2 PROJECT DESCRIPTION

This chapter provides a description of the Los Angeles County Metropolitan Transportation Authority (Metro) Sepulveda Transit Corridor Project (Project). This includes the Project goals and objectives, development of the alternatives, alternatives considered and withdrawn, a description of the five project alternatives (including design options) and the No Project Alternative, and anticipated permits and approvals.

2.1 Project Goals and Objectives

The Project goals are based on goals established during the development of the *Sepulveda Transit Corridor Project Final Feasibility Report* (Metro, 2019a) but updated to reflect new and refined policies adopted by Metro since 2019, including the *2020 Long Range Transportation Plan* (2020 LRTP) (Metro, 2020), and other policies relevant to the mobility challenges that the Project would address.

The six goals of the Project are as follows:

1. Improve Mobility
2. Improve Accessibility and Promote Equity
3. Support Community and Economic Development
4. Protect Environmental Resources and Support a Sustainable Transportation System
5. Provide a Cost-effective Solution and Minimize Risk
6. Enhance Resiliency

Objectives are the broad outcomes that the Project is intended to achieve, providing a framework for developing and evaluating alternatives. Objectives guide the analysis but are not mitigation measures or actions. The objectives that correspond to each of the goals are described in this section.

2.1.1 Improve Mobility

The goal of improving mobility refers to providing transit services that increase ridership by reducing overall travel times, connecting important destinations, and providing high-quality connections across services. The objectives for the goal "improve mobility" are as follows:

- **Increase transit frequency and decrease travel time.** By minimizing point-to-point travel time for customers, transit can become more competitive with the automobile. Riders would also benefit from the reliability of more frequent service.
- **Increase transit ridership**. A transit system that is efficient and reliable would attract more riders. This will in turn decrease automobile traffic, greenhouse gas (GHG) emissions, and the amount of land that needs to be devoted to automobile use.
- **Prioritize connections to high-traffic points of interest.** A transit service that directly serves activity centers such as schools, event centers, employment centers, public institutions, hospitals, museums, parks, and other local attractions will provide the greatest benefit to riders and will reduce point-to-point travel time.
- **Promote efficiency of transfer experience to fixed and non-fixed guideway systems.** This objective will be used to identify alternatives that promote efficient transfers. According to the *Transfers Design Guide* (Metro, 2018a), a "good transfer" features the following principles: safety and security, efficiency, accessibility, clarity, comfort, and consistency. Additionally, transfers between

stations should feature direct vertical transitions between platforms, which typically does not involve leaving a paid area and crossing a street.

- **Support non-automobile First-Last Mile connections.** Metro and other public transportation agencies typically provide bus and rail services that form the core of trips using transit, but users must complete the first and last portion on their own; they must first walk, ride, or roll themselves to the nearest station. To support increased ridership and improved mobility, stations and alignments should support non-automobile first-last mile connections. Supporting non-automobile connections will reduce reliance on single-occupancy vehicles, reduce necessity for parking at the stations, promote activity around station areas, and enhance access for all riders.

2.1.2 Improve Accessibility and Promote Equity

The goal of improving accessibility and promoting equity refers to improving access for historically underserved Equity Focus Communities (EFCs) and targeting infrastructure and service investments toward those with the greatest mobility needs, who are most reliant on an effective and inclusive transit system. The objectives for the goal "improve accessibility and promote equity" are as follows:

- **Improve access for Equity Focus Communities.** As part of the *2020 Long-Range Transportation* (Metro, 2020), Metro has defined EFCs as those communities most heavily impacted by historic disinvestments, reduced access to opportunity and housing, and other policy decisions that have resulted in environmental justice disparities. Historically and currently, race and class have largely defined where these disparities are most concentrated, in poor, minority communities throughout Los Angeles County. As noted in the *Metro Equity Platform Framework*, age, gender, disability, and residency also can expand or constrain opportunities (Metro, 2018b).
- **Target infrastructure and service investments towards those with the greatest mobility needs.** This objective seeks to ensure that the Project aligns with Metro's *Vision 2028 Plan* Goal 1.1: "Promote investment in disadvantaged communities" (Metro, 2018c). This objective will be used to identify alternatives that effectively serve those with the greatest mobility needs, thus promoting equitable transit investment.

2.1.3 Support Community and Economic Development

The goal of supporting community and economic development refers to the ability of a transit system to support positive economic growth in communities around stations, while minimizing physical barriers to nearby communities, and prioritizing station placement and design that is consistent with those communities' contexts. The objectives for the goal, "support community and economic development" are as follows:

- **Increase opportunity for economic growth around stations.** The introduction of a transit station can have positive effects on local business surrounding the station, as well as in the greater station catchment areas. This objective aims to promote economic growth, consistent with adopted Metro policy. Strategy 4.5 of the 2020 LRTP is: "Expand opportunities for small businesses" (Metro, 2020).
- **Minimize physical barriers to communities created by the Project.** This objective is consistent with the strategies laid out in the *First Last Mile Strategic Plan* (Metro, 2014). The physical infrastructure of a fixed-guideway transit service may itself pose a barrier to transit station access, and a barrier to individuals desiring to access other points within or outside of the community on opposite sides of those barriers.

- **Prioritize station placement and design that is consistent with community context.** Metro projects provide positive benefit to communities, in addition to minimizing impacts. This objective is consistent with Metro's *Transit Oriented Communities Policy* to "stabilize and enhance communities surrounding transit" (Metro, 2018d).

2.1.4 Protect Environmental Resources and Support a Sustainable Transportation System

The goal of protecting environmental resources and supporting a sustainable transportation system refers to providing an overall reduction in vehicle miles traveled (VMT), GHG emissions, air pollutant emissions, and impacts to environmental resources. The objectives for the goal "protect environmental resources and support a sustainable transportation system" are as follows:

- **Reduce vehicle miles traveled.** The attempt to accommodate large numbers of individual vehicles leads to inefficient land uses and to roadway design that discourages active transportation and transit usage, in addition to negative effects on the environment. The 2020 LRTP emphasizes using strategies to reduce VMT countywide.
- **Reduce greenhouse gas emissions**. This objective aligns with the 2020 LRTP Strategy 3.6: "Reduce regional GHG and criteria air pollutant emissions." Reduction of GHG emissions has a direct alleviating effect on climate change.
- **Reduce air pollutant emissions.** Transit projects primarily reduce air pollutant emissions by encouraging a mode shift from private automobiles to transit vehicles. However, although electric-powered rail transit does not directly emit hydrocarbons and related GHGs, other hazardous particulate matter can be generated by trains.
- **Minimize impacts to environmental resources.** This objective addresses potential impacts to the natural, human, and built environment that may arise from construction or operation of the Project. These potential impacts are identified in Chapter 3 of this DEIR.

2.1.5 Provide a Cost-effective Solution and Minimize Risk

The goal of providing a cost-effective solution and minimizing risk refers to maximizing the benefits to the public relative to cost and also maximizing the potential eligibility for state and federal funding opportunities. The objectives for the goal "provide a cost-effective solution and minimize risk" are as follows:

- **Maximize benefits to the public relative to cost.** This objective is based on Metro's Vision 2028 Goal 5.2: "Metro will exercise good public policy judgment and sound fiscal stewardship" (Metro, 2018e).
- **Maximize potential eligibility for state and federal funding and opportunities**. This objective aligns with the 2020 LRTP Strategy 4.6c: "Leverage local transportation dollars to secure state and federal grants" (Metro, 2020). This objective recognizes that, even under Measure M (Metro, 2016), non-local sources of funding will be required for the Project. This objective emphasizes the need to develop a project that can qualify for non-local funding sources in addition to local sources such as Measure M.
- **Provide an affordable transit solution that achieves cost and schedule certainty**. This objective is based on Metro's Vision 2028 Goal 5.2: "Metro will exercise good public policy judgment and sound fiscal stewardship" (Metro, 2018e). It ensures that Metro will develop and implement a project that achieves technical and financial feasibility, constructability, and affordability and would have the

potential to support the project schedule, accelerate the project development process, and balances risk to Metro across all phases of the project.

2.1.6 Enhance Resiliency

The goal "enhance resiliency" refers to providing resiliency to natural disasters and climate change, which can be destructive to a transit system and the riders who depend on it. This goal has the following objective:

- **Provide resilience to natural disasters and climate change.** This objective coincides with Strategy 2.8 of the 2020 LRTP: "Improve the resiliency of Metro's transportation system" (Metro, 2020). It is important to minimize susceptibility to natural disasters and climate change-related disruptions.

Table 2-1 summarizes the goals and objectives described in this section.

Table 2-1. Goals and Objectives

Goals and Objectives
Improve Mobility
1. Increase transit frequency and decrease travel time
2. Increase transit ridership
3. Prioritize connections to high-traffic points of interest
4. Promote efficiency of transfer experience to fixed and non-fixed guideway systems
5. Support non-automobile First-Last Mile connections
Improve Accessibility and Promote Equity
1. Improve access for Equity Focus Communities
2. Target infrastructure and service investments towards those with the greatest mobility needs
Support Community and Economic Development
1. Increase opportunity for economic growth around stations
2. Minimize physical barriers to communities created by the Project
3. Prioritize station placement and design that is consistent with community context
Protect Environmental Resources and Support a Sustainable Transportation System
1. Reduce vehicle miles traveled
2. Reduce greenhouse gas emissions
3. Reduce air pollutant emissions
4. Minimize impacts to environmental resources
Provide a Cost-Effective Solution and Minimize Risk
1. Maximize benefits to the public relative to cost
2. Maximize potential eligibility for state and federal funding opportunities
3. Provide an affordable transit solution
Enhance Resiliency
1. Provide resilience to natural disasters and climate change

Source: HTA, 2024

2.2 Project History

In 2016, the voters of Los Angeles County approved Measure M, the Los Angeles County Traffic Improvement Plan, to fund transportation improvements throughout the county. The *Measure M Expenditure Plan* (Metro, 2016) included the Sepulveda Transit Corridor, which was defined as a transit project between the Metro G Line in the San Fernando Valley (Valley) and Los Angeles International Airport (LAX).

In 2019, Metro completed the Sepulveda Transit Corridor Feasibility Study and released the Project's *Final Feasibility Report* (Metro, 2019a), which documented the transportation conditions and travel patterns in the Sepulveda corridor; identified mobility problems affecting travel between the Valley, the Westside of Los Angeles (Westside), and the LAX area; and defined initial goals and objectives. Using an iterative evaluation process, the Feasibility Study identified feasible transit solutions that met the goals and objectives of the Project.

This section describes the history of the alternatives included in the NOP, beginning with the alternatives developed during the Feasibility Study, followed by the development of the PDA alternatives. The alternatives evaluated in this DEIR are described in detail in Section 2.5, Project Alternatives.

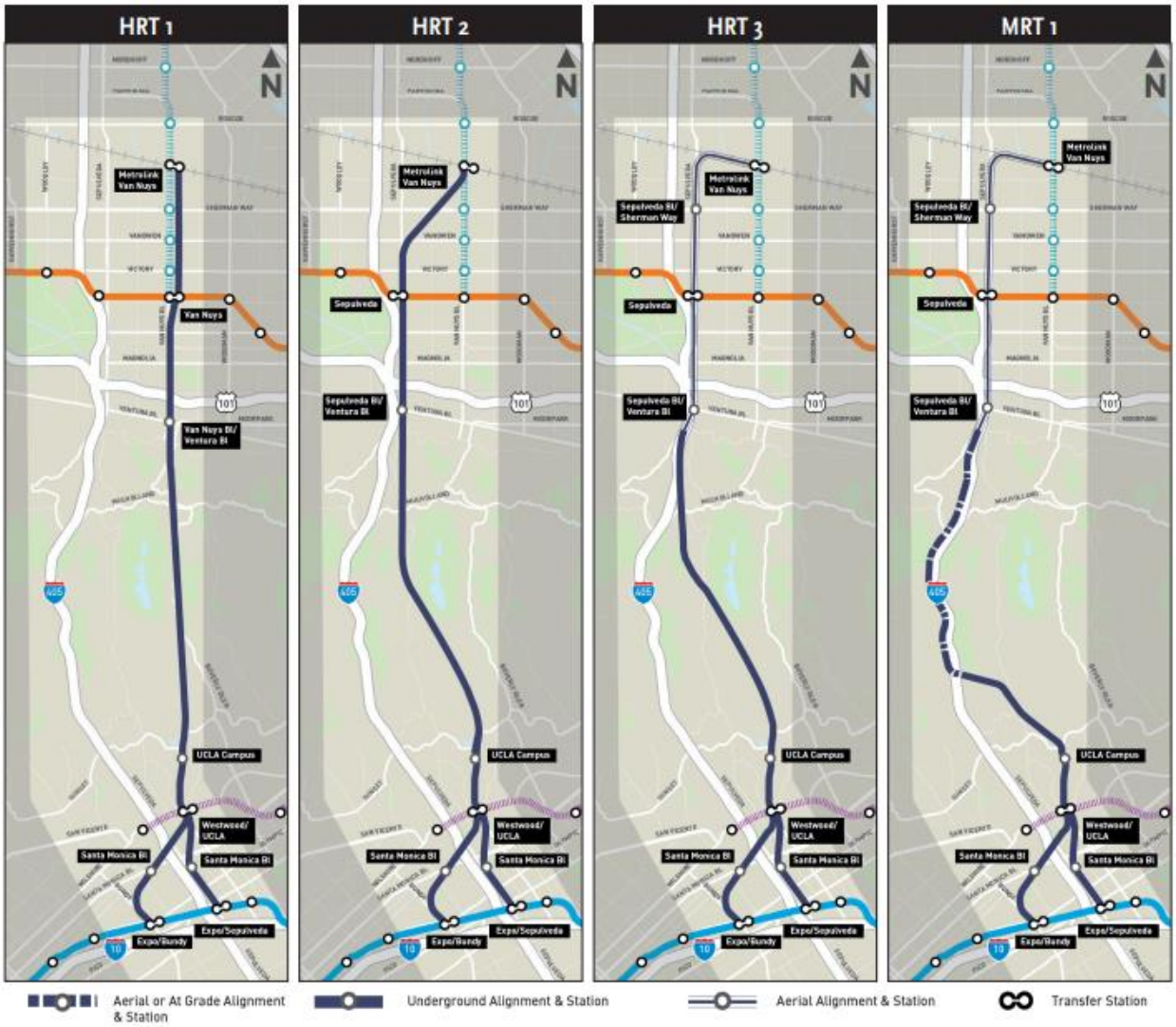
2.2.1 Sepulveda Transit Corridor Feasibility Study

The Feasibility Study determined that a reliable, high-capacity fixed-guideway transit system connecting the Valley to the Westside could be constructed along several different alignments using either heavy-rail transit (HRT) or monorail transit (MRT) technology. Four alternatives (shown on Figure 2-1), including three heavy rail transit options, and one monorail transit option were developed through screening based on major physical constraints, ability to connect key activity centers, and ability to meet the five project goals and corresponding objectives. Such a transit system would serve the major travel markets in the Sepulveda Corridor and would provide travel times competitive with the automobile. The four alternatives included:

- HRT 1 – An entirely underground heavy-rail alignment, under Van Nuys Boulevard in the Valley, and connecting to either the Metro E Line Expo/Bundy or Expo/Sepulveda Station.
- HRT 2 – An entirely underground heavy-rail alignment, primarily under Sepulveda Boulevard in the Valley and connecting to either the Metro E Line Expo/Bundy or Expo/Sepulveda Station.
- HRT 3 – Heavy rail connecting to either the Metro E Line Expo/Bundy or Expo/Sepulveda Station with an underground alignment under the Westside and Santa Monica Mountains and aerial alignment along Sepulveda Boulevard in the Valley.
- MRT 1 – Monorail connecting to either the Metro E Line Expo/Bundy or Expo/Sepulveda Station with an underground alignment under the Westside and an aerial alignment in the Sepulveda Pass and the Valley.

While not recommending a particular alternative, the Feasibility Study also identified potential environmental and community impacts that could result from construction and operation of the Sepulveda Transit Corridor and developed cost estimates for construction and operations. The Feasibility Study noted that the Metro Board would select alternatives to be included in the environmental process based on the *Sepulveda Transit Corridor Project Final Feasibility Report* (Metro, 2019a) and proposals resulting from Metro's PDA process.

Figure 2-1. Final Valley-Westside Alternatives from 2019 Feasibility Study



Source: Metro, 2019a

2.2.2 Pre-Development Agreements

At its July 2019 meeting, the Metro Board approved a pre-development agreement (PDA) approach to support the Project's development and approved the procurement of PDA contracts for the Project. The PDA process allows for early contractor involvement in project design through the development of independently proposed alternatives. In October 2019, Metro issued a request for proposals (RFP) (Metro, 2019b) for the performance of PDA work for the Project. Metro did not determine the technology, nor the specific configuration or alignment for the Project; therefore, firms were encouraged to propose innovative "transit solution concepts" (TSC) that best met the Project's goal of providing transit service between the Valley and Westside. All potential PDA contractors were required to propose concepts that met the goals and objectives established in the *Sepulveda Transit Corridor Project Final Feasibility Report* (Metro, 2019a). The RFP stated that up to two PDA contracts may be awarded.

After an evaluation of each of the proposals using criteria related to the proposer's work approach and inclusion of disadvantaged business enterprises; the proposer's qualifications, experience, and capacity; and price, Metro staff recommended selection of the two highest scoring proposals: a proposal by LA SkyRail Express (LASRE) with a TSC operating along an entirely aerial alignment using MRT technology within the Interstate 405 (I-405) right-of-way (ROW), and a proposal by Sepulveda Transit Corridor Partners (STCP) with a TSC operating along a mixed underground-aerial alignment using driverless heavy rail transit (HRT) technology. Both TSCs were proposed to connect with the Metro E Line Expo/Sepulveda Station at their southern termini. After receiving public comment, the Metro Board voted to approve PDA contracts with LASRE and STCP at their March 2021 meeting.

2.2.3 Alternatives Included in the Notice of Preparation

Between March and October 2021, LASRE and STCP developed "project concept alternatives" (PCA) based on the TSCs included in their proposals that addressed public comment received at the March Board meeting. LASRE developed three PCAs that provided several options for connections to the University of California, Los Angeles (UCLA) campus. STCP developed two PCAs with different vertical configurations along Sepulveda Boulevard in the Valley. In addition, Metro directed HTA Partners (HTA) to study an underground alternative that follows Van Nuys Boulevard in the Valley and connects to the Metro E Line Expo/Bundy Station in the Westside.

The six alternatives represented a similar range of transit alternatives to connect the Valley and Westside as those described in the *Sepulveda Transit Corridor Project Final Feasibility Report* (Metro, 2019a). In the Valley, the alternatives included alignments that follow Sepulveda Boulevard or I-405 aerially or underground, and an alignment that follows Van Nuys Boulevard underground. On the Westside, the alternatives included alignments that follow I-405, Sepulveda Boulevard, or Bundy Drive aerially or underground, with differing transfer points at the Metro D Line and Metro E Line.

In November 2021, Metro released a Notice of Preparation (NOP) for the Project that included the following six alternatives (Metro, 2021):

- Alternative 1: Monorail with aerial alignment in the I-405 corridor and an electric bus connection to UCLA
- Alternative 2: Monorail with aerial alignment in the I-405 corridor and an aerial Automated People Mover (APM) connection to UCLA
- Alternative 3: Monorail with aerial alignment in the I-405 corridor and underground alignment between the Getty Center and Wilshire Boulevard
- Alternative 4: Heavy rail with underground alignment south of Ventura Boulevard and aerial alignment generally along Sepulveda Boulevard in the San Fernando Valley
- Alternative 5: Heavy rail with underground alignment including along Sepulveda Boulevard in the San Fernando Valley
- Alternative 6: Heavy rail with underground alignment including along Van Nuys Boulevard in the San Fernando Valley and a southern terminus station on Bundy Drive

Alternatives 1 through 3 were proposed by LASRE, Alternatives 4 and 5 were proposed by STCP, and Alternative 6 was designed by HTA at Metro's direction. Metro provided guidance to all design teams that parking for Project stations should only be provided on property that would already need to be acquired to construct the Project, and that it would only be surface parking.

2.3 Alternatives Considered and Withdrawn

In October 2023, LASRE requested the removal of Alternative 2 from further consideration in the environmental process. Alternative 2 is a monorail alternative that includes an APM connection to UCLA. In accordance with the California Environmental Quality Act (CEQA) Guidelines, Section 15126.6(f), withdrawal of an alternative can be made. After internal review, Metro concurred with LASRE's request for removal of Alternative 2 based on staff's independent, environmental perspective that Alternative 2 is challenged to provide advantages over other alternatives. These challenges included establishing the APM's alignment through Westwood (aerial or underground), the feasibility of an underground maintenance and storage facility (MSF) site, and potential impacts to the Federal Building and the U.S. Department of Veterans Affairs (VA) Cemetery. In July 2024, following community meetings held in May 2024 dedicated to gathering feedback on the monorail alternatives, Alternative 2 was removed from further consideration in the environmental process with the understanding that the remaining alternatives represent a sufficient range of alternatives for environmental review, inclusive of modes and routes (Metro, 2024).

2.4 Future Background Projects

This section describes planned improvements to transit, regional rail, and highway facilities within the Project Study Area and the region that would occur whether or not the Project is constructed. These improvements are relevant to the analysis of the No Project Alternative and the project alternatives because they are part of the future regional transportation network within which the Project would be incorporated. They are not considered reasonably foreseeable consequences of not approving the Project as they would occur whether or not the Project is constructed.

The future background projects include all existing and under-construction highway and transit services and facilities, as well as the transit and highway projects scheduled to be operational by 2045 according to the *Measure R Expenditure Plan* (Metro, 2008), the *Measure M Expenditure Plan* (Metro, 2016), the Southern California Association of Governments (SCAG) *Connect SoCal, 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS; SCAG, 2020), and the Federal Transportation Improvement Program (FTIP), with the exception of the Project. The year 2045 was selected as the analysis year for the Project because it was the horizon year of SCAG's adopted RTP/SCS at the time Metro released the NOP for the Project.

Table 2-2 lists the transit improvements scheduled to be operational by 2045 as listed in the *Measure R and Measure M Expenditure Plans* (with the exception of the Project) as well as the Inglewood Transit Connector and LAX APM. The Inglewood Transit Connector is a planned APM added to the FTIP Consistency Amendment #21-05 in 2021 (ID LA99ITC101 [SCAG, 2021b]). The LAX APM, currently under construction by Los Angeles World Airports, will extend from a new Consolidated Rent-A-Car Center to the Central Terminal Area of LAX and will include four intermediate stations. The new Airport Metro Connector Transit Station at Aviation Boulevard and 96th Street will also serve as a direct connection from the Metro K Line and Metro C Line to LAX by connecting with one of the APM stations.

Table 2-2. Fixed Guideway Transit System in 2045

Transit Line	Mode	Alignment Description[a]
Metro A Line	LRT	Claremont to downtown Long Beach via downtown Los Angeles
Metro B Line	HRT	Union Station to North Hollywood Station
Metro C Line	LRT	Norwalk to Torrance
Metro D Line	HRT	Union Station to Westwood/VA Hospital Station
Metro E Line	LRT	Downtown Santa Monica Station to Lambert Station (Whittier) via downtown Los Angeles
Metro G Line	BRT	Pasadena to Chatsworth[b]
Metro K Line	LRT	Norwalk to Expo/Crenshaw Station
East San Fernando Valley Light Rail Transit Line	LRT	Metrolink Sylmar/San Fernando Station to Metro G Line Van Nuys Station
Southeast Gateway Line	LRT	Union Station to Artesia
North San Fernando Valley Bus Rapid Transit Network Improvements	BRT	North Hollywood to Chatsworth[c]
Vermont Transit Corridor	BRT	Hollywood Boulevard to 120th Street
Inglewood Transit Connector	APM	Market Street/Florence Avenue to Prairie Avenue/Hardy Street
Los Angeles International Airport APM	APM	Aviation Boulevard/96th Street to LAX Central Terminal Area

Source: HTA, 2024

[a]Alignment descriptions reflect the project definition as of the date of the Project's Notice of Preparation (Metro, 2021).

[b]As defined in Metro Board actions of July 2018 and May 2021, the Metro G Line will have an eastern terminus near Pasadena City College and will include aerial stations at Sepulveda Boulevard and Van Nuys Boulevard.

[c]The North San Fernando Valley network improvements are assumed to be as approved by the Metro Board in December 2022.

BRT = bus rapid transit
LRT = light rail transit

Future background projects also include the Southern California Optimized Rail Expansion (SCORE) program, which is Metrolink's Capital Improvement Program that will upgrade the regional rail system (including grade crossings, stations, and signals) and add tracks as necessary to be ready in time for the 2028 Olympic and Paralympic Games. The SCORE program will also help Metrolink to move toward a zero emissions future. The following SCORE projects planned at Chatsworth and Burbank Stations will upgrade station facilities and allow 30-minute all-day service in each direction by 2045 on the Metrolink Ventura County Line:

1. Chatsworth Station: This SCORE project will include replacing an at-grade crossing and adding a new pedestrian bridge and several track improvements to enable more frequent and reliable service.
2. Burbank Station: This SCORE project will include replacing tracks, adding a new pedestrian crossing, and realigning tracks to achieve more frequency, efficiency, and shorter headways.

In addition, the Link Union Station project will provide improvements to Los Angeles Union Station that will transform the operations of the station by allowing trains to arrive and depart in both directions, rather than having to reverse direction to depart the station. Link Union Station will also prepare Union Station for the arrival of California High-Speed Rail, which will connect Union Station to other regional

multimodal transportation hubs such as Hollywood Burbank Airport and the Anaheim Regional Transportation Intermodal Center.

The Interstate 405 Sepulveda Pass ExpressLanes project (ExpressLanes project) is also a future background project included in the analysis of all alternatives. The ExpressLanes project is expected to provide for the addition of one travel lane in each direction on I-405 between U.S. Highway 101 (US-101) and Interstate I-10 (I-10), as defined in the FTIP Appendix, Volume II of III (ID 1162S012 [SCAG, 2021a]). Metro is currently studying several operational and physical configurations of the ExpressLanes project, which may also be used by commuter or rapid bus services, as are other ExpressLanes in Los Angeles County.

2.5 Project Alternatives

This section describes the No Project Alternative and the five project alternatives, consisting of monorail transit alternatives (Alternatives 1 and 3), driverless heavy rail alternatives (Alternatives 4 and 5), and a driver-operated heavy rail alternative (Alternative 6). Under CEQA, evaluation of the No Project Alternative must consider both the existing conditions at the time the NOP is published and what would reasonably be expected to occur in the foreseeable future if the project is not approved.

Among the five project alternatives described in this DEIR, the Proposed Project is Alternative 6. Alternative 6 is consistent with the description of the Sepulveda Transit Corridor Project as presented to the public when Measure M was passed. In addition, the proposed design, construction, and operation of Alternative 6 are familiar to the Metro Board of Directors and the public, as they would be similar to Metro's existing heavy rail transit lines. In this DEIR, all alternatives, including the Proposed Project, are evaluated equally. Consistent with CEQA Guidelines Section 15126.6(d) the proposed project provides a basis upon which to evaluate the comparative merits of all of the alternatives. The Metro Board has the discretion to identify an alternative other than the Proposed Project as the Locally Preferred Alternative (LPA). In making its decision, the Board may take into account the DEIR, public comments received during the comment period, technical analyses, stakeholder input, and other policy considerations, such as project objectives, cost, and ridership. Identification of the LPA does not determine the final Project; the final decision on the Project will be made after completion of the FEIR. Identification of the LPA will move the Sepulveda Transit Corridor project development process forward, including preparation of the FEIR and anticipated initiation of the National Environmental Policy Act (NEPA) environmental process.

2.5.1 No Project

The only transportation project under the No Project Alternative that is a reasonably foreseeable consequence of not approving the Project would be improvements to Metro Line 761, which would continue to serve as the primary transit option through the Sepulveda Pass, with improved peak-period headways of 10 minutes in the peak direction and 15 minutes in the other direction. Metro Line 761 would operate between the Metro E Line Expo/Sepulveda Station and the Metro G Line Van Nuys Station to connect with the East San Fernando Valley Light Rail Transit Line, rather than maintaining its current northern terminus at the Sylmar/San Fernando Metrolink Station.

2.5.2 MRT Alternatives

Alternatives 1 and 3 would use MRT technology, in which the monorail train sits atop a single concrete beam. The characteristics of the MRT technology described in the next section is the current proposal applicable to both Alternatives 1 and 3, but it is subject to change. The following two sections describe the alignment of each of the two MRT alternatives as well as features unique to each.

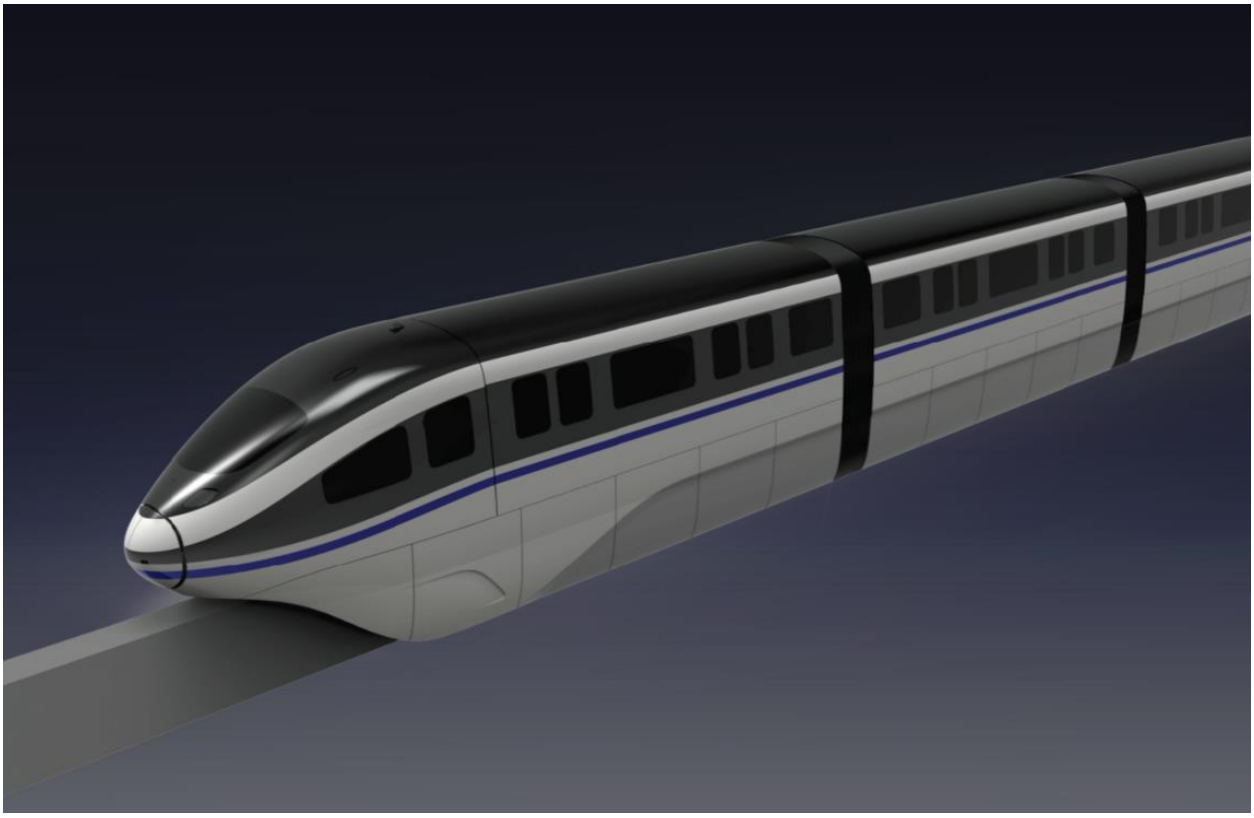
2.5.2.1 Features of the Technology

Vehicles and Operations

Monorail trains would consist of up to eight cars measuring 10.5 feet wide, with two double doors on each side. End cars would be 46.1 feet long with capacity for 97 passengers and intermediate cars would be 35.8 feet long with capacity for 90 passengers. Figure 2-2 shows a rendering of the MRT vehicle.

Trains would be driverless and powered by rails mounted to the guide beam. Rubber tires would sit both atop and on each side of the guide beam to provide traction and guide the train. Monorail alternatives would have a maximum operating speed of 56 miles per hour with planned peak-period headways of 166 seconds and off-peak-period headways of 5 minutes. The peak period is defined as 6:00am to 9:00am and 3:00pm to 7:00pm. All other times are considered off-peak.

Figure 2-2. Rendering of Driverless MRT Vehicle



Source: LASRE, 2024

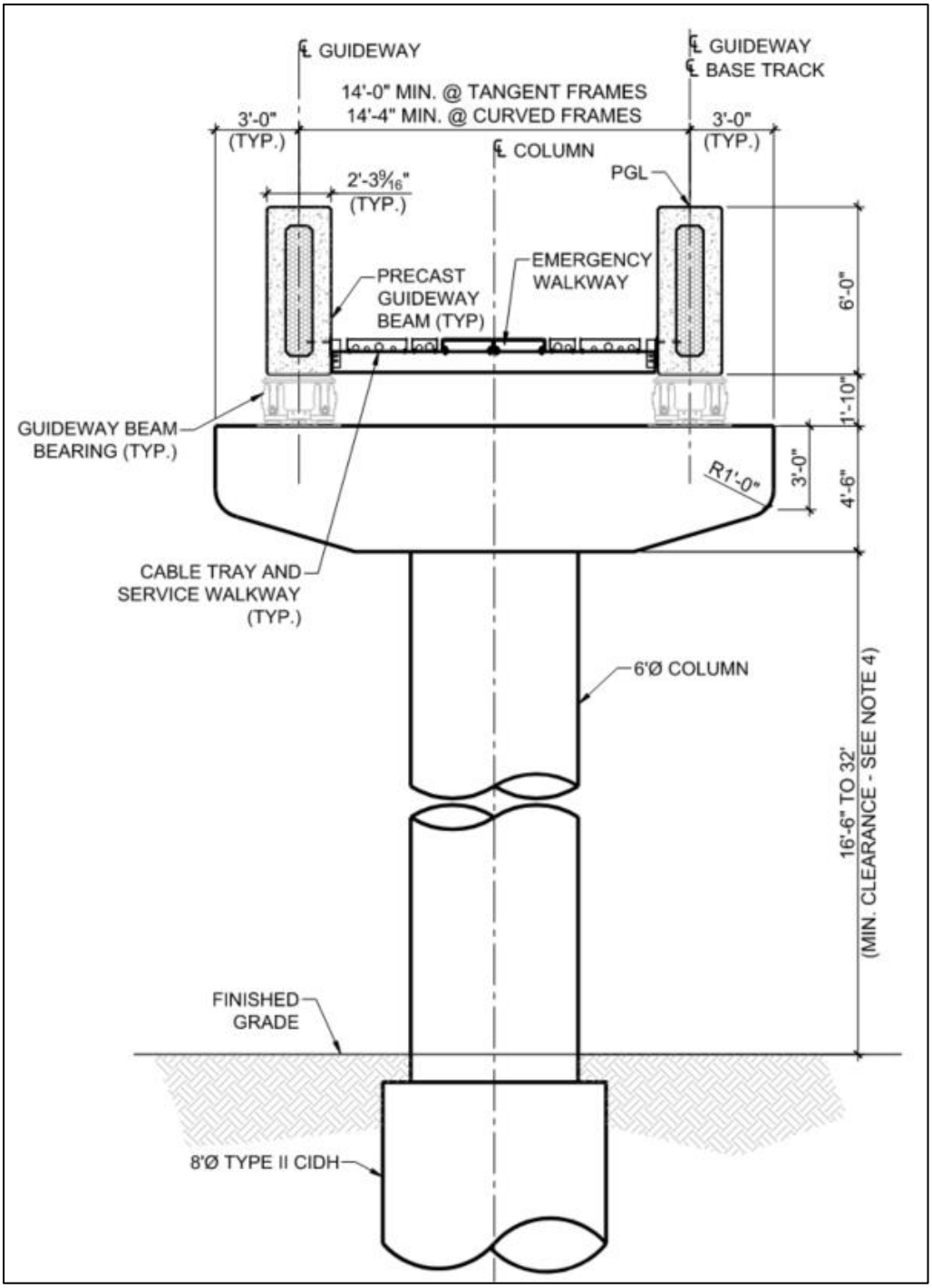
Guideway Characteristics

The monorail alternatives would utilize straddle-beam monorail technology, which allows the monorail vehicle to straddle a guide beam that both supports and guides the vehicle. Northbound and southbound trains would travel on parallel beams. In aerial segments, the two beams would be supported by a single-column or straddle-bent structure. In underground segments (in Alternative 3 only), the two beams would be in a single tunnel.

On a typical aerial guideway section (i.e., not at a station), guide beams would rest on a 20-foot-wide column cap positioned atop a structural support column. Typical spans (i.e., the distance between

columns) would range from 70 to 190 feet. The beams guiding the MRT vehicles would be spaced 14 feet apart with 3-foot-wide areas on the outside of the beams. The bottom of the column caps would typically be between 16 feet and 32 feet above ground level. Figure 2-3 shows a typical cross-section of the aerial monorail guideway.

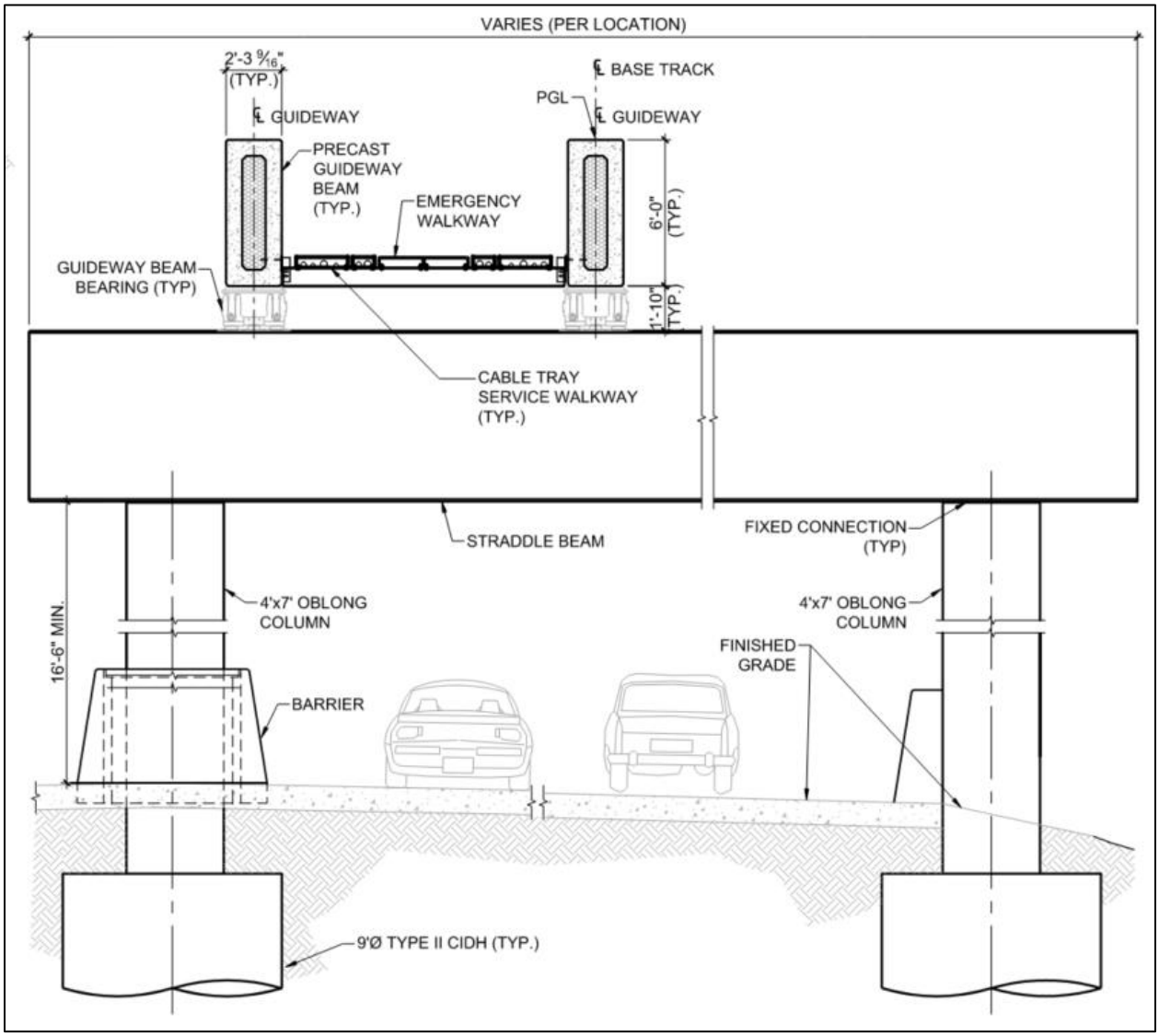
Figure 2-3. Typical Monorail Guideway Cross-Section



Source: LASRE, 2024

Over certain segments of roadway and freeway facilities, a straddle-bent configuration consisting of two concrete columns constructed outside of the underlying roadway would be used in order to span intersections and maintain existing turn movements. Typical spans for these structures would range between 65 and 70 feet. A minimum 16.5-foot clearance would be maintained between the underlying roadway and the bottom of the column caps. Figure 2-4 shows a straddle bent cross-section of the aerial monorail guideway.

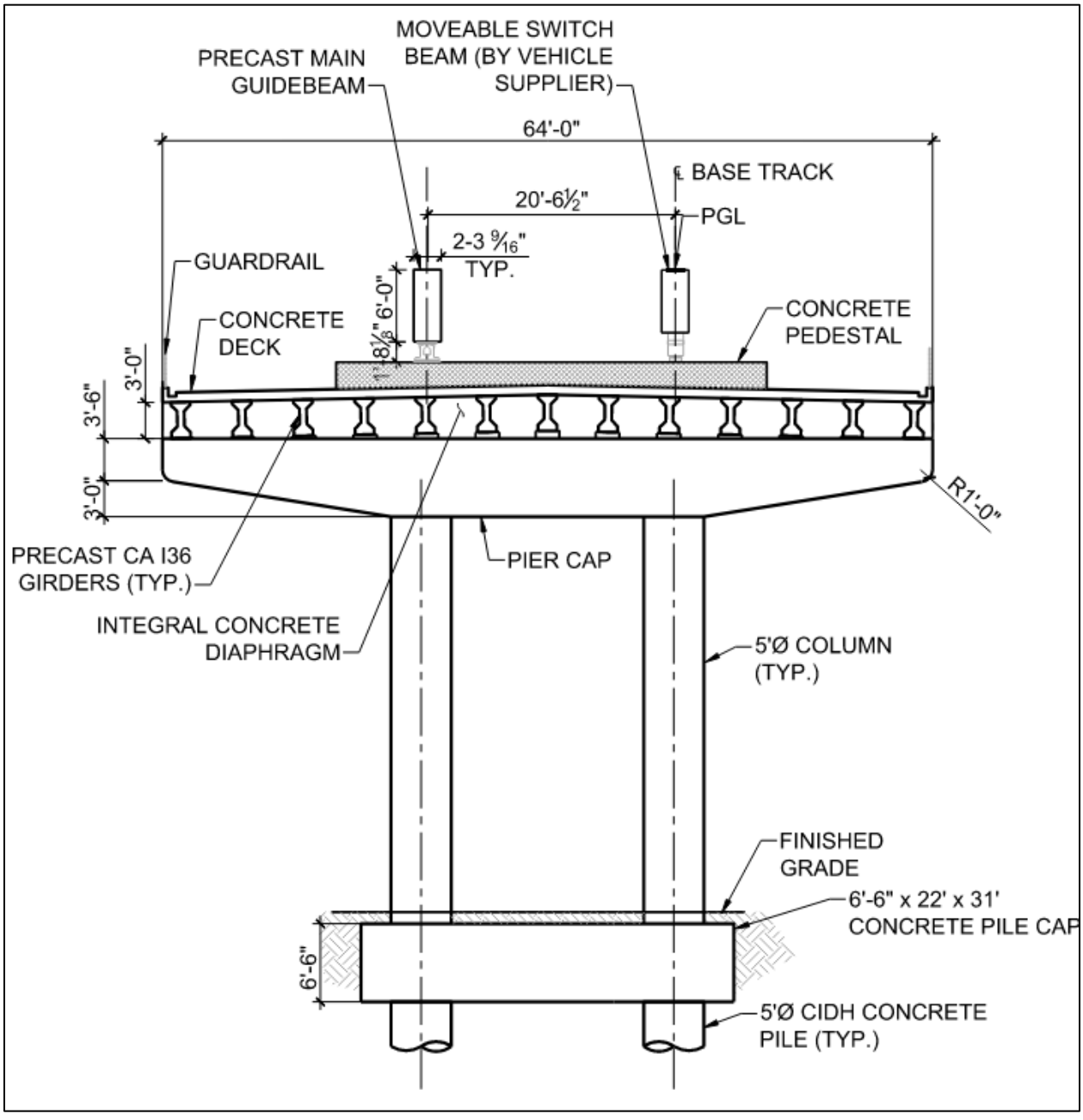
Figure 2-4. Typical Monorail Straddle Bent Cross-Section



Source: LASRE, 2024

The guideway would include beam switches to enable trains to cross over and reverse direction on the opposite beam. All beam switches would be located on aerial portions of the alignment. At beam switch locations, the typical cross-section of the guideway would increase in column and column cap width. The column cap width at these locations would be 64 feet and underground pile caps for additional structural support would be required at these locations, as shown on Figure 2-5.

Figure 2-5. Typical Monorail Beam Switch Cross-Section



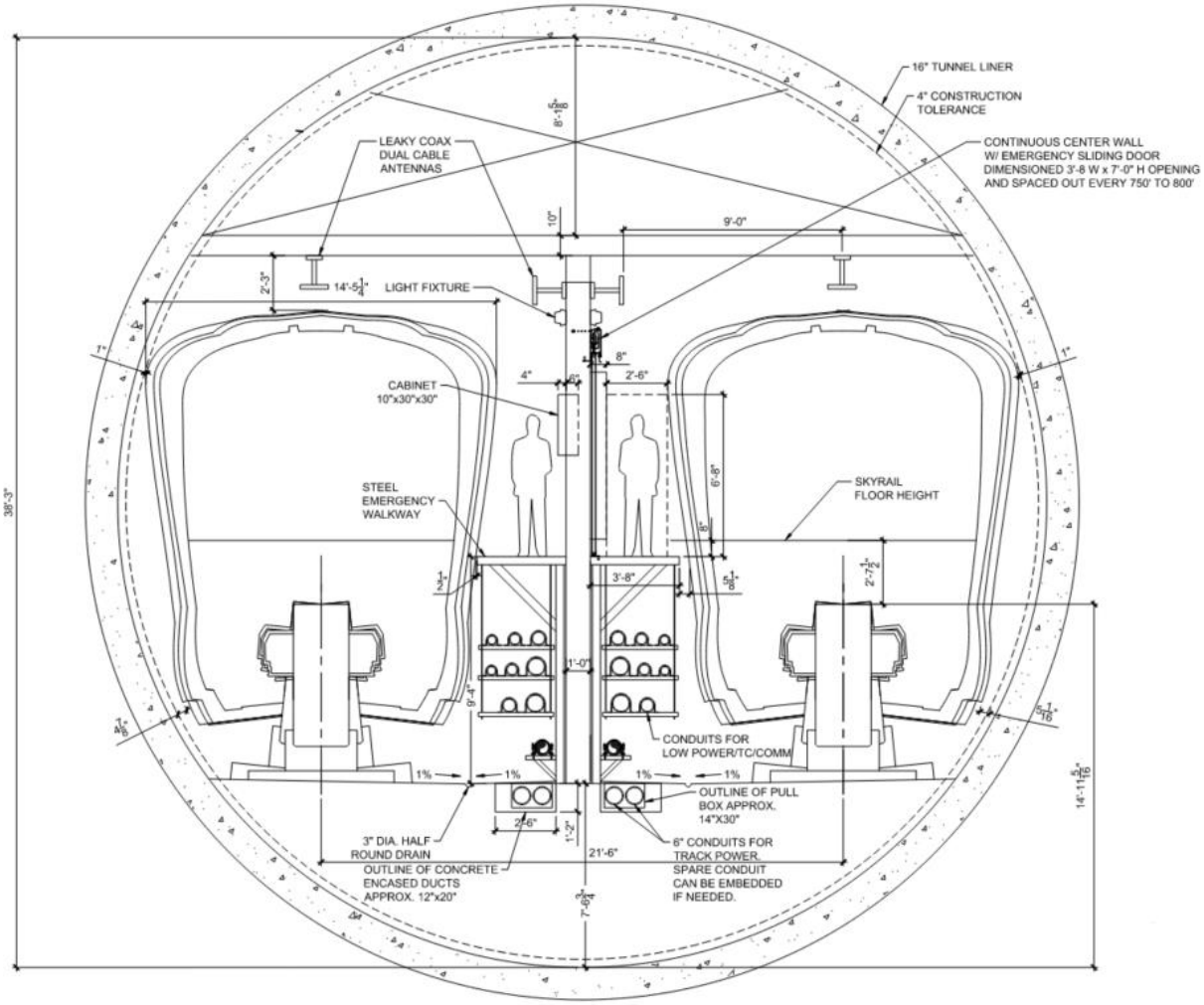
Source: LASRE, 2024

Structural support columns would vary in size and arrangement based on the location along the alignment. Columns would measure 6 feet in diameter along typical guideway segments adjacent to I-405, and 4-by-6 feet within the I-405 median. Straddle bent columns would be 4 feet wide by 7 feet long. Beam switch locations and long span structures would also utilize different sized columns, with dual 5-foot columns supporting switch locations and 9-foot or 10-foot diameter columns supporting long span structures. Crash protection barriers extending 1-foot below the ground surface would be used to protect the columns. Columns would have a cast-in-drilled-hole (CIDH) pile foundation extending 1-foot

beyond the column width. Pile foundations would be placed at various depths based on geotechnical and structural support considerations.

For underground sections of Alternative 3, a single 40-foot diameter tunnel would accommodate the guideway. The tunnel would be divided into two compartments by a 1-foot-thick center wall. Each compartment would include a 14.5-foot-wide space for the guideway and a 4-foot, center emergency evacuation walkway. The center wall would include emergency sliding doors placed every 750 to 800 feet. A plenum within the crown of the tunnel would be constructed to allow for tunnel ventilation. Figure 2-6 illustrates these components at a typical cross-section of the underground monorail guideway.

Figure 2-6. Typical Underground Monorail Guideway Cross-Section



Source: LASRE, 2024

Station Characteristics

Aerial monorail station platforms would be approximately 320 feet long, elevated 50 to 75 feet above the existing ground level. Aerial station platforms would be covered, but not enclosed. Aerial station platforms would be supported by 6 rows of dual 5-by-8-foot columns. Side platform stations would measure 61.5 feet in width to accommodate two 13-foot-wide station platforms with a 35.5-foot-wide

intermediate gap for side-by-side trains. Center platform stations would measure 49 feet in width, with a 25-foot-wide center platform. Each station, regardless of whether it has side or center platforms, would include a concourse level prior to reaching the train platforms. Each station would have a minimum of two elevators, two escalators, and one stairway between every level. Fare gates would demarcate the fare paid zones of stations.

Alternative 3 includes two underground MRT stations with platforms approximately 320 feet long. Underground stations would be 80 to 110 feet underneath the existing ground level. The underground stations would be side-platform stations where passengers would select and travel down to station platforms depending on their direction of travel. Each station would include a concourse level prior to reaching the train platforms. Each station would have a minimum of two elevators, two escalators, and one stairway between every level.

Underground side-platforms would measure 320 feet long, 26 feet wide, separated by a distance of 31.5 feet for side-by-side trains.

Monorail stations would include automatic, bi-parting fixed doors along the edges of station platforms. These gates would be integrated into the automatic train control system and would not open unless a train is stopped at the platform.

Maintenance and Storage Facilities

There are two MSF site options under consideration for each of the MRT alternatives, the MSF Base Design and MSF Design Option 1.

MSF Base Design

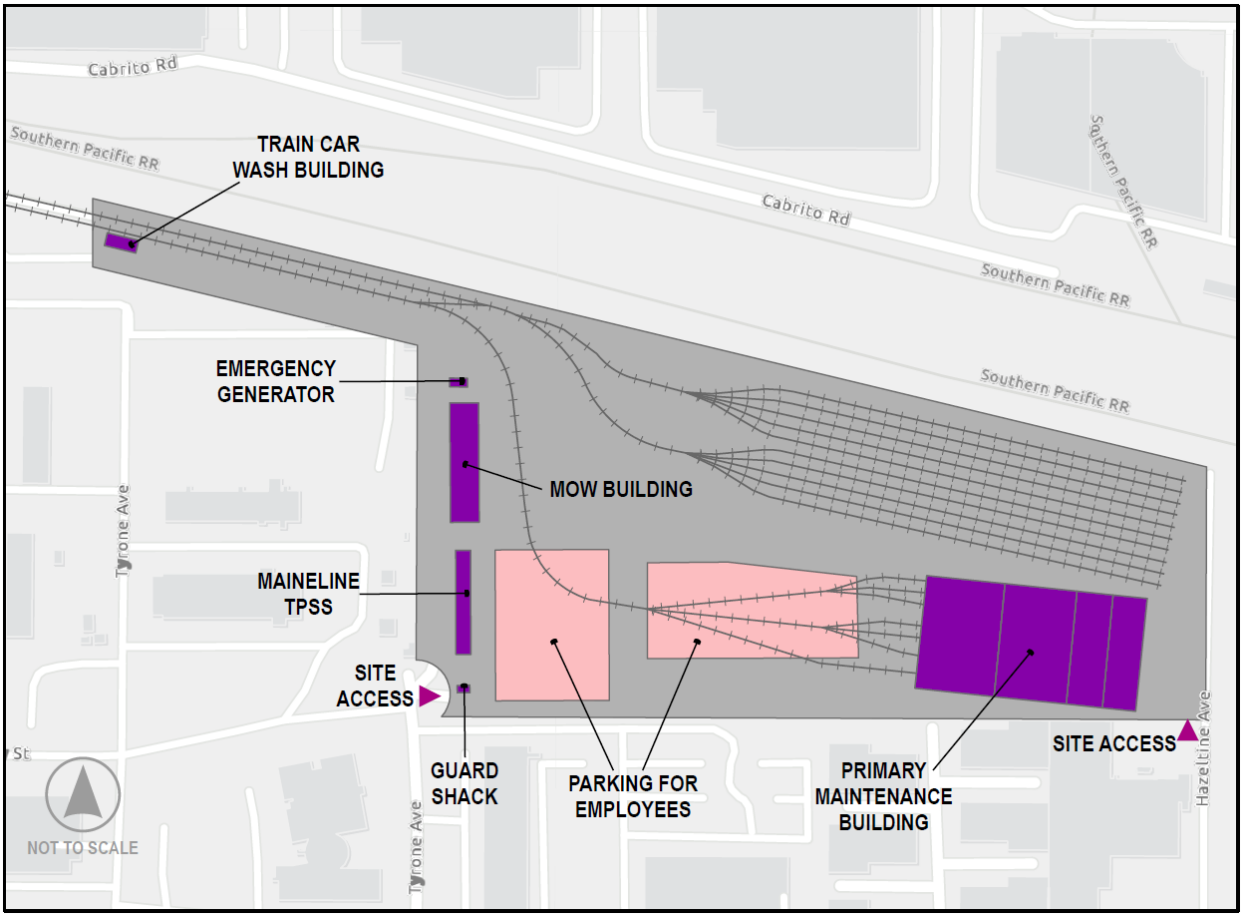
In the MSF Base Design (Figure 2-7), the MSF would be located on Los Angeles Department of Water and Power (LADWP) property east of the Van Nuys Metrolink Station. The MSF Base Design site would be approximately 18 acres and would be designed to accommodate a fleet of 208 monorail vehicles. The site would be bounded by the Los Angeles-San Diego-San Luis Obispo (LOSSAN) rail corridor to the north, Saticoy Street to the south, and property lines extending north of Tyrone and Hazeltine Avenues to the west and east, respectively.

Monorail trains would access the site from a yard lead at the northwest corner of the site. Trains would travel parallel to the LOSSAN rail corridor before curving southeast to maintenance facilities and storage tracks. The guideway would remain in an aerial configuration within the MSF Base Design, including within maintenance facilities.

The site would include the following facilities:

- Primary entrance with guard shack
- Primary maintenance building that would include administrative offices, an operations control center, and a maintenance shop and office
- Train car wash building
- Emergency generator
- Traction power substation (TPSS)
- Maintenance-of-way (MOW) building
- Parking area for employees

Figure 2-7. MRT Maintenance and Storage Facility Base Design



Source: LASRE, 2024; HTA, 2024

MSF Design Option 1

The MSF Design Option 1 (Figure 2-8), would be located on industrial property, abutting Orion Avenue, south of the LOSSAN rail corridor. The MSF Design Option 1 site would be approximately 26 acres and would be designed to accommodate a fleet of 224 monorail vehicles. The site would be bounded by I-405 to the west, Stagg Street to the south, the LOSSAN rail corridor to the north, and Orion Avenue and Raymer Street to the east. The monorail guideway would travel along the northern edge of the site.

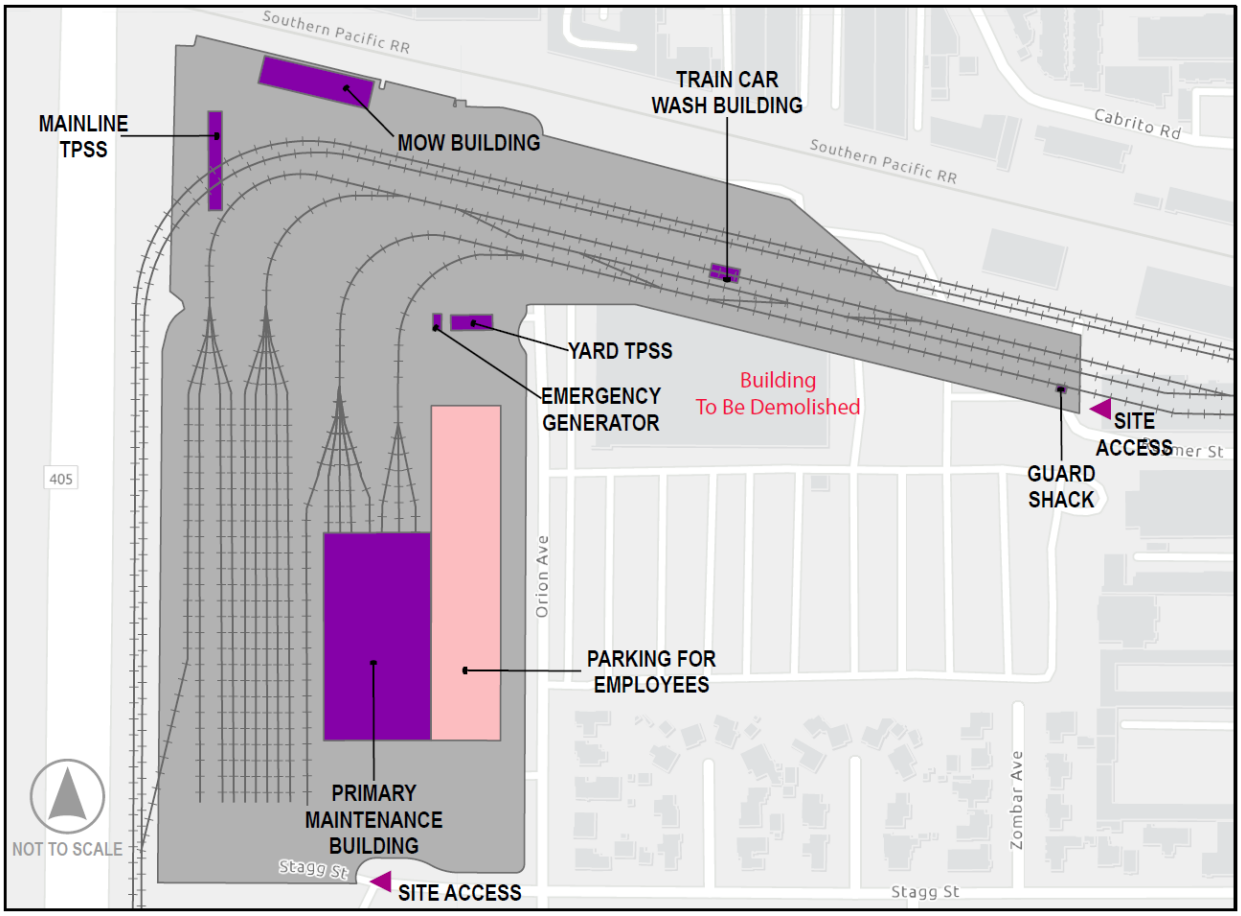
Monorail trains would access the site from the monorail guideway east of Sepulveda Boulevard, requiring additional property east of Sepulveda Boulevard and north of Raymer Street. From the northeast corner of the site, trains would travel parallel to the LOSSAN rail corridor before turning south to maintenance facilities and storage tracks parallel to I-405. The guideway would remain in an aerial configuration within the MSF Design Option 1, including within maintenance facilities.

The site would include the following facilities:

- Primary entrance with guard shack
- Primary maintenance building that would include administrative offices, an operations control center, and a maintenance shop and office

- Train car wash building
- Emergency generator
- TPSS
- MOW building
- Parking area for employees

Figure 2-8. MRT Maintenance and Storage Facility Design Option 1



Source: LASRE, 2024; HTA, 2024

Traction Power Substations

TPSSs transform and convert high voltage alternating current supplied from power utility feeders into direct current suitable for transit operation. A TPSS on a site of approximately 8,000 square feet would be located approximately every 1 mile along the alignment.

Fire/Life Safety

Continuous emergency evacuation walkways would be provided along the guideway. Walkways along the alignment's aerial portions would typically consist of structural steel frames anchored to the guideway beams to support non-slip walkway panels. The walkways would be located between the two guideway beams for most of the aerial alignment; however, where the beams split apart, such as

entering center-platform stations, short portions of the walkway would be located on the outside of the beams. For the underground portion of Alternative 3, 3.5-foot-wide emergency evacuation walkways would be located on both sides of the beams. Access to tunnel segments for first responders would be through stations and portals.

Construction and Staging Areas

Aerial guideway construction would begin at the southern and northern ends of the alignment and connect in the middle. Constructing the guideway would require a combination of freeway and local street lane closures throughout the work limits to provide sufficient work area. Widening of segments of I-405 would be required to accommodate the aerial guideway. The first stage of I-405 widening would include a narrowing of adjacent freeway lanes to a minimum width of 11 feet, eliminating the shoulders, and placing K-rail on the outside edge of the travel lanes to create outside work areas. Within these outside work zones, retaining walls, drainage infrastructure, and outer pavement widenings would be constructed to allow for I-405 widening. The reconstruction of on- and off-ramps would be the final stage of I-405 widening.

A median work zone along I-405 for the length of the alignment would be required for erection of the guideway structure. In the median work zone, demolition of the existing median and drainage infrastructure would be followed by the installation of new K-rail and installation of guideway structural components, which would include full directional freeway closures when guideway beams must be transported into the median work areas during late-night hours. Additional night and weekend directional closures would be required for installation of long-span structures over I-405 travel lanes where the guideway would transition from the median.

Aerial station construction is anticipated to last the duration of construction activities for Alternatives 1 and 3 and would include the following general sequence of construction:

- Site clearing
- Utility relocation
- Construction fencing and rough grading
- CIDH pile drilling and installation
- Elevator pit excavation
- Soil and material removal
- Pile cap and pier column construction
- Concourse level and platform level falsework for cast-in-place structural concrete
- Guideway beam installation
- Elevator and escalator installation
- Completion of remaining concrete elements such as pedestrian bridges
- Architectural finishes and mechanical, electrical, and plumbing installation

The MRT Alternatives would require construction of a concrete casting facility for columns and beams associated with the elevated guideway. A specific site has not been identified; however, it is expected that the facility would be located on industrially zoned land adjacent to a truck route in either the Antelope Valley or Riverside County. When a site is identified, the contractor would obtain all permits and approvals necessary from the relevant jurisdiction, the appropriate air quality management entity, and other regulatory entities. Section 3.20 provides more detail about the environmental requirements for concrete casting facilities.

TPSS construction would require additional lane closures. Large equipment including transformers, rectifiers, and switchgears would be delivered and installed through prefabricated modules where possible in at-grade TPSSs. The installation of transformers would require temporary lane closures on Exposition Boulevard, Beloit Avenue, Sepulveda Boulevard just north of Cashmere Street (Alternative 1 only), and the I-405 northbound on-ramp at Burbank Boulevard.

Construction staging locations are included with the description of each alternative. Staging areas would provide the necessary space for the following activities:

- Contractors' equipment
- Receiving deliveries
- Storing materials
- Site offices
- Work zone for excavation
- Other construction activities (including parking and change facilities for workers, location of construction office trailers, storage, staging and delivery of construction materials and permanent plant equipment, and maintenance of construction equipment)

For Alternative 3 only, underground stations, including the Wilshire Boulevard/Metro D Line Station and the UCLA Gateway Plaza Station, would use a cut-and-cover construction method whereby the station structure would be constructed within a trench excavated from the surface that is covered by a temporary deck and backfilled during the later stages of station construction. Traffic and pedestrian detours would be necessary during underground station excavation until decking is in place and the appropriate safety measures are taken to resume cross traffic.

A tunnel boring machine (TBM) would be used to construct the tunnel for Alternative 3. The TBM would be launched from a launch site on Veteran Avenue south of Wilshire Boulevard, and head north toward an exit portal location north of Leo Baeck Temple on Sepulveda Boulevard. The southern portion of the tunnel between Wilshire Boulevard and the Bel Air Country Club would be at a depth between 80 to 110 feet. The UCLA Gateway Plaza Station would be constructed using cut-and-cover methods. Through the Santa Monica Mountains, the tunnel would range between 30 to 300 feet deep.

2.5.2.2 Alternative 1

Overview

Alternative 1 would be a 15.1-mile long MRT alignment operating between a southern terminus station adjacent to the Metro E Line Expo/Sepulveda Station and a northern terminus station adjacent to the Van Nuys Metrolink/Amtrak Station. The monorail guideway would be entirely aerial and generally located within the I-405 ROW and then adjacent to the LOSSAN rail corridor tracks between I-405 and the Van Nuys Metrolink Station. Alternative 1 would have eight aerial monorail stations: Metro E Line Expo/Sepulveda, Santa Monica Boulevard, Wilshire Boulevard/Metro D Line, Getty Center, Ventura Boulevard/Sepulveda Boulevard, Metro G Line Sepulveda, Sherman Way, and the Van Nuys Metrolink Station.

At Wilshire Boulevard, an aerial station would be located on the west side of I-405, and an electric bus shuttle would provide service along a 1.5-mile route between the Metro D Line Westwood/VA Hospital Station and UCLA Gateway Plaza, with an intermediate stop at Westwood Boulevard/Le Conte Avenue. The electric bus shuttle would operate at headways of 2 minutes during peak periods. An MSF for monorail vehicles would be located either west of Sepulveda Boulevard south of the LOSSAN rail corridor tracks or on property owned by LADWP, east of the Van Nuys Metrolink Station. An Electric Bus

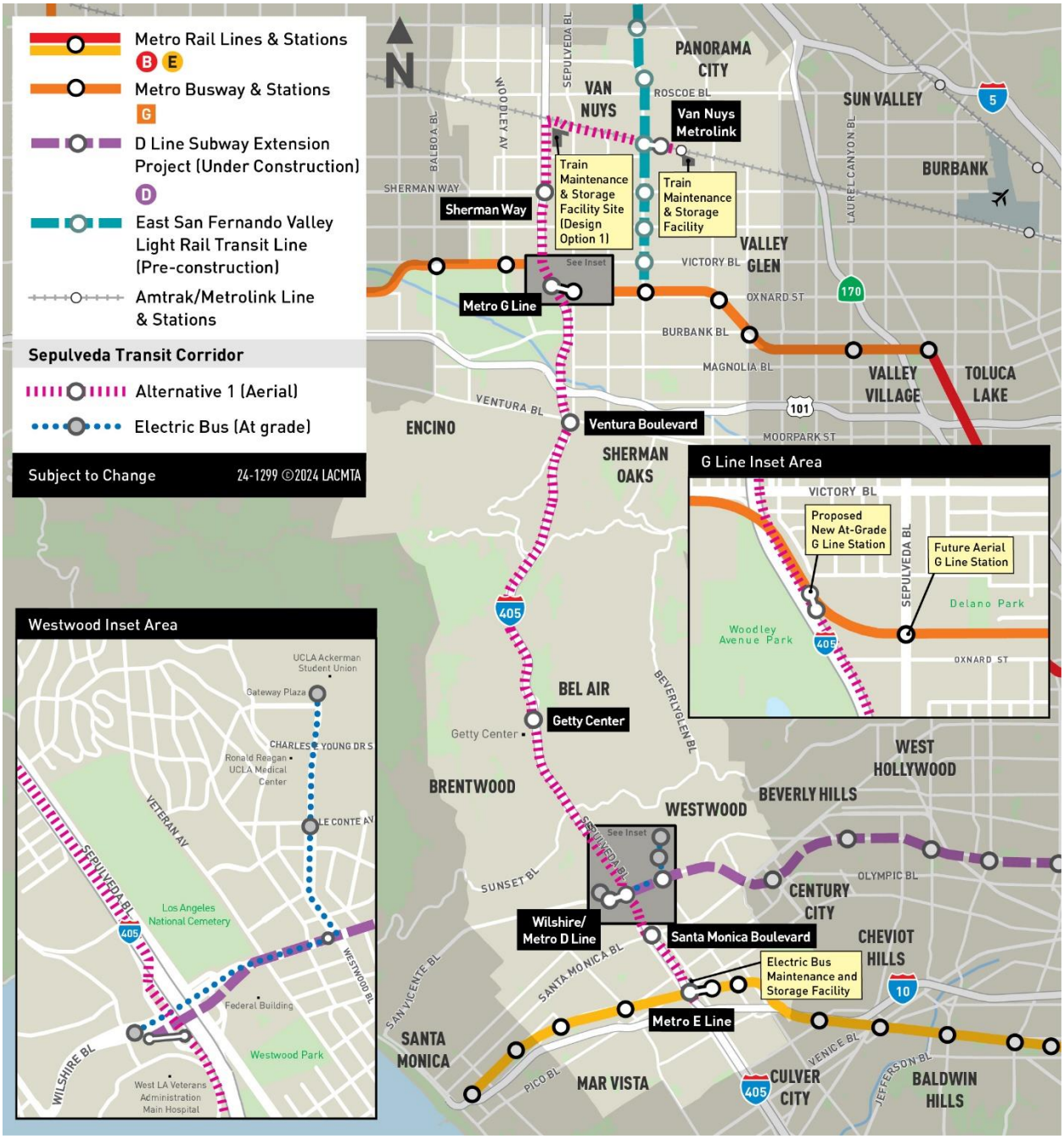
MSF would be located at the northwest corner of Pico Boulevard and Cotner Avenue. To accommodate the monorail guideway within the I-405 corridor, widening of the freeway would be required at some locations, and some freeway ramps and local roads would be realigned or relocated.

Alignment

As shown on Figure 2-9, from its southern terminus at the Metro E Line Expo/Sepulveda Station, the alignment of Alternative 1 would generally follow I-405 to the LOSSAN rail corridor near the alignment's northern terminus at the Van Nuys Metrolink Station. At several points, the alignment would transition from one side of the freeway to the other or to the median. North of US-101, the alignment would be on the east side of the I-405 ROW and would then curve eastward along the south side of the LOSSAN rail corridor to Van Nuys Boulevard.

The proposed southern terminus station would be located west of the existing Metro E Line Expo/Sepulveda Station and east of I-405 between Pico Boulevard and Exposition Boulevard. Tail tracks for the storage of trains would extend just south of the station adjacent to the eastbound I-10 to northbound I-405 connector over Exposition Boulevard. North of the Metro E Line Expo/Sepulveda Station, a storage track would be located off the main alignment north of Pico Boulevard between I-405 and Cotner Avenue. The alignment would continue north along the east side of I-405 until just south of Santa Monica Boulevard, where a proposed station would be located between the I-405 northbound travel lanes and Cotner Avenue. The alignment would cross over the northbound and southbound freeway lanes north of Santa Monica Boulevard and travel along the west side of I-405, before reaching a proposed station within the I-405 southbound-to-eastbound loop off-ramp to Wilshire Boulevard, near the Metro D Line Westwood/VA Hospital Station.

Figure 2-9. Alternative 1: Alignment



Source: LASRE, 2024; HTA, 2024

An electric bus would serve as a shuttle between the Wilshire Boulevard/Metro D Line Station and UCLA Gateway Plaza. From the Wilshire Boulevard/Metro D Line Station, the bus would travel east on Wilshire Boulevard and turn north on Westwood Boulevard to UCLA Gateway Plaza and make an intermediate stop in Westwood Village near the intersection of Le Conte Avenue and Westwood Boulevard.

North of Wilshire Boulevard, the monorail alignment would transition over the southbound freeway lanes to the freeway median, where it would continue north over the Sunset Boulevard overcrossing.

The alignment would remain in the median to Getty Center Drive, where it would cross over the southbound freeway lanes to the west side of I-405, just north of the Getty Center Drive undercrossing, to the proposed Getty Center Station located north of the Getty Center tram station. The alignment would return to the median for a short distance before curving back to the west side of I-405 south of the Sepulveda Boulevard undercrossing north of the Getty Center Drive interchange. After crossing over Bel Air Crest Road and Skirball Center Drive, the alignment would return to the median and run under the Mulholland Drive Bridge, then continue north within the I-405 median to descend into the San Fernando Valley.

Near Greenleaf Street, the alignment would cross over the northbound freeway lanes and northbound on-ramps toward the proposed Ventura Boulevard Station on the east side of I-405. This station would be located above a transit plaza and would replace an existing segment of Dickens Street adjacent to I-405, just south of Ventura Boulevard. Immediately north of the Ventura Boulevard Station, the alignment would cross over the northbound I-405 to US-101 connector and continue north between the connector and the I-405 northbound travel lanes. The alignment would continue north along the east side of I-405—crossing over US-101 and the Los Angeles River—to a proposed station on the east side of I-405 near the Metro G Line Busway. A new at-grade station on the Metro G Line would be constructed for Alternative 1 adjacent to the proposed monorail station. These proposed stations are shown on the Metro G Line inset area on Figure 2-9.

The alignment would then continue north along the east side of I-405 to the proposed Sherman Way Station. The station would be located inside the I-405 northbound loop off-ramp to Sherman Way. North of the station, the alignment would continue along the eastern edge of I-405, then curve to the southeast parallel to the LOSSAN rail corridor. The alignment would remain aerial along Raymer Street east of Sepulveda Boulevard and cross over Van Nuys Boulevard to the proposed terminus station adjacent to the Van Nuys Metrolink/Amtrak Station. Overhead utilities along Raymer Street would be undergrounded where they would conflict with the guideway or its supporting columns. Tail tracks would be located southeast of this terminus station.

Stations

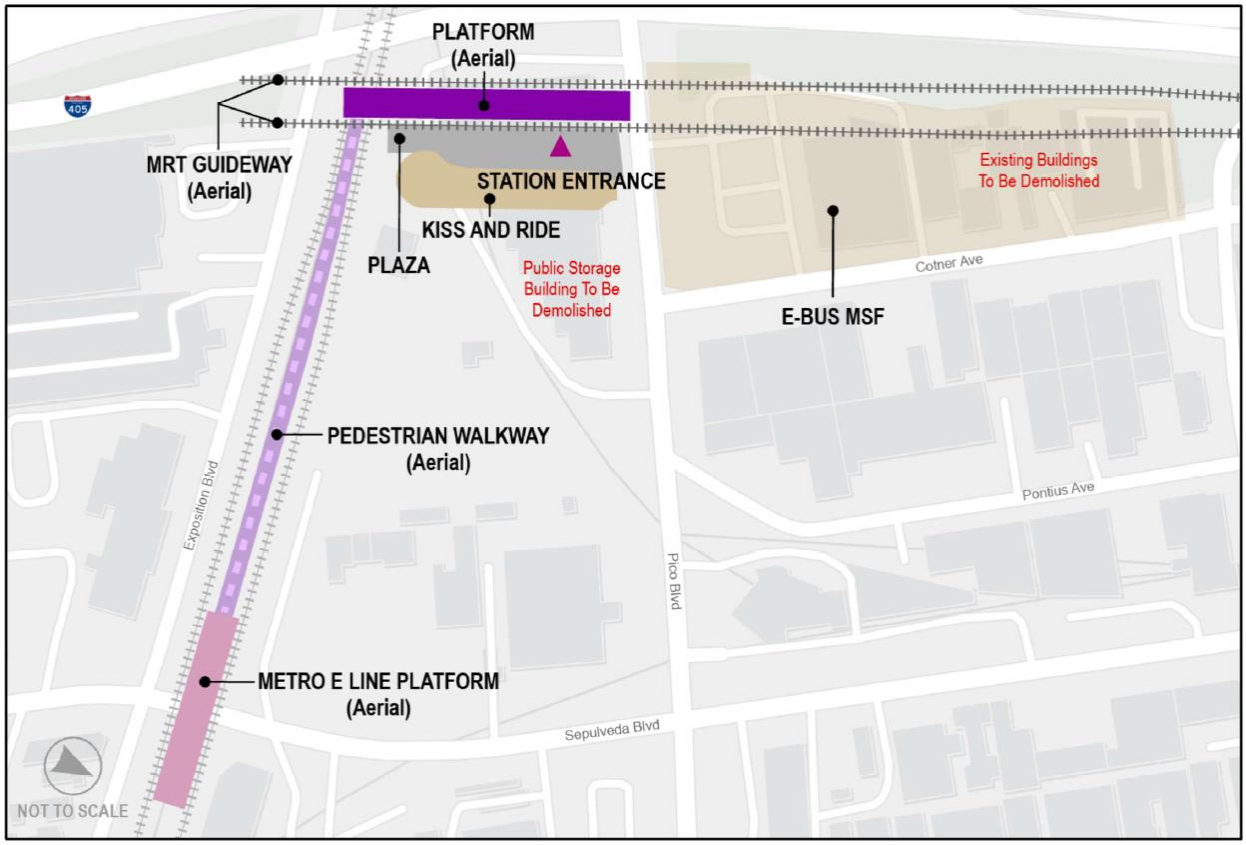
Alternative 1 would have eight aerial monorail stations at Metro E Line Expo/Sepulveda, Santa Monica Boulevard, Wilshire Boulevard/Metro D Line, the Getty Center, Ventura Boulevard/Sepulveda Boulevard, Metro G Line Sepulveda, Sherman Way, and the Van Nuys Metrolink Station, as well as three electric bus stops at Wilshire Boulevard/VA Medical Center, Westwood Village, and UCLA Gateway Plaza. The location, entrances and transit plazas, pick-up/drop-off loops, connections to other fixed-guideway transit, and parking of the monorail stations would be as follows:

Metro E Line Expo/Sepulveda Station (Illustrated on Figure 2-10)

- This aerial station would be located near the existing Metro E Line Expo/Sepulveda Station, just east of I-405 between Pico Boulevard and Exposition Boulevard.
- A transit plaza and station entrance would be located on the east side of the station.
- An off-street passenger pick-up/drop-off loop would be located south of Pico Boulevard west of Cotner Avenue.
- An elevated pedestrian walkway would connect the concourse level of the proposed station to the Metro E Line Expo/Sepulveda Station within the fare paid zone.

- The distance between the proposed station platform and the Metro E Line Expo/Sepulveda Station platform would be approximately 740 feet.
- Passengers would be able to park at the existing Metro E Line Expo/Sepulveda Station parking facility, which provides 260 parking spaces. No additional automobile parking would be provided at the proposed station.

Figure 2-10. Alternatives 1 and 3: Metro E Line Expo/Sepulveda Station

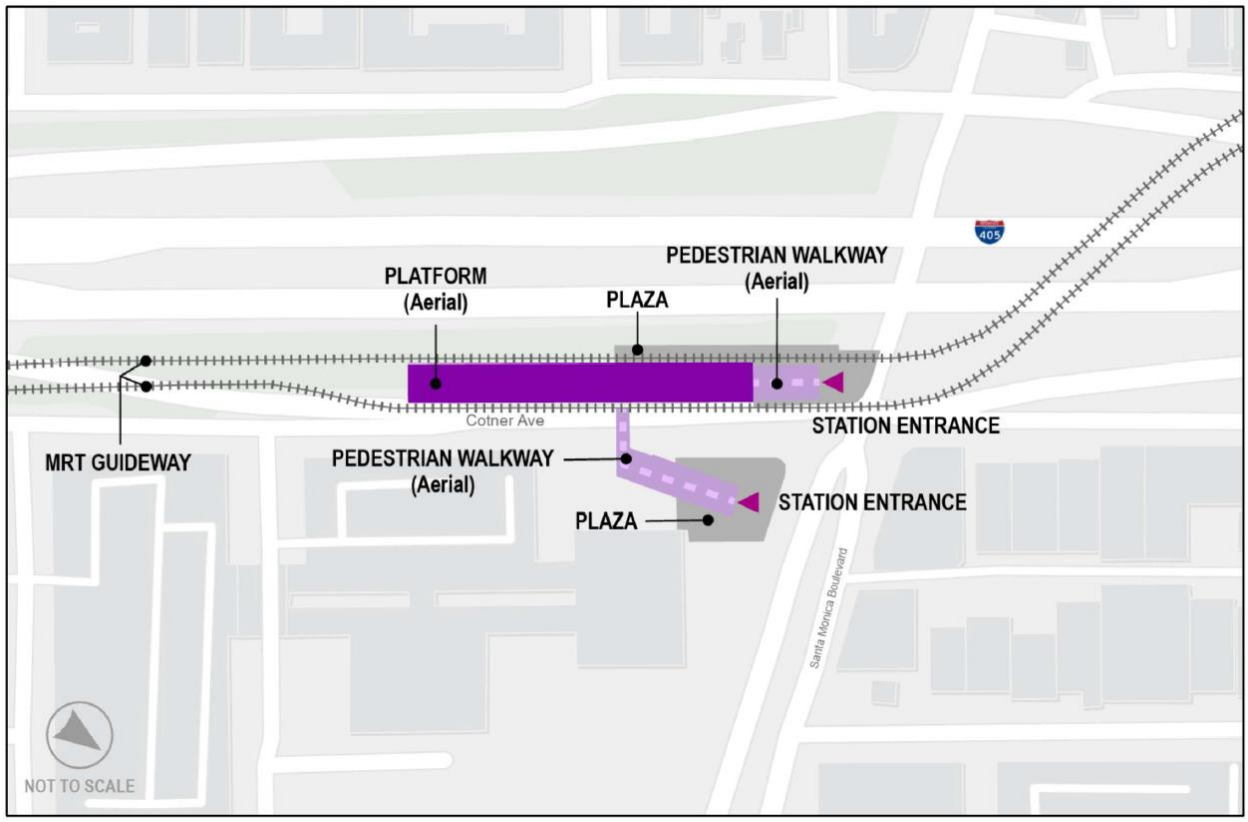


Source: LASRE, 2024; HTA, 2024

Santa Monica Boulevard Station (Illustrated on Figure 2-11)

- This aerial station would be located just south of Santa Monica Boulevard, between the I-405 northbound travel lanes and Cotner Avenue.
- Station entrances would be located on the southeast and southwest corners of Santa Monica Boulevard and Cotner Avenue. The entrance on the southeast corner of the intersection would be connected to the station concourse level via an elevated pedestrian walkway spanning Cotner Avenue.
- No dedicated station parking would be provided at this station.

Figure 2-11. Alternatives 1 and 3: Santa Monica Boulevard Station



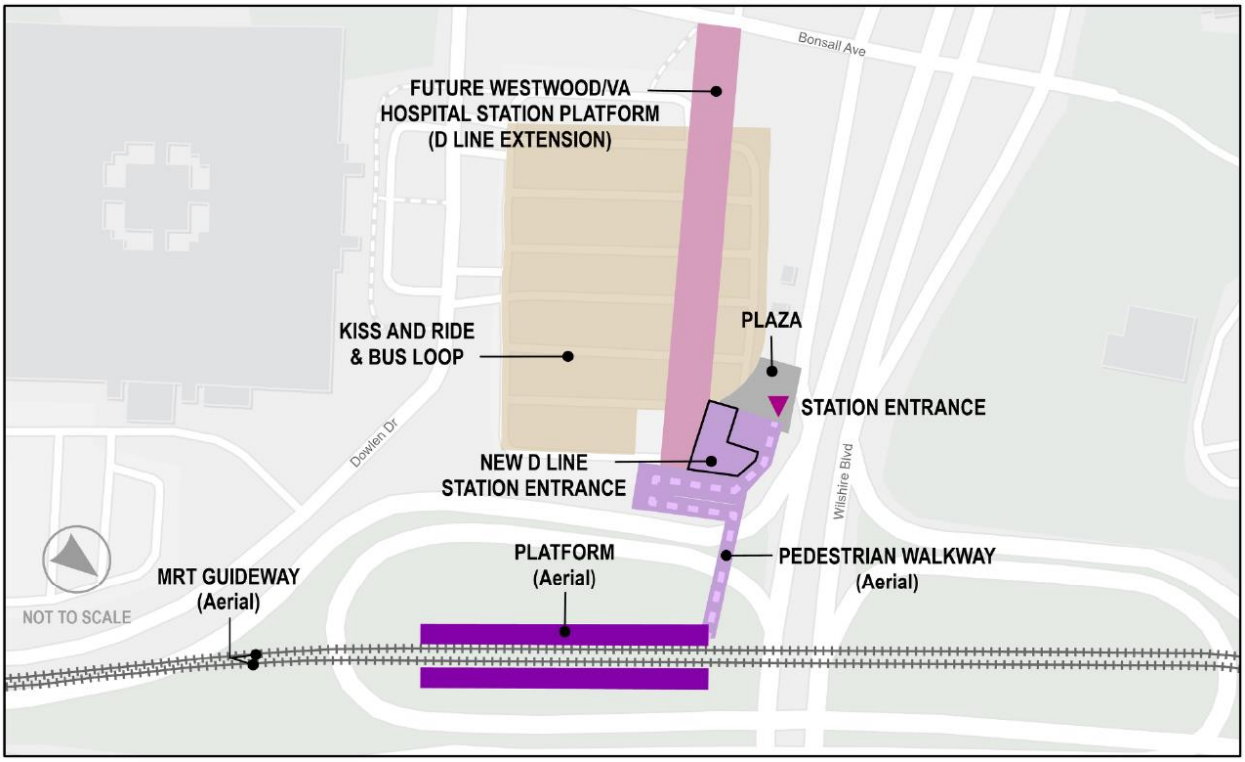
Source: LASRE, 2024; HTA, 2024

Wilshire Boulevard/Metro D Line Station (Illustrated on Figure 2-12)

- This aerial station would be located west of I-405 and south of Wilshire Boulevard within the southbound I-405 loop off-ramp to eastbound Wilshire Boulevard.
- An elevated pedestrian walkway spanning the adjacent I-405 ramps would connect the concourse level of the proposed station to a station plaza adjacent to the Metro D Line Westwood/VA Hospital Station within the fare paid zone. The station plaza would be the only entrance to the proposed station.
- The station plaza would include an electric bus stop and provide access to the Metro D Line Station via a new station entrance and concourse constructed using a knock-out panel[1] provided in the Metro D Line Station.
- The distance between the proposed station platforms and the Metro D Line Westwood/VA Hospital Station platform would be approximately 400 feet.
- The passenger pick-up/drop-off facility at the Metro D Line Station would be reconfigured, maintaining the original capacity.
- No dedicated station parking would be provided at this station.

[1] A "knock-out panel" is a section of the underground station structure that is intentionally designed to be removed at a later stage for reconfiguration of the station.

Figure 2-12. Alternative 1: Wilshire Boulevard/Metro D Line Station

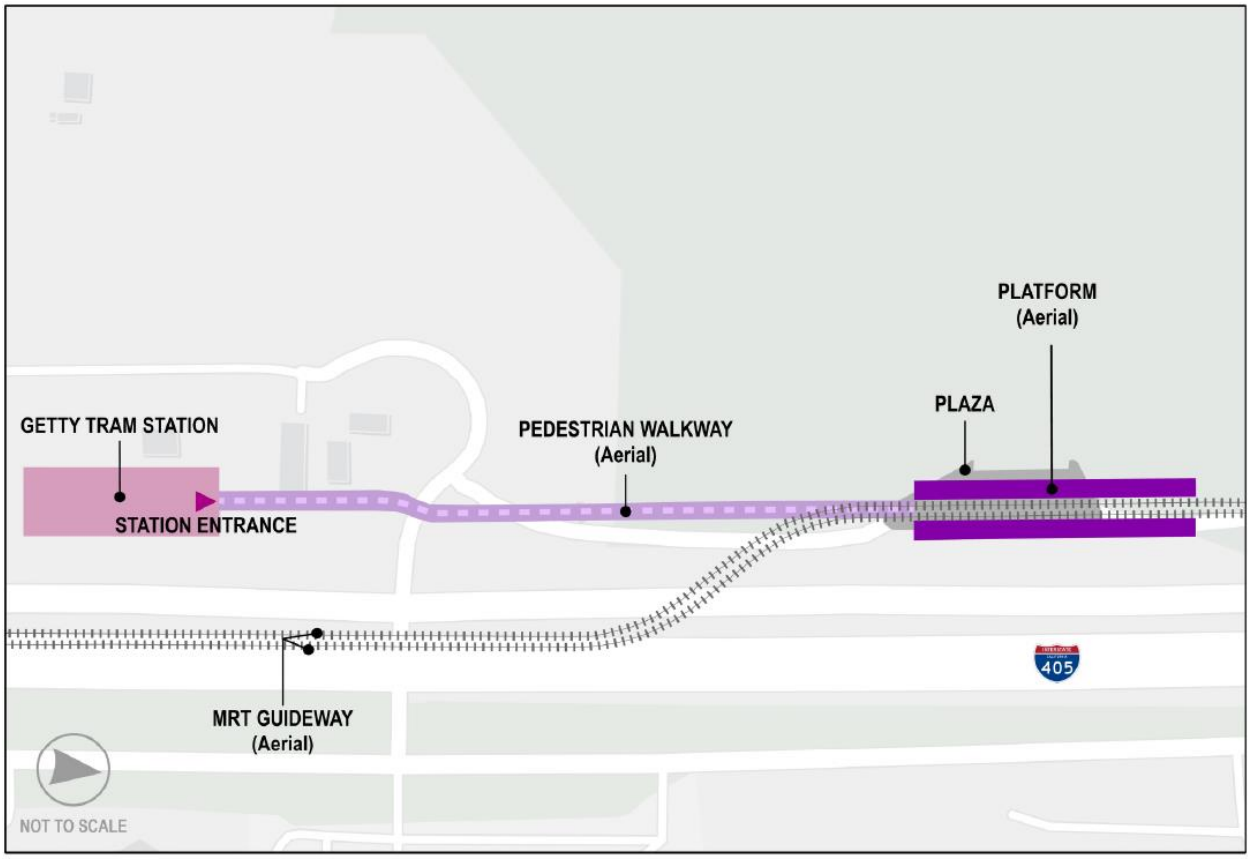


Source: LASRE, 2024; HTA, 2024

Getty Center Station (Illustrated on Figure 2-13)

- This aerial station would be located on the west side of I-405 near the Getty Center, approximately 1,000 feet north of the Getty Center tram station.
- An elevated pedestrian walkway would connect the concourse level of the proposed station to the Getty Center tram station. The proposed connection would occur outside the fare paid zone.
- The pedestrian walkway would provide the only entrance to the proposed station.
- No dedicated station parking would be provided at this station.

Figure 2-13. Alternative 1: Getty Center Station

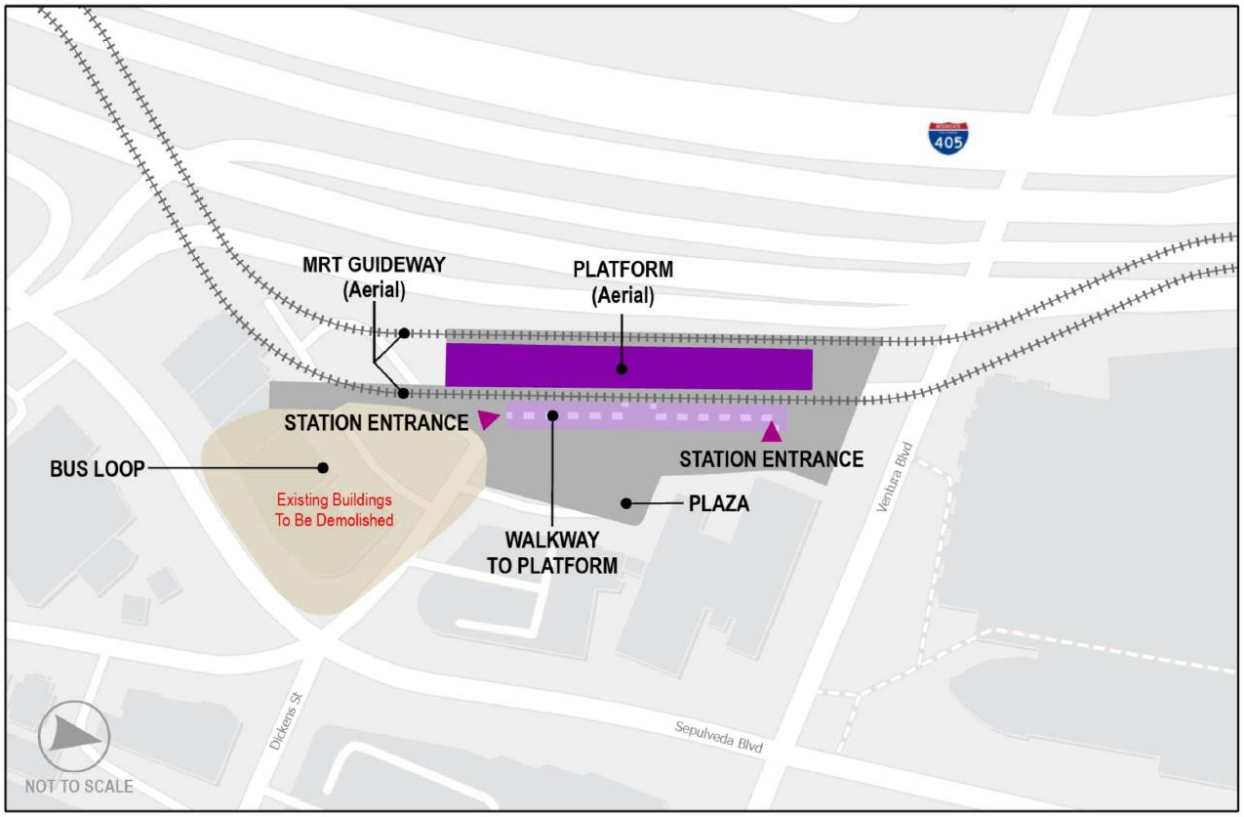


Source: LASRE, 2024; HTA, 2024

Ventura Boulevard/Sepulveda Boulevard Station (Illustrated on Figure 2-14)

- This aerial station would be located east of I-405, just south of Ventura Boulevard.
- A transit plaza, including two station entrances, would be located on the east side of the station. The plaza would require the closure of a 0.1-mile segment of Dickens Street between Sepulveda Boulevard and Ventura Boulevard, with a passenger pick-up/drop-off loop and bus stops provided south of the station, off Sepulveda Boulevard.
- No dedicated station parking would be provided at this station.

Figure 2-14. Alternatives 1 and 3: Ventura Boulevard/Sepulveda Boulevard Station

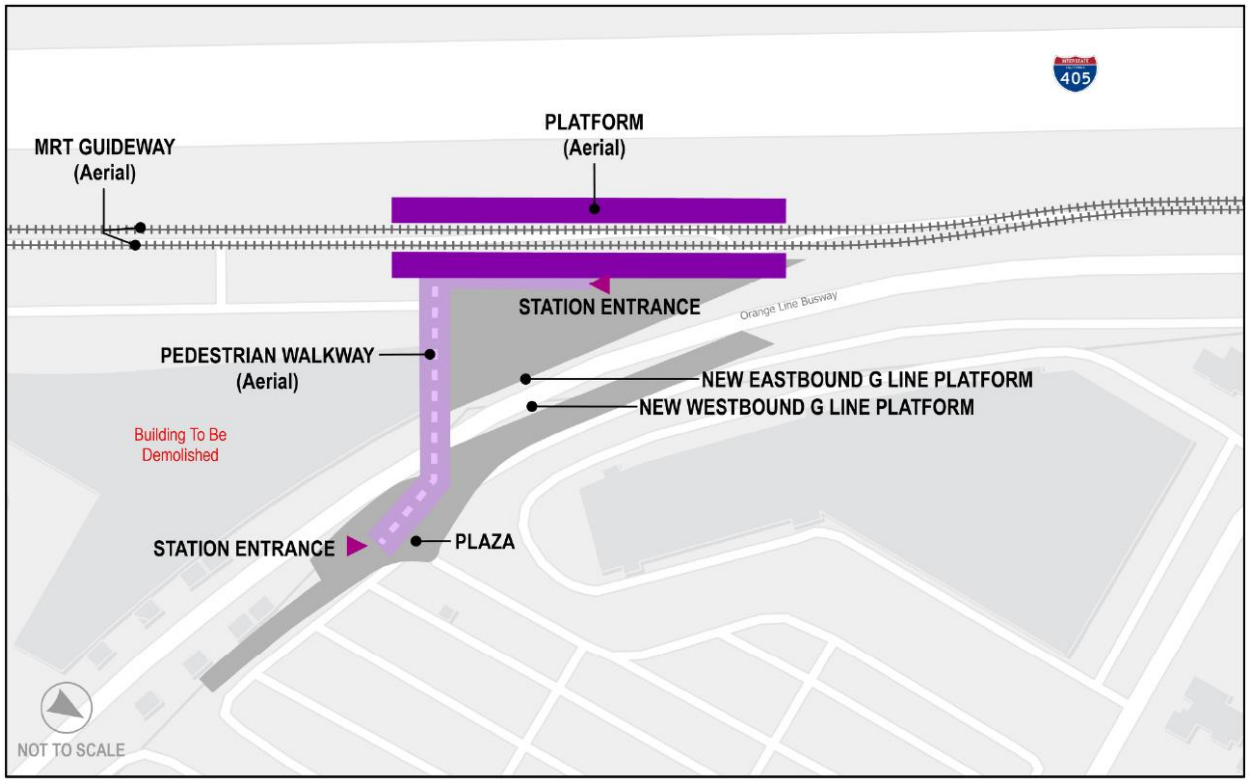


Source: LASRE, 2024; HTA, 2024

Metro G Line Sepulveda Station (Illustrated on Figure 2-15)

- This aerial station would be located near the Metro G Line Sepulveda Station, between I-405 and the Metro G Line Busway.
- Entrances to the MRT station would be located on both sides of a proposed new Metro G Line BRT station.
- An elevated pedestrian walkway would connect the concourse level of the proposed station to the proposed new Metro G Line BRT station outside of the fare paid zone.
- The distance between the proposed station platforms and the Metro G Line platforms would be approximately 400 feet.
- Passengers would be able to park at the existing Metro G Line Sepulveda Station parking facility, which has a capacity of 1,205 parking spaces. Currently, only 260 parking spaces are used for transit parking. No additional automobile parking would be provided at the proposed station.

Figure 2-15. Alternatives 1 and 3: Metro G Line Sepulveda Station

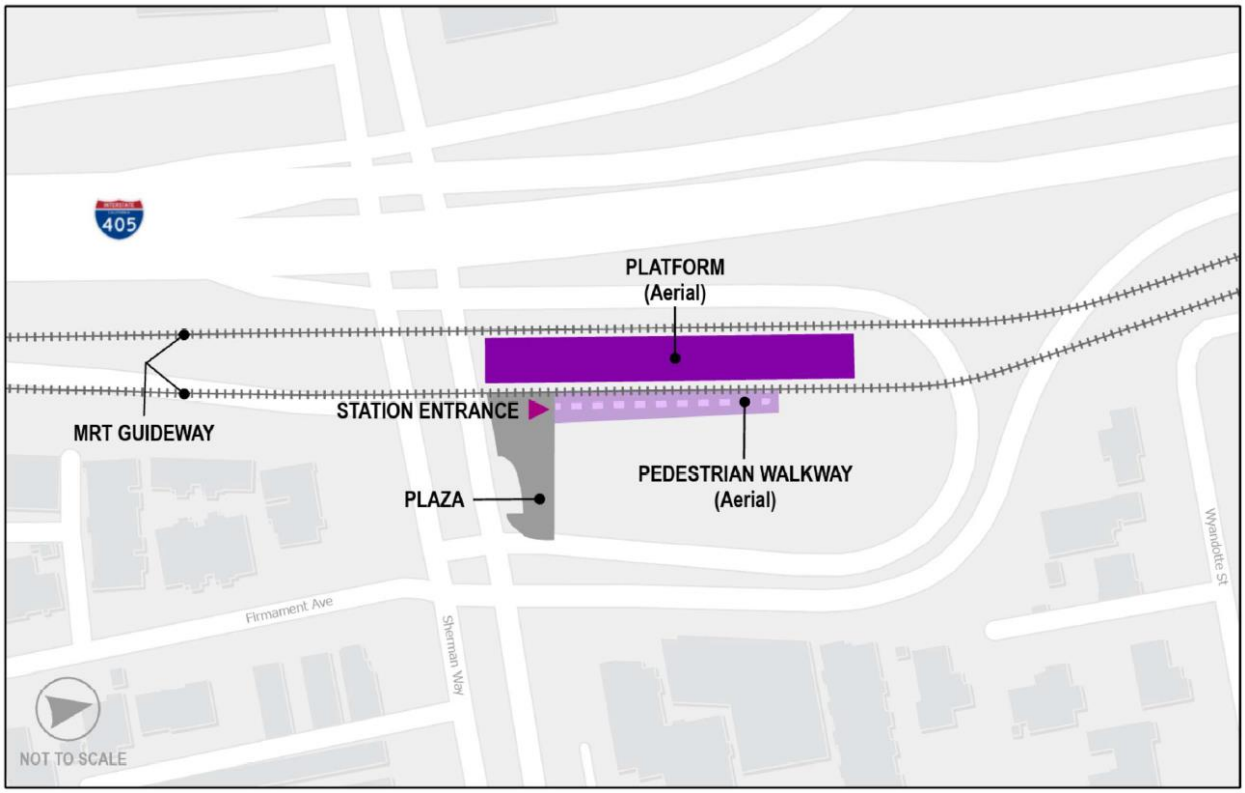


Source: LASRE, 2024; HTA, 2024

Sherman Way Station (Illustrated on Figure 2-16)

- This aerial station would be located inside the I-405 northbound loop off-ramp to Sherman Way.
- A station entrance would be located on the north side of Sherman Way.
- An on-street passenger pick-up/drop-off area would be provided on the north side of Sherman Way west of Firmament Avenue.
- No dedicated station parking would be provided at this station.

Figure 2-16. Alternatives 1 and 3: Sherman Way Station

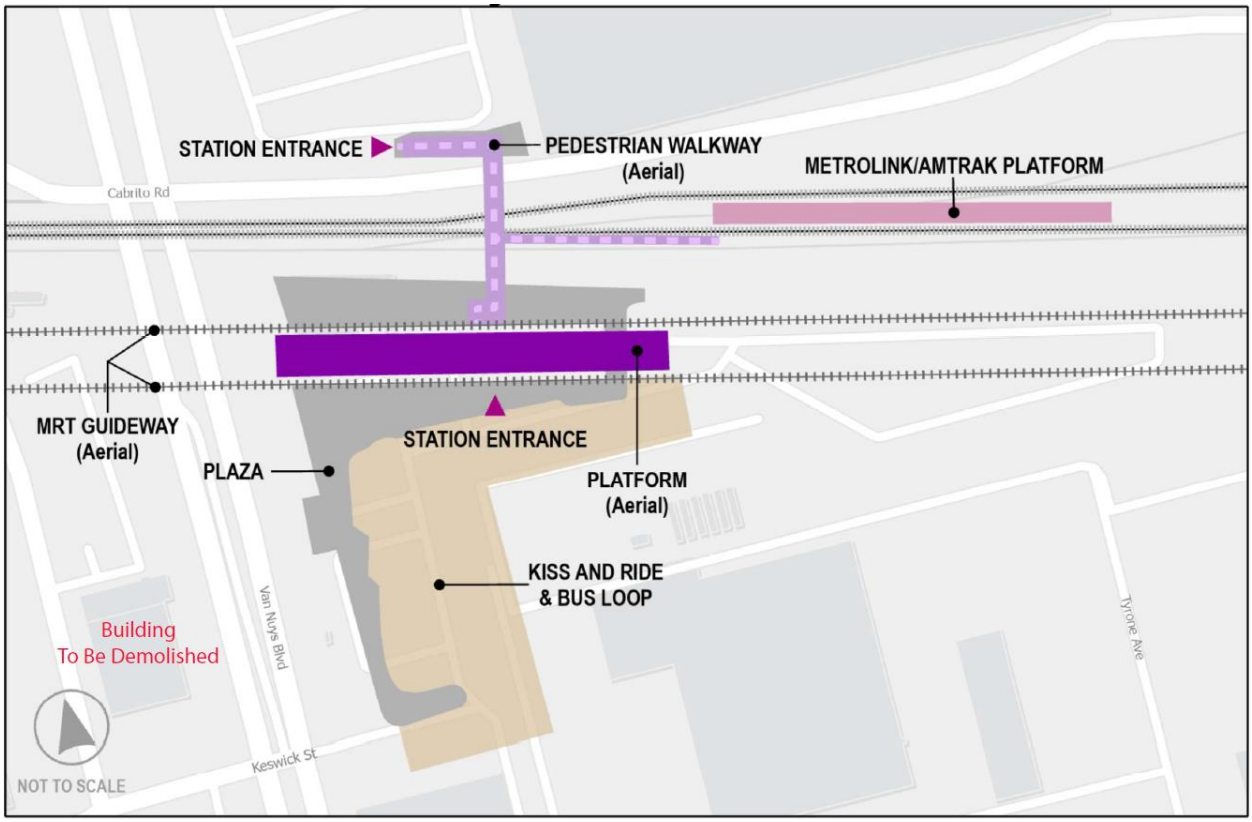


Source: LASRE, 2024; HTA, 2024

Van Nuys Metrolink Station (Illustrated on Figure 2-17)

- This aerial station would be located on the east side of Van Nuys Boulevard, just south of the LOSSAN rail corridor, incorporating the site of the current Amtrak ticket office.
- A station entrance would be located on the east side of Van Nuys Boulevard just south of the LOSSAN rail corridor. A second entrance would be located north of the LOSSAN rail corridor with an elevated pedestrian walkway connecting to both the concourse level of the proposed station and the platform of the Van Nuys Metrolink/Amtrak Station.
- The distance between the proposed station platform and the Metrolink/Amtrak platform would be approximately 330 feet. The distance between the proposed station platform and the East San Fernando Valley (ESFV) station platform would be approximately 560 feet.
- Existing Metrolink/Amtrak station parking would be reconfigured, maintaining approximately the same number of spaces, but 180 parking spaces would be relocated north of the LOSSAN rail corridor. Metrolink parking would not be available to Metro transit riders.

Figure 2-17. Alternatives 1 and 3: Van Nuys Metrolink Station

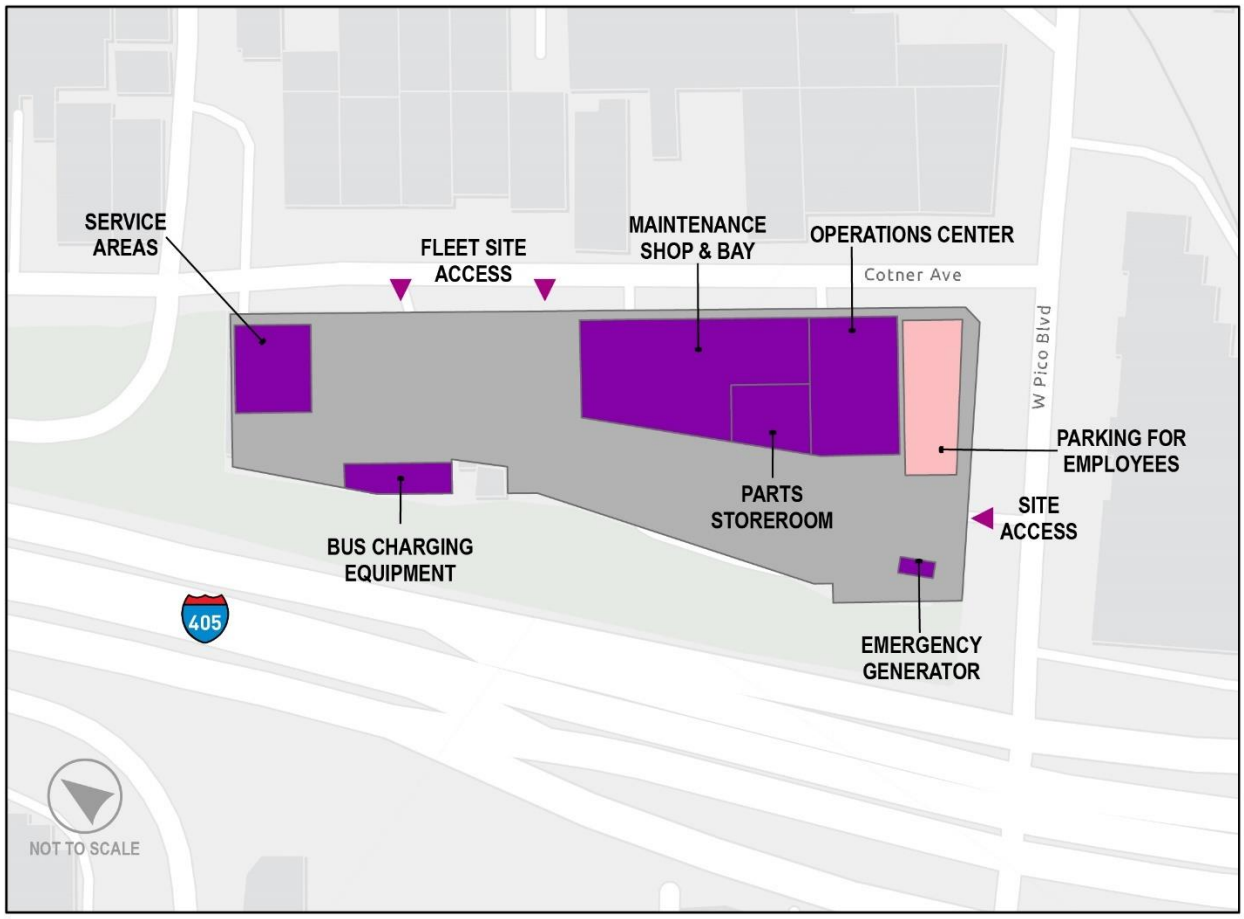


Source: LASRE, 2024; HTA, 2024

Electric Bus Maintenance and Storage Facility

An electric bus MSF would be located on the northwest corner of Pico Boulevard and Cotner Avenue and would be designed to accommodate 14 electric buses. The site would be approximately 2 acres and would comprise six parcels bounded by Cotner Avenue to the east, I-405 to the west, Pico Boulevard to the south, and the I-405 northbound on-ramp to the north. Figure 2-18 shows the location and facilities of the electric bus MSF.

Figure 2-18. Alternative 1: Electric Bus Maintenance and Storage Facility



Source: LASRE, 2024; HTA, 2024

The site would include approximately 45,000 square feet of buildings and include the following facilities:

- Maintenance shop and bay
- Maintenance office
- Operations center
- Bus charging equipment
- Parts storeroom with service areas
- Parking area for employees

Station-to-Station Travel Times

Table 2-3 presents the station-to-station distances and travel times for Alternative 1. The travel times include both run time and dwell time. Dwell time is 30 seconds per station. Northbound and southbound travel times vary slightly because of grade differentials and operational considerations at end-of-line stations.

Table 2-3. Alternative 1: Station-to-Station Travel Times and Station Dwell Times

From Station	To Station	Distance (miles)	Northbound Station-to-Station Travel Time (seconds)	Southbound Station-to-Station Travel Time (seconds)	Dwell Time (seconds)
Metro E Line Station					*30*
Metro E Line	Santa Monica Boulevard	0.9	122	98	—
Santa Monica Boulevard Station					*30*
Santa Monica Boulevard	Wilshire/Metro D Line	0.7	99	104	—
Wilshire/Metro D Line Station					*30*
Wilshire/Metro D Line	Getty Center	2.9	263	266	—
Getty Center Station					*30*
Getty Center	Ventura Boulevard	4.7	419	418	—
Ventura Boulevard Station					*30*
Ventura Boulevard	Metro G Line	2.0	177	184	—
Metro G Line Station					*30*
Metro G Line	Sherman Way	1.5	135	134	—
Sherman Way Station					*30*
Sherman Way	Van Nuys Metrolink	2.4	284	284	—
Van Nuys Metrolink Station					*30*

Source: LASRE, 2024

Special Trackwork

Alternative 1 would include five pairs of beam switches to enable trains to cross over to the opposite beam. From south to north, the first pair of beam switches would be located just north of the Metro E Line Expo/Sepulveda Station. The second pair of beam switches would be located near the Wilshire Boulevard/Metro D Line Station on the north side of Wilshire Boulevard, within the Wilshire Boulevard westbound to I-405 southbound loop on-ramp. A third pair of beam switches would be located in the Sepulveda Pass just south of Mountaingate Drive and Sepulveda Boulevard. A fourth pair of beam switches would be located south of the Metro G Line Station between the I-405 northbound lanes and the Metro G Line Busway. The final pair would be located near the Van Nuys Metrolink Station.

Traction Power Substations

Table 2-4 lists the TPSS locations proposed for Alternative 1. Figure 2-19 shows the TPSS locations along the Alternative 1 alignment.

Table 2-4. Alternative 1: Traction Power Substation Locations

TPSS No.	TPSS Location Description	Configuration
1	TPSS 1 would be located east of I-405, just south of Exposition Boulevard and the monorail guideway tail tracks.	At-grade
2	TPSS 2 would be located west of I-405, just north of Wilshire Boulevard, inside the Westbound Wilshire Boulevard to I-405 Southbound Loop On-Ramp.	At-grade
3	TPSS 3 would be located west of I-405, just north of Sunset Boulevard, inside the Church Lane to I-405 Southbound Loop On-Ramp.	At-grade
4	TPSS 4 would be located east of I-405 and Sepulveda Boulevard, just north of the Getty Center Station.	At-grade
5	TPSS 5 would be located west of I-405, just east of the intersection between Promontory Road and Sepulveda Boulevard.	At-grade
6	TPSS 6 would be located between I-405 and Sepulveda Boulevard, just north of the Skirball Center Drive Overpass.	At-grade
7	TPSS 7 would be located east of I-405, just south of Ventura Boulevard Station, between Sepulveda Boulevard and Dickens Street.	At-grade
8	TPSS 8 would be located east of I-405, just south of the Metro G Line Sepulveda Station.	At-grade
9	TPSS 9 would be located east of I-405, just east of the Sherman Way Station, inside the I-405 Northbound Loop Off-Ramp to Sherman Way westbound.	At-grade
10	TPSS 10 would be located east of I-405, at the southeast quadrant of the I-405 overcrossing with the LOSSAN rail corridor.	At-grade
11	TPSS 11 would be located east of I-405, at the southeast quadrant of the I-405 overcrossing with the LOSSAN rail corridor.	At-grade (within MSF Design Option)
12	TPSS 12 would be located between Van Nuys Boulevard and Raymer Street, south of the LOSSAN rail corridor.	At-grade
13	TPSS 13 would be located south of the LOSSAN rail corridor, between Tyrone Avenue and Hazeltine Avenue.	At-grade (within MSF Base Design)

Source: LASRE, 2024; HTA, 2024

Figure 2-19. Alternative 1: Traction Power Substation Locations

Source: LASRE, 2024; HTA, 2024

Roadway Configuration Changes

Table 2-5 lists the roadway changes necessary to accommodate the guideway of Alternative 1. Figure 2-20 shows the location of these roadway changes in the Project Study Area, except for I-405 configuration changes, which would occur throughout the corridor.

Table 2-5. Alternative 1: Roadway Changes

Location	From	To	Description of Change
Cotner Avenue	Nebraska Avenue	Santa Monica Boulevard	Roadway realignment to accommodate aerial guideway columns and station access
Beloit Avenue	Massachusetts Avenue	Ohio Avenue	Roadway narrowing to accommodate aerial guideway columns
I-405 Southbound On-Ramp, Southbound Off-Ramp, and Northbound On-Ramp at Wilshire Boulevard	Wilshire Boulevard	I-405	Ramp realignment to accommodate aerial guideway columns and I-405 widening
Sunset Boulevard	Gunston Drive	I-405 Northbound Off-Ramp at Sunset Boulevard	Removal of direct eastbound to southbound on-ramp to accommodate aerial guideway columns and I-405 widening. Widening of Sunset Boulevard bridge with additional westbound lane
I-405 Southbound On-Ramp and Off-Ramp at Sunset Boulevard and North Church Lane	Sunset Boulevard	Not Applicable	Ramp realignment to accommodate aerial guideway columns and I-405 widening
I-405 Northbound On-Ramp and Off-Ramp at Sepulveda Boulevard near I-405 Exit 59	Sepulveda Boulevard near I-405 Northbound Exit 59	Sepulveda Boulevard / I-405 Undercrossing (near Getty Center)	Ramp realignment to accommodate aerial guideway columns and I-405 widening
Sepulveda Boulevard	I-405 Southbound Skirball Center Drive Ramps (north of Mountaingate Drive)	Skirball Center Drive	Roadway realignment into existing hillside to accommodate aerial guideway columns and I-405 widening
I-405 Northbound On-Ramp at Mulholland Drive	Mulholland Drive	Not Applicable	Roadway realignment into the existing hillside between the Mulholland Drive Bridge pier and abutment to accommodate aerial guideway columns and I-405 widening
Dickens Street	Sepulveda Boulevard	Ventura Boulevard	Vacation and permanent removal of street for Ventura Boulevard Station construction. Pick-up/drop-off area would be provided along Sepulveda Boulevard at the truncated Dickens Street
Sherman Way	Haskell Avenue	Firmament Avenue	Median improvements, passenger drop-off and pick-up areas, and bus pads within existing travel lanes
Raymer Street	Sepulveda Boulevard	Van Nuys Boulevard	Curb extensions and narrowing of roadway width to accommodate aerial guideway columns
I-405	Sunset Boulevard	Bel Terrace	I-405 widening to accommodate aerial guideway columns in the median

Location	From	To	Description of Change
I-405	Sepulveda Boulevard Northbound Off-Ramp (Getty Center Drive interchange)	Sepulveda Boulevard Northbound On-Ramp (Getty Center Drive interchange)	I-405 widening to accommodate aerial guideway columns in the median
I-405	Skirball Center Drive	I-405 Northbound On-Ramp at Mulholland Drive	I-405 widening to accommodate aerial guideway columns in the median

Source: LASRE, 2024; HTA, 2024

Figure 2-20. Alternative 1: Roadway Changes

Source: LASRE, 2024; HTA, 2024

In addition to the changes made to accommodate the guideway, as listed in Table 2-5, roadways and sidewalks near stations would be reconstructed, which would result in modifications to curb ramps and driveways.

Construction Staging Area Locations

Construction activities for Alternative 1 would include constructing the aerial guideway and stations, widening I-405, and constructing ancillary facilities. Construction of the transit facilities through

substantial completion is expected to have a duration of 6 ½ years. Early works such as site preparation, demolition, and utility relocation could start in advance of construction of the transit facilities.

Table 2-6 and Figure 2-21 show the potential construction staging areas for Alternative 1. Refer to Section 2.5.2.1 for a description of construction activities at staging areas.

Table 2-6. Alternative 1: Construction Staging Locations

No.	Location Description
1	Public Storage between Pico Boulevard and Exposition Boulevard, east of I-405
2	South of Dowlen Drive and east of Greater LA Fisher House
3	At 1400 N Sepulveda Boulevard
4	At 1760 N Sepulveda Boulevard
5	East of I-405 and north of Mulholland Drive Bridge
6	Inside of I-405 Northbound to US-101 Northbound Loop Connector, south of US-101
7	ElectroRent Building south of Metro G Line Busway, east of I-405
8	Inside the I-405 Northbound Loop Off-Ramp at Victory Boulevard
9	Along Cabrito Road east of Van Nuys Boulevard

Source: LASRE, 2024; HTA, 2024

Figure 2-21. Alternative 1: Construction Staging Locations

Source: LASRE, 2024; HTA, 2024

2.5.2.3 Alternative 3

Overview

Alternative 3 would be a 16.1-mile long MRT alignment operating between a southern terminus station adjacent to the Metro E Line Expo/Sepulveda Station and a northern terminus station adjacent to the Van Nuys Metrolink/Amtrak Station. The monorail guideway would be aerial for most of the alignment, with a 3.6-mile tunnel segment between the Getty Center and Wilshire Boulevard. The aerial alignment

would generally be located within the I-405 ROW and then adjacent to the LOSSAN rail corridor tracks between I-405 and the Van Nuys Metrolink Station. Alternative 3 would have seven aerial monorail stations—Metro E Line Expo/Sepulveda, Santa Monica Boulevard, Getty Center, Ventura Boulevard/Sepulveda Boulevard, Metro G Line Sepulveda, Sherman Way, and the Van Nuys Metrolink Station—along with two underground monorail stations at Wilshire Boulevard/Metro D Line and UCLA Gateway Plaza.

South of Santa Monica Boulevard and north of the Getty Center, the alignment of Alternative 3 would be the same as that of Alternatives 1. North of Santa Monica Boulevard, the alignment would diverge from the I-405 median and transition to below grade along the south edge of the Federal Building property. It would turn north under Veteran Avenue toward the proposed Wilshire Boulevard/Metro D Line Station and then travel underneath Westwood Village to an underground station at UCLA Gateway Plaza before returning to the I-405 corridor just south of the proposed Getty Center Station. An MSF for monorail vehicles would be located either west of Sepulveda Boulevard south of the LOSSAN rail corridor tracks or on property owned by LADWP east of the Van Nuys Metrolink/Amtrak Station. To accommodate the monorail guideway within the I-405 corridor, widening of the freeway would be required at some locations, and some freeway ramps and local roads would be realigned, relocated, or removed.

Alignment

As shown on Figure 2-22, from its southern terminus at the Metro E Line Expo/Sepulveda Station, the alignment of Alternative 3 would generally follow I-405 to the LOSSAN rail corridor, except for an underground segment between Wilshire Boulevard and the Getty Center.

The proposed southern terminus station would be located west of the existing Metro E Line Expo/Sepulveda Station, east of I-405 between Pico Boulevard and Exposition Boulevard. Tail tracks would extend just south of the station adjacent to the eastbound I-10 to northbound I-405 connector over Exposition Boulevard. North of the Metro E Line Expo/Sepulveda Station, a storage track would be located off of the main alignment north of Pico Boulevard between I-405 and Cotner Avenue. The alignment would continue north along the east side of I-405 until just south of Santa Monica Boulevard, where a proposed station would be located between the I-405 northbound travel lanes and Cotner Avenue. The alignment would cross over the northbound and southbound freeway lanes north of Santa Monica Boulevard and travel along the west side of I-405. Once adjacent to the VA Hospital site, the alignment would cross back over the I-405 lanes and Sepulveda Boulevard, before entering an underground tunnel south of the Federal Building parking lot.

The alignment would proceed east underground and turn north under Veteran Avenue toward the proposed Wilshire Boulevard/Metro D Line Station located under UCLA Lot 36 on the east side of Veteran Avenue north of Wilshire Boulevard. North of this station, the underground alignment would curve northeast parallel to Weyburn Avenue before curving north and traveling underneath Westwood Plaza at Le Conte Avenue. The alignment would follow Westwood Plaza until the underground UCLA Gateway Plaza Station in front of the Luskin Conference Center. The alignment would then continue north under the UCLA campus until Sunset Boulevard, where the tunnel would curve northwest for approximately 2 miles to rejoin I-405.

Figure 2-22. Alternative 3: Alignment

Source: LASRE, 2024; HTA, 2024

The alignment of Alternative 3 would transition from an underground configuration to an aerial guideway structure after exiting the tunnel portal located at the northern end of the Leo Baeck Temple parking lot. The alignment would cross over Sepulveda Boulevard and the I-405 lanes to the proposed Getty Center Station on the west side of I-405, just north of the Getty Center tram station. The alignment would return to the median for a short distance before curving back to the west side of I-405 south of the Sepulveda Boulevard undercrossing north of the Getty Center Drive interchange. After

crossing over Bel Air Crest Road and Skirball Center Drive, the alignment would again return to the median and run under the Mulholland Drive Bridge, then continue north within the I-405 median to descend into the San Fernando Valley.

Near Greenleaf Street, the alignment would cross over the northbound freeway lanes and on-ramps toward the proposed Ventura Boulevard Station on the east side of I-405. This station would be located above a transit plaza and replace an existing segment of Dickens Street adjacent to I-405, just south of Ventura Boulevard. Immediately north of the Ventura Boulevard Station, the alignment would cross over the northbound I-405 to US-101 connector and continue north between the connector and the I-405 northbound travel lanes. The alignment would continue north along the east side of I-405— crossing over US-101 and the Los Angeles River— to a proposed station on the east side of I-405 near the Metro G Line Busway. A new at-grade station on the Metro G Line would be constructed for Alternative 3 adjacent to the proposed station. These proposed stations are shown on the Metro G Line inset area on Figure 2-22.

The alignment would then continue north along the east side of I-405 to the proposed Sherman Way Station. The station would be located inside the I-405 northbound loop off-ramp to Sherman Way. North of the station, the alignment would continue along the eastern edge of I-405 then curve to the southeast parallel to the LOSSAN rail corridor. The alignment would run elevated along Raymer Street east of Sepulveda Boulevard and cross over Van Nuys Boulevard to the proposed terminus station adjacent to the Van Nuys Metrolink/Amtrak Station. Overhead utilities along Raymer Street would be undergrounded where they would conflict with the guideway or its supporting columns. Tail tracks would be located southeast of this terminus station.

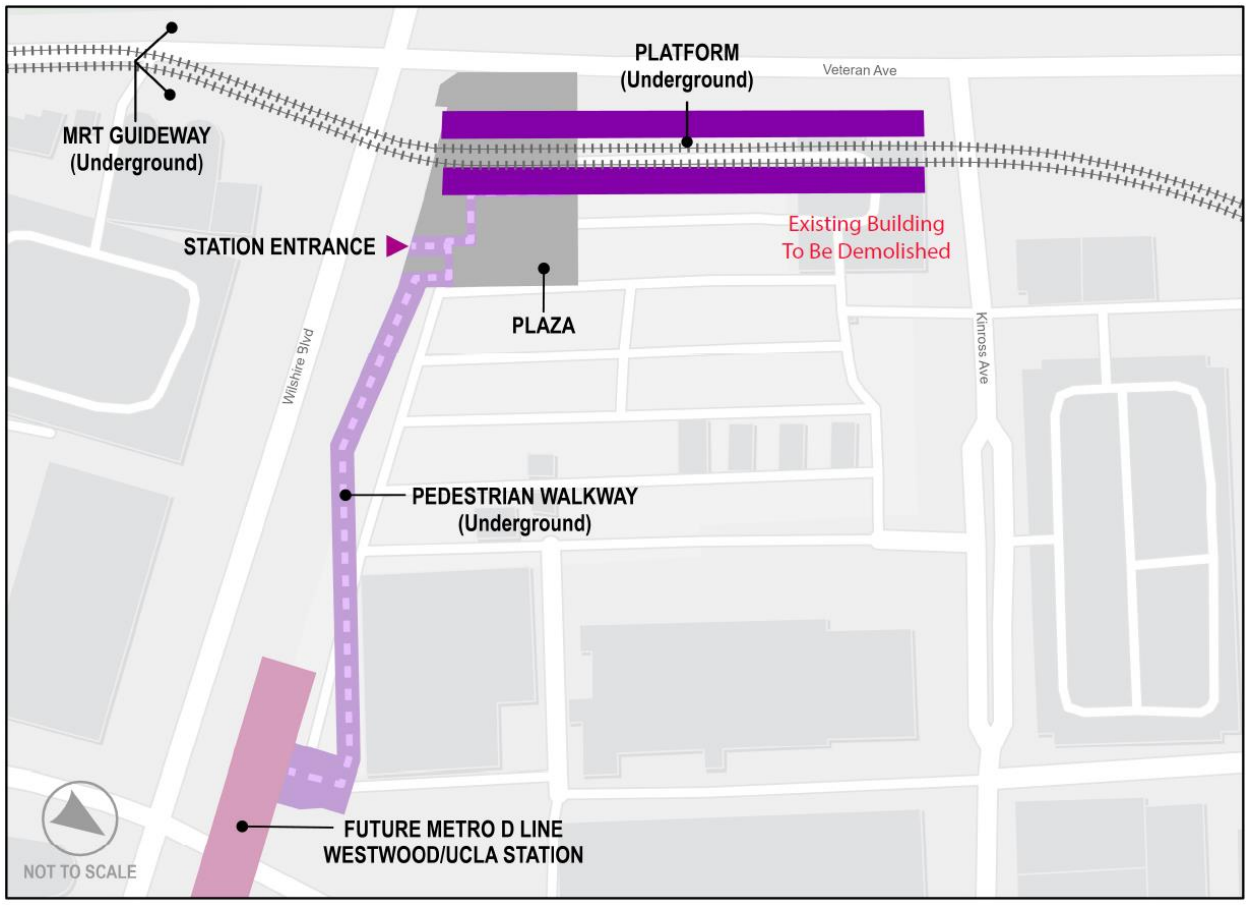
Stations

Alternative 3 would have seven aerial monorail stations identical to those under Alternative 1 (Metro E Line Expo/Sepulveda, Santa Monica Boulevard, Getty Center, Ventura Boulevard/Sepulveda Boulevard, Metro G Line Sepulveda, Sherman Way, and the Van Nuys Metrolink Station), which are detailed in Section 2.5.2.2, and two underground stations at Wilshire Boulevard/Metro D Line and UCLA Gateway Plaza. The location, entrances and transit plazas, pick-up/drop-off loops, connections to other fixed-guideway transit, and parking (if any) of the stations unique to Alternative 3 would be as follows:

Wilshire Boulevard/Metro D Line Station (Illustrated on Figure 2-23)

- This underground station would be located under UCLA Lot 36 on the east side of Veteran Avenue north of Wilshire Boulevard.
- A station entrance would be located on the northeast corner of the intersection of Veteran Avenue and Wilshire Boulevard.
- An underground pedestrian walkway would connect the concourse level of the proposed station to the Metro D Line Westwood/UCLA Station using a knock-out panel provided in the Metro D Line Station box. This connection would occur within the fare paid zone.
- The distance between the proposed station platforms and the Metro D Line Westwood/UCLA Station platform would be approximately 660 feet.
- No dedicated station parking would be provided at this station.

Figure 2-23. Alternative 3: Wilshire Boulevard/Metro D Line Station

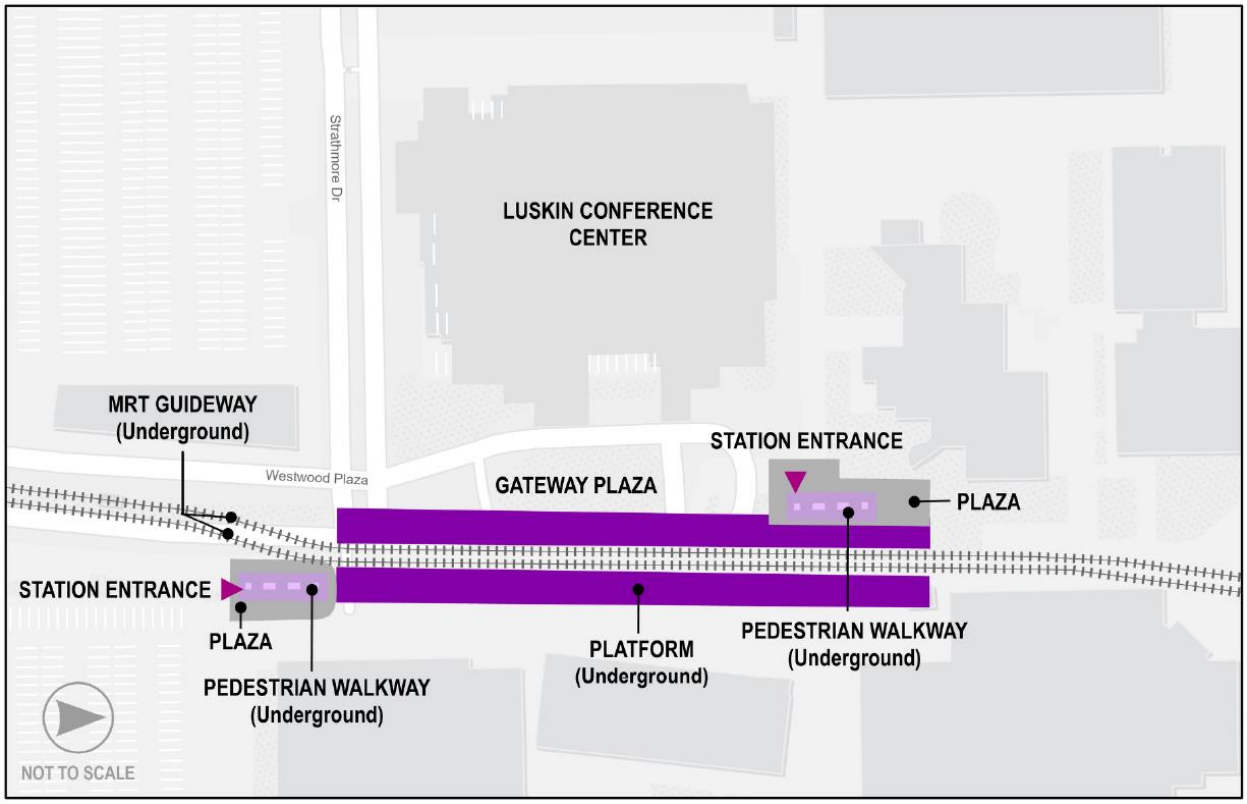


Source: LASRE, 2024; HTA, 2024

UCLA Gateway Plaza Station (Illustrated on Figure 2-24)

- This underground station would be located beneath Gateway Plaza.
- Station entrances would be located on the northern end and southeastern end of the plaza.
- No dedicated station parking would be provided at this station.

Figure 2-24. Alternative 3: UCLA Gateway Plaza Station

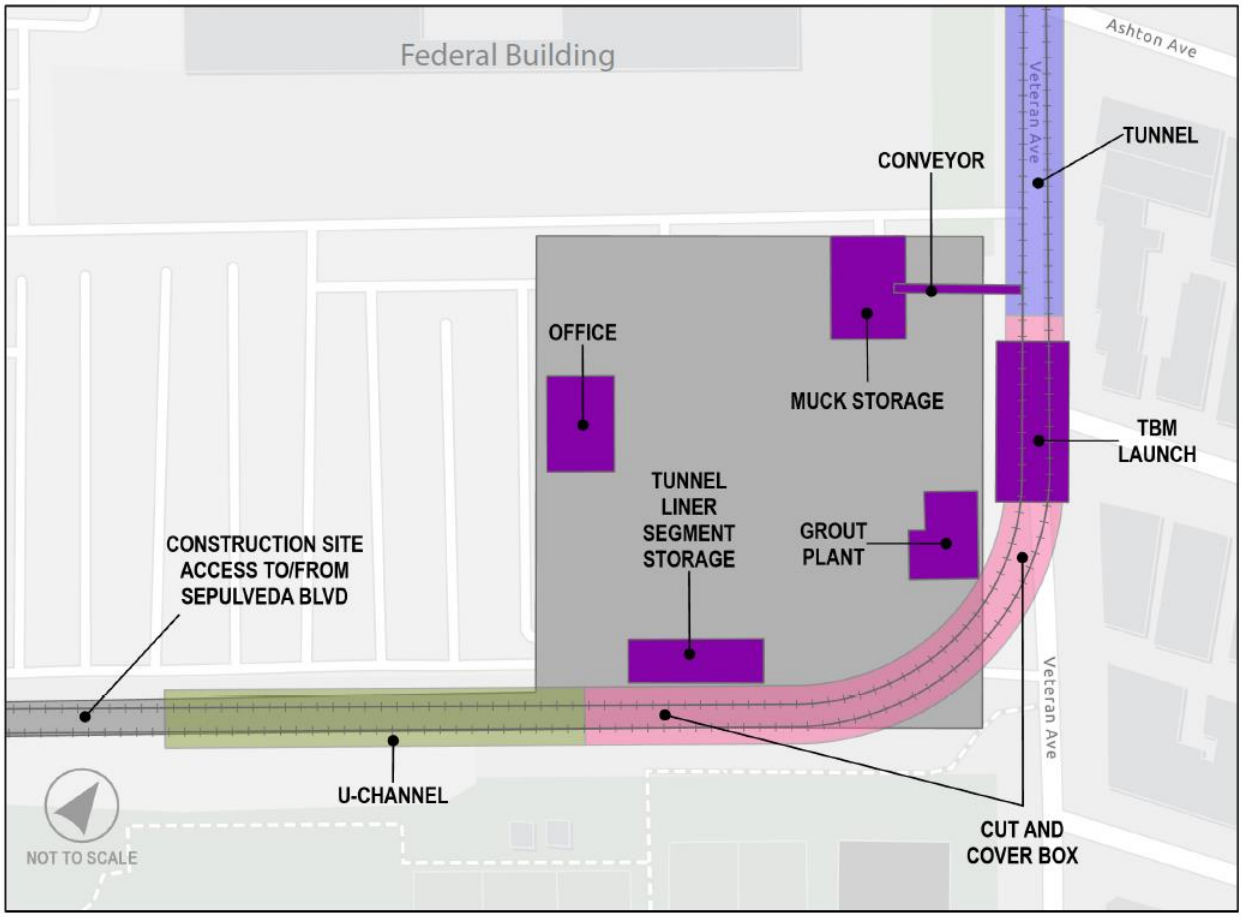


Source: LASRE, 2024; HTA, 2024

Tunnel Portals

For the underground segment, the TBM would be launched from a site along Veteran Avenue near the Federal Building south of Wilshire Boulevard, and head north toward an exit portal located north of Leo Baeck Temple on Sepulveda Boulevard. Figure 2-25 and Figure 2-26 show the location of these sites and their facilities.

Figure 2-25. Alternative 3: Launch Site



Source: LASRE, 2024; HTA, 2024

Along Veteran Avenue, a launch box consisting of a depressed concrete lined frame would be constructed to receive, assemble, mobilize and support TBM excavation. Muck (excavated material) from TBM operations would be transported via conveyor and ultimately transported off-site. Haul trucks would access the site from Sepulveda Boulevard and turn on Wilshire Boulevard to access I-405.

Figure 2-26. Alternative 3: North Portal

Source: LASRE, 2024; HTA, 2024

At the north tunnel portal, an elevated work platform approximately 30 feet over the Leo Baeck Temple parking lot would be constructed to support tunneling activities. The work platform would be required given the steep hillside and limited space between the portal and I-405. The platform would be accessed from the parking lot below with cranes transporting materials onto and off trucks below. A soil nail wall reinforcing the hillside would stabilize soil and prevent landslides and erosion. The soil nail wall would remain after construction activities, while the work platform would be removed and disassembled.

Station-to-Station Travel Times

Table 2-7 presents the station-to-station distances and travel times for Alternative 3. The travel times include both running time and dwelling time. The travel times differ between northbound and southbound trips because of grade differentials and operational considerations at end-of-line stations.

Table 2-7. Alternative 3: Station-to-Station Travel Times and Station Dwell Times

From Station	To Station	Distance (miles)	Northbound Station-to-Station Travel Time (seconds)	Southbound Station-to-Station Travel Time (seconds)	Dwell Time (seconds)
Metro E Line Station					*30*
Metro E Line	Santa Monica Boulevard	0.9	123	97	—
Santa Monica Boulevard Station					*30*
Santa Monica Boulevard	Wilshire/Metro D Line	1.1	192	194	—
Wilshire/Metro D Line Station					*30*
Wilshire/Metro D Line	UCLA Gateway Plaza	0.9	138	133	—
UCLA Gateway Plaza Station					*30*
UCLA Gateway Plaza	Getty Center	2.6	295	284	—
Getty Center Station					*30*
Getty Center	Ventura Boulevard	4.7	414	424	—
Ventura Boulevard Station					*30*
Ventura Boulevard	Metro G Line	2.0	179	187	—
Metro G Line Station					*30*
Metro G Line	Sherman Way	1.5	134	133	—
Sherman Way Station					*30*
Sherman Way	Van Nuys Metrolink	2.4	284	279	—
Van Nuys Metrolink Station					*30*

Source: LASRE, 2024

Special Trackwork

Alternative 3 would include five pairs of beam switches to enable trains to cross over and reverse direction on the opposite beam. All beam switches would be located on aerial portions of the alignment of Alternative 3. From south to north, the first pair of beam switches would be located just north of the Metro E Line Expo/Sepulveda Station. A second pair of beam switches would be located on the west side of I-405, directly adjacent to the VA Hospital site, south of the Wilshire Boulevard/Metro D Line Station. A third pair of beam switches would be located in the Sepulveda Pass just south of Mountaingate Drive and Sepulveda Boulevard. A fourth pair of beam switches would be located south of the Metro G Line Station between the I-405 northbound lanes and the Metro G Line Busway. The final pair would be located near the Van Nuys Metrolink Station.

Traction Power Substations

Table 2-8 lists the TPSS locations proposed for Alternative 3. Figure 2-27 shows the TPSS locations along the Alternative 3 alignment.

Table 2-8. Alternative 3: Traction Power Substation Locations

TPSS No.	TPSS Location Description	Configuration
1	TPSS 1 would be located east of I-405, just south of Exposition Boulevard and the monorail guideway tail tracks.	At-grade
2	TPSS 2 would be located east of I-405 and Sepulveda Boulevard, just north of the Getty Center Station.	At-grade
3	TPSS 3 would be located west of I-405, just east of the intersection between Promontory Road and Sepulveda Boulevard.	At-grade
4	TPSS 4 would be located between I-405 and Sepulveda Boulevard, just north of the Skirball Center Drive Overpass.	At-grade
5	TPSS 5 would be located east of I-405, just south of Ventura Boulevard Station, between Sepulveda Boulevard and Dickens Street.	At-grade
6	TPSS 6 would be located east of I-405, just south of the Metro G Line Sepulveda Station.	At-grade
7	TPSS 7 would be located east of I-405, just east of the Sherman Way Station, inside the I-405 Northbound Loop Off-Ramp to Sherman Way westbound.	At-grade
8	TPSS 8 would be located east of I-405, at the southeast quadrant of the I-405 overcrossing with the LOSSAN rail corridor.	At-grade
9	TPSS 9 would be located east of I-405, at the southeast quadrant of the I-405 overcrossing with the LOSSAN rail corridor.	At-grade (within MSF Design Option)
10	TPSS 10 would be located between Van Nuys Boulevard and Raymer Street, south of the LOSSAN rail corridor.	At-grade
11	TPSS 11 would be located south of the LOSSAN rail corridor, between Tyrone Avenue and Hazeltine Avenue.	At-grade (within MSF Base Design)
12	TPSS 12 would be located southwest of Veteran Avenue at Wellworth Avenue.	Underground
13	TPSS 13 would be located within the Wilshire Boulevard/Metro D Line Station.	Underground (adjacent to station)
14	TPSS 14 would be located underneath UCLA Gateway Plaza.	Underground (adjacent to station)

Source: LASRE, 2024; HTA, 2024

Figure 2-27. Alternative 3: Traction Power Substation Locations

Source: LASRE, 2024; HTA, 2024

Roadway Configuration Changes

Table 2-9 lists the roadway changes necessary to accommodate the guideway of Alternative 3. Figure 2-28 shows the location of these roadway changes in the Project Study Area, except for the I-405 configuration changes, which occur throughout the corridor.

Table 2-9. Alternative 3: Roadway Changes

Location	From	To	Description of Change
Cotner Avenue	Nebraska Avenue	Santa Monica Boulevard	Roadway realignment to accommodate aerial guideway columns
Beloit Avenue	Massachusetts Avenue	Ohio Avenue	Roadway narrowing to accommodate aerial guideway columns
Sepulveda Boulevard	Getty Center Drive	Not Applicable	Southbound right turn lane to Getty Center Drive shortened to accommodate aerial guideway columns
I-405 Northbound On-Ramp and Off-Ramp at Sepulveda Boulevard near I-405 Exit 59	Sepulveda Boulevard near I-405 Northbound Exit 59	Sepulveda Boulevard/I-405 Undercrossing (near Getty Center)	Ramp realignment to accommodate aerial guideway columns and I-405 widening
Sepulveda Boulevard	I-405 Southbound Skirball Center Drive Ramps (north of Mountaingate Drive)	Skirball Center Drive	Roadway realignment into existing hillside to accommodate aerial guideway columns and I-405 widening
I-405 Northbound On-Ramp at Mulholland Drive	Mulholland Drive	Not Applicable	Roadway realignment into the existing hillside between the Mulholland Drive Bridge pier and abutment to accommodate aerial guideway columns and I-405 widening
Dickens Street	Sepulveda Boulevard	Ventura Boulevard	Permanent removal of street for Ventura Boulevard Station construction Pick-up/drop-off area would be provided along Sepulveda Boulevard at the truncated Dickens Street
Sherman Way	Haskell Avenue	Firmament Avenue	Median improvements, passenger drop-off and pick-up areas, and bus pads within existing travel lanes
Raymer Street	Sepulveda Boulevard	Van Nuys Boulevard	Curb extensions and narrowing of roadway width to accommodate aerial guideway columns
I-405	Sepulveda Boulevard Northbound Off-Ramp (Getty Center Drive interchange)	Sepulveda Boulevard Northbound On-Ramp (Getty Center Drive interchange)	I-405 widening to accommodate aerial guideway columns in the median
I-405	Skirball Center Drive	U.S. Highway 101	I-405 widening to accommodate aerial guideway columns in the median

Source: LASRE, 2024; HTA, 2024

Figure 2-28. Alternative 3: Roadway Changes

Source: LASRE, 2024; HTA, 2024

In addition to the changes made to accommodate the guideway, as listed in Table 2-9, roadways and sidewalks near stations would be reconstructed, which would result in modifications to curb ramps and driveways.

Ventilation Facilities

For ventilation of the monorail's underground portion, a plenum within the crown of the tunnel would provide a separate compartment for air circulation and allow multiple trains to operate between

stations. Vents would be located at the southern portal near the Federal Building parking lot, Wilshire/Metro D Line Station, UCLA Gateway Plaza Station, and at the northern portal near the Leo Baeck Temple parking lot. Emergency ventilation fans would be located at the UCLA Gateway Plaza Station and at the northern and southern tunnel portals.

Construction Staging Areas

Construction activities for Alternative 3 would include constructing the aerial guideway and stations, underground tunnel and stations, and ancillary facilities, and widening I-405. Construction of the transit facilities through substantial completion is expected to have a duration of 8 ½ years. Early work such as site preparation, demolition, and utility relocation could start in advance of construction of the transit facilities.

Table 2-10 and Figure 2-29 show the potential construction staging areas for Alternative 3. Refer to Section 2.5.2.1 for a description of construction activities at staging areas.

Table 2-10. Alternative 3: Construction Staging Locations

No.	Location Description
1	Public Storage between Pico Boulevard and Exposition Boulevard, east of I-405
2	South of Dowlen Drive and east of Greater LA Fisher House
3	Federal Building Parking Lot
4	Kinross Recreation Center and UCLA Lot 36
5	North end of the Leo Baeck Temple Parking Lot (tunnel boring machine retrieval)
6	At 1400 N Sepulveda Boulevard
7	At 1760 N Sepulveda Boulevard
8	East of I-405 and north of Mulholland Drive Bridge
9	Inside of I-405 Northbound to US-101 Northbound Loop Connector, south of US-101
10	ElectroRent Building south of G Line Busway, east of I-405
11	Inside the I-405 Northbound Loop Off-Ramp at Victory Boulevard
12	Along Cabrito Road east of Van Nuys Boulevard

Source: LASRE, 2024; HTA, 2024

Figure 2-29. Alternative 3: Construction Staging Locations

Source: LASRE, 2024; HTA, 2024

2.5.3 Driverless HRT Alternatives

Alternatives 4 and 5 would use driverless HRT technology. The characteristics of the technology described in the next section is the current proposal applicable to both Alternatives 4 and 5, but it is subject to change. The following two sections describe the alignment of each of the two driverless HRT alternatives as well as features unique to each.

2.5.3.1 Features of the Technology

Vehicles and Operations

HRT trains would consist of three or four cars measuring approximately 10 feet wide with three double doors on each side and open gangways between cars. Each car would be approximately 72 feet long with capacity for 170 passengers. Figure 2-30 shows a rendering of the driverless HRT vehicle.

Trains would be powered by a third rail. Driverless HRT alternatives would have a maximum operating speed of 70 miles per hour with planned peak-period headways of 2.5 minutes and off-peak-period headways ranging from 4 to 6 minutes.

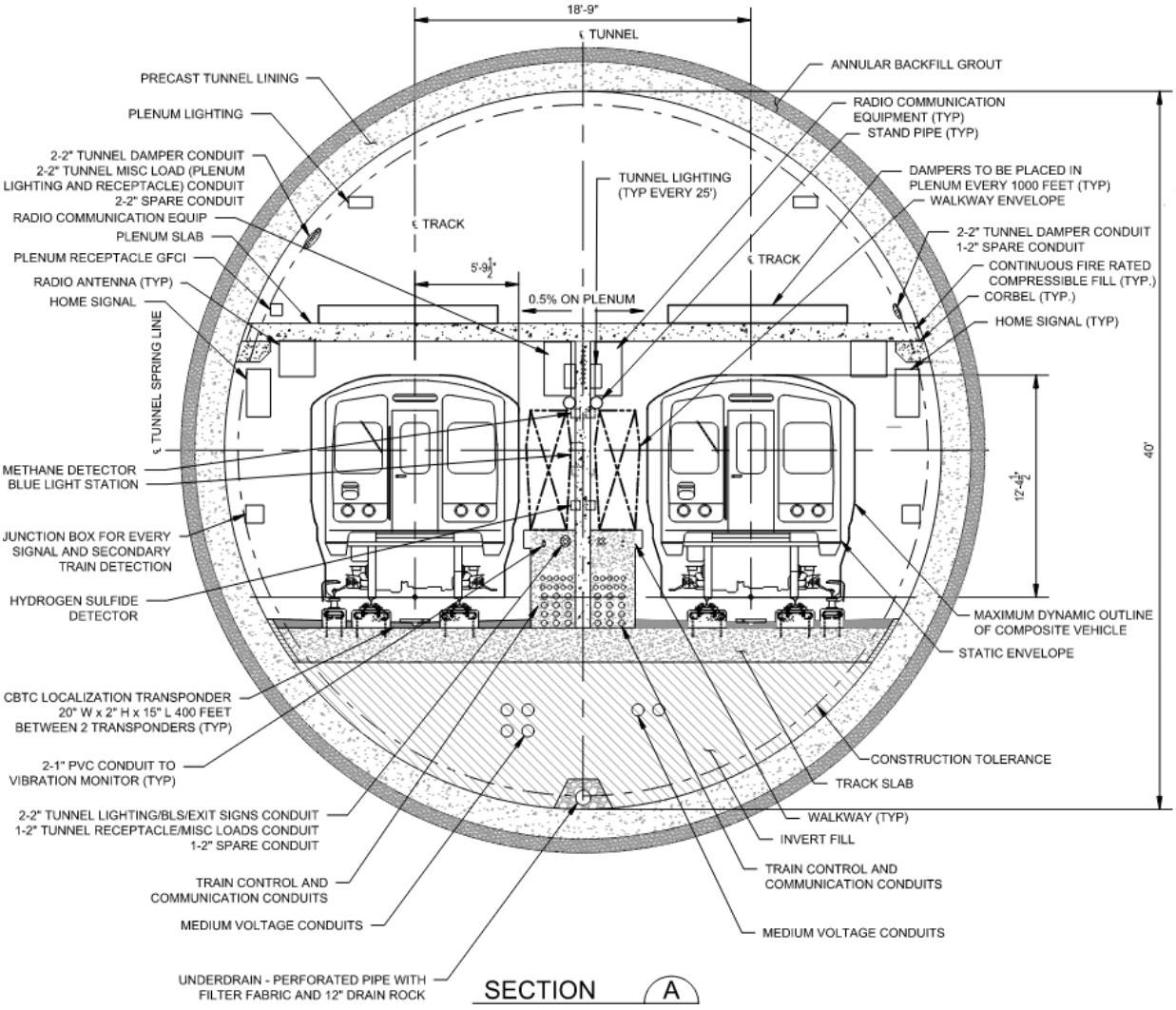
Figure 2-30. Rendering of Driverless HRT Vehicle

Source: STCP, 2024

Guideway Characteristics

For underground sections, Alternatives 4 and 5 would utilize a single-bore tunnel configuration with an outside diameter of 43.5 feet. The tunnel would include two parallel tracks with 18.75-foot track spacing in tangent sections separated by a continuous central dividing wall throughout the tunnel. Inner walkways would be constructed adjacent to the two tracks. Inner and outer walkways would be constructed within tunnel sections near the track crossovers. Figure 2-31 illustrates these components at a typical cross-section of the underground guideway.

Figure 2-31. Typical Underground Guideway Cross-Section

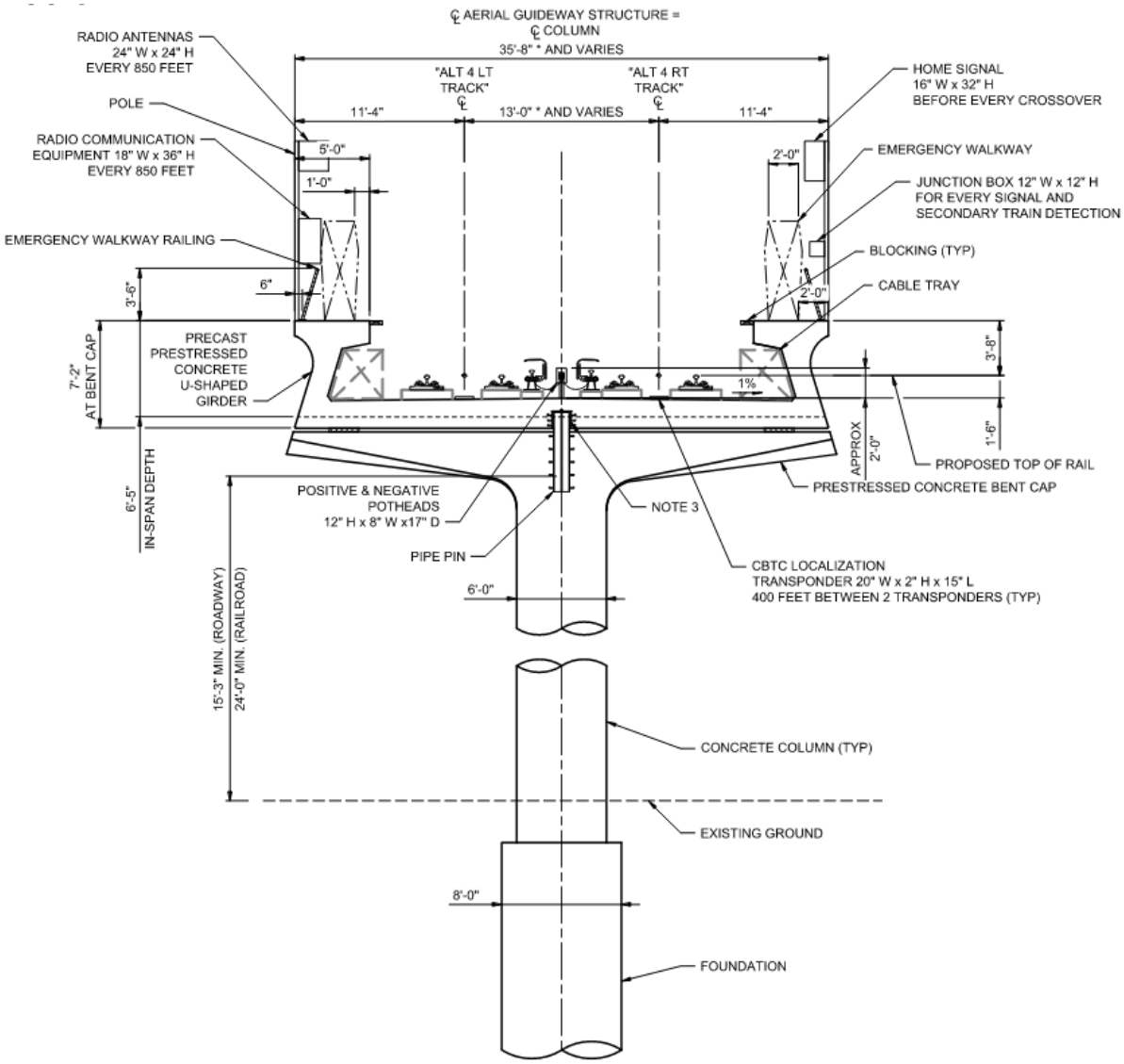


Source: STCP, 2024

In aerial sections, the guideway would be supported by either single columns or straddle bents. Both types of structures would support a U-shaped concrete girder and the HRT track. The aerial guideway would be approximately 36 feet wide. The track would be constructed on the concrete girders with direct fixation and would maintain a minimum of 13 feet between the centerlines of the two tracks. On the outer side of the tracks, emergency walkways would be constructed with a minimum width of 2 feet.

The single-column guideway would be the primary structure throughout the aerial portion of the alignment. Crash protection barriers would be used to protect columns located in the median of Sepulveda Boulevard in the Valley. Figure 2-32 shows a typical cross-section of the single-column aerial guideway.

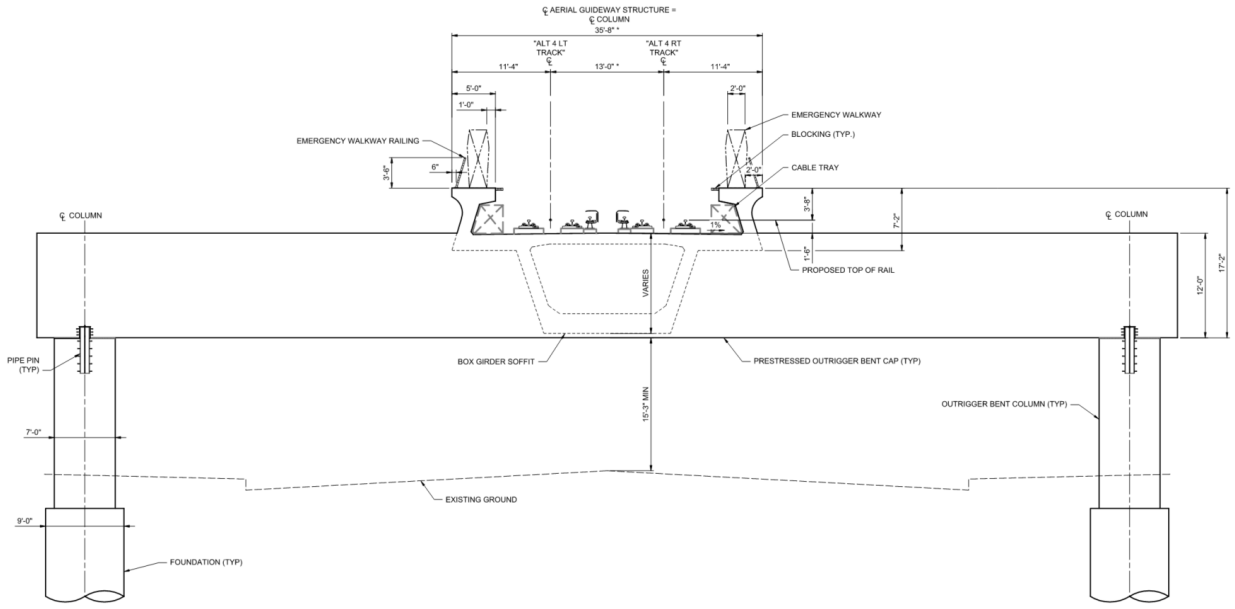
Figure 2-32. Typical Aerial Guideway Cross-Section



Source: STCP, 2024

In order to span intersections and maintain existing turn movements, sections of the aerial guideway would be supported by straddle bents, a concrete straddle-beam placed atop two concrete columns constructed outside of the underlying roadway. Figure 2-33 illustrates a typical straddle-bent configuration.

Figure 2-33. Typical Aerial Straddle-Bent Cross-Section



Source: STCP, 2024

Station Characteristics

HRT stations—both aerial and underground—would be side-platform stations where passengers would select and travel to station platforms depending on their direction of travel. Station platforms would be approximately 280 feet long, with 20-foot-wide side platforms separated by 30 feet for side-by-side trains. Each underground station would include an upper and lower concourse level prior to reaching the train platforms.

Aerial stations would be constructed a minimum of 15.25 feet above ground level, supported by rows of dual columns with 8-foot diameters. Aerial station platforms would be covered, but not enclosed. Each aerial station, except for the Sherman Way Station under Alternative 4, would include a mezzanine level prior to reaching the station platforms where passengers would travel up to platforms depending on their direction of travel. At the Sherman Way Station under Alternative 4, separate entrances on opposite sides of the street would provide access to either the northbound or southbound platform with an overhead pedestrian walkway providing additional connectivity across platforms.

Each station would have a minimum of two elevators, two escalators, and one stairway between every level. Fare gates would demarcate the fare paid zones of stations.

Maintenance and Storage Facility

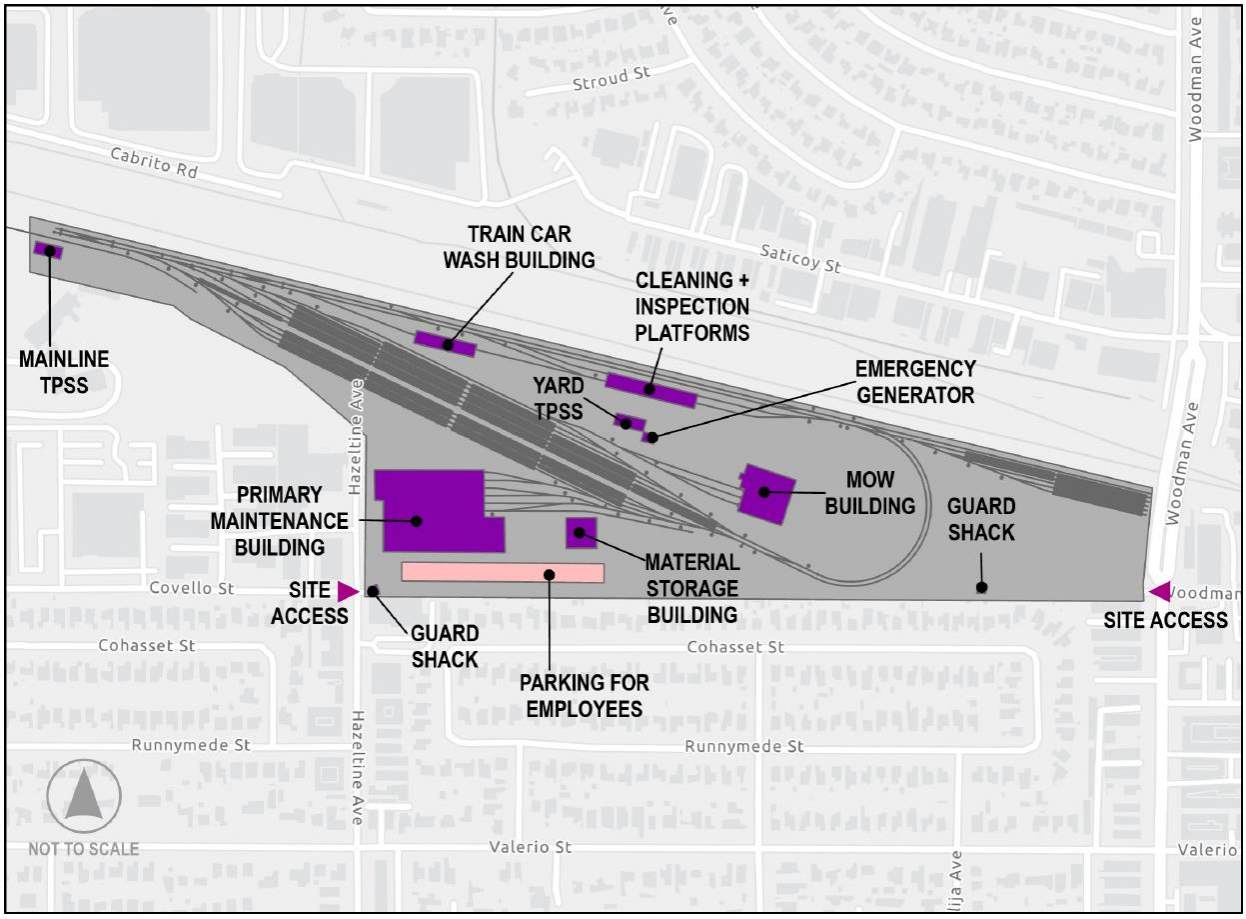
The MSF for the driverless HRT alternatives would be located east of the Van Nuys Metrolink Station and would encompass approximately 46 acres. The MSF would be designed to accommodate 184 rail cars and would be bounded by single-family residences to the south, the LOSSAN rail corridor ROW to the north, Woodman Avenue on the east, and Hazeltine Avenue and industrial manufacturing enterprises to the west. Trains would access the site from the fixed guideway's tail tracks at the northwest corner of the site. Trains would then travel southeast to maintenance facilities and storage tracks.

The site would include the following facilities:

- Two entrance gates with guard shacks

- Main shop building
- MOW building
- Storage tracks
- Carwash building
- Cleaning and inspections platforms
- Material storage building
- Hazardous materials storage locker
- TPSS located on the west end of the MSF to serve the mainline
- TPSS located on the east end of the MSF to serve the yard and shops
- Parking area for employees
- Grade separated access roadway (over the HRT tracks at the east end of the facility, and necessary drainage)

Figure 2-34. Alternatives 4 and 5: Maintenance and Storage Facility



Source: STCP, 2024; HTA, 2024

Traction Power Substations

TPSSs transform and convert high voltage alternating current supplied from power utility feeders into direct current suitable for transit operation. TPSS facilities would be located along the alignment and would be spaced approximately 0.5 to 2.5 miles apart. TPSS facilities would generally be located within

stations, adjacent to the tunnel through the Santa Monica Mountains, or within the MSF. TPSSs would be approximately 2,000 to 3,000 square feet.

Ventilation Facilities

For ventilation of the alternatives' underground portions, a plenum within the crown of the tunnel would provide a separate compartment for air circulation and allow multiple trains to operate between stations. Each underground station would include a fan room with additional ventilation facilities. Alternative 4 would include a stand-alone ventilation facility at the tunnel portal on the northern end of the tunnel segment, located east of I-405 and south of Del Gado Drive. Alternative 5 would include a stand-alone ventilation facility at the tunnel portal on the northern end of the tunnel segment, located east of Sepulveda Boulevard and south of Raymer Street. Within this facility, ventilation fan rooms would provide both emergency ventilation, in case of a tunnel fire, and regular ventilation, during non-revenue hours. The facility would also house sump pump rooms to collect water from various sources, including storm water; wash water (from tunnel cleaning); and water from a fire-fighting incident, system testing, or pipe leaks.

Fire/Life Safety – Emergency Egress

Within the tunnel segment, emergency walkways would be provided between the center dividing wall and each track. Sliding doors would be located in the central dividing wall at required intervals to connect the two sides of the railway with a continuous walkway to allow for safe egress to a point of safety (typically at a station) during an emergency. The aerial guideway for Alternative 4 would include two emergency walkways with safety railing located on the outer side of the tracks. Access to tunnel segments for first responders would be through stations and the portal.

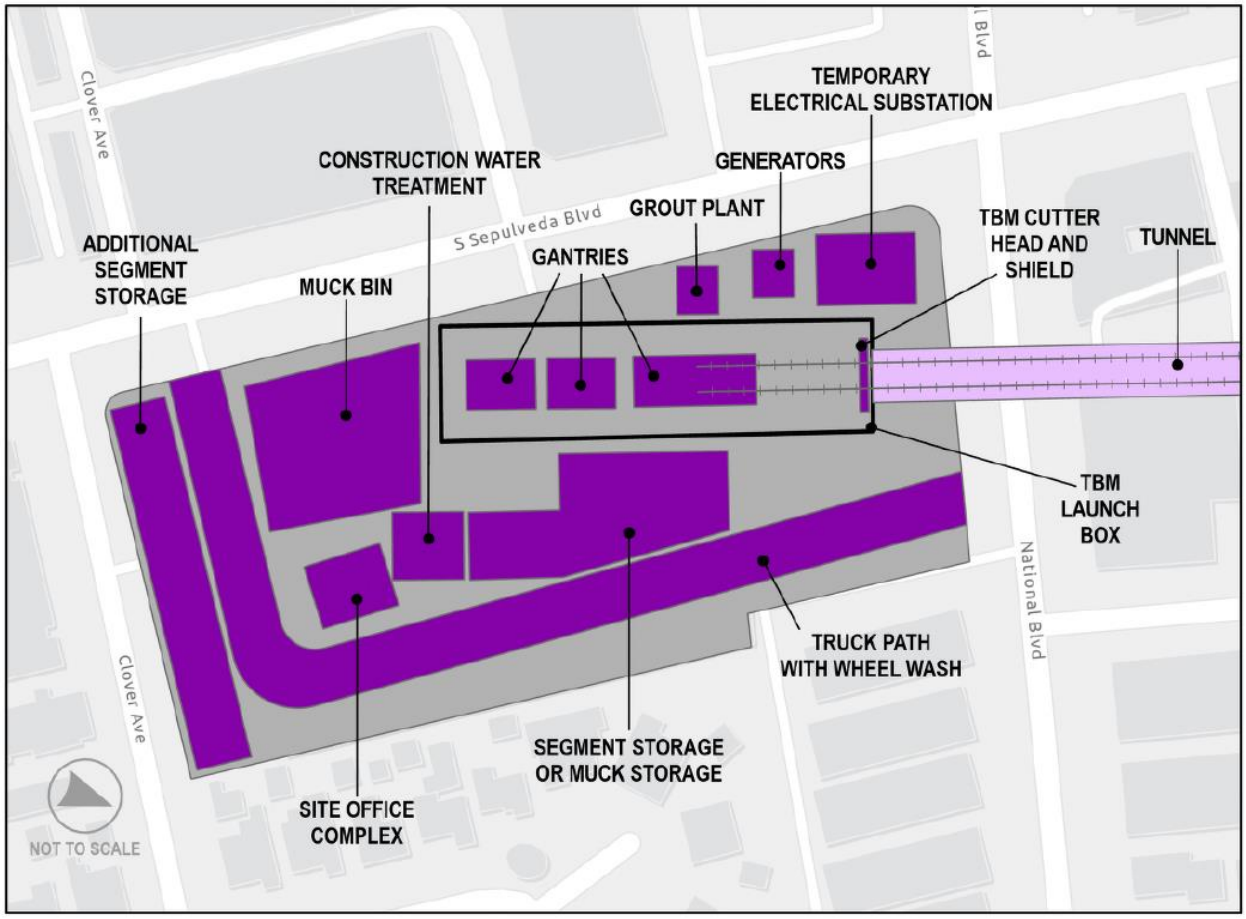
Construction and Staging Areas

For the underground Westside segments of both Alternative 4 and 5, the TBM would be launched from a site at Sepulveda Boulevard and National Boulevard. Figure 2-35 shows the location of this site and its facilities.

At TBM launch sites, existing building structures would be demolished, followed by construction of a temporary electrical substation to supply power for TBM operation, as well as construction of the TBM launch box. The launch box consists of a depressed concrete lined frame to receive, assemble, mobilize and support TBM excavation. Muck from TBM operation for the Westside tunnel segment would be transported via conveyor and ultimately transported off-site. Haul trucks would access the site from Sepulveda Boulevard and National Boulevard and use these streets during egress to access I-405 and/or I-10.

After the completion of tunneling and extraction of the TBM, construction activities to rehabilitate the site for permanent operations support would start.

Figure 2-35. Alternatives 4 and 5: South TBM Launch Site

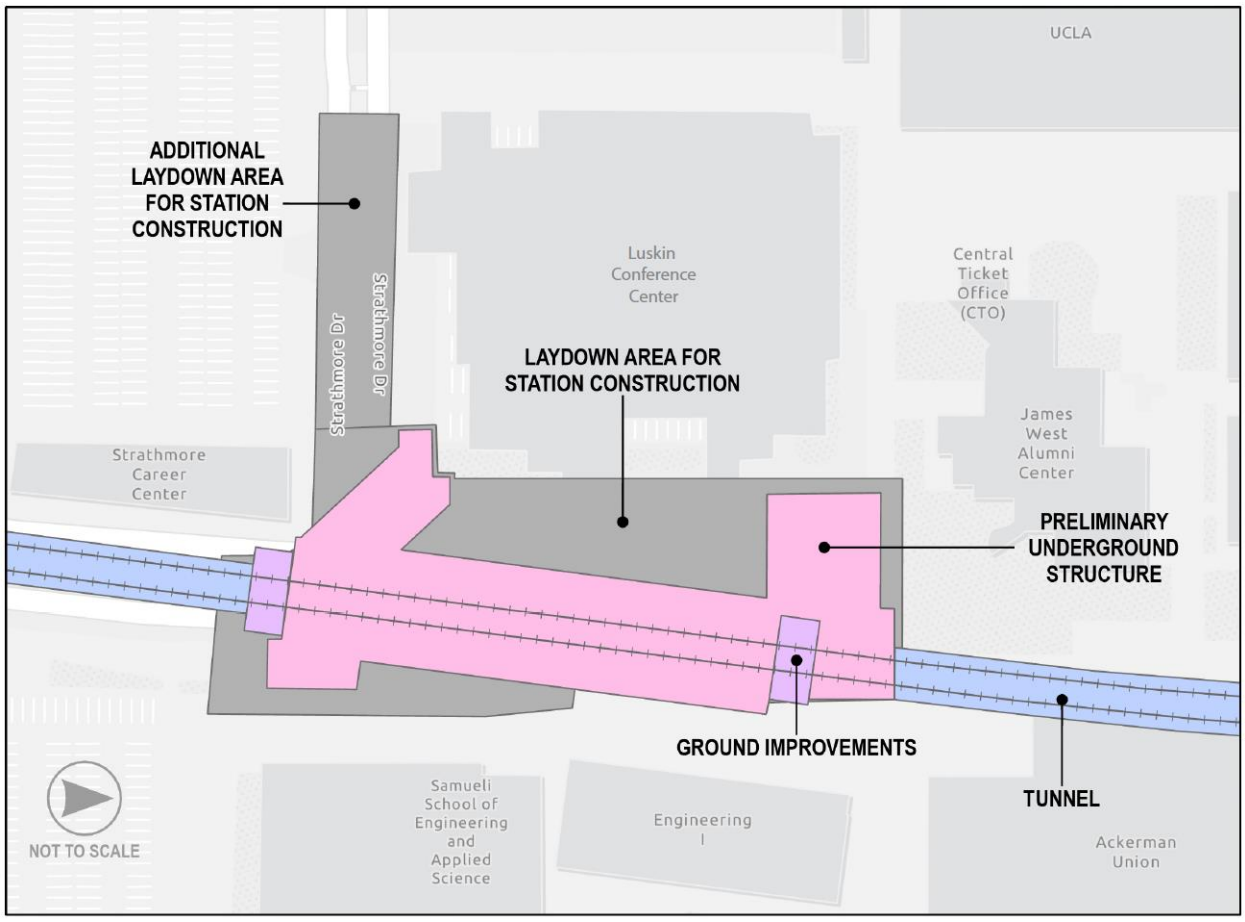


Source: STCP, 2024; HTA, 2024

The guideway for Alternative 4 and 5 would mainly consist of a single-bore tunnel. For Alternative 4, tunneling would go through the Westside and Santa Monica Mountains. For Alternative 5, tunneling would be through the Westside, Santa Monica Mountains, and San Fernando Valley. TBMs with approximately 45-foot-diameter cutting faces would be used to construct the tunnel segments. For Alternative 4 and 5, TBMs would be launched from a site near Sepulveda Boulevard and National Boulevard, and be extracted from UCLA Gateway Plaza, depicted on Figure 2-35 and Figure 2-36. Refer to the Alternative 4 and 5 Construction Staging Areas sections for details on additional alternative-specific TBM launch and extraction sites.

At the UCLA TBM extraction site shown on Figure 2-36, TBMs would be disassembled into smaller components within the preliminary underground structure. These components would then be lifted to the surface and hauled away on trucks.

Figure 2-36. Alternatives 4 and 5: UCLA TBM Extraction Site



Source: STCP, 2024; HTA, 2024

The distance from the surface to the top of the tunnel for the Westside tunnel segment would vary from approximately 40 feet to 90 feet depending on the depth needed to construct the underground stations. The depth of the Santa Monica Mountains tunnel segment would vary from approximately 470 feet as it passes under the Santa Monica Mountains to 70 feet near UCLA. For Alternative 5, the depth of the Valley segment would vary from approximately 40 feet near the Ventura Boulevard/Sepulveda Station and north of the Metro G Line Sepulveda Station to 150 feet near Weddington Street. The tunnel segments through Westside and Valley would be excavated in soft ground, while the tunnel through the Santa Monica Mountains would be excavated primarily in hard ground or rock as geotechnical conditions transition from soft to hard ground near the UCLA Gateway Plaza Station.

The aerial guideway for Alternative 4 would be primarily situated in the center of Sepulveda Boulevard in the San Fernando Valley, with guideway columns located in both the center and outside of the ROW of Sepulveda Boulevard. This would result in a linear work zone spanning the full width of Sepulveda Boulevard along the length of the aerial guideway. Three to five main phases would be required to construct the aerial guideway. A phased approach would allow travel lanes along Sepulveda Boulevard to remain open as construction individually occupies either the center, left, or right side of the roadway via the use of lateral lane shifts. Additional lane closures on side streets may be required along with appropriate detour routing.

The aerial guideway would comprise a mix of simple spans and longer balanced cantilever spans ranging from 80 to 250 feet in length. The repetitive simple spans would be utilized when guideway bent is located within the center median of Sepulveda Boulevard and would be constructed using Accelerated Bridge Construction (ABC) segmental span-by-span technology. Longer balanced cantilever spans would be provided at locations such as freeways, arterials, or street crossings, and would be constructed using ABC segmental balance cantilever technology. Foundations would consist of CIDH shafts with both precast and cast-in-place structural elements. During construction of the aerial guideway, multiple crews would work on components of the guideway simultaneously.

Construction of the guideway between the Van Nuys Metrolink Station and the MSF for Alternatives 4 and 5 would require reconfiguration of an existing rail spur serving LADWP property. The new location of the rail spur would require modification to the existing pedestrian undercrossing at the Van Nuys Metrolink Station.

Construction work zones would also be co-located with future MSF and station locations. Work zones would primarily be located within the permanent facility footprint with additional temporary construction easements from adjoining properties.

All underground stations would be constructed using a “cut-and-cover” method whereby the underground station structure would be constructed within a trench excavated from the surface with a portion or all being covered by a temporary deck and backfilled during the later stages of station construction. Traffic and pedestrian detours would be necessary during underground station excavation until decking is in place and the appropriate safety measures are taken to resume cross traffic. Constructing the Ventura Boulevard/Sepulveda Boulevard, Metro G Line Sepulveda, and Sherman Way Station under Alternative 4, and the Van Nuys Metrolink Station under Alternative 4 and 5 would include construction of CIDH elevated viaduct with two parallel side platforms supported by outrigger bents.

The driverless HRT alternatives would require construction of a concrete casting facility for tunnel lining segments because no existing commercial fabricator capable of producing tunnel lining segments for a large-diameter tunnel exists within a practical distance of the Project Study Area. The site of the MSF would initially be used for this casting facility. The casting facility would include casting beds and associated casting equipment, storage areas for cement and aggregate, and a field quality control facility, which would need to be constructed on-site. When a more detailed design of the facility is completed, the contractor would obtain all permits and approvals necessary from the City of Los Angeles, the South Coast Air Quality Management District, and other regulatory entities. Section 3.20 provides more detail about the environmental requirements for concrete casting facilities.

As areas of the MSF site begin to become available following completion of pre-casting operations, construction of permanent facilities for the MSF would begin, including construction of surface buildings such as maintenance shops, administrative offices, train control, traction power, and systems facilities. Some of the yard storage track would also be constructed at this time to allow delivery and inspection of passenger vehicles that would be fabricated elsewhere. Additional activities occurring at the MSF during the final phase of construction would include staging of trackwork and welding of guideway rail.

In addition to work zones, Alternative 4 would require construction staging and laydown areas at multiple locations along the alignment as well as off-site staging areas. Construction staging areas would provide the necessary space for the following activities:

- Contractors’ equipment
- Receiving deliveries

- Testing of soils for minerals or hazards
- Storing materials
- Site offices
- Work zone for excavation
- Other construction activities (including parking and change facilities for workers, location of construction office trailers, storage, staging and delivery of construction materials and permanent plant equipment, and maintenance of construction equipment)

A larger, off-site staging area would be used for temporary storage of excavated material from both tunneling and station cut-and-cover excavation activities. Table 2-11 and Figure 2-37 present candidate sites for off-site staging and laydown areas.

Table 2-11. Alternative 4: Potential Off-Site Construction Staging Locations

No.	Location Description
S1	East of Santa Monica Airport Runway
S2	Ralph's Parking Lot in Westwood Village
N1	West of Sepulveda Basin Sports Complex, south of the Los Angeles River
N2	West of Sepulveda Basin Sports Complex, north of the Los Angeles River
N3	Metro G Line Sepulveda Station Park & Ride Lot
N4	North of Roscoe Boulevard and Hayvenhurst Avenue
N5	LADWP property south of the LOSSAN rail corridor, east of Van Nuys Metrolink Station

Source: STCP, 2024; HTA, 2024

Figure 2-37. Alternatives 4 and 5: Offsite Construction Staging Areas

Source: STCP, 2024; HTA, 2024

2.5.3.2 Alternative 4

Overview

Alternative 4 would be a 13.9-mile long HRT alignment operating between a southern terminus station adjacent to the Metro E Line Expo/Sepulveda Station and a northern terminus station adjacent to the Van Nuys Metrolink/Amtrak Station. The alignment would be underground between the southern terminus and a portal south of Ventura Boulevard in the San Fernando Valley. Between this portal and

Ventura Boulevard, the guideway would be aerial on the east side of I-405. North of Ventura Boulevard, the guideway would generally be located above Sepulveda Boulevard until curving southeast to parallel the LOSSAN rail corridor tracks.

Alternative 4 would have four underground stations at Metro E Line Expo/Sepulveda, Santa Monica Boulevard, Wilshire Boulevard/Metro D Line, and UCLA Gateway Plaza, and four aerial stations at Ventura Boulevard/Sepulveda Boulevard, Metro G Line Sepulveda, Sherman Way, and the Van Nuys Metrolink Station. An MSF for HRT vehicles would be located west of Woodman Avenue south of the LOSSAN rail corridor tracks.

Alignment

As shown on Figure 2-38, from its southern terminus station at the Metro E Line Expo/Sepulveda Station, the alignment of Alternative 4 would run underground north through the Westside and the Santa Monica Mountains to a tunnel portal south of Ventura Boulevard in the San Fernando Valley. At the tunnel portal, the alignment would transition to an aerial guideway that would generally run above Sepulveda Boulevard before curving eastward along the south side of the LOSSAN rail corridor to the northern terminus station adjacent to the Van Nuys Metrolink/Amtrak Station.

The proposed southern terminus station would be located underground east of Sepulveda Boulevard between the existing elevated Metro E Line tracks and Pico Boulevard. Tail tracks for vehicle storage would extend underground south of National Boulevard east of Sepulveda Boulevard. The alignment would continue north beneath Bentley Avenue before curving northwest to an underground station at the southeast corner of Santa Monica Boulevard and Sepulveda Boulevard. From the Santa Monica Boulevard Station, the alignment would continue and curve eastward toward the Wilshire Boulevard/Metro D Line Station beneath the Metro D Line Westwood/UCLA Station, which is currently under construction as part of the Metro D Line Extension Project. From there, the underground alignment would curve slightly to the northeast and continue beneath Westwood Boulevard before reaching the UCLA Gateway Plaza Station.

Figure 2-38. Alternative 4: Alignment

Source: STCP, 2024; HTA, 2024

From the UCLA Gateway Plaza Station, the alignment would turn to the northwest beneath the Santa Monica Mountains to the east of I-405. South of Mulholland Drive, the alignment would curve to the north to reach a tunnel portal at Del Gado Drive, just east of I-405 and south of Sepulveda Boulevard.

The alignment would transition from an underground configuration to an aerial guideway structure after exiting the tunnel portal and would continue northeast to the Ventura Boulevard/Sepulveda Boulevard Station located over Dickens Street, immediately west of the Sepulveda Boulevard and Dickens Street intersection. North of the station, the aerial guideway would transition to the center median of Sepulveda Boulevard. The aerial guideway would continue north on Sepulveda Boulevard and cross over US-101 and the Los Angeles River before continuing to the Metro G Line Sepulveda Station, immediately south of the Metro G Line Busway. Overhead utilities along Sepulveda Boulevard in the Valley would be undergrounded where they would conflict with the guideway or its supporting columns.

The aerial guideway would continue north above Sepulveda Boulevard where it would reach the Sherman Way Station just south of Sherman Way. After leaving the Sherman Way Station, the alignment would continue north before curving to the southeast to parallel the LOSSAN rail corridor on the south side of the existing tracks. Parallel to the LOSSAN rail corridor, the guideway would conflict with the existing Willis Avenue Pedestrian Bridge, which would be demolished. The alignment would follow the LOSSAN rail corridor before reaching the proposed northern terminus Van Nuys Metrolink Station located adjacent to the existing Metrolink/Amtrak Station. Tail tracks and yard lead tracks would descend to a proposed at-grade MSF east of the northern terminus station. Modifications to the existing pedestrian underpass to the Metrolink platforms to accommodate these tracks would result in reconfiguration of an existing rail spur serving LADWP property.

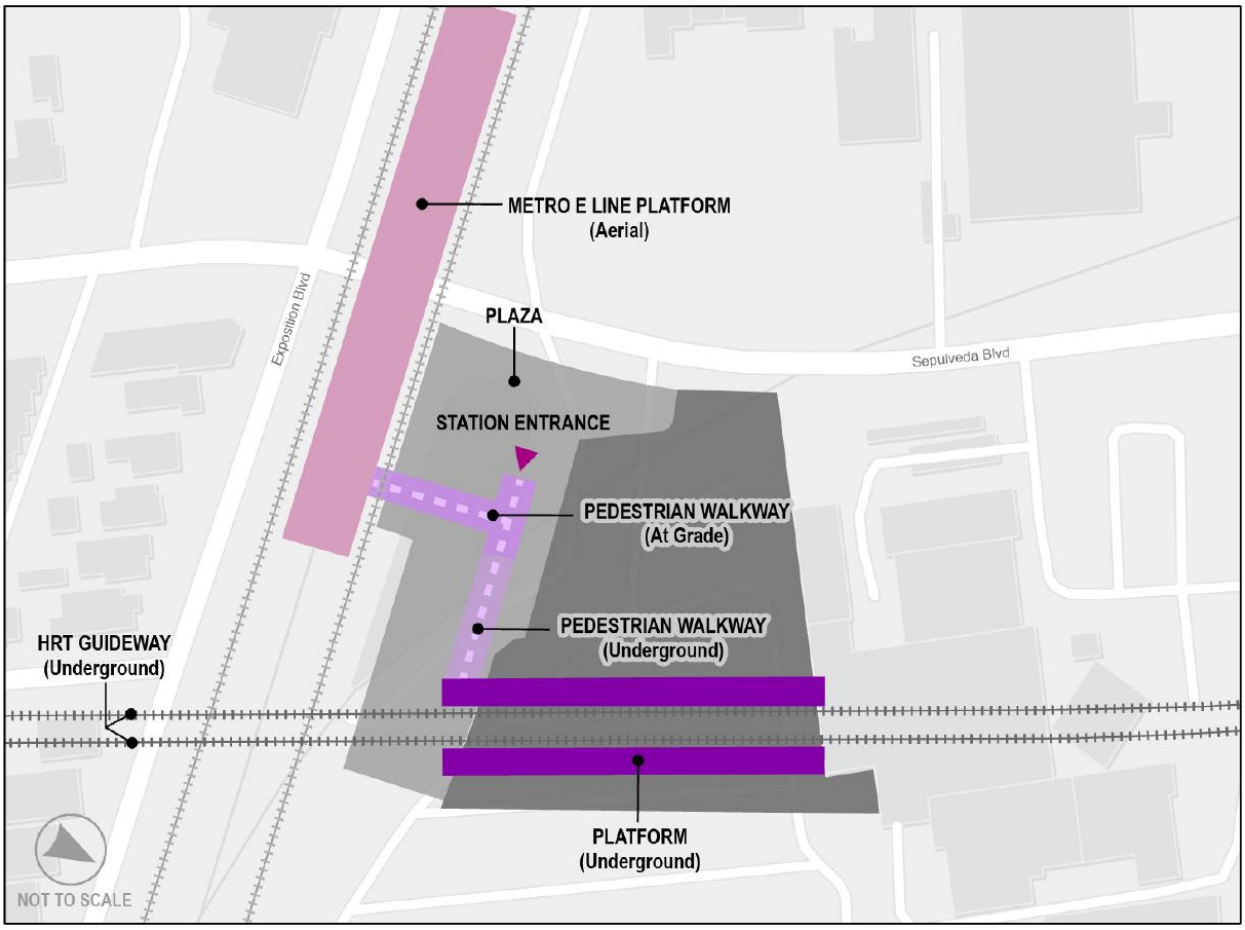
Stations

Alternative 4 would have four underground stations in the Westside at Metro E Line Expo/Sepulveda, Santa Monica Boulevard, Wilshire Boulevard/Metro D Line, and UCLA Gateway Plaza, and four aerial stations in the Valley at Ventura Boulevard/Sepulveda Boulevard, Metro G Line Sepulveda, Sherman Way, and the Van Nuys Metrolink Station. The location, entrances and transit plazas, pick-up/drop-off loops, connections to other fixed-guideway transit, and parking (if any) of the stations would be as follows:

Metro E Line Expo/Sepulveda Station (Illustrated on Figure 2-39)

- This underground station would be located just north of the existing Metro E Line Expo/Sepulveda Station, on the east side of Sepulveda Boulevard.
- A station entrance would be located on the east side of Sepulveda Boulevard north of the Metro E Line.
- A walkway to transfer to the Metro E Line would be provided at street level within the fare paid zone.
- The distance between the proposed station platforms and the Metro E Line Expo/Sepulveda Station platform would be approximately 90 feet.
- A 126-space parking lot would be located immediately north of the station entrance, east of Sepulveda Boulevard. Passengers would also be able to park at the existing Metro E Line Expo/Sepulveda Station parking facility, which provides 260 parking spaces.

Figure 2-39. Alternatives 4 and 5: Metro E Line Expo/Sepulveda Station

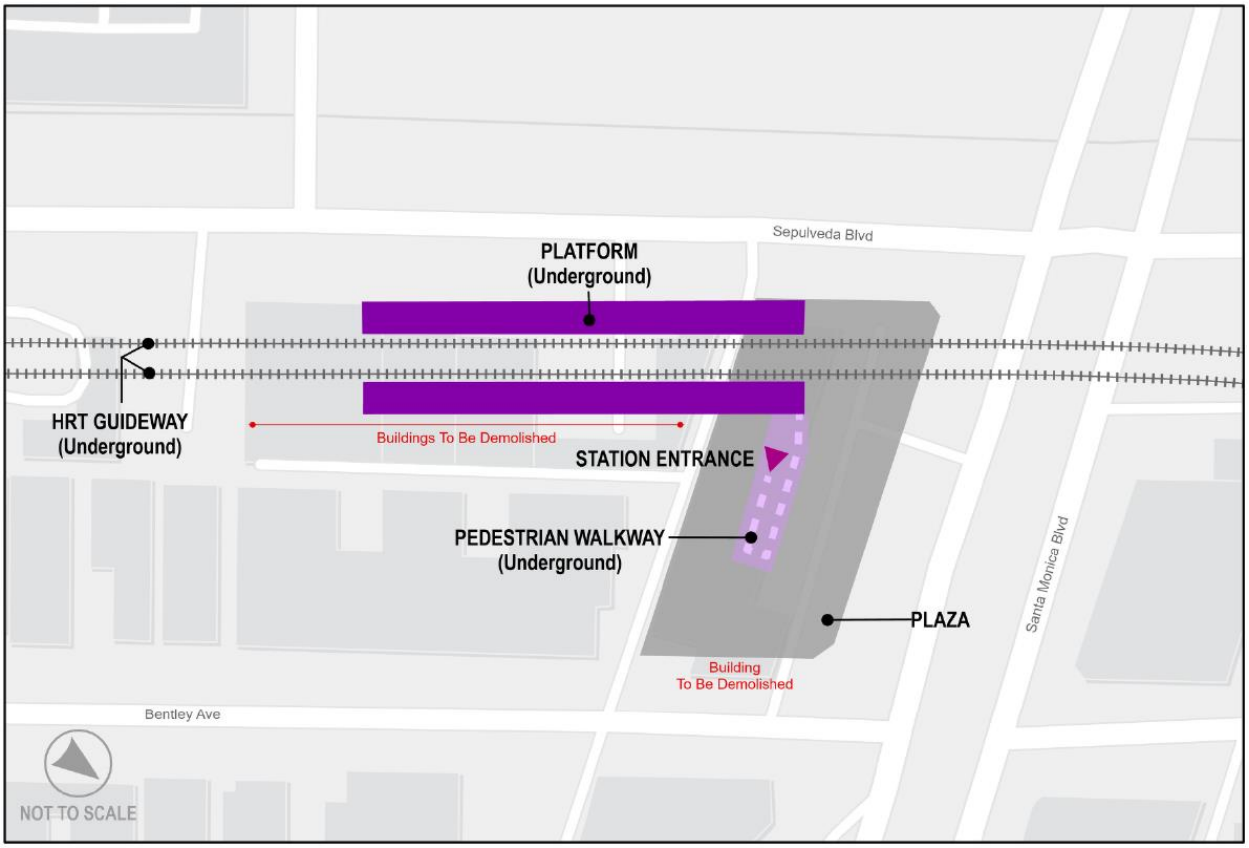


Source: STCP, 2024; HTA, 2024

Santa Monica Boulevard Station (Illustrated on Figure 2-40)

- This underground station would be located under the southeast corner of Santa Monica Boulevard and Sepulveda Boulevard.
- The station entrance would be located on the south side of Santa Monica Boulevard between Sepulveda Boulevard and Bentley Avenue.
- No dedicated station parking would be provided at this station.

Figure 2-40. Alternatives 4 and 5: Santa Monica Boulevard Station

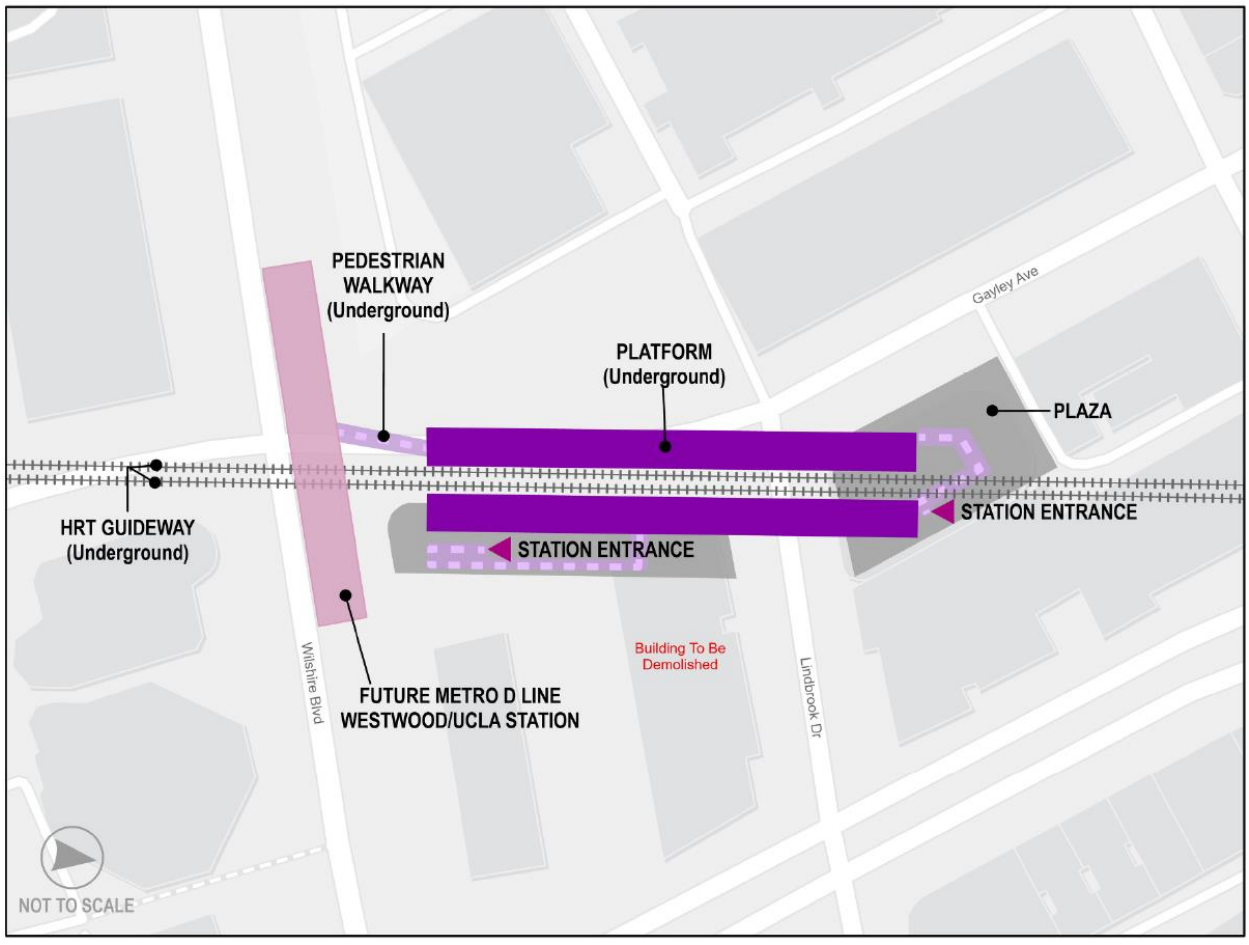


Source: STCP, 2024; HTA, 2024

Wilshire Boulevard/Metro D Line Station (Illustrated on Figure 2-41)

- This underground station would be located beneath the Metro D Line tracks and platform under Gayley Avenue between Wilshire Boulevard and Lindbrook Drive.
- Station entrances would be provided on the northeast corner of Wilshire Boulevard and Gayley Avenue and on the northeast corner of Lindbrook Drive and Gayley Avenue. Passengers would also be able to use the Metro D Line Westwood/UCLA Station entrances to access the station platform.
- A direct internal station transfer to the Metro D Line would be provided at the south end of the station.
- The distance between the proposed station platforms and the Metro D Line Westwood/UCLA Station platform would be approximately 450 feet.
- No dedicated station parking would be provided at this station.

Figure 2-41. Alternatives 4 and 5: Wilshire Boulevard/Metro D Line Station

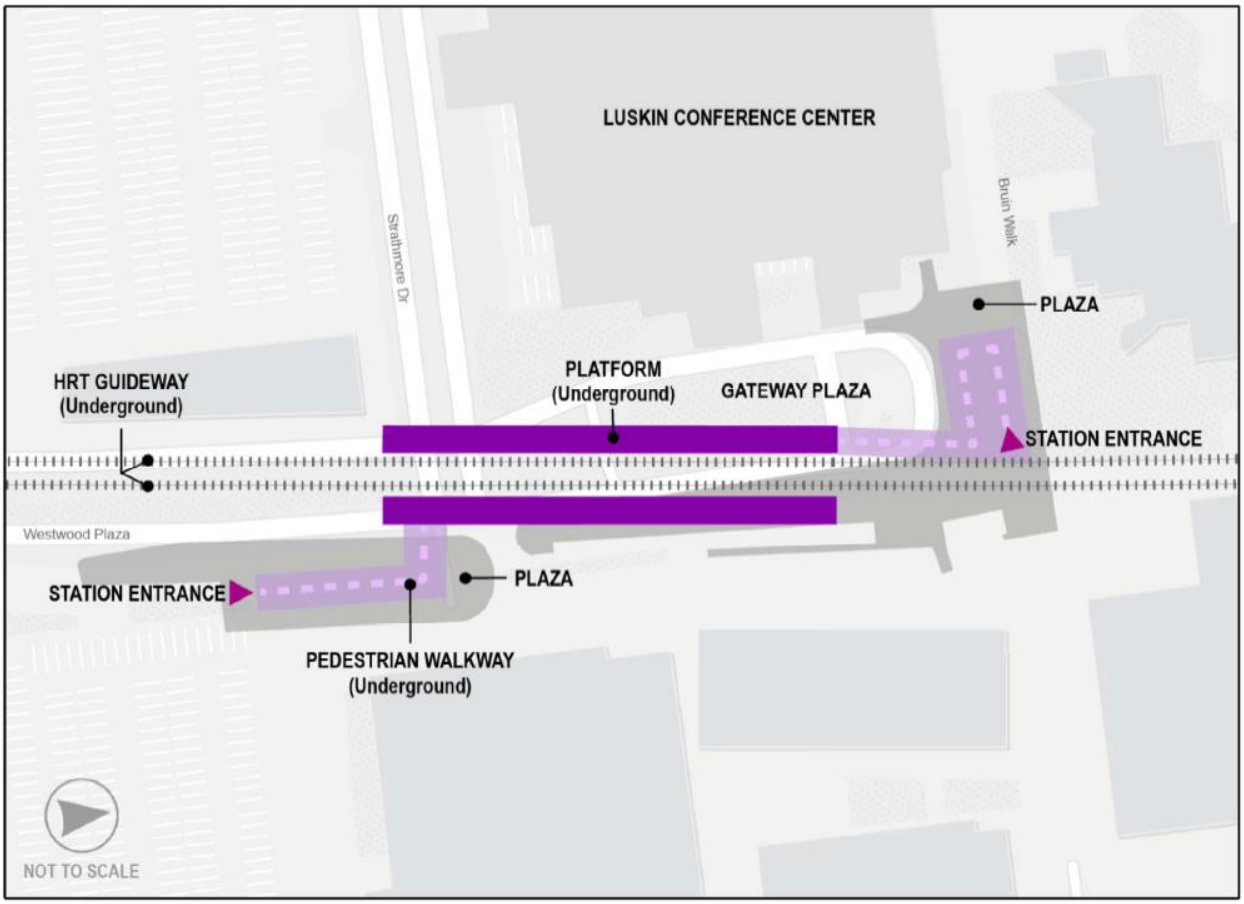


Source: STCP, 2024; HTA, 2024

UCLA Gateway Plaza Station (Illustrated on Figure 2-42)

- This underground station would be located underneath Gateway Plaza on the UCLA campus.
- Station entrances would be provided on the north side of Gateway Plaza and on the east side of Westwood Boulevard across from Strathmore Place.
- No dedicated station parking would be provided at this station.

Figure 2-42. Alternatives 4 and 5: UCLA Gateway Plaza Station

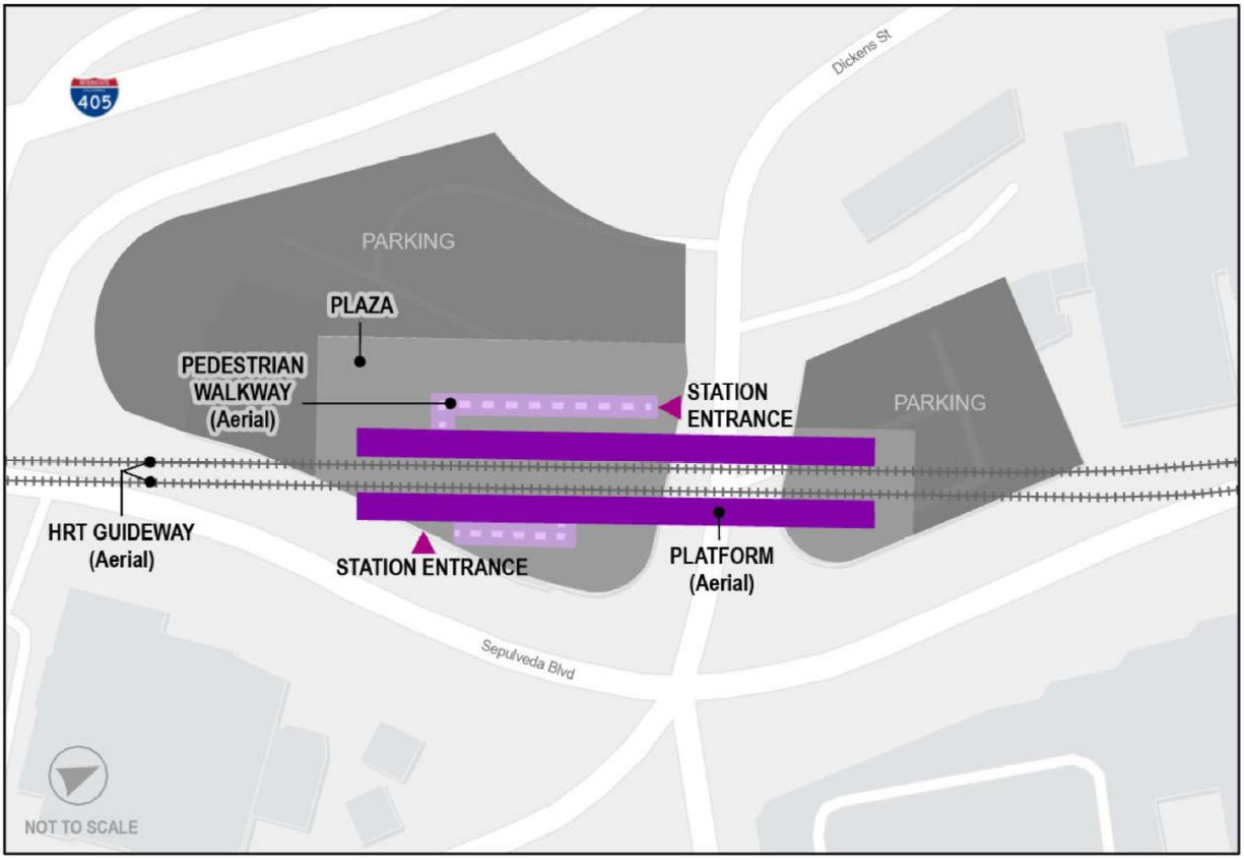


Source: STCP, 2024; HTA, 2024

Ventura Boulevard/Sepulveda Boulevard Station (Illustrated on Figure 2-43)

- This aerial station would be located west of Sepulveda Boulevard spanning over Dickens Street.
- A station entrance would be provided on the west side of Sepulveda Boulevard south of Dickens Street.
- A 52-space parking lot would be located adjacent to the station entrance on the southwest corner of the Sepulveda Boulevard and Dickens Street intersection, and an additional 40-space parking lot would be located on the northwest corner of the same intersection.

Figure 2-43. Alternative 4: Ventura Boulevard/Sepulveda Boulevard Station

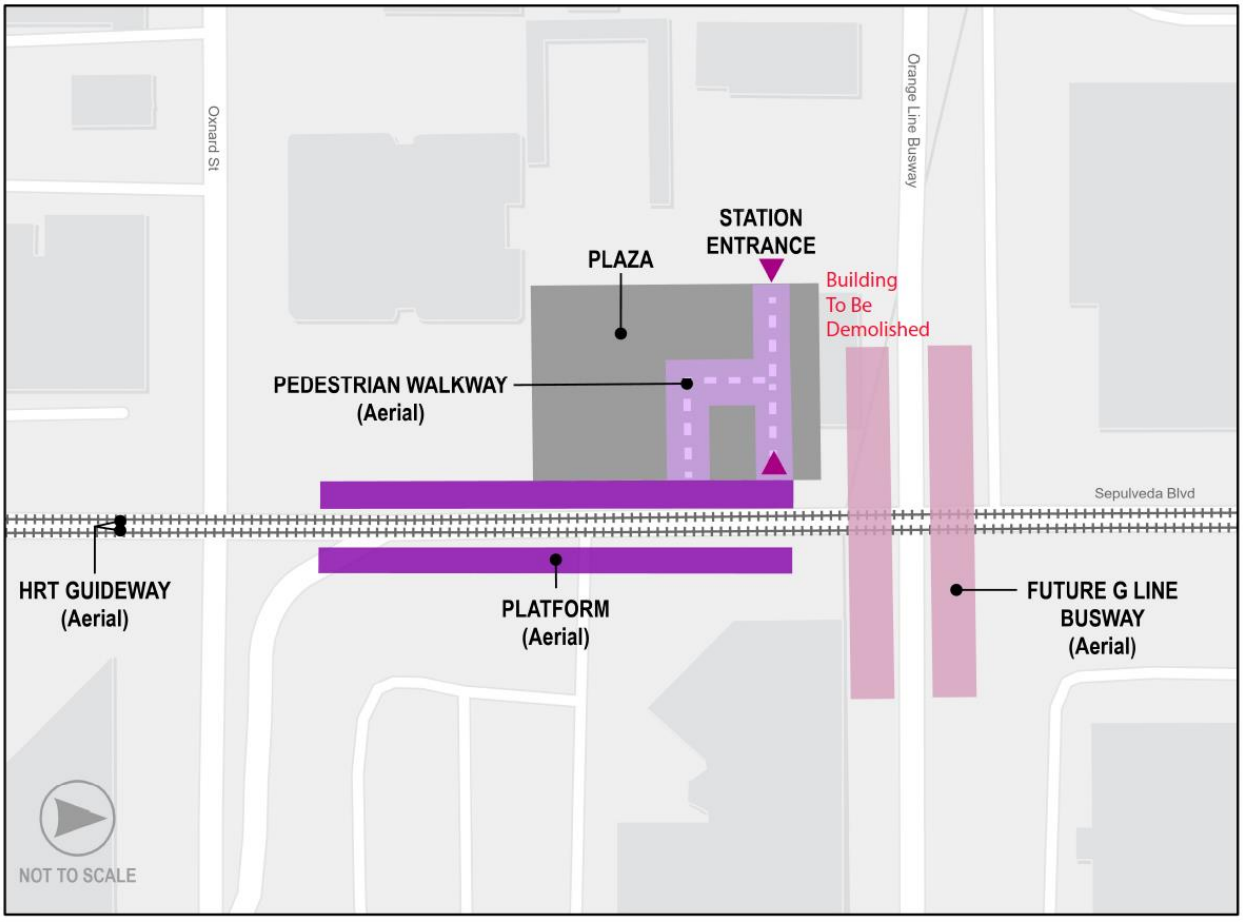


Source: STCP, 2024; HTA, 2024

Metro G Line Sepulveda Station (Illustrated on Figure 2-44)

- This aerial station would be located over Sepulveda Boulevard immediately south of the Metro G Line Busway.
- A station entrance would be provided on the west side of Sepulveda Boulevard south of the Metro G Line Busway.
- An elevated pedestrian walkway would connect the platform level of the proposed station to the planned aerial Metro G Line Busway platforms within the fare paid zone.
- The distance between the proposed station platforms and the Metro G Line Sepulveda Station platforms would be approximately 60 feet.
- Passengers would be able to park at the existing Metro G Line Sepulveda Station parking facility, which has a capacity of 1,205 parking spaces. Currently, only 260 parking spaces are used for transit parking. No additional automobile parking would be provided at the proposed station.

Figure 2-44. Alternative 4: Metro G Line Sepulveda Station

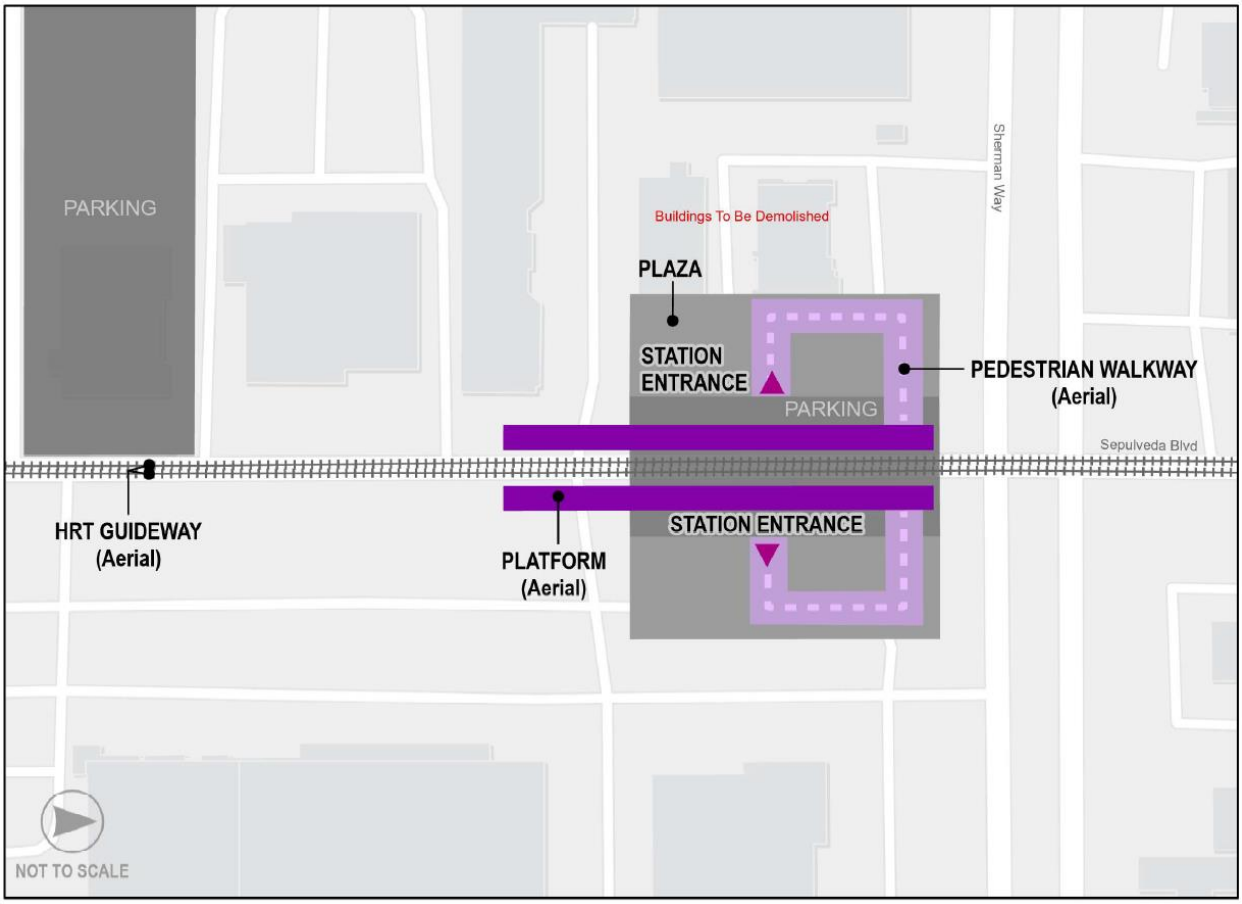


Source: STCP, 2024; HTA, 2024

Sherman Way Station (Illustrated on Figure 2-45)

- This aerial station would be located over Sepulveda Boulevard between Sherman Way and Gault Street.
- Station entrances would be provided on either side of Sepulveda Boulevard south of Sherman Way.
- A 46-space parking lot would be located on the northwest corner of the Sepulveda Boulevard and Gault Street intersection, and an additional 76-space parking lot would be located west of the station along Sherman Way.

Figure 2-45. Alternative 4: Sherman Way Station

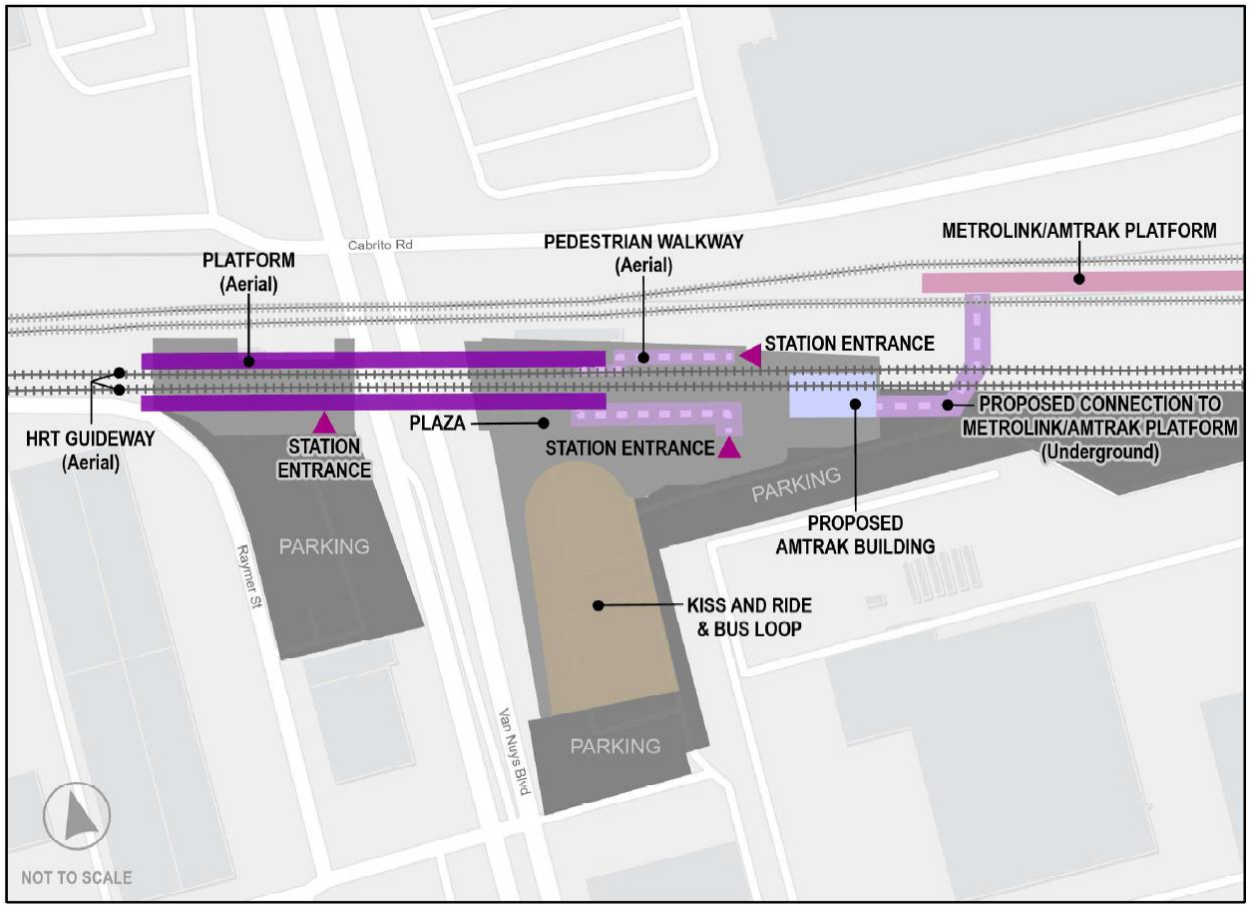


Source: STCP, 2024; HTA, 2024

Van Nuys Metrolink Station (Illustrated on Figure 2-46)

- This aerial station would span Van Nuys Boulevard, just south of the LOSSAN rail corridor.
- The primary station entrance would be located on the east side of Van Nuys Boulevard just south of the LOSSAN rail corridor. A secondary station entrance would be located between Raymer Street and Van Nuys Boulevard.
- An underground pedestrian walkway would connect the station plaza to the existing pedestrian underpass to the Metrolink/Amtrak platform outside the fare paid zone.
- The distance between the proposed station platforms and the Metrolink/Amtrak platform would be approximately 510 feet. The distance between the proposed station platforms and the ESFV station platform would be approximately 740 feet.
- Existing Metrolink/Amtrak Station parking would be reconfigured, maintaining approximately the same number of spaces, but 66 parking spaces would be relocated west of Van Nuys Boulevard. Metrolink parking would not be available to Metro transit riders.

Figure 2-46. Alternatives 4 and 5: Van Nuys Metrolink Station



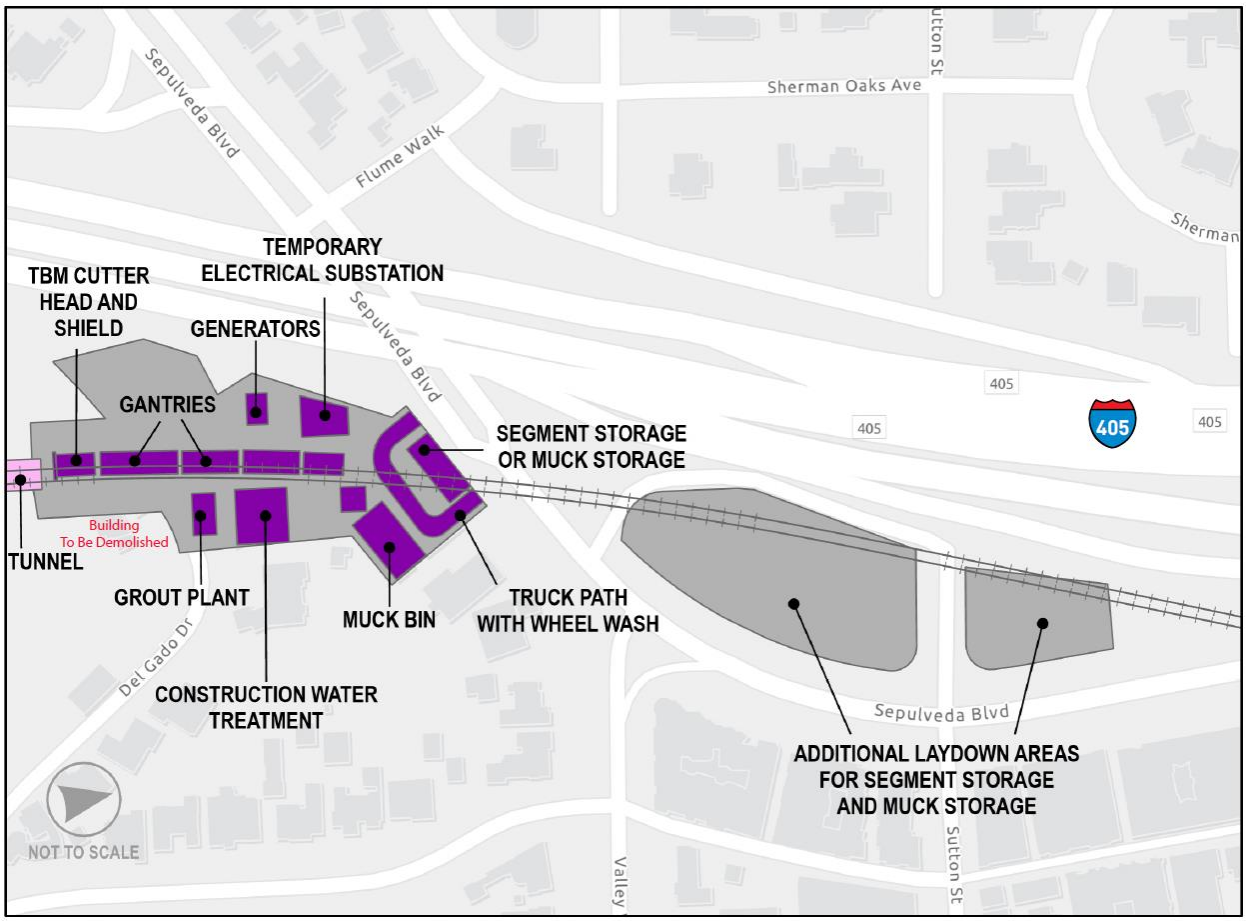
Source: STCP, 2024; HTA, 2024

North Tunnel Portal

Under Alternative 4, a TBM would be launched from the north near Del Gado Drive in the San Fernando Valley to construct the tunnel segment underneath the Santa Monica Mountains and be extracted from the UCLA extraction site discussed in Section 2.5.3.1. Figure 2-47 shows the location of the north tunnel portal and facilities present during construction.

Early construction activities at this site would include demolition of existing residential structures located at the portal area, installation of support for the portal structure, construction of a concrete base for TBM launching, construction of tunnel break-in structure at the TBM launch point, as well as mobilization of the TBM and training gear, staging of excavated tunnel material, and staging of construction and permanent materials including pre-cast tunnel lining segments.

Figure 2-47. Alternative 4: North Tunnel Portal



Source: STCP, 2024; HTA, 2024

Station-to-Station Travel Times

Table 2-12 presents the station-to-station distances and travel times for Alternative 4. The travel times include both run time and dwell time. Dwell time is 30 seconds for transfer stations and 20 seconds for other stations. Northbound and southbound travel times vary slightly because of grade differentials and operational considerations at end-of-line stations.

Table 2-12. Alternative 4: Station-to-Station Travel Times and Station Dwell Times

From Station	To Station	Distance (miles)	Northbound Station-to-Station Travel Time (seconds)	Southbound Station-to-Station Travel Time (seconds)	Dwell Time (seconds)
Metro E Line Station					*30*
Metro E Line	Santa Monica Boulevard	0.9	89	86	—
Santa Monica Boulevard Station					*20*
Santa Monica Boulevard	Wilshire/Metro D Line	0.9	91	92	—
Wilshire/Metro D Line Station					*30*
Wilshire/Metro D Line	UCLA Gateway Plaza	0.7	75	68	—
UCLA Gateway Plaza Station					*20*
UCLA Gateway Plaza	Ventura Boulevard	6.1	376	366	—
Ventura Boulevard Station					*20*
Ventura Boulevard	Metro G Line	1.9	149	149	—
Metro G Line Station					*30*
Metro G Line	Sherman Way	1.4	110	109	—
Sherman Way Station					*20*
Sherman Way	Van Nuys Metrolink	1.9	182	180	—
Van Nuys Metrolink Station					*30*

Source: STCP, 2024

Special Trackwork

Alternative 4 would include 10 double crossovers throughout the alignment, enabling trains to cross over to the parallel track. Each terminus station would include a double crossover immediately north and south of the station. Except for the Santa Monica Boulevard Station, each station would have a double crossover immediately south of the station. The remaining crossovers would be located along the alignment midway between the UCLA Gateway Plaza Station and the Ventura Boulevard Station.

Traction Power Substations

Table 2-13 lists the TPSS locations for Alternative 4. Figure 2-48 shows the TPSS locations along the Alternative 4 alignment.

Table 2-13. Alternative 4: Traction Power Substation Locations

TPSS No.	Location Description	Configuration
1	TPSS 1 would be located east of Sepulveda Boulevard and north of the Metro E Line.	Underground (within station)
2	TPSS 2 would be located south of Santa Monica Boulevard between Sepulveda Boulevard and Bentley Avenue.	Underground (within station)
3	TPSS 3 would be located at the southeast corner of UCLA Gateway Plaza.	Underground (within station)
4	TPSS 4 would be located south of Bellagio Road and west of Stone Canyon Road.	Underground (adjacent to tunnel)
5	TPSS 5 would be located west of Roscomare Road between Donella Circle and Linda Flora Drive.	Underground (adjacent to tunnel)
6	TPSS 6 would be located east of Loom Place between Longbow Drive and Vista Haven Road.	Underground (adjacent to tunnel)
7	TPSS 7 would be located west of Sepulveda Boulevard between the I-405 Northbound On-Ramp and Dickens Street.	At-grade (within station)
8	TPSS 8 would be located west of Sepulveda Boulevard between the Metro G Line Busway and Oxnard Street.	At-grade (within station)
9	TPSS 9 would be located at the southwest corner of Sepulveda Boulevard and Sherman Way.	At-grade (within station)
10	TPSS 10 would be located south of the LOSSAN rail corridor and north of Raymer Street and Kester Avenue.	At-grade
11	TPSS 11 would be located south of the LOSSAN rail corridor and east of the Van Nuys Metrolink Station.	At-grade (within MSF)
12	TPSS 12 would be located south of the LOSSAN rail corridor and east of Hazeltine Avenue.	At-grade (within MSF)

Source: STCP, 2024; HTA, 2024

Figure 2-48. Alternative 4: Traction Power Substation Locations

Source: STCP, 2024; HTA, 2024

Roadway Configuration Changes

Table 2-14 lists the roadway changes necessary to accommodate the guideway of Alternative 4. Figure 2-49 shows the location of roadway changes in the Project Study Area, and Figure 2-50 shows detail of the street vacation at Del Gado Drive.

In addition to the changes made to accommodate the guideway, as listed in Table 2-14, roadways and sidewalks near stations would be reconstructed, resulting in modifications to curb ramps and driveways.

Table 2-14. Alternative 4: Roadway Changes

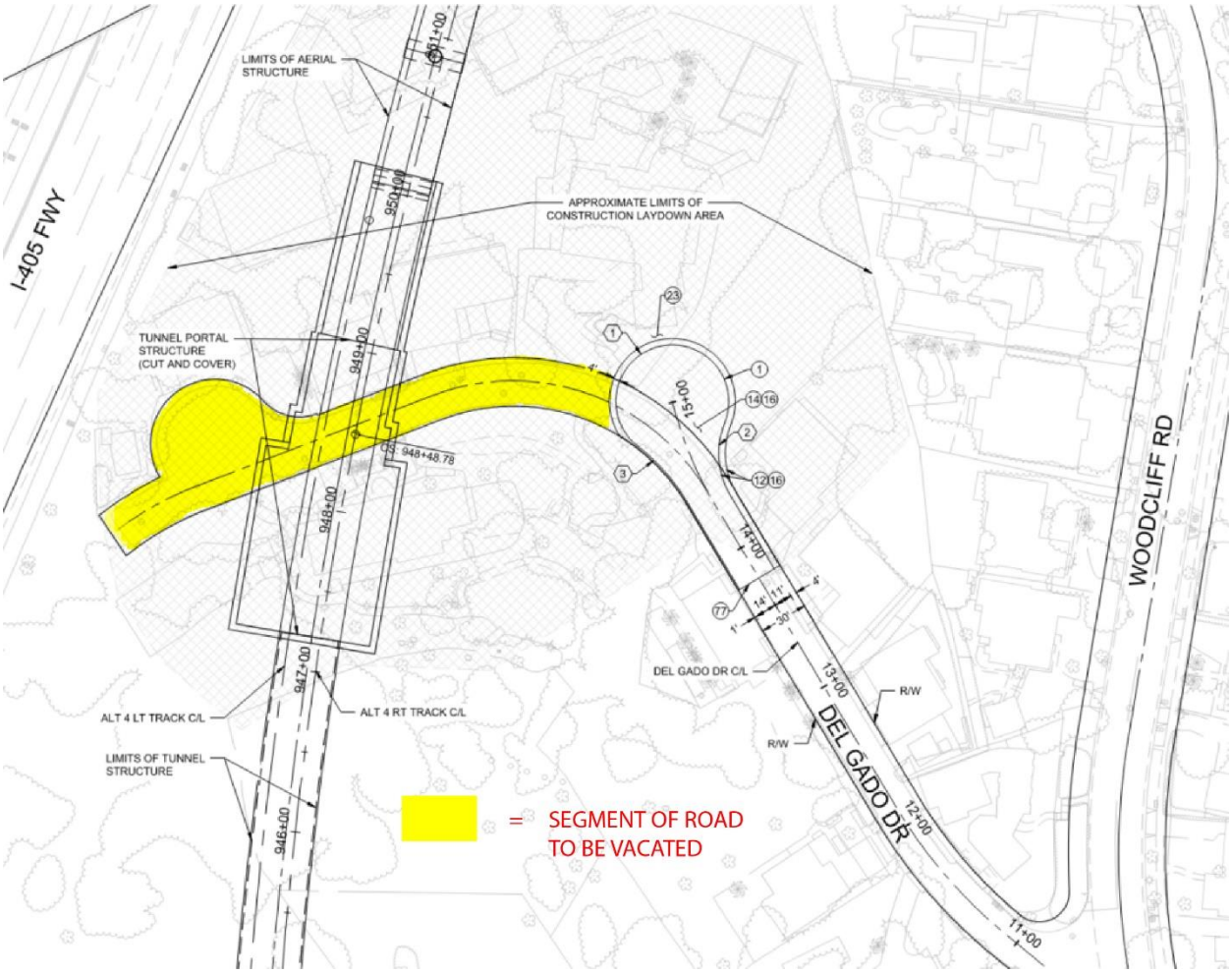
Location	From	To	Description of Change
Del Gado Drive	Woodcliff Road	Not Applicable	Vacation of approximately 325 feet of Del Gado Drive east of I-405 to accommodate tunnel portal
Sepulveda Boulevard	Ventura Boulevard	Raymer Street	Construction of raised median and removal of all on-street parking on the southbound side of the street and some on-street parking on the northbound side of the street to accommodate aerial guideway columns
Sepulveda Boulevard	La Maida Street	Not Applicable	Prohibition of left turns to accommodate aerial guideway columns
Sepulveda Boulevard	Valleyheart Drive South, Hesby Street, Hartsook Street, Archwood Street, Hart Street, Leadwell Street, Covello Street	Not Applicable	Prohibition of left turns to accommodate aerial guideway columns
Raymer Street	Kester Avenue	Keswick Street	Reconstruction resulting in narrowing of width and removal of parking on the westbound side of the street to accommodate aerial guideway columns

Source: STCP, 2024; HTA, 2024

Figure 2-49. Alternative 4: Roadway Changes

Source: STCP, 2024; HTA, 2024

Figure 2-50. Alternative 4: Street Vacation at Del Gado Drive



Source: STCP, 2024; HTA, 2024

Construction Staging Areas

Construction activities for Alternative 4 would occur within project work zones at permanent facility locations, construction staging and laydown areas, and construction office areas. Construction of the transit facilities through substantial completion is expected to have a duration of 8 ¼ years. Early works such as site preparation, demolition, and utility relocation could start in advance of construction of the transit facilities.

The tunnel for Alternative 4 would comprise two separate segments, one running north from the southern terminus to the UCLA Gateway Plaza Station (Westside segment), and the other running south from the portal in the San Fernando Valley to the UCLA Gateway Plaza Station (Santa Monica Mountains segment). For the Westside segment, the TBM would be launched from Staging Area No. 1 in Table 2-15 at Sepulveda Boulevard and National Boulevard. For the Santa Monica Mountains segment, the TBM would be launched from Staging Area No. 4 in the San Fernando Valley. Both TBMs would be extracted from the UCLA Gateway Plaza Station Staging Area No. 3 in Table 2-15. Figure 2-51 shows the location of construction staging locations along the Alternative 4 alignment. Refer to Section 2.5.3.1 for a description of construction activities at staging areas.

Table 2-15. Alternative 4: On-Site Construction Staging Locations

No.	Location Description
1	Commercial properties on southeast corner of Sepulveda Boulevard and National Boulevard
2	North side of Wilshire Boulevard between Veteran Avenue and Gayley Avenue
3	UCLA Gateway Plaza
4	Residential properties on both sides of Del Gado Drive and south side of Sepulveda Boulevard adjacent to I-405
5	West of Sepulveda Boulevard between Valley Vista Boulevard and Sutton Street
6	West of Sepulveda Boulevard between US-101 and Sherman Oaks Castle Park
7	Lot behind Los Angeles Fire Department Station 88
8	Commercial property on southeast corner of Sepulveda Boulevard and Raymer Street
9	South of the LOSSAN rail corridor east of Van Nuys Metrolink Station, west of Woodman Avenue

Source: STCP, 2024; HTA, 2024

Figure 2-51. Alternative 4: On-Site Construction Staging Locations

Source: STCP, 2024; HTA, 2024

2.5.3.3 Alternative 5

Overview

Alternative 5 would be a 13.8-mile long HRT alignment operating between a southern terminus station adjacent to the Metro E Line Expo/Sepulveda Station and a northern terminus station adjacent to the Van Nuys Metrolink/Amtrak Station. The alignment would be underground between the southern terminus and a tunnel portal east of Sepulveda Boulevard and south of Raymer Street in the San Fernando Valley. As it approaches the tunnel portal, the alignment would curve southeast and begin to transition to an aerial guideway along the south side of the LOSSAN rail corridor.

Alternative 5 would have seven underground stations and one aerial station at Van Nuys Metrolink Station. An MSF for HRT vehicles would be located west of Woodman Avenue south of the LOSSAN rail corridor tracks.

Alignment

As shown on Figure 2-52, the proposed southern terminus station would be located underground east of Sepulveda Boulevard between the existing elevated Metro E Line tracks and Pico Boulevard. Tail tracks for vehicle storage would extend underground south of National Boulevard east of Sepulveda Boulevard. The alignment would continue north beneath Bentley Avenue before curving northwest to an underground station at the southeast corner of Santa Monica Boulevard and Sepulveda Boulevard. From the Santa Monica Boulevard Station, the alignment would continue and curve eastward to the Wilshire Boulevard/Metro D Line Station beneath the Metro D Line Westwood/UCLA Station, which is currently under construction as part of the Metro D Line Extension Project. From there, the underground alignment would curve slightly to the northeast and continue beneath Westwood Boulevard before reaching the UCLA Gateway Plaza Station.

Figure 2-52. Alternative 5: Alignment

Source: STCP, 2024; HTA, 2024

From the UCLA Gateway Plaza Station, the alignment would turn to the northwest beneath the Santa Monica Mountains to the east of I-405. South of Mulholland Drive, the alignment would curve to the north, aligning with Saugus Avenue south of Valley Vista Boulevard. The Ventura Boulevard Station would be located under Saugus Avenue between Greenleaf Street and Dickens Street. The alignment would then continue north beneath Sepulveda Boulevard to the Metro G Line Sepulveda Station immediately south of the Metro G Line Busway. After leaving the Metro G Line Sepulveda Station, the

alignment would continue beneath Sepulveda Boulevard to reach the Sherman Way Station, the final underground station along the alignment, immediately south of Sherman Way. From the Sherman Way Station, the alignment would continue north before curving slightly to the northeast to the tunnel portal south of Raymer Street. The alignment would then transition from an underground configuration to an aerial guideway structure after exiting the tunnel portal. East of the tunnel portal, the alignment would transition to a cut-and-cover U-structure segment followed by a trench segment before transitioning to an aerial guideway that would run east along the south side of the LOSSAN rail corridor. Parallel to the LOSSAN rail corridor, the guideway would conflict with the existing Willis Avenue Pedestrian Bridge which would be demolished. The alignment would follow the LOSSAN rail corridor before reaching the proposed northern terminus Van Nuys Metrolink Station located adjacent to the existing Metrolink/Amtrak Station. The tail tracks and yard lead tracks would descend to the proposed at-grade MSF east of the proposed northern terminus station. Modifications to the existing pedestrian underpass to the Metrolink platforms to accommodate these tracks would result in reconfiguration of an existing rail spur serving LADWP property.

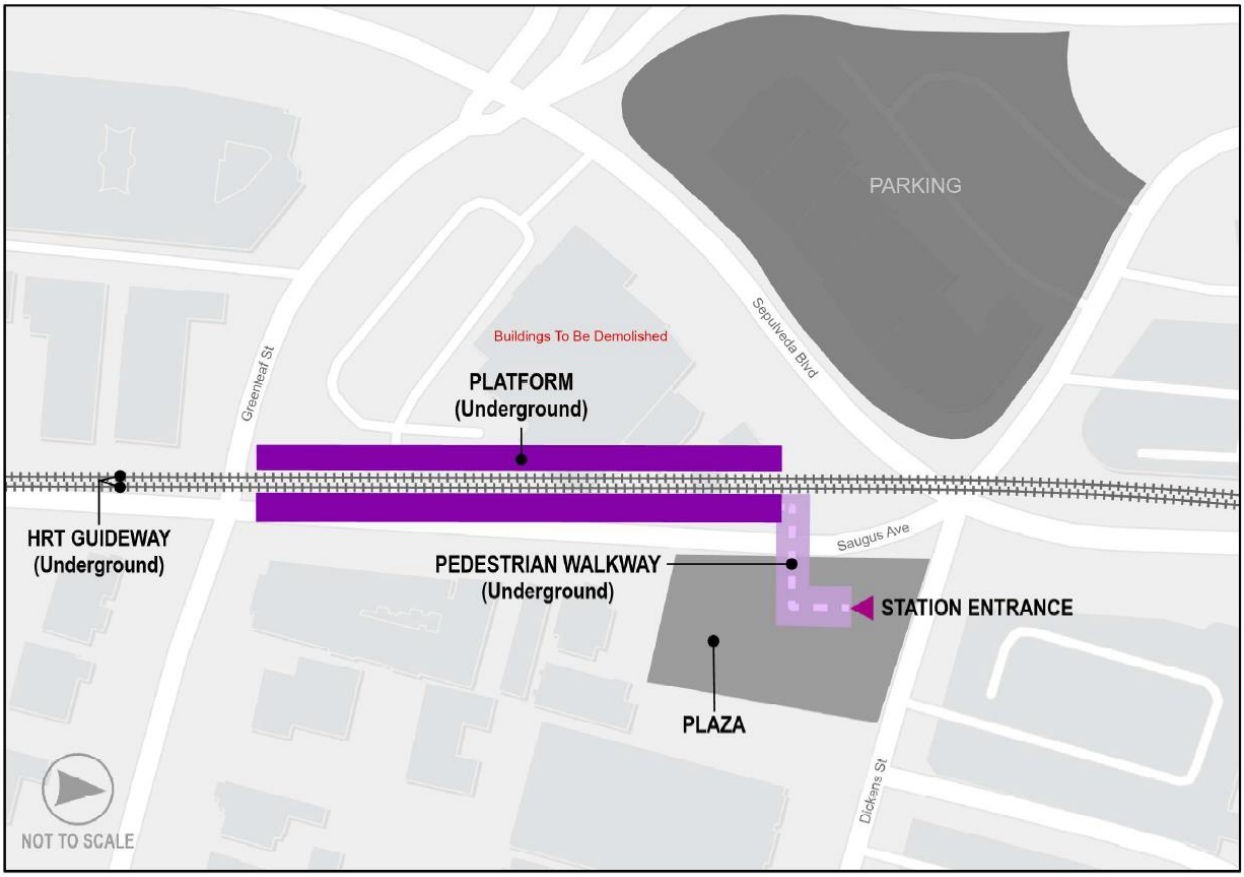
Stations

Alternative 5 would have five underground stations identical to those under Alternative 4 (Metro E Line Expo/Sepulveda, Santa Monica Boulevard, Wilshire Boulevard/Metro D Line, UCLA Gateway Plaza, and the Van Nuys Metrolink Station), which are detailed in Section 2.5.3.2, and three unique underground stations at Ventura Boulevard/Sepulveda Boulevard, Metro G Line Sepulveda, and Sherman Way. The location, entrances and transit plazas, pick-up/drop-off loops, connections to other fixed-guideway transit, and parking (if any) of the stations unique to Alternative 5 would be as follows:

Ventura Boulevard/Sepulveda Boulevard Station (Illustrated on Figure 2-53)

- This underground station would be located under Saugus Avenue between Greenleaf Street and Dickens Street.
- A station entrance would be located on the southeast corner of Saugus Avenue and Dickens Street.
- Approximately 92 parking spaces would be supplied at this station west of Sepulveda Boulevard between Dickens Street and the US-101 On-Ramp.

Figure 2-53. Alternative 5: Ventura Boulevard/Sepulveda Boulevard Station

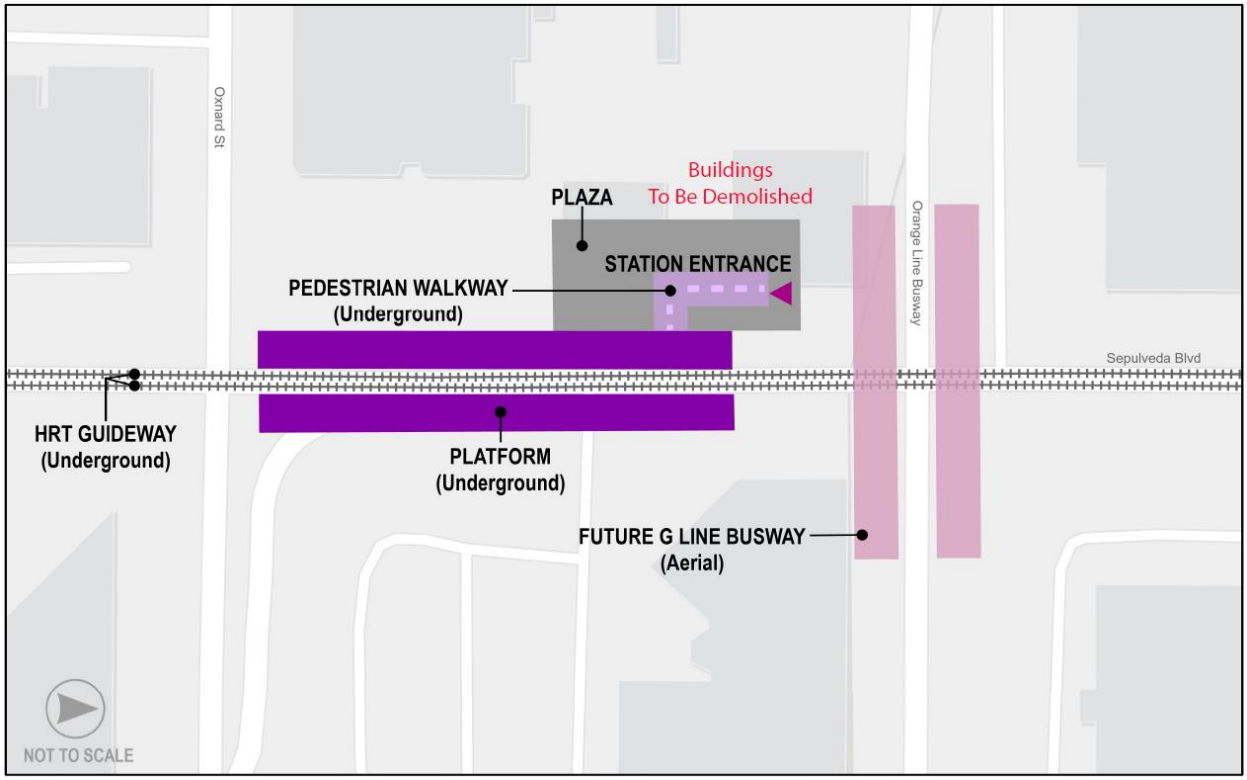


Source: STCP, 2024; HTA, 2024

Metro G Line Sepulveda Station (Illustrated on Figure 2-54)

- This underground station would be located under Sepulveda Boulevard immediately south of the Metro G Line Busway.
- A station entrance would be provided on the west side of Sepulveda Boulevard south of the Metro G Line Busway.
- The distance between the proposed station platforms and the Metro G Line Sepulveda Station platforms would be approximately 130 feet.
- Passengers would be able to park at the existing Metro G Line Sepulveda Station parking facility, which has a capacity of 1,205 parking spaces. Currently, only 260 parking spaces are currently used for transit parking. No new parking would be constructed.

Figure 2-54. Alternative 5: Metro G Line Sepulveda Station

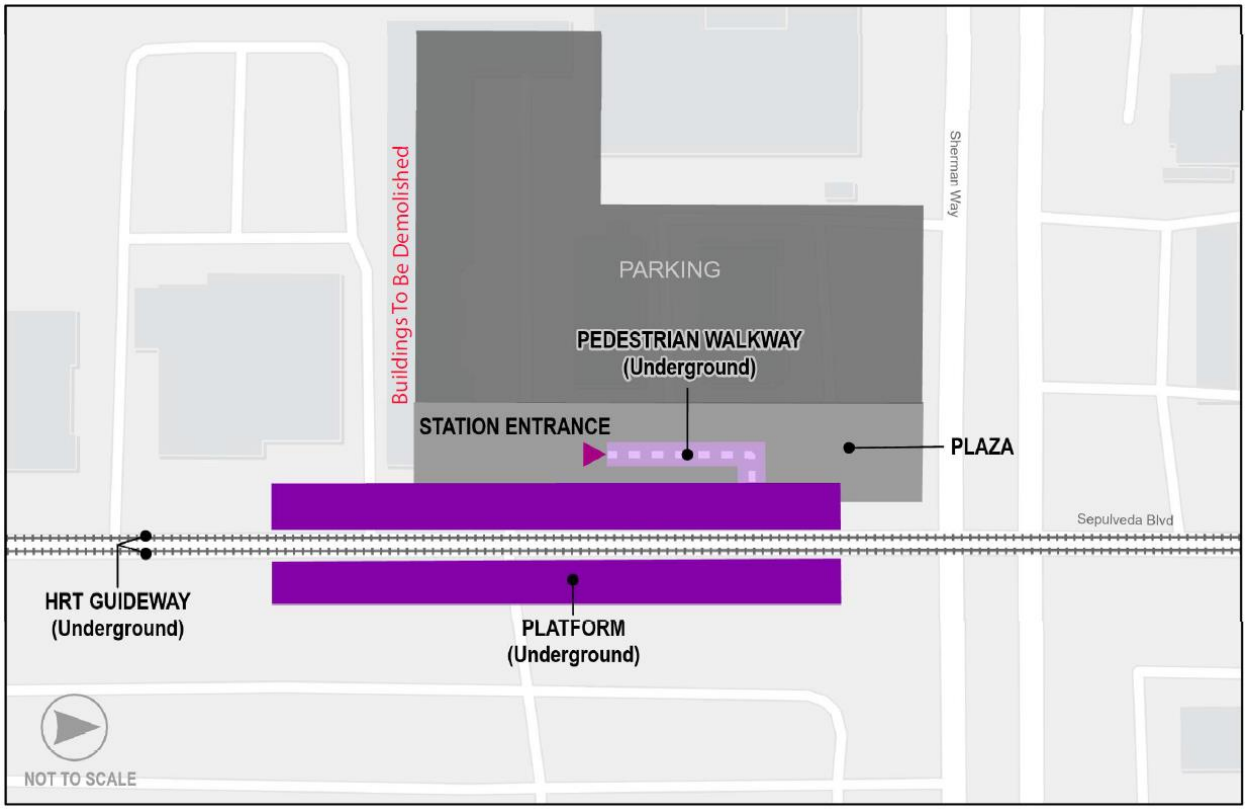


Source: STCP, 2024; HTA, 2024

Sherman Way Station (Illustrated on Figure 2-55)

- This underground station would be located below Sepulveda Boulevard between Sherman Way and Gault Street.
- The station entrance would be located near the southwest corner of Sepulveda Boulevard and Sherman Way.
- Approximately 122 parking spaces would be supplied at this station on the west side of Sepulveda Boulevard with vehicle access from Sherman Way.

Figure 2-55. Alternative 5: Sherman Way Station



Source: STCP, 2024; HTA, 2024

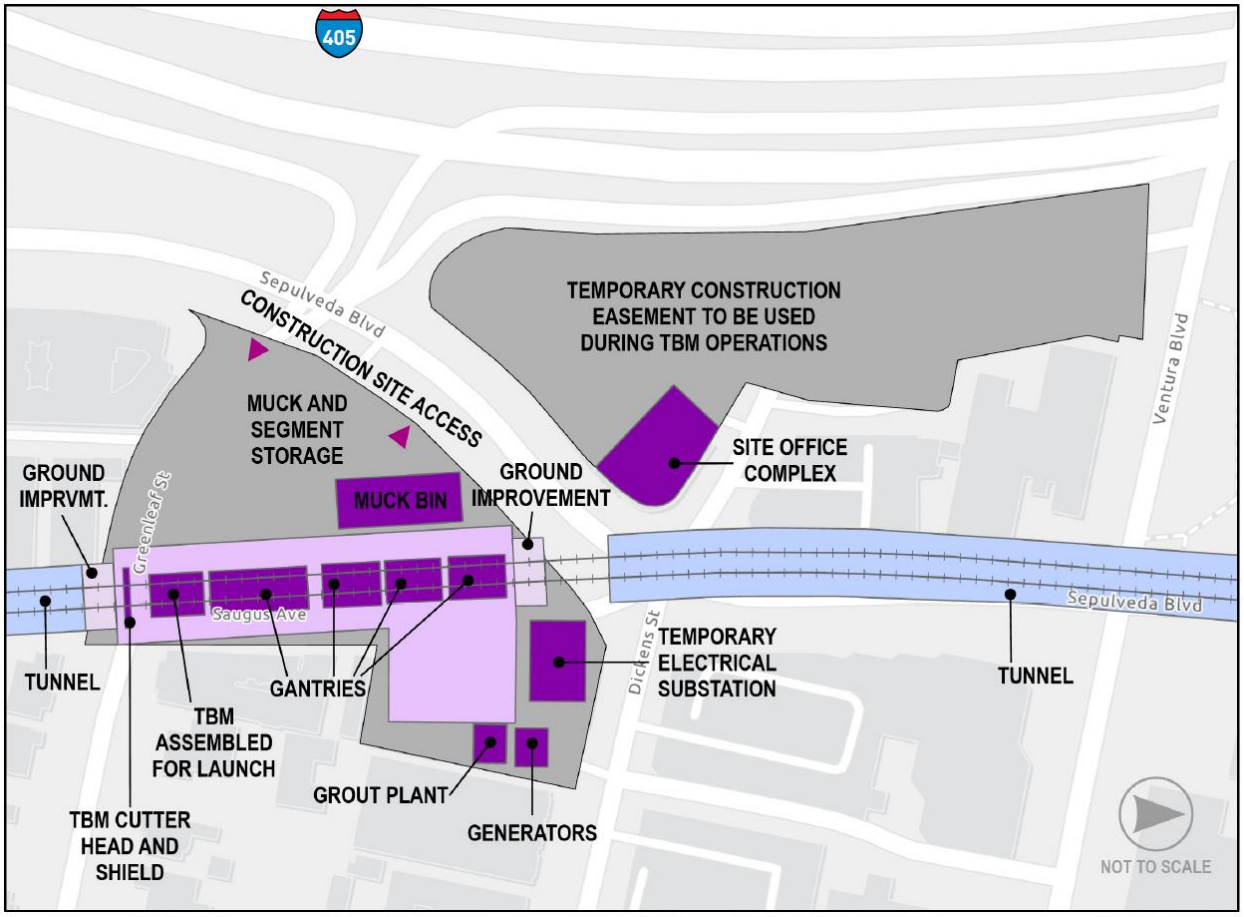
TBM Launch and Extraction Site and North Tunnel Portal

Under Alternative 5, the TBM for the Santa Monica Mountains segment would be launched from the Ventura Boulevard Station and extracted from the UCLA extraction site discussed in Section 2.5.3.1. For the Valley segment, the TBM would be launched from a site on both sides of Raymer Street and be extracted from the Ventura Boulevard Station. Figure 2-56 and Figure 2-57 show the location of these sites and their facilities during construction.

Construction activities would include construction of a temporary TBM support shaft separate from the Ventura Station box, TBM mobilization and launch, and arrival and demobilization of the Valley TBM. Muck would be transported off-site via haul trucks accessing the site from Sepulveda Boulevard and egressing via Sepulveda Boulevard and I-405.

Following launch and mining support activities for the TBM, similar to those at the South TBM launch site discussed in Section 2.5.3.1, the TBM used to construct the Valley segment would arrive at the Ventura site. It would then be disassembled into smaller components within the preliminary underground structure before being lifted to the surface and hauled away on trucks. Construction at the site would then transition to construction of the permanent Ventura Station structure.

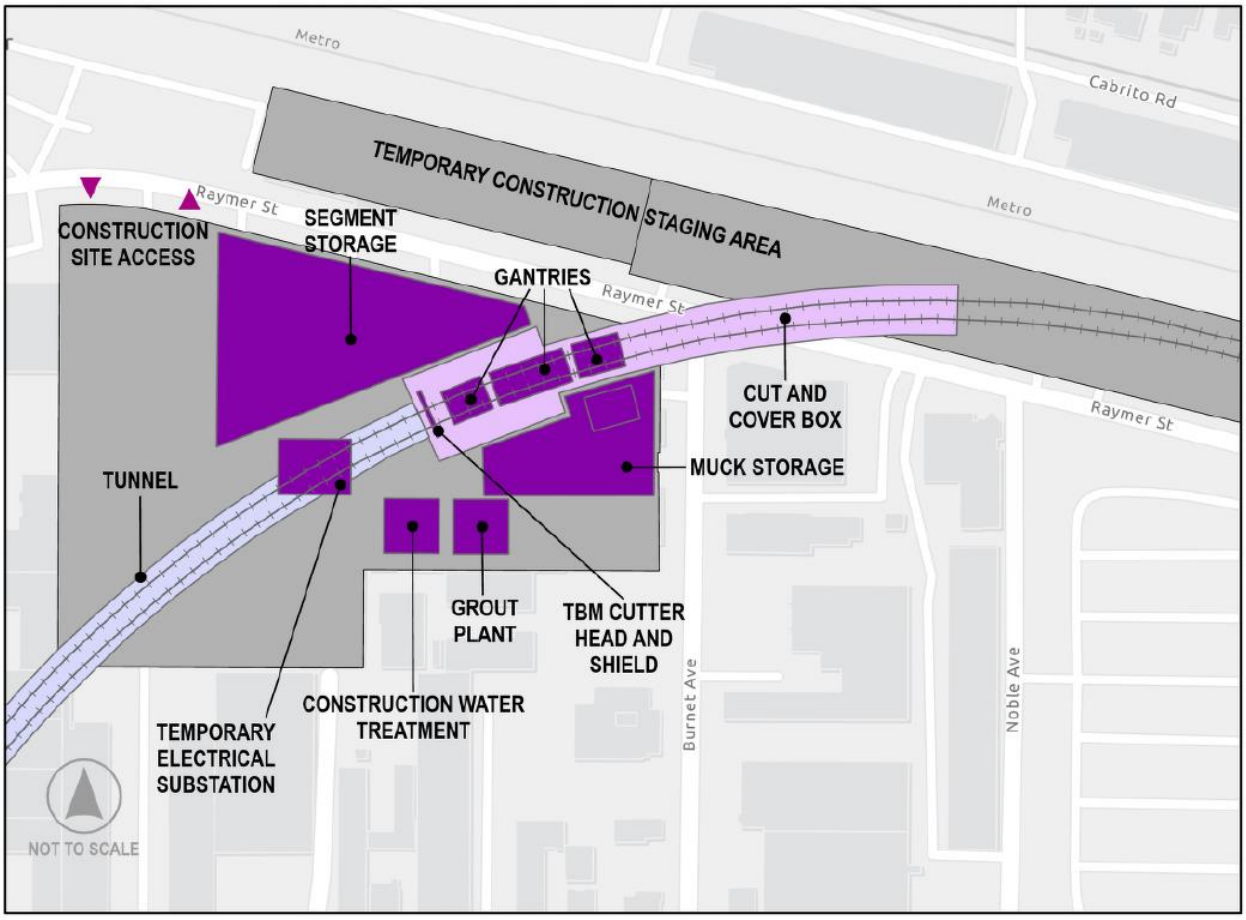
Figure 2-56. Alternative 5: TBM Launch and Extraction Site



Source: STCP, 2024; HTA, 2024

Figure 2-57 shows the TBM launch site for the Valley tunnel segment near Sepulveda Boulevard and Raymer Street. Once the TBM has advanced into the tunnel, the site would be used for staging of precast tunnel segments, storage of construction materials, and temporary storage and hauling of excavated material muck. Haul trucks would access and egress the site via Raymer Street, Sepulveda Boulevard, Roscoe Boulevard, and I-405.

Figure 2-57. Alternative 5: North Tunnel Portal



Source: STCP, 2024; HTA, 2024

Station-to-Station Travel Times

Table 2-16 presents the station-to-station distances and travel times for Alternative 5. The travel times include both run time and dwell time. Dwell time is 30 seconds for transfer stations and 20 seconds for other stations. Northbound and southbound travel times vary slightly because of grade differentials and operational considerations at end-of-line stations.

Table 2-16. Alternative 5: Station-to-Station Travel Times and Station Dwell Times

From Station	To Station	Distance (miles)	Northbound Station-to-Station Travel Time (seconds)	Southbound Station-to-Station Travel Time (seconds)	Dwell Time (seconds)
Metro E Line Station					*30*
Metro E Line	Santa Monica Boulevard	0.9	89	86	—
Santa Monica Boulevard Station					*20*
Santa Monica Boulevard	Wilshire/Metro D Line	0.9	91	92	—
Wilshire/Metro D Line Station					*30*
Wilshire/Metro D Line	UCLA Gateway Plaza	0.7	75	69	—
UCLA Gateway Plaza Station					*20*
UCLA Gateway Plaza	Ventura Boulevard	6.0	368	359	—
Ventura Boulevard Station					*20*
Ventura Boulevard	Metro G Line	2.0	137	138	—
Metro G Line Station					*30*
Metro G Line	Sherman Way	1.4	113	109	—
Sherman Way Station					*20*
Sherman Way	Van Nuys Metrolink	1.9	166	162	—
Van Nuys Metrolink Station					*30*

Source: STCP, 2024

Special Trackwork

Alternative 5 would include 10 double crossovers throughout the alignment enabling trains to cross over to the parallel track. Each terminus station would include a double crossover immediately north and south of the station. Except for the Santa Monica Boulevard Station, each station would have a double crossover immediately south of the station. The remaining crossover would be located along the alignment midway between the UCLA Gateway Plaza Station and the Ventura Boulevard Station.

Traction Power Substations

Table 2-17 lists the TPSS locations for Alternative 5. Figure 2-58 shows the TPSS locations along the Alternative 5 alignment.

Table 2-17. Alternative 5: Traction Power Substation Locations

TPSS No.	TPSS Location Description	Configuration
1	TPSS 1 would be located east of Sepulveda Boulevard and north of the Metro E Line.	Underground (within station)
2	TPSS 2 would be located south of Santa Monica Boulevard between Sepulveda Boulevard and Bentley Avenue.	Underground (within station)
3	TPSS 3 would be located at the southeast corner of UCLA Gateway Plaza.	Underground (within station)
4	TPSS 4 would be located south of Bellagio Road and west of Stone Canyon Road.	Underground (adjacent to tunnel)
5	TPSS 5 would be located west of Roscomare Road between Donella Circle and Linda Flora Drive.	Underground (adjacent to tunnel)
6	TPSS 6 would be located east of Loom Place between Longbow Drive and Vista Haven Road.	Underground (adjacent to tunnel)
7	TPSS 7 would be located west of Sepulveda Boulevard between the I-405 Northbound On-Ramp and Dickens Street.	Underground (within station)
8	TPSS 8 would be located west of Sepulveda Boulevard between the Metro G Line Busway and Oxnard Street.	Underground (within station)
9	TPSS 9 would be located at the southwest corner of Sepulveda Boulevard and Sherman Way.	Underground (within station)
10	TPSS 10 would be located south of the LOSSAN rail corridor and north of Raymer Street and Kester Avenue.	At-grade
11	TPSS 11 would be located south of the LOSSAN rail corridor and east of the Van Nuys Metrolink Station.	At-grade (within MSF)
12	TPSS 12 would be located south of the LOSSAN rail corridor and east of Hazeltine Avenue.	At-grade (within MSF)

Source: STCP, 2024; HTA, 2024

Note: STCP has stated that Alternative 5 TPSS locations are derived from and assumed to be similar to the Alternative 4 TPSS locations.

Figure 2-58. Alternative 5: Traction Power Substation Locations

Source: STCP, 2024; HTA, 2024

Roadway Configuration Changes

Table 2-18 lists the roadway changes necessary to accommodate the guideway of Alternative 5. Figure 2-59 shows the location of the roadway changes within the Project Study Area. In addition to the changes made to accommodate the guideway, as listed in Table 2-18, roadways and sidewalks near stations would be reconstructed, resulting in modifications to curb ramps and driveways.

Table 2-18. Alternative 5: Roadway Changes

Location	From	To	Description of Change
Raymer Street	Kester Avenue	Keswick Street	Reconstruction resulting in narrowing of width and removal of parking on the westbound side of the street to accommodate aerial guideway columns.
Cabrito Road	Raymer Street	Marson Street	Closure of Cabrito Road at the LOSSAN rail corridor at-grade crossing. A new segment of Cabrito Road would be constructed from Noble Avenue and Marson Street to provide access to extra space storage from the north.

Source: STCP, 2024; HTA, 2024

Figure 2-59. Alternative 5: Roadway Changes

Source: STCP, 2024; HTA, 2024

Construction Staging Areas

Temporary construction activities for Alternative 5 would include project work zones at permanent facility locations, construction staging and laydown areas, and construction office areas. Construction of the transit facilities through substantial completion is expected to have a duration of 8 ¼ years. Early works such as site preparation, demolition, and utility relocation could start in advance of construction of the transit facilities.

The tunnel for Alternative 5 would comprise three separate segments, one running north from the southern terminus to the UCLA Gateway Plaza Station (Westside segment), one running south from the Ventura Boulevard Station to the UCLA Gateway Plaza Station (Santa Monica Mountains segment), and one running south from the portal near Raymer Street to the Ventura Boulevard Station (Valley segment). For the Westside segment, the TBM would be launched from Staging Area No. 1 in Table 2-19 at Sepulveda Boulevard and National Boulevard. For the Santa Monica Mountains segment, the TBM would be launched from the Ventura Boulevard Station. Both TBMs would be extracted from the UCLA Gateway Plaza Station Staging Area No. 3 in Table 2-19. For the Valley segment, the TBM would be launched from Staging Area No. 8 as shown in Table 2-19 and extracted from the Ventura Boulevard Station. Figure 2-60 shows the location of construction staging locations along the Alternative 5 alignment. Refer to Section 2.5.3.1 for a description of construction activities at staging areas.

Table 2-19. Alternative 5: On-Site Construction Staging Locations

No.	Location Description
1	Commercial properties on southeast corner of Sepulveda Boulevard and National Boulevard
2	North side of Wilshire Boulevard between Veteran Avenue and Gayley Avenue
3	UCLA Gateway Plaza
4	Commercial property on southwest corner of Sepulveda Boulevard and Dickens Street
5	West of Sepulveda Boulevard between US-101 and Sherman Oaks Castle Park
6	Lot behind Los Angeles Fire Department Station 88
7	Property on the west side of Sepulveda Boulevard between Sherman Way and Gault Street
8	Industrial property on both sides of Raymer Street, west of Burnet Avenue
9	South of the LOSSAN rail corridor east of Van Nuys Metrolink Station, west of Woodman Avenue

Source: STCP, 2024; HTA, 2024

Figure 2-60. Alternative 5: On-Site Construction Staging Locations

Source: STCP, 2024; HTA, 2024

2.5.4 Driver Operated HRT Alternative

Alternative 6 would use driver operated HRT technology similar to the Metro B and D Lines. The characteristics of the technology described in the next section are subject to change. The following section describes the alignment of Alternative 6.

2.5.4.1 Features of the Technology

Vehicles and Operations

HRT trains would consist of four (during the off-peak period) or six cars (during the peak period) measuring 10.3 feet wide with three double doors on each side. Each car would be approximately 75 feet long with capacity for 133 passengers. Figure 2-61 shows a rendering of the driver-operated HRT vehicle.

Figure 2-61. Rendering of Driver Operated HRT Vehicle

Source: Metro, 2023

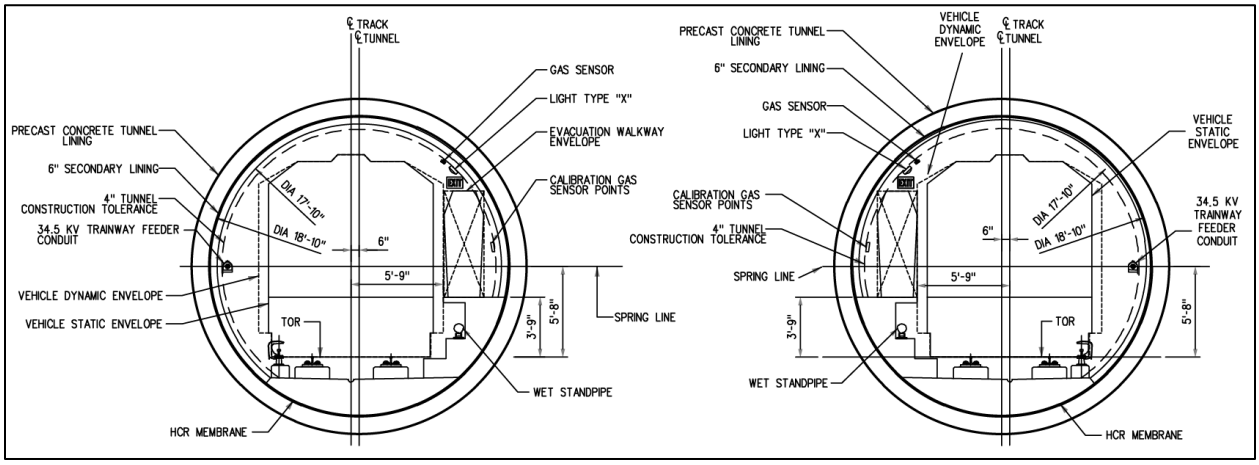
Trains would be powered by a third rail. Driver-operated HRT would have a maximum operating speed of 67 miles per hour with planned peak headways of 4 minutes and off-peak-period headways ranging from 8 to 20 minutes.

Guideway Characteristics

Alternative 6 would use Metro's standard twin-bore tunnel design. Figure 2-62 shows a typical cross-section of the underground guideway. Cross-passages would be constructed at regular intervals in accordance with Metro Rail Design Criteria. Each of the tunnels would have a diameter of 19 feet (not

including the thickness of wall). Each tunnel would include an emergency walkway that measures a minimum of 2.5 feet wide for evacuation.

Figure 2-62. Typical Underground Guideway Cross-Section



Source: HTA, 2024

Station Characteristics

Alternative 6 would include seven underground stations with station platforms measuring 450 feet long. The southern terminus station would be adjacent to the existing Metro E Line Expo/Bundy Station, and the northern terminus station would be located south of the existing Van Nuys Metrolink/Amtrak Station. Except for the Wilshire Boulevard/Metro D Line, UCLA Gateway Plaza, and Metro G Line Van Nuys Stations, all stations would have a 30-foot-wide center platform. The Wilshire/Metro D Line Station would have a 32-foot-wide platform to accommodate the anticipated passenger transfer volumes, and the UCLA Gateway Plaza Station would have a 28-foot-wide platform because of the width constraint between the existing buildings. At the Metro G Line Van Nuys Station, the track separation would increase significantly in order to straddle the future East San Fernando Valley Light Rail Transit Line station piles. The platform width at this station would increase to 58 feet.

Each station would have a minimum of two elevators, two escalators, and one stairway between every level. Fare gates would demarcate the fare paid zones of stations.

Maintenance and Storage Facility

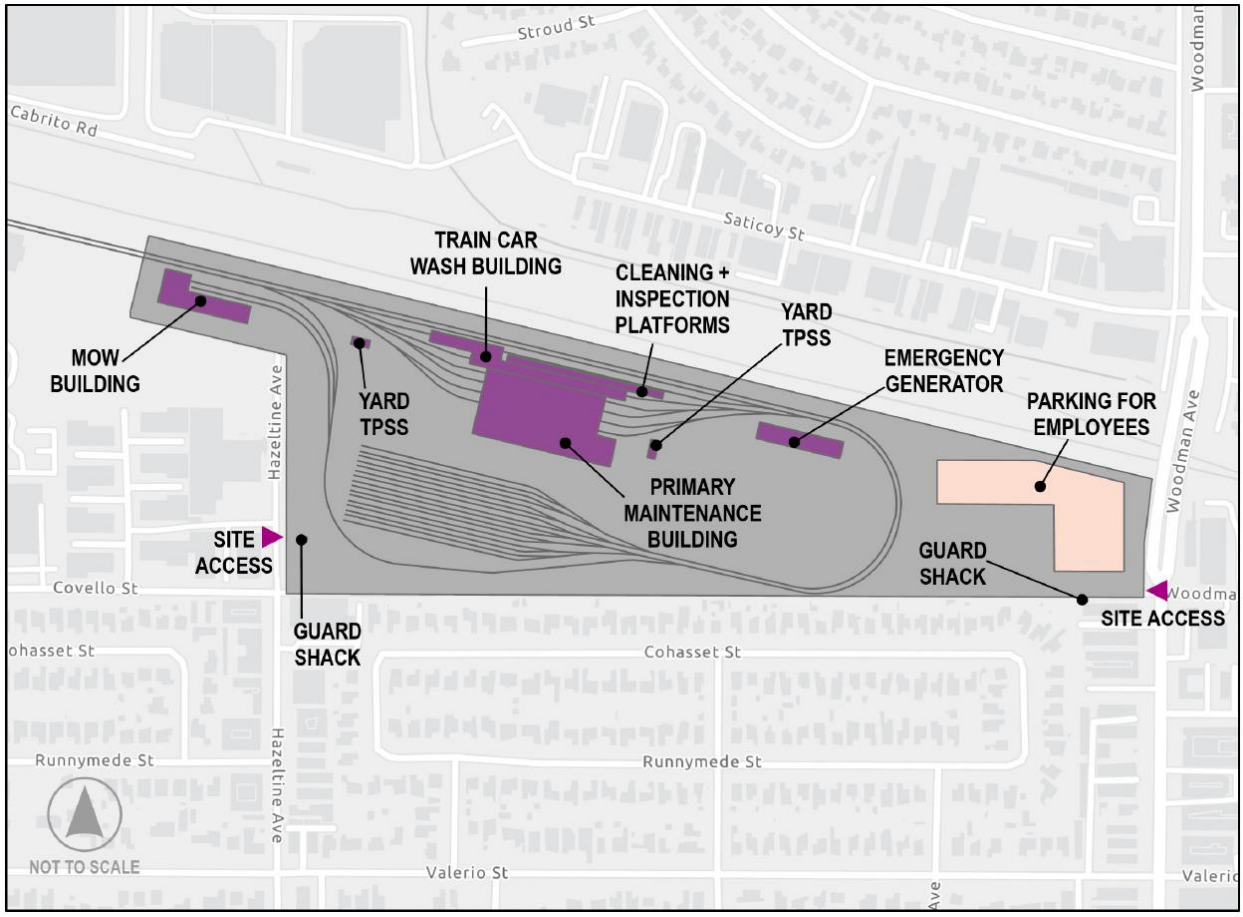
The MSF for Alternative 6 would be located east of the Van Nuys Metrolink Station and would encompass approximately 41 acres. The MSF would be designed to accommodate 94 vehicles and would be bounded by single-family residences to the south, the LOSSAN rail corridor ROW to the north, Woodman Avenue to the east, and Hazeltine Avenue and industrial manufacturing enterprises to the west. Heavy rail trains would transition from underground to an at-grade configuration near the MSF, the northwest corner of the site. Trains would then travel southeast to maintenance facilities and storage tracks.

The site would include the following facilities:

- Two entrance gates with guard shacks
- Maintenance facility building
- MOW facility

- Storage tracks
- Carwash
- Cleaning platform
- Administrative offices
- Pedestrian bridge connecting the administrative offices to employee parking
- Two TPSS

Figure 2-63. Alternative 6: Maintenance and Storage Facility



Source: HTA, 2024

Traction Power Substations

TPSSs transform and convert high voltage alternating current supplied from power utility feeders into direct current suitable for transit operation. Eleven TPSS facilities would be located along the alignment and would be spaced approximately 1 mile apart except within the Santa Monica Mountains.

Ventilation Facilities

Tunnel ventilation for Alternative 6 would be similar to existing Metro ventilation systems for light and heavy rail underground subways. In case of emergency, smoke would be directed away from trains and extracted through the use of emergency ventilation fans installed at underground stations and crossover locations adjacent to the stations. In addition, a mid-mountain facility located on LADWP property east of Stone Canyon Reservoir in the Santa Monica Mountains would include a ventilation shaft for the

extraction of air and two TPSSs. An access road from the Stone Canyon Reservoir access road would be constructed to the location of the shaft, requiring grading of the hillside along its route.

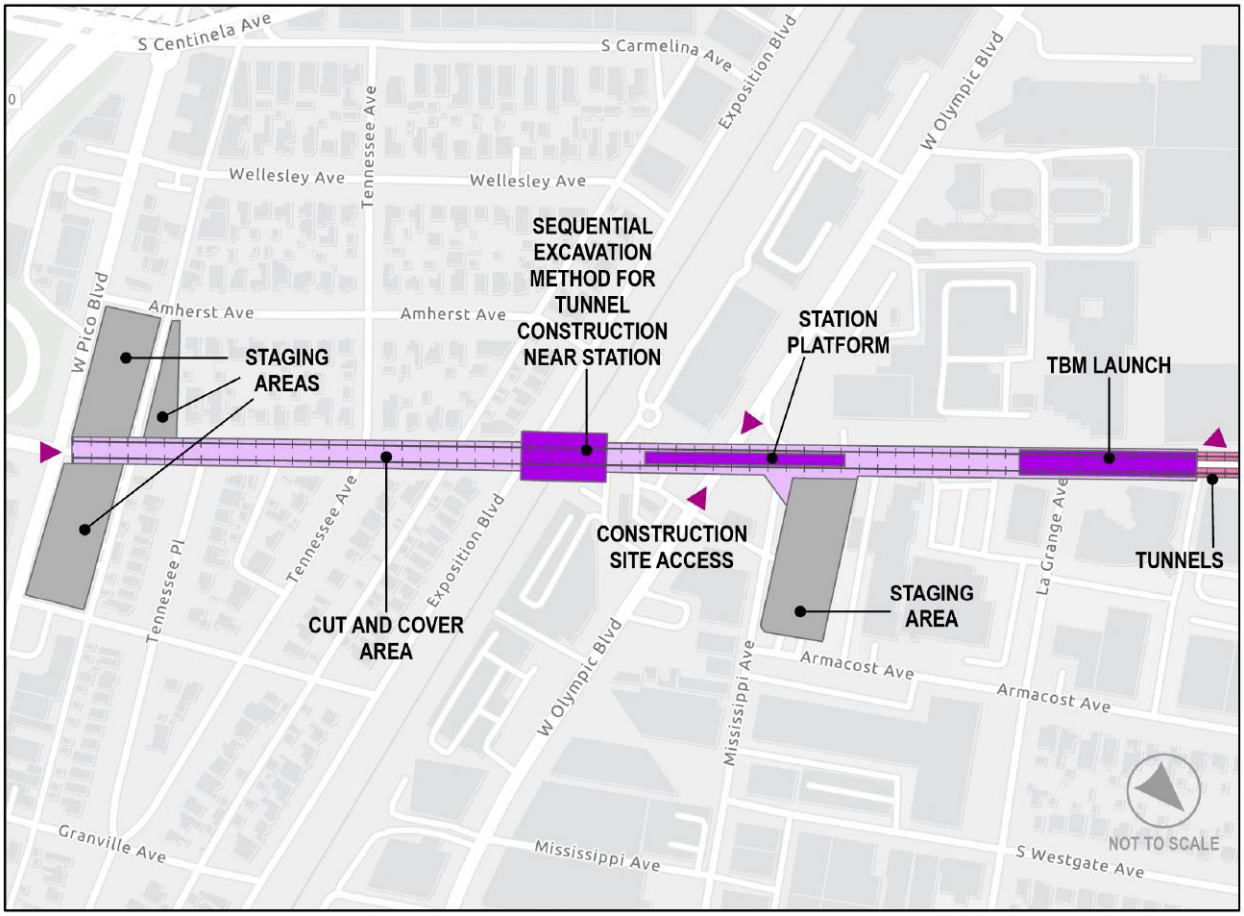
Fire/Life Safety – Emergency Egress

Each tunnel would include an emergency walkway that measures a minimum of 2.5 feet wide for evacuation. Cross-passages would be provided at regular intervals to connect the two tunnels to allow for safe egress to a point of safety (typically at a station) during an emergency. Access to tunnel segments for first responders would be through stations.

Construction and Staging Areas

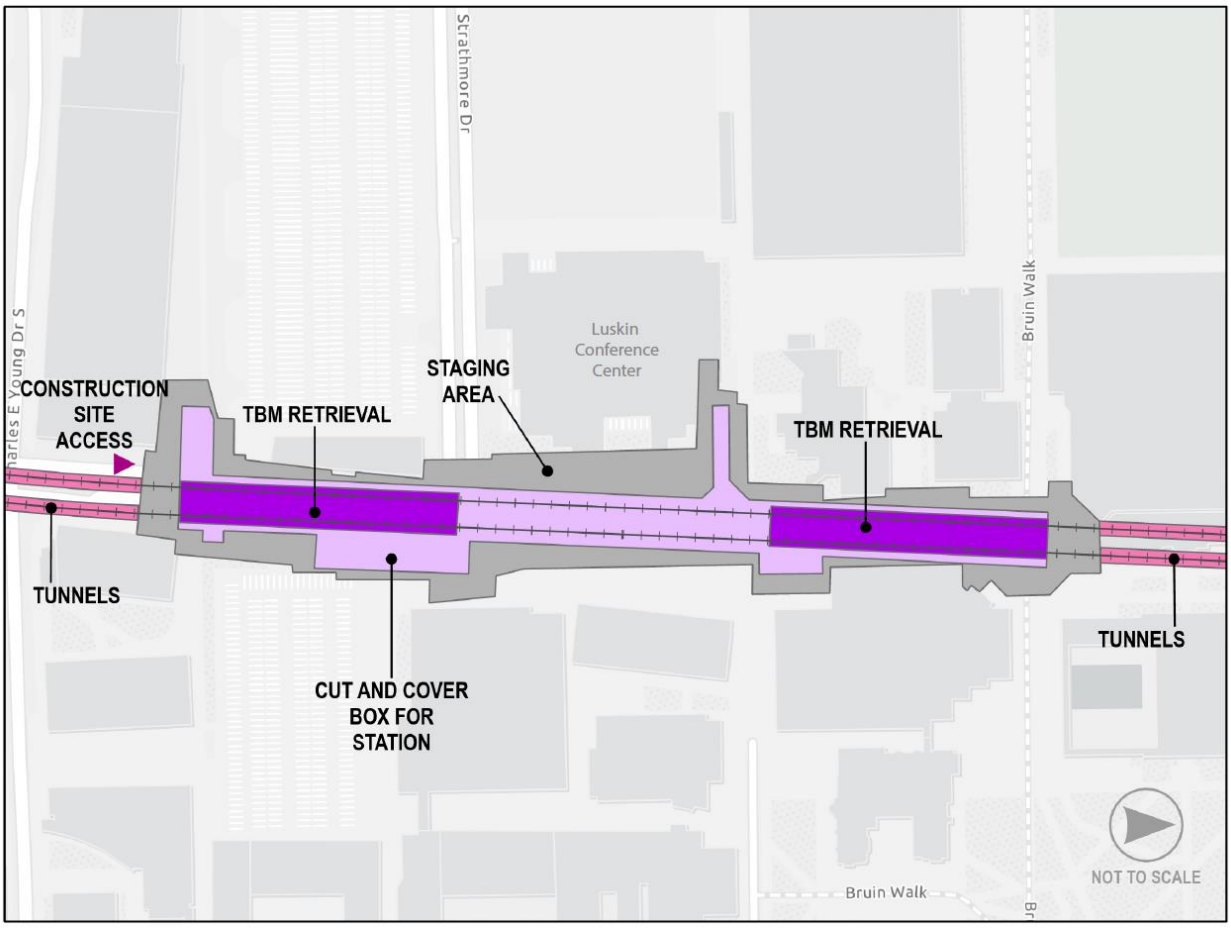
For the guideway, twin-bore tunnels would be constructed using two TBMs. The tunnel alignment would be constructed over three segments—including the Westside, Santa Monica Mountains, and San Fernando Valley—using a different pair of TBMs for each segment. For the Westside segment, the TBMs would be launched near the Metro E Line Station (Figure 2-64) and retrieved at the UCLA Gateway Plaza Station (Figure 2-65). Muck for this segment would be removed from the Westside TBM launch site near the Metro E Line Station. Storage of muck and the TBM's precast segments would be located at construction staging areas near Pico Boulevard and Bundy Drive. Haul trucks would access the site from Bundy Drive.

Figure 2-64. Alternative 6: Westside TBM Launch Site



Source: HTA, 2024

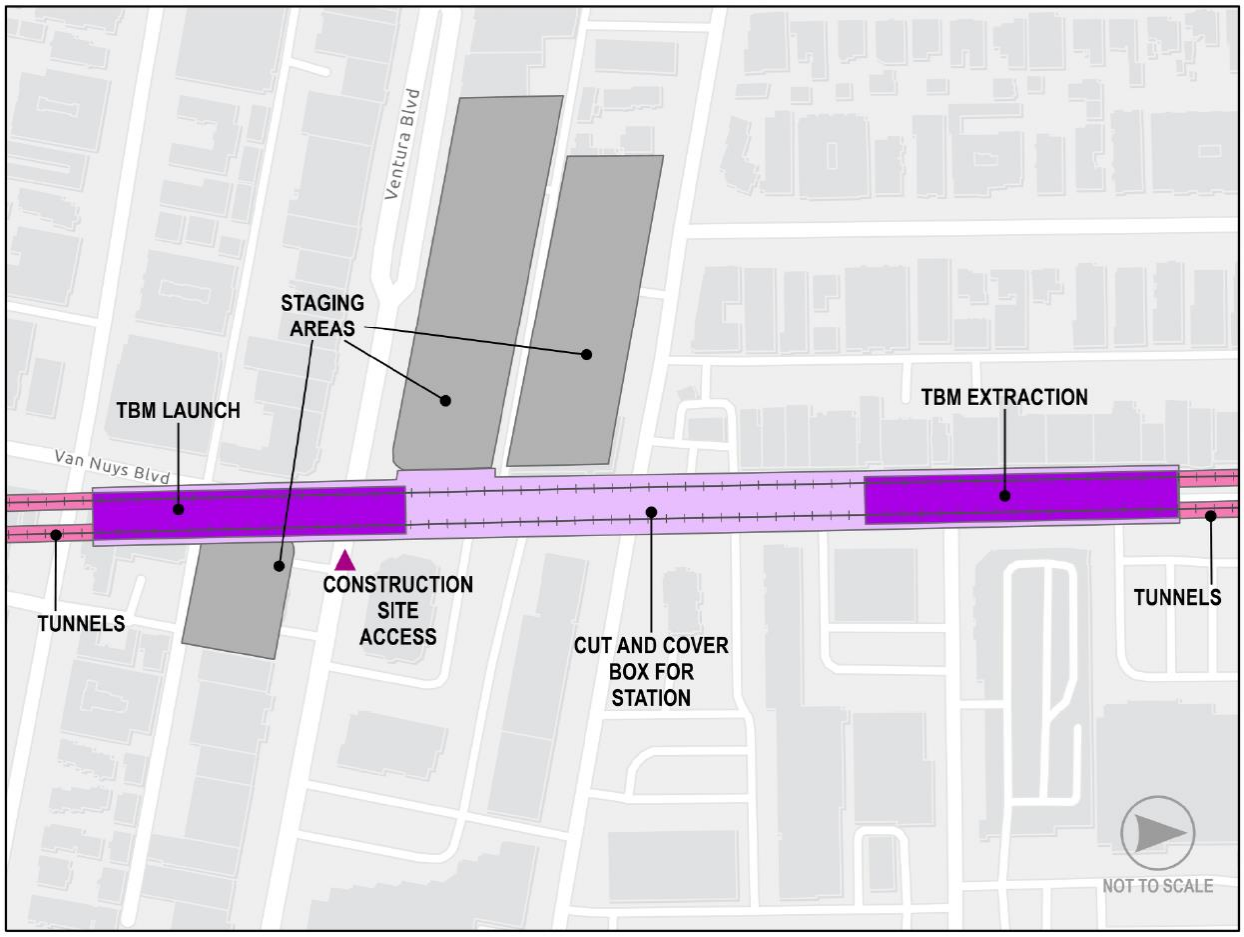
Figure 2-65. Alternative 6: UCLA TBM Extraction Site



Source: HTA, 2024

For the Sepulveda Pass segment, the TBMs would operate from the Ventura Boulevard Station (Figure 2-66) in a southerly direction for retrieval from UCLA Gateway Plaza Station (Figure 2-65). Muck retrieval for this segment would occur at the Ventura Boulevard Station. Storage of the muck and the TBM's precast segments would be located staging areas near Ventura Boulevard and Van Nuys Boulevard. Haul trucks would access the site from Ventura Boulevard.

Figure 2-66. Alternative 6: Valley TBM Launch and Extraction Site

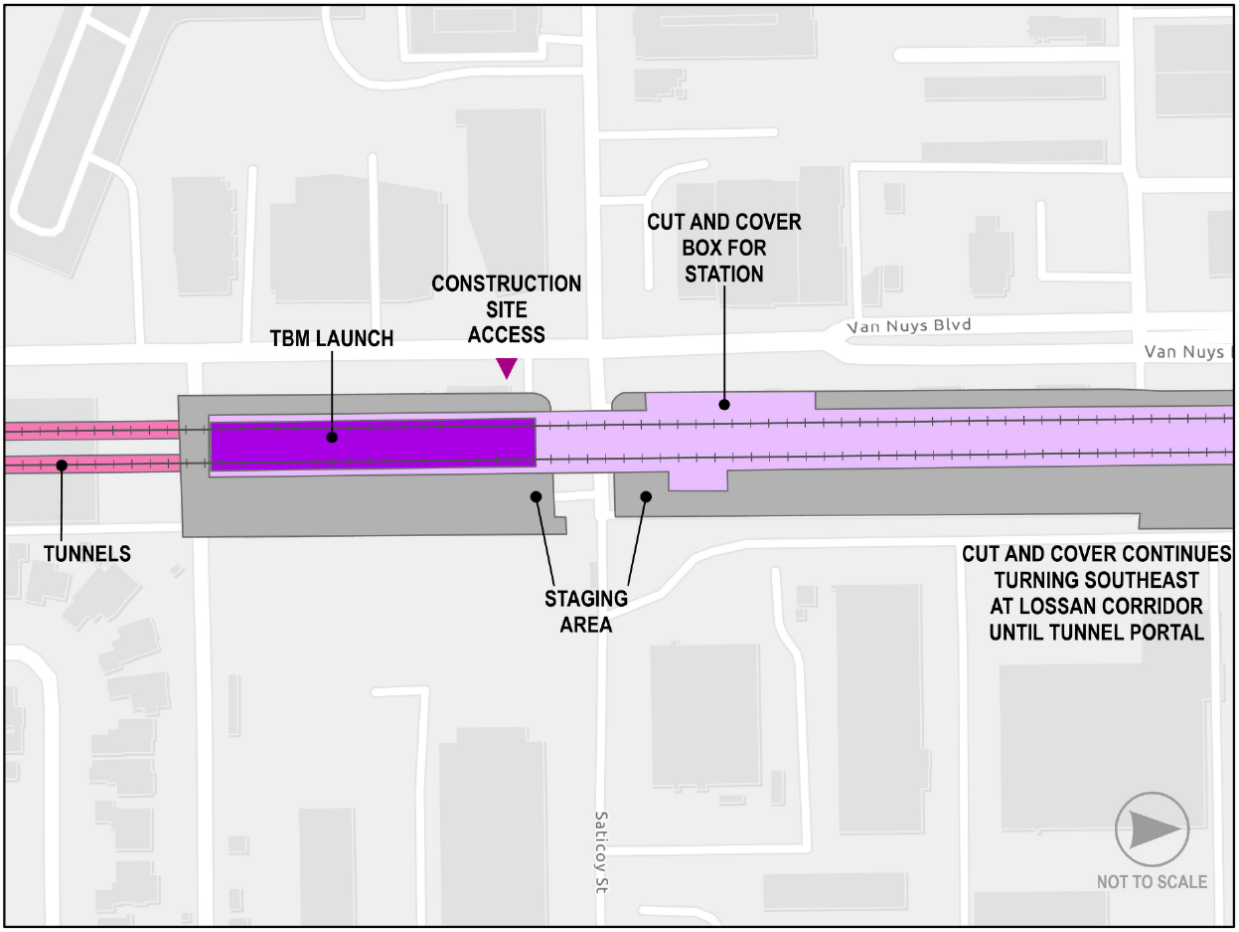


Source: HTA, 2024

In the Valley, TBMs would be launched from the northernmost construction staging area at the Van Nuys Metrolink Station (Figure 2-67) and would be retrieved from the Ventura Boulevard Station (Figure 2-66). Muck retrieval for this segment would occur at the Van Nuys Metrolink Station. Storage of the muck and the TBM's precast segments would be located at the staging areas adjacent to the Ventura Boulevard Station. Haul trucks would access the site from Van Nuys Boulevard.

The distance from the surface to the top of the tunnels would vary from approximately 50 feet to 130 feet in the Westside, between 120 feet and 730 feet in the Santa Monica Mountains, and between 40 feet and 75 feet in the Valley.

Figure 2-67. Alternative 6: Valley TBM Extraction Site



Source: HTA, 2024

Construction work zones would also be co-located with future MSF and station locations. Work zones would primarily be located within the permanent facility footprint with additional temporary construction easements from adjoining properties. In addition to permanent facility locations, TBM launch and muck removal at the Westside TBM launch site near the Metro E Line Station would require the closure of the I-10 westbound off-ramps at Bundy Drive for the duration of project construction.

All stations would be constructed using a “cut-and-cover” method whereby the station structure would be constructed within a trench excavated from the surface that is covered by a temporary deck and backfilled during the later stages of station construction. Traffic and pedestrian detours would be necessary during underground station excavation until decking is in place and the appropriate safety measures have been taken to resume cross traffic. In addition, portions of the Wilshire Boulevard/Metro D Line Station crossing underneath the Metro D Line Westwood/UCLA Station and underneath a mixed-use building at the north end of the station would be constructed using sequential excavation method as it would not be possible to excavate the station from the surface.

Construction of the MSF site would begin with demolition of existing structures, followed by earthwork and grading. Building foundations and structures would be constructed, followed by yard improvements and trackwork, including paving, parking lots, walkways, fencing, landscaping, lighting, and security

systems. Finally, building mechanical, electrical, and plumbing systems, finishes, and equipment would be installed. The MSF site would also be used as a staging site.

Construction staging areas would provide the necessary space for the following activities:

- Contractors' equipment
- Receiving deliveries
- Testing of soils for minerals or hazards
- Storing materials
- Site offices
- Work zone for excavation
- Other construction activities (including parking and change facilities for workers, location of construction office trailers, storage, staging and delivery of construction materials and permanent plant equipment, and maintenance of construction equipment)

The size of proposed construction staging areas for each station would depend on the level of work to be performed for a specific station and considerations for tunneling, such as TBM launch or extraction. Staging areas required for TBM launching would include areas for launch and access shafts, cranes, material and equipment, precast concrete segmental liner storage, truck wash areas, mechanical and electrical shops, temporary services, temporary power, ventilation, cooling tower, plants, temporary construction driveways, storage for spoils, and space for field offices.

Alternative 6 would also include several ancillary facilities and structures, including TPSS structures, a deep vent shaft structure at Stone Canyon Reservoir. TPSSs would be co-located with MSF and station locations, except for two TPSSs at the Stone Canyon Reservoir vent shaft and four along Van Nuys Boulevard in the Valley. The Stone Canyon Reservoir vent shaft would be constructed using a vertical shaft sinking machine that uses mechanized shaft sinking equipment to bore a vertical hole down into the ground. Operation of the machine would be controlled and monitored from the surface. The ventilation shaft and two TPSSs in the Santa Monica Mountains would require an access road within the LADWP property at Stone Canyon Reservoir. Construction of the access road would require grading east of the reservoir.

Additional vent shafts would be located at each station with one potential intermediate vent shaft where stations are spaced apart. These vent shafts would be constructed using the typical cut-and-cover method, with lateral bracing as the excavation proceeds. During station construction, the shafts would likely be used for construction crew, material, and equipment access.

The driver operated HRT alternative would utilize precast tunnel lining segments in the construction of the transit tunnels. These tunnel lining segments would be similar to those used in recent Metro underground transit projects. Therefore, it is expected that the tunnel lining segments would be obtained from an existing casting facility in Los Angeles County and no additional permits or approvals would be necessary specific to the facility.

2.5.4.2 Alternative 6

Overview

Alternative 6 would be a 12.9-mile long HRT alignment operating between a southern terminus station adjacent to the Metro E Line Expo/Bundy Station and a northern terminus station adjacent to the Van Nuys Metrolink/Amtrak Station. The alignment would be entirely underground through the Westside of Los Angeles (Westside), the Santa Monica Mountains, and the San Fernando Valley.

Alignment

As shown on Figure 2-68, the proposed southern terminus station would be located beneath the Bundy Drive and Olympic Boulevard intersection. Tail tracks for vehicle storage would extend underground south of the station along Bundy Drive for approximately 1,500 feet, terminating just north of Pearl Street. The alignment would continue north beneath Bundy Drive before turning to the east near Iowa Avenue to run beneath Santa Monica Boulevard. The Santa Monica Boulevard Station would be located between Barrington Avenue and Federal Avenue. After leaving the Santa Monica Boulevard Station, the alignment would turn to the northeast and pass under I-405 before reaching the Wilshire Boulevard/Metro D Line Station beneath the Metro D Line Westwood/UCLA Station, which is currently under construction as part of the Metro D Line Extension Project. From there, the underground alignment would curve slightly to the northeast and continue beneath Westwood Boulevard before reaching the UCLA Gateway Plaza Station.

Figure 2-68. Alternative 6: Alignment

Source: HTA, 2024

After leaving the UCLA Gateway Plaza Station, the alignment would continue to the north and travel under the Santa Monica Mountains. While still under the mountains, the alignment would shift slightly to the west to travel under the LADWP Stone Canyon Reservoir property to facilitate placement of a ventilation shaft on that property east of the reservoir. The alignment would then continue to the northeast to align with Van Nuys Boulevard at Ventura Boulevard as it enters the San Fernando Valley. The Ventura Boulevard Station would be beneath Van Nuys Boulevard at Moorpark Street. The alignment would then continue under Van Nuys Boulevard before reaching the Metro G Line Van Nuys

Station just south of Oxnard Street. North of the Metro G Line Van Nuys Station, the alignment would continue under Van Nuys Boulevard until reaching Sherman Way, where it would shift slightly to the east and run parallel to Van Nuys Boulevard before entering the Van Nuys Metrolink Station. The Van Nuys Metrolink Station would serve as the northern terminus station and would be located between Saticoy Street and Keswick Street. North of the station, a yard lead would turn sharply to the southeast and transition to an at-grade configuration and continue to the proposed MSF east of the Van Nuys Metrolink Station.

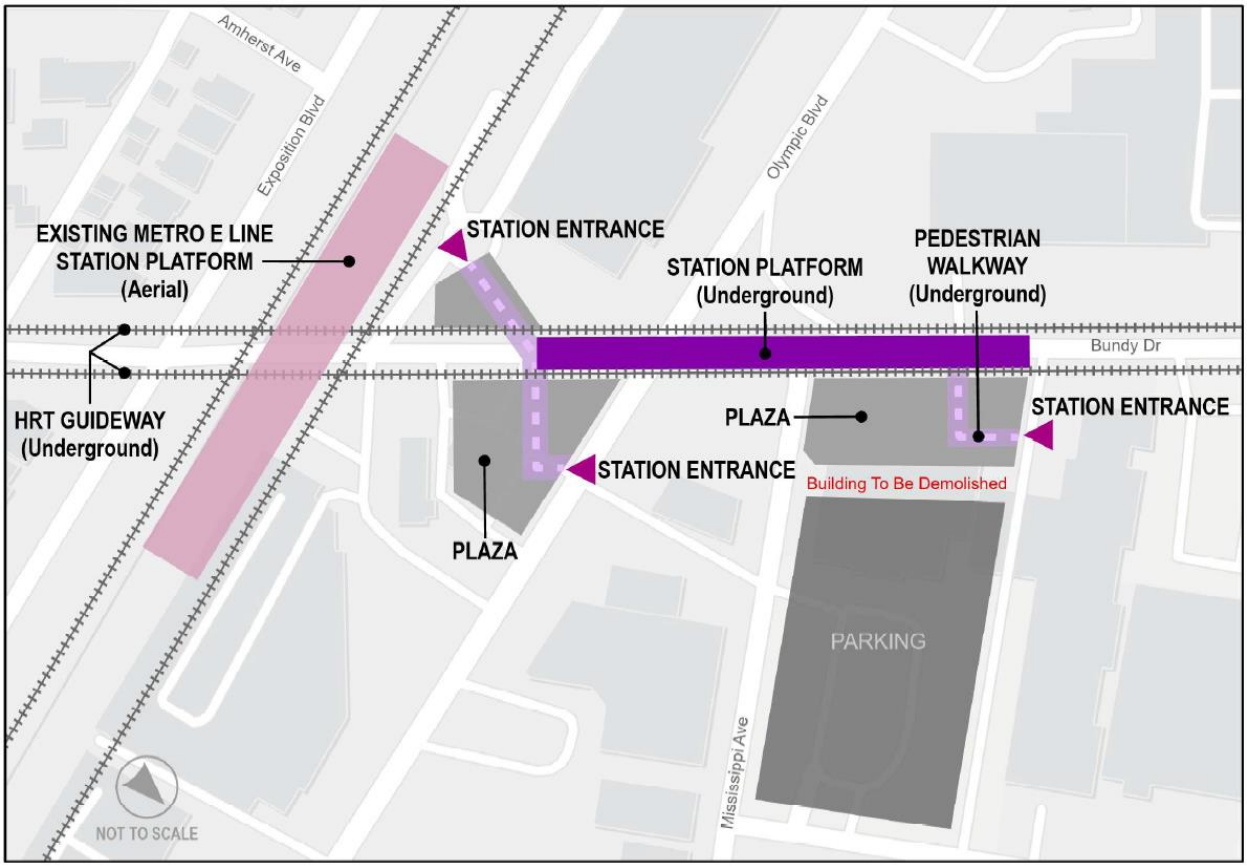
Stations

Alternative 6 would have seven underground stations at Metro E Line Expo/Bundy, Santa Monica Boulevard, Wilshire Boulevard/Metro D Line, UCLA Gateway Plaza, Ventura Boulevard/Van Nuys Boulevard, Metro G Line Van Nuys, and the Van Nuys Metrolink Station. The location, entrances and transit plazas, pick-up/drop-off loops, connections to other fixed-guideway transit, and parking (if any) of the stations would be as follows:

Metro E Line Expo/Bundy Station (Illustrated on Figure 2-69)

- This underground station would be located under Bundy Drive at Olympic Boulevard.
- Station entrances would be located on either side of Bundy Drive between the Metro E Line and Olympic Boulevard, as well as on the northeast corner of Bundy Drive and Mississippi Avenue.
- At the existing Metro E Line Expo/Bundy Station, escalators from the plaza to the platform level would be added to improve inter-station transfers.
- The distance between the proposed station platform and the Metro E Line Expo/Bundy Station platform would be approximately 190 feet.
- An 80-space parking lot would be constructed east of Bundy Drive and north of Mississippi Avenue. Passengers would also be able to park at the existing Metro E Line Expo/Bundy Station parking facility, which provides 217 parking spaces.

Figure 2-69. Alternative 6: Metro E Line Expo/Bundy Station

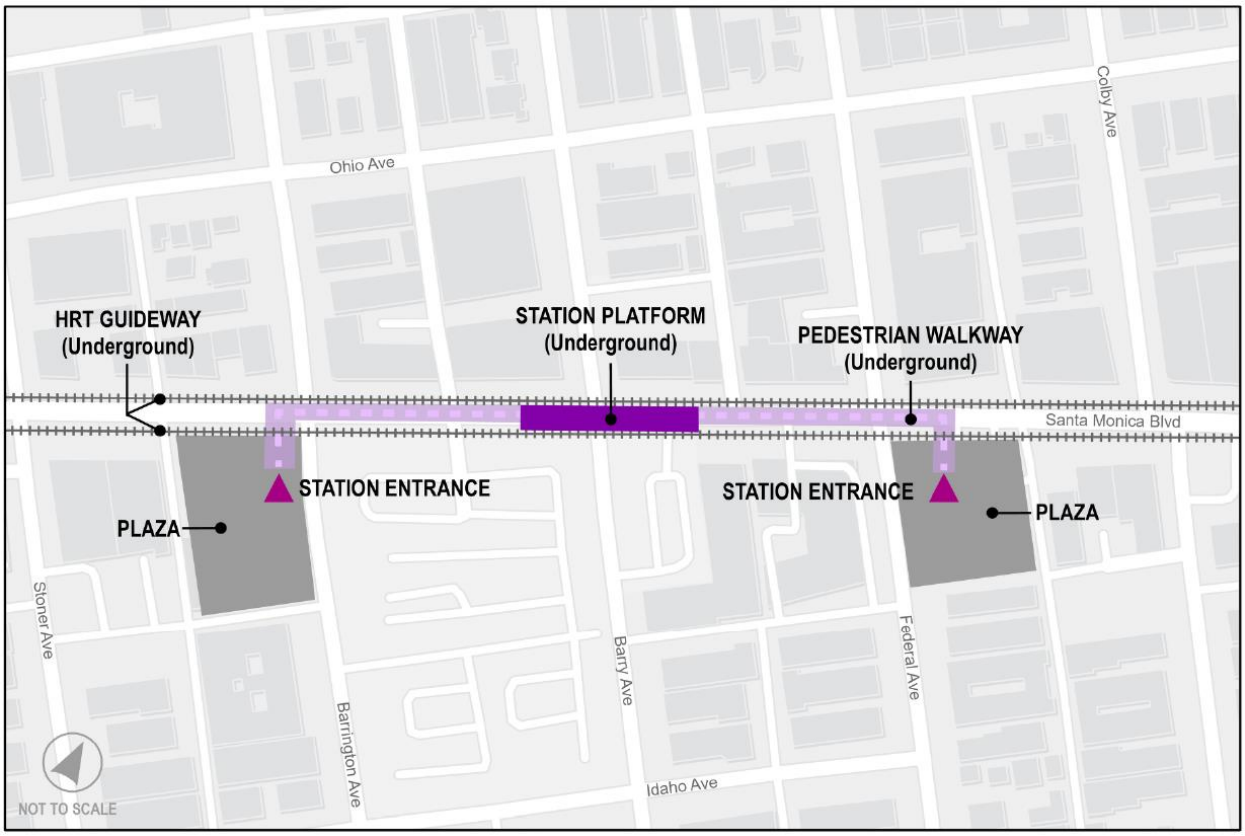


Source: HTA, 2024

Santa Monica Boulevard Station (Illustrated on Figure 2-70)

- This underground station would be located under Santa Monica Boulevard between Barrington Avenue and Federal Avenue.
- Station entrances would be located on the southwest corner of Santa Monica Boulevard and Barrington Avenue and on the southeast corner of Santa Monica Boulevard and Federal Avenue.
- No dedicated station parking would be provided at this station.

Figure 2-70. Alternative 6: Santa Monica Boulevard Station

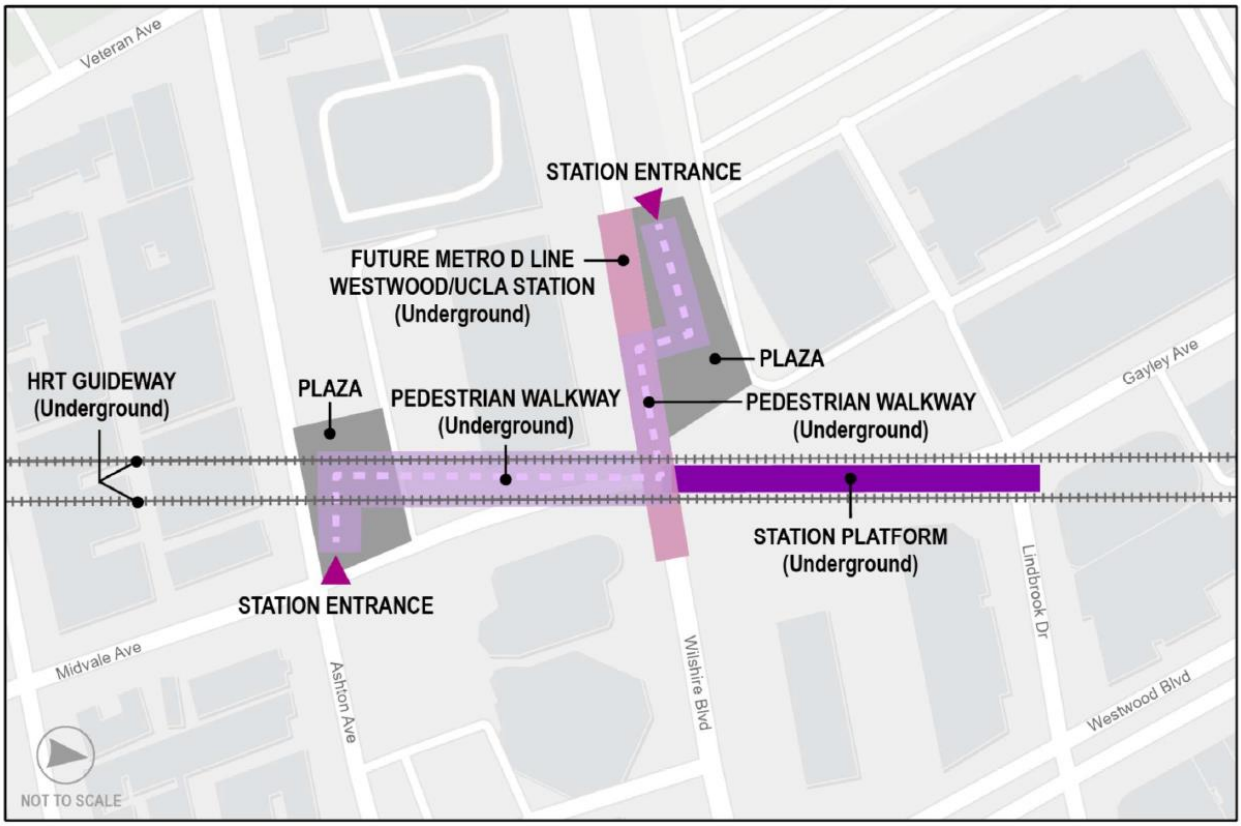


Source: HTA, 2024

Wilshire Boulevard/Metro D Line Station (Illustrated on Figure 2-71)

- This underground station would be located under Gayley Avenue between Wilshire Boulevard and Lindbrook Drive.
- A station entrance would be provided on the northwest corner of Midvale Avenue and Ashton Avenue. Passengers would also be able to use the Metro D Line Westwood/UCLA Station entrances to access the station platform.
- Direct internal station transfers to the Metro D Line would be provided at the south end of the station.
- The distance between the proposed station platform and the Metro D Line Westwood/UCLA Station platform would be approximately 330 feet.
- No dedicated station parking would be provided at this station.

Figure 2-71. Alternative 6: Wilshire Boulevard/Metro D Line Station

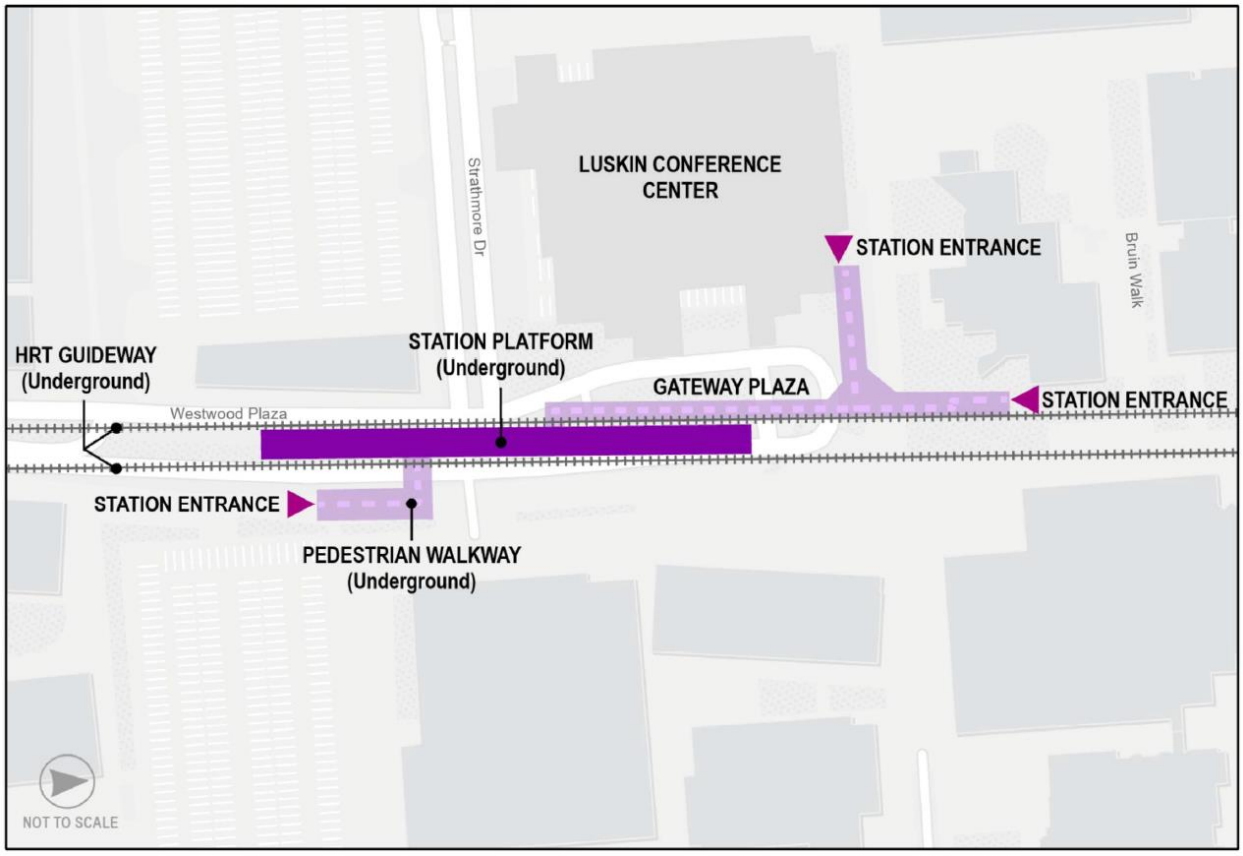


Source: HTA, 2024

UCLA Gateway Plaza Station (Illustrated on Figure 2-72)

- This underground station would be located underneath Gateway Plaza on the UCLA campus.
- Station entrances would be provided on the north side of Gateway Plaza, north of the Luskin Conference Center, and on the east side of Westwood Boulevard across from Strathmore Place.
- No dedicated station parking would be provided at this station.

Figure 2-72. Alternative 6: UCLA Gateway Plaza Station

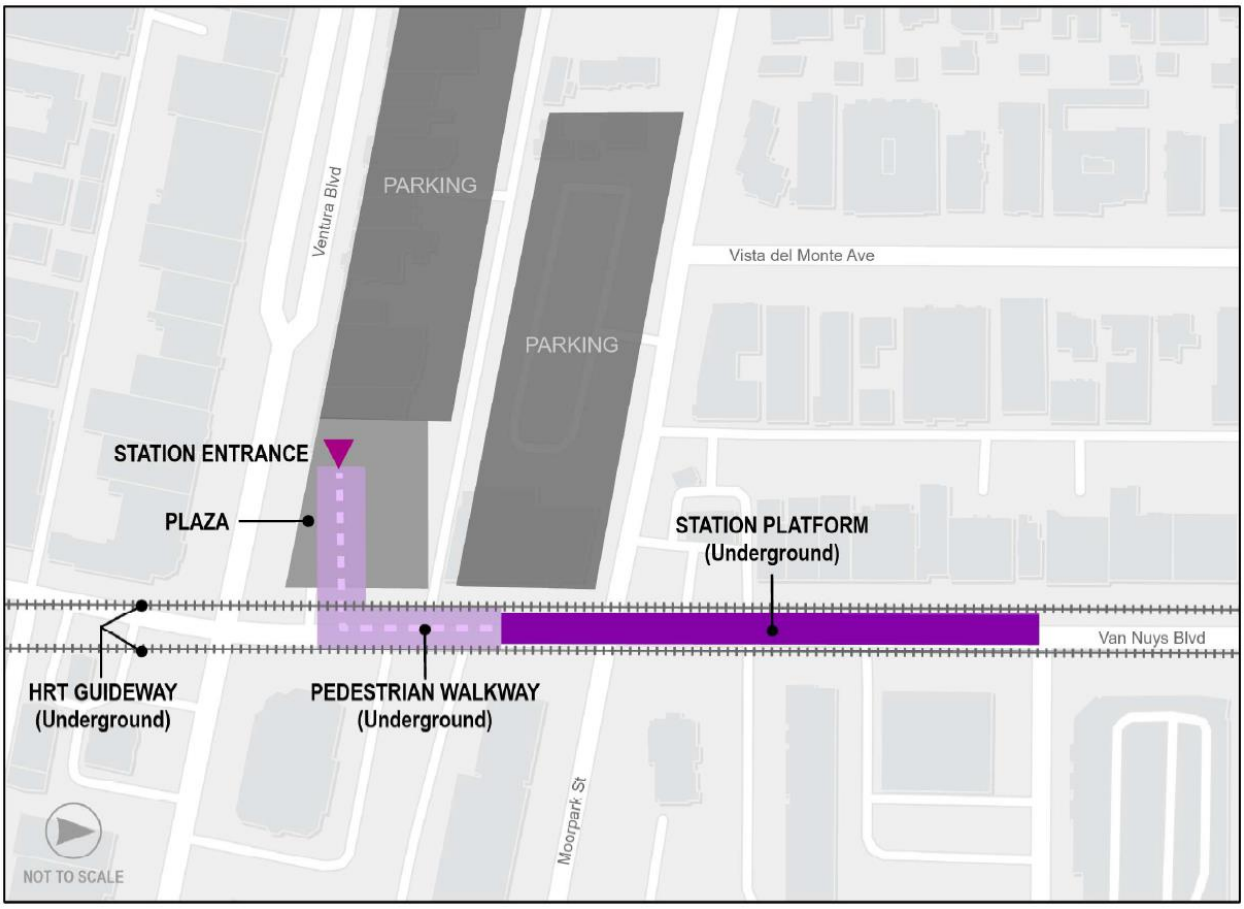


Source: HTA, 2024

Ventura Boulevard/Van Nuys Boulevard Station (Illustrated on Figure 2-73)

- This underground station would be located under Van Nuys Boulevard at Moorpark Street.
- The station entrance would be located on the northwest corner of Van Nuys Boulevard and Ventura Boulevard.
- Two parking lots with a total of 185 parking spaces would be provided on the west side of Van Nuys Boulevard between Ventura Boulevard and Moorpark Street.

Figure 2-73. Alternative 6: Ventura Boulevard/Van Nuys Boulevard Station

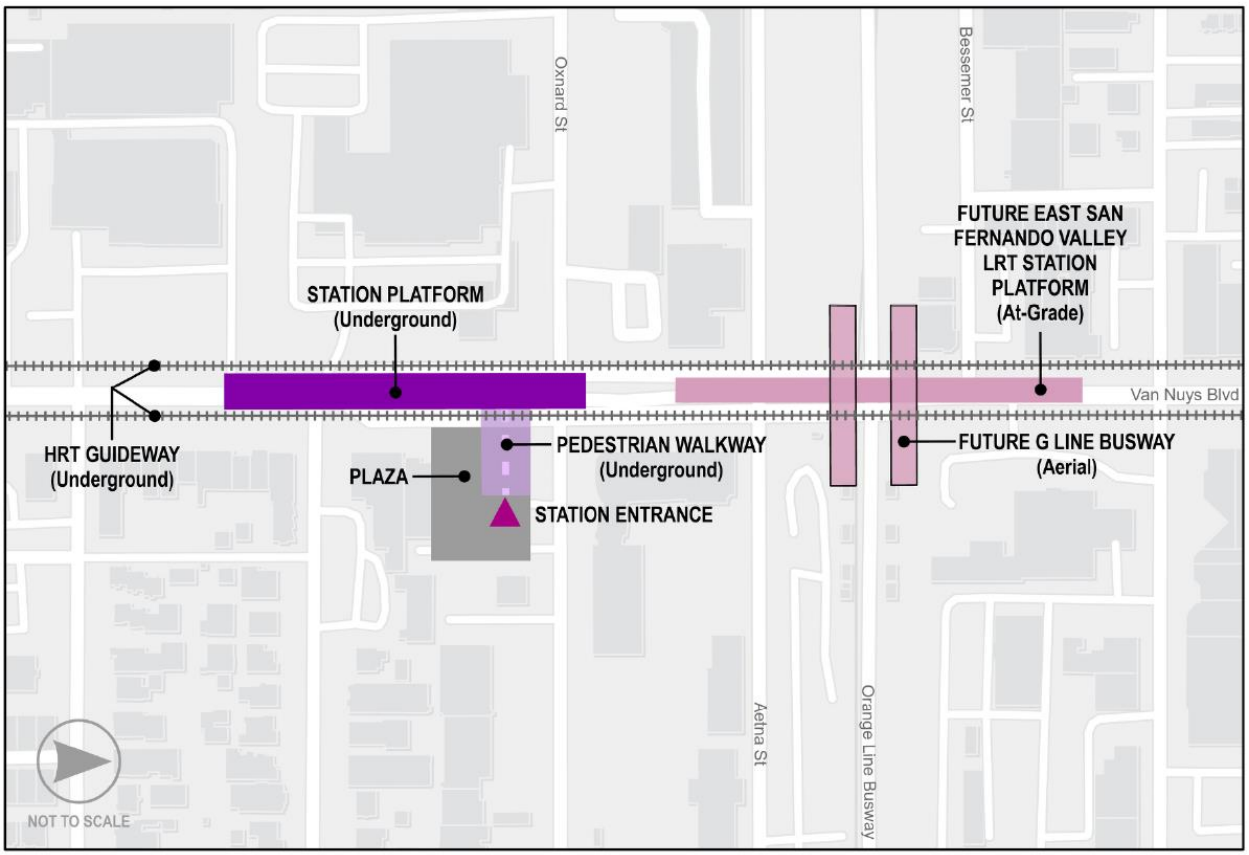


Source: HTA, 2024

Metro G Line Van Nuys Station (Illustrated on Figure 2-74)

- This underground station would be located under Van Nuys Boulevard south of Oxnard Street.
- The station entrance would be located on the southeast corner of Van Nuys Boulevard and Oxnard Street.
- The distance between the proposed station platform and the Metro G Line Van Nuys Station platforms would be approximately 620 feet. The distance between the proposed station platform and the ESFV station platform would be approximately 240 feet.
- Passengers would be able to park at the existing Metro G Line Van Nuys Station parking facility, which provides 307 parking spaces. No additional automobile parking would be provided at the proposed station.

Figure 2-74. Alternative 6: Metro G Line Van Nuys Station

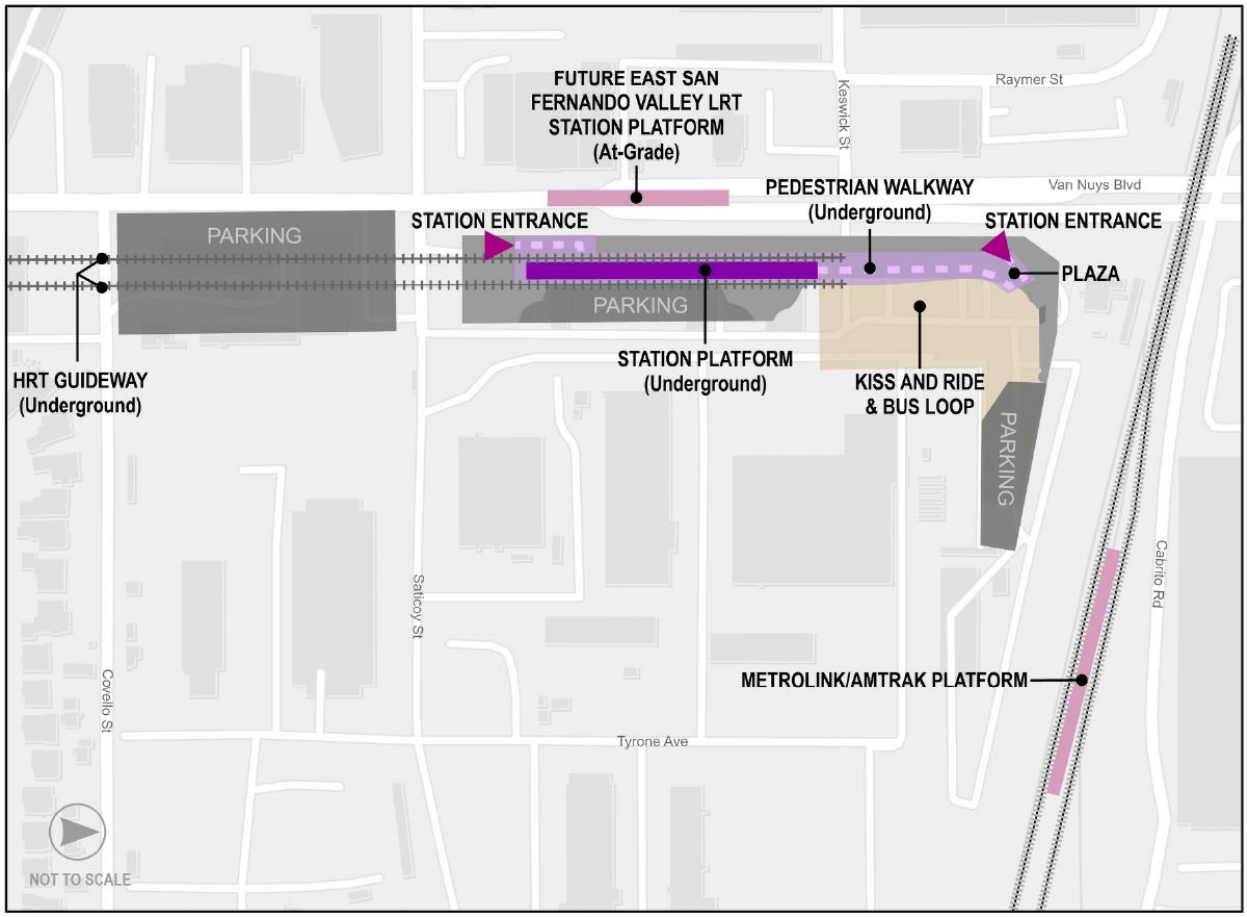


Source: HTA, 2024

Van Nuys Metrolink Station (Illustrated on Figure 2-75)

- This underground station would be located immediately east of Van Nuys Boulevard between Saticoy Street and Keswick Street.
- Station entrances would be located on the northeast corner of Van Nuys Boulevard and Saticoy Street and on the east side of Van Nuys Boulevard just south of the LOSSAN rail corridor.
- The distance between the proposed station platform and the Metrolink/Amtrak platform would be approximately 530 feet. The distance between the proposed station platform and the ESFV station platform would be approximately 190 feet.
- Existing Metrolink/Amtrak Station parking would be reconfigured, maintaining approximately the same number of spaces. Metrolink parking would not be available to Metro transit riders.

Figure 2-75. Alternative 6: Van Nuys Metrolink Station



Source: HTA, 2024

Station-to-Station Travel Times

Table 2-20 presents the station-to-station distances and travel times for Alternative 6. The travel times include both run time and dwell time. Dwell time is 30 seconds for stations anticipated to have higher passenger volumes and 20 seconds for other stations. Northbound and southbound travel times vary slightly because of grade differentials and operational considerations at end-of-line stations.

Table 2-20. Alternative 6: Station-to-Station Travel Times and Station Dwell Times

From Station	To Station	Distance (miles)	Northbound Station-to-Station Travel Time (seconds)	Southbound Station-to-Station Travel Time (seconds)	Dwell Time (seconds)
Metro E Line Station					*20*
Metro E Line	Santa Monica Boulevard	1.1	111	121	—
Santa Monica Boulevard Station					*20*
Santa Monica Boulevard	Wilshire/Metro D Line	1.3	103	108	—
Wilshire/Metro D Line Station					*30*
Wilshire/Metro D Line	UCLA Gateway Plaza	0.7	69	71	—
UCLA Gateway Plaza Station					*30*
UCLA Gateway Plaza	Ventura Boulevard	5.9	358	358	—
Ventura Boulevard Station					*20*
Ventura Boulevard	Metro G Line	1.8	135	131	—
Metro G Line Station					*30*
Metro G Line	Van Nuys Metrolink	2.1	211	164	—
Van Nuys Metrolink Station					*30*

Source: HTA, 2024

Special Trackwork

Alternative 6 would include seven double crossovers within the revenue service alignment, enabling trains to cross over to the parallel track with terminal stations having an additional double crossover beyond the end of the platform.

Traction Power Substations

Table 2-21 lists the TPSS locations for Alternative 6. Twenty-two TPSS facilities would be located along the alignment and would be spaced approximately 1 mile apart except within the Santa Monica Mountains. Each at-grade TPSS along the alignment would be approximately 5,000 square feet. Figure 2-76 shows the TPSS locations along the Alternative 6 alignment.

Table 2-21. Alternative 6: Traction Power Substation Locations

TPSS No.	TPSS Location Description	Configuration
1 and 2	TPSSs 1 and 2 would be located immediately north of the Bundy Drive and Mississippi Avenue intersection.	Underground (within station)
3 and 4	TPSSs 3 and 4 would be located east of the Santa Monica Boulevard and Stoner Avenue intersection.	Underground (within station)
5 and 6	TPSSs 5 and 6 would be located southeast of the Kinross Avenue and Gayley Avenue intersection.	Underground (within station)
7 and 8	TPSSs 7 and 8 would be located at the north end of the UCLA Gateway Plaza Station.	Underground (within station)
9 and 10	TPSSs 9 and 10 would be located east of Stone Canyon Reservoir on LADWP property.	At-grade
11 and 12	TPSSs 11 and 12 would be located at the Van Nuys Boulevard and Ventura Boulevard intersection.	Underground (within station)
13 and 14	TPSSs 13 and 14 would be located immediately south of Magnolia Boulevard and west of Van Nuys Boulevard.	At-grade
15 and 16	TPSSs 15 and 16 would be located along Van Nuys Boulevard between Emelita Street and Califa Street.	Underground (within station)
17 and 18	TPSSs 17 and 18 would be located east of Van Nuys Boulevard and immediately north of Vanowen Street.	At-grade
19 and 20	TPSSs 19 and 20 would be located east of Van Nuys Boulevard between Saticoy Street and Keswick Street.	Underground (within station)
21 and 22	TPSSs 21 and 22 would be located south of the Metrolink tracks and east of Hazeltine Avenue.	At-grade (within MSF)

Source: HTA, 2024

Figure 2-76. Alternative 6: Traction Power Substation Locations

Source: HTA, 2024

Roadway Configuration Changes

A mid-mountain facility located on LADWP property east of Stone Canyon Reservoir in the Santa Monica Mountains would include a ventilation shaft for the extraction of air and two TPSSs. An access road from the Stone Canyon Reservoir access road would be constructed to the location of the shaft, requiring grading of the hillside along its route.

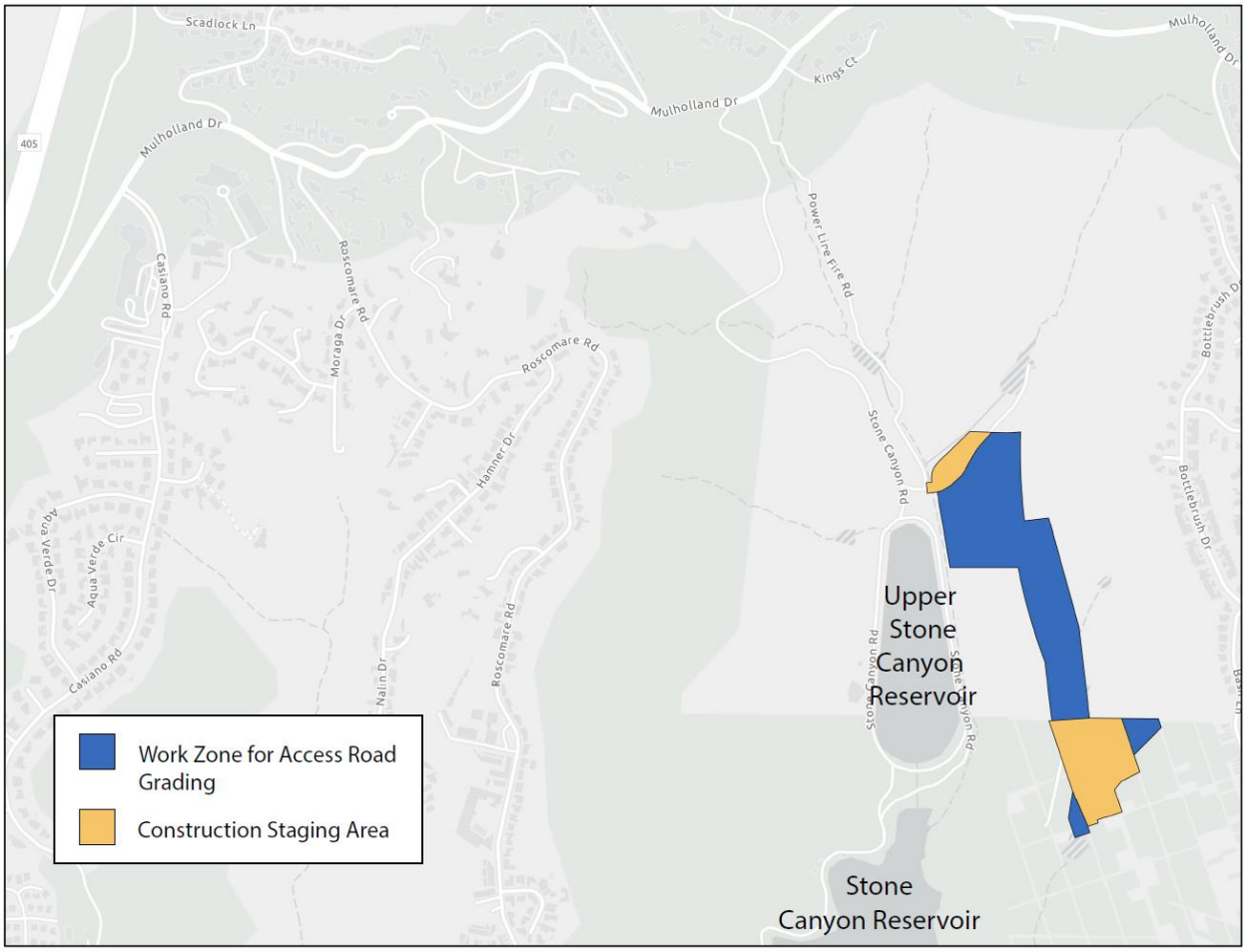
In addition to the access road, Alternative 6 would require reconstruction of roadways and sidewalks near stations.

Construction Staging Areas

Temporary construction activities for Alternative 6 would include guideway and station construction, construction staging and laydown areas co-located with future MSF and station locations, and construction of ancillary facilities. Construction of the transit facilities through substantial completion is expected to have a duration of 7 ½ years. Early works such as site preparation, demolition, and utility relocation could start in advance of construction of the transit facilities.

Station and MSF sites would be used for construction staging areas. A construction staging area, shown in Figure 2-77, would also be located off Stone Canyon Road northeast of the Upper Stone Canyon Reservoir. In addition, temporary construction easements outside of the station and MSF footprints would be required along Bundy Drive, Santa Monica Boulevard, Wilshire Boulevard, and Van Nuys Boulevard. The westbound to southbound loop off-ramp of the I-10 interchange at Bundy Drive would also be used as a staging area, requiring the closure of both I-10 westbound off-ramps at Bundy Drive for the duration of construction.

Figure 2-77. Alternative 6: Mid-Mountain Construction Staging Area



Source: HTA, 2024

2.6 Permits, Discretionary Actions, and Agency Approvals

Construction and implementation of the Project would require permits and approvals from agencies such as LADWP, Metrolink, the California Department of Transportation (Caltrans), and other departments and owners with jurisdiction over impacted resources. Table 2-22 lists the anticipated permits and approvals required for the Project. Inclusion of an alternative in the DEIR does not mean that these or other agencies have approved the design. Project elements that interface with other agencies, such as LADWP, have not been approved by these agencies, and inclusion of them in the DEIR does not indicate approval of the alternative or the design.

Table 2-22. Permits, Discretionary Actions, and Agency Approvals

Agency	Permits/Discretionary Actions/Agency Approvals
U.S. Army Corps of Engineers (USACE)	Section 404, 408; Real Estate out-grant
U.S. Department of Fish and Wildlife	Habitat and/or species take permits
U.S. Department of Transportation Federal Highway Administration	Modified Access Report for I-405 (Alternative 1 only)
National Park Service/Santa Monica Mountains Conservancy	Encroachment into Santa Monica Mountains National Recreation Area.
U.S. Department of Veteran Affairs (VA)	Encroachment in VA property
California Department of Fish and Wildlife	California Fish and Game Code Section 1602 – Lake or Streambed Alteration Agreement, Habitat and/or species take permits
California Department of Toxic Substance Control	Hazardous Materials Cleanup
California Department of Transportation (Caltrans)	Encroachment on I-405, Oversize/Overweight Vehicle Permit
California Public Utility Commission	Grade Separations, Crossings, State Safety Oversight
Los Angeles Department of Water and Power (LADWP)	Encroachment in LADWP property
Los Angeles Regional Water Quality Control Board	NPDES Municipal Separate Storm Water Sewer Systems
State Water Resources Control Board	Section 401, NPDES Dewatering permit, Los Angeles County MS4 NPDES Package, Industrial General Permit; Construction General Permit and SWPPP
Regents of the University of California	Encroachment on UCLA
Regional Water Quality Control Boards	Section 401
Southern California Air Quality Management District (SCAQMD)	Consultation to identify best practices for construction emissions, Clean Air Act Title V permit (if required)
Southern California Regional Rail Authority (Metrolink)	Encroachment permits
Union Pacific Railroad (UPRR)	Encroachment permits
City of Los Angeles	Permits and/or discretionary actions required
County of Los Angeles	Permits and/or discretionary actions required

Source: HTA, 2024