



Chapter 2

Alternatives Considered

This chapter discusses how the alternatives studied in this Draft EIS/EIR were developed and describes the features of each alternative. All of the proposed build alternatives meet the purpose and need outlined in Chapter 1. **Figure 2-1** shows all of the possible light rail transit (LRT) routes and stations studied in this Draft EIS/EIR.

2.1 Alternatives Evaluation, Screening, and Selection Process

As indicated in Chapter 1, Purpose and Need, studies of major rail transit infrastructure investments on the Eastside date back to the 1980s, and loose plans for a major east-west route through Los Angeles County exist from prior decades.

Metro initially selected an extension of the Metro Red Line heavy-rail subway as the locally preferred alternative (LPA) for the Eastside Transit Corridor. This project was later re-scoped and, following the *2000 Eastside Transit Corridor Studies: Re-Evaluation Major Investment Study*, an extension of the Pasadena Blue Line light rail project (later named the Metro Gold Line) was identified as the new LPA for the Eastside Transit Corridor.

In 2002, Metro completed the environmental process for the first phase of what is now known as the Metro Gold Line Eastside Extension. As a result of this effort, the Metro Gold Line Eastside Extension's first phase was completed in November 2009. Atlantic Station, located on Pomona Boulevard between Beverly Boulevard and Atlantic Boulevard, is the terminus.

In 2007, Metro initiated plans for a high-capacity transit connection from the Eastside Extension Phase 1 Project to eastern Los Angeles County by

preparing an *Eastside Transit Corridor Phase 2 Alternatives Analysis (AA) Report* and an addendum to that report (2009).

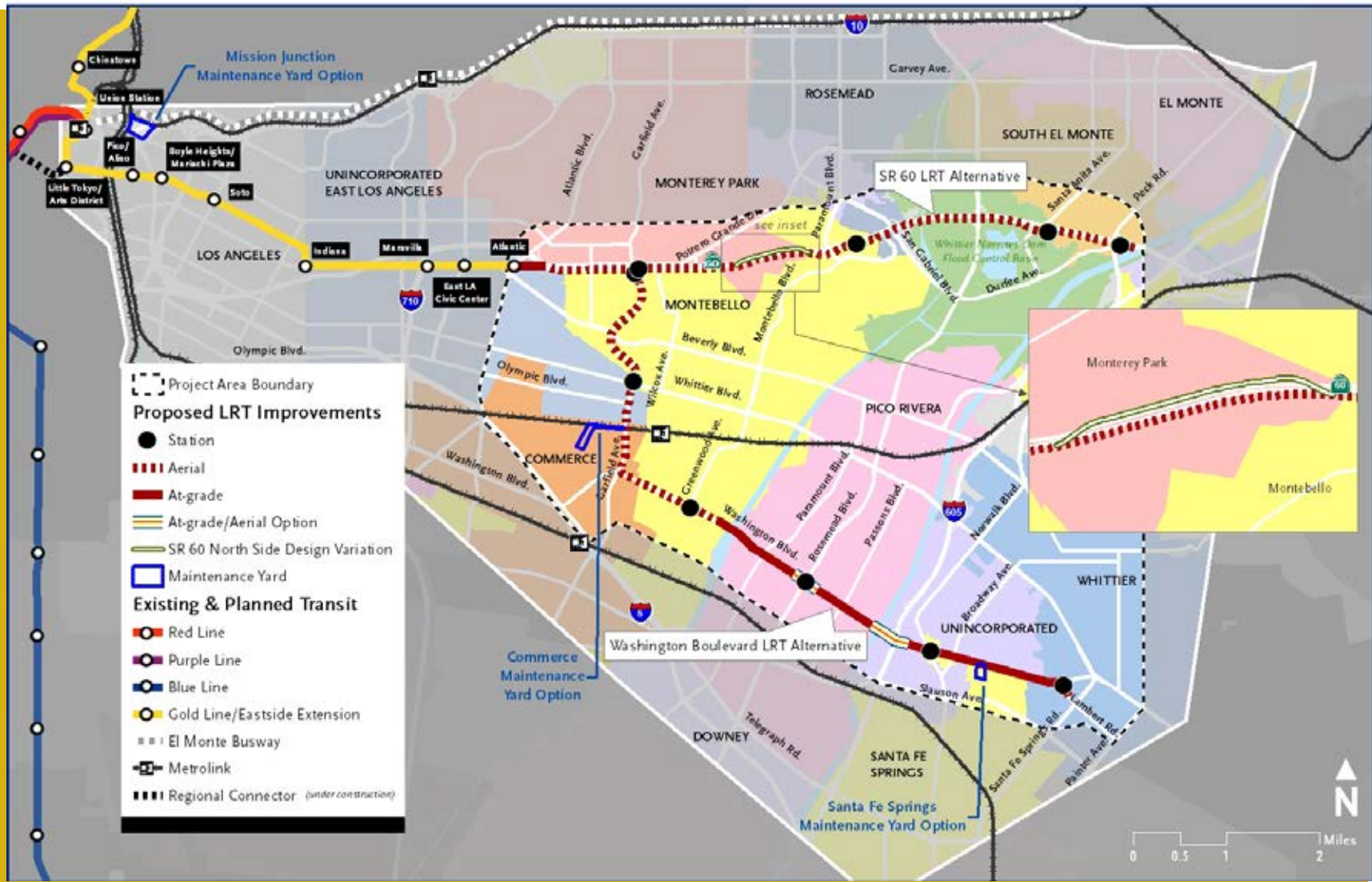
The Metro Board of Directors authorized Metro staff to study two build alternatives, in addition to the No Build and transportation systems management (TSM) alternatives, during the Draft EIS/EIR phase in October 2009. Regional plans and funding measures that identify the Eastside Transit Corridor Phase 2 Project include the Southern California Association of Governments (SCAG) *Regional Transportation Plan (RTP)*, the Metro *2009 Long Range Transportation Plan (LRTP)*, and Measure R.

2.1.1 Evaluation Criteria

The Eastside Transit Corridor Phase 2 Project alternatives presented in this Draft EIS/EIR build on the findings of previous studies beginning in 2007. The development of light rail alternatives for this study included the following processes:

- Identification of alternatives
- Screening of alternatives
- Project scoping and refinement of alternatives
- Detailed analysis of the refined alternatives

A detailed set of evaluation criteria, with related performance measures, was developed to provide the public and decision-makers with information on the benefits and impacts of the alternatives, as well as the differences between the options. Different levels of evaluation criteria were used during each screening step as the technical information and comments on the alternatives became more specific.



Source: Metro, CDM Smith 2011.

Figure 2-1. Build LRT Alternatives Studied in the Draft EIS/EIR

The following evaluation categories were used to screen alternatives against the purpose and need goals:

- Transportation System and Mobility Improvements
- Transit Supportive Land Use and Economic Benefits
- Financial Feasibility
- Public and Agency Input

2.1.2 Screening and Selection Process

The first step in identifying alternatives was accomplished during the AA process. The AA Report evaluated a wide range of reasonable alternatives, including different routes, modes, configurations, and station locations. The Addendum to the AA Report evaluated a refined set of alternatives to determine which alternatives to study in this Draft EIS/EIR. One of the primary purposes of the AA process was to screen the alternatives and identify those that would be most feasible with regards to cost and constructability, and would best meet the goals of the project, which are described in Chapter 1, Purpose and Need. NEPA and CEQA allow alternatives to be eliminated from further consideration before the Draft EIS/EIR process begins. Alternatives may also be added, removed, or refined following the NEPA/CEQA scoping process and early coordination with agencies and stakeholders. Following the release of the Draft EIS/EIR, Metro Board of Directors may select an LPA.

The AA process included initial technical analysis and community and public agency feedback gathered at meetings and public workshops. The reports evaluated potential alternatives based on their environmental impacts, efficiency, financial feasibility, effectiveness, and equity. The screening process, which is documented in the Final AA Report and the AA Report Addendum (Appendix G) and is incorporated into this Draft EIS/EIR, proceeded as follows:

Initial Set of Conceptual Alternatives: During the preliminary screening step, a wide range of 47 conceptual alternatives was identified from previous corridor studies and through this project's early scoping process. Early scoping provided open communication with the general public and stakeholders in order to compile information for a preliminary list of alternatives. Early scoping consisted of public outreach, facilitation of meetings and workshops, development of collateral materials, and documentation of public input.

Initial Screening of Alternatives: Based on stakeholder input and technical analysis, primarily evaluating constructability and operational feasibility, the initial set of conceptual alternatives was narrowed to 17 initial alternatives. The initial alternatives included 14 LRT alternatives and three bus rapid transit (BRT) options for further study.

The 17 initial alternatives, along with the required No Build and TSM options, were subjected to an initial level of technical and environmental analysis to identify the highest-performing alternatives. Based on a comparative analysis and public feedback, the 17 initial alternatives were refined to arrive at a smaller set of five refined alternatives that best met the project goals, were technically viable, and had stakeholder support.

The five refined alternatives were evaluated through the screening process and criteria were documented in the AA Report (Appendix G of this Draft EIS/EIR). This screening process involved more specific evaluation information including engineering and operational analysis, initial capital and operating cost estimates, ridership forecast modeling, and community and environmental impacts analysis.

Based on technical analysis and public input, it was determined that LRT technology was the most appropriate transit mode for Phase 2 of the Eastside Transit Corridor given the higher ridership projections and resulting capacity needs. A BRT alternative was identified and evaluated during this final screening level. Technical analysis showed that the BRT option produced the lowest ridership

of the alternatives and did not provide any cost savings when compared to the LRT alternatives. In addition, LRT travel times were shorter because the need for transfers was eliminated.

The AA process was completed in January 2009 and documented in the Eastside Transit Corridor Phase 2 AA Report. At that time, the Metro Board of Directors approved four final build alternatives for further refinement and analysis through a conceptual engineering-based evaluation.

Conceptual Engineering Screening: As part of the Addendum to the AA Report, conceptual engineering drawings were created to allow for a more detailed analysis of the four alternatives including operating speeds and travel times, ridership forecasts, travel benefits and costs, as well as environmental impacts. Two of the four build alternatives were not recommended for further consideration: the Beverly Boulevard LRT Alternative and the Beverly/Whittier LRT Alternative. The Beverly Boulevard LRT Alternative was not recommended for further consideration because of lack of community support; environmental impacts related to visual, traffic, safety, noise, and vibration; lack of compelling transit rider benefits, since ridership, user benefits, and travel times were not promising enough when balanced against the possible community impacts; and engineering challenges, such as Southern California Edison (SCE) and Union Pacific Railroad (UPRR) not allowing at-grade or aerial LRT operations through their property, future plans within UPRR tracks, and Section 4(f) issues associated with acquisitions within the Whittier Greenway. The Beverly/Whittier LRT Alternative was not recommended for further consideration because of lack of community support; community impacts; and lack of compelling transit rider benefits.

The AA effort resulted in the advancement of two build alternatives (the State Route 60 (SR 60) LRT Alternative and the Washington Boulevard LRT Alternative), along with the No Build and TSM Alternatives, for further analysis in this Draft EIS/EIR.

2.2 Alternatives Evaluated in this Draft EIS/EIR

The alternatives evaluated in this Draft EIS/EIR include:

- No Build Alternative (**Figure 2-2**)
- TSM Alternative (**Figure 2-3**)
- SR 60 LRT Alternative (**Figure 2-4**) – with SR 60 North Side Design Variation (**Figure 2-4**)
- Washington Boulevard LRT Alternative (**Figure 2-8**)

For detailed overview maps of the proposed stations, staging areas, and maintenance yard options under the build alternatives, refer to Appendix HH, Conceptual Engineering Drawings. **Table 2-1** provides an overview of the operating characteristics of the alternatives.

2.2.1 No Build Alternative

The No Build Alternative is used for comparison purposes to assess the relative benefits and impacts of constructing a new transit project in the project area versus implementing only currently planned and funded projects. The No Build Alternative is also a required alternative for comparison as part of the NEPA/CEQA environmental analysis.

The No Build Alternative includes all of the projects that are identified for construction and implementation in the “Constrained Plan” of Metro’s 2009 LRTP (through the year 2035). This plan includes the Metro Gold Line Eastside Extension currently in operation, but does not include any project resulting from this Phase 2 study effort.



Source: Metro, CDM Smith 2011.

Figure 2-2. No Build Alternative



Source: Metro, CDM Smith 2011.

Figure 2-3. TSM Alternative

Table 2-1. Operating Characteristics of the Alternatives

Alternative	Transit Service	Operations	Peak-Hour Trip Time	Signal Priority or Re-Coordination
No Build Alternative	No improvements beyond existing transit service, except those listed in Metro’s 2009 LRTP. Some service adjustments may occur to accommodate these service improvements.	All bus and rail lines would operate using a fleet of vehicles similar to those currently in service or identified for purchase in the LRTP.	>60 minutes from the existing Eastside Extension Atlantic Station to the terminus of the SR 60 LRT Alternative. >50 minutes from the Atlantic Station to the terminus of the Washington Boulevard LRT Alternative.	No new signal priority or coordination beyond what is included in LRTP projects.
TSM Alternative	All provisions of the No Build Alternative plus enhancement of the east-west bus service in the same corridor as the build alternatives. The TSM Alternative also includes enhancements to north-south bus services that would feed and integrate with the improved east-west transit spine.	The standard 40-foot buses, depending on rider demand.	30 minutes from the existing Eastside Extension Atlantic Station to the terminus of the SR 60 LRT Alternative. 42 minutes from the Atlantic Station to the terminus of the Washington Boulevard LRT Alternative.	Signal priority would be granted to oncoming buses where possible.
SR 60 LRT Alternative	All provisions of the No Build Alternative and the TSM Alternative bus service (except the Pomona Freeway Flyer – operator to be determined). Light rail trains would operate on an east-west route (I-605 to Santa Monica) using the Regional Connector Transit Corridor tracks. Trains would run every five minutes on each route during peak hours, yielding trains every 2 ½ minutes in each direction on the new Eastside Transit Corridor Phase 2 tracks.	Light rail trains would be used that are similar to Metro’s current fleet.	13 minutes from the existing Eastside Extension Atlantic Station to the Peck Road station.	No signal preemption or priority treatments were assumed for LRT operation, as Eastside Transit Corridor Phase 2 would operate similarly to Phase 1, with partial priority treatments where minor modifications to traffic signals would enable trains to proceed through the intersection. ¹

Table 2-1. Operating Characteristics of the Alternatives (continued)

Alternative	Transit Service	Operations	Trip Time	Signal Priority or Re-Coordination
Washington Boulevard LRT Alternative	All provisions of the No Build Alternative and the TSM Alternative bus service, with some minor variations. Light rail trains would operate on an east-west route (Whittier to Santa Monica) using the Regional Connector Transit Corridor tracks. Trains would run every five minutes on each route during peak hours, yielding trains every 2 ½ minutes in each direction on the new Eastside Transit Corridor Phase 2 tracks.	Light rail trains would be used that are similar to Metro's current fleet.	17.5 minutes from the existing Eastside Extension Atlantic Station to the Lambert Road station.	No signal preemption or priority treatments were assumed for LRT operation, as Eastside Transit Corridor Phase 2 would operate similarly to Phase 1, with partial priority treatments where minor modifications to traffic signals would enable trains to proceed through the intersection.

Source: CDM Smith, AECOM, and Metro 2012.

¹ Since a majority of this alternative is grade-separated, partial signal priority treatments would only be made at two intersections (Atlantic Boulevard/Pomona Boulevard and Pomona Boulevard/Hill Street) along the at-grade segment of the alignment.

It also includes the construction of the Metro Crenshaw/Los Angeles International Airport (LAX) Line, the LAX People Mover, the extension of the Metro Purple Line to Westwood, the Metro Expo Line to Santa Monica, the Airport Metro Connector, and the South Bay Metro Green Line Extension. The plan also includes construction of the Regional Connector that will connect existing lines through downtown Los Angeles. After construction of the Regional Connector, operations of the Metro Gold Line Eastside Extension will be modified. Operations on the Metro Expo and Metro Gold Line Eastside Extension lines will be combined, allowing east-west trains to operate between Santa Monica and East Los Angeles without requiring riders to transfer. It will also allow operations of Metro Blue Line and Metro Gold Line from Union Station to Montclair to be combined, enabling north-south trains to operate between Montclair and Long Beach, also without the need for riders to transfer. Bus services will be reorganized and expanded to provide connections with these new rail lines. Figure 2-2 displays the No Build Alternative.

In addition to bus services, the No Build Alternative includes two Metrolink commuter rail routes, each of which has one station located within the project area:

- Riverside Line – Providing service between Riverside and Union Station – The station is located in an industrial area near the Commerce/Montebello border east of Garfield Avenue.
- Orange County/91 Lines – Providing service between Orange County/Riverside and Union Station – The station is located west of Garfield Avenue along the southwest edge of the project area.

Both of these Metrolink stations are served by existing bus routes.

The No Build Alternative also includes all of the projects that are identified for construction and implementation in the financially constrained project list of the *2012-2035 RTP*, developed by SCAG to present the transportation vision for the region through year 2035. The RTP outlines future highway projects, including providing one high-occupancy vehicle lane in each direction on Interstate 5 (I-5) from I-605 to I-710. No other major roadway improvements in the project area are included in the financially constrained RTP.

2.2.2 TSM Alternative

The TSM Alternative is intended to address the same mobility needs as the two LRT build alternatives, but does not include the construction of a fixed guideway facility.

The TSM Alternative includes all of the transit and roadway provisions of the No Build Alternative, plus proposed enhancements to existing bus service. Under the TSM Alternative, the basic approach is to enhance the east-west bus service in the same corridor as the build alternatives to develop the TSM network. In order to leverage the investment in an east-west transit spine, the TSM Alternative also includes enhancements to north-south bus services that would feed and integrate with the improved east-west spine. The TSM Alternative is presented in Figure 2-3.

The key elements of the TSM Alternative are the creation of an east-west “transit spine” along with new north-south feeder service. The transit spine would include new “Pomona Freeway Flyer” (operator to be determined) express service from the existing Metro Gold Line Eastside Extension terminus at Atlantic Station to Crossroads Parkway near SR 60, supported by enhanced bus service provided by Montebello Bus Lines. **Table 2-2** and **Table 2-3** provide more information regarding the east-west “transit spine” and north-south feeder service, respectively.

Table 2-2. New East-West Transit Spine

Line ¹	Service Type	Operating Characteristics	
		Peak Period	Off-Peak Period
New Pomona Freeway Flyer	Express service	5 min. headways/50 min. travel time	10 min. headways/30 min. travel time
Route 40 on Beverly Blvd.	New Rapid bus service	5 min. headways/50 min. run time	10 min. headways/35 min. run time
Route 10 on Whittier Blvd.	Additional service	5 min. headways/50 min. run time	10 min. headways/35 min. run time
Route 50 on Washington Blvd.	Additional service	5 min. headways/90 min. run time	10 min. headways/75 min. run time

Notes: min. = minutes

¹ Operator for new bus service to be determined.

The north-south feeder service would include new Rapid bus service on Montebello Bus Lines Route 30 on Garfield Avenue, new limited stop service on Montebello Bus Lines Route 20 on Montebello Boulevard, and additional service on Metro Route 265 on Paramount Boulevard, Metro Route 266 on Rosemead Boulevard, and Foothill Transit Route 274 on Workman Mill Road. It would also include new Route 370 Limited Stop service in addition to existing Metro Route 270 service on Peck Road and Workman Mill Road.

2.2.3 SR 60 LRT Alternative

The SR 60 LRT Alternative would extend the Metro Gold Line Eastside Extension, a dedicated, dual track LRT system with overhead catenary wiring, approximately 6.9 miles east to Peck Road. More than 94 percent of this alternative would operate in

Table 2-3. New North-South Feeder Service

Line ¹	Service Type	Operating Characteristics	
		Peak Period	Off-Peak Period
Montebello Bus			
Route 30 on Garfield Ave.	New Rapid bus service	45 min. headways/75 min. run time	60 min. headways/50 min. run time
Route 20 on Montebello Blvd.	New limited stop service	15 min. headways/95 min. run time	30 min. headways/75 min. run time
Metro Bus			
Route 265 on Paramount Blvd.	Additional service	30 min. headways/80 min. run time	45 min. headways/65 min. run time
Route 266 on Rosemead Blvd.	Additional service	25 min. headways/150 min. run time	40 min. headways/100 min. run time
Route 370	New limited stop service	60 min. headways/70 min. run time	60 min. headways/65 min. run time
Foothill Transit			
Route 274 on Workman Mill Rd.	New express service	60 min. headways/95 min. run time	60 min. headways/55 min. run time

Notes: min. = minutes

¹ Operator for new bus service to be determined.

an aerial configuration, primarily within the southern portion of the SR 60 Freeway right-of-way (ROW). Primary considerations for an aerial configuration, which are unique to this alternative, include the ability to accommodate potential future freeway enhancements, avoidance of on- and off-ramps, and ability to negotiate areas where ROW was limited. Where possible, at-grade

configuration is proposed including just east of Atlantic Boulevard and for a segment on the north side of the freeway. Although in certain areas transitions between aerial and at-grade or cut sections of California Department of Transportation (Caltrans) ROW were possible, operations, maintenance, and construction costs were a concern due to the various steep grade transitions that would need to occur. Underground segments for this alternative were not pursued due to the high cost compared to the potential ridership, as well as the extreme difficulty in traversing underground within certain areas such as the Operating Industries, Inc. (OII) landfill site and the Rio Hondo River. **Figure 2-4** illustrates the SR 60 LRT Alternative.

The proposed alignment runs at-grade east from the Metro Gold Line Eastside Extension Atlantic Station in the median of Pomona Boulevard, where the alignment transitions to an independent aerial structure within the south side of the SR 60 Freeway ROW to Garfield Avenue. Specifically, the LRT alignment would transition from Pomona Boulevard to the Caltrans ROW near the intersection of Pomona Boulevard and Sadler Avenue. The SR 60 LRT Alternative continues east beyond Garfield Avenue in the freeway ROW, terminating in the vicinity of the SR 60/Peck Road interchange in the city of South El Monte, with tail tracks for storage extending farther east.

The typical ROW requirement for this alternative is generally 32 feet for the elevated structure and 49 feet at station locations. This alternative includes four stations with supporting park and ride facilities. **Table 2-4** summarizes the extent of ROW requirements for the portions of the SR 60 LRT Alternative and the SR 60 North Side Design Variation within the Caltrans ROW.

The elevated structure throughout the alignment is supported by a total of 176 octagonal columns that are seven feet in diameter. These single columns are approximately 150 feet apart from one another. Over the Rio Hondo, four larger columns that are approximately nine feet wide support the guideway to account for the longer spacing. Near and at

station locations, the platforms are supported by pairs of octagonal columns that are 5.5 feet in diameter, typically spaced 150 feet apart. In total, there are 49 column pairs that support the station platforms throughout the alignment.

Fifteen crossover structures, mostly over on- and off-ramps, would be located within the Caltrans ROW. Their widths vary depending on the size of the road below them. One structure is proposed over the eastbound off-ramp at Findlay Avenue adjacent to Via Campo; five structures are proposed over the eastbound Garfield exit ramps; one structure over the Via Campo/Vail Avenue on-ramp; three structures over the Paramount Boulevard off-ramp; one structure over the San Gabriel Boulevard off-ramp just north of the Shops at Montebello; two structures over the Rosemead Boulevard off-ramp; one structure over the Rosemead Boulevard on-ramp; and one structure over the Peck Road on-ramp. No emergency generators are identified for this alternative.

The alignment would cross over the following streets that utilize bridges to cross over the SR 60: Greenwood Avenue, Paramount Boulevard, San Gabriel Avenue, Rosemead Boulevard, and Santa Anita Avenue.

The SR 60 LRT Alternative would travel beneath transmission lines at two locations, where the SR 60 Freeway crosses over Vail Avenue and near the intersection of Paramount Boulevard and Town Center Drive. A minimum 12 feet of clearance would be provided between the LRT structure, including the overhead catenary service (OCS) wires, and the lowest point of the transmission lines. Clearances beneath transmission lines would be provided in accordance with the applicable regulations of each provider.

Partial signal priority would be provided to the LRT at signalized intersections along the at-grade portion of the alignment. Traction power substations (TPSS), track crossovers, emergency generators, and other ancillary facilities that provide power and help to operate the LRT would also be constructed along the route; more information about these ancillary facilities is



Source: Metro, CDM 2011. Note: Please see Figure 2-3 for TSM enhancements that are also included as part of the SR 60 LRT Alternative (with the exception of the Pomona Freeway Flyer – operator to be determined). The proposed Mission Junction Maintenance Yard is located outside of the view shown in this figure. Please refer to Figure 2-1 for the location of the proposed maintenance facility under the SR 60 LRT Alternative.

Figure 2-4. SR 60 LRT Alternative

provided below. Conceptual engineering drawings showing the alignment plans and profiles, which include station site and park and ride footprints, are incorporated into this Draft EIS/EIR as Appendix HH, Conceptual Engineering Drawings. Station design may be subject to refinement during final design, therefore ultimate impacts may be lesser in magnitude than the impacts discussed in this Draft EIS/EIR.

The SR 60 LRT Alternative also includes all No Build Alternative transit and roadway improvements and TSM Alternative bus services, with the exception of the Pomona Freeway Flyer (operator to be determined).

An “SR 60 North Side Design Variation” is analyzed to address concerns raised by the U.S. Environmental Protection Agency (USEPA) about potential impacts to the former Oil landfill site south of SR 60 in the city of Monterey Park.

Table 2-4. Summary of Caltrans Right-of-Way Requirements

LRT Characteristic	No Build Alternative	TSM Alternative	SR 60 LRT Alternative		Washington LRT Alternative	
			Total Alternative	Within Caltrans ROW	Total Alternative	Within Caltrans ROW
Miles of Alignment	0	0	6.9 miles	6.59 miles	9.5 miles	1.09 miles
Stations	0	0	4	4	6	0
Park and Ride Facilities	0	0	4	4	5	0
Columns	0	0	307 (306)	307 (306)	226	43
Crossover Structures	0	0	4	4	8	0
TPSS Facilities			8	2	10	1

Source: AECOM, CDM Smith 2013.

Note:

(#) = Number of features within the Caltrans ROW for the SR 60 North Side Design Variation. All other numbers are the same under the SR 60 LRT Alternative and the SR 60 North Side Design Variation.

With this variation, instead of running along the edge of the landfill site on the south side of SR 60, the LRT alignment would transition from the south side to the north side of SR 60 just west of Greenwood Avenue, continue east along the north side of the SR 60 within Caltrans ROW, and return to the south side of SR 60 approximately one-quarter mile west of Paramount Boulevard (see Figure 2-4). This design variation would include approximately 3,500 feet of at-grade and aerial alignment on the north side of SR 60, and two new bridges to carry the LRT guideway over SR 60. The two new bridges to carry the LRT alignment over SR 60 Freeway would be 32 feet wide. One five-foot by 12-foot elliptical column would be located in the

median of the freeway to support the structure crossing to the north side. A seven-foot-wide single column would be located just west of Greenwood Avenue to support the descending structure. The LRT alignment would cross Greenwood Avenue at-grade, just north of the portion of Greenwood Avenue that transitions to a bridge over the SR 60 Freeway. A four-sided crossing gate would be provided at this location to prevent private vehicles from crossing the tracks when trains are present. Mechanically stabilized earth (MSE) walls and retaining walls 32 feet in width would support the alignment throughout the length of the north side alignment, approximately 0.6 miles, before it transitions back to the south side.

Returning to the south side of the freeway, one five-foot by 12-foot elliptical column in the median of the freeway would support the structure crossing and then return to a seven-foot-wide single column approximately 200 to 300 feet west of Paramount Boulevard. Table 2-3 summarizes the extent of ROW requirements for portions of the alternatives within the Caltrans ROW.

The landfill gas treatment system (LFGTS), which includes two thermal oxidizer stacks, is located on the north side of SR 60 and is used to treat gas collected from the OII landfill site. As shown in **Figure 2-5**, the proposed SR 60 North Side Design Variation LRT track would be at-grade and located more than 120 feet south of the southern LFGTS thermal oxidizer and at a much lower elevation compared to the top of the stacks.

As indicated above, Conceptual engineering drawings showing the SR 60 North Side Design Variation alignment plans and profiles, which include station site and park and ride footprints, are incorporated into this Draft EIS/EIR as Appendix HH, Conceptual Engineering Drawings.

2.2.3.1 Operating Hours and Frequency

The operating hours and schedules for the SR 60 LRT Alternative would be comparable to the weekday, Saturday and Sunday, and holiday schedules for the existing Metro Gold Line. Trains would operate every day from 4:00 AM to 1:30 AM. On weekdays, trains would operate every five minutes during peak hours, every 10 minutes mid-day and until 8:00 PM, and every 15 minutes in the early morning and after 8:00 PM. On weekends, trains would operate every 10 minutes from 9:00 AM to 6:30 PM, every 15 minutes from 6:30 to 7:30 PM and from 7:00 to 9:00 AM, and every 20 minutes in the early morning and after 7:30 PM.

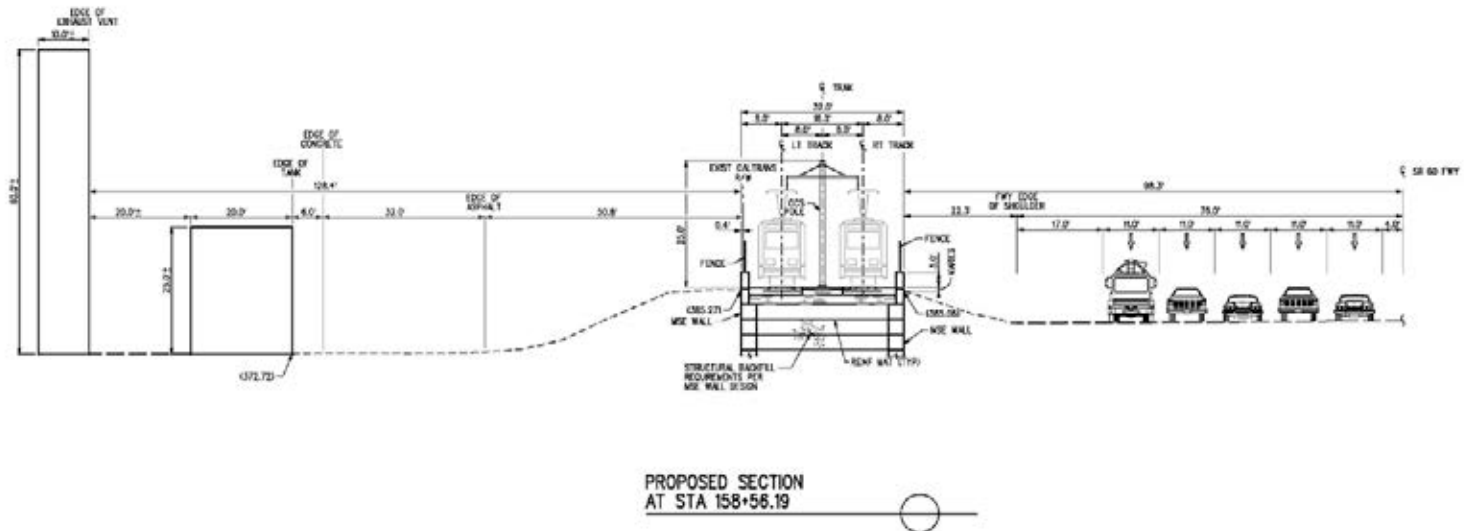
2.2.3.2 Proposed Stations

The SR 60 LRT Alternative has four aerial, center platform stations designed with bus and parking facilities to intercept vehicular and bus travel operating within the east-west freeway corridor and circulating in a north-south direction crossing the freeway. All of the station areas would require

property acquisition to accommodate the stations and related facilities, including park and ride lots. The proposed stations would be designed to be pedestrian- and bicycle-friendly, and could include such elements as enhanced intersections and crosswalks, plazas, pedestrian bridges, bicycle storage/racks, connections to existing bicycle routes, wayfinding, landscaping, and security cameras. The proposed station locations and estimated parking spaces provided at each station are described below. (Refer to Appendix HH, Conceptual Engineering Drawings for station locations.)

Garfield Avenue - This station would be an aerial, center platform station located within the freeway ROW east of Garfield Avenue along Via Campo in the city of Montebello. Station facilities would include on-street bus interface, kiss and ride space, and a park and ride lot of surface and structured parking with approximately 425 parking spaces. The site has roadway access from the SR 60 Freeway ramps to the east, Garfield Avenue to the west, and Wilcox Avenue to the east. Pedestrian access would be provided via existing crosswalks at street level at the intersection of Garfield Avenue and Via Campo, as well as by a pedestrian bridge across Via Campo to create a convenient connection between the station, parking, and commercial uses. Fixed route buses serving the station include Montebello Bus Lines Route 30 on Garfield Avenue and Montebello Bus Lines Route 70 on Via Campo and Wilcox Avenue.

Shops at Montebello – This station would be an aerial, center platform station located on currently private property adjacent to the Shops at Montebello. Facilities would include an off-street bus plaza, kiss and ride space, and a park and ride lot of surface and structured parking with approximately 510 parking spaces. The station would sit between two freeway interchanges that connect with Montebello Boulevard, Paramount Boulevard, and San Gabriel Boulevard for roadway access.



Source: AECOM, CDM Smith 2013.

Figure 2-5. Typical Cross Section of SR 60 North Side Design Variation near Thermal Oxidizer Stack

Pedestrian access would include a pedestrian bridge connection to a vertical circulation element across Town Center Drive, which could be integrated into a parking structure. This station would provide an interface to numerous Metro and Montebello Bus Lines routes that currently serve the existing stop on Town Center Drive, including Montebello Bus Lines Routes 20, 70, 341, and 343 and Foothill Transit Routes 68, 269, and 287.

Santa Anita Avenue – This station would be an aerial, center platform station located on the south side of the freeway to the east of Santa Anita Avenue, within the Whittier Narrows Flood Control Basin, in the city of South El Monte. Station facilities would include on-street bus interface, kiss and ride space, and a park and ride lot of structured parking with approximately 955 parking spaces. The parking structure would be constructed on the same property as the proposed station. Parking within the structure would begin on the second floor. Santa Anita Avenue connects via Durfee Avenue to Pico Rivera to the south, and provides direct access to the heart of South El Monte located to the north and to Whittier Narrows Recreation Area located immediately west of the station site. An existing pedestrian bridge located at Lexham Avenue east of the site provides alternative pedestrian access to portions of South El Monte located north of the freeway. The site is served by Foothill Transit Route 269, which provides access to El Monte Station at the El Monte Busway terminus.

Peck Road – This station would be an aerial, center platform terminus station located within the freeway ROW to the east of Peck Road in the city of South El Monte, outside the boundaries of the Whittier Narrows Flood Control Basin. Station facilities would include an off-street bus plaza, kiss and ride space, and two park and ride lots of surface and structured parking with a total of approximately 1,276 parking spaces.

This station is situated to interface with bus routes that operate north into South El Monte along Durfee Avenue as well as south into Whittier via Workman Mill Road. About one-half mile to the

south, Peck Road connects to an interchange on I-605; therefore, a station at this location could also intercept traffic from communities south via I-605. The site is served by the Metro Route 270 bus, which provides access north to Monrovia and south to Whittier, Santa Fe Springs, and Norwalk. Peck Road also provides a direct route for a shuttle bus connection to Rio Hondo College, which is located just beyond the I-605 Freeway.

2.2.3.3 Special Track Work and Traction Power Substations

Special track work, such as crossovers, is proposed at several locations along the alignment to provide operational flexibility. The following crossover locations would be confirmed during final design once an LPA is designated.

- Crossover would be located just east of Wilcox Avenue
- Crossover would be located just west of Rosemead Boulevard
- Crossover would be located east of the Santa Anita Avenue station
- Crossover would be located just west of the Peck Road station

All four crossovers would be located within the Caltrans ROW. The same crossovers would be used for the SR 60 LRT Alternative with the North Side Design Variation.

As part of the SR 60 LRT Alternative, approximately nine TPSS facilities would be installed at several locations along the alignment to provide adequate electrical power for LRT service. The TPSS includes all the equipment necessary to transform and rectify the voltage required to power the light rail vehicles. The locations of possible TPSS facilities are shown in Figure 2-4 above.

Three TPSS facilities would be located within Caltrans ROW: one at the northeastern corner of Findlay Avenue, the second just north of the OII Superfund Site and west of the Paramount Boulevard exit, and the third in the area between Rosemead Boulevard and the adjacent eastbound on-ramp. As part of the SR 60 North Side Design

Variation one fewer TPSS facility would be located within Caltrans ROW. A TPSS facility would be located north of the SR 60 Freeway outside of the Caltrans ROW on the northern property of the OII Superfund site (as shown in the insert of Figure 2-4), instead of on the south side of the freeway. Refer to **Figures 2-6** and **2-7** for examples of typical crossovers and TPSS facilities, respectively. The track crossovers allow two tracks to cross each other at right angles and electrically isolate one direction from the other.



Figure 2-6. Typical Crossover



Figure 2-7. Typical TPSS Facility

2.2.3.4 Vehicle and Pedestrian Circulation

Compared to the Washington Boulevard LRT Alternative, the SR 60 LRT Alternative would require relatively small changes to the traffic and pedestrian circulation patterns. For the short at-grade segment of the alignment along Pomona Boulevard from Atlantic Boulevard to Sadler Avenue, vehicular and pedestrian crossings would be limited to traffic signal-controlled intersections.

For safety reasons, uncontrolled mid-block vehicular crossings of tracks and mid-block left turns would not be permitted. This would affect access to existing parking lots and commercial uses fronting Pomona Boulevard and would modify existing approach and departure traffic patterns in the area.

Permanent lane reconfigurations would also be needed along Pomona Boulevard between Atlantic Boulevard and Sadler Avenue. Pomona Boulevard would be reduced from two through lanes in the east and westbound direction to one through lane in each direction.

East of Sadler Avenue the alignment would transition to grade-separated and continue within the Caltrans ROW directly south of the SR 60 Freeway. No other lane reconfigurations would be needed except at the intersection of Peck Road and Durfee Avenue. Lane reconfiguration of this intersection approach would be necessary and would change from an eastbound left-turn, all-way middle, and right-turn lane to a shared through-left lane and a right-turn lane.

Design of the SR 60 LRT Alternative would ensure that adequate sidewalk widths are maintained. Where park and ride facilities are introduced at stations, new signalized and clearly-marked walkways would be created for pedestrian circulation to and from the parking facilities and station entrances to avoid potential conflicts with automobiles.

Refer to Section 4.4.1 Pedestrian Facilities of Appendix M, Transportation Impacts Technical Memorandum, for further discussion on the pedestrian environment. Also refer to Appendix K, Urban Design, which includes graphics associated with planned pedestrian and bicycle facilities for each of the proposed build alternatives.

2.2.3.5 Maintenance Yard

Under the SR 60 LRT Alternative, one potential site (referred to as the Mission Junction Maintenance Yard Option to distinguish it from the additional options identified for the Washington Boulevard LRT Alternative) has been preliminarily identified

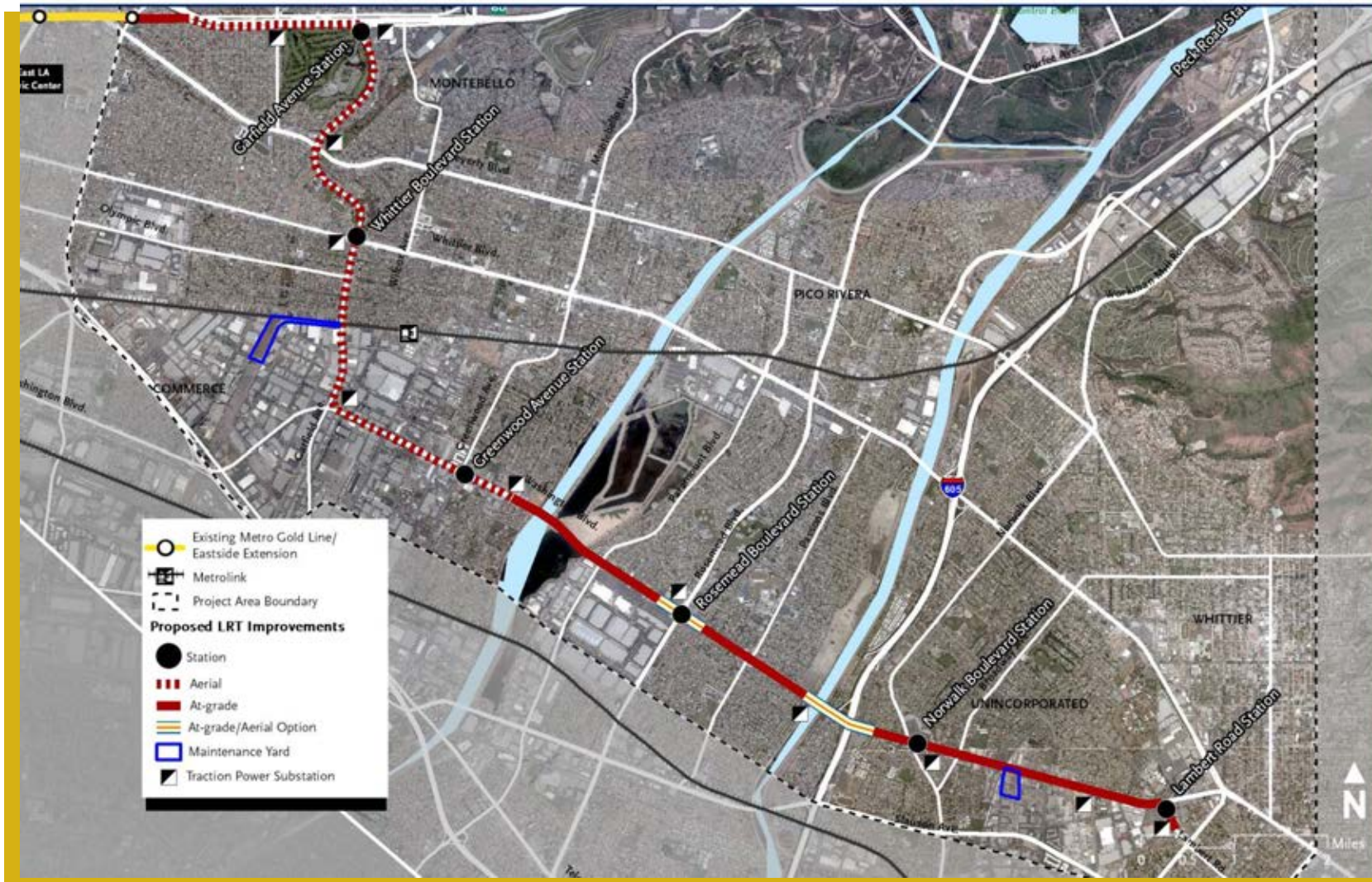
for the location of a new maintenance yard. The site is approximately 11 acres in size and is adjacent to the existing Mission Junction rail facility, generally bounded by I-5 to the east, I-10 to the south, the Los Angeles River to the west, and the Union Pacific rail line to the north as shown in Figure 2-1. This industrial area is zoned for railroads and maintenance yard facilities. The proposed maintenance yard, located on the north side of Mission Road, would be operated in conjunction with the existing Division 10 bus maintenance yard located on the south side of Mission Road, adjacent to the proposed maintenance yard site. The proposed maintenance yard would accommodate daily maintenance, inspection and repairs, and storage of the light rail vehicles (LRVs). The proposed maintenance yard would be designed to accommodate approximately 30 LRVs. In addition to the proposed maintenance yard, Metro may also consider modifying existing facilities to accommodate the additional capacity required to maintain the project's vehicles, or using a proposed maintenance yard in Monrovia that is currently being studied as part of the extension of the Metro Gold Line to Montclair.

2.2.4 Washington Boulevard LRT Alternative

The Washington Boulevard LRT Alternative would extend the Metro Gold Line Eastside Extension, a dedicated, dual track LRT system with overhead catenary wiring, approximately 9.5 miles east to the city of Whittier at Lambert Road. This alternative is proposed to operate in an aerial configuration with columns located in the roadway median or sidewalks, as well as in an at-grade configuration where the street widths are sufficient to accommodate the alignment and potential stations. The selection of the configuration for this alignment during the AA process was a balance of evaluating cost, travel time, ridership, and environmental considerations including safety, traffic, and visual. Specific to this alternative, where truck traffic lessened and ROW was sufficient, an at-grade street running configuration similar to the existing Metro Gold Line Eastside Extension was used. Aerial configurations identified for the

segments below are proposed in order to avoid safety issues related to potential conflicts between freight trucks and the project. These aerial configurations would also minimize traffic impacts to one of only a few north-south corridors to the SR 60 Freeway. Although an underground configuration was considered for portions of this alignment, the cost and ridership projections would not support the intense level of service an underground alignment provides.

Figure 2-8 displays the Washington Boulevard LRT Alternative. The proposed alignment runs at-grade east from the Metro Gold Line Eastside Extension Atlantic Station in the median of Pomona Boulevard, where it then transitions to aerial operations running in the south side of the SR 60 Freeway ROW until it reaches Garfield Avenue. This segment is the same as that described for the SR 60 LRT Alternative, and therefore includes the same Caltrans ROW requirements and structures as that described for the SR 60 LRT Alternative above. Table 2-3 above summarizes the extent of Caltrans ROW requirements for this portion of the Washington Boulevard LRT Alternative. At Garfield Avenue, the Washington Boulevard LRT Alternative turns south in an aerial configuration to operate above Garfield Avenue. The elevated structure would be supported at various locations either by columns straddling both sides of the street to avoid extensive major utilities within the center of the street, or by single columns within the center of the street, where extensive major utilities either do not exist or can be relocated. A typical aerial structure consists of a 7-foot wide octagonal column supporting a 32-foot wide trackway, 30 feet above the ground approximately 150 feet apart with columns located on the sidewalks or parking lanes on either side of the street. At Montebello Boulevard along Washington Boulevard, the alignment transitions to a street running configuration in the center of Washington Boulevard to a terminus station located south of Washington Boulevard just west of Lambert Road, with tail tracks for storage extending south and adjacent to Lambert Road.



Source: Metro; CDM Smith 2011

Note: Please see Figure 2-3 for TSM enhancements that are also included as part of the Washington Boulevard LRT Alternative (see text for exceptions).

Figure 2-8. Washington Boulevard LRT Alternative

The street running segment is a dedicated trackway located in the center of Washington Boulevard with only signalized intersections allowing for cross traffic.

Partial signal priority would be provided to the LRT at signalized intersections. This alternative includes six stations with park and ride facilities at most station locations. In addition, TPSS, track crossovers, emergency generators, and other ancillary facilities would be located along the alignment. Conceptual engineering drawings showing the alignment plans and profiles, which include station site and park and ride footprints, are incorporated into this Draft EIS/EIR as Appendix HH, Conceptual Engineering Drawings. These drawings are provided for illustrative and analysis purposes only and may or may not represent the stations' ultimate shape and design details. This Draft EIS/EIR analyzes maximum potential impacts for each station. Therefore, actual impacts may be smaller in magnitude than the impacts discussed in this analysis.

The Washington Boulevard LRT Alternative also includes all No Build Alternative transit and roadway improvements and TSM Alternative bus services, with the following exceptions:

- The Pomona Freeway Flyer (operator to be determined) would operate between the Garfield Avenue station (instead of the Atlantic Station) and Crossroads Parkway near SR 60.
- Metro Rapid Route 720 would be extended to the Garfield Avenue station to provide connectivity.
- Montebello Bus Lines Route 50 Rapid service would operate between downtown Los Angeles and the Greenwood Avenue station only, as it would duplicate LRT service on Washington Boulevard east of Greenwood Avenue.

Two design variations are being considered for the Washington Boulevard LRT Alternative. The first design variation, the Rosemead Boulevard aerial crossing, would include a grade separation at Rosemead Boulevard. In this variation, the LRT would operate in an aerial configuration in the

vicinity of Rosemead Boulevard. The design variation to the street running configuration of the Washington Boulevard LRT Alternative crossing the San Gabriel River/I-605 would include an aerial crossing over the San Gabriel River/I-605 and a grade separation at Pioneer Boulevard (the San Gabriel River/I-605 aerial crossing). In this variation, the LRT would operate on an aerial structure just south of Washington Boulevard across the San Gabriel River and then return to the median of Washington Boulevard, still in an aerial configuration, over I-605 and Pioneer Boulevard.

2.2.4.1 Operating Hours and Frequency

The operating hours and service frequency for the Washington Boulevard LRT Alternative would be the same as described for the SR 60 LRT Alternative.

2.2.4.2 Proposed Stations

The Washington Boulevard LRT Alternative has six stations located to serve the communities through which this alternative runs. Property acquisition at all stations would be necessary to accommodate the stations, access, and related facilities including park and ride facilities. All of the proposed stations, with the exception of the Whittier Boulevard station, include a park and ride facility. The proposed stations would be designed to be pedestrian- and bicycle-friendly, and could include such elements as enhanced intersections and crosswalks, plazas, pedestrian bridges, bicycle storage/racks, connections to existing bicycle routes, wayfinding, landscaping, and security cameras. The proposed station locations and estimated parking spaces provided at each are described below. (Refer to Appendix HH, Conceptual Engineering Drawings for station locations.)

Garfield Avenue – This station would be an aerial, center platform station located on the southeast corner of Garfield Avenue and Via Campo in the city of Montebello. Property acquisition would be required for station access and facilities, including drop-off space and a park and ride lot of surface and structured parking with approximately 680 parking spaces. This location has access via

Garfield Avenue to points north of SR 60 in Monterey Park and to points south in East Los Angeles and Montebello, as well as accessibility to the freeway ramps located to the east along Via Campo. Land uses within walking distance include the commercial sites east of Garfield Avenue, high-density residential located south along Garfield Avenue, and residential neighborhoods immediately north of the freeway. The station site is served by the Montebello Bus Lines Route 30 bus on Garfield Avenue which provides access to areas north and south. The site could also be developed as an end-of-line stop for buses operating to and from communities to the east via freeway flyer services along SR 60. Finally, both at-grade crosswalks and a pedestrian bridge could be provided to the commercial uses along the east side of Garfield Avenue, which provides an opportunity for possible shared parking.

Whittier Boulevard – This station would be an aerial, side platform station located in the median of Garfield Avenue just north of Whittier Boulevard in unincorporated East Los Angeles. Property acquisition would be required for station access and facilities. No park and ride facility is proposed at the Whittier Boulevard station, as it is designed primarily for walking, drop-off, and bus access due to the lack of an appropriately-sized property and constrained station area circulation patterns. The arterial roadways of Whittier Boulevard and Garfield Avenue would provide auto access to the station for drop-off purposes. The Montebello Bus Lines Route 10 bus could stop adjacent to the site, and Montebello Bus Lines Route 30 and Metro Routes 18 and 66 buses stop at the site along Garfield Avenue.

Greenwood Avenue – This station would be an aerial, side platform station located in the median of Washington Boulevard east of Greenwood Avenue in the city of Montebello. Property acquisition would be required for station access and facilities, including a park and ride lot of surface and structured parking with approximately 340 parking spaces. Roadway access is provided by Washington Boulevard and Greenwood Avenue; the latter roadway swings east approaching the Union

Pacific Railroad (UPRR) and connects via Montebello Way to Montebello Boulevard, which provides access to the central area of Montebello. This site is served by Montebello Bus Lines Route 50 on Washington Boulevard, as well as Montebello Bus Lines Routes 20 and 70 operating north-south along Greenwood Avenue and Montebello Boulevard, respectively.

Rosemead Boulevard – This station would be an at-grade, center platform station located in the center of Washington Boulevard west of Rosemead Boulevard in the city of Pico Rivera.

Property acquisition would be required for station access and facilities, including a park and ride lot of surface and structured parking with approximately 425 parking spaces. This station would be within walking distance of residential neighborhoods located northwest, east, and south of the station. Both Washington Boulevard and Rosemead Boulevard would provide high-capacity vehicular access to the site, and the station would be just over one mile west of the I-605 Freeway interchange along Washington Boulevard. The station would be directly accessible to bus stops located at the Washington/Rosemead intersection, including Montebello Bus Lines Route 50 on Washington Boulevard and Metro Route 266 on Rosemead Boulevard.

If the Rosemead Boulevard aerial crossing design option is chosen, the Rosemead Boulevard station would be an aerial, center platform station located in the median of Washington Boulevard, just west of Rosemead Boulevard in the city of Pico Rivera. The station would remain within the roadway right-of-way. However, access to the station would be from stairwells, escalators, and elevators from the sidewalks and property acquired as part of this alternative. The station would be side-loading (with separate platforms for each direction) with fencing separating the tracks. The platform length and location (i.e. west of Rosemead Boulevard) would remain the same as with the at-grade option.

Norwalk Boulevard – This station would be an at-grade, center platform station located in the median of Washington Boulevard east of Norwalk

Boulevard in Santa Fe Springs. Property acquisition would be required for station access and facilities, including a park and ride lot of surface and structured parking with approximately 680 parking spaces. This station would serve walkable residential neighborhoods located both north and south of the station off Norwalk Boulevard in addition to the commercial properties located along Washington Boulevard itself. Norwalk Boulevard and Washington Boulevard would serve as access routes. In addition, the station is within one-half mile of the Washington Boulevard/I-605 interchange, which would potentially attract traffic from the freeway. This station would connect to Montebello Bus Lines Route 50 on Washington Boulevard and Norwalk Transit System Routes 1 and 9 serving locations north along Workman Mill Road as well as locations south in Santa Fe Springs and Norwalk.

Lambert Road – This station would be an at-grade, center platform station located south of Washington Boulevard west of Lambert Road. Property acquisition would be required at this terminus for station access and facilities, including off-street shuttle access, tail tracks, drop-off space, and park and ride lots of surface and structured parking with a total of approximately 1,020 parking spaces. A station at this location would be located directly opposite the Presbyterian Intercommunity Hospital and would also provide walking access to the commercial corridor along Washington Boulevard. This station is also within walking distance of some residential areas in Santa Fe Springs to the southeast and central Whittier to the northeast and northwest. Washington Boulevard connects to Whittier Boulevard immediately east of the station location, providing access to central Whittier, and Lambert Road provides access to east Whittier as well as Santa Fe Springs via Santa Fe Springs Road. In addition to Montebello Bus Lines Route 50 on Washington Boulevard, this station would connect to Metro Route 270 which provides access to points between Norwalk to the south and a large market area to the south, and the “Sunshine Shuttle” bus serving local destinations.

2.2.4.3 Special Track Work and Traction Power Substations

Special track work, such as crossovers, is proposed at several locations along the alignment to provide operational flexibility. The following crossover locations would be confirmed during final design once an LPA is designated.

- Crossover would be located along Garfield Avenue north of Via San Del Aro
- Crossover would be located along Garfield Avenue north of Madison Avenue
- Crossover would be located along Washington Boulevard right after the alignment transitions from Garfield Avenue to Washington Boulevard
- Crossover would be located along Washington Boulevard just west of the Greenwood Avenue station
- Crossover would be located along Washington Boulevard just west of Crossway Drive
- Crossover would be located along Washington Boulevard east of Pioneer Boulevard
- Crossover would be located along Washington Boulevard just west of Lambert Road
- Crossover would be located along Lambert Road just south of the Lambert Road station

As part of the Washington Boulevard LRT Alternative, TPSS facilities would be installed at several locations along the alignment to provide adequate electrical power for LRT service. The locations of possible TPSS facilities are shown in Figure 2-8, above. The TPSS includes all the equipment necessary to transform and rectify the voltage required to power the light rail vehicles. The track crossovers allow two tracks to cross each other at right angles and electrically isolate one direction from the other. (Refer to Figures 2-6 and 2-7 above for examples of typical crossovers and TPSS sites.)

2.2.4.4 Vehicle and Pedestrian Circulation

The Washington Boulevard LRT Alternative would require more changes to the traffic and pedestrian

circulation patterns compared to the SR 60 LRT Alternative.

The Washington Boulevard LRT Alternative would consist of two section types: aerial and at-grade. For the at-grade portions of the alignment, vehicular and pedestrian crossings would be limited to traffic signal-controlled intersections. For safety reasons, uncontrolled mid-block vehicular crossings of tracks and mid-block left-turns would not be permitted. Left turn parking access and egress is presently allowed at many sites along the alignment. The elimination of mid-block left-turns along the at-grade portions of the alignment would affect access to existing parking lots, loading docks, and commercial frontage, and would modify existing approach and departure traffic patterns in the at-grade segment areas.

Columns would be used to support aerial segments of the alignment and would be located in the roadway median or sidewalks. Adequate sidewalk width exists in areas where the alignment would be aerial to accommodate both columns and pedestrians.

The following permanent lane reconfigurations would be needed under the Washington Boulevard LRT Alternative:

- Pomona Boulevard, between Atlantic Boulevard and Sadler Avenue, would be reduced from two through lanes to one through lane in each direction.
- Garfield Avenue would be reduced to one through lane in each direction at intermittent locations between Madison Avenue and Washington Boulevard.
- Washington Boulevard would be reduced from three through lanes to two through lanes in each direction from Garfield Avenue to Lambert Road.

Lane and sidewalk configurations would be the same with an at-grade or grade-separated LRT facility under the Rosemead Boulevard and San Gabriel River/I-605 crossing options.

Refer to Section 4.4.1 Pedestrian Facilities of Appendix M, Transportation Impacts Technical Memorandum, for further discussion on the pedestrian environment. Also refer to Appendix K, Urban Design, which includes graphics associated with planned pedestrian and bicycle facilities for each of the proposed build alternatives.

2.2.4.5 Maintenance Yard

Under the Washington Boulevard LRT Alternative, three potential sites, as shown in Figure 2-1, have been preliminarily identified for the location of a new maintenance yard:

- Mission Junction Maintenance Yard Option - The first site is adjacent to the existing Mission Junction rail facility, as described above under the SR 60 LRT Alternative.
- Commerce Maintenance Yard Option - The second potential site, approximately 12 acres in size, is proposed to be within the city of Commerce and located west of Garfield Avenue in Southern California Edison's transmission line corridor. The parcel is designated for electrical power facility use and is situated within the San Antonio Rancho known as the Walter L. Vail's 2,000 Acre Tract. Since the LRT tracks would be in an aerial configuration above Garfield Avenue, the lead tracks to the maintenance yard would transition from aerial to at-grade within the southern portion of the UPRR ROW, approximately 1,600 feet away from the mainline on Garfield Avenue. The main entrance to the facility would be off Corvette Street at the southern portion of the site, just west of Saybrook Avenue.
- Santa Fe Springs Maintenance Yard Option - The third potential site, approximately nine acres in size, is located within the city of Santa Fe Springs immediately south of Washington Boulevard and east of Allport Avenue. It is currently occupied by automobile repair and light industrial uses. The lead tracks to the yard would cross the eastbound lanes of Washington Boulevard at-grade.

The proposed maintenance yard would accommodate daily maintenance, inspection and repairs, and storage of the LRVs. In addition to the maintenance yard options, Metro may also consider modifying existing facilities to accommodate the additional capacity required to maintain the project’s vehicles, or using a proposed maintenance yard in Monrovia that is currently being studied as part of the extension of the Metro Gold Line to Montclair.

2.2.5 Ancillary Facilities

Ancillary facilities would be included at each station. Ancillary facilities would include items in the Metro design criteria such as station markers, station entry portal configuration (canopies/pavilions), security cameras, bus shelters, benches, emergency telephones, public telephones, stairs, escalators, elevators, map cases, fare collection, pedestrian and street lighting, hand railing, landscaping, trash receptacles, bike racks and lockers, emergency generators, power boxes, fire hydrants, and artwork.

2.3 Overview of Construction Activities

This section provides a brief summary of the construction methods and types of construction that would be required to implement each proposed build alternative. A more detailed description of construction activities associated with the project is included in Appendix EE, Construction Impacts Technical Memorandum, of this Draft EIS/EIR. The tentative year of opening for the proposed project is 2033. Construction would occur approximately between 2027 and 2032 for either build alternative.

2.3.1 Construction Methods

The development of the LRT alternatives would employ conventional construction methods, techniques, and equipment. All work for development of the transit system would conform to accepted industry specifications and standards, including Best Management Practices (BMPs). As applicable, temporary construction easements

would be required when there is a need to use part of a property for construction staging or equipment use. Project engineering and construction would, at a minimum, be completed in conformance with the following regulations, guidelines, and criteria:

- Metro Design Criteria
- Metro Green Construction Policy
- Metro Construction and Demolition Debris Recycling & Reuse Policy
- Metro Water Action Plan
- Metro Energy Conservation and Management Plan
- Metro Sustainable Rail Plan
- California Building Code
- Standard for Fixed Guideway Transit and Passenger Rail Systems
- National Electrical Code (NFPA 70)
- American Railway Engineering and Maintenance of Way Association Standards (AREMA)
- Metro Operating Rules
- California Public Utility Commission (CPUC) General Orders (Including but not limited to 88, 95, 143-B, and 164-D)
- Metro Sustainability Guidelines
- South Coast Air Quality Management District (SCAQMD) Rule 403
- SCAQMD Clean Air Act Rule 1403— asbestos regulation
- National Pollutant Discharge Elimination System (NPDES)
- Standard Urban Stormwater Mitigation Plan (SUSMP)
- Stormwater Pollution Prevention Plan (SWPPP)

As part of Metro’s construction, sustainability, and conservation guidelines and plans, Metro is committed to using greener, less polluting construction equipment and vehicles;

implementing best practices to reduce harmful emissions in all construction projects performed on Metro properties and rights-of-way; giving preference to recyclable/recycled materials used in construction when feasible; curtailing the use of potable water only to essential services during periods when statewide water conservation measures are in effect; using LED lighting fixtures; and reducing the amount of emissions, especially carbon dioxide (CO₂), caused by required consumption.

Major elements of the two LRT build alternatives include the construction of aerial and at-grade guideways and track work, station platforms, and roadway improvements. These are described below.

2.3.2 Construction Scenarios

2.3.2.1 TSM Alternative

Construction activities for the TSM Alternative would be minimal. Construction would include the installation of new bus stops and associated structures. Activities would occur in the existing street and sidewalk ROW and would require minimal use of construction equipment. The surrounding transportation infrastructure would be maintained. Construction activities would last for approximately one year.

2.3.2.2 SR 60 LRT Alternative

Major construction activities would include guideway construction (at-grade, aerial, and retained-fill); station construction (at-grade and aerial); operating systems installation, including TPSS and OCS; construction of other facilities, including parking structures and a maintenance yard; and associated street widening and reconstruction, demolition, and utility relocation and installation work. The construction period would last approximately four years. Surface streets would be impacted through intermittent closures and lane reductions for a total of 28 to 45 months.

The SR 60 North Side Design Variation alignment would include two new bridges that would traverse over the SR 60 Freeway. It is anticipated that the beginning of construction of each bridge would lag behind the previous bridge by approximately four

months and that bridges may be under construction simultaneously.

In addition, several overnight closures of SR 60 would likely be required to erect falsework or place pre-cast structural elements over the freeway.

Figure 2-9 and **Figure 2-10** show the construction methods for both the SR 60 LRT Alternative and the SR 60 North Side Design Variation.

2.3.2.3 Washington Boulevard LRT Alternative

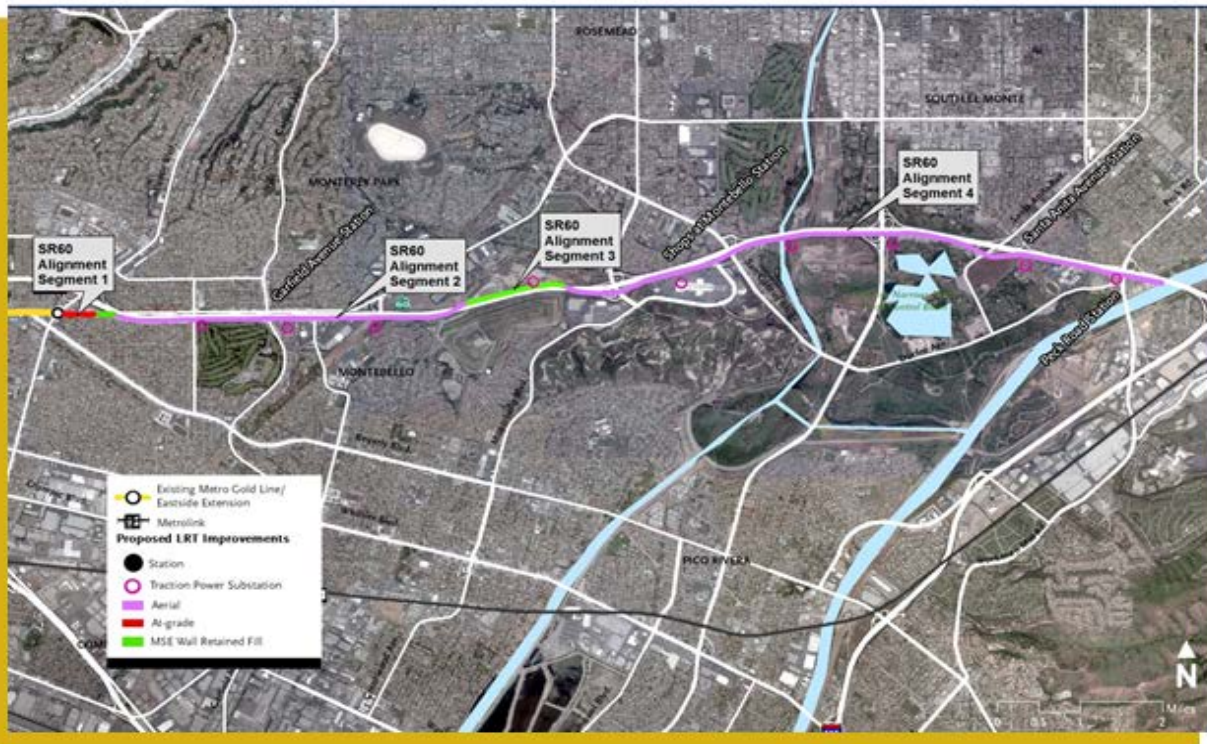
Construction for this alternative would be similar to that for the SR 60 LRT Alternative; however, the Washington Boulevard LRT Alternative would require a longer time to construct than the SR 60 LRT Alternative because of its additional length and necessary on-street construction activities. The Washington Boulevard LRT Alternative alignment would include three to four bridges, depending on the Rosemead Boulevard and San Gabriel River/I-605 crossing options chosen. It is anticipated that the beginning of construction of each bridge would lag behind the previous bridge by approximately four months and that bridges may be under construction simultaneously. **Figure 2-11** and **Figure 2-12** show the construction methods for both the Washington Boulevard LRT Alternative and the Washington Boulevard LRT Alternative Aerial Crossing Option.

Table 2-5 provides a summary of construction activities for the two LRT build alternatives. The typical duration (in total months) is shown for each construction activity. Construction impacts from each activity could occur for any area within the proposed alignments for the time periods listed in the table. The construction duration for either the SR 60 LRT Alternative or Washington Boulevard LRT Alternative is estimated to be approximately four to six years, with the SR 60 LRT Alternative most likely taking four years to construct and the Washington Boulevard Alternative most likely taking six years to construct.



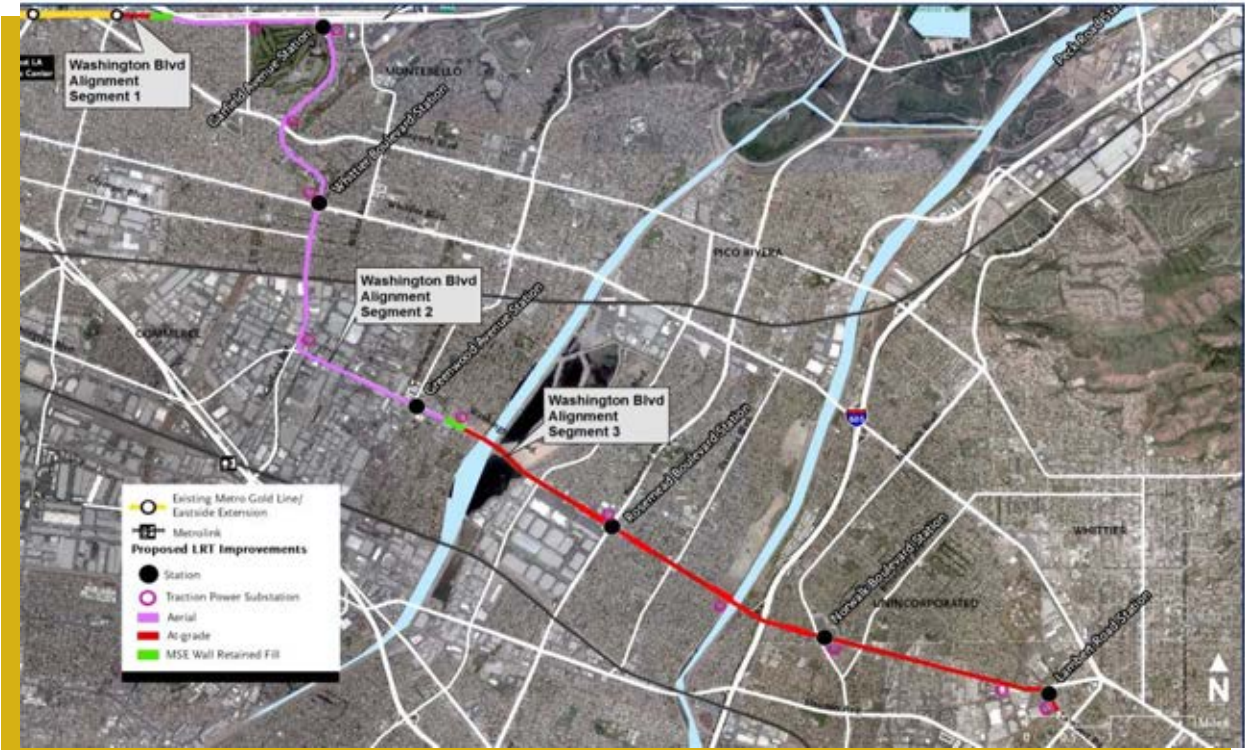
Source: AECOM, CDM Smith 2011

Figure 2-9. Construction Methods for SR 60 LRT Alternative



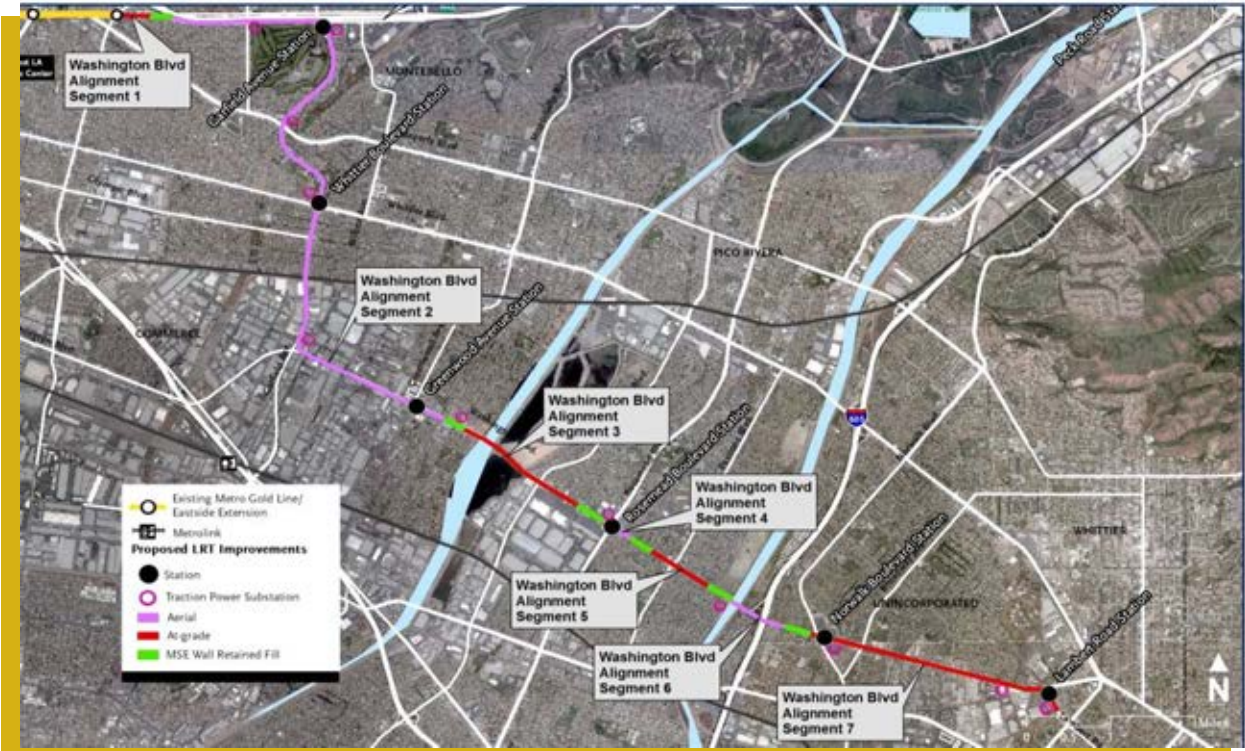
Source: AECOM, CDM Smith 2011.

Figure 2-10. Construction Methods for SR 60 LRT Alternative - North Side Design Variation



Source: AECOM, CDM Smith 2011.

Figure 2-11. Construction Methods for Washington Boulevard LRT Alternative



Source: AECOM, CDM Smith 2011.

Figure 2-12. Construction Methods for Washington Boulevard LRT Aerial Crossing Option

Table 2-5. Summary of Construction Activities for Both LRT Build Alternatives

Activity	Duration (Months)	Description	Typical Equipment Required	Rough Order of Magnitude
At-Grade Construction Only				
Utility Relocation	12-18	Trenching in order to relocate utilities away from the path of the project	Jackhammers, trenchers	Light Construction
Street Widening	5-12	Requires new curbs, sidewalks, and lane configuration in areas where existing ROW is inadequate	Pavers, pavement breakers, cement trucks	Light Construction
Surface Track Work	28	Demolition, construction of slab, and laying rail	Trucks, storage for rail, and truck mounted welders	Heavy Construction
Retaining Wall, Fill Construction	2-15	Construction of transition from at-grade to elevation and vice versa	Bulldozers, tractor trailer rigs, loaders, earthmovers	Heavy Construction
Station Construction	12	Developed simultaneously with segments using standard building materials	Forklifts, generator sets, loaders, welders	Heavy Construction
Operating Systems Installation	8	Catenary overhead wire system and substations for power	High-rail vehicles	Light Construction
Parking Facilities (lots/garages)	1-24	Paving surface lot; constructing parking facilities, structures, and landscaping	Pavement breakers, diamond saws, compressors, paving machines, loaders, haul trucks, cranes, compressors, concrete, loaders, rigs	Light Construction; Heavy Construction
Aerial Construction Only				
Station Construction	18	Construction of elevated station segments	Forklifts, generator sets, loaders, welders	Heavy Construction
Elevated Guideway	36	Construction of foundation columns and elevated sections	Cranes, compressors, concrete and haul trucks, loaders, rigs	Heavy Construction

Additional construction activities, each with its own methods, are associated with the following components of project construction. These are also further described in, and updated where appropriate from, the Construction Impacts Technical Memorandum, found in Appendix EE of this Draft EIS/EIR:

- Stations (at-grade and aerial)
- Systems (TPSS and OCS)
- Other facilities and activities (parking facilities at stations)
- Maintenance yard
- Street widening and construction
- Utility relocation and installation
- Temporary street and lane closures
- Staging areas
- Haul routes

A construction plan would be prepared during the final design phase of the project to detail the construction phases, durations, schedule, and sequencing of construction. To minimize impacts, where possible the plan would coordinate construction activities for the Eastside Transit Corridor Phase 2 Project with other improvements occurring nearby.

Construction staging areas would be needed for equipment storage, construction materials delivery, equipment assembly, materials production, dewatering activities, access roads, construction worker parking, temporary trailer offices, demolition staging, spoils removal, and other related activities during the construction period. Staging for the construction of both aerial and at-grade guideway would require street medians to be closed off with k-rail. Construction staging areas are temporary and would be located within the ROW necessary for each alignment or on land to be acquired for guideway construction, stations, the maintenance yard, parking, or TPSS construction.

For both the SR 60 and Washington Boulevard LRT Alternatives, the majority of staging would occur on each of the station sites for the duration of

construction. The staging sites would also accommodate construction worker parking. Additional staging may occur adjacent to the sites where the alignment would be constructed. For detailed drawings of the proposed station staging areas, refer to Appendix HH, Conceptual Engineering Drawings.

Construction haul routes would be on existing freight routes, and would be located to minimize noise, vibration, and other possible impacts to adjacent businesses and residential neighborhoods. Routes will be confirmed during the preliminary engineering phase and final design phase of the project, but will likely include nearby local streets and major arterials for truck access to and from SR 60 and I-605. Haul trips would take place during off-peak hours when there is excess capacity on the roadway network.

2.4 Environmental Process

Metro will comply with all applicable federal, state, and local environmental regulations and will responsibly and reasonably mitigate significant adverse environmental impacts resulting from the Eastside Transit Corridor Phase 2 Project in accordance with Metro policies and applicable laws. This Draft EIS/EIR identifies impacts that would potentially be significant and proposes mitigation measures to address those impacts. These mitigation measures will undergo further refinement as part of the Final EIS/EIR process, and a final set of commitments to mitigate impacts would be adopted by the Federal Transit Administration (FTA) upon issuance of the Record of Decision (ROD). Additionally, Metro would continue to avoid and minimize project impacts wherever possible.

Three agencies were asked and have accepted to be Cooperating Agencies: USEPA, the U.S. Army Corps of Engineers, and Caltrans. A total of 24 agencies accepted the invitation to become a Participating Agency. Metro has and will continue to coordinate with these and other agencies throughout the environmental process. (Refer to Appendix I, Agency Coordination and Public Involvement, of this Draft

EIS/EIR for a complete list of Participating and Cooperating Agencies.)

2.4.1 Draft EIS/EIR Review and Comment Period

Metro and FTA will widely distribute this Draft EIS/EIR to affected local, state, and federal agencies; tribes; community groups; interested individuals; and other interested parties. The document will also be made available at Metro's offices, at public libraries, and in electronic format on Metro's website. A formal public comment period will be initiated following the release of this Draft EIS/EIR. Metro will hold public hearings during the comment period to provide information about this Draft EIS/EIR, facilitate the submission of comments, and receive oral comments.

2.4.2 Preliminary Staff Recommendation of a Locally Preferred Alternative

Based on the results of technical analyses of alternatives and feedback from the public during the Draft EIS/EIR public comment period, Metro staff may recommend an LPA to the Metro Board of Directors. Following the Draft EIS/EIR public comment period, the Metro Board of Directors may choose to select an LPA after examining the Draft EIS/EIR, comments received during the public comment period, and other relevant information.

2.4.3 Final EIS/EIR and Selection of a Project Alternative

Upon conclusion of the selection of the LPA, the Metro Board may select to initiate a Final EIR. Initiation of a Final EIS or the FTA's participation is contingent upon having funding in place. The Metro Board must obtain funds to allow the initiation of a Final EIS.

Metro will continue to develop a constrained financial plan that funds construction and operation of the Project. Metro will also conduct value engineering and potentially refine the LPA during the Final EIS/EIR process in order to reduce cost. This may include the development of a Minimal Operable Segment (MOS). The Final EIS/EIR will include and address all of the comments received

during the Draft EIS/EIR public comment period as well as a listing of mitigation measures. It will also include any refinements to the LPA, if any, along with the potential approval of an MOS. The Final EIS/EIR will include all of the information necessary for the Metro Board of Directors to certify the Final EIS/EIR, adopt or approve the Project and for the FTA to issue a ROD.

Issuance of the Final EIS/EIR to the public will be dependent upon Metro's ability to develop a constrained financial plan which demonstrates construction initiating within three years after issuance of the ROD, the time frame by which information within an EIS/EIR is still valid. If the publication of the Final EIS/EIR occurs sometime prior to 2026 (likely within the next five to 10 years), a Supplemental Draft EIS will be required prior to its publication.

The Project is currently included within the constrained component of Metro's LRTP and the 2012-2035 RTP, which commit funding to the project starting in 2026. This commitment is based on the availability of funds from Measure R, which funds \$1.25 billion of the project starting in FY 2026. Metro's LRTP envisions the project to begin construction between 2027 and 2035 and to be in operations in 2035.

In an effort to implement the project sooner and to advance the issuance of the Final EIS/EIR, thereby reducing costs and providing new services earlier than originally planned, the Metro Board is pursuing additional funding mechanisms for projects planned for the later years of Measure R. Metro's effort includes the second part of its America Fast Forward legislation, a new class of Qualified Tax Credit Bonds for Transportation.

Measure R was amended by the Metro Board of Directors in June 2013 to reflect changes to the availability date of Measure R funds for Eastside Transit Corridor Phase 2 and other projects. This amendment reflected the availability of funds for the Eastside Transit Corridor Phase 2 project prior to 2024, but only if certain conditions are met. The change in Measure R funding availability is conditioned on meeting several threshold tests,

including passage of the America Fast Forward Tax Credit Bond program. If these conditions are met and the funds are available, then the Metro Board of Directors can amend or reflect this change in availability in the LRTP. As such, the financial plan contained in the Final EIS/EIR will reflect the Measure R amendment and will clearly identify the timeframe in which Measure R funds are available for this project.

In order to accelerate a project in the LRTP, the funds must be available and the Metro Board must approve an amendment to the 2009 LRTP or an update to the overall LRTP, approving the project, its new schedule, and its new funding. Should this occur, and the new dates of construction are known, a supplemental environmental analysis will be conducted, if warranted.

2.4.4 Record of Decision and Notice of Determination

After Metro selects a project alternative, FTA will issue a ROD, which indicates FTA's final decision on the project. The ROD will include Metro's commitments to mitigate impacts of the Eastside Transit Corridor Phase 2 project. FTA's issuance of the ROD is needed for federal funding and approvals to proceed.

As the lead agency under CEQA, Metro will issue a Notice of Determination for the Eastside Transit Corridor Phase 2 project.

2.4.5 Project Schedule

As mentioned in Section 2.1 above, the Eastside Transit Corridor Phase 2 Project is included in Metro's 2009 LRTP and identified for funding under Measure R, a sales tax measure approved by Los Angeles County voters in November 2008. The tentative schedule for completing the environmental process, design, and construction of the Eastside Transit Corridor Phase 2 Project is shown in **Table 2-6**.

As indicated above, based on reasonable assessment of the timing of availability of funds for implementation of the project, the Metro Board of Directors may direct the staff to move into the Final EIS/EIR phase either upon adoption of the LPA or at

a later date. A Final EIS/EIR will only be published if a financially constrained plan is identified that will allow for construction three years after the ROD. The construction impact analysis contained in this document represents the current funding availability scenario and anticipated operations in 2035 as identified in Metro's LRTP and the 2012 RTP. The availability and source of funding may change and allow construction to initiate sooner.

Table 2-6. Project Timeline

Activity	Timeframe
Draft EIS/EIR Published	Summer 2014
Draft EIS/EIR Comment Period	60 Days
Metro Board Identifies Locally Preferred Alternative	Fall 2014
Initiation of the Final EIS/EIR ¹	Winter 2014
Final Design ²	Years 2026-2027
Construction-Related Activities ³	Years 2027-2035
Operations	Year 2035

¹ Upon conclusion of the selection of the LPA, the Metro Board may select to initiate a Final EIR. Initiation of a Final EIS or the FTA's participation is contingent upon having funding in place. Release of the Final EIS/EIR document is based on the condition that funding is available to allow for construction of the project within three years after issuance of the ROD. If the publication of the Final EIS/EIR would occur sometime prior to 2026, a Supplemental Draft EIS will be required prior to its publication.

² Final design is initiated upon availability of funding. The final design and construction schedule are based on the current availability of funds from Measure R, which funds \$1.25 billion of the project starting in FY 2026. The availability and source of funding may change and allow construction to initiate sooner.

³ Years of construction include construction activities and preconstruction activities such as ROW acquisition and utility relocation. Years 2033-2034 are system testing and year 2035 is the first year of operation.

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