ridership.

Annual O&M costs

Though it has the highest capital costs, the Underground Emphasis LRT Alternative would be the least expensive to operate. At \$5.15 million per year, operational costs would be just over half of the annual O&M costs of the At-Grade Emphasis LRT Alternative (\$9.55-\$9.8 million). This is because the speeds on the underground alignment would be faster, and fewer trains would be needed to operate the service. The TSM alternative would be the most expensive to operate, at \$13.6 million per year, likely due to the high volume of buses that would be needed to yield frequent headways.

7.8 Goal 6: Achieve a Financially Feasible Project

- Opportunities for private/public funding
- Opportunities for Federal and outside funding

7.8.1 Initial Screening Criteria

The initial screening criteria for Goal 6, its associated performance measures, and results of the findings for the two build, the No Build, and the TSM alternatives are presented in Table 7-12. Subsequent sections explain each performance measure and the results of each alternative.

Goal	Performance Measure	TSM	At-Grade		Underground
			Option A	Option B	
6	ROM Capital Costs - total and per mile per alignment (millions) (2008\$)				
	total	\$62.74	\$795.67	\$709.30	\$910.36
	per mile per alignment		\$424	\$339	\$414
6	Evaluation of availability and eligibility of capital funds at federal/state local levels to construct, operate and maintain (Score 1-worst to 5-best)				
	Federal (CEI)		1	2	5
	State (cost)		1	2	2
	Local (Cost & Subway restrictions)		1	2	1

ROM Capital Costs – total and per mile

The categories estimated for each alternative include fixed-guideway construction costs, station costs, LRT vehicles, parking (if required), maintenance and operating facility allowance, and a 10 percent unallocated contingency. The lowest cost alternative is the at-grade Option B at \$709.60 million, followed by Option A at \$795.67. The underground alternative capital cost would be \$910.36 million.

Another measure of interest is the capital cost per mile. Again, the at-grade Option B has the lowest capital cost per mile at \$339 million, followed by the underground alternative at \$414 million per mile. The at-grade Option A would have the highest capital cost per mile at \$424 million.

Evaluation of availability and eligibility of capital funds at federal/state/local levels to construct, operate and maintain

Three measures for funding sources were evaluated: federal, state, and local. The FTA New Starts Program is the primary funding source for federal funds. For this evaluation, the cost-effectiveness threshold is used as the measure for federal funding potential. The higher the cost-effectiveness compared to the threshold, the better the alternative. FTA currently uses a cost-effectiveness threshold of approximately \$24 to \$25 per hour of transit user benefit. The underground alternative currently rates the highest (best) in cost-effectiveness at \$19, followed by the at-grade Option B at \$20, then at-grade Option A at \$25.

For state funding, the alternative with the lowest capital cost has the higher potential for state funding assistance. Because of the competitiveness of this project with other high priority transit projects, both the underground and the at-grade Option B receive the same score of two, while the at-grade Option A (with the highest capital cost) receives the lowest score of 1.

7.8.2 Final Screening Criteria

A comparative discussion of the build alternatives based on the final screening criteria and associated performance measures developed for Goal 6 is provided below. Table 7-13 contains a comparison of each build alternative's costs broken down into FTA's Standard Cost Categories. The results of the findings for the No Build, TSM, and two build alternatives are discussed in subsequent sections.

Goal	Performance Measure	At-Grade		Underground
		Option A	Option B	
6	Capital cost per rail route mile estimate disaggregated by right of way (ROW), guideway, stations, yards, and vehicles (in millions of dollars)			
	Guideway and Track Elements	\$120.4	\$114.3	\$146.2
	Stations, Stops, and Terminals	\$46.3	\$25.0	\$73.6
	Support Facilities: Yards, Shops, Maintenance Buildings	\$8.7	\$8.7	\$3.3
	Site work and Special Conditions	\$86.5	\$80.9	\$117.0
	Systems	\$18.2	\$18.2	\$19.6
	ROW, Land, Existing Improvements	\$2.1	\$2.1	\$34.3
	Vehicles	\$29.4	\$29.4	\$11.1
	Professional Services	\$92.5	\$81.6	\$118.7
	Unallocated Contingency	\$40.3	\$36.0	\$52.4
	TOTAL COST PER ROUTE MILE	\$444.4	\$396.2	\$576.2

Capital cost estimate disaggregated by ROW, guideway, stations, yards, and vehicles on a cost per mile basis

At-Grade Emphasis LRT Alternative Option B has the lowest capital cost per route mile because it has the least amount of track mileage underground and only one underground station. Option A has a higher cost per route mile because there it has one additional underground station and more underground tracks. The Underground Emphasis LRT Alternative is almost entirely underground and has three underground stations, resulting in the highest capital costs.

7.9 Goal 7: Provide a Safe and Secure Alternative Transportation System

- Secure entire alignment, stations, track and other facilities
- Develop direct and indirect safety measures that exceed safety precautions typical of the Metro system
- Develop a system that balances the need for accessibility and mobility with security
- Develop a system that uses accessibility and mobility as measures for safety and security

7.9.1 Initial Screening Criteria

The initial screening criteria for Goal 7, its associated performance measures, and results of the findings for the two build, the No Build, and the TSM alternatives are presented in Table 7-14. Subsequent sections explain each performance measure and the results of each alternative.

Goal	Performance Measure	At-Grade		Underground
		Option A	Option B	
7	Safety - determined to be able to provide measures typical of requirements per ADA, per typical CPUC requirements, fire life safety guidelines, and per Metro Design Guidelines for access to and from stations (amount grade separated) (Score 1-worst to 5-best)	2	1	5
	Total underground - new tunnel, existing 2 nd St. tunnel, and aerial	46%	38%	94%
7	Number of emergency facilities located within 1/4 mile of the alignment (i.e., fire stations, police stations, hospitals)	4	4	4
7	Number of public events within 1/4 mile of alignment	14	14	14

Safety- determined to be able to provide measures typical of requirements per ADA, typical CPUC requirements, fire life safety guidelines and Metro Design Guidelines for access to and from stations

The measures used to evaluate the build alternatives included the percentage of the alignment that was fully grade separated and the percentage of the alignment totally underground in a new tunnel or in the existing 2nd St. tunnel. It is generally assumed that the more grade separated the alignment, the 'more safe and secure' it will be. Based on that assumption, the underground alternative received the best score, with 94 percent of the line underground, as opposed to the at-grade alternative Option A which is 46 percent underground and Option B which is 38 percent underground.

Number of emergency facilities located within one-quarter mile of the alignment, (i.e. fire stations, police stations, hospitals, etc.)

Both build alternatives have four emergency facilities located within their one-quarter mile buffer, three fire stations and one police station.

Number of public events

Currently, there are a total of 14 annually scheduled public events within one-quarter mile of the at-grade and underground alternatives, including 12 street closures and two additional annual events. These public events include the Little Tokyo Cherry Blossom Festival, the Los Angeles Marathon, Fiesta Broadway, City of Angels Half-Marathon, El Grito Celebration, and the St. Patrick's Day Parade.

7.9.2 Final Screening Criteria

The final screening criteria developed for Goal 7 and its associated performance measures are presented in Table 7-15. The results of the findings for the two build, No Build, and TSM alternatives are presented in subsequent sections.

Goal	Performance Measure	At-Grade		Underground
		Option A	Option B	
7	Number of crossings with high pedestrian activities on a daily basis	10	10	1
7	Number of events along the alignment	14	14	14
7	Potential issues related to accessibility and line of sight for pedestrians and vehicle drivers (Score 1-worst to 5-best)	1	1	4

Number of crossings with high pedestrian activities on a daily basis

The at-grade alternative has considerably more intersections with high pedestrian activity, 10 total, due to its at-grade configuration and its location along a pedestrian heavy corridor, specifically along 2nd St. The pedestrian activity along 2nd St. is not limited to

Civic Center purposes, but includes the historic and art buildings along 2nd St. as well. Many people walk along 2nd St. and up and down Main and Los Angeles Streets, especially during weekday lunch hour. In addition, because Civic Center buildings are all centrally located, people walk during most of the day to and from different departments.

The underground alternative would affect one intersection, 1st St. and Alameda St. In the past, this was a predominantly vehicle and truck heavy only intersection, but with the recent addition of residential developments along Alameda St. and the Arts District, and with the future Metro Goldline Extension and mixed-use development, this will be a pedestrian heavy intersection.

Number of events along the alignment

See Section 7.9.1 for a description of public events.

Number of potential issues related to accessibility and line of sight for pedestrian and vehicle drivers

An at-grade LRT may have a higher number of potential issues related to accessibility and line of sight for pedestrians and vehicles. An at-grade LRT introduces a new, fixed, transit route that drivers may not be accustomed to. Train movements and signal operations may be unfamiliar and cause initial confusion or uncertainty. Likewise, for pedestrians, an at-grade LRT presents safety concerns due to train speeds, track crossings, and/or proper notifications for oncoming trains. For these and other reasons, the at-grade alternative receives a low score in terms of potential issues that may arise.

The underground alternative presents fewer concerns for pedestrians and street vehicular traffic due to its underground configuration throughout much of the alignment, with the exception of the 1st St. and Alameda St. intersection. Some potential issues at this intersection include through-traffic ability, driver confusion, proper signage for turning movements, and vehicle approaching train signals. There are various features of the underground alignment that will facilitate both vehicular and pedestrian movements. The underpass for north-south traffic removes the vehicular activity from street level to underground, leaving only the LRT and local traffic movements. In addition, the introduction of a pedestrian bridge provides pedestrians with the option to move from street level to an upper platform space. For this reason, the underground alternative received a high score with respect to potential accessibility issues.

7.10 Summary of Recommendations

After the screening of alternatives from eight build alternatives to two build alternatives, a number of refinements were made to both alternatives with input from the community and stakeholders. Much of the input received was regarding the impacts to the Little Tokyo community, connections to a potential historic trolley line on Broadway, and a connection to the Grand development. The addition of a new underpass and pedestrian bridge for both alternatives help to address some key concerns. Continued engineering refinement and coordination with the stakeholders during the next phase of this process will help resolve any remaining issues.

At this point, both build alternatives are viable and can be constructed. However, the Underground Emphasis LRT Alternative has a greater benefit in the long term. This segment will be the core of the light rail system for the PSA and the region as a whole. A high number of trains will be traversing this nearly two-mile segment to go north, south, east or west in the County. The Underground Emphasis LRT Alternative avoids surface conflicts with autos and pedestrians which is beneficial both from a safety standpoint as well as an operational standpoint, as one unplanned stop by a train could cause significant delays for riders in different parts of the County.

Still, the Underground Emphasis LRT Alternatives creates some significant short term impacts to the culturally sensitive Little Tokyo community. This community has a lot to gain in the long run as it will be at the core for public transit in the region. However, there is a concern that Little Tokyo business and therefore Little Tokyo itself will be significantly impacted during construction. Specific considerations for this community will need to be reviewed during the next phase, the Draft EIR/EIS. Therefore, both build alternatives are recommended for further study in a Draft EIR/EIS to evaluate potential impacts and mitigation and to further engineer the details for each option.

7.11 Tradeoffs between Alternatives

Table 7-16 provides a summary comparison of the build alternatives that will be carried on to the next phase for full environmental review. The No Build and TSM Alternatives are required by the state and federal processes to be included in the environmental review as well.

Due to the regional significance of this central 1.8-mile connection, both alternatives will provide substantial mobility and accessibility improvements, consistent with Goal 3. However, due to the volume of potential conflicts with autos that an at-grade alternative provides, and considering that such conflicts would generate substantial interruptions for existing transit operations in the region, the Underground Emphasis LRT Alternative would perform the best, with only one potential conflict location. In addition, the Underground Emphasis LRT Alternative provides better travel times and in turn attracts more riders due to the avoidance of at-grade traffic conditions and at-grade traffic signals.

The cost for either project is significant due to the urban and built out character of the PSA. Both alternatives have substantial portions below-grade, with the At-Grade Emphasis LRT Alternative below-grade for more than 40 percent of the alignment. The capital cost differential between the two alternatives is approximately \$200 million, but the O&M cost between the two alternatives is substantially different. The At-Grade Emphasis LRT Alternative will require additional vehicles to account for the slower speeds through downtown LA due to traffic conditions. Additional costs will also be incurred by the maintenance of at-grade components, including track repair, OCS maintenance, station cleaning and station facility repairs. As both alternatives score well using FTA criteria for transit system user benefits, either alternative would be financially feasible.



Table 7-16 Summary Comparison of Alternatives

Goal	At-Grade Alt – Option A	At-Grade Alt – Option B	Underground Alt
1: Community Planning	Similar demographic characteristics, transit oriented design policies, connections to activity centers, and redevelopment opportunities under all build alternatives.		
2: Public Involvement, Community Preservation	<ul style="list-style-type: none"> - Smaller proportion of alignment is grade separated - Similar urban fit and potential disproportionate environmental justice effects compared to Underground Emphasis LRT Alt. - One more acquisition needed than Underground Emphasis LRT Alt. 		<ul style="list-style-type: none"> -Greater proportion of alignment is grade separated. -Similar urban fit and potential disproportionate environmental justice effects compared to At-Grade Emphasis LRT Alt. -One fewer acquisition needed than At-Grade Emphasis LRT Alt.
3: Improve Mobility and Access	<ul style="list-style-type: none"> -8,900 daily hours of transportation user benefits -Union Station to Pico in 14 minutes (3 faster than No Build) -Easily adapted for further system expansions 	<ul style="list-style-type: none"> -9,900 daily hours of transportation user benefits -Union Station to Pico in 14 minutes (3 faster than No Build) -Easily adapted for further system expansions 	<ul style="list-style-type: none"> -12,100 daily hours of transportation user benefits -Union Station to Pico in 12 minutes (5 faster than No Build) -Not easily adapted for further system expansions
4: Improve Environmental Quality	Slightly more impacts than Underground Emphasis LRT Alt. to biological, social, and physical resources after mitigation		Slightly fewer impacts than At-Grade Emphasis LRT Alt. to biological, social, and physical resources after mitigation
5: Cost Effectiveness	<ul style="list-style-type: none"> -Operating Costs: \$9.8M/yr -Annualized cost per hour of user benefit: \$24.75 	<ul style="list-style-type: none"> -Operating Costs: \$9.6M/yr -Annualized cost per hour of user benefit: \$20.36 	<ul style="list-style-type: none"> -Operating Costs: \$5.2M/yr -Annualized cost per hour of user benefit: \$18.63
6: Financial Feasibility	<ul style="list-style-type: none"> -Capital Costs: \$796M (\$424M per mile) -Low eligibility for federal/state/local funds 	<ul style="list-style-type: none"> -Capital Costs: \$709M (\$339M per mile) -Moderate-Low eligibility for federal/state/local funds 	<ul style="list-style-type: none"> -Capital Costs: \$910M (\$414M per mile) -Moderate-Low eligibility for state/local funds -High eligibility for federal funds
7: Safety and Security	<ul style="list-style-type: none"> -10 high-activity grade crossings -Many potential issues related to accessibility and vehicle line of sight -Similar number of public events along the alignment, compared to Underground Emphasis LRT Alt. 		<ul style="list-style-type: none"> -1 grade crossing -Few potential issues related to accessibility and vehicle line of sight -Similar number of public events along the alignment, compared to At-Grade Emphasis LRT Alt.

The build alternatives meet one of two distinct criteria important to the general community. The Underground Emphasis LRT Alternative addresses the desire for the project to be primarily, if not entirely, underground. The At-grade Emphasis LRT Alternative addresses the desire for an alternative that does not directly impact the community of Little Tokyo by traversing Temple, Los Angeles and Main Streets instead. Though the Underground Emphasis LRT Alternative avoids directly conflicting with Little Tokyo's busy streets and businesses, this alternative features a single at-grade crossing at Alameda and 1st Streets, and potential impacts to Little Tokyo are still a great concern.

After initial screening, Metro worked closely with a special task force created within the Little Tokyo community, as well as with major stakeholders within the historic core, financial district, Bunker Hill and the Civic Center. The decision to include underpasses for intersections at Temple and 1st St., and to include a pedestrian bridge for both alternatives, has led to support from the Little Tokyo community for both alternatives. In addition, the historic core will continue to be involved in the potential fourth station at 2nd and Spring Streets and the final location of an underground station on 2nd St., in order to best enhance a connection to a proposed street-car on Broadway. Both alternatives score well based on support for community planning efforts.

Based on the comparative analysis, the following alternatives are being recommended for consideration for future study in a Draft EIR/EIS process:

- No Build (required)
- Transportation System Management (TSM) (required)
- At-Grade Emphasis LRT (including Alameda underpass and pedestrian bridge at Temple Street)
- Underground Emphasis LRT (including Alameda underpass and pedestrian bridge at 1st Street)

These alternatives are considered the best alternatives that meet the Purpose and Need for the Regional Connector Transit Corridor and are the most competitive for possible Federal New Starts funding participation.

The following issues will continue to be addressed during development of the Draft EIR/EIS and the selection of the Locally Preferred Alternative (LPA). The LPA will be submitted to the Federal Transit Administration as the project Metro recommends for Preliminary Engineering.

- Design of auto underpasses, pedestrian crossings, and pedestrian bridges for both build alternatives
- Decision about specific location and configuration of stations
- Decision about a possible fourth station for the At-Grade Emphasis LRT

- Impact identification and proposed mitigation for construction and operations
- Costs
- Evaluation of the cost effectiveness of project elements

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Appendix B Transit Lines Serving the Project Study Area

Operator	Line	Mode	Weekday Hours of Operation	Peak Hour Frequency	Route Description
AVTA	785	Freeway Express Bus	4AM-6AM, 3PM-6PM	20 mins	Palmdale/Lancaster
BBB	10 Express	Freeway Express Bus	6AM-8PM	15 mins	Santa Monica
Gardena	1	Freeway Express Bus	5AM-12AM	15 mins	Gardena/Lawndale
Foothill	481	Freeway Express Bus	6AM-9AM, 3PM-6PM	20 mins	El Monte/Wilshire Center
Foothill	493	Freeway Express Bus	5AM-8AM, 2PM-8PM	10 mins	Pomona/Phillips Ranch
Foothill	497	Freeway Express Bus	5AM-8AM, 2PM-7PM	12 mins	Chino
Foothill	498	Freeway Express Bus	5AM-8AM, 2PM-7PM	7 mins	Covina/Azusa
Foothill	499	Freeway Express Bus	5AM-8AM, 2PM-7PM	12 mins	San Dimas
Foothill	699	Freeway Express Bus	4AM-8AM, 2PM-7PM	9-12 mins	Montclair
Foothill	Silver Streak	Freeway Express Bus	24 Hours	10 mins	Montclair
LADOT	CE 409	Freeway Express Bus	6AM-9AM, 4PM-6PM	15 mins	Sylmar/Sunland/Tujunga/Montrose/Glendale
LADOT	CE 413	Freeway Express Bus	7AM-9AM, 4PM-6PM	25 mins	Van Nuys/North Hollywood/Burbank
LADOT	CE 419	Freeway Express Bus	7AM-9AM, 4PM-7PM	15 mins	Chatsworth/Northridge/Granada Hills/Mission Hills
LADOT	CE 422	Freeway Express Bus	5AM-9AM, 4PM-8PM	8 mins	Hollywood/San Fernando Valley/Agoura Hills/Thousand Oaks
LADOT	CE 423	Freeway Express Bus	7AM-9AM, 4PM-7PM	15 mins	Encino/Woodland Hills/Agoura Hills/Thousand Oaks/Newbury Park
LADOT	CE 430	Freeway Express Bus	6AM-7AM, 5PM-6PM	30-50 mins	Brentwood/Pacific Palisades
LADOT	CE 431	Freeway Express Bus	7AM-9AM, 5PM-6PM	30 mins	Westwood/Rancho Park/Palms
LADOT	CE 437	Freeway Express Bus	7AM-9AM, 4PM-6PM	15-30 mins	Venice/Marina del Rey/Culver City
LADOT	CE 438	Freeway Express Bus	7AM-9AM, 4PM-6PM	15 mins	Redondo Beach/Hermosa Beach/Manhattan Beach/El Segundo
LADOT	CE 448	Freeway Express Bus	7AM-9AM, 4PM-6PM	15 mins	Rancho Palos Verdes/Torrance/Lomita/Wilmington Harbor City
LADOT	CE 534	Freeway Express Bus	7AM-8AM, 4PM-5PM	30 mins	Century City/Westwood
LADOT	DASH A	Circulator Bus	7AM-7PM	7 mins	Little Tokyo/City West
LADOT	DASH B	Circulator Bus	6AM-7PM	8 mins	Chinatown/Financial District
LADOT	DASH C	Circulator Bus	7AM-7PM	7 mins	Financial District/South Park



Operator	Line	Mode	Weekday Hours of Operation	Peak Hour Frequency	Route Description
LADOT	DASH D	Circulator Bus	6AM-7PM	5 mins	Union Station/South Park
LADOT	DASH E	Circulator Bus	7AM-7PM	5 mins	City West/Fashion District
LADOT	DASH F	Circulator Bus	7AM-7PM	10 mins	Financial District/Exposition
LADOT	DASH CH	Circulator Bus	6AM-6PM	6 mins	City Hall Shuttle
LADOT	DASH DD	Circulator Bus	Weekend Only	20 mins	Downtown Discovery
LADOT	DASH MBH	Circulator Bus	7AM-9AM, 3PM-6PM	10 mins	MetroLink/Bunker Hill
Metro	2/302	Local/Limited Stop Bus	24 Hours	5 mins	Pacific Palisades via Sunset Bl.
Metro	4	Local Bus	24 Hours	7 mins	Santa Monica via Santa Monica Bl.
Metro	10	Local Bus	5AM-12AM	7 mins	West Hollywood via Temple St. and Melrose Av.
Metro	14/37	Local Bus	24 Hours	10 mins	Beverly Hills via Beverly Bl./West LA via Adams Bl.
Metro	16/316	Local/Limited Stop Bus	4AM-1AM	3 mins	Century City via 3rd St.
Metro	18	Local Bus	24 Hours	3 mins	Wilshire Center - Montebello via 6th St. and Whittier Bl.
Metro	20	Local Bus	24 Hours	4 mins	Santa Monica via Wilshire Bl.
Metro	26/51/52/352	Local/Limited Stop Bus	24 Hours	4 mins	Hollywood - Compton - Artesia Blue Line via Avalon Bl.
Metro	28	Local Bus	5AM-1AM	8 mins	Century City via Olympic Blvd.
Metro	30/31/330	Local/Limited Stop Bus	24 Hours	4 mins	Pico-Rimpau - Monterey Park via Pico Bl and E 1st St.
Metro	33/333	Local/Limited Stop Bus	24 Hours	2 mins	Santa Monica via Venice Bl.
Metro	38	Local Bus	24 Hours	8 mins	Fairfax and Washington via Jefferson Bl.
Metro	40	Local Bus	24 Hours	6 mins	South Bay Galleria via Hawthorne Bl., Crenshaw Bl., and MLK Bl.
Metro	42/42A	Local Bus	5AM-12AM	12 mins	LAX via MLK Bl., Stocker St., and La Tijera Bl.
Metro	45	Local Bus	24 Hours	6 mins	Montecito Heights - Rosewood via Broadway and Mercury Av.
Metro	48	Local Bus	5AM-11PM	7 mins	Avalon Green Line via Main St. and S. San Pedro St.
Metro	53/350	Local/Limited Stop Bus	24 Hours	5 mins	Carson via Central Av.
Metro	55/355	Local/Limited Stop Bus	24 Hours	4 mins	Imperial Blue/Green Line via Compton Av.
Metro	60	Local Bus	24 Hours	6 mins	Artesia Blue Line via Long Beach Bl.



Operator	Line	Mode	Weekday Hours of Operation	Peak Hour Frequency	Route Description
Metro	62	Local Bus	5AM-11PM	15 mins	Hawaiian Gardens via Telegraph Rd.
Metro	66/366	Local/Limited Stop Bus	4AM-1AM	2 mins	Wilshire Center - Montebello via 8th St. and Olympic Bl.
Metro	68/84	Local Bus	24 Hours	8 mins	West LA - Montebello via Washington Bl. and Cesar Chavez Av.
Metro	70/71/370	Local/Limited Stop Bus	24 Hours	5-9 mins	El Monte via Garvey Av.
Metro	76/376	Local/Limited Stop Bus	24 Hours	10 mins	Arcadia via Valley Bl., Huntington Dr. and Las Tunas Dr.
Metro	78/79/378	Local/Limited Stop Bus	5AM-1AM	10 mins	Arcadia via Huntington Dr. and Las Tunas Dr.
Metro	81/381	Local/Limited Stop Bus	5AM-1AM	5 mins	Eagle Rock - Exposition Park via Figueroa St.
Metro	83	Local Bus	24 Hours	10 mins	Eagle Rock via York Av.
Metro	90/91	Local Bus	5AM-12AM	10 mins	Sunland via Foothill Bl., Cañada Bl., and Glendale Av.
Metro	92	Local Bus	24 Hours	12 mins	Burbank via Glendale
Metro	94/394	Local/Limited Stop Bus	5AM-1AM	5 mins	Sylmar via San Fernando Rd. and Spring St.
Metro	96	Local Bus	5AM-8PM	20 mins	Sherman Oaks via Griffith Park Dr. and Riverside Dr.
Metro	439	Freeway Express Bus	5AM-9PM	40-60 mins	Aviation Green Line via Culver City
Metro	442	Freeway Express Bus	6AM-8AM, 4PM-6PM	30 mins	Hawthorne via Harbor Transitway, Manchester Bl., and La Brea Av.
Metro	444	Freeway Express Bus	5AM-8PM	10-20 mins	Rancho Palos Verdes via Harbor Transitway and Hawthorne Bl.
Metro	445	Freeway Express Bus	5AM-7PM	30 mins	San Pedro via Harbor Transitway, 1st St., and Pacific Av.
Metro	446/447	Freeway Express Bus	5AM-12AM	15 mins	San Pedro via Harbor Transitway, Avalon Bl., and Pacific Av.
Metro	450X	Freeway Express Bus	6AM-9AM, 4PM-6PM	15 mins	South Bay Express via Harbor Transitway
Metro	460	Freeway Express Bus	5AM-12AM	30 mins	Disneyland via Harbor Transitway, I-105, and I-5
Metro	484	Freeway Express Bus	5AM-12AM	5 mins	Pomona via El Monte Busway and Valley Bl.
Metro	485	Freeway Express Bus	5AM-12AM	20 mins	Altadena via El Monte Busway, Oak Knoll Av., and Lake Av.
Metro	487	Freeway Express Bus	6AM-9PM	30 mins	Sierra Madre Villa Gold Line via El Monte Busway
Metro	489	Freeway Express Bus	6AM-8AM, 3PM-5PM	12 mins	Temple City via El Monte Busway and Rosemead Bl.
Metro	490	Freeway Express Bus	5AM-11PM	10 mins	Pomona via El Monte Busway and Ramona Bl.
Metro	704	Rapid Bus	6AM-8PM	8 mins	Santa Monica Bl. Rapid



Operator	Line	Mode	Weekday Hours of Operation	Peak Hour Frequency	Route Description
Metro	714	Rapid Bus	6AM-9AM, 3PM-6PM	15 mins	Beverly Bl. Rapid
Metro	720	Rapid Bus	4AM-1AM	4 mins	Wilshire Bl. - Whittier Bl. Rapid
Metro	728	Rapid Bus	5AM-8PM	8 mins	Olympic Bl. Rapid
Metro	740	Rapid Bus	5AM-8PM	10 mins	Hawthorne Bl. Rapid
Metro	745	Rapid Bus	5AM-8PM	5 mins	South Broadway Rapid
Metro	760	Rapid Bus	5AM-8PM	8 mins	Long Beach Bl. Rapid
Metro	770	Rapid Bus	6AM-6PM	12 mins	Garvey Av. - Cesar Chavez Av. Rapid
Metro	940	Rapid Express Bus	6AM-8AM, 4PM-6PM	30 mins	Hawthorne Bl. Rapid Express
Metro	Blue Line	Light Rail	5AM-12AM	5 mins	Long Beach via South Los Angeles, Willowbrook, and Compton
Metro	Red Line	Heavy Rail	5AM-12AM	5 mins	Wilshire Center and North Hollywood
Montebello	40	Local Bus	5AM-10PM	8 mins	Montebello and Whittier via Beverly Bl.
Montebello	50	Local Bus	5AM-12AM	30 mins	Whittier and La Mirada via Washington Bl.
Montebello	341	Limited Stop Bus	7AM-9AM, 4PM-6PM	30 mins	Montebello and Whittier via Beverly Bl.
Montebello	342	Limited Stop Bus	7AM, 5PM	One Trip	Montebello and Whittier via Beverly Bl.
Montebello	343	Limited Stop Bus	7AM-8AM, 5PM-6PM	30 mins	Montebello and Whittier via Beverly Bl.
OCTA	701	Freeway Express Bus	5AM-6AM, 4PM-5PM	20 mins	Huntington Beach
OCTA	721	Freeway Express Bus	6AM-9AM, 3PM-6PM	30 mins	Fullerton
Santa Clarita	799	Freeway Express Bus	5AM-7AM, 3PM-7PM	20 mins	Valencia/Santa Clarita
Torrance	1	Freeway Express Bus	6AM-9AM, 4PM-10PM	30 mins	Torrance via Harbor Transitway and Artesia Transit Center
Torrance	2	Freeway Express Bus	7AM-7PM	60 mins	Torrance via Harbor Transitway



Appendix C Bus Lines Serving Both Union Station and 7th St./Metro Center Station

Line	Average Daily Boardings within Study Area	Average Daily Boardings for Entire Line	Route Description
78/79/378	1,405	11,868	Arcadia via Huntington Dr. and Las Tunas Dr.
484	1,393	8,914	Pomona via El Monte Busway and Valley Bl.
70/370	1,330	15,569	El Monte via Garvey Av.
76/376	1,108	11,106	Arcadia via Valley Bl., Huntington Dr. and Las Tunas Dr.
490	631	5,568	Pomona via El Monte Busway and Ramona Bl.
485	431	3,683	Altadena via El Monte Busway, Oak Knoll Av., and Lake Av.
487	410	2,985	Sierra Madre Villa Gold Line via El Monte Busway
446/447	289	4,373	San Pedro via Harbor Transitway, Avalon Bl., and Pacific Av.
444	285	3,132	Rancho Palos Verdes via Harbor Transitway and Hawthorne Bl.
445	210	1,243	San Pedro via Harbor Transitway, 1st St., and Pacific Av.
439	141	946	Aviation Green Line via Culver City
489	122	584	Temple City via El Monte Busway and Rosemead Bl.
442	56	249	Hawthorne via Harbor Transitway, Manchester Bl., and La Brea Av.
TOTAL	7,811		

Appendix D Plan and Profile Drawings

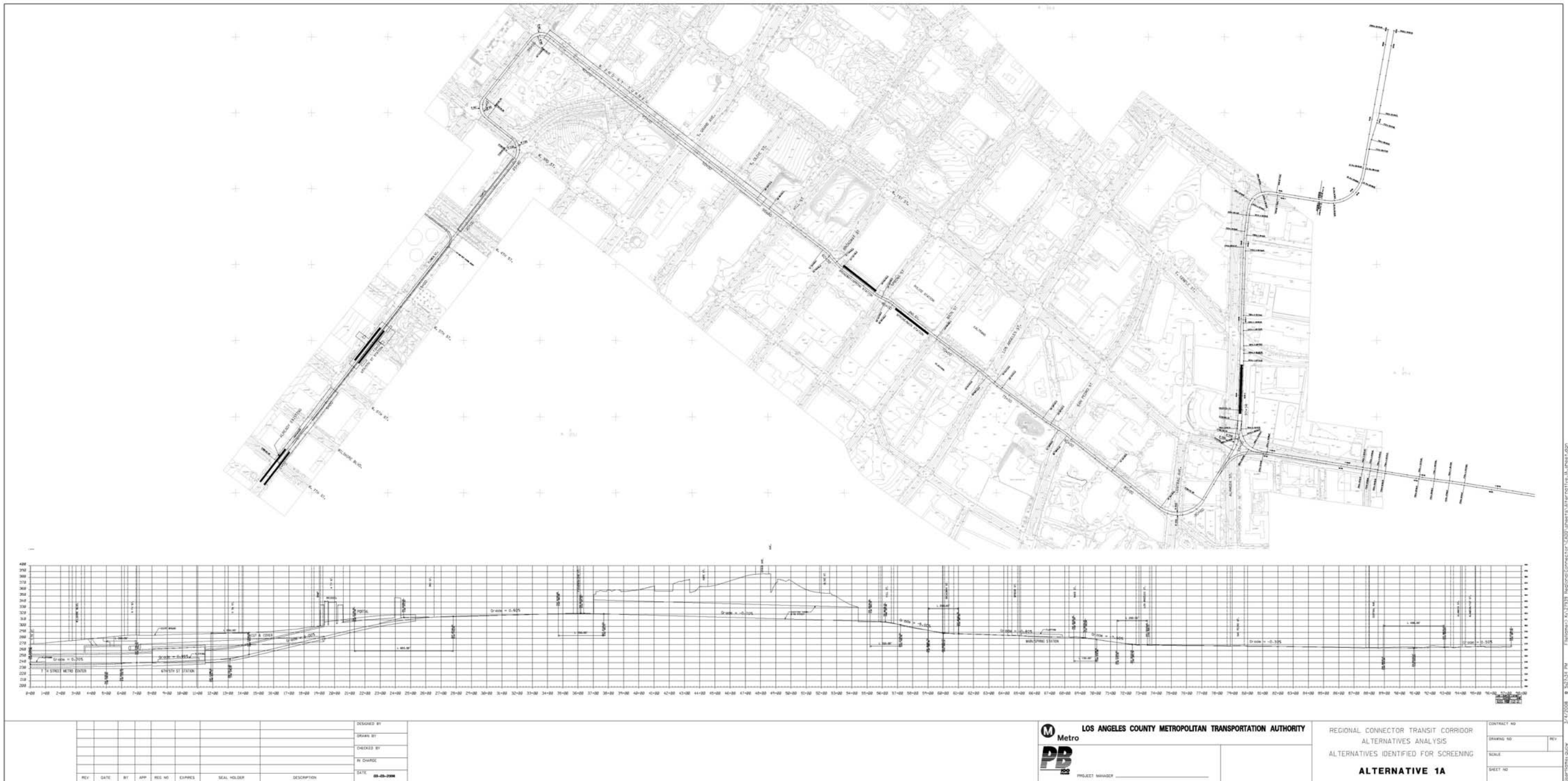


Figure D-1 Plan View of Alternative 1a



Figure D-2 Plan View of Alternative 1b



Figure D-3 Plan View of Alternative 2

