



See Figure ES-5 on page 9

Figure ES-5 shows all of the possible LRT routes and stations identified for study in the Draft EIS/EIR. The features and impacts of each of the build alternatives are described in the following section.

**At-Grade Emphasis LRT Alternative**

The At-Grade Emphasis LRT Alternative would provide a direct connection from the existing underground 7<sup>th</sup> Street/Metro Center Station to the Metro Gold Line at Temple and Alameda Streets with three new station locations. This alignment includes a combination of underground and at-grade segments, with 46 percent of the route underground. New stations would serve the Civic Center, Grand Avenue, and the Financial District. 2<sup>nd</sup> Street would be converted to a pedestrian-friendly transit mall between Hill and Los Angeles Streets. To implement this alternative, the number of traffic lanes and on-street parking spaces would be reduced on 2<sup>nd</sup> Street. As a result, traffic is likely to divert to adjacent parallel streets such as 1<sup>st</sup> and 3<sup>rd</sup> Streets, but the roadway capacity along these streets would remain unchanged. Roadway congestion would likely increase along these streets. Figure ES-6 provides an illustration of a typical at-grade alignment.



Figure ES-6: Typical At-Grade Alignment

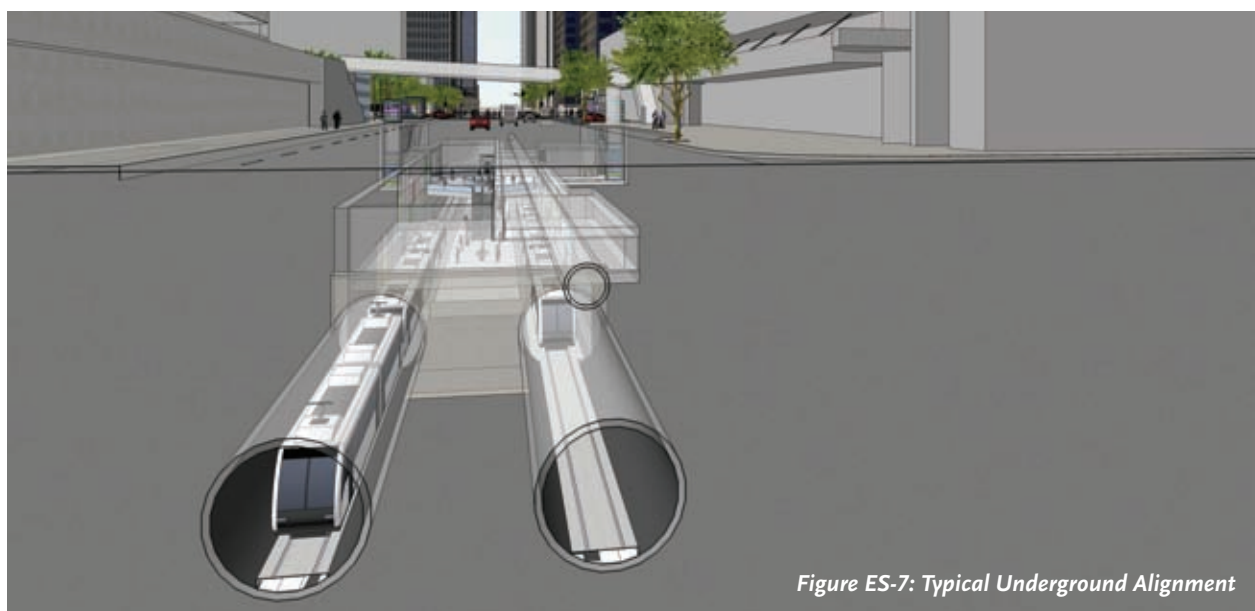


Figure ES-7: Typical Underground Alignment

### ***Underground Emphasis LRT Alternative***

The Underground Emphasis LRT Alternative would provide a direct connection from 7<sup>th</sup> Street/Metro Center Station to the Metro Gold Line tracks at the Little Tokyo/Arts District Station with three new station locations. The alignment would extend underground from the 7<sup>th</sup> Street/Metro Center Station under Flower Street to 2<sup>nd</sup> Street. The tracks would then proceed east underneath the 2<sup>nd</sup> Street Tunnel and 2<sup>nd</sup> Street to a new portal on the parcel bounded by 1<sup>st</sup> Street, Alameda Street, 2<sup>nd</sup> Street, and Central Avenue. It is anticipated that some of this parcel would need to be acquired to construct the portal and stage construction of the tunnels beneath 2<sup>nd</sup> Street. The new tracks would then connect to the tracks of the Metro Gold Line at-grade. The Underground Emphasis LRT Alternative would be located entirely underground except for a single at-grade crossing at the intersection of 1<sup>st</sup> and Alameda Streets. Figure ES-7 is an illustration of a typical underground alignment.

### ***Fully Underground LRT Alternative***

As a result of a unique and intense community engagement process that evolved from the scoping process, the Fully Underground LRT Alternative was developed to best address community concerns simultaneous with cost, operational, and design considerations. Based on this extensive public outreach effort, Metro staff recommended that the Fully Underground LRT Alternative be designated the staff-recommended LPA in the Draft EIS/EIR. This recommendation was made by Metro staff because this alternative uniquely addresses community concerns, and the Regional Connector's transportation purpose and need.



The Fully Underground LRT Alternative in the Draft EIS/EIR is essentially the same configuration as the Underground Emphasis LRT Alternative, except that it provides for four new underground stations instead of three, and it traverses under the intersection of 1<sup>st</sup> and Alameda Streets connecting to the Metro Gold Line within 1<sup>st</sup> Street and north of Temple Street.

The alignment would extend underground from the 7<sup>th</sup> Street/Metro Center Station under Flower Street and 2<sup>nd</sup> Street to Central Avenue in the same manner as the Underground Emphasis LRT Alternative. At 2<sup>nd</sup> Street and Central Avenue, the tracks would continue underground heading northeast under 1<sup>st</sup> and Alameda Streets.

An underground junction would be constructed beneath the intersection of 1<sup>st</sup> Street and Alameda Street. To the north and east of the junction, trains would rise to the surface through two new portals to connect to the Metro Gold Line heading north to Montclair and east towards I-605.

Figure ES-8 is an illustration of a typical underground station, and Figure ES-9 is a typical underground station entrance as seen from street level.



Figure ES-8: Typical Underground Station



Figure ES-9: Typical Underground Station Entrance

Figure ES-10 shows the existing Metro Rail system without the Regional Connector. Figure ES-11 shows how the system would operate with the LPA illustrating the enhanced connectivity, new stations, and reduction in transfers associated with this alternative.

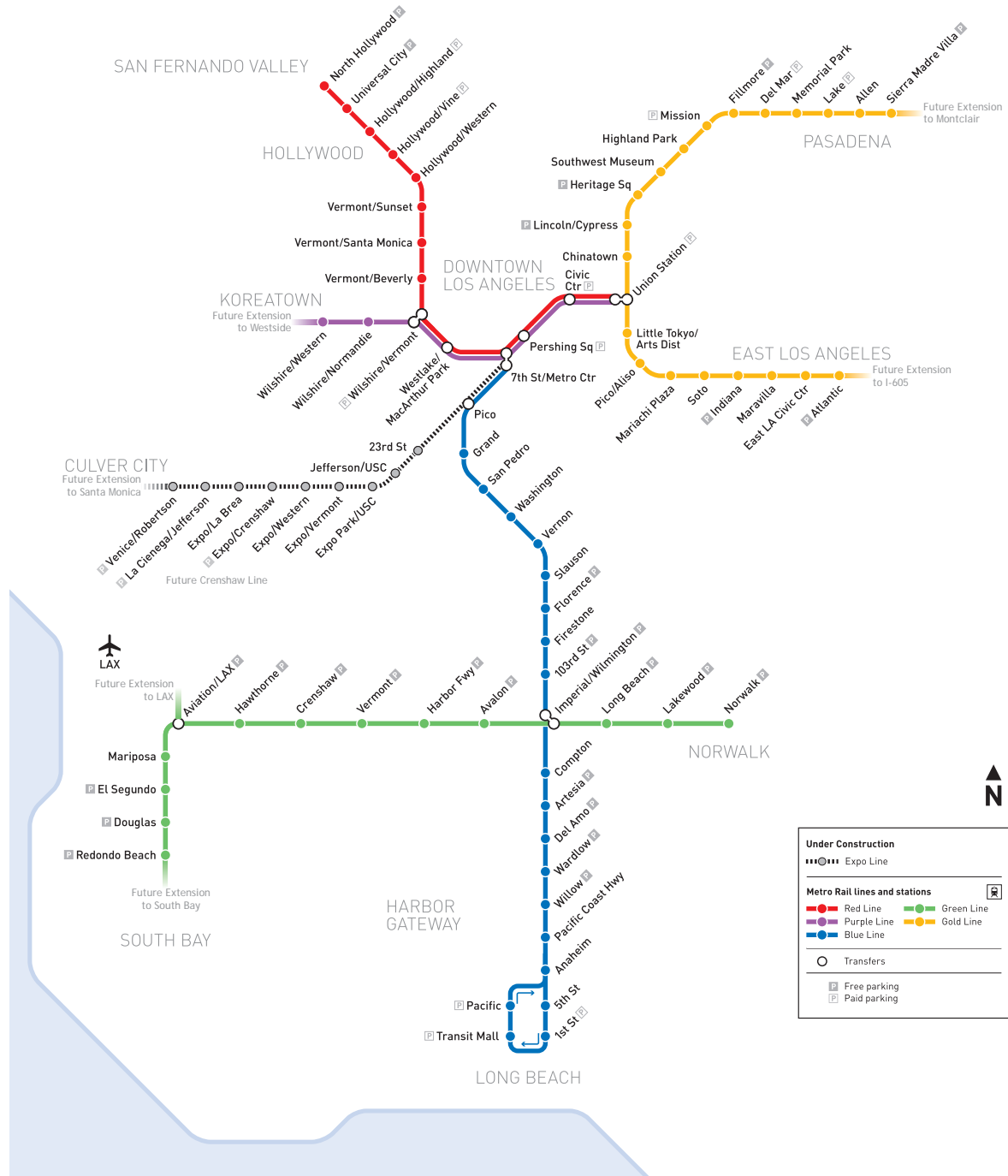


Figure ES-10: Existing Metro Rail System

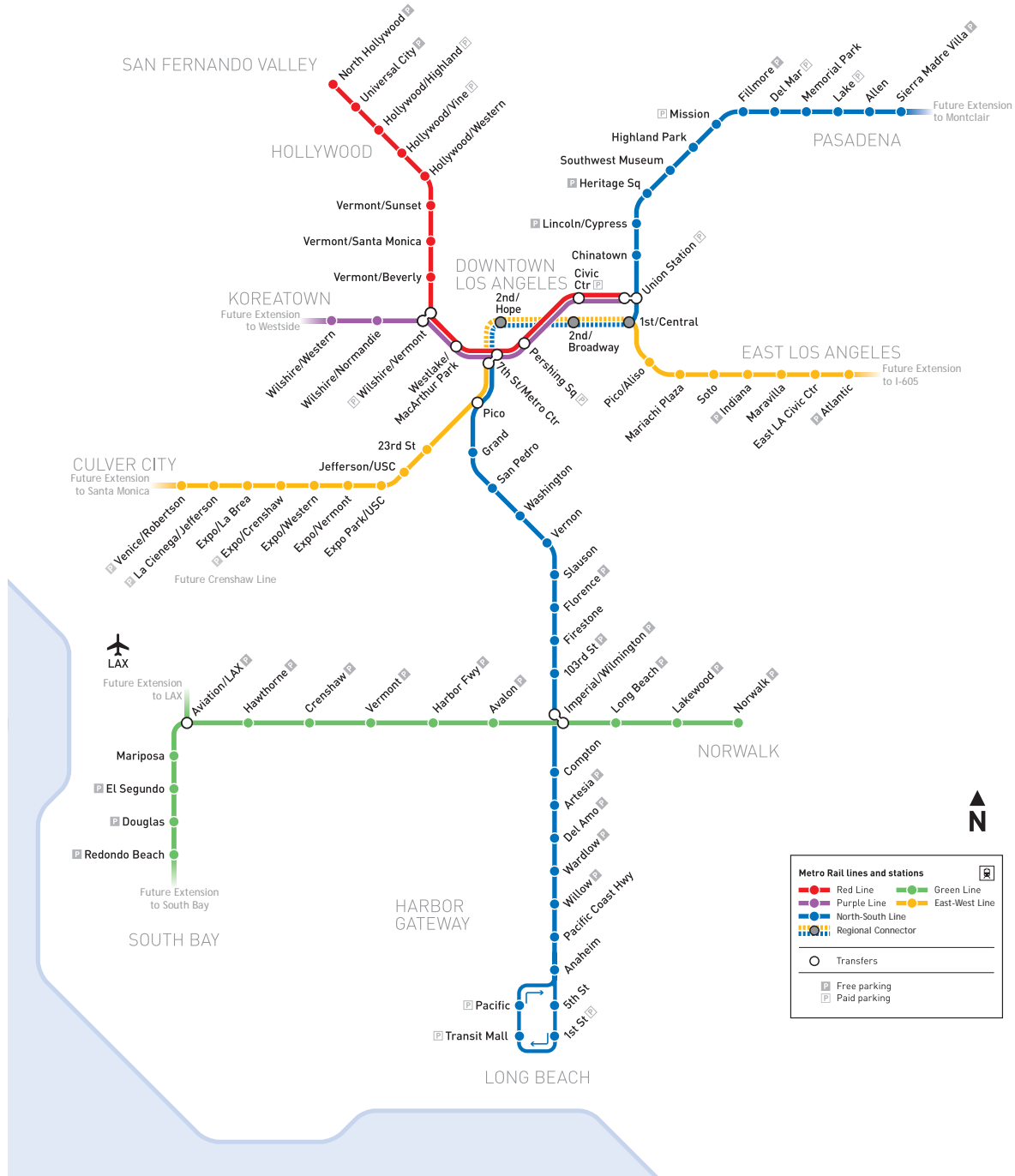


Figure ES-11: Metro Rail System with Locally Preferred Alternative

## The Locally Preferred Alternative

### Metro Board of Directors Designates the LPA

On October 28, 2010, the Metro Board of Directors concurred with staff's recommendation to designate the Fully Underground LRT Alternative as the LPA, with the elimination of the Flower/5<sup>th</sup>/4<sup>th</sup> Street station. The LPA is essentially the same configuration as the Fully Underground LRT Alternative, as analyzed in the Draft EIS/EIR, except that the LPA does not include the Flower/5<sup>th</sup>/4<sup>th</sup> Street station and it has been further refined to reduce impacts. However, the project design would not preclude construction of a station at this location as a future, separate project.

### Key Refinements to the LPA

Based on comments received on the Draft EIS/EIR and input received from community coordination during preparation of this Final EIS/EIR, the following key refinements were made to the LPA to reduce or avoid previously identified impacts. The refinements are described in greater detail in Section 2.3.6 and Section 4.18 of this Final EIS/EIR.

- An enhanced pedestrian walkway would be created along the east side of Flower Street from the 4<sup>th</sup> Street and Flower Street area to the existing 7<sup>th</sup> Street/Metro Center Station entrance at 7<sup>th</sup> and Flower Streets.
- At 2<sup>nd</sup> Street and the pedestrian signal to the Japanese Village Plaza (JVP), the tracks would continue underground heading northeast under the JVP and 1<sup>st</sup> and Alameda Streets.
- Cut and cover on 2<sup>nd</sup> Street in Little Tokyo would not be required, which would result in less cut and cover overall during construction.
- The proposed Little Tokyo/Arts District underground station, 1<sup>st</sup> Street/Central Avenue station (previously called 2<sup>nd</sup> Street/Central Avenue station), would be partially located within Central Avenue and the northern half of the block bounded by 1<sup>st</sup> Street, Central Avenue, 2<sup>nd</sup> Street, and Alameda Street.
- The Tunnel Boring Machine (TBM) would be inserted at the property northeast of 1<sup>st</sup> and Alameda Streets, the Mangrove property (formerly known as the Nikkei development), and transported underground to Central Avenue south of 1<sup>st</sup> Street, where it would begin excavating westward.
- Tunnel boring activities from the Mangrove property insertion site would allow tunneling to proceed farther down Flower Street to 4<sup>th</sup> Street instead of ending at the proposed 2<sup>nd</sup>/Hope Street station.

### Overview of the LPA Alignment

The LPA is shown in Figure ES-12. The alignment would extend underground from the 7<sup>th</sup> Street/Metro Center Station under Flower Street to 2<sup>nd</sup> Street. Tracks would then proceed east underneath the 2<sup>nd</sup> Street Tunnel and 2<sup>nd</sup> Street to just west of Central Avenue. At 2<sup>nd</sup> Street and the pedestrian signal to the JVP, the tracks would continue underground heading northeast under the JVP and 1<sup>st</sup> and Alameda Streets.

*Key refinements were made to the LPA to reduce or avoid previously identified impacts*



See Figure ES-12 on pg ES-16

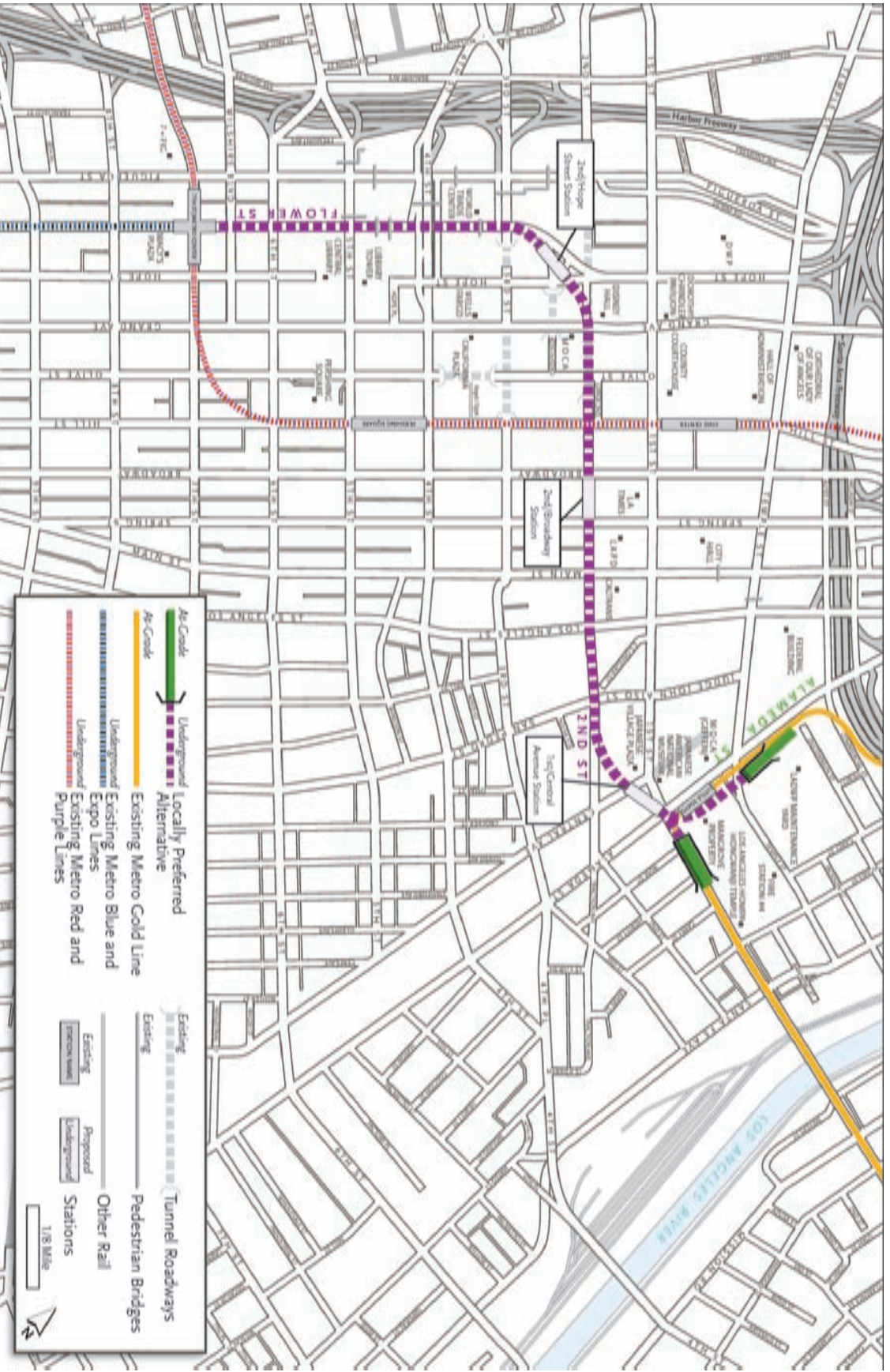


Figure ES-12: Locally Preferred Alternative

An underground junction would be constructed beneath the intersection of 1<sup>st</sup> Street and Alameda Street. Two portals would be needed to facilitate the connection between the underground Regional Connector and the at-grade Metro Gold Line branches to Pasadena/Montclair and the Eastside. The new portals would be located to the north and east of the junction, where trains would rise to the surface to connect to the Metro Gold Line heading north to Montclair and east towards I-605.

One portal would be located north of Temple Street, northeast of the existing at-grade Little Tokyo/Arts District Station and Metro Gold Line tracks. This portal would rise to the north within the maintenance yard of the City of Los Angeles Department of Water and Power (LADWP) and connect to the existing LRT bridge over US 101, allowing a connection to the Metro Gold Line to Montclair. Tracks would run from the junction under 1<sup>st</sup> and Alameda Streets through a new tunnel crossing beneath Temple Street and the Mangrove property (the property on the northeast corner of 1<sup>st</sup> and Alameda Streets) to the new portal. This new tunnel would run immediately east of the existing Little Tokyo/Arts District Station and Metro Gold Line tracks.

The second portal would be located within 1<sup>st</sup> Street between Alameda and Garey Streets, with the portal opening just west of Garey Street. Tracks would rise to the east within this second portal and connect at-grade to the existing Metro Gold Line tracks toward I-605. 1<sup>st</sup> Street would be widened to the north to accommodate this second portal and maintain the existing number of through lanes. The widening would initiate at Alameda Street and continue east, significantly tapering down as the alignment crosses Hewitt Street, returning to the existing condition prior to the Los Angeles Hampa Hongwanji Buddhist Temple, to join the existing 1<sup>st</sup> Street LRT tracks, just west of the 1<sup>st</sup> Street Bridge.

A temporary easement across the property northeast of 1<sup>st</sup> and Alameda Streets, the Mangrove property, would be needed for insertion of the TBM, to stage construction of both portals, to connect to the Metro Gold Line LRT bridge, and to construct the tunnels beneath Temple Street and the Mangrove property. During construction, tracks would be installed in this area at-grade to allow service to proceed on the Metro Gold Line while construction activities occur within the project area.





A summary comparison of alternatives is shown in Table ES-1. After the Draft EIS/EIR was published, adjustments to the ridership modeling baseline data were made in response to input received from FTA. Since the Metro Board of Directors had already designated the Fully Underground LRT Alternative as the LPA by the time FTA's comments were received, only the ridership modeling data for the No Build Alternative and the LPA were updated. The ridership modeling data for the other alternatives were not updated. As such, only the LPA modeling data is valid for the purposes of comparison with the No Build Alternative. The TSM Alternative and other build alternatives from the Draft EIS/EIR are shown for reference only.

**Table ES-1: Summary Comparison of Alternatives**

Criteria	No Build	TSM	At-Grade Emphasis	Underground Emphasis	Locally Preferred Alternative <sup>1</sup>
<b>Alternative Features</b>					
New Daily System-wide Linked Trips in 2035	N/A	5,300	12,300	14,900	17,700
<b>Number of Transfers Needed to Reach:</b>					
Long Beach from Pasadena	2	2	0	0	0
East Los Angeles from Culver City	2	2	0	0	0
East Los Angeles from Long Beach	2	2	1	1	1
Culver City from Pasadena	2	2	1	1	1
Little Tokyo/Arts District from Long Beach	2	1 <sup>2</sup>	1	0	0
Little Tokyo/Arts District from Culver City	2	1 <sup>2</sup>	0	1	0
Little Tokyo/Arts District from Pasadena	0	0	1	0	0
Little Tokyo/Arts District from East Los Angeles	0	0	0	1	0
<b>Travel Times in Minutes From<sup>3</sup>:</b>					
Chinatown Station to Pico Station	20	25 <sup>2</sup>	17	15	13
Pico/Aliso Station to Pico Station	23	30 <sup>2</sup>	15	10	11
<b>Other Features:</b>					
New Rail Stations	0	0	3	3	3
Alternative Length (miles)	N/A	N/A	1.8	1.6	1.9
FTA New Starts Cost-Effectiveness Index (CEI) vs. TSM	N/A	Base	\$20.44	\$17.12	\$12.65 <sup>1</sup>
Capital Costs (millions, 2009\$)	None	\$67.3	\$899.2	\$1,120.1	\$1,167.8 <sup>4</sup>
2035 Operating and Maintenance Costs (millions, 2009\$)	Base	\$14.3	\$11.9	\$5.1	\$6.0 <sup>4</sup>
Annual Greenhouse Gas Reduction (metric tons CO <sub>2</sub> e)	Base	51,400	56,900	58,200-58,300	59,500-59,600
<b>Environmental Impacts Remaining After Mitigation</b>					
<b>Adverse/Significant</b>					
Temporary Impediment of Traffic/Transit/Bicycle/Pedestrian Circulation During Construction	No	No	Yes	Yes	Yes
Number of Intersections with Significantly Worsened Traffic Congestion due to Operations	Base	None	AM: 11 PM:15	AM: 2 PM: 3	AM: 1 PM: None
Conflict with Applicable Land Use Plans	Yes	Yes	No	No	No
Possible Destruction of Unknown Paleontological Resources	No	No	No	Yes	Yes
Use of Resources Protected Under Section 4(f) of the USDOT Act of 1966	No	No	Yes	De Minimis	De Minimis
<b>Maximum Construction Emissions (lbs./day):</b>					
Volatile Organic Compounds (VOC)	None	None	119	147	193
Nitrogen Oxides (NO <sub>x</sub> )	None	None	432	488	626
Carbon Monoxide (CO)	None	None	908	998	1,304
Change in Nitrogen Oxides Emissions due to Operations Compared to No Build (lbs./day)	Base	+16	-6	-6	-6
<b>Disproportionate Burden on a Minority Community After Mitigation:</b>					
Traffic Congestion Deterioration	No	No	No	Yes	No
Community and Neighborhood Impacts	No	No	No	Yes	No
Visual and Aesthetic Impacts	No	No	Yes	Yes	No

<sup>1</sup> No Build and LPA reflect adjustments to ridership modeling baseline data since publication of the Draft EIS/EIR

<sup>2</sup> Assumes use of TSM shuttles instead of the Metro Red/Purple Lines

<sup>3</sup> Assumes five minutes for each transfer.

<sup>4</sup> Year 2011 dollars.