Appendix C. Air Quality Technical Report

SEPULVEDA TRANSIT CORRIDOR PROJECT

Air Quality Technical Report

March 2025

Metro®

SEPULVEDA TRANSIT CORRIDOR PROJECT

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Air Quality Technical Report

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Prepared for:

Los Angeles County
Metropolitan Transportation Authority

Prepared by:

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Abbreviations and Acronyms

°F	degree Fahrenheit
µm	micrometer
ABC	Accelerated Bridge Construction
APM	automated people mover
AQMP	Air Quality Management Plan
Basin	South Coast Air Basin
BRT	bus rapid transit
CAA	Federal Clean Air Act
CAAP	Climate Action and Adaptation Plan
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CIDH	cast-in-drilled-hole
CO	carbon monoxide
DPM	diesel particulate matter
ECMP	Energy Conservation and Management Plan
EIR	Environmental Impact Report
EMFAC2021	CARB EMission FACtors model
EPA	U.S. Environmental Protection Agency
ExpressLanes project	Interstate 405 Sepulveda Pass ExpressLanes project
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
g/bhp-hr	grams per brake horsepower hour
GHG	greenhouse gas
HHDT	heavy-heavy duty trucks
hp	horsepower
HRT	heavy rail transit
HTA	HTA Partners
I-10	Interstate 10

I-405	Interstate 405
LADOT	Los Angeles Department of Transportation
LADWP	City of Los Angeles Department of Water and Power
LASRE	LA SkyRail Express
LAX	Los Angeles International Airport
lbs/day	pounds per day
LDA	light-duty autos
LDT1	light-duty trucks type 1
LDT2	light-duty trucks type 2
LOSSAN	Los Angeles-San Diego-San Luis Obispo
LST	localized significance thresholds
MATES	Multiple Air Toxics Exposure Study
Metro	Los Angeles County Metropolitan Transportation Authority
MHDT	medium-heavy duty trucks
MM	mitigation measure
MOW	maintenance-of-way
mph	miles per hour
MPO	Metropolitan Planning Organization
MRT	monorail transit
MSF	maintenance and storage facility
NAAQS	National Ambient Air Quality Standards
NO	nitric oxide
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NOP	Notice of Preparation
NZE	Near zero emissions
O_3	ozone
Pb	lead
PM	particulate matter
$PM_{2.5}$	fine particulate matter of diameter less than 2.5 microns
PM_{10}	respirable particulate matter of diameter less than 10 microns
ppm	parts per million
Project	Sepulveda Transit Corridor Project
ROG	reactive organic gas(es)
RTP	Regional Transportation Plan
SB	Senate Bill

SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCORE	Southern California Optimized Rail Expansion
SCS	Sustainable Communities Strategy
SIP	State Implementation Plan
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	sulfur dioxide
SORE	small off-road engine
SO_X	sulfur oxides
SRA	source receptor areas
STCP	Sepulveda Transit Corridor Partners
TAC	toxic air contaminants
TPSS	traction power substation
U.S	United States
U.S.C.	United States Code
US-101	U.S. Highway 101
UCLA	University of California, Los Angeles
VA	U.S. Department of Veterans Affairs
Valley	San Fernando Valley
VMT	vehicle miles traveled
VOC	volatile organic compound
WRCC	Western Regional Climate Center
ZE	zero emissions

1 INTRODUCTION

1.1 Project Background

The Sepulveda Transit Corridor Project (Project) is intended to provide a high-capacity rail transit alternative to serve the large and growing travel market and transit needs currently channeled through the Sepulveda Pass and nearby canyon roads between the San Fernando Valley (Valley) and the Westside of Los Angeles. The Project would have a northern terminus with a connection to the Van Nuys Metrolink/Amtrak Station and a southern terminus with a connection to the Los Angeles County Metropolitan Transportation Authority's (Metro) E Line. In addition to providing local and regional connections to the existing and future Metro rail and bus network, the Project is anticipated to improve access to major employment, educational, and cultural centers in the greater Los Angeles area.

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 and the Westside; and defined the Purpose and Need, goals, and objectives of the Project. Using an iterative evaluation process, the Feasibility Study identified feasible transit solutions that met the Purpose and Need, goals, and objectives of the Project. 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. Such a transit system, operated as either heavy rail transit (HRT) or monorail transit (MRT), would serve the major travel markets in the Sepulveda Transit corridor and would provide travel times competitive with the automobile.

1.2 Project Alternatives

In November 2021, Metro released a Notice of Preparation (NOP) of an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act, for the Project that included six alternatives (Metro, 2021). Alternatives 1 through 5 included a southern terminus station at the Metro E Line Expo/Sepulveda Station, and Alternative 6 included a southern terminus station at the Metro E Line Expo/Bundy Station. The alternatives were described in the NOP as follows:

- Alternative 1: Monorail with aerial alignment in the Interstate 405 (I-405) corridor and an electric bus connection to the University of California, Los Angeles (UCLA)
- Alternative 2: Monorail with aerial alignment in the I-405 corridor and an aerial automated people mover 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

The NOP also stated that Metro is considering a No Project Alternative that would not include constructing a fixed guideway line. Metro established a public comment period of 74 days, extending from November 30, 2021 through February 11, 2022. Following the public comment period, refinements to the alternatives were made to address comments received. Further refinements to optimize the designs and address technical challenges of the alternatives were made in 2023 following two rounds of community open houses.

In July 2024, following community meetings held in May 2024, Alternative 2 was removed from further consideration in the environmental process because it did not provide advantages over the other alternatives, and the remaining alternatives represent a sufficient range of alternatives for environmental review, inclusive of modes and routes (Metro, 2024a). Detailed descriptions of the No Project Alternative and the five remaining "build" alternatives are presented in Sections 5 through 10.

1.3 Project Study Area

Figure 1-1 shows the Project Study Area. It generally includes Transportation Analysis Zones from Metro's travel demand model that are within 1 mile of the alignments of the four "Valley-Westside" alternatives from the *Sepulveda Transit Corridor Project Final Feasibility Report* (Metro, 2019a). The Project Study Area represents the area in which the transit concepts and ancillary facilities are expected to be located. The analysis of potential impacts encompasses all areas that could potentially be affected by the Project, and the EIR will disclose all potential impacts related to the Project.

1.4 Purpose of this Report and Structure

This technical report examines the environmental impacts of the Project as it relates to air quality impacts. It describes existing air quality impact conditions in the Project Study Area, the regulatory setting, methodology for impact evaluation, and potential impacts from operation and construction of the project alternatives, including maintenance and storage facility site options.

The report is organized according to the following sections:

- Section 1 Introduction
- Section 2 Regulatory and Policy Framework
- Section 3 Methodology
- Section 4 Future Background Projects
- Section 5 No Project Alternative
- Section 6 Alternative 1
- Section 7 Alternative 3
- Section 8 Alternative 4
- Section 9 Alternative 5
- Section 10 Alternative 6
- Section 11 Preparers of the Technical Report
- Section 12 References

Figure 1-1. Sepulveda Transit Corridor Project Study Area

Source: HTA, 2024

2 REGULATORY AND POLICY FRAMEWORK

2.1 Federal

2.1.1 Clean Air Act

The Federal Clean Air Act (CAA) is the comprehensive federal law that regulates air emissions from stationary and mobile sources. Among other things, this law authorizes the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) to protect public health and public welfare based on the latest science and requires states to adopt enforceable plans to achieve the standards. An air quality standard defines the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without any harmful effects on people or the environment, thus, it is used as a threshold metric to define clean air (CARB, 2024a). Congress designed the law to minimize pollution increases from growing numbers of motor vehicles, and from new or expanded stationary sources (i.e., power plants, industrial plants, and other facilities that are not mobile). EPA administers national programs to monitor concentrations of certain air pollutants and control emissions from major sources. Through the CAA, EPA regulates emission sources that are under the exclusive authority of the federal government, such certain types of locomotives, as well as mandating various emission standards, including those for on-road vehicles (EPA, 2013). The CAA also contains specific provisions to address the following:

- “Hazardous” or “toxic” air pollutants that pose health risks, such as cancer or environmental threats such as bioaccumulation of heavy metals
- Acid rain that damages aquatic life and ecosystems, acidifies forest soils, damages property, and forms from pollution that degrades visibility and harms public health
- Chemical emissions that deplete the stratospheric ozone layer
- Regional haze that impairs visibility in national parks and other recreational areas

In addition, the CAA was drafted with general authorities that can be used to address pollution problems that emerge over time, such as greenhouse gas (GHG) emissions that contribute to global climate change.

EPA also regulates emission sources that are under the exclusive authority of the federal government, such as aircrafts, ships, and certain types of locomotives. EPA has jurisdiction over emission sources outside state waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in states other than California (EPA, 2013).

2.1.1.1 Criteria Air Pollutants and National Ambient Air Quality Standards

The CAA requires EPA to set and revise NAAQS for certain common and widespread pollutants, known as “criteria pollutants,” and provides authority for the agency to add additional pollutants. Standards are in effect today for six pollutants: ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (regulated as subsets of particles with diameter less than 2.5 microns and less than 10 microns denoted as fine particulate matter of diameter less than 2.5 microns ($PM_{2.5}$) and respirable particulate matter of diameter less than 10 microns (PM_{10},), respectively, and lead (Pb). NAAQS are selected by the EPA administrator at the conclusion of a public process that takes about 5 years for completion. The process starts with a comprehensive review of the relevant scientific literature, which is then synthesized to inform a risk and exposure assessment conducted by the EPA staff. The CAA requires EPA to review and, if necessary, revise each of the NAAQS at 5-year intervals. The current NAAQS are presented in Table 2-1 along with the corresponding averaging times. Also shown in Table 2-1 are the California Ambient Air Quality Standards (CAAQS), which are generally more stringent than the federal standards and are discussed in greater detail in Section 2.2.2.1. Recently in February 2024, the federal $PM_{2.5}$ annual standard was revised from 12 µg/m^3 to 9 µg/m^3, making the federal standard more stringent than the state standard of 12 µg/m^3.

Table 2-1. Federal and California Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS	CAAQS
Ozone (O_3)	1-Hour	—	0.09 ppm (180 µg/m^3)
	8-Hour	0.07 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)
Carbon Monoxide (CO)	1-Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
	8-Hour	9 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)
Nitrogen Dioxide (NO_2)	1-Hour	0.100 ppm (188 µg/m^3)	0.18 ppm (339 µg/m^3)
	Annual Average	0.053 ppm (100 µg/m^3)	0.030 ppm (57 µg/m^3)
Sulfur Dioxide (SO_2)	1-Hour	0.075 ppm (196 µg/m^3)	0.25 ppm (655 µg/m^3)
	24-Hour	0.14 ppm (180 µg/m^3)	0.04 ppm (105 µg/m^3)
Respirable Particulate Matter (PM_{10})	24-Hour	150 µg/m^3	50 µg/m^3
	Annual Average	—	20 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	35 µg/m^3	—
	Annual Average	9.0 µg/m^3	12 µg/m^3
Lead (Pb)	30-Day Average	—	1.5 µg/m^3
	Rolling 3-Month Average	0.15 µg/m^3	—
Visibility-Reducing Particles	8-Hour	—	Extinction of 0.23 per kilometer
Sulfates	24-Hour	—	25 µg/m^3
Hydrogen Sulfide	1-Hour	—	0.03 ppm (42 µg/m^3)
Vinyl Chloride	24-Hour	—	ppm (26 µg/m^3)

Source: CARB, 2016; and CARB, 2024a

— = no standard
µg/m^3 = micrometers per cubic meter
CAAQS = California Ambient Air Quality Standard
mg/m^3 = micrograms per cubic meter
NAAQS = National Ambient Air Quality Standard
ppm = parts per million

The principal health effects and typical sources of each criteria pollutant are detailed in Table 2-2.

Table 2-2. Federal and California Criteria Air Pollutant Effects and Sources

Pollutant	Principal Health and Atmospheric Effects	Typical Sources
Ozone (O_3)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from ROG or VOCs and NO_x in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.
Respirable Particulate Matter (PM_{10})	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic and other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.
Fine Particulate Matter ($PM_{2.5}$)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic and other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NOx, SOx, ammonia, and ROG.
Carbon Monoxide (CO)	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.
Nitrogen Dioxide (NO_2)	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain and nitrate contamination of stormwater. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.
Sulfur Dioxide (SO_2)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.
Lead (Pb)	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Lead is also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.
Visibility-Reducing Particles (VRP)	Reduces visibility. Produces haze. Note: not directly related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	See particulate matter above. May be related more to aerosols than to solid particles.

Pollutant	Principal Health and Atmospheric Effects	Typical Sources
Sulfate	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.
Hydrogen Sulfide (H_2S)	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.
Vinyl Chloride	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes.

Source: Caltrans, 2020

NO_x = nitrogen oxides
ROG = reactive organic gases
SO_x = sulfur oxides
VOC = volatile organic compounds

2.1.2 State Implementation Plan

Federal law requires that all states attain the NAAQS. Areas of the State that are designated as "Nonattainment" for one or more of the NAAQS are required under the federal CAA to develop plans meeting specific requirements depending on the severity of the pollution problem. The severity of the pollution problem for "Nonattainment" areas is based on the measured ambient air quality data and the interim design values set for the region. "Nonattainment" areas can be described as "Marginal," "Moderate," "Serious," "Severe-15," "Severe-17," and "Extreme" based on the concentrations measured over recent years. An area must demonstrate continual achievement of the interim design value concentrations in order to be redesignated to a lower "nonattainment" tier. The type of nonattainment designation is based on the amount of reductions in pollutant concentrations that must occur for the NAAQS to be achieved.

As part of its enforcement responsibilities, EPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards.[1] Nonattainment areas that demonstrate extended periods of time with concentrations measured below the air quality standards can be redesignated to "Maintenance" following a request to EPA. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP. Failure of a state to reach attainment of the NAAQS by the target date can trigger penalties, including withholding of federal funds.

2.2 State

2.2.1 California Air Resources Board

The California Air Resources Board (CARB), a department within the California Environmental Protection Agency (CalEPA), is responsible for protecting public health and the environment by regulating air pollution and addressing climate change. Established in 1967 through the Mulford-Carrell Act, CARB oversees efforts to achieve and maintain health-based air quality standards, reduce greenhouse gas

[1] State Implementation Plans forecast a trajectory of emissions reductions to lower ambient concentrations of criteria pollutants.

(GHG) emissions, and minimize exposure to toxic air contaminants. CARB works in coordination with 35 local air districts in California to regulate stationary and mobile sources of emissions, develop emissions inventories, and monitor air quality to ensure compliance with state and federal standards. It has implemented several landmark programs, including the Low Emission Vehicle (LEV) standards, the Advanced Clean Cars Program, and the Cap-and-Trade Program, which are instrumental in reducing emissions from vehicles, industrial sources, and other sectors. CARB also promotes the use of zero-emission vehicles (ZEVs) and cleaner technologies through its regulatory framework and incentive programs. CARB's policies, many of which exceed federal requirements, serve as a model for air quality and climate change regulations nationwide.

CARB Off-Road Regulation and 2023 Amendment

The CARB Off-Road Regulation is designed to reduce GHG emissions and criteria air pollutants from in-use off-road diesel equipment, such as construction and industrial machinery. Initially adopted in 2007, the regulation establishes fleet average emissions standards and mandates the phase-out of older, higher-polluting engines, encouraging the transition to cleaner technologies. The regulation applies to fleets operating within California and sets compliance requirements based on fleet size and composition.

The 2023 Amendment to the Off-Road Regulation, taking effect in 2024, introduces stricter emissions limits and accelerates the transition to zero-emission equipment. Key updates include the prohibition of Tier 0 and Tier 1 engines, stricter fleet average emissions standards, and mandates for large fleets to transition a portion of their horsepower to zero-emission equipment (e.g., 10% by 2026 and 25% by 2030). Additionally, the amendment lowers the operational threshold for low-use equipment and enhances reporting and recordkeeping requirements to improve compliance oversight.

2.2.2 California Clean Air Act

In addition to being subject to the requirements of the CAA, air quality in California is also governed by more stringent regulations under the California Clean Air Act (CCAA). In California, the CCAA is administered by California Air Resources Board (CARB) at the State level and by air quality management districts and air pollution control districts at the regional and local levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for meeting the State requirements of the CAA, administering the CCAA, and establishing the CAAQS. The CCAA, which was amended in 1992, requires all air districts in the State to endeavor to achieve and maintain the CAAQS. In this capacity, CARB conducts research, compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. CARB also establishes emissions standards for motor vehicles sold in California, consumer products (i.e., hair spray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

2.2.2.1 California Ambient Air Quality Standards

Prior to the development of federal standards in 1971, California's first CAAQS were established by the State Department of Public Health in 1962. In 1969, CARB was created and formally adopted the CAAQS developed by the Department of Health. The CCAA requires all areas of the State to achieve and maintain the CAAQS by the earliest practicable date and must show incremental progress toward attainment, whereas federal standards establish a specified date for when standards must be met. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Recently in February 2024, the federal $PM_{2.5}$ annual standard was revised from 12 µg/m^3 to 9 µg/m^3, making the federal standard more stringent than the state standard of 12 µg/m^3. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a state standard and are not used as a basis for designating areas as nonattainment. Although California law continues to mandate CAAQS, meeting the federal standards has precedence over attainment of the CAAQS because failure to meet federal standard deadlines may result in federal penalties. The state standards are summarized with the federal standards in Table 2-1.

2.2.3 In-Use Off-Road Diesel Vehicle Regulation

On July 26, 2007, CARB adopted a regulation to reduce DPM and NO_X emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. The regulation applies to all self-propelled off-road diesel vehicles 25 horsepower or greater used in California and most two-engine vehicles (except on-road two-engine sweepers). This includes vehicles that are rented or leased (rental or leased fleets). Examples include loaders, crawler tractors, skid steers, backhoes, forklifts, airport ground support equipment, water well drilling rigs, and two-engine cranes. Such vehicles are used in construction, mining, and industrial operations. The regulation does not apply to stationary equipment or portable equipment such as generators. The off-road vehicle regulation establishes emissions performance requirements, establishes reporting, disclosure, and labeling requirements for off-road vehicles, and limits unnecessary idling. In November 2022, CARB amended the regulation to require fleets to phase-out use of the oldest and highest polluting off-road diesel vehicles in California; prohibit the addition of high-emitting vehicles to a fleet; and require the use of R99 or R100 renewable diesel in off-road diesel vehicles. Beginning January 1, 2024, all fleets are required to procure and use renewable diesel in all vehicles owned or operated in California that are subject to the Off-Road Regulation, with some limited exceptions, including for lack of availability.

2.2.4 Truck and Bus Regulation

In December 2008, CARB adopted the Statewide Truck and Bus Regulation that requires installation of PM retrofits on all on-road heavy duty trucks and buses beginning January 1, 2012 and replacement of older trucks starting January 1, 2015. By January 1, 2023, all vehicles need to have 2010 model year engines or equivalent.

2.2.5 Toxic Air Contaminant Identification and Control Act

CARB's statewide comprehensive air toxics program was established in the early 1980s. According to Section 39655 of the California Health and Safety Code, a toxic air contaminant (TAC) is "an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose or present a potential hazard to human health." The Toxic Air Contaminant Identification and Control Act created California's program to reduce exposure to air toxics, and under this Act, CARB is required to prioritize the identification and control of air toxics emissions. In selecting substances for review, CARB must consider criteria relating to the risk of harm to public health, such as the amount or potential amount of emissions, manner of and exposure to usage of the substance in California, persistence in the atmosphere, and ambient concentrations in the community.

CARB classified diesel particulate matter (DPM) emissions from diesel-fueled engines as TACs in August 1998. Following the identification process, CARB was required by law to determine if there was a need for further control, which led to the risk management phase of the program. For the risk management phase, CARB formed the Diesel Advisory Committee, and with the assistance of the Advisory Committee and its subcommittees, CARB developed *the Risk Reduction Plan* to *Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (CARB, 2020) and the *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines* (CARB, 2015).

The Diesel Advisory Committee approved these two documents on September 28, 2000, paving the way for the next step in the regulatory process: the control measure phase. During the control measure phase, specific statewide regulations designed to further reduce DPM emissions from diesel-fueled engines and vehicles have and continue to be evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce DPM emissions.

2.2.6 Assembly Bill 1346

Assembly Bill 1346 was signed into law on October 9, 2021, and mandates CARB to adopt regulations prohibiting the sale of new gas-powered small off-road engines (SORE), such as those used in lawn equipment and generators, by January 1, 2024, or as soon as feasible. The law aims to reduce air pollution from SOREs, which contribute significantly to smog and greenhouse gas emissions. It supports the transition to zero-emission alternatives by providing $30 million in funding for rebate programs to assist small businesses and individuals in purchasing compliant electric-powered equipment. While the law targets new sales, existing equipment can continue to be used, ensuring a phased and economically feasible transition to cleaner technologies.

2.3 Regional

2.3.1 Southern California Association of Government Regional Transportation Plan

Federal law (23 United States Code [U.S.C.] Section 134 et seq.) requires that any urbanized area with population of 50,000 or more be guided and maintained by a regional entity known as a Metropolitan Planning Organization (MPO). The MPO for the Project Study Area is the Southern California Association of Governments (SCAG), which also serves as the Regional Transportation Planning Agency. The SCAG region encompasses six counties—Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura—and 191 cities in an area covering more than 38,000 square miles. The Project corridor spans across portions of southwest Los Angeles County, and Los Angeles County Metropolitan Transportation Authority (Metro) facilities within the SCAG region are accounted for in SCAG regional planning activities.

SCAG is required by federal law to prepare and update a Long Range Regional Transportation Plan (RTP) (23 U.S.C. Section 134 et seq.) every 4 years. California Senate Bill (SB) 375, codified in 2008 in Government Code Section 65080 (b)(2)(B), also requires that the RTP include a Sustainable Communities Strategy (SCS) that outlines growth strategies for land use and transportation and helps reduce the State's GHG emissions from cars and light duty trucks. SCAG's most recently adopted plan is the *Connect SoCal, 2024–2050 Regional Transportation Plan/Sustainable Communities Strategy* (SCAG 2024-2050 RTP/SCS) (SCAG, 2024) and was adopted by the SCAG Regional Council on April 4, 2024. It received federal approval from the Federal Highway Administration and Federal Transit Administration on May 10, 2024. The Project is identified in SCAG 2024-2050 RTP/SCS as the "Sepulveda Pass Transit Corridor Phase 2," RTP ID 1160001.

SCAG's 2024-2050 RTP/SCS is an update to SCAG's Connect SoCal 2020–2045 RTP/SCS (2020-2045 RTP/SCS) (SCAG, 2020a). The foundation of the 2020-2045 RTP/SCS was rooted in its "Core Vision" that focused on maintaining and better managing the regional transportation network for moving people and goods while expanding mobility choices by locating housing, jobs, and transit in close proximity and increasing investment in transit and complete streets (SCAG, 2020a). The Core Vision was originally developed in the 2008 and 2012 RTP documents and the 2024-2050 RTP/SCS provides the most comprehensive RTP/SCS to date that builds upon previous work. SCAG's regional transportation and land use planning initiatives are closely intertwined with improving regional air quality.

The 2024-2050 RTP/SCS builds upon the goals and strategies developed in Connect SoCal 2020. Connect SoCal 2024 goals and visions fall into four primary categories:

1. Mobility—Build and maintain an integrated multimodal transportation network
2. Communities—Develop, connect, and sustain livable and thriving communities\
3. Environment—Create a healthy region for the people of today and tomorrow
4. Economy—Support a sustainable, efficient, and productive regional economic environment that provides opportunities for all people in the region

For each of these categories, regional planning policies were developed to provide guidance for integrating land use and transportation planning to meet the goals of the 2024-2050 RTP/SCS. Within the environment category, regional planning policies for air quality included 1) reduce hazardous air pollutants and GHG emissions and improve air quality throughout the region through planning and implementation efforts, 2) support investments that reduce hazardous air pollutants and GHG emissions, and 3) reduce the exposure and impacts of emissions and pollutants and promote local and regional efforts that improve air quality for vulnerable populations, including but not limited to Priority Equity Communities and the Assembly Bill 617 Communities (SCAG, 2024).

Performance of the 2024-2050 RTP/SCS is measured by comparing a "Plan" vs "No Plan," where the No Plan represents 2050 without implementation of the 2024-2050 RTP/SCS. When compared to the No Plan scenario, the Plan would reduce regional vehicle miles traveled (VMT) per capita by 6.3 percent, daily minutes of person delay per capita would decrease from 8.2 minutes to 6.3 minutes, and trips by transit would increase by 1.4 percent. These performance results highlight how implementation of Connect SoCal 2024 will help reduce mobile source air pollutant emissions.

Most areas within the SCAG region are designated "Nonattainment" or "Maintenance" areas for one or more transportation-related criteria pollutants (i.e., ozone and particulate matter), meaning that the air quality standards have not been met or were not met in the past. Pursuant to the federal CAA, SCAG's RTP/SCS is required to meet all federal transportation conformity requirements, including regional emissions analysis, financial constraint, timely implementation of transportation control measures, and interagency consultation and public involvement (42 U.S.C. Section 7401 et seq.). The regional emissions analysis for the 2024-2050 RTP/SCS was developed using demographic data and forecasts from California Department of Finance (Population and Housing Estimates for Cities, Counties, and the State-January 1, 2020-2022) in conjunction with a more robust collaborative effort at the local level to refine regional growth projections through the planning horizon of 2050. One of the guiding principles of Connect SoCal 2024-2050 RTP/SCS is to encourage transportation investments that will result in improved air quality and public health. The expansion and enhancement of the regional public transit network and the associated displacement of vehicle trips is a fundamental tenet of the regional planning initiatives to attain the air quality standards (SCAG, 2024).

2.3.2 South Coast Air Quality Management District Plans, Policies, and Rules

The South Coast Air Quality Management District (SCAQMD) was created for planning, implementing, and enforcing air quality standards for the South Coast Air Basin (Basin), which includes all of Orange County; Los Angeles County (excluding the Antelope Valley portion); the western, non-desert portion of San Bernardino County; and the western Coachella Valley and San Gorgonio Pass portions of Riverside County. The Basin is an approximately 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin is a subregion within the western portion of the SCAQMD jurisdiction. While air quality in the Basin has improved, the Basin requires continued diligence to meet the air quality standards.

The SCAQMD is tasked with preparing regional programs and policies designed to improve air quality within the Basin, which are assessed and published in the form of the SCAQMD *Air Quality Management Plan* (AQMP). The AQMP is generally updated every 3 to 4 years to evaluate the effectiveness of the adopted programs and policies and to forecast attainment dates for nonattainment pollutants to support the SIP based on measured regional air quality and anticipated implementation of new technologies and emissions reductions. The most recent publication is the 2022 AQMP, which was adopted by the SCAQMD Governing Board on December 2, 2022 (SCAQMD, 2022).

The 2022 AQMP incorporates the latest scientific and technological information and planning assumptions, including Connect SoCal 2020 and updated emission inventory methodologies for various source categories. The 2022 AQMP is focused on attaining the 2015 8-hour ozone standard of 70 parts per million and builds upon the emission reductions strategies stated in previous AQMPs, such as the 2016 AQMP, which focused on demonstrating NAAQS attainment dates for the 2008 8-hour ozone standard, the 2012 annual $PM_{2.5}$ standard, and the 2006 24-hour $PM_{2.5}$ standard, which focused on attaining the 1997 8-hour and 2008 8-hour ozone standards, as well as $PM_{2.5}$ standards.

The 2015 8-hour ozone standard is the most stringent standard to date and an attainment date of 2037 has been established for the Basin. The 2022 AQMP focuses primarily on reducing NO_X emissions as it is the key pollutant in controlling the formation of ozone. Additionally, reducing NO_X emissions would also reduce the secondary formation of $PM_{2.5}$, thus supporting efforts to meet $PM_{2.5}$ standards. The 2022 AQMP states that NO_X emissions would need to be reduced by 67 percent by 2037 to meet the standard. Emission reduction strategies to meet the standard will build upon already strict regulations for stationary and tailpipe sources and will also rely on adoption and implementation of zero emission technologies and low-NO_X technologies.

The AQMP also includes an element that is related to transportation and sustainable communities planning. Pursuant to California Health and Safety Code Section 40450, SCAG has the responsibility of preparing and approving the portions of the AQMP relating to regional demographic projections and integrated regional land use, housing, employment, and transportation programs, measures, and strategies. The growth projections that are incorporated into the AQMP inventory for evaluating emission control strategies and determining air quality standards attainment dates are based on analyses prepared for the RTP/SCS, which is required to be prepared by the MPO in accordance with SB 375. The formulation of the AQMP is a prime example of the correlation and intersectionality of regional transportation planning and air quality planning.

The SCAQMD has a long and successful history of reducing air toxics and criteria pollutant emissions in the Basin. SCAQMD has an extensive control program, including traditional and innovative rules and policies. To date, the most comprehensive study on air toxics in the Basin is the Multiple Air Toxics Exposure Study V (MATES V), conducted by the SCAQMD. The monitoring program measured more than

30 air pollutants, including both gases and particulates. The monitoring study was accompanied by a computer modeling study in which the SCAQMD estimated the risk of cancer and non-cancer risks from exposure to toxic air pollution throughout the region based on emissions and meteorological data.

The SCAQMD has also established various rules to manage and improve air quality in the Basin (SCAQMD, 2021a). The City of Los Angeles would be required to comply with all applicable SCAQMD Rules and Regulations pertaining to construction activities, including, but not limited to:

- Regulation IV – Prohibitions: This regulation sets forth the restrictions for visible emissions, odor nuisance, fugitive dust, various air emissions, fuel contaminants, start-up/shutdown exemptions and breakdown events, including the following rules directly applicable to the Project:
  - Rule 401 (Visible Emissions) states that a person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated No 1. on the Ringelmann Chart or of such opacity as to obscure an observer's view.\
  - Rule 402 (Nuisance) states that a person should not emit air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
  - Rule 403 (Fugitive Dust) controls fugitive dust through various best management practices requirements including, but not limited to:
    - applying water in sufficient quantities to prevent the generation of visible dust plumes,
    - applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible,
    - utilizing a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the Project site,
    - limiting vehicle speeds on unpaved roads to 15 miles per hour (mph) and maintaining effective cover over exposed areas,
  - Rule 403 also prohibits the release of fugitive dust emissions from any active operation, open storage piles, or disturbed surface area beyond the property line of the emission source and prohibits particulate matter deposits on public roadways.
  - Rule 403.2 (Fugitive Dust from Large Roadway Projects) supplements Rule 403 by requiring additional provisions to control fugitive dust when construction of large roadway projects are in close proximity to an area of public exposure or sensitive receptors.
- Regulation XI – Source Specific Standards: Regulation XI sets emissions standards for specific sources, including the following rules most relevant to the Project:
  - Rule 1113 (Architectural Coatings) requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce volatile organic compound (VOC) emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.
  - Rule 1186 (PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations) applies to owners and operators of paved and unpaved roads and livestock operations. The rule is intended

to reduce PM10 emissions by requiring the cleanup of material deposited onto paved roads, use of certified street sweeping equipment, and treatment of high-use unpaved roads.

– Rule 1470 (Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines) applies to stationary compression ignition (CI) engine greater than 50 brake horsepower and sets limits on emissions and operating hours. In general, new stationary emergency standby diesel-fueled engines greater than 50 brake horsepower are not permitted to operate more than 50 hours per year for maintenance and testing.

2.3.3 Los Angeles County Metropolitan Transportation Authority Green Construction Policy

Construction contractors will be required to comply with the provisions of Metro's *Green Construction Policy*, which was adopted in 2011 to reduce harmful air pollutant emissions (particularly particulate matter and nitrogen oxides [NO_x]) during Metro construction projects (Metro, 2011a). Provisions of the *Green Construction Policy* also contribute to minimizing GHG emissions during construction activities. Through adopting the *Green Construction Policy*, Metro committed to the following construction equipment requirements, construction best management practices, and implementation strategies for all construction projects performed on Metro properties or within Metro right-of-way:

- All off-road diesel-powered construction equipment greater than 50 horsepower (hp) shall meet Tier 4 off-road emission standards at a minimum. In addition, if not already supplied with a factor-equipped diesel particulate filter, all construction equipment shall be outfitted with Best Available Control Technology devices certified by CARB achieving no less than the equivalent of a Level 3 diesel emission control strategy.
- All on-road heavy-duty diesel trucks or equipment with a gross vehicle weight rating of 19,500 pounds or greater shall comply with EPA 2007 on-road emission standards for PM and NO_X (0.01 grams per brake horsepower hour [g/bhp-hr] and 1.2 g/bhp-hr, respectively).
- Every effort shall be made to utilize grid-based electric power at any construction site, where feasible. Where access to the power grid is not available, on-site generators must meet the following standards:
  – Meet a 0.01 g/bhp-hr standard for PM, or
  – Be equipped with best available control technology for PM emissions reductions
- Best management practices shall include, at a minimum the following:
  – Use of diesel particulate traps or best available control technology, as feasible
  – Maintain equipment according to manufacturer's specifications
  – Restrict idling of construction equipment and on-road heavy-duty trucks to a maximum of five minutes when not in use (CARB exceptions apply)
  – Maintain a buffer zone that is a minimum of 1,000 feet between truck traffic and sensitive receptors, where feasible
  – Work with local jurisdictions to improve traffic flow by signal synchronization during construction hours, where feasible
  – Configure construction parking to minimize traffic interference, where feasible
  – Enforce truck parking restrictions, where applicable

- – Prepare haul routes that conform to local requirements to minimize traversing through congested streets or near sensitive receptor areas
- – Provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site, as feasible
- – Schedule construction activities that affect traffic flow on the arterial system to off-peak hours to the extent practicable
- – Use electric power in lieu of diesel power where available
- – Maintain traffic speeds on all unpaved areas at or below 15 mph

All Metro construction project solicitations shall include provisions authorizing enforcement of the requirements of the Green Construction Policy. Contractors operating under Metro agreements shall provide certified statements and documentation ensuring that equipment and vehicles employed to complete construction activities conform to the requirements listed above.

In addition, Metro's *Moving Beyond Sustainability – Sustainability Strategic Plan 2020* (Metro, 2020a) requires that contractors use renewable diesel for all diesel engines. The use of renewable diesel reduces the negative health impacts from diesel exhaust. For the Crenshaw/ LAX project, the reduction in emissions for 2017 was equivalent to removing over 15,000 cars from the road (Metro, 2020a). This plan also sets targets for achieving Leadership in Energy and Environmental Design (LEED) Silver certification for all new facilities over 10,000 square feet, and for achieving Envision certification where LEED is not applicable; and designing and building 100 percent of capital projects to CALGreen Tier 2 standards.

2.3.4 Los Angeles Countywide Sustainability Plan

In 2019, the Los Angeles County Sustainability Office published "Our County", a regional sustainability plan for the communities in Los Angeles County. It outlines what local governments and stakeholders can do to enhance their communities while reducing damage to the environment. It contains 12 goals focusing on a variety of sectors. Goals relevant to the Project include the following:

- **Goal 1:** Resilient and healthy community environments where residents thrive in place
  - – By 2025, decrease average on-road DPM emissions to 80 percent below 2017 levels and reach attainment status with the Federal and State annual $PM_{2.5}$ standard
  - – By 2035, decrease average on-road DPM emissions to 100 percent below 2017 levels and reach attainment status with the Federal and State 8-hour ozone standard
- **Goal 7:** A fossil fuel-free LA County
  - – By 2025, have 60,000 new public electric vehicle charging stations and 30 percent of all new light-duty private vehicles are zero-emission vehicles
  - – By 2035, 70,000 additional public electric vehicle charging stations and 80 percent of all new light-duty private vehicles are zero-emission vehicles
  - – By 2045, 100 percent of all new light-duty private vehicles are zero-emission vehicles
- **Goal 8:** A convenient, safe, clean, and affordable transportation system that enhances mobility while reducing car dependency

- By 2025, increase to at least 15 percent all trips by foot, bike, micromobility, or public transit and reduce average daily VMT per capita to 20 miles
- By 2035, increase to at least 30 percent all trips by foot, bike, micromobility, or public transit and reduce average daily VMT per capita to 15 miles
- By 2045, increase to at least 50 percent all trips by foot, bike, micromobility, or public transit and reduce average daily VMT per capita to 10 miles

2.3.5 Metro Countywide Sustainability Planning Program

Over the past 15 years, Metro has developed policies directed toward controlling GHG emissions, enhancing energy efficiency, and adapting to the effects of climate change. These policies also have the ability to control criteria pollutant emissions. In 2011, Metro published its *Energy Conservation and Management Plan* (ECMP) (Metro, 2011b) to serve as a strategic blueprint for proactively guiding energy use in a sustainable, cost-effective, and efficient manner. The ECMP complements Metro's *2007 Energy and Sustainability Policy* (Metro, 2007a), focusing on electricity for rail vehicle propulsion, electricity for rail and bus facility purposes, natural gas for rail and bus facility purposes, and the application of renewable energy. The ECMP addresses current and projected energy needs based on 2010 utility data and existing agency plans to meet increasing ridership through system expansion and new facility construction incorporating Measure R initiatives.

Following publication of the ECMP, Metro began preparing annual energy and resource reports to provide evaluations on the effectiveness of ECMP strategies. The most recent iteration is the *2019 Energy and Resource Report* (Metro, 2019b), which analyzes the sustainability and environmental performance of Metro's operational activities during the 2018 calendar year. Relative to 2017, Metro bus fleet operations in 2018 reduced VOC emissions by 7 percent, NO_X emissions by 3 percent, and PM emissions by 7 percent. These achievements are testaments to the effectiveness of the ECMP. The *2019 Energy and Resource Report* will be the final report in its current format as Metro moves toward preparing an overall agency-wide sustainability report as part of the *Moving Beyond Sustainability – Sustainability Strategic Plan 2020* (Metro, 2020a) (referred to as "Moving Beyond Sustainability*")* as discussed herein.

In addition to the annual energy and resource reports, Metro expanded its sustainability planning program through the following initiatives: the *Green Construction Policy* (Metro, 2011a), the Metro *Countywide Sustainability Planning Policy and Implementation Plan* (Metro, 2012), *the Resiliency Indicator Framework Report* (Metro, 2015), the *Climate Action and Adaptation Plan* (CAAP) (Metro, 2019c), and *Moving Beyond Sustainability* (Metro, 2020a). Moving Beyond Sustainability was published as the culmination of over a decade of policies, plans, initiatives, and reporting to develop a more efficient and equitable transportation network, which builds upon the goals and strategies established in the 2019 CAAP, including reducing Metro's systemwide emissions to levels 79 percent below 2017 levels by 2030 and 100 percent below 2017 levels by 2050. Moving Beyond Sustainability outlines a comprehensive sustainability strategy through 2030, and also identifies longer term goals.

2.3.5.1 Moving Beyond Sustainability

Moving Beyond Sustainability is outlined in a hierarchical framework of goals, targets, strategies, and actions to organize the measures, programs, and projects comprising Metro's mission and vision. The plan is organized into topical strategic focus areas, including water quality and conservation; solid waste; materials, construction, and operations; energy resource management; emissions and pollution control; resilience and climate adaptation; and economic and workforce development. By recognizing the intersectionality of these various focus areas, Metro designed a robust, holistic plan to guide the expansion and enhancement of its transit services into the future. Implementing strategies in Moving Beyond Sustainability to reduce GHG emissions will simultaneously reduce criteria pollutant emissions, such as electrifying its bus fleets.

2.3.5.2 Metro Construction and Demolition Debris Recycling and Reuse Policy

Metro published its *Construction and Demolition Debris Recycling and Reuse Policy* to encourage responsible practices that will enhance reliance on recyclable and recycled products and reduce environmental impacts from waste disposal in landfills (Metro, 2007b). The policy dictates that Metro must give preference to recyclable and recycled products in the selection of construction materials to the maximum extent feasible during design and construction of proposed projects, as well as mandating that Metro shall not use any landfill or recycling facility that does not present and maintain acceptable documentation indicating their legitimacy for disposal or diversion purposes. Construction debris or waste that cannot be recycled or reused on site shall be manifested, transported, and disposed to the most appropriate facility. Metro shall ensure that any material used in the design or construction of all structures would not adversely affect the performance, safety, or the environment of the transportation system.

2.3.5.3 Metro Environmental Policy

Metro's Environmental Policy was prepared to provide guidance in identifying potential environmental impacts generated by:

- Development activities and developing mitigation measures to address those impacts
- Operating and maintaining Metro vehicles and facilities to minimize negative impacts on the environment
- Reducing consumption of natural resources; and
- Reducing and/or diverting the amount of solid waste going to landfills.

Metro is committed to planning and constructing projects and operating and maintaining facilities and vehicles in a manner that will protect human health and the environment. Strategies outlined in the Environmental Policy to reduce air quality impacts include, but are not limited to: compliance with all environmental, federal, state, and local laws and regulations; restoration of the environment by providing mitigation, corrective action, and monitoring to ensure that environmental commitments are implemented; avoidance of environmental degradation by minimizing releases to air, water, and land; prevention of pollution and conservation of resources by reducing waste and reusing materials; and ensuring that the planning, design, construction and operation of facilities and services consider environmental protection and sustainable features.

2.4 Local

2.4.1 City of Los Angeles General Plan

2.4.1.1 Air Quality Element

The principal objective of the Air Quality Element of the *City of Los Angeles General Plan* (General Plan) is to aid the region in attaining the state and federal ambient air quality standards while continuing economic growth and improvement in the quality of life afforded to City of Los Angeles residents (LA County Planning, 1992). The Air Quality Element also documents how the City of Los Angeles will implement local programs contained in the General Plan. Goals, objectives, and policies of the Air Quality Element applicable to the Project are listed in Table 2-3.

Table 2-3. City of Los Angeles General Plan – Relevant Air Quality Goals, Objectives, and Policies

Goal/Objective/Policy	Descriptions
Goal 1	Good air quality and mobility in an environment of continued population growth and healthy economic structure.
Objective 1.1	It is the objective of the City of Los Angeles to reduce air pollutants consistent with the regional Air Quality Management Plan, increase traffic mobility, and sustain economic growth.
Objective 1.3	It is the objective of the City of Los Angeles to reduce particulate air pollutants emanating from unpaved areas, parking lots, and construction sites.
Policy 1.3.1	Minimize particulate matter emissions from construction sites.
Goal 3	Efficient management of transportation facilities and system infrastructure using cost-effective system management and innovative demand management techniques.
Objective 3.2	It is the objective of the City of Los Angeles to reduce vehicular traffic during peak periods.
Policy 3.2.1	Manage traffic congestion during peak periods.
Goal 4	Minimize impact of existing land use patterns and future land use development on air quality by addressing the relationship between land use, transportation, and air quality.
Objective 4.1	It is the objective of the City of Los Angeles to include the regional attainment of ambient air quality standards as a primary consideration in land use planning.
Policy 4.1.1	Coordinate with all appropriate regional agencies the implementation of strategies for the integration of land use, transportation, and air quality policies.
Objective 4.2	It is the objective of the City of Los Angeles to reduce vehicle trips and vehicle miles traveled associated with land use patterns.
Policy 4.2.1	Revise the City of Los Angeles General Plan/Community Plans to achieve a more compact, efficient urban form and to promote more transit-orientated development and mixed-use development.
Policy 4.2.2	Improve accessibility for the residents of the City of Los Angeles to places of employment, shopping centers and other establishments.
Policy 4.2.3	Ensure that new development is compatible with pedestrians, bicycles, transit, and alternative fuel vehicles.
Policy 4.2.5	Emphasize trip reduction, alternative transit, and congestion management measures for discretionary projects.

Source: City of Los Angeles, 1992

2.4.1.2 City of Los Angeles Mobility Plan 2035

The *Mobility Plan 2035,* an Element of the *City of Los Angeles General Plan*, includes goals, objectives, policies, and guidelines for the City of Los Angeles to pursue to maintain a balanced, efficient, and equitable transportation network (DCP, 2016). As an update to the *City of Los Angeles General Plan Transportation Element* (last adopted in 1999), *Mobility Plan 2035* incorporates complete street principles and outlines the policy foundation for how future generations of residents will interact with their streets. Chapter 5: Clean Environments and Healthy Communities includes an objective to reduce VMT by 5 percent every 5 years, up to 20 percent by 2035, which would also reduce criteria pollutant and GHG emissions. Strategies to achieve the VMT reductions include land uses policies that focus on shortening distances between housing, jobs, and services; offering more attractive non-vehicle alternatives, such as transit; and pricing mechanisms that encourage commuters to consider alternatives to driving alone.

2.4.2 Plan for a Healthy Los Angeles

The *Plan for a Healthy Los Angeles* is a comprehensive initiative aimed at integrating health and wellness into the City of Los Angeles' long-term growth and development strategies. Formally adopted in 2015 and updated in 2021, this plan is a part of the *City of Los Angeles General Plan* and emphasizes creating healthier communities through several key objectives and policies that include the following (DCP, 2021):

- **Access to Open Space:** Promoting the availability of parks and recreational areas to enhance physical activity and mental well-being.
- **Healthy Housing:** Ensuring that housing policies support health through safe, affordable, and accessible housing options.
- **Active Transportation:** Encouraging walking, cycling, and the use of public transportation to reduce pollution and promote physical activity.
- **Public Safety:** Implementing measures to improve safety in neighborhoods, thereby reducing injuries and enhancing community well-being.
- **Clean Air:** Focusing on reducing air pollution to protect respiratory health and overall quality of life.

The plan includes measurable objectives and specific implementation programs designed to make health and environmental justice a priority in city planning. It leverages data from the Health Atlas for the City of Los Angeles, which provides insights into community vulnerabilities and helps tailor interventions to specific needs.

Overall, the plan aims to create a roadmap for expanding the City of Los Angeles' commitment to healthy communities by integrating health considerations into all aspects of urban planning and policymaking.

2.4.3 City of Los Angeles Department of Transportation Strategic Plan

The *City of Los Angeles Department of Transportation (LADOT) Strategic Plan* lays out goals, plans, and policies of LADOT to address the City of Los Angeles' future transportation needs, especially in regard to equity, efficiency, climate resilience, and carbon emission reduction (LADOT, 2020). Relevant to the Project are the following policies: increase active transportation infrastructure; reduce VMT and GHG emissions from surrounding transportation network (which lead to reductions in criteria pollutant emissions); and increase equitable mobility and access options.

3 METHODOLOGY

3.1 Regional Construction Emissions

Construction of project alternatives would generate emissions of volatile organic compounds (VOC)[2], nitrogen oxides (NO_X), carbon monoxide (CO), sulfur oxides (SO_X), respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) that could result in short-term air quality effects. Emissions would be generated from off-road equipment; mobile sources including worker vehicles, vendor trucks, and haul trucks; fugitive dust emissions during demolition, site grading and earth movement activities, and concrete batch plant operations; paving, and application of architectural coatings. Regional emissions include emissions generated from on-site sources (e.g., off-road equipment) operating within the construction site boundaries and off-site sources, primarily mobile sources (e.g., haul truck travel). The emission estimation approach for each emission source is discussed in the following sections.

Construction emissions were estimated using a spreadsheet approach that incorporated emission factors and methodologies from the California Emissions Estimator Model (CalEEMod) (CAPCOA, 2022), version 2022.1.1.24, California Air Resources Board's (CARB) EMission FACtors model (EMFAC2021) (CARB, 2021), version 1.0.2, and the U.S. Environmental Protection Agency's (EPA's) *Compilation of Air Pollutant Emission Factors* (AP-42) (EPA, 2021). CalEEMod is a model developed by the California Air Pollution Control Officers Association (CAPCOA) which quantifies ozone precursors, criteria pollutants, and GHG emissions from construction and operation of new land use development and linear projects in California; EMFAC2021 is a model developed and used by CARB to assess emissions from on-road vehicles including cars, trucks, and buses in California; and AP-42, while not a model, contains emissions factors and process information for more than 200 air pollution source categories, some of which are incorporated into CalEEMod's calculation methods.

The emissions modeling for each project alternative was based on alternative-specific construction data (schedule, phasing, workday hours, equipment quantities, truck volumes, etc.) provided by design team engineers. Construction data for LA SkyRail Express alternatives (Alternatives 1 and 3) and Sepulveda Transit Corridor Partners (STCP) alternatives (Alternatives 4 and 5) went through a collaborative process with HTA to develop reasonable construction assumptions based on current phases of design plans. Where alternative-specific data was not available, reasonable assumptions based on similar infrastructure/transit projects and default values from CalEEMod were applied in the analysis. Based on the scale of project alternatives and progress in design development, conservative construction assumptions were used for each project alternative and would likely yield conservative emissions estimates. Additionally, the construction assumptions used for the air quality analysis of each project alternative were also used in the greenhouse gas emissions analysis.

Construction emissions can vary from day to day, depending on the intensity and specific type of construction activity. The peak daily regional emissions are forecast values for the worst-case day and do not represent the emissions that would occur during every day of construction. Peak daily emissions accounted for individual construction phases that may overlap on a given day. The peak daily regional emissions for each project alternative were compared to South Coast Air Quality Management District's (SCAQMD) regional significance thresholds for construction to determine impacts on regional air quality.

[2] The terms VOC and ROG (reactive organic gases) are used interchangeably. SCAQMD uses VOC, and CalEEMod uses ROG.

Details regarding construction data and emission calculations for each project alternative are provided in Appendix A.

3.1.1 Off-Road Equipment

Project construction would utilize a variety of diesel-powered off-road equipment (e.g., cranes, bulldozers, excavators, etc.) throughout the construction period of each project alternative. Emission factors and load factors for off-road equipment were obtained from CalEEMod (CAPCOA, 2022) and did not incorporate the potential use of renewable diesel, as outlined in Metro's *Green Construction Policy*. Consequently, the estimated emissions from off-road construction equipment may be conservative, as the analysis does not account for potential reductions resulting from contractors utilizing renewable diesel to power on-site equipment.

Off-road equipment emissions were estimated based on the equipment activity data which included the equipment quantity, horsepower (hp), load factor, and daily usage (hours per day). The construction analysis assumed that all off-road equipment greater than or equal to 50 hp would meet Tier 4 Final engine specifications in accordance with Metro's *Green Construction Policy* (Metro, 2011a), thus, the emissions analysis used Tier 4 Final emission factors obtained from CalEEMod. For off-road equipment less than 50 hp, emission factors were based on the CalEEMod fleet average.

3.1.2 Mobile Sources

Mobile source emissions would be generated from worker vehicles, vendor trucks, and haul trucks commuting to and from the construction worksites throughout the construction period of each project alternative. Mobile sources would generate emissions from different processes including exhaust (fuel combustion), evaporative, and fugitive dust. Consistent with CalEEMod methodology (CAPCOA, 2022), the worker vehicle fleet mix consisted of 25 percent light-duty autos (LDA), 50 percent light-duty trucks type 1 (LDT1), and 25 percent light-duty trucks type 2 (LDT2). Based on EMFAC2021 data, the majority of LDA, LDT1, and LDT2 vehicle categories were gasoline powered; therefore, worker vehicle emissions were conservatively based on gasoline powered vehicles.

Consistent with CalEEMod, the vendor truck fleet mix consisted of 50 percent medium-heavy duty trucks (MHDT) and 50 percent heavy-heavy duty trucks (HHDT). The vendor truck fleet would also apply to water trucks used for dust control. The haul truck fleet mix consisted of 100 percent HHDT. Based on EMFAC2021 data, the majority of MHDT and HHDT vehicle categories were diesel powered; therefore, vendor and haul truck emissions were conservatively based on diesel powered trucks. The following sections provide details on the vehicle processes that are accounted for in the EMFAC2021 model.

3.1.2.1 Exhaust Emissions

Exhaust emissions would be generated from fuel combustion of gasoline and diesel during vehicle travel, as well as engine starting and idling. Exhaust emissions were estimated based on EMFAC2021 emissions factors for the running (i.e., traveling), starting, and idling processes combined with the daily vehicle activity data (number of trips and trip lengths).

On-site exhaust emissions would be generated from vendor trucks and haul trucks traversing worksites to deliver or pick-up materials and equipment. Emissions factors for on-site truck travel were based on a speed of 15 miles per hour. A trip length of 0.10 miles was assumed for all on-site truck trips.

Off-site exhaust emissions would be generated from worker vehicles and trucks commuting to and from construction worksites. Emission factors for workers vehicles were based on aggregate vehicle speeds and aggregate model year. Vendor and haul truck emission factors were based on aggregate vehicle speeds and vehicle model years of 2007 or newer to be consistent with Metro's *Green Construction Policy* (Metro, 2011a). Off-site trip lengths (in miles) were based on alternative-specific data or CalEEMod default trip lengths for each mobile source category (CAPCOA, 2022).

3.1.2.2 Evaporative Emissions

Mobile sources would also generate evaporative emissions, primarily VOC emissions, due to fuel evaporation from leaks in fuel systems, hoses, connectors, and carbon canisters. Emission factors were obtained from EMFAC2021 for the various evaporative processes including diurnal, hot soak, and running loss. Evaporative emissions were based on these emission factors and daily vehicle trips.

3.1.2.3 Fugitive Dust Emissions

PM_{10} and $PM_{2.5}$ fugitive dust emissions would be generated during vehicle travel from tire wear, brake wear, and dust from paved and unpaved roads. Emission factors for tire wear and brake wear were obtained from EMFAC2021. Tire wear and brake wear emissions were estimated using the emission factors combined with daily vehicle activity (number of trips and trip lengths).

Mobile sources would also generate dust when traveling on paved and unpaved roads. When a vehicle travels over a road, the force of the wheels on the road can resuspend surface material that is entrained by vehicular travel and this road dust contributes to airborne PM_{10} and $PM_{2.5}$ fugitive dust. Emission factors for entrained road dust were calculated using the methodologies in Sections 13.2.1 (Paved Roads) and 13.2.2 (Unpaved Roads) of AP-42 (EPA, 2021).

On-site vehicle travel emissions were based on truck travel along unpaved roads or surfaces and unpaved road dust emissions factors were derived using the methodology from Section 13.2.2. Off-site vehicle travel emissions were based on vehicle travel along paved roads and paved road dust emissions factors were derived using the methodology from Section 13.2.1. Paved road and unpaved road dust emissions were estimated using their respective emission factors and daily vehicle activity (number of trips and trip lengths). The analysis incorporated standard dust control measures, such as watering unpaved surface areas or unpaved roads.

3.1.3 Demolition and Earth Movement

Fugitive dust emissions would be generated during demolition and earth movement activities. Emission factors for demolition activities were estimated using methods from Section 13.2.4 (Aggregate Handling and Storage Piles) of AP-42 (EPA, 2021), and Appendix C of the CalEEMod User's Guide (CAPCOA, 2022). Fugitive dust emissions from demolishing buildings and hardscape (concrete/asphalt) were estimated based on the emission factors and the demolition debris weight.

Fugitive dust emissions would also be generated during earth movement activities (site grading, bulldozing, and truck loading). Emission factors for each of these processes were based on methods from Sections 11.9 (Western Surface Coal Mining) and 13.2.4 (Aggregate Handling and Storage Piles) of AP-42 (EPA, 2021), and Appendix C of CalEEMod User's Guide. Fugitive dust emissions were estimated using the emission factors and activity data (soil volume, number of grading passes, bulldozer hours of use, etc.). The analysis incorporated standard dust control measures, such as watering active demolition sites and exposed surfaces in accordance with SCAQMD Rule 403.

3.1.4 Architectural Coatings

The application of architectural coatings would generate VOC emissions due to off-gassing emissions resulting from the evaporation of solvents contained in surface coatings.[3] Emission factors for architectural coatings are based on the VOC content of the surface coating. VOC emissions for architectural coatings in non-residential buildings, such as buildings at the maintenance and storage facility (MSF) and within stations, are based on the amount of surface to be coated. For non-residential buildings, the total surface amount is two times the square footage. Additionally, of the total surface area to be coated, CalEEMod assumes that 75 percent of the area would be for the interior surfaces and 25 percent would be for the exterior shell. The VOC content for building coatings was 100 grams per liter, consistent with CalEEMod's default value for non-residential coatings used within the SCAQMD (CAPCOA, 2022).

VOC off-gassing emissions would also be generated from the painting of stripes, handicap symbols, directional arrows, and car space descriptions in parking lots. Consistent with CalEEMod methodology, the total area to be painted is based on the total parking lot area multiplied by 6 percent. The VOC content for parking lot paints was 100 grams per liter, consistent with CalEEMod's default value for parking land uses within the SCAQMD based on the limit for traffic coatings under Rule 1113.

3.1.5 Paving

VOC off-gassing emissions would be generated during paving of asphalt surfaces. CalEEMod's emission factor for paving is 2.62 pounds of VOC per day per acre of paving area. Emissions were estimated using the emission factor and the area to be paved.

3.1.6 Concrete Batch Plants

Temporary concrete batch plants at concrete casting facilities would produce the concrete used for the fabrication of precast components for track alignment, stations, and other facilities. Batch plants can produce fugitive dust emissions from material handling including sand transfer, aggregate transfer, cement unloading, cement supplement unloading, weight hopper loading, and truck mix loading. Batch plants must obtain an air quality permit from SCAQMD and comply with SCAQMD rules to minimize emissions.

The locations of batch plants can vary by project alternative, some may occur within the construction areas of an MSF, outside of the Project Study Area or SCAQMD boundaries at a commercial facility. Their locations are subject to change based on the current stage in the design phase, lending uncertainty to where the actual precast site will be located. Due to this uncertainty, the regional air quality analysis assumed concrete batch plants for project alternatives would be located within the SCAQMD boundaries, therefore, concrete batch plant fugitive dust emissions were included in the regional emissions analysis for all project alternatives. Fugitive dust emissions were estimated using methodology from Section 11.12 (Concrete Batching) of AP-42 (EPA, 2021). It should be noted that in the future when construction activities are set to begin, a site-specific analysis for concrete batch plants will be conducted to obtain all permits and approvals necessary prior to operation of the concrete batch plant.

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[3] CalEEMod uses the term volatile organic gases (VOC) when referring to emissions from the application of architectural coatings, consistent with local regulations. VOCs are organic compounds that can evaporate into an organic gas. VOC can be either reactive or non-reactive. Over the years, non-reactive VOCs have been exempted from regulation. Both VOC and reactive organic gases (ROG) are precursors to ozone, so they are summed in the CalEEMod output under the header ROG.

3.2 Regional Operations Emissions

Operations of project alternatives would generate emissions of VOCs, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ that could result in long-term impacts on ambient air quality. Operational emissions may be generated from mobile and area sources, as well as emergency generators related to the components of project alternatives, such as MSFs and train stations. Other components such as traction power sub stations (TPSS) or tunnel ventilation systems would not result in appreciable air pollutant emissions as site visits for maintenance would be infrequent and ventilation systems would be electric powered. Therefore, air pollutant emissions from these components were not quantified. Additionally, transit technology for project alternatives would be electric powered and would not generate air pollutant emissions during operations.

Regional operational emissions would include emissions generated by on-site sources, such as landscaping equipment and emergency generators, and off-site sources, primarily mobile sources. Operational emissions for mobile sources and emergency generators were estimated using a spreadsheet methodology with emission factors and methodologies from CalEEMod (CAPCOA, 2022), EMFAC2021, and AP-42 (EPA, 2021). Operational emissions for MSFs and stations were estimated in CalEEMod. The emissions modeling for project alternatives relied on alternative-specific data such as the sizes of stations and buildings, number of employees, and traffic data. Where project-specific information was not available, reasonable assumptions based on similar projects and default values from CalEEMod were used in the analysis. The emission estimation approach for each emission source is discussed in the following sections.

Peak daily regional operational emissions were estimated for the full build-out of project alternatives in Horizon Year 2045. The net change in peak daily emissions between project alternatives and the No Project Alternative were compared to SCAQMD's regional significance thresholds for operations to determine impacts on regional air quality, Section 3.6.1 provides more details for this evaluation approach. Details regarding operational data and emission calculations for each project alternative are provided in Appendix A.

3.2.1.1 Area Sources

Area source emissions would be generated from the reapplication of architectural coatings, consumer products, and landscaping equipment emissions. Area source emissions are primarily attributed to operations at MSFs and stations. Area source emissions for these land uses were estimated using CalEEMod (CAPCOA, 2022). Output reports for each project alternative are provided in Appendix A.

Architectural coatings would primarily result in VOCs off-gassing from the evaporation of solvents contained in surface coatings. Architectural coating emissions would be generated in a similar manner as described in Section 3.1.4 but would also include a reapplication rate, the rate at which surfaces are repainted. CalEEMod uses a reapplication rate of 10 percent, indicating all buildings are assumed to be repainted at a rate of 10 percent of the total area per year, and all coatings and paints would comply with limits established by SCAQMD Rule 1113 (CAPCOA, 2022).

Consumer products would primarily result in VOC emissions from chemically formulated products (cleaning compounds, detergents, degreasers, etc.). CalEEMod estimates consumer product emissions from three categories: general, pesticide/fertilizers, and parking degreasers. For each category, the emissions factors are based on the amount of VOCs per square foot per day. Emissions would be based on the emissions factors and the type and size of the land use (e.g., general office building).

Landscaping emissions would result from fuel combustion in landscaping equipment. CalEEMod's emission factors for landscaping equipment are in grams per square foot of building type (residential or non-residential). Landscaping emissions are based on the emissions factors, area to be landscaped, and the number of summer days for the project area. Although Assembly Bill 1346 would ban the sale of new gas-powered small off-road engine (SOREs) used for landscaping and encourages the transition to electric-powered equipment, existing gas-powered equipment could still be used in the future. Therefore, the analysis conservatively assumed landscaping equipment in 2045 would continue to be gas-powered. Details of area source emissions and landscaping areas are provided in the CalEEMod output files in Appendix A.

3.2.1.2 Natural Gas

On December 10, 2022, the City of Los Angeles passed Ordinance 187714, which requires all newly constructed buildings in the City of Los Angeles to be all-electric. This ordinance was added to the City of Los Angeles Municipal Code under Section 99.04.106.8 and had an effective date of January 1, 2023. Based on this ordinance, the operations emissions analysis did not include criteria pollutant emissions from combustion of natural gas related to building space and water heating because project alternative buildings would be considered new construction and would be required to comply with the Los Angeles Municipal Code.

3.2.1.3 Mobile Sources

Mobile sources would generate emissions from different processes including exhaust (fuel combustion), evaporative, and fugitive dust from brake wear, tire wear, and paved roads. The *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a) evaluated daily vehicle miles traveled (VMT) in the Project Study Area for the existing conditions under Baseline Year 2021 (Existing Conditions 2021), the No Project Alternative in forecast Horizon Year 2045 (No Project Alternative 2045), and for each project alternative in forecast Horizon Year 2045.

Emission factors for air pollutants were generated from EMFAC2021 and were based on all vehicle categories and fuel types, aggregate speeds, and model years, as well as the appropriate calendar year (2021 for Existing Conditions, and 2045 for No Project Alternative and project alternatives). Fugitive dust emission factors for paved roads were also included in the emissions estimates. Daily emissions were estimated by multiplying the daily VMT by the mobile emission factors.

Additionally, mobile source emissions would be generated from employees traveling to project alternative MSFs. Daily employee trips were based on the number of MSF employees multiplied by two to account for trips to and from the MSF. The trip length for employees was based on the CalEEMod default value for non-residential Home-to-Work trips for a General Office Building (CAPCOA, 2022). The daily trips and trip length were multiplied together to derive a daily VMT. Emission factors for air pollutants were generated from EMFAC2021 and were based on all vehicle categories and fuel types, aggregate speeds and model years, and calendar year 2045. Daily emissions were estimated by multiplying the daily VMT by the mobile emission factors. Detailed emissions calculations for mobile sources are provided in Appendix A.

3.2.1.4 Emergency Generators

The use of emergency generators may be required to provide power for lighting and emergency systems during unplanned power outages. Emissions associated with periodic maintenance and testing of the emergency generators was included in the daily operational emissions. Emergency generator emission factor and load factors were obtained from CalEEMod. The generator size was based on data from alternative designs. The analysis assumed that testing and maintenance activities for the emergency generators would operate up to one hour per day per generator. Emergency generator emissions were estimated outside CalEEMod using a spreadsheet approach. Criteria pollutant emissions were estimated based on an alternative-specific generator size (hp), and emission factors and load factors were obtained from CalEEMod. Details of emergency generator emission calculations are provided in Appendix A.

3.3 Localized Construction Emissions

The SCAQMD developed localized significance thresholds (LST) that represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards, and thus would not cause or contribute to localized air quality impacts. LSTs were developed based on the ambient concentrations of that pollutant for each of the 38 source receptor areas (SRA) in the South Coast Air Basin (Basin). The localized thresholds, which are found in the mass-rate look-up tables in SCAQMD's *Final Localized Significance Threshold Methodology* document, were developed for the analysis of projects that are less than or equal to five acres in size and applicable only to the following criteria pollutants: NO_X, CO, PM_{10}, and $PM_{2.5}$ (SCAQMD, 2008).

Localized construction emissions were based on emissions generated on-site within the construction site boundaries, including exhaust emissions from off-road equipment and trucks, and fugitive dust from demolition, earth movement activities, and truck travel. Consistent with SCAQMD localized methodology, offsite emissions such as mobile sources, were not included in the localized emissions inventory. Project alternatives expand from the Valley to Westside with components (alignment, stations, TPSSs, etc.) located along the corridor, therefore, two geographic areas were utilized to develop localized emissions inventories. For Alternatives 1 and 3, components located north of the Getty Center parking area would be categorized as operating in the Valley and components south of the Getty Center parking area would be categorized as operating in the Westside. For Alternatives 4, 5, and 6, components located north of Del Gado Drive would be categorized as operating in the Valley and components south of Del Gado Drive would be categorized as operating in the Westside. For each project alternative, peak daily emissions of components in the Valley and Westside were compared to the appropriate LST values.

The LSTs are based on (1) the size or total area of the emissions source, (2) the distance to nearby sensitive receptor locations, and (3) the ambient air quality in each SRA where the emissions sources are located.

1. Size — The LST categories for size (i.e., acres) are 1, 2, and 5 acres. The site acreage for construction components in the Valley and Westside varies and some components are greater than 5 acres. Although the LSTs were developed for sites up to 5 acres, the LSTs can still be used to conduct a screening-level analysis for projects greater than 5 acres. Based on the varying size of construction worksite, a 2-acre site was used to evaluate local impacts from project alternatives. This is a conservative approach as the emissions from multiple components with a total acreage greater than 2 acres will be compared to LSTs for a 2-acre site.
2. Distance — The LST categories for distance (i.e., meters) to nearby sensitive receptor locations range from less than or equal to 25, 50, 100, 200, and 500 meters. These distances are based on polar receptor grid used in SCAQMD's dispersion modeling to derive LSTs. It was conservatively assumed that a receptor could be located within 25 meters (82 feet) based on the proximity of

sensitive land uses to the proposed alignments. Although receptors could be closer than 25 meters to the site boundaries, SCAQMD guidance states the 25-meter distance should be used for the LSTs as they represent the most conservative screening thresholds (SCAQMD, 2008).

3. SRA — The LST SRA for a project is based on the city or community that the project is located. Because of the large domain for project alternatives, LST values for two SRAs were utilized to compare potential localized impacts along the alternatives' corridors. Project alternatives expand from the Valley to Westside and intersect with SRA 7−East San Fernando Valley and SRA 2−Northwest Los Angeles County Coastal. LST values for both SRAs were obtained from the mass-rate look-up tables. Construction activity in the Valley would be compared to the LSTs for SRA 7 and construction activity in the Westside would be compared to the LSTs for SRA 2.

3.3.1 Localized Emissions Approach

The approach to estimating localized emissions involves several steps. First, the maximum daily emissions for NOX, CO, PM10, and PM2.5 within the Valley and Westside regions are identified, accounting for overlapping construction phases and schedules. This ensures that the analysis captures the worst-case scenario for daily emissions. Next, the components contributing to these maximum emissions (e.g., stations, TPSSs, or alignment segments) are identified to evaluate their spatial relationship and proximity to sensitive receptors. For localized significance, emissions from components in close proximity are summed to determine the peak daily localized emissions that could influence the same receptors. These combined emissions are then compared against SCAQMD's LSTs. This methodology provides a basis for assessing whether the project may cause or contribute to an exceedance of ambient air quality standards (AAQS) at a localized level, with findings informing the significance determination and disclosure of potential health impact.

3.4 Localized Operations Emissions

Localized emissions during operations would be generated by area sources and emergency generators at MSFs and stations. Based on the level of intensity for local operational activities compared to local construction activities, a screening-level approach was used to evaluate impacts of localized operational emissions. Similar to localized construction emissions, the localized operational emissions were evaluated using SCAQMD's LSTs. The localized operational emissions would only include emissions generated on-site and does not include mobile source emissions.

The LSTs are based on (1) the size or total area of the emissions source, (2) the distance to nearby sensitive receptor locations, and (3) the ambient air quality in each SRA where the emissions sources are located.

1. Size — The LST categories for size (i.e., acres) are less than or equal to 1, 2, and less than or equal to 5. The total acreage for the MSF and stations is greater than 5 acres. Although the LSTs were developed for sites up to 5 acres, the LSTs can still be used to conduct a screening-level analysis for projects greater than 5 acres to determine if further refined analysis of local air quality impacts is required. Therefore, the LSTs for a 5-acre site were used to evaluate local impacts from project alternatives.
2. Distance — The LST categories for distance (i.e., meters) to nearby sensitive receptor locations range from less than or equal to 25, 50, 100, 200, and 500 meters. These distances are based on polar receptor grid used in SCAQMD's dispersion modeling to derive LSTs. It was conservatively assumed that a receptor could be located within 25 meters (82 feet) based on the proximity of

sensitive land uses to the proposed alignments. Although receptors could be closer than 25 meters to the site boundaries, SCAQMD guidance states the 25-meter distance should be used for the LSTs as they represent the most conservative screening thresholds (SCAQMD, 2008).

3. SRA — The LST SRA for a project is based on the city or community that the project is located. Because of the large domain for project alternatives, LST values from two SRAs were utilized to compare potential localized impacts along the alternatives' corridors. Project alternatives expand from the Valley to Westside and intersect with SRA 7−East San Fernando Valley and SRA 2−Northwest Los Angeles County Coastal. LST values for both SRAs were obtained from the mass-rate look-up tables and the most stringent values between each SRA were selected for the LSTs.

The components (MSFs and stations) of project alternatives are located at different locations along the alternative alignment, therefore it was conservatively assumed that the localized emissions from all components would occur within a 5-acre site, although in reality, the total acreage of all these components is far greater than 5 acres. Localized emissions from MSFs and stations for each project alternative would be summed together and compared to the operational LSTs.

3.5 Operational Carbon Monoxide Hot Spots

A CO hot spot is a localized concentration of CO that is above the state or national 1-hour or 8-hour ambient air standards for the pollutant. As part of SCAQMD's 2003 Air Quality Management Plan (AQMP), which is the most recent AQMP that addresses CO concentrations, a detailed CO hot spots analysis was conducted by SCAQMD at four heavily congested intersections in the Basin that were likely to experience the highest CO concentrations. The results of the CO hot-spot analysis did not predict a violation of CO standards at any of these four intersections. As such, the potential for project alternatives to result in localized CO impacts occurring from the addition of project-associated intersection volumes was assessed by comparing the highest daily intersection for project alternatives with the highest daily intersection volumes at the busiest intersection evaluated in the 2003 AQMP. If project alternatives have lower intersection volumes than intersection volumes at the four intersections modeled by SCAQMD, it can be concluded that project alternatives would not result in any localized CO impacts.

3.6 CEQA Thresholds of Significance

For the purposes of the Environmental Impact Report (EIR), impacts are considered significant if the Project would:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations.
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The SCAQMD has developed or adopted significance thresholds, discussed in the following subsections, to assist Lead Agencies in assessing a projects potential to regional and local air quality during short-term construction and long-term operation.

3.6.1 Regional Significance Thresholds

SCAQMD has developed numerical significance thresholds that are applicable to both construction and operational regional emissions generated by a CEQA project within its jurisdiction. These significance thresholds were derived using regional emissions modeling to determine maximum allowable mass quantities of pollutant emissions that could be generated by individual projects without adversely affecting air quality and creating public health concerns based on existing pollution levels. These regional pollutant emission thresholds are shown in Table 3-1. Project alternative emissions that exceed these thresholds would be considered significant under CEQA.

Table 3-1. South Coast Air Quality Management District Regional Significance Thresholds

Pollutant	Mass Daily Threshold (lbs/day)	
	Construction	Operations
Volatile Organic Compound (VOC)[a]	75	55
Nitrogen Oxides (NO_X)	100	55
Carbon Monoxide (CO)	550	550
Sulfur Dioxide (SO_2)	150	150
Respirable Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Lead[b]	3	3

Source: SCAQMD, 2023

[a]The terms VOC and ROG (reactive organic gases) are used interchangeably. SCAQMD uses VOC, and CalEEMod uses ROG.

[b]The Project would result in no lead emissions sources during the construction period or operations. As such, lead emissions are not evaluated herein.

lbs/day = pounds per day

Pursuant to CEQA Guidelines section 15125(a)(2), a lead agency has the discretion to exclusively use a future conditions baseline for the purposes of determination of significance under CEQA in instances where showing an existing conditions analysis would be misleading or without informational value. Use of an existing conditions baseline would be misleading for the Project because it ignores the regional background growth in population, traffic, and transportation infrastructure that would occur between the Existing Conditions Baseline Year of 2021 and Project build-out in 2045. The 2021 existing conditions will be substantially altered by regional growth that will occur independent of the Project, which, in turn, would mask the impacts that are attributable to the Project and would not provide the reader with an accurate and meaningful delineation of project-related impacts). Considering such growth is critical when determining future effects for transit projects designed to reduce traffic congestion, VMT, and associated air quality impacts over time. Isolating project alternative impacts from ancillary changes in the environment would result in a misleading analysis.

Therefore, operational air quality impacts will be evaluated using the net change in emissions between project alternatives in Horizon Year 2045 and a projected future conditions baseline. The projected future conditions baseline represents the Existing Conditions in 2021 adjusted for regional background growth that would occur by 2045. In this case, the projected future conditions baseline is 2045 without Project conditions. The Horizon Year 2045 of the regional travel demand Corridor Based Model 2018, which incorporates Metro Measure M projects identified in the Measure M Expenditure Plan, roadway improvements, and other transit improvements anticipated to occur throughout the transit corridor, was selected as the Project’s horizon year. The use of Horizon Year 2045 represents a characterization of the holistic, long-term benefits of the Project as transit oriented development expands within the Project Study Area and throughout the region. The significance of regional criteria pollutant emissions for project alternatives will be based on the net change in emissions between project alternatives and the projected future conditions baseline (2045 without Project conditions).

3.6.2 Health-Based Thresholds for Project-Generated Pollutants of Human Health Concern

The California Supreme Court's 2018 decision in Sierra Club v. County of Fresno (6 Cal. 5th 502), hereafter referred to as the Friant Ranch Decision, included review of the long-term regional air quality analysis contained in the EIR for the proposed *Community Plan Update and Friant Ranch Specific Plan* (Friant Ranch Project) (California Supreme Court, 2018). The Friant Ranch Project proposed a 942-acre master-plan development in unincorporated Fresno County, within the San Joaquin Valley Air Basin, which is currently designated as a nonattainment area with respect to the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for ozone (O_3) and $PM_{2.5}$. The court found that the EIR's air quality analysis was inadequate because it failed to provide enough detail "for the public to translate the bare [criteria pollutant emissions] numbers provided into adverse health impacts or to understand why such a translation is not possible at this time." The court's decision noted that environmental documents must attempt to connect a project's air quality impacts to specific health effects or explain why it is not technically feasible to perform such an analysis.

All criteria pollutants generated by construction and future operation of the Project would be associated with some form of health risk (e.g., asthma, lower respiratory problems). Criteria pollutants can be classified as either regional pollutants or localized pollutants. Regional pollutants can be transported over long distances and affect ambient air quality far from the emissions source. Localized pollutants affect ambient air quality near the emissions source. O_3 is considered a regional criteria pollutant, whereas CO, NO_2, SO_2, and lead are localized pollutants. It should be noted that O_3 is not directly emitted from emission sources, rather O_3 is formed from chemical reactions involving precursor emissions, NO_X, and reactive organic gases (ROG), in the presence of sunlight. Particulate matter can be both a local and a regional pollutant, depending on its composition. The primary criteria pollutants of concern generated by the Project would be O_3 precursors (ROG and NO_X), CO, and particulate matter, including DPM.

The sections that follow discuss thresholds and analysis considerations for regional Project-generated criteria pollutants with respect to their human health implications.

3.6.3 Regional Project-Generated Criteria Pollutants (Ozone Precursors and Regional PM)

Adverse health effects from regional criteria pollutant emissions, such as O_3 precursors and particulate matter, generated by the Project are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, gender]). Therefore, O_3 precursors (ROG and NO_X) contribute to the formation of ground-borne O_3 on a regional scale. Emissions of ROG and NO_X generated in an area may not correlate to a specific O_3 concentration in that same area. Similarly, some types of particulate pollutant may be transported over long distances or formed through atmospheric reactions. As such, the magnitude and locations of specific health effects from exposure to increased O_3 or regional particulate matter concentrations are the product of emissions generated by numerous sources throughout a region, as opposed to a single individual project. Moreover, exposure to regional air pollution does not guarantee that an individual will experience an adverse health effect. As discussed above, there are large individual differences in the intensity of symptomatic responses to air pollutants. These differences are influenced, in part, by the underlying health condition of an individual, which cannot be known.

Models and tools have been developed to correlate regional criteria pollutant emissions to potential community health impacts. Although models are capable of quantifying O_3 and any secondary particulate matter formation and associated health effects, these tools were developed to support large regional planning and policy analysis and have limited sensitivity to small changes in criteria pollutant concentrations induced by individual projects. Therefore, translating project-generated criteria pollutants to the locations where specific health effects could occur or the resultant number of additional days of nonattainment is not possible with any degree of accuracy.

The technical limitations of existing models (e.g., for correlating project-level regional emissions to specific health consequences) are recognized by air quality management districts throughout the state, including the SCAQMD and San Joaquin Valley Air Pollution Control District (SJVAPCD), which provided amici curiae briefs for the Friant Ranch Project's legal proceedings. In SJVAPCD's brief (SJVAPCD, 2015), the SJVAPCD acknowledged that HRAs for localized air toxics, such as DPM, are common; however, "it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task." The SJVAPCD further noted that emissions solely from the Friant Ranch Project, which equate to less than one-tenth of 1 percent of total NO_X and VOCs in the San Joaquin Valley, is not likely to yield valid information and that any such information would not be "accurate when applied at the local level." In SCAQMD's brief (SCAQMD, 2015), SCAQMD presents similar information, stating that "it takes a large amount of additional precursor emissions to cause a modeled increase in ambient O_3 levels over an entire region. For example, the SCAQMD's 2012 AQMP showed that reducing NO_X by 432 tons per day (157,680 tons/year) and reducing VOCs by 187 tons per day (68,255 tons/year) would reduce O_3 levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion". As of July 2024, SCAQMD has not approved a quantitative method for accurately correlating criteria pollutant emissions generated by an individual project to specific health outcomes or changes in nonattainment days.

As discussed above, air districts develop region-specific CEQA thresholds of significance in consideration of existing air quality concentrations as well as attainment or nonattainment designations under the NAAQS and CAAQS. The NAAQS and CAAQS are informed by a wide range of scientific evidence that demonstrates that there are known safe concentrations of criteria pollutants. Although recognizing that air quality is a cumulative problem, air districts typically consider projects that generate criteria pollutant and O_3 precursor emissions that are below the thresholds to be minor in nature. Such projects would not adversely affect air quality or exceed the NAAQS or CAAQS. Emissions generated by the Project could increase photochemical reactions and the formation of tropospheric O_3 and secondary particulate matter, which, at certain concentrations, could lead to increased incidences of specific health consequences. Although these health effects are associated with O_3 and particulate pollution, the effects are a result of cumulative and regional emissions. Therefore, the Project's incremental contribution cannot be traced to specific health outcomes on a regional scale, and a quantitative correlation of Project-generated regional criteria pollutant emissions to specific human health impacts is not included in this analysis.

3.6.4 Thresholds for Analysis of Localized Construction Emissions

Potential impacts of localized construction emissions were evaluated using construction LST values. Construction LST values were based on a 2-acre site with receptors located at 25 meters from the site boundaries and were obtained for SRA 2 – Northwest Los Angeles County Coastal and SRA 7 – East San

Fernando Valley. These SRAs were selected because the majority of project alternative components are located within their boundaries. The LST values for localized construction emissions are provided in Table 3-2.

Table 3-2. Localized Significance Thresholds for Construction

Source Receptor Area	Construction LSTs (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
2 – Northwest Los Angeles County Coastal	147	827	6	4
7 – East San Fernando Valley	114	786	7	4

Source: SCAQMD, 2008

CO = carbon monoxide
lbs/day = pounds per day
LSTs = localized significance thresholds
NO_x = nitrogen oxides
$PM_{2.5}$ = fine particulate matter
PM_{10} = respirable particulate matter

3.6.5 Thresholds for Analysis of Localized Operational Emissions

Potential impacts of localized operational emissions were evaluated using operational LST values. Operational LST values were based on a 5-acre site with receptors located at 25 meters from the site boundaries and were obtained for SRA 2 – Northwest Los Angeles County Coastal and SRA 7 – East San Fernando Valley. These SRAs were selected because the majority of project alternative components are located within their boundaries. The LST values for localized operational emissions are provided in Table 3-3.

Table 3-3. Localized Significance Thresholds for Operations

Source Receptor Area	Operational LSTs (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
2 – Northwest Los Angeles County Coastal	221	1,531	3	2
7 – East San Fernando Valley	172	1,434	4	2
Operational LSTs for Analysis	**172**	**1,434**	**3**	**2**

Source: SCAQMD, 2008

CO = carbon monoxide
lbs/day = pounds per day
LTS = localized significance thresholds
NO_x = nitrogen oxides
$PM_{2.5}$ = fine particulate matter
PM_{10} = respirable particulate matter

Note: The more stringent LST value between SRA 2 and SRA 7 was selected to evaluate localized operational emissions.

3.6.6 Cumulative Impacts

Potential cumulative air quality impacts would result when the pollutant emissions of the Project combine with those of other projects' pollutant emissions to degrade air quality conditions below acceptable levels. This could occur on a local level (e.g., increased vehicle emissions at congested intersections or concurrent construction activities at sensitive receptor locations) or a regional level (e.g., potential O_3 impacts from multiple past, present, and reasonably foreseeable projects within the Basin). Given that both localized and regional pollution is regulated at the air basin level, the Basin is the Resource Study Area for the purposes of air quality.

The Basin experiences chronic exceedances of the NAAQS and CAAQS and is currently in nonattainment status for O_3 (federal and state standards), PM_{10} (state standards only), and $PM_{2.5}$ (federal and state standards). Consequently, cumulative development in the Basin as a whole could violate an air quality standard or contribute to an existing or projected air quality violation. SCAQMD recommends that if an individual project results in criteria pollutant emissions that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. Conversely, if a project's emissions do not exceed the recommended daily thresholds for project-specific impacts, its impacts would not be cumulatively considerable and would not contribute to nonattainment of applicable air quality standards in the Basin.

4 FUTURE BACKGROUND PROJECTS

This section describes planned improvements to highway, transit, and regional rail 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. These improvements would not be 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* (2020-2045 RTP/SCS) (SCAG, 2020a, 2020b), and the Federal Transportation Improvement Program (FTIP), with the exception of the Sepulveda Transit Corridor Project (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.

4.1 Highway Improvements

The only major highway improvement in the Project Study Area included in the future background projects is the Interstate 405 (I-405) Sepulveda Pass ExpressLanes project (ExpressLanes project). This would include the ExpressLanes project as defined in the *2021 FTIP Technical Appendix, Volume II of III* (SCAG, 2021a), which 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 10 (I-10). 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.

4.2 Transit Improvements

Table 4-1**Error! Reference source not found.** lists the transit improvements that would be included in the future background projects. This list includes projects 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. In consultation with the Federal Transit Administration, Metro selected 2045 as the analysis year to provide consistency across studies for Measure M transit corridor projects. The Inglewood Transit Connector, a planned automated people mover (APM), which was added to the FTIP with *Consistency Amendment #21-05* in 2021, would also be included in the future background projects (SCAG, 2021b). These projects would also include the Los Angeles International Airport (LAX) APM, currently under construction by Los Angeles World Airports. The APM will extend from a new Consolidated Rent-A-Car Center to the Central Terminal Area of LAX and will include four intermediate stations. In addition, 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.

During peak hours, heavy rail transit (HRT) services would generally operate at 4-minute headways (i.e., the time interval between trains traveling in the same direction), and light rail transit (LRT) services would operate at 5- to 6-minute headways. During off-peak hours, HRT services would generally operate at 8-minute headways and LRT services at 10- to 12-minute headways. Bus rapid transit (BRT) services would generally operate at peak headways between 5 and 10 minutes and off-peak headways between

10 and 14 minutes. The Inglewood Transit Connector would operate at a headway of 6 minutes, with more frequent service during major events. The LAX APM would operate at 2-minute headways during peak and off-peak periods.

Table 4-1. 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.

4.3 Regional Rail Projects

The future background projects would 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.

5 NO PROJECT ALTERNATIVE

The only reasonably foreseeable transportation project under the No Project Alternative would be improvements to Metro Line 761, which would continue to serve as the primary transit option through the Sepulveda Pass with 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, in coordination with the opening of the East San Fernando Valley Light Rail Transit Line, rather than to its current northern terminus at the Sylmar Metrolink Station.

5.1 Existing Conditions

5.1.1 Regional Climate and Meteorology

The Project Study Area is located within the South Coast Air Basin (Basin), an area covering approximately 6,745 square miles and bounded by the Pacific Ocean to the west and south and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the distinctive climate of the Basin, which is a coastal plain with connecting broad valleys and low hills.

The Southern California region, which includes the Basin, lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography) as well as human-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of pollutants throughout the Basin, making it an area of high pollution potential.

The worst air pollution throughout the Basin occurs from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing height. This combination of environmental factors frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day. Ozone (O_3) concentrations, for example, tend to be lower along the coast, higher in the near-inland valleys, and lower in the far-inland areas of the Basin and adjacent desert. Substantial progress has been made in reducing air pollution levels in Southern California in recent years. However, the Basin still faces considerable challenges to attain the federal and state air quality standards.

Weather stations closest to the Project Study Area are the Western Regional Climate Center (WRCC) monitoring stations at Woodland Hills Pierce College (COOP ID 041484) and the University of California, Los Angeles (UCLA) (COOP ID 049152). These monitoring stations were selected to accurately represent the climate conditions occurring in the northern and southern portions of the Project Study Area. According to climate data recorded from 1949 to 2012 for the Woodland Hills station, the average annual maximum temperature in the area is approximately 81 degrees Fahrenheit (°F), and the average annual minimum temperature is approximately 48°F. The average precipitation in the area is approximately 16 inches annually, occurring primarily from December through March (WRCC, 2023a). According to climate data recorded from 1933 to 2016 for the UCLA station, the average annual maximum temperature in the area is approximately 71°F, and the average annual minimum temperature is approximately 55°F. The average precipitation in the area is approximately 17 inches annually, occurring primarily from December through March (WRCC, 2023b).

5.1.2 Pollutants of Concern

5.1.2.1 Criteria Pollutants

National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) have been established for six pollutants: O_3, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead (Pb). Brief descriptions of the criteria air pollutants, common sources, and documented health concerns from exposure are provided in Table 5-1.

Table 5-1. Criteria Air Pollutants and Characteristics

Pollutant	Characteristics
Ozone (O_3)	• Colorless gas and secondary pollutant formed by complex atmospheric interactions between two or more reactive organic gas compounds (including volatile organic compounds and nitrogen oxides (NO_X) in the presence of ultraviolet sunlight. Automobile travel and industrial sources are the greatest sources of atmospheric O_3 formation. • Short-term exposure (lasting for a few hours) to O_3 levels typical in Southern California can result in breathing pattern changes, restricted breathing, increased susceptibility to infections, inflammation of the lung tissue, and immunological changes.
Nitrogen Dioxide (NO_2)	• Formed in the atmosphere through chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation and contribute to the formation of PM_{10}. • High concentrations can cause breathing difficulties, are linked to chronic pulmonary fibrosis, an increase of bronchitis in children (2 and 3 years old), and result in a brownish-red cast to the atmosphere with reduced visibility.
Carbon Monoxide (CO)	• Colorless, odorless gas formed by incomplete combustion of fossil fuels (e.g., motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains) • Excess exposure can reduce the blood’s ability to transport oxygen, causing dizziness, fatigue, and impairment of central nervous system functions.
Sulfur Dioxide (SO_2)	• Refers to any compounds of sulfur and oxygen. A colorless, pungent gas that forms primarily through the combustion of sulfur-containing coal and oil. • Stringent controls placed on stationary SO_2 emissions and limits on sulfur content of fuels have reduced atmospheric SO_2 concentrations. Highest levels of SO_2 are found near large industrial complexes (e.g., power plants) and can harm plant leaves and erode iron and steel. • An irritant gas that attacks the throat and lungs; can cause acute respiratory symptoms and diminished lung function in children.

Pollutant	Characteristics
Respirable Particulate Matter (PM_{10})	• Comprising airborne liquid and solid particles (e.g., smoke, soot, dust, salts, acids, and metals) formed by atmospheric chemical reactions of gases emitted from industrial and motor vehicles. • Results from crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. • Collects in the upper portion of the respiratory system and can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections.
Fine Particulate Matter ($PM_{2.5}$)	• Formed in the atmosphere from gases (i.e., sulfur dioxide, nitrogen oxides, and volatile organic compounds) and results from fuel combustion (e.g., motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. • Inhalation (i.e., Pb, sulfates, nitrates, chlorides, ammonia) can be absorbed into the bloodstream and damage human organs, tissues, and cells throughout the body. Suspended $PM_{2.5}$ can damage and discolor surfaces and produce haze and reduce regional visibility.
Lead (Pb)	• Occurs in atmosphere as particulate matter emitted from leaded gasoline combustion; manufacture of batteries, paint, ink, ceramics, and ammunition; and secondary lead smelting facilities. • Phased-out leaded gasoline reduced overall airborne lead by 95 percent between 1978 and 1987. Current emission sources of greater concern include lead smelters, battery recycling, and manufacturing facilities. • Prolonged exposure can lead to serious threats to human health (i.e., gastrointestinal disturbances, anemia, kidney disease, and neuromuscular and neurological dysfunction). Infancy and childhood exposure can impair neurobehavioral performance.

Source: CARB, 2024c

5.1.2.2 Toxic Air Contaminants

Toxic air contaminants (TAC) are generally defined as those air pollutants that may increase a person's risk of developing cancer and/or other serious health effects; however, the emission of a toxic chemical does not automatically create a health hazard. Although NAAQS and CAAQS have been established for criteria pollutants, no ambient standards exist for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, California Air Resources Board has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA, 2015a, 2015b).

Air toxics are generated by many sources, including stationary sources, such as dry cleaners, gas stations, auto body shops, and combustion sources; mobile sources, such as diesel trucks, ships, and trains; and area sources, such as farms, landfills, and construction sites. Adverse health effects of TACs can be carcinogenic (cancer-causing), short-term (acute) non-carcinogenic, and long-term (chronic) non-carcinogenic. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to the brain and nervous system, and respiratory disorders. The principal TAC associated with the Project is DPM emitted during construction activities.

DPM differs from other air toxics in that it is a complex mixture of hundreds of substances rather than a single substance. DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances such as polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB, 2024d). As more than 90 percent of DPM is less than 1 micrometer (μm) in diameter (about 1/70th the diameter of a human hair), the majority of DPM is small enough to be inhaled into the lungs. Although particles the size of DPM can deposit throughout the lung, the largest fraction deposits in the deepest regions of the lungs where the lung is most susceptible to injury. Health effects associated with exposure to DPM include premature death, hospitalizations, and emergency department visits for exacerbated chronic heart and lung disease, including asthma, increased respiratory symptoms, and decreased lung function in children (CARB, 2024d).

The U.S. Environmental Protection Agency (EPA) is tasked with the regulatory authority of monitoring pollutant concentrations and determining whether areas have attained the NAAQS. Those areas with recurring concentrations of criteria pollutants exceeding the air quality standard values are designated as "Nonattainment" of the standard and are required to prepare air quality plans to demonstrate regional control strategies that will reduce emissions.

5.1.3 Regional Attainment Status

EPA is tasked with the regulatory authority of monitoring pollutant concentrations and determining whether areas have attained the NAAQS. Those areas with recurring concentrations of criteria pollutants exceeding the air quality standard values are designated as "Nonattainment" of the standard and are required to prepare air quality plans to demonstrate regional control strategies that will reduce emissions. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Local monitoring data are used to designate areas as nonattainment, maintenance, attainment, or unclassified areas for ambient air quality standards. The four designations are defined as follows.

- Nonattainment—assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- Maintenance—assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- Attainment—assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- Unclassified—assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table 5-2 presents the attainment status designations for the non-desert portion of Los Angeles County within the SCAQMD jurisdiction. The Basin portion of Los Angeles County is currently designated nonattainment of the NAAQS for O_3 and $PM_{2.5}$, and is designated nonattainment of the CAAQS for O_3, PM_{10}, and $PM_{2.5}$.

Table 5-2. Attainment Status Designations – South Coast Air Basin Portion of Los Angeles County

Pollutant	Averaging Time	CAAQS Status	NAAQS Status
Ozone (O_3)	1-Hour	Nonattainment	Nonattainment (Extreme)
	8-Hour	Nonattainment	Nonattainment (Extreme)
Carbon Monoxide (CO)	1-Hour	Attainment	Attainment (Maintenance)
	8-Hour	Attainment	Attainment (Maintenance)
Nitrogen Dioxide (NO_2)	1-Hour	Attainment	Unclassifiable/Attainment
	Annual Average	Attainment	Attainment (Maintenance)
Sulfur Dioxide (SO_2)	1-Hour	Attainment	Unclassifiable/Attainment
	24-Hour	Attainment	Unclassifiable/Attainment
Respirable Particulate Matter (PM_{10})	24-Hour	Nonattainment	Attainment (Maintenance)
	Annual Average	Nonattainment	No Federal Standard
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No State Standard	Nonattainment (Serious)
	Annual Average	Nonattainment	Nonattainment (Moderate)
Lead (Pb)	30-Day Average	Attainment	No Federal Standard
	3-Month Average	Attainment	Nonattainment (Partial)

Source: CARB, 2024b; EPA, 2024

CAAQS = California Ambient Air Quality Standards
NAAQS = National Ambient Air Quality Standards

5.1.4 Local Air Quality

The attainment status designations are based on concentrations of air pollutants measured at air monitoring sites throughout the Basin. The SCAQMD divides the Basin into 38 Source Receptor Areas (SRA), the boundaries of which were determined by the proximity to the nearest air monitoring station and local topography and meteorological patterns. The SCAQMD operates a total of 34 air monitoring sites that are used to characterize air quality within the 38 SRAs. The Project Study Area predominately transects portions of SRA 6 (West San Fernando Valley) and SRA 7 (East San Fernando Valley) in the northern portion and SRA 2 (Northwest Coastal Los Angeles County) in the southern portion. However, although project alternatives are included in SRA 7 (East San Fernando Valley), there is no longer an active monitoring station in this SRA; therefore, the SRA 6 monitoring station data was used. Figure 5-1 displays the Project Study Area overlain on the portions of the SCAQMD SRAs that it covers, as well as the locations of monitoring stations in SRA 2 (West Los Angeles – Veterans Administration monitoring site) and SRA 6 (Reseda monitoring site). The following discussions address pollutant concentrations measured at stations from 2021 to 2023.

Figure 5-1. SCAQMD Source Receptor Areas in Project Study Area

Source: HTA, 2024

Table 5-3 presents pollutant concentrations measured at the Reseda monitoring station that provides data representative of air quality conditions within SRA 6. As shown in Table 5-3, concentrations of O_3 exceeded applicable standards numerous times during the most recent three-year period of data available. The 24-hour federal standard for $PM_{2.5}$ was also exceeded for one year during this period. The air monitoring data recorded at the Reseda monitoring station reflects the nonattainment status of the Basin portion of Los Angeles County for O_3 and $PM_{2.5}$. The Reseda monitoring station is not equipped to measure concentrations of PM_{10}. Concentrations of all other pollutants monitored at this site remained below applicable federal and state air quality standards, consistent with the attainment or maintenance designations corresponding to the Basin portion of Los Angeles County.

Table 5-3. Reseda Air Monitoring Station Data (SRA 6)

Pollutant	Averaging Time	Maximum Concentrations and Frequencies of Exceeded Standards		
		2021	2022	2023
Ozone (O_3)	Maximum 1-Hour Concentration (ppm)	0.110	0.11	0.104
	Days > 0.09 ppm (CAAQS)	4	7	10
	Maximum 8-Hour Concentration (ppm)	0.083	0.096	0.096
	Days >0.070 ppm (NAAQS/CAAQS)	33	24	30
Carbon Monoxide (CO)	Maximum 1-Hour Concentration (ppm)	2.6	2.2	2.3
	Days > 20 ppm (CAAQS)	0	0	0
	Maximum 8-Hour Concentration (ppm)	1.9	1.8	1.7
	Days >9.0 ppm (NAAQS/CAAQS)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-Hour Concentration (ppm)	0.0542	0.0547	0.0481
	Days > 0.10 ppm (NAAQS)	0	0	0
	Annual Average Concentration (ppm)	0.010	0.010	0.010
	>0.030 ppm (CAAQS)	0	0	0
Respirable Particulate Matter (PM_{10})	Maximum 24-Hour Concentration (µg/m^3)	—	—	—
	Days > 150 µg/m^3 (NAAQS)			
	Days > 50 µg/m^3 (CAAQS)			
	Annual Average Concentration (µg/m^3)	—	—	—
	> 20 µg/m^3 (CAAQS)			
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration (µg/m^3)	55.5	20.5	21.9
	Days > 35 µg/m^3 (NAAQS)	3	0	0
	Annual Average Concentration (µg/m^3)	10.1	8.8	8.8
	> 12 µg/m^3 (CAAQS)	No	No	No
	> 9 µg/m^3 (NAAQS)	No[a]	No	No

Source: SCAQMD, 2024

[a]The federal standard for annual $PM_{2.5}$ was revised to 9 µg/m^3 in 2024 (CARB, 2024e). Prior to 2024, the federal standard was 12 µg/m^3, therefore, concentrations in 2021 would not have exceeded the federal standard for annual $PM_{2.5}$.

— = no data
\> = greater than
µg/m^3 = micrometers per cubic meter
CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard
ppm = parts per million
SRA = source receptor area

Table 5-4 presents pollutant concentrations measured at the West Los Angeles-Veterans Administration monitoring station that provides data representative of air quality conditions within SRA 2. Concentrations of O_3 exceeded applicable standards numerous times during the most recent three-year period of data available as shown in Table 5-4. The air monitoring data recorded at the West Los Angeles-Veterans Administration monitoring station reflects the nonattainment status of the Basin portion of Los Angeles County for the O_3. The West Los Angeles-Veterans Administration monitoring station is not equipped to measure concentrations of particulate matter (PM_{10} and $PM_{2.5}$). Concentrations of all other pollutants monitored at this site remained below applicable federal and state air quality standards, consistent with the attainment or maintenance designations corresponding to the Basin portion of Los Angeles County.

Table 5-4. West Los Angeles - Veterans Administration Air Monitoring Station Data (SRA 2)

Pollutant	Averaging Time	Maximum Concentrations and Frequencies of Exceeded Standards		
		2021	2022	2023
Ozone (O_3)	Maximum 1-Hour Concentration (ppm)	0.095	0.081	0.109
	Days > 0.09 ppm (CAAQS)	1	0	1
	Maximum 8-Hour Concentration (ppm)	0.082	0.07	0.066
	Days >0.070 ppm (NAAQS/CAAQS)	1	0	0
Carbon Monoxide (CO)	Maximum 1-Hour Concentration (ppm)	2	1.7	1.4
	Days > 20 ppm (CAAQS)	0	0	0
	Maximum 8-Hour Concentration (ppm)	1.6	1.5	1.2
	Days >9.0 ppm (NAAQS/CAAQS)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-Hour Concentration (ppm)	0.061	0.051	0.044
	Days > 0.10 ppm (NAAQS)	0	0	0
	Annual Average Concentration (ppm)	0.010	0.011	0.009
	>0.030 ppm (CAAQS)	No	No	No
Respirable Particulate Matter (PM_{10})	Maximum 24-Hour Concentration (µg/m^3) Days > 150 µg/m^3 (NAAQS) Days > 50 µg/m^3 (CAAQS)	—	—	—
	Annual Average Concentration (µg/m^3) > 20 µg/m^3 (CAAQS)	—	—	—
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration (µg/m^3) Days > 35 µg/m^3 (NAAQS)	—	—	—
	Annual Average Concentration (µg/m^3) > 12 µg/m^3 (NAAQS/CAAQS) **>** 9 µg/m^3 (NAAQS)	—	—	—

Source: SCAQMD, 2024

— = no data
µg/m^3 = micrometers per cubic meter
CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard
ppm = parts per million
SRA = source receptor area

5.1.5 Ambient Carcinogenic Risk

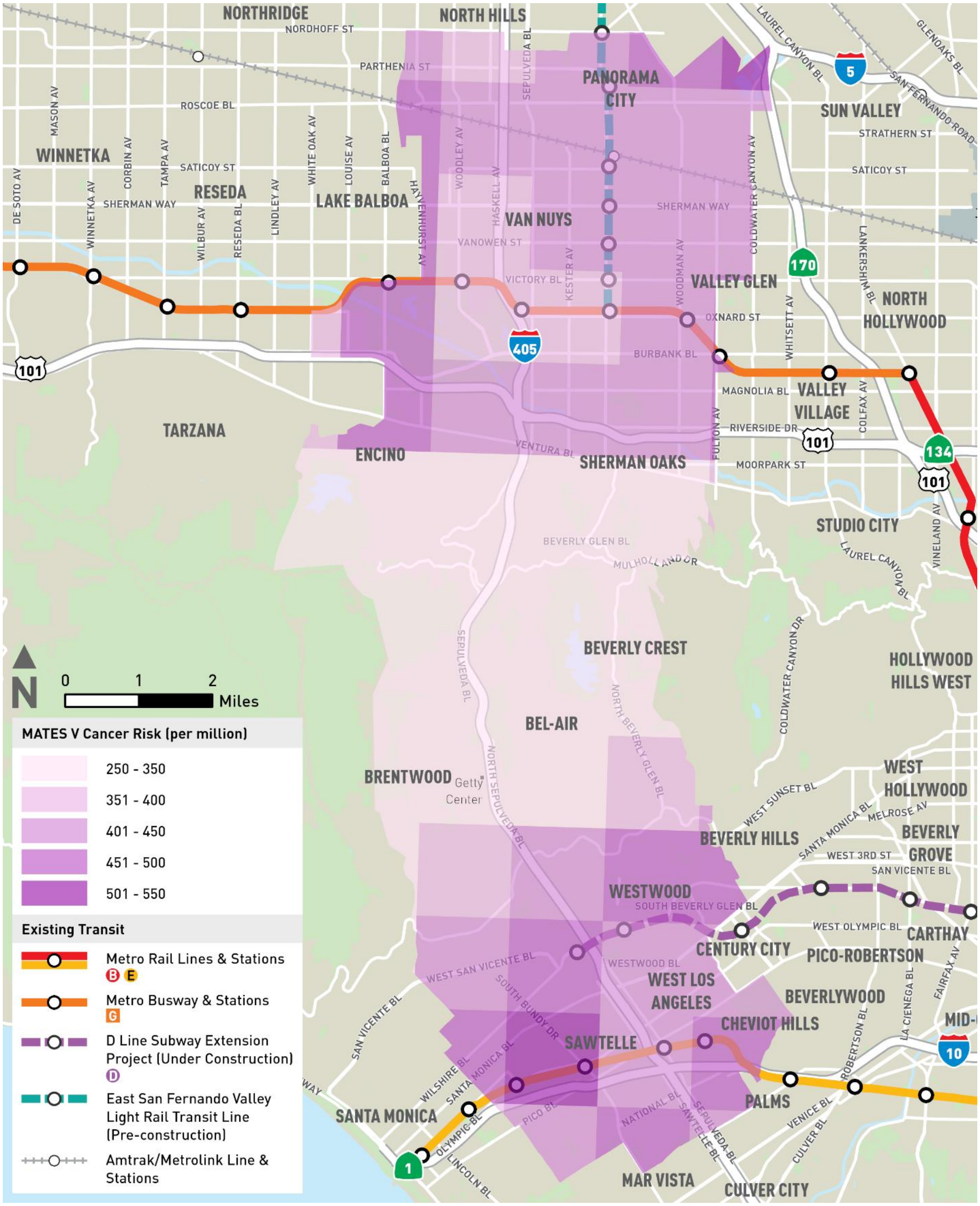
The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study conducted by the SCAQMD throughout the Basin, the first of which was published in 1986 to determine Basin-wide risks associated with major airborne carcinogens (pollutants that are scientifically documented to cause cancer). The most recent study is the MATES V published in 2021.

MATES V was based on measurements during 2018 and 2019, and a modeling analysis based on emissions inventory data for 2018. A network of 10 fixed sites was used to monitor over 30 TACs once every six days over the course of a year between 2018 and 2019, and computer modeling was used to estimate air toxic levels throughout the Basin based on ambient concentrations and the emissions inventory. MATES V included methodology updates compared to previous versions, these included estimating cancer risk via inhalation and non-inhalation pathways rather than only the inhalation pathway. MATES V also estimated non-cancer health impacts via the inhalation and non-inhalation pathways, whereas previous versions did not estimate non-cancer risks. With MATES V including inhalation and non-inhalation pathways, cancer risk estimates were eight percent higher than the inhalation-only estimates (SCAQMD, 2021b).

MATES V found that air toxic levels continue to decline compared to previous MATES versions. As part of MATES V, SCAQMD developed a cancer risk map that plotted the modeled cancer risk on a grid spanning the Basin. Each grid cell is characterized by the modeled cancer risk produced by MATES V. Cancer risk is expressed as the number of extra cancer cases occurring over a 70-year lifetime per one million people exposed to toxic air contaminants. MATES V estimated cancer risk in the Basin ranged from 585 to 842 per million. Similar to previous MATES studies, the SCAQMD determined that DPM is the largest contributor to air toxics cancer risk. However, at the 10 monitoring stations, DPM levels were 53 percent lower compared to MATES IV and 86 percent lower than MATES II (SCAQMD, 2021b).

Figure 5-2 shows the Project Study Area overlain on the MATES V Estimated Risk grid developed by SCAQMD. Ambient estimated risks in the Project Study Area range from approximately 250 per million to 550 per million according to MATES V modeling results.

Figure 5-2. MATES V Estimated Cancer Risk in the Project Study Area



Source: SCAQMD, 2021b

5.1.6 Sensitive Receptors

Sensitive individuals refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses where sensitive individuals are most likely to spend extended periods of time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (SCAQMD, 1993). These types of land uses are considered sensitive receptors in air quality planning and are located throughout the Project Study Area. Under the No Project Alternative, the locations of sensitive receptors would not change as project alternatives would not be constructed.

5.1.7 Regional Highway Emissions

As required by the California Environmental Quality Act, existing conditions (Baseline 2021) emissions from regional mobile sources were estimated in the analysis for comparison with project alternatives for informational purposes only. As discussed in Section 3.6, air quality impacts for project alternatives would be evaluated by the net change in emissions between project alternatives and 2045 without Project conditions. Table 5-5 summarizes the criteria pollutant emissions for existing conditions and 2045 without Project conditions.

Table 5-5. Existing Conditions (Baseline Year 2021) and 2045 without Project Conditions Regional Mobile Source Criteria Pollutant Emissions

Project Alternative	Daily VMT[a]	Daily Emissions (lbs/day)					
		VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Existing Conditions (2021)	456,869,300	27,490	222,016	1,219,501	3,920	329,216	86,051
2045 without Project Conditions	568,557,200	8,987	88,927	623,264	3,487	408,902	105,487

Source: HTA, 2024

[a]VMT data provided from *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a) used 2019 as the base year for the VMT analysis because it is the most recent year for which Metro's CBM18B Transportation Analysis Model has been calibrated.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SO_2 = sulfur dioxide
VMT = vehicle miles traveled
VOC = volatile organic compounds

5.2 Impacts Evaluation

5.2.1 Impact AQ-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?

5.2.1.1 Operational Impacts

The Project, identified as project number 1160001 (Sepulveda Pass Transit Corridor Phase 2), is included in the SCAG Connect SoCal 2024. Connect SoCal 2024 is Southern California's long-range Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS), which serves as the foundation for estimating the region's transportation sector air pollutant emissions through 2050. The SCAG

General Council adopted the plan on April 4, 2024. The Federal Highway Administration and the FTA found the plan to conform to the State Implementation Plan (SIP) on May 10, 2024. Transportation projects identified in a conforming RTP are consistent with the emissions reduction strategies outlined in the applicable regional Air Quality Management Plan (AQMP).

The region's 2022 AQMP was adopted by SCAQMD's Governing Board on December 2, 2022. The 2022 AQMP outlines comprehensive control strategies to meet particulate matter ($PM_{2.5}$), ozone (O_3), and lead (Pb) standards, and to maintain carbon monoxide (CO), nitrogen dioxide (NO_2), and PM_{10} standards. Transportation projects identified in a currently conforming RTP are consistent with the transportation sector emissions budgets used in the formulation of the regional AQMP. Under the No Project Alternative, the project alternatives would not be constructed. Because the Project was included in SCAG's RTP and SCAQMD's AQMP, the No Project Alternative would conflict with these planning documents. Therefore, the No Project Alternative would conflict with the 2022 AQMP, and would result in a significant and unavoidable impact.

5.2.1.2 Construction Impacts

The No Project Alternative includes modifications to Metro Line 761. The modifications would include the construction of additional bus stops for Metro Line 761 to facilitate route changes under the No Project Alternative. Construction of Metro Line 761 elements would be temporary and conform with applicable federal, state, regional, and local regulations and standards related to criteria pollutant emissions. Additionally, the project would undergo project-specific environmental clearance and would implement project-specific mitigation measures, as necessary to avoid or minimize potential criteria pollutant impacts. Construction of additional bus stops along Metro Line 761 would result in minimal criteria pollutant emissions as installation of bus stop components (benches, enclosures, signage, etc.) could be installed in a few days and would not require substantial amounts of off-road equipment or truck hauling. Construction of the bus stops would be conducted in accordance with measures in Metro's *Green Construction Policy* to reduce criteria pollutant emissions where possible. Overall, because project alternatives would not be constructed under the No Project Alternative and construction of additional bus stops along Metro Line 761 would result in minimal criteria pollutant emissions and comply with Metro's *Green Construction Policy*, criteria pollutants generated under the No Project Alternative would be nominal and would not conflict with emission reduction goals in the 2022 AQMP, therefore, construction impacts for the No Project Alternative would be less than significant.

5.2.2 Impact AQ-2: Would the project result in cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under and applicable federal or state ambient air quality standard?

5.2.2.1 Operational Impacts

The No Project Alternative regional criteria pollutant emissions were estimated for two scenarios: No Project Alternative compared to 2045 without Project conditions and No Project Alternative compared to Existing Conditions 2021. As discussed in Section 3.6, CEQA Thresholds of Significance, regional emissions impacts would be evaluated based on the net change in emissions between project alternatives in Horizon Year 2045 and 2045 without Project conditions. The comparison for the No Project Alternative and Existing Conditions 2021 is presented for informational purposes only.

The No Project Alternative includes modifications to Metro Line 761. The modifications would include the construction and operation of additional bus stops for Metro Line 761 to facilitate route changes under the No Project Alternative. The additional bus stops related to Metro Line 761 would not be a source of emissions when operational. Regional highway traffic emissions would be the same under the No Project Alternative and 2045 without Project conditions because project build alternatives would not be implemented. Because the No Project Alternative highway traffic emissions would be the same as 2045 without Project conditions (projected future conditions baseline), there would be no increase in criteria pollutant emissions relative to the baseline on the project level under the No Project Alternative. Therefore, criteria pollutant emissions under the No Project Alternative would not result in a net increase of criteria pollutant emissions and impacts would be less than significant.

SCAQMD's cumulative air quality impact methodology indicates that if an individual project results in air emissions of criteria pollutants that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. Because the No Project Alternative net operational emissions would not result in an increase in criteria pollutant emissions compared to 2045 without Project conditions, then the No Project Alternative would not exceed the applicable SCAQMD's regional operational significance thresholds and the No Project Alternative operational emissions would not be cumulatively considerable. Additionally, recognizing that SCAQMD's regional significance thresholds were established to achieve attainment of the NAAQS and CAAQS, which in turn define the maximum amount of an air pollutant that can be present in ambient air without harming public health, the No Project Alternative's contribution of pollutant emissions would not result in measurable human health impacts on a regional scale. Overall, the No Project Alternative operational emissions would not be cumulatively considerable and impacts would be less than significant.

As discussed above, the comparison for the No Project Alternative and Existing Conditions 2021 is presented for informational purposes only. Criteria pollutant emissions from the No Project Alternative represent a future condition from existing conditions where the changes are solely due to growth in regional traffic and planned service changes. No new track installation, stations, or maintenance and storage facility (MSF) would be constructed nor operated under the No Project Alternative. The No Project Alternative would only include installation of the additional bus stops to facilitate the expanded service of Metro 761. The additional bus stops would not generate criteria pollutant emissions when operational.

Table 5-6 compares criteria pollutant emissions from the No Project Alternative compared to existing conditions. As shown in Table 5-6, the No Project Alternative would exceed SCAQMD's regional significance thresholds for PM_{10} and $PM_{2.5}$ when compared to existing conditions. All other criteria pollutants would be below regional significance thresholds and even result in a net decrease in peak daily emissions of VOCs, NO_X, CO, and SO_2. The significant increase in PM is attributable to background growth in regional vehicle miles traveled (VMT) from 2021 to 2045 and PM fugitive dust emission factors (i.e., the combination of tire wear, brake wear, and resuspended road dust) that comprise greater than 90 percent of the total per-mile emission factors for PM_{10} and $PM_{2.5}$. Fugitive dust emission factors for tire wear, brake wear, and paved roads remain relatively constant over this time frame, whereas exhaust emission factors tend to decrease in future years due to expected improvements in vehicle engine technology, fuel efficiency, and turnover in older, more heavily polluting vehicles. Consequently, the No Project Alternative results in a net increase in PM_{10} and $PM_{2.5}$ emissions that exceed SCAQMD regional significance thresholds.

Table 5-6. Peak Daily Regional Operational Criteria Pollutant Emissions for No Project Alternative Compared to the Existing Conditions (Baseline Year 2021)

Project Alternative	Daily VMT[a]	Daily Emissions (lbs/day)					
		ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Existing Conditions (2021)	456,869,300	27,490	222,016	1,219,501	3,920	329,216	86,051
No Project (2045) W/O	568,557,200	8,987	88,927	623,264	3,487	408,902	105,487
No Project (2045) W/P	568,557,200	8,987	88,927	623,264	3,487	408,902	105,487
Net Change (2045 W/P – 2021)	**111,687,900**	**-18,503**	**-133,089**	**-596,237**	**-433**	**79,686**	**19,436**
SCAQMD Regional Significance Thresholds		55	55	550	150	150	55
Threshold Exceeded?		No	No	No	No	**Yes**	**Yes**
Net Change (2045 W/P – W/O)	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SCAQMD Regional Significance Thresholds		55	55	550	150	**150**	**55**
Threshold Exceeded?		No	No	No	No	No	No

Source: HTA, 2024

[a]VMT data provided from *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a) used 2019 as the base year for the VMT analysis because it is the most recent year for which Metro's CBM18B Transportation Analysis Model has been calibrated.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SO_2 = sulfur dioxide
VMT = vehicle miles traveled

W/O = 2045 without Metro Line 761 improvements

W/P = 2045 with Metro Line 761 improvements

Construction Impacts

The No Project Alternative includes modifications to Metro Line 761. The modifications would include the construction of additional bus stops for Metro Line 761 to facilitate route changes under the No Project Alternative. Construction of Metro Line 761 elements would be temporary and conform with applicable federal, state, regional, and local regulations and standards related to criteria pollutant emissions. Additionally, the project would undergo project-specific environmental clearance and would implement project-specific mitigation measures, as necessary to avoid or minimize potential criteria pollutant impacts. Construction of additional bus stops along Metro Line 761 would result in minimal criteria pollutant emissions as installation of bus stop components (benches, enclosures, signage, etc.) could be installed in a few days and would not require substantial amounts of off-road equipment or truck hauling. Overall, because project alternatives would not be constructed under the No Project Alternative and construction of additional bus stops along Metro Line 761 would result in minimal criteria pollutant emissions, criteria pollutants generated under the No Project Alternative would be nominal and impacts would be less than significant.

5.2.3 Impact AQ-3: Would the project expose sensitive receptors to substantial pollutant concentrations?

The term sensitive receptor refers to receptors located at land uses associated with people who are considered to be more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirmed are more susceptible to respiratory distress and other air quality-related health problems on average than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality.

5.2.3.1 Operational Impacts

Localized Emissions Analysis

The No Project Alternative includes modifications to Metro Line 761. Additional bus stops for Metro Line 761 may be constructed and operated to facilitate route changes under the No Project Alternative. No new track installation, stations, or MSF would be constructed nor operated under the No Project Alternative. Based on SCAQMD’s Localized Significance Threshold Methodology, localized emissions are considered emissions that are generated on-site and exclude mobile source emissions generated off-site. Because the No Project Alternative emissions are solely related to mobile sources, the No Project Alternative would not generate localized criteria pollutant emissions during operations. The additional bus stops related to Metro Line 761 would not be a source of emissions when operational. Overall, no impact would occur under the No Project Alternative.

Carbon Monoxide Hot Spots

The No Project Alternative includes modifications to Metro Line 761. No new track installation, stations, or MSF would be constructed nor operated under the No Project Alternative. The No Project Alternative would not change the existing traffic volumes at local intersections, no impact would occur under the No Project Alternative.

5.2.3.2 Construction Impacts

The No Project Alternative includes modifications to Metro Line 761. The modifications would include the construction of additional bus stops for Metro Line 761 to facilitate route changes under the No Project Alternative. Construction of Metro Line 761 elements would be temporary and conform with applicable federal, state, regional, and local regulations and standards related to criteria pollutant emissions. Additionally, the project would undergo project-specific environmental clearance and would implement project-specific mitigation measures, as necessary to avoid or minimize potential criteria pollutant impacts. Construction of additional bus stops along Metro Line 761 would result in minimal criteria pollutant emissions as installation of bus stop components (benches, enclosures, signage, etc.) could be installed in a few days and would not require substantial amounts of off-road equipment or truck hauling. Overall, because project alternatives would not be constructed under the No Project Alternative and construction of additional bus stops along Metro Line 761 would result in minimal criteria pollutant and TAC emissions, sensitive receptors would not be exposed to substantial pollutant concentrations and impacts would be less than significant under the No Project Alternative.

5.2.4 Impact AQ-4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

5.2.4.1 Operational Impacts

The No Project Alternative includes modifications to Metro Line 761. Additional bus stops for Metro Line 761 may be constructed and operated to facilitate route changes under the No Project Alternative. No new track installation, stations, or MSF would be constructed nor operated under the No Project Alternative and no odors would be generated. The additional bus stops related to Metro Line 761 would not be a source of odors when operational. Overall, because project alternatives would not be operated under the No Project Alternative and odors would not be generated from operations, no impact would occur under the No Project Alternative.

5.2.4.2 Construction Impacts

The No Project Alternative includes modifications to Metro Line 761. The modifications would include the construction of additional bus stops for Metro Line 761 to facilitate route changes under the No Project Alternative. Additionally, the project would undergo project-specific environmental clearance and would implement project-specific mitigation measures, as necessary to avoid or minimize potential odor impacts. Construction of additional bus stops along Metro Line 761 would result in minimal construction activity associated with installation of bus stop components (benches, enclosures, signage, etc.). These components could be installed in a few days and would not require substantial amounts of off-road equipment or truck hauling which are typical sources of odors related to engine exhaust. Due to the limited construction activity, construction related to the additional bus stops for Metro Line 761 would not be a significant source of odors. Overall, because project alternatives would not be constructed under the No Project Alternative and construction of additional bus stops along Metro Line 761 would result in minimal construction activity, the No Project Alternative would generate minimal odors and would not affect a substantial number of people. Therefore, odor impacts for the No Project Alternative would be less than significant.

5.3 Mitigation Measures

5.3.1 Operational Impacts

No feasible mitigation measures exist.

5.3.2 Construction Impacts

No mitigation measures are required.

5.3.3 Impacts After Mitigation

The Project is included in SCAG's 2024-2050 RTP/SCS as the "Sepulveda Pass Transit Corridor (Phase 2)." Since project alternatives would not be constructed under the No Project Alternative, the No Project Alternative would not be consistent with the 2022 AQMP, resulting in a significant and unavoidable impact. There are no feasible mitigation measures; therefore, operational impacts would remain significant and unavoidable as it would conflict with adopted air quality plans.

6 ALTERNATIVE 1

6.1 Alternative Description

Alternative 1 is an entirely aerial monorail alignment that would run along the Interstate 405 (I-405) corridor and would include eight aerial monorail transit (MRT) stations and a new electric bus route from the Los Angeles County Metropolitan Transportation Authority's (Metro) D Line Westwood/VA Hospital Station to the University of California, Los Angeles (UCLA) Gateway Plaza via Wilshire Boulevard and Westwood Boulevard. This alternative would provide transfers to five high-frequency fixed guideway transit and commuter rail lines, including the Metro E, Metro D, and Metro G Lines, the East San Fernando Valley Light Rail Transit Line, and the Metrolink Ventura County Line. The length of the alignment between the terminus stations would be approximately 15.1 miles. The length of the bus route would be 1.5 miles.

The eight aerial MRT stations and three bus stops would be as follows:

1. Metro E Line Expo/Sepulveda Station (aerial)
2. Santa Monica Boulevard Station (aerial)
3. Wilshire Boulevard/Metro D Line Station (aerial)
    a. Wilshire Boulevard/VA Medical Center bus stop
    b. Westwood Village bus stop
    c. UCLA Gateway Plaza bus stop
4. Getty Center Station (aerial)
5. Ventura Boulevard/Sepulveda Boulevard Station (aerial)
6. Metro G Line Sepulveda Station (aerial)
7. Sherman Way Station (aerial)
8. Van Nuys Metrolink Station (aerial)

6.1.1 Operating Characteristics

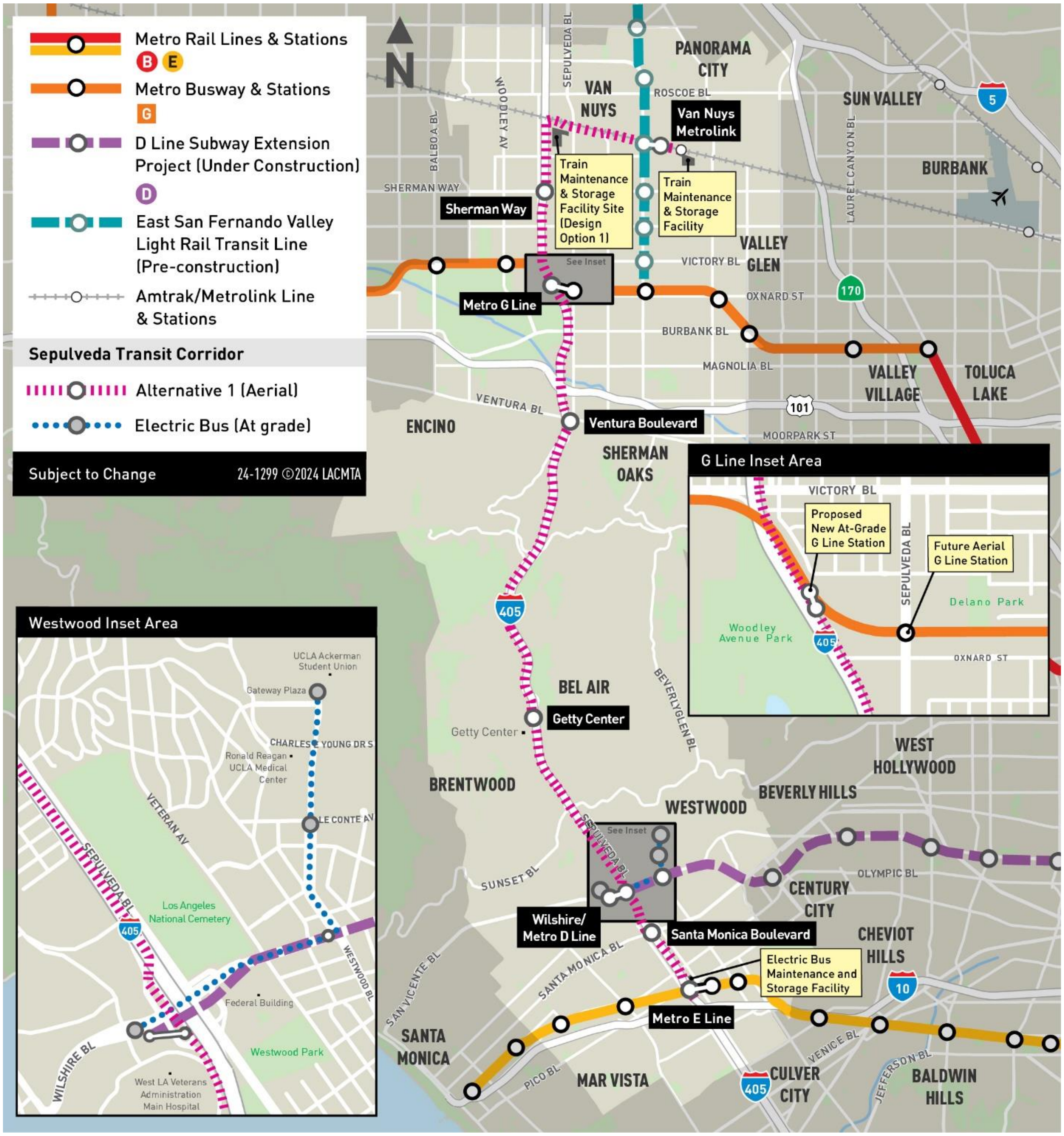
6.1.1.1 Alignment

As shown on Figure 6-1, from its southern terminus at the Metro E Line Expo/Sepulveda Station, the alignment of Alternative 1 would generally follow I-405 to the Los Angeles-San Diego-San Luis Obispo (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 U.S. Highway 101 (US-101), the alignment would be on the east side of the I-405 right-of-way 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 would extend just south of the station adjacent to the eastbound Interstate 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 6-1. 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 I-405 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 (Valley).

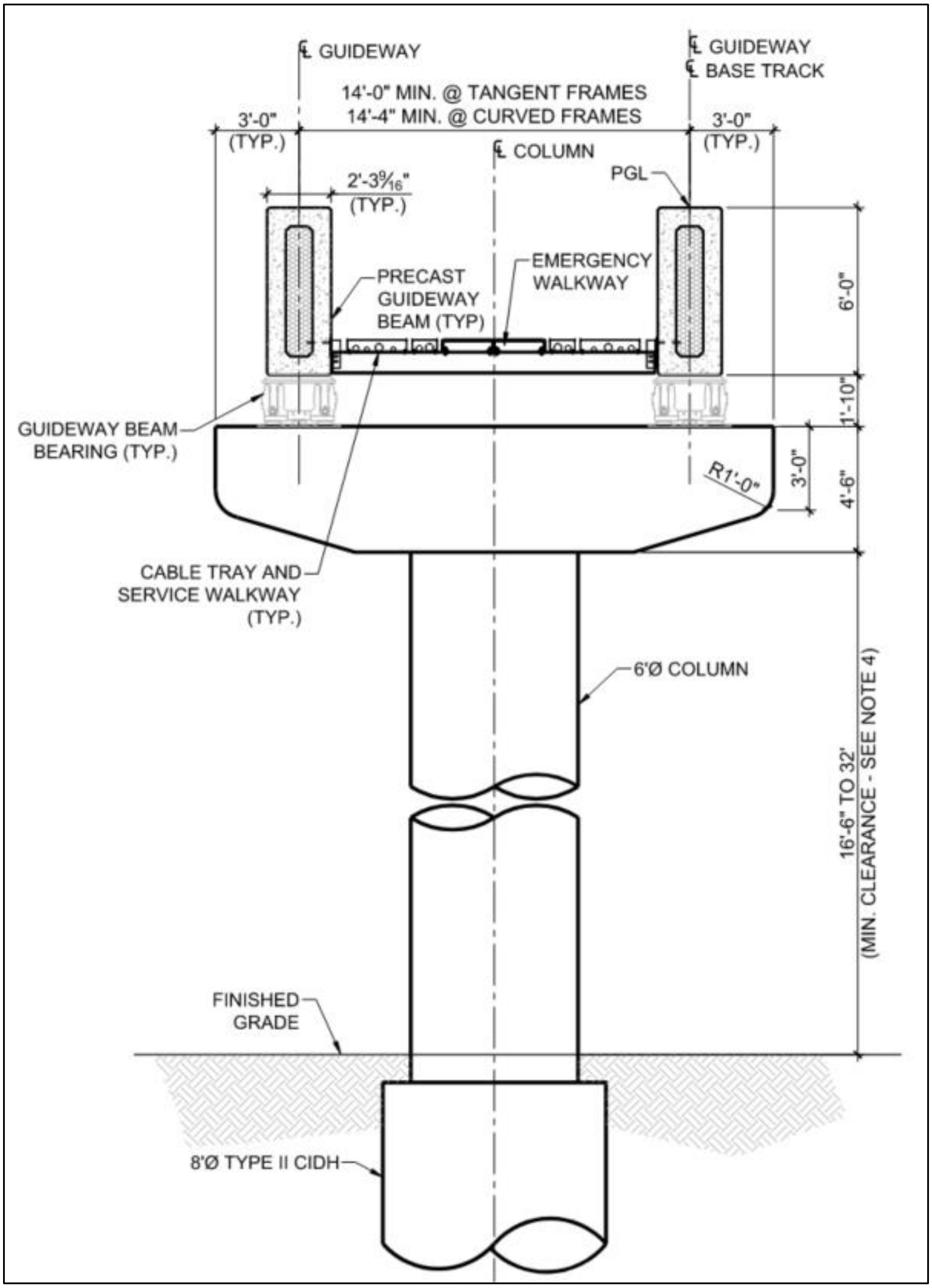
Near Greenleaf Street, the alignment would cross over the northbound freeway lanes and northbound on-ramps toward the proposed Ventura Boulevard Station on the east side of I-405. This station would be located above a transit plaza and would replace an existing segment of Dickens Street adjacent to I-405, just south of Ventura Boulevard. Immediately north of the Ventura Boulevard Station, the alignment would cross over northbound I-405 to the 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 6-1.

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.

6.1.1.2 Guideway Characteristics

The monorail alignment of Alternative 1 would be entirely aerial, utilizing 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 supported by either a single-column or a straddle-bent structure. Figure 6-2 shows a typical cross-section of the aerial monorail guideway.

Figure 6-2. Typical Monorail Guideway Cross-Section

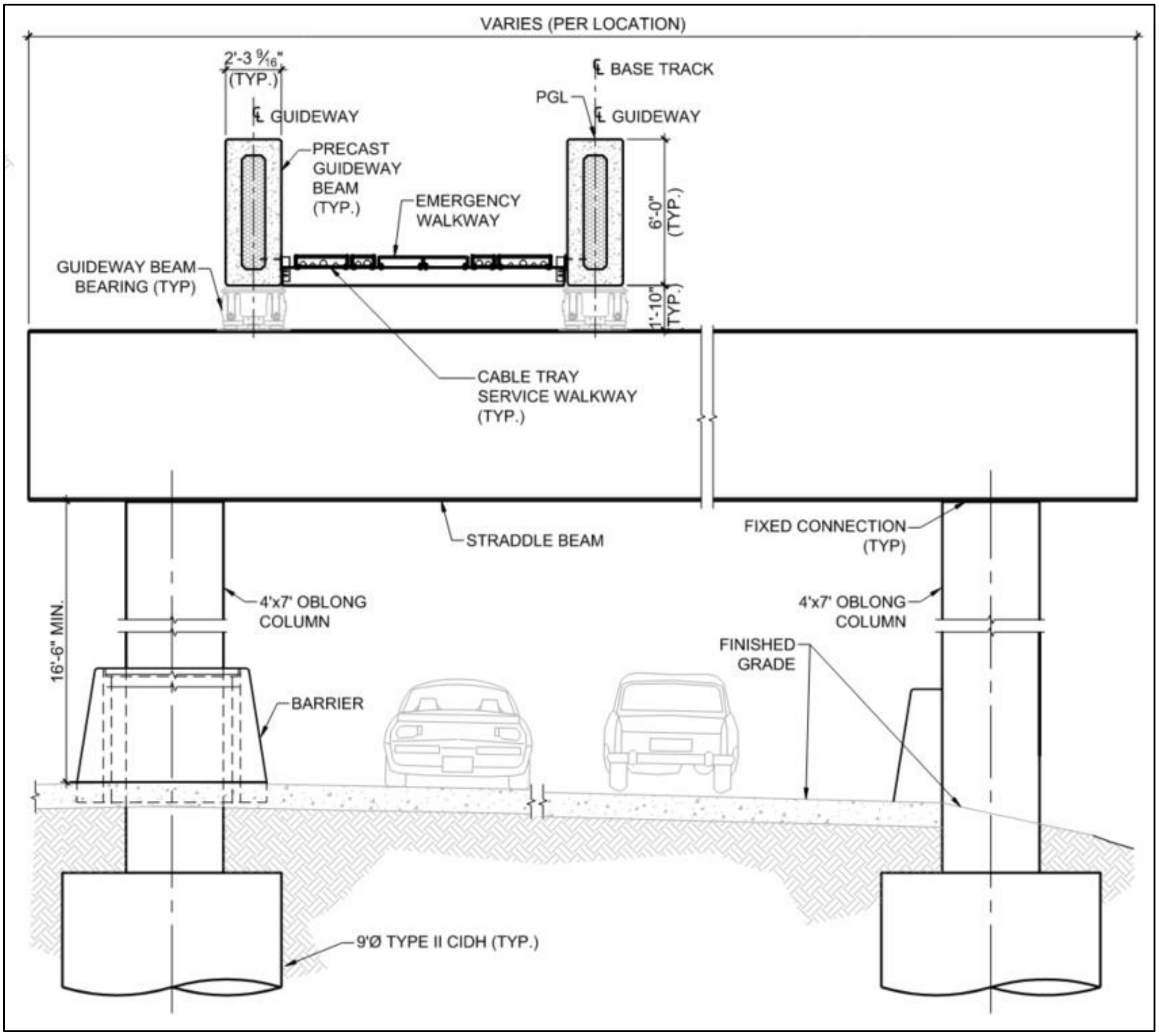


Source: LASRE, 2024

On a typical guideway section (i.e., not at a station), guide beams would rest on 20-foot-wide column caps (i.e., the structure connecting the columns and the guide beams), with typical spans (i.e., the distance between columns) ranging from 70 to 190 feet. The bottom of the column caps would typically be between 16.5 feet and 32 feet above ground level.

Over certain segments of roadway and freeway facilities, a straddle-bent configuration, as shown on Figure 6-3, consisting of two concrete columns constructed outside of the underlying roadway would be used to support the guide beams and column cap. 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 6-3. Typical Monorail Straddle-Bent Cross-Section



Source: LASRE, 2024

Structural support columns would vary in size and arrangement by alignment location. Columns would be 6 feet in diameter along main alignment segments adjacent to I-405 and be 4 feet wide by 6 feet long in the I-405 median. Straddle-bent columns would be 4 feet wide by 7 feet long. At stations, six rows of dual 5-foot by- 8-foot columns would support the aerial guideway. 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 would be used to protect the columns. Columns would have a cast-in-drilled-hole (CIDH) pile foundation extending 1 foot in diameter beyond the column width with varying depths for appropriate geotechnical considerations and structural support.

6.1.1.3 Vehicle Technology

Alternative 1 would utilize straddle-beam monorail technology, which allows the monorail vehicle to straddle a guide beam that both supports and guides the vehicle. Rubber tires would sit both atop and on each side of the guide beam to provide traction and guide the train. Trains would be automated and powered by power rails mounted to the guide beam, with planned peak-period headways of 166 seconds and off-peak-period headways of 5 minutes. Monorail trains could consist of up to eight cars. Alternative 1 would have a maximum operating speed of 56 miles per hour; actual operating speeds would depend on the design of the guideway and distance between stations.

Monorail train cars would be 10.5 feet wide, with two double doors on each side. End cars would be 46.1 feet long with a design capacity of 97 passengers, and intermediate cars would be 35.8 feet long and have a design capacity of 90 passengers.

The electric bus connecting the Wilshire Boulevard/Metro D Line Station, Westwood Village, and UCLA Gateway Plaza would be a battery electric, low-floor transit bus, either 40 or 60 feet in length. The buses would run with headways of 2 minutes during peak periods. The electric bus service would operate in existing mixed-flow travel lanes.

6.1.1.4 Stations

Alternative 1 would include eight aerial MRT stations with platforms approximately 320 feet long, elevated 50 feet to 75 feet above the existing ground level. The Metro E Line Expo/Sepulveda, Santa Monica Boulevard, Ventura Boulevard/Sepulveda Boulevard, Sherman Way, and Van Nuys Metrolink Stations would be center-platform stations where passengers would travel up to a shared platform that would serve both directions of travel. The Wilshire Boulevard/Metro D Line, Getty Center, and Metro G Line Sepulveda Stations would be side-platform stations where passengers would select and travel up to one of two station platforms, depending on their direction of travel. 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 from ground level to the concourse.

Station platforms would be approximately 320 feet long and would be supported by six rows of dual 5-foot by 8-foot columns. Station platforms would be covered, but not enclosed. Side-platform stations would be 61.5 feet wide 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 be 49 feet wide, with a 25-foot-wide center platform.

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

The following information describes each station, with relevant entrance, walkway, and transfer information. Bicycle parking would be provided at each station.

Metro E Line Expo/Sepulveda Station

- 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.
- 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.

Santa Monica Boulevard Station

- 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.

Wilshire Boulevard/Metro D Line Station

- 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 provided in the Metro D Line Station.
- 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.

Getty Center Station

- 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.

Ventura Boulevard/Sepulveda Boulevard Station

- 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.

Metro G Line Sepulveda Station

- 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 bus rapid transit (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.
- 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.

Sherman Way Station

- 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.

Van Nuys Metrolink Station

- 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.
- Existing Metrolink 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.

6.1.1.5 Station-to-Station Travel Times

Table 6-1 presents the station-to-station distance 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 6-1. 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

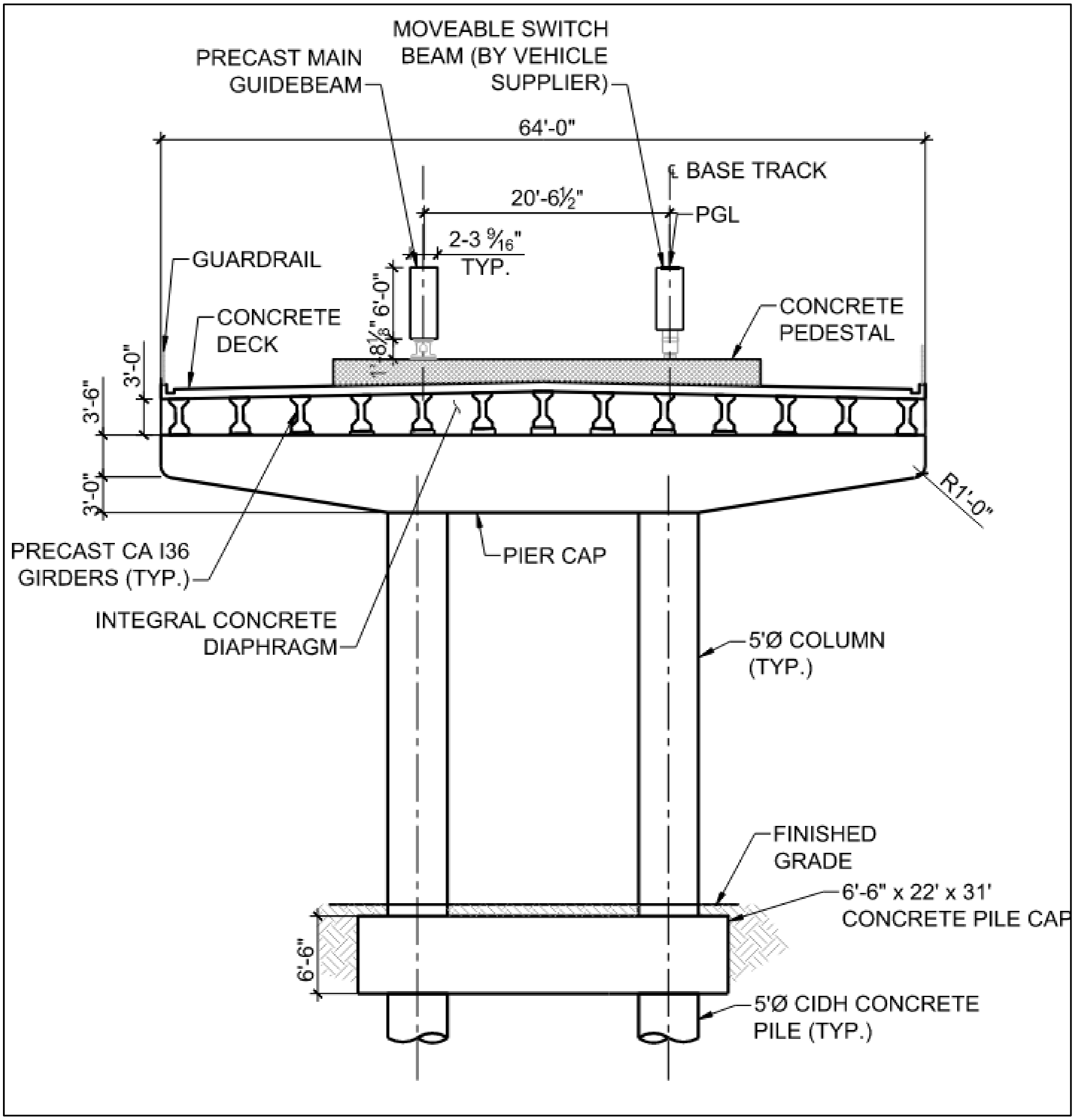
— = no data

6.1.1.6 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.

At beam switch locations, the typical cross-section of the guideway would increase in column and column cap width. The column cap at these locations would be 64 feet wide, with dual 5-foot-diameter columns. Underground pile caps for additional structural support would also be required at beam switch locations. Figure 6-4 shows a typical cross-section of the monorail beam switch.

Figure 6-4. Typical Monorail Beam Switch Cross-Section



Source: LASRE, 2024

6.1.1.7 Monorail Maintenance and Storage Facility

MSF Base Design

In the maintenance and storage facility (MSF) Base Design for Alternative 1, the MSF Base Design would be located on Los Angeles Department of Water and Power 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 LOSSAN rail corridor to the north, Saticoy Street to the south, and property lines extending north of Tyrone and Hazeltine Avenues to the east and west, respectively.

Monorail trains would access the site from the main alignment's northern tail tracks 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

MSF Design Option 1

In the MSF Design Option 1, the MSF 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 6-5 shows the locations of the MSF Base Design and MSF Design Option 1 for Alternative 1.

Figure 6-5. Alternative 1: Maintenance and Storage Facility Options

Source: LASRE, 2024; HTA, 2024

6.1.1.8 Electric Bus Maintenance and Storage Facility

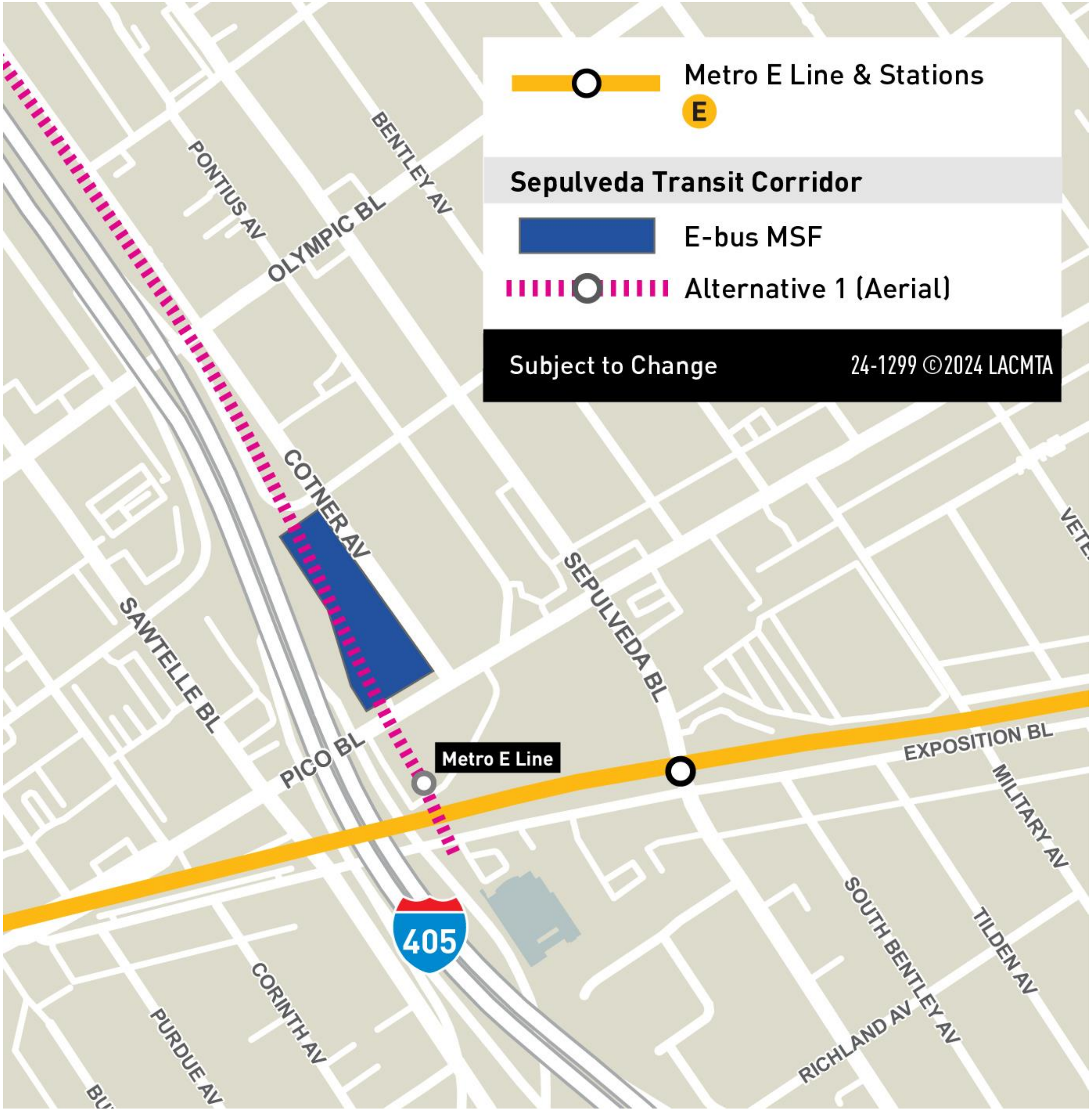
An electric bus MSF would be located on the northwest corner of Pico Boulevard and Cotner Avenue and would be designed to accommodate 14 electric buses. The site would be approximately 2 acres and would comprise six parcels bounded by Cotner Avenue to the east, I-405 to the west, Pico Boulevard to the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

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

Figure 6-6 shows the location of the proposed electric bus MSF.

Figure 6-6. Alternative 1: Electric Bus Maintenance and Storage Facility



Source: LASRE, 2024; HTA, 2024

6.1.1.9 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. Table 6-2 lists the TPSS locations proposed for Alternative 1.

Figure 6-7 shows the TPSS locations along the Alternative 1 alignment.

Table 6-2. 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 6-7. Alternative 1: Traction Power Substation Locations

Source: LASRE, 2024; HTA, 2024

6.1.1.10 Roadway Configuration Changes

Table 6-3 lists the roadway changes necessary to accommodate the guideway of Alternative 1. Figure 6-8 shows the location of these roadway changes in the Sepulveda Transit Corridor Project (Project) Study Area, except for I-405 configuration changes, which would occur throughout the corridor.

Table 6-3. 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 6-8. Alternative 1: Roadway Changes

Source: LASRE, 2024; HTA, 2024

In addition to the changes made to accommodate the guideway, as listed in Table 6-3, roadways and sidewalks near stations would be reconstructed, which would result in modifications to curb ramps and driveways.

6.1.1.11 Fire/Life Safety – Emergency Egress

Continuous emergency evacuation walkways would be provided along the guideway. The walkways 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 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.

6.1.2 Construction Activities

Construction activities for Alternative 1 would include constructing the aerial guideway and stations, widening I-405, and constructing ancillary facilities. Construction of the transit through substantial completion is expected to have a duration of 6½ years. Early works, such as site preparation, demolition, and utility relocation, could start in advance of construction of the transit facilities.

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. The first stage of I-405 widening would include a narrowing of adjacent freeway lanes to a minimum width of 11 feet (which would eliminate 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 Alternative 1 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

Alternative 1 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.

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, and the I-405 northbound on-ramp at Burbank Boulevard.

Table 6-4 and Figure 6-9 show the potential construction staging areas for Alternative 1. 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)

Table 6-4. 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 6-9. Alternative 1: Construction Staging Locations

Source: LASRE, 2024; HTA, 2024

6.2 Existing Conditions

6.2.1 Regional Climate and Meteorology

The Project Study Area is located within the South Coast Air Basin (Basin), an area covering approximately 6,745 square miles and bounded by the Pacific Ocean to the west and south and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the distinctive climate of the Basin, which is a coastal plain with connecting broad valleys and low hills.

The Southern California region, which includes the Basin, lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography) as well as human-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of pollutants throughout the Basin, making it an area of high pollution potential.

The worst air pollution throughout the Basin occurs from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day. O_3 concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Basin and adjacent desert. Substantial progress has been made in reducing air pollution levels in Southern California in recent years. However, the Basin still faces considerable challenges to attain the federal and state air quality standards.

Weather stations closest to the Project Study Area are the Western Regional Climate Center (WRCC) monitoring stations at Woodland Hills Pierce College (COOP ID 041484) and the University of California, Los Angeles (UCLA) (COOP ID 049152). These monitoring stations were selected to accurately represent the climate conditions occurring in the northern and southern portions of the Project Study Area. According to climate data recorded from 1949 to 2012 for the Woodland Hills station, the average annual maximum temperature in the area is approximately 81 degrees Fahrenheit (°F), and the average annual minimum temperature is approximately 48°F. The average precipitation in the area is approximately 16 inches annually, occurring primarily from December through March (WRCC, 2023a). According to climate data recorded from 1933 to 2016 for the UCLA station, the average annual maximum temperature in the area is approximately 71°F, and the average annual minimum temperature is approximately 55°F. The average precipitation in the area is approximately 17 inches annually, occurring primarily from December through March (WRCC, 2023b).

6.2.2 Pollutants of Concern

6.2.2.1 Criteria Pollutants

National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) have been established for six pollutants: O_3, NO_2, CO, SO_2, respirable particulate matter of diameter less than 10 microns (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead (Pb). Brief descriptions of the criteria air pollutants, common sources, and documented health concerns from exposure are provided in Table 6-5.

Table 6-5. Criteria Air Pollutants and Characteristics

Pollutant	Characteristics
Ozone (O_3)	• Colorless gas and secondary pollutant formed by complex atmospheric interactions between two or more reactive organic gas compounds (including volatile organic compounds and nitrogen oxides (NO_X) in the presence of ultraviolet sunlight. Automobile travel and industrial sources are the greatest sources of atmospheric O_3 formation. • Short-term exposure (lasting for a few hours) to O_3 levels typical in Southern California can result in breathing pattern changes, restricted breathing, increased susceptibility to infections, inflammation of the lung tissue, and immunological changes.
Nitrogen Dioxide (NO_2)	• Formed in the atmosphere through chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation and contribute to the formation of PM_{10}. • High concentrations can cause breathing difficulties, are linked to chronic pulmonary fibrosis, an increase of bronchitis in children (2 and 3 years old), and result in a brownish-red cast to the atmosphere with reduced visibility.
Carbon Monoxide (CO)	• Colorless, odorless gas formed by incomplete combustion of fossil fuels (e.g., motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains) • Excess exposure can reduce the blood’s ability to transport oxygen, causing dizziness, fatigue, and impairment of central nervous system functions.
Sulfur Dioxide (SO_2)	• Refers to any compounds of sulfur and oxygen. A colorless, pungent gas that forms primarily through the combustion of sulfur-containing coal and oil. • Stringent controls placed on stationary SO_2 emissions and limits on sulfur content of fuels have reduced atmospheric SO_2 concentrations. Highest levels of SO_2 are found near large industrial complexes (e.g., power plants) and can harm plant leaves and erode iron and steel. • An irritant gas that attacks the throat and lungs; can cause acute respiratory symptoms and diminished lung function in children.
Respirable Particulate Matter (PM_{10})	• Comprises airborne liquid and solid particles (e.g., smoke, soot, dust, salts, acids, and metals) formed by atmospheric chemical reactions of gases emitted from industrial and motor vehicles. • Results from crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. • Collects in the upper portion of the respiratory system and can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body’s ability to fight infections.

Pollutant	Characteristics
Fine Particulate Matter ($PM_{2.5}$)	• Formed in the atmosphere from gases (i.e., sulfur dioxide, nitrogen oxides, and volatile organic compounds) and results from fuel combustion (e.g., motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. • Inhalation (i.e., lead, sulfates, nitrates, chlorides, ammonia) can be absorbed into the bloodstream and damage human organs, tissues, and cells throughout the body. Suspended $PM_{2.5}$ can damage and discolor surfaces and produce haze and reduce regional visibility.
Lead (Pb)	• Occurs in atmosphere as PM emitted from leaded gasoline combustion; manufacture of batteries, paint, ink, ceramics, and ammunition; and secondary lead smelting facilities. • Phased-out leaded gasoline reduced overall airborne lead by 95 percent between 1978 and 1987. Current emission sources of greater concern include lead smelters, battery recycling, and manufacturing facilities. • Prolonged exposure can lead to serious threats to human health (i.e., gastrointestinal disturbances, anemia, kidney disease, and neuromuscular and neurological dysfunction). Infancy and childhood exposure can impair neurobehavioral performance.

Source: CARB, 2024c

6.2.2.2 Toxic Air Contaminants

Toxic air contaminants (TAC) are generally defined as those air pollutants that may increase a person's risk of developing cancer and/or other serious health effects; however, the emission of a toxic chemical does not automatically create a health hazard. Although NAAQS and CAAQS have been established for criteria pollutants, no ambient standards exist for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, California Air Resources Board (CARB) has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA, 2015a, 2015b).

Air toxics are generated by many sources, including stationary sources, such as dry cleaners, gas stations, auto body shops, and combustion sources; mobile sources, such as diesel trucks, ships, and trains; and area sources, such as farms, landfills, and construction sites. Adverse health effects of TACs can be carcinogenic (cancer-causing), short-term (acute) non-carcinogenic, and long-term (chronic) non-carcinogenic. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to the brain and nervous system, and respiratory disorders. The principal TAC associated with the Project is DPM emitted during construction activities.

DPM differs from other air toxics in that it is a complex mixture of hundreds of substances rather than a single substance. DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances such as polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB, 2024d). As more than 90 percent of DPM is less than 1 micrometer (µm) in diameter (about 1/70th the diameter of a human hair), the majority of DPM is small enough to be inhaled into the lungs. Although particles the size of DPM can deposit throughout the lung, the largest fraction deposits in the deepest regions of the lungs where the lung is most susceptible to injury. Health effects associated with exposure to DPM include premature death, hospitalizations, and emergency department visits for exacerbated chronic heart and lung disease, including asthma, increased respiratory symptoms, and decreased lung function in children (CARB, 2024d).

The U.S. Environmental Protection Agency (EPA) is tasked with the regulatory authority of monitoring pollutant concentrations and determining whether areas have attained the NAAQS. Those areas with recurring concentrations of criteria pollutants exceeding the air quality standard values are designated as “Nonattainment” of the standard and are required to prepare air quality plans to demonstrate regional control strategies that will reduce emissions.

6.2.3 Regional Attainment Status

EPA is tasked with the regulatory authority of monitoring pollutant concentrations and determining whether areas have attained the NAAQS. Those areas with recurring concentrations of criteria pollutants exceeding the air quality standard values are designated as “Nonattainment” of the standard and are required to prepare air quality plans to demonstrate regional control strategies that will reduce emissions. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Recently in February 2024, the federal $PM_{2.5}$ annual standard was revised from 12 $\mu g/m^3$ to 9 $\mu g/m^3$, making the federal standard more stringent than the state standard of 12 $\mu g/m^3$. Local monitoring data are used to designate areas as nonattainment, maintenance, attainment, or unclassified areas for ambient air quality standards. The four designations are defined as follows.

- Nonattainment—assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- Maintenance—assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- Attainment—assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- Unclassified—assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table 6-6 presents the attainment status designations for the non-desert portion of Los Angeles County within the South Coast Air Quality Management District (SCAQMD) jurisdiction. The Basin portion of Los Angeles County is currently designated nonattainment of the NAAQS for O_3 and $PM_{2.5}$, and is designated nonattainment of the CAAQS for O_3, PM_{10}, and $PM_{2.5}$.

Table 6-6. Attainment Status Designations – South Coast Air Basin Portion of Los Angeles County

Pollutant	Averaging Time	CAAQS Status	NAAQS Status
Ozone (O_3)	1-Hour	Nonattainment	Nonattainment (Extreme)
	8-Hour	Nonattainment	Nonattainment (Extreme)
Carbon Monoxide (CO)	1-Hour	Attainment	Attainment (Maintenance)
	8-Hour	Attainment	Attainment (Maintenance)
Nitrogen Dioxide (NO_2)	1-Hour	Attainment	Unclassifiable/Attainment
	Annual Average	Attainment	Attainment (Maintenance)
Sulfur Dioxide (SO_2)	1-Hour	Attainment	Unclassifiable/Attainment
	24-Hour	Attainment	Unclassifiable/Attainment
Respirable Particulate Matter (PM_{10})	24-Hour	Nonattainment	Attainment (Maintenance)
	Annual Average	Nonattainment	No Federal Standard
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No State Standard	Nonattainment (Serious)
	Annual Average	Nonattainment	Nonattainment (Moderate)
Lead (Pb)	30-Day Average	Attainment	No Federal Standard
	3-Month Average	Attainment	Nonattainment (Partial)

Source: CARB, 2024b; EPA, 2024

CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard

6.2.4 Local Air Quality

The attainment status designations are based on concentrations of air pollutants measured at air monitoring sites throughout the Basin. The SCAQMD divides the Basin into 38 source receptor areas (SRA), the boundaries of which were determined by the proximity to the nearest air monitoring station and local topography and meteorological patterns. The SCAQMD operates a total of 34 air monitoring sites that are used to characterize air quality within the 38 SRAs. The Project Study Area predominately transects portions of SRA 6 (West San Fernando Valley) and SRA 7 (East San Fernando Valley) in the northern portion and SRA 2 (Northwest Coastal Los Angeles County) in the southern portion. However, although project alternatives are included in SRA 7 (East San Fernando Valley), there is no longer an active monitoring station in this SRA; therefore, the SRA 6 monitoring station data was used. Figure 6-10 displays the Project Study Area overlain on the portions of the SCAQMD SRAs that it covers, as well as the locations of monitoring stations in SRA 2 (West Los Angeles – Veterans Administration monitoring site) and SRA 6 (Reseda monitoring site). The following discussions address pollutant concentrations measured at stations from 2021 to 2023.

Figure 6-10. SCAQMD Source Receptor Areas in Project Study Area

Source: HTA, 2024

Table 6-7 presents pollutant concentrations measured at the Reseda monitoring station that provides data representative of air quality conditions within SRA 6. As shown in Table 6-7, concentrations of O_3 exceeded applicable standards numerous times during the most recent three-year period of data available. The 24-hour federal standard for $PM_{2.5}$ was also exceeded for one year during this period. The air monitoring data recorded at the Reseda monitoring station reflects the nonattainment status of the Basin portion of Los Angeles County for O_3 and $PM_{2.5}$. The Reseda monitoring station is not equipped to measure concentrations of PM_{10}. Concentrations of all other pollutants monitored at this site remained below applicable federal and state air quality standards, consistent with the attainment or maintenance designations corresponding to the Basin portion of Los Angeles County.

Table 6-7. Reseda Air Monitoring Station Data (SRA 6)

Pollutant	Averaging Time	Maximum Concentrations and Frequencies of Exceeded Standards		
		2021	2022	2023
Ozone (O_3)	Maximum 1-Hour Concentration (ppm)	0.110	0.11	0.104
	Days > 0.09 ppm (CAAQS)	4	7	10
	Maximum 8-Hour Concentration (ppm)	0.083	0.096	0.096
	Days >0.070 ppm (NAAQS/CAAQS)	33	24	30
Carbon Monoxide (CO)	Maximum 1-Hour Concentration (ppm)	2.6	2.2	2.3
	Days > 20 ppm (CAAQS)	0	0	0
	Maximum 8-Hour Concentration (ppm)	1.9	1.8	1.7
	Days >9.0 ppm (NAAQS/CAAQS)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-Hour Concentration (ppm)	0.0542	0.0547	0.0481
	Days > 0.10 ppm (NAAQS)	0	0	0
	Annual Average Concentration (ppm)	0.010	0.010	0.010
	>0.030 ppm (CAAQS)	0	0	0
Respirable Particulate Matter (PM_{10})	Maximum 24-Hour Concentration (µg/m^3) Days > 150 µg/m^3 (NAAQS) Days > 50 µg/m^3 (CAAQS)	—	—	—
	Annual Average Concentration (µg/m^3) > 20 µg/m^3 (CAAQS)	—	—	—
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration (µg/m^3)	55.5	20.5	21.9
	Days > 35 µg/m^3 (NAAQS)	3	0	0
	Annual Average Concentration (µg/m^3)	10.1	8.8	8.8
	> 12 µg/m^3 (CAAQS)	No	No	No
	> 9 µg/m^3 (NAAQS)	No[a]	No	No

Source: SCAQMD, 2024

[a]The federal standard for annual $PM_{2.5}$ was revised to 9 µg/m^3 in 2024. Prior to 2024, the federal standard was 12 µg/m^3, therefore, concentrations in 2021 would not have exceeded the federal standard for annual $PM_{2.5}$.

— = no data
µg/m^3 = micrometers per cubic meter
CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard
ppm = parts per million
SRA = source receptor area

Table 6-8 presents pollutant concentrations measured at the West Los Angeles-Veterans Administration Monitoring Station that provides data representative of air quality conditions within SRA 2.

Concentrations of O_3 exceeded applicable standards numerous times during the most recent three-year period of data available as shown in Table 6-8. The air monitoring data recorded at the West Los Angeles-Veterans Administration monitoring station reflects the nonattainment status of the Basin portion of Los Angeles County for the O_3. The West Los Angeles – Veterans Administration monitoring station is not equipped to measure concentrations of particulate matter (PM_{10} and $PM_{2.5}$). Concentrations of all other pollutants monitored at this site remained below applicable federal and state air quality standards, consistent with the attainment or maintenance designations corresponding to the Basin portion of Los Angeles County.

Table 6-8. West Los Angeles - Veterans Administration Air Monitoring Station Data (SRA 2)

Pollutant	Averaging Time	Maximum Concentrations and Frequencies of Exceeded Standards		
		2021	2022	2023
Ozone (O_3)	Maximum 1-Hour Concentration (ppm)	0.095	0.081	0.109
	Days > 0.09 ppm (CAAQS)	1	0	1
	Maximum 8-Hour Concentration (ppm)	0.082	0.07	0.066
	Days >0.070 ppm (NAAQS/CAAQS)	1	0	0
Carbon Monoxide (CO)	Maximum 1-Hour Concentration (ppm)	2	1.7	1.4
	Days > 20 ppm (CAAQS)	0	0	0
	Maximum 8-Hour Concentration (ppm)	1.6	1.5	1.2
	Days >9.0 ppm (NAAQS/CAAQS)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-Hour Concentration (ppm)	0.061	0.051	0.044
	Days > 0.10 ppm (NAAQS)	0	0	0
	Annual Average Concentration (ppm)	0.010	0.011	0.009
	>0.030 ppm (CAAQS)	No	No	No
Respirable Particulate Matter (PM_{10})	Maximum 24-Hour Concentration (μg/m^3) Days > 150 μg/m^3 (NAAQS) Days > 50 μg/m^3 (CAAQS)	—	—	—
	Annual Average Concentration (μg/m^3) > 20 μg/m^3 (CAAQS)	—	—	—
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration (μg/m^3) Days > 35 μg/m^3 (NAAQS)	—	—	—
	Annual Average Concentration (μg/m^3) > 12 μg/m^3 (CAAQS) **>** 9 μg/m^3 (NAAQS)	—	—	—

Source: SCAQMD, 2024

— = no data
μg/m^3 = micrometers per cubic meter
CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard
ppm = parts per million
SRA = source receptor area

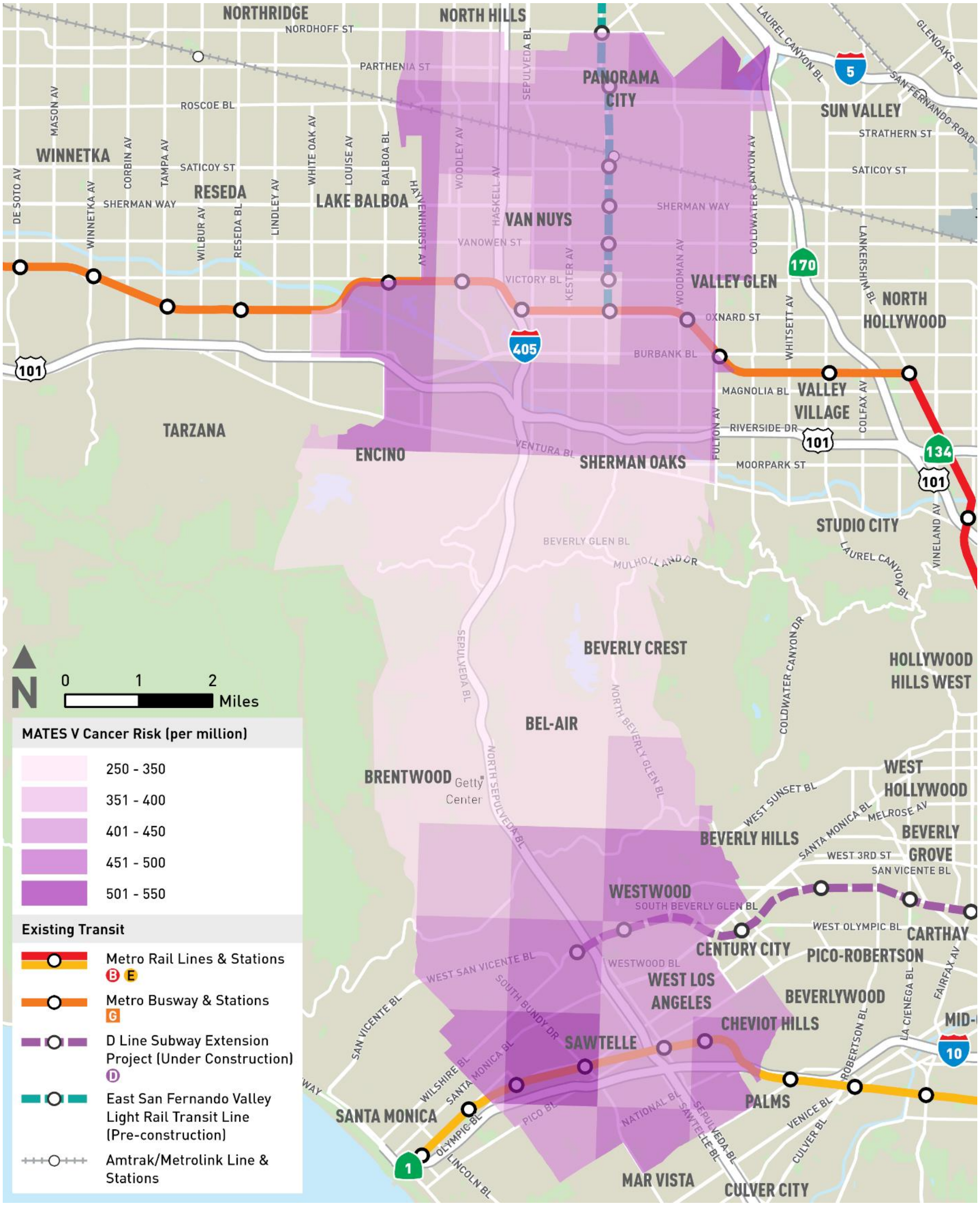
6.2.5 Ambient Carcinogenic Risk

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study conducted by the SCAQMD throughout the Basin, the first of which was published in 1986 to determine Basin-wide risks associated with major airborne carcinogens (pollutants that are scientifically documented to cause cancer). The most recent study is the MATES V published in 2021. MATES V was based on measurements during 2018 and 2019, and a modeling analysis based on emissions inventory data for 2018. A network of 10 fixed sites was used to monitor over 30 TACs once every six days over the course of a year between 2018 and 2019, and computer modeling was used to estimate air toxic levels throughout the Basin based on ambient concentrations and the emissions inventory. MATES V included methodology updates compared to previous versions, these included estimating cancer risk via inhalation and non-inhalation pathways rather than only the inhalation pathway. MATES V also estimated non-cancer health impacts via the inhalation and non-inhalation pathways, whereas previous versions did not estimate non-cancer risks. With MATES V including inhalation and non-inhalation pathways, cancer risk estimates were eight percent higher than the inhalation-only estimates (SCAQMD, 2021b).

MATES V found that air toxic levels continue to decline compared to previous MATES versions. As part of MATES V, SCAQMD developed a cancer risk map that plotted the modeled cancer risk on a grid spanning the Basin. Each grid cell is characterized by the modeled cancer risk produced by MATES V. Cancer risk is expressed as the number of extra cancer cases occurring over a 70-year lifetime per one million people exposed to toxic air contaminants. MATES V estimated cancer risk in the Basin ranged from 585 to 842 per million. Similar to previous MATES studies, the SCAQMD determined that DPM is the largest contributor to air toxics cancer risk. However, at the 10 monitoring stations, DPM levels were 53 percent lower compared to MATES IV and 86 percent lower than MATES II (SCAQMD, 2021b).

Figure 6-11 shows the Project Study Area overlain on the MATES V Estimated Risk grid developed by SCAQMD. Ambient estimated risks in the Project Study Area range from approximately 250 per million to 550 per million according to MATES V modeling results.

Figure 6-11. MATES V Estimated Cancer Risk in the Project Study Area



Source: SCAQMD, 2021b

6.2.6 Sensitive Receptors

Sensitive individuals refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses where sensitive individuals are most likely to spend extended periods of time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (SCAQMD, 1993). These types of land uses are considered sensitive receptors in air quality planning. Alternative 1 is located in a dense urban environment where sensitive receptors are located in close proximity to various components of Alternative 1. Sensitive receptor locations were identified within 1,000 feet of the Alternative 1 construction area and would encompass the sensitive receptor locations during construction and operations. Sensitive receptor locations for Alternative 1 are shown on Figure 6-12 through Figure 6-17.

Figure 6-12. Alternative 1: Sensitive Receptor Map Sheet 1 of 6

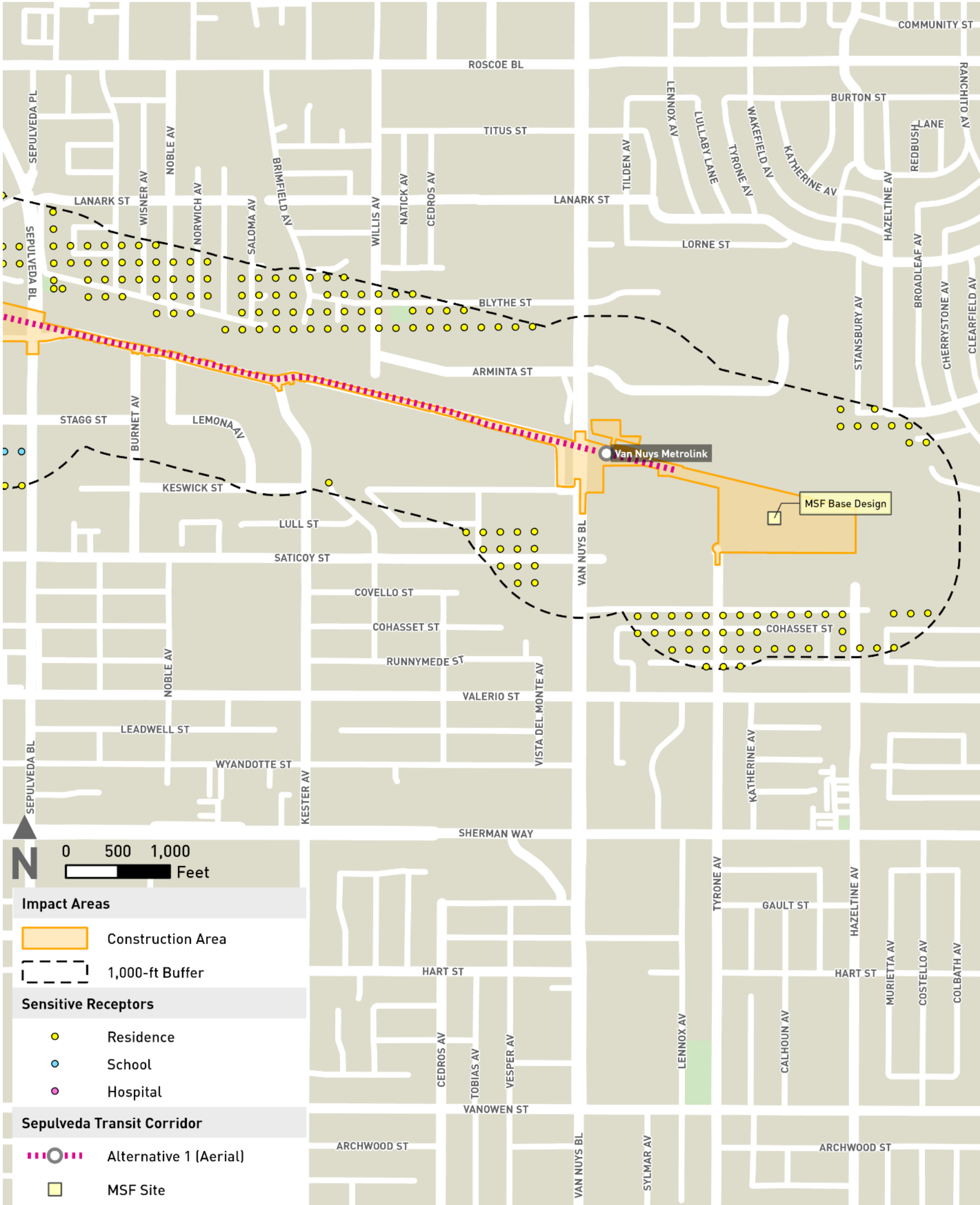


Figure 6-13. Alternative 1: Sensitive Receptor Map Sheet 2 of 6

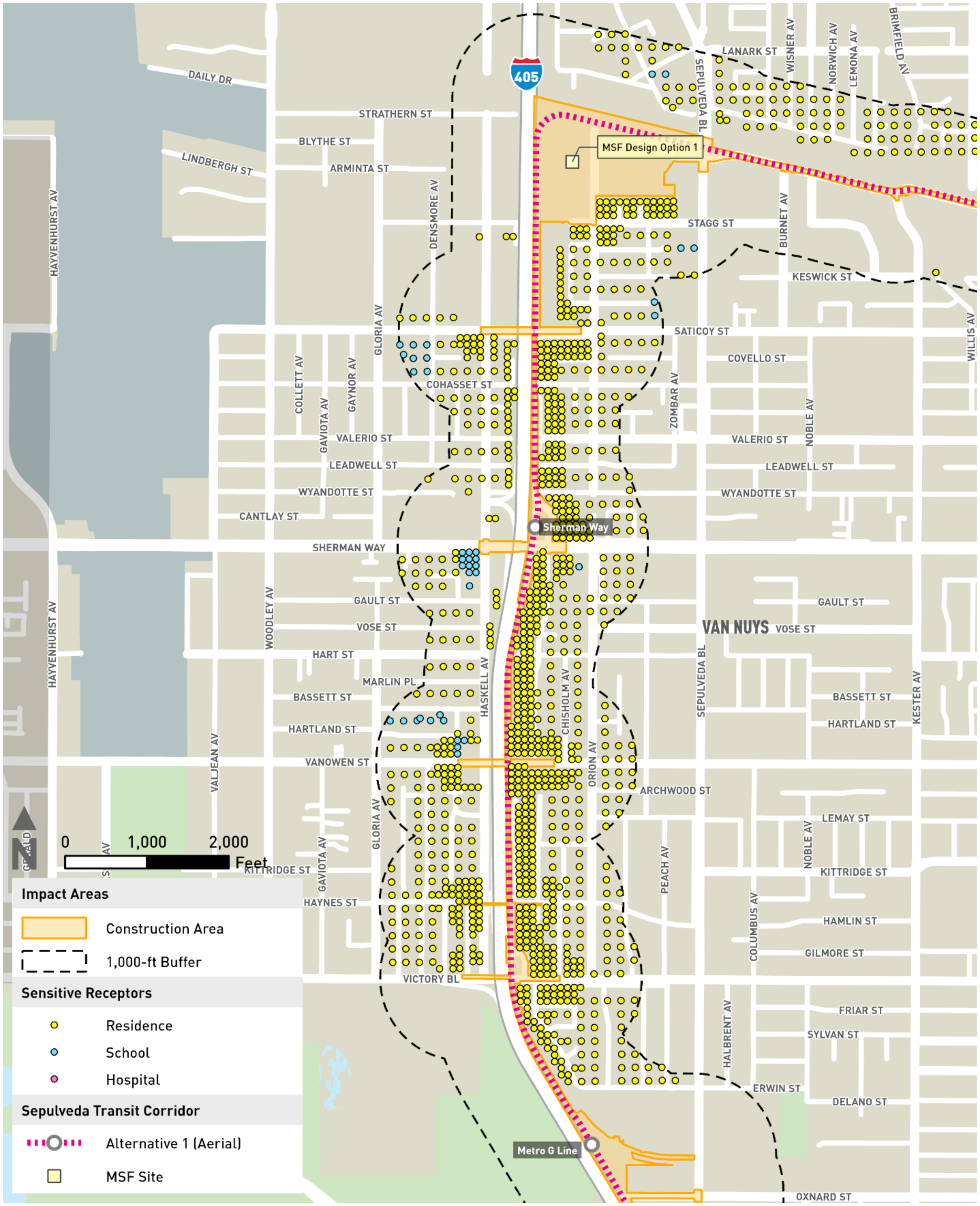


Figure 6-14. Alternative 1: Sensitive Receptor Map Sheet 3 of 6

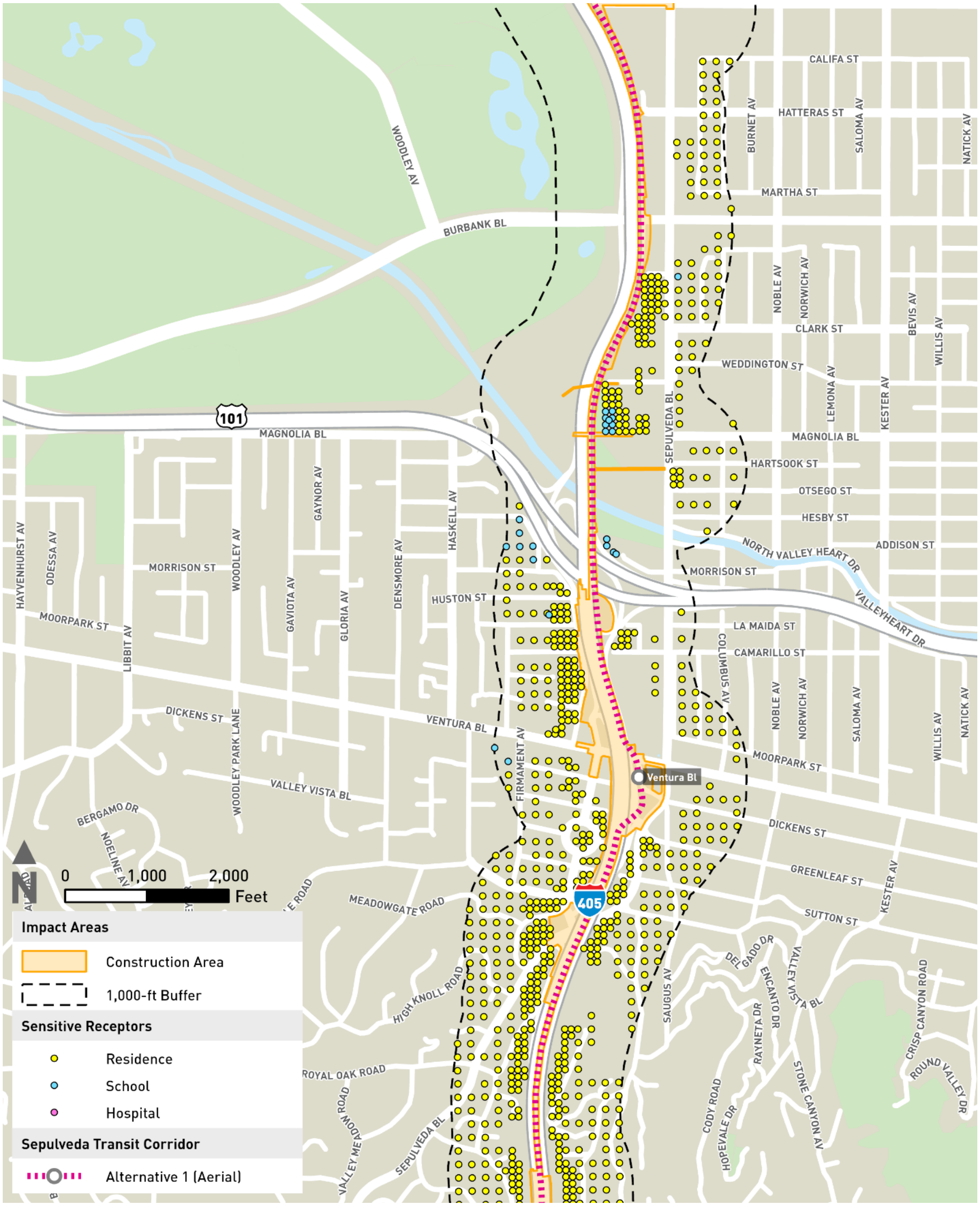


Figure 6-15. Alternative 1: Sensitive Receptor Map Sheet 4 of 6

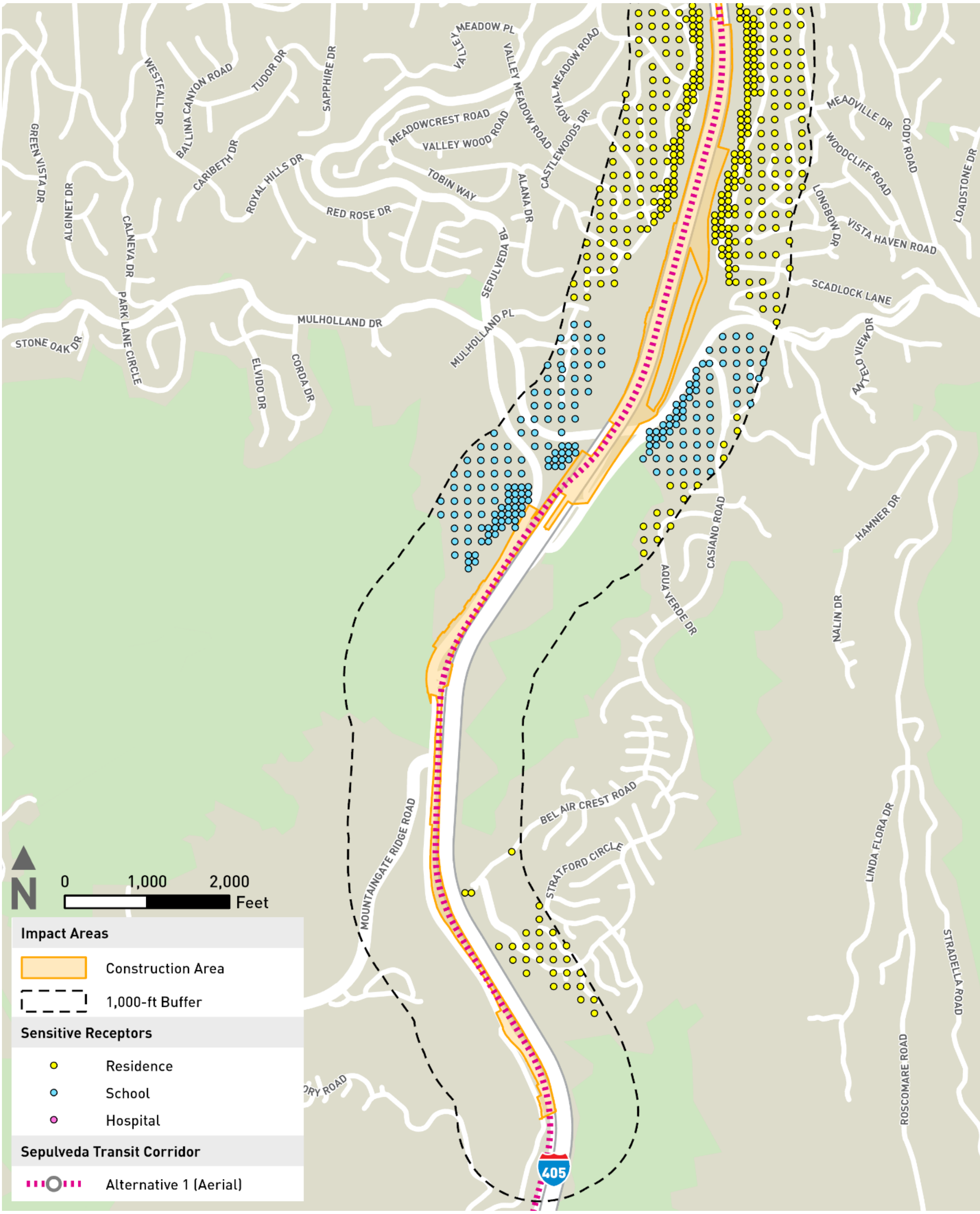


Figure 6-16. Alternative 1: Sensitive Receptor Map Sheet 5 of 6

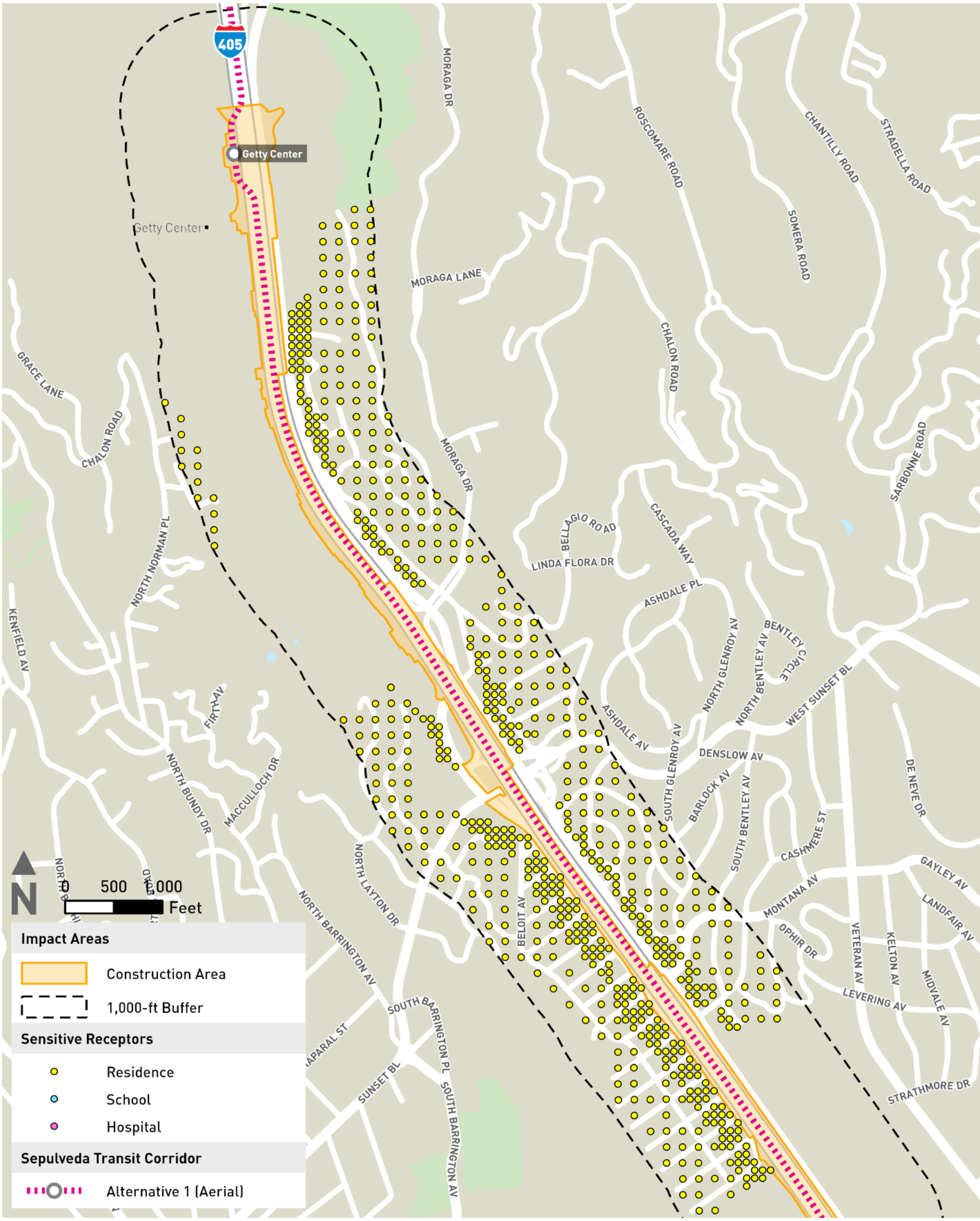
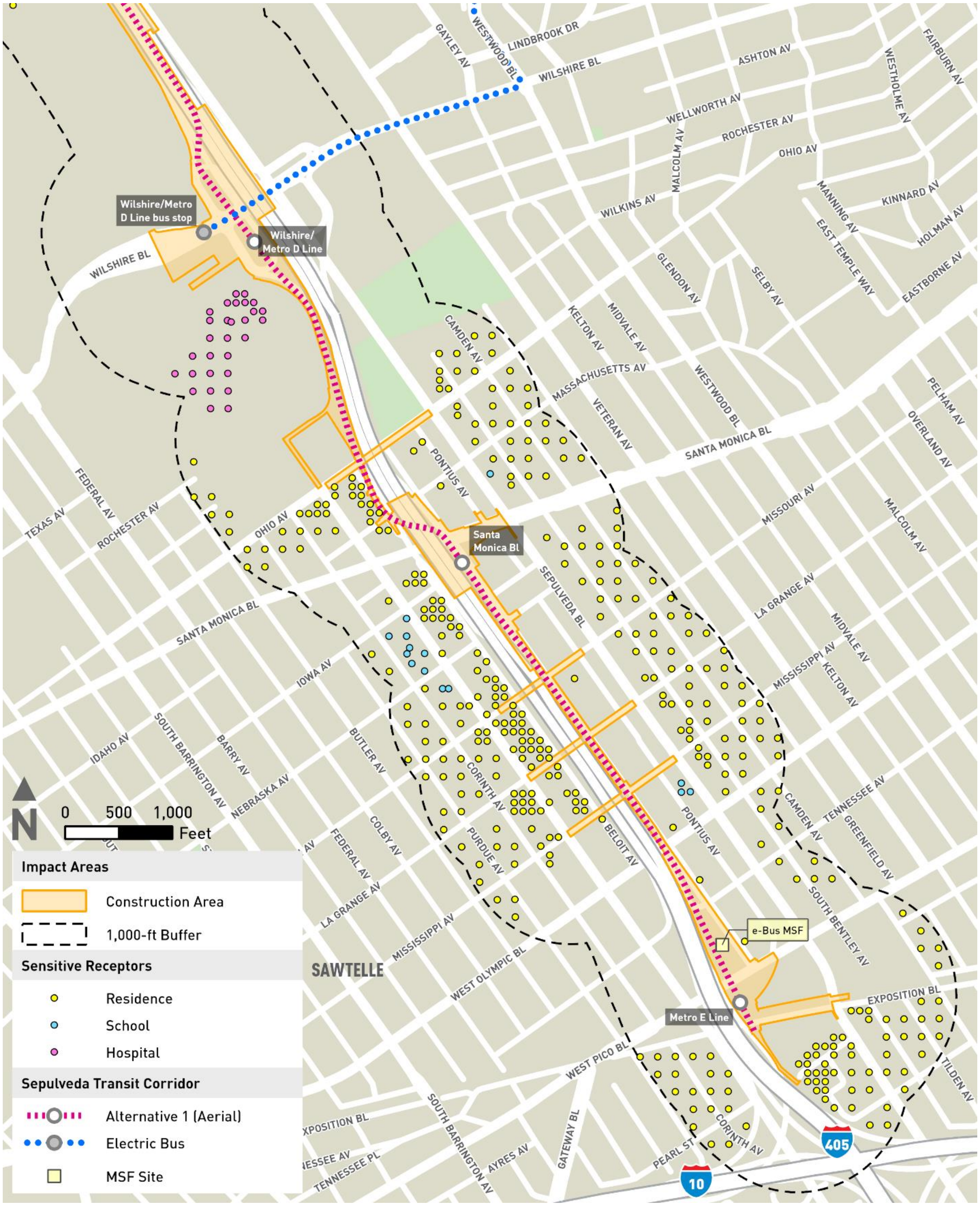


Figure 6-17. Alternative 1: Sensitive Receptor Map Sheet 6 of 6



Source: HTA, 2024

6.2.7 Regional Highway Emissions

As required by CEQA, existing conditions (Baseline 2021) emissions from regional mobile sources were estimated in the analysis for comparison with project alternatives for informational purposes only. As discussed in Section 3.6, air quality impacts would be evaluated by comparing emissions of project alternatives to 2045 without Project conditions. Table 6-9 summarizes the criteria pollutant for existing conditions and 2045 without Project conditions.

Table 6-9. Existing Conditions (Baseline Year 2021) and 2045 without Project Conditions Regional Mobile Source Criteria Pollutant Emissions

Project Alternative	Daily VMT[a]	Daily Emissions (lbs/day)					
		VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Existing Conditions	456,869,300	27,490	222,016	1,219,501	3,920	329,216	86,051
2045 without Project Conditions	568,557,200	8,987	88,927	623,264	3,487	408,902	105,487

Source: HTA, 2024

[a]VMT data provided from *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a) used 2019 as the base year for the VMT analysis because it is the most recent year for which Metro's CBM18B Transportation Analysis Model has been calibrated.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SO_2 = sulfur dioxide
VMT = vehicle miles traveled
VOC = volatile organic compounds

6.3 Impacts Evaluation

6.3.1 Impact AQ-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?

6.3.1.1 Operational Impacts

The Project, identified as project number 1160001 (Sepulveda Pass Transit Corridor Phase 2), is included in the Southern California Association of Governments (SCAG) Connect SoCal 2024. Connect SoCal 2024 is Southern California's long-range Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS), which serves as the foundation for estimating the region's transportation sector air pollutant emissions through 2050. The SCAG General Council adopted the plan on April 4, 2024. The Federal Highway Administration and the Federal Transit Administration found the plan to conform to the State Implementation Plan on May 10, 2024. Transportation projects identified in a conforming RTP are consistent with the emissions reduction strategies outlined in the applicable regional Air Quality Management Plan (AQMP).

The region's 2022 AQMP was adopted by the SCAQMD Governing Board on December 2, 2022. The 2022 AQMP outlines comprehensive control strategies to meet particulate matter ($PM_{2.5}$), ozone (O_3), and lead (Pb) standards, and maintain carbon monoxide (CO), nitrogen dioxide (NO_2), and PM_{10} standards. Transportation projects identified in a currently conforming RTP are consistent with the transportation sector emissions budgets used in the formulation of the regional AQMP. Therefore, all project alternatives, including Alternative 1, would be considered consistent with the AQMP resulting in a less than significant impact.

6.3.1.2 Construction Impacts

Construction projects within the jurisdiction of the SCAQMD must comply with several rules and regulations aimed at controlling air pollution and minimizing environmental impact. Key SCAQMD rules that typically apply to construction projects include the following, among others:

- Rule 403 - Fugitive Dust, to reduce emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area. Requires that contractors implement best management practices such as watering down construction sites, covering trucks, and using windbreaks.
- Rule 401 - Visible Emissions, which prohibits the discharge of visible air contaminants into the atmosphere. Contractors must ensure that emissions from construction activities do not exceed the visible emissions limits, typically by controlling dust and particulate matter.
- Rule 1403 - Asbestos Emissions from Demolition/Renovation Activities, to regulate the emissions of asbestos during demolition and renovation activities. Contractors must conduct thorough inspections for asbestos, notify SCAQMD before starting work, and follow specific procedures for handling and disposing of asbestos-containing materials.
- Rule 1113 - Architectural Coatings, which limits the volatile organic compound (VOC) content in architectural coatings. Contractors must use paints and coatings that comply with the VOC content limits specified by the rule.
- Rule 1108 - Cutback Asphalt, which limits the VOC emissions from the use of cutback asphalt and emulsified asphalt. Contractors must use compliant asphalt products with low VOC content.
- Rule 1157 - PM_{10} Emission Reductions from Aggregate and Related Operations, which serves to reduce PM_{10} emissions from aggregate operations, which can be a component of construction projects involving earth-moving activities. Contractors must implement dust control measures during material handling and processing operations.

Alternative 1 would comply with all relevant SCAQMD rules, and as such, would implement all required AQMP emissions control measures during construction. Impacts would be less than significant.

6.3.2 Impact AQ-2: Would the project result in cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

6.3.2.1 Operational Impacts

Operations of Alternative 1 would generate long-term regional criteria pollutant emissions from mobile sources including regional vehicle miles traveled (VMT) and employees traveling to and from the monorail MSF and electric bus MSF, area sources related to landscape equipment, consumer products, and reapplication of architectural coatings, and maintenance testing for emergency generators. As described in Section 6.1.1.7, the monorail MSF Base Design and MSF Design Option 1 would have the same facilities; therefore, operational emissions for MSF Design Option 1 would be equivalent to the criteria pollutant emissions modeled for the MSF Base Design. Regardless of which MSF is selected in future final design decisions, the analysis adequately accounted for emissions from either of these MSFs. For Alternative 1, its precast concrete facility would be offsite in Antelope Valley or Riverside County.

Criteria pollutant emissions related to hauling precast components from the precast facility to the construction worksites were included in the emissions analysis.

The Alternative 1 peak daily criteria pollutant emissions were estimated for two scenarios: Alternative 1 compared to 2045 without Project conditions in Horizon Year 2045 and Alternative 1 compared to existing conditions in 2021. As discussed in Section 3.6.1, air quality impacts were evaluated based on the net change in emissions between project alternatives in Horizon Year 2045 and 2045 without Project conditions. The comparison for Alternative 1 2045 and Existing Conditions 2021 is presented for informational purposes only. Detailed emissions calculations are summarized in Appendix A.

Table 6-10 summarizes the Alternative 1 peak daily criteria pollutant emissions for each source category compared to 2045 without Project conditions. As stated in the *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a), implementation of Alternative 1 would reduce regional daily VMT by 341,800 miles per day compared to 2045 without Project conditions. As shown in Table 6-10, daily emissions associated with operation of Alternative 1 would not exceed SCAQMD's regional operational significance thresholds for any pollutant; rather, Alternative 1 would result in an environmental benefit by resulting in a net decrease of daily criteria pollutant emissions for all pollutants except reactive organic gases (ROG). As shown in Table 6-10, daily VOC emissions would marginally increase relative to 2045 without Project conditions, but the magnitude of that increase would remain substantially below the applicable SCAQMD regional screening threshold for mass daily emissions.

Table 6-10. Alternative 1: Peak Daily Regional Operational Criteria Pollutant Emissions Compared to 2045 without Project Conditions

Source Category	Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}[a]	$PM_{2.5}$[a]
Alternative 1						
Area – MSF and e-Bus MSF[b]	4	<0.1	5	<0.1	<0.1	<0.1
Area – Stations[c]	4	<1	24	<0.1	<0.1	<0.1
Mobile – Regional VMT Analysis	8,982	88,874	622,889	3,485	408,656	105,423
Mobile – Employee Travel	1	3	16	<0.1	9	2
Emergency Generators[d]	4	17	10	<0.1	<1	<1
Alternative 1 Peak Daily Emissions[e]	**8,995**	**88,894**	**622,945**	**3,485**	**408,666**	**105,426**
2045 without Project Conditions						
Mobile – 2045 VMT Analysis Emissions	8,987	88,927	623,264	3,487	408,902	105,487
Net Change in Emissions	**8**	**-33**	**-319**	**-2**	**-237**	**-61**
SCAQMD Regional Significance Thresholds	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

Source: HTA, 2024

[a] PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.
[b] Total on-site emissions from the MSF and e-Bus MSF.
[c] Total on-site emissions from all stations.
[d] Emergency generator located at MSF.
[e] Totals may vary due to rounding.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less

PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
VMT = vehicle miles traveled
VOC = volatile organic compounds

SCAQMD's cumulative air quality impact methodology indicates that if an individual project results in air emissions of criteria pollutants that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. Because Alternative 1 net operational emissions would not exceed the applicable SCAQMD's regional operational significance thresholds, Alternative 1 operational emissions would not be cumulatively considerable. Additionally, recognizing that SCAQMD's regional significance thresholds were established to achieve attainment of the NAAQS and CAAQS, which in turn define the maximum amount of an air pollutant that can be present in ambient air without harming public health, Alternative 1's contribution of pollutant emissions is not expected to result in measurable human health impacts on a regional scale.

As discussed above, the comparison for Alternative 1 and Existing Conditions 2021 is presented for informational purposes only. Table 6-11 summarizes the Alternative 1 peak daily criteria pollutant emissions for each source category compared to Existing Conditions 2021. As shown in Table 6-11, Alternative 1 would exceed SCAQMD's regional significance thresholds for PM_{10} and $PM_{2.5}$. All other criteria pollutants would be below regional significance thresholds and even resulting in a net decrease in peak daily emissions of VOCs, NO_X, CO, and SO_2. The significant increase in PM is attributable to background growth in regional VMT from 2021 to 2045 and PM fugitive dust emission factors (i.e., the combination of tire wear, brake wear, and resuspended road dust) that comprise greater than 90 percent of the total per-mile emissions factors for PM_{10} and $PM_{2.5}$. Fugitive dust emission factors for tire wear, brake wear, and paved roads remain relatively constant over this time frame, whereas exhaust emission factors tend to decrease in future years due to expected improvements in vehicle engine technology, fuel efficiency, and turnover in older, more heavily polluting vehicles. Consequently, Alternative 1 results in a net increase in PM_{10} and $PM_{2.5}$ emissions because fugitive dust emissions are a function of VMT growth.

Table 6-11. Alternative 1: Peak Daily Regional Operational Criteria Pollutant Emissions (Horizon Year 2045) Compared to Existing Conditions (Baseline Year 2021)

Source Category	Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}[a]	$PM_{2.5}$[a]
Alternative 1						
Area – MSF and e-Bus MSF[b]	4	<0.1	5	<0.1	<0.1	<0.1
Area – Stations[c]	4	<1	24	<0.1	<0.1	<0.1
Mobile – Regional VMT Analysis	8,982	88,874	622,889	3,485	408,656	105,423
Mobile – Employee Travel	1	3	16	<0.1	9	2
Emergency Generators[d]	4	17	10	<0.1	<1	<1
Alternative 1 Peak Daily Emissions[e]	**8,995**	**88,894**	**622,945**	**3,485**	**408,666**	**105,426**
Existing Conditions						
Mobile – 2021 VMT Analysis Emissions	27,490	222,016	1,219,501	3,920	329,216	86,051
Net Change in Emissions	**-18,495**	**-133,122**	**-596,556**	**-435**	**79,450**	**19,375**
SCAQMD Regional Significance Thresholds	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	**Yes**	**Yes**

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.
[b]Total on-site emissions from the MSF and e-Bus MSF.
[c]Total on-site emissions from all stations.
[d]Emergency generator located at MSF.
[e]Totals may vary due to rounding.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
VMT = vehicle miles traveled
VOC = volatile organic compounds

6.3.2.2 Construction Impacts

Alternative 1 construction activities would generate criteria pollutant emissions from off-road equipment, mobile sources including workers, vendor trucks, and haul trucks traveling to and from construction sites, demolition, soil handling activities, paving, application of architectural coatings, and operation of temporary concrete batch plants. These emissions sources would be related to constructing the monorail aerial alignment, stations, TPSSs, monorail MSF, and e-bus MSF. The Alternative 1 alignment would be completely aerial and would not require use of a TBM.

Construction emissions would vary substantially from day to day, depending on the level of activity and the specific type of construction activity. The peak daily construction emissions for Alternative 1 were estimated for each construction year. Based on the construction schedule for Alternative 1, construction phases for components could potentially overlap; therefore, the estimates of peak daily emissions included these potential overlaps by combining the relevant construction phase daily emissions. The peak daily emissions are predicted values for the worst-case day and do not represent the emissions that would occur for every day of construction. Table 6-12 summarizes the peak daily regional emissions for each construction year.

Table 6-12. Alternative 1: Unmitigated Peak Daily Regional Construction Criteria Pollutant Emissions

Construction Year	Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}[a]	$PM_{2.5}$[a]
2029	12	86	319	<1	16	5
2030	12	95	305	<1	31	10
2031	14	112	419	<1	40	14
2032	32	202	776	1	41	14
2033	25	157	679	1	48	17
2034	20	96	425	<1	17	6
2035	13	71	308	<1	11	4
2036	<1	5	21	<0.1	<1	<1
Peak Daily Emissions	**32**	**202**	**776**	**1**	**48**	**17**
SCAQMD Regional Significance Thresholds	75	100	550	150	150	55
Threshold Exceeded?	No	**Yes**	**Yes**	No	No	No

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
VOC = volatile organic compounds

As shown in Table 6-12, Alternative 1 construction emissions would exceed the SCAQMD regional significance thresholds for NOX and CO emissions. SCAQMD's cumulative air quality impact methodology indicates that if an individual project results in air emissions of criteria pollutants that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. Because Alternative 1 construction emissions would exceed the applicable SCAQMD's regional construction significance thresholds for NOX and CO, Alternative 1 construction emissions would be cumulatively considerable. Additionally, recognizing that SCAQMD's regional significance thresholds were established to achieve attainment of the NAAQS and CAAQS, which in turn define the maximum amount of an air pollutant that can be present in ambient air without harming public health, the project's contribution of pollutant emissions may result in measurable human health impacts on a regional scale.

As discussed in Section 3.1, the emissions analysis incorporated Tier 4 Final engines for off-road equipment greater than or equal to 50 horsepower, trucks with model years 2007 or newer, and included dust control measures to be implemented during each phase of construction, as required by SCAQMD Rule 403. The construction analysis for Alternative 1 conservatively assumed all equipment would be diesel powered, the Metro Green Construction Policy contains measures that aim to reduce construction emissions through utilization of hybrid drive off-road equipment and using electric power instead of diesel power. There are no feasible mitigation measures that would reduce Alternative 1 NOX and CO emissions below SCAQMD significance thresholds, therefore, Alternative 1 construction emissions would result in cumulatively considerable net increase of criteria pollutants for which the project region is nonattainment under an applicable federal or state ambient air quality standard and impacts would be significant and unavoidable.

6.3.3 Impact AQ-3: Would the project expose sensitive receptors to substantial pollutant concentrations?

The term sensitive receptor refers to receptors located at land uses associated with people who are considered to be more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirmed are more susceptible to respiratory distress and other air quality-related health problems on average than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality.

6.3.3.1 Operational Impacts

Localized Emissions Analysis

To assess the potential localized air quality impacts resulting from Alternative 1 on nearby sensitive receptors during operations, the daily on-site operations emissions generated at Alternative 1 components, primarily the monorail MSF, e-Bus MSF, and all stations were compared to SCAQMD's applicable operations localized significance thresholds (LST). As described in Section 6.1.1.7, the monorail MSF Base Design and MSF Design Option 1 would have the same facilities, therefore, operational emissions for MSF Design Option 1 would be equivalent to the criteria pollutant emissions modeled for the MSF Base Design. Overall, the emissions analysis accounted for emissions from either MSF. Alternative 1 localized emissions would be generated from area sources, such as landscaping equipment, use of consumer products, and reapplication of architectural coatings; and emergency generator maintenance testing. As discussed in Section 3.6.5, localized emissions from the MSF and all stations would be summed together and compared to the operational LSTs. As shown in Table 6-13, Alternative 1 localized operational emissions would not exceed SCAQMD significance thresholds; therefore, impacts of local criteria pollutants would be less than significant.

Table 6-13. Alternative 1: Unmitigated Localized Operations Criteria Pollutant Emissions

Source Category	Daily Emissions (lbs/day)			
	NO_X	CO	PM_{10}[a]	$PM_{2.5}$[a]
Area – MSF and e-Bus MSF[b]	<0.1	5	<0.1	<0.1
Area – Stations[c]	<1	24	<0.1	<0.1
Emergency Generators[d]	17	10	<1	<1
Alternative 1 Total Localized Emissions	**17**	**40**	**1**	**1**
SCAQMD Localized Significance Thresholds[e]	172	1,434	3	2
Exceeds Threshold?	No	No	No	No

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.
[b]Total on-site emissions from the MSF and e-Bus MSF.
[c]Total on-site emissions from all stations.
[d]Emergency generator located at MSF.
[e]Localized significance thresholds based on most stringent values for a 5-acre site with a 25-meter receptor distance in SRA 2 and SRA 7.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less

The SCAQMD's LSTs for each SRA represent the maximum emissions a project can emit without causing or contributing to a violation of any short-term NAAQS or CAAQS. As noted previously, the NAAQS and CAAQS are health-protective standards that define the maximum amount of ambient pollution that can be present without harming public health. Consequently, projects with emissions below the applicable LSTs would not be in violation of the NAAQS or CAAQS and, thus, EPA and CARB health-protective standards. Because Alternative 1 operational emissions would not exceed the LSTs, Alternative 1 would not cause or contribute to a violation of any health-protective CAAQS and NAAQS.

Carbon Monoxide Hot Spots

A CO hot spot is a localized concentration of CO that is above the state or national 1-hour or 8-hour ambient air standards for the pollutant. CO hot spots at roadway intersections are typically found in areas with significant traffic congestion. CO is a public health concern because at high enough concentrations, it can cause health problems such as fatigue, headache, confusion, dizziness, and even death. However, it should be noted that ambient concentrations of CO have declined dramatically in California because of existing controls and programs.

Currently, all areas of the state, including the Project Study Area, meet the state and federal CO standards and are designated attainment or maintenance. As part of SCAQMD's 2003 AQMP, which is the most recent AQMP that addresses CO concentrations, a revision to the *Federal Attainment Plan for Carbon Monoxide* (CO Plan) that was originally approved in 1992 was provided and included a CO hot spots analysis at four specified heavily traveled intersections in Los Angeles at the peak morning and afternoon time periods. These four intersection locations selected for CO modeling are considered to be worst-case intersections that would likely experience the highest CO concentrations. The CO hot spots analysis in the 2003 AQMP did not predict a violation of CO standards at the four intersections. Of these four intersections, the busiest intersection evaluated was that at Wilshire Boulevard and Veteran Avenue, which was described as the most heavily congested intersection in Los Angeles County with an average daily traffic volume of approximately 100,000 vehicles per day. Based on the CO modeling, the 2003 AQMP estimated that the 1-hour and 8-hour concentrations at this intersection was 4.6 ppm and 3.4 ppm, respectively, which would not exceed the most stringent 1-hour CO standard of 20.0 ppm and 8-hour CO standards of 9 ppm (SCAQMD, 2003).

The *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a) analyzed traffic volume data at intersections in the Project Study Area affected by Alternative 1 in Horizon Year 2045. The highest daily traffic volumes generated at an intersection within the vicinity of Alternative 1 would be an estimated cumulative total of 75,460 vehicles per day at the intersection of Wilshire Boulevard and Sepulveda Boulevard. Because the daily number of vehicles at this study intersection would not exceed 100,000 vehicles per day, it can be concluded that Alternative 1 would not exceed the most stringent 1-hour and 8-hour CO standards and no detailed CO hot spots analysis for Alternative 1 would be required. Therefore, Alternative 1 would not result in impacts related to CO hot spots and would not contribute a significant level of CO such that localized air quality and human health would be substantially degraded.

6.3.3.2 Construction Impacts

Localized Emissions Analysis

Using the conservative methodology described in Section 3.3.1 to assess the potential localized air quality impacts resulting from Alternative 1 on nearby receptors during construction, the daily on-site construction emissions from the Alternative 1 components (alignment, stations, TPSSs, MSFs) were compared to SCAQMD's applicable construction localized significance thresholds (LST). As described in Section 6.1.1.7, the monorail MSF Base Design and MSF Design Option 1 would have the same facilities, therefore, construction emissions for MSF Design Option 1 would be equivalent to the criteria pollutant emissions modeled for the MSF Base Design. Regardless of which MSF is selected in future final design decisions, the analysis adequately accounted for emissions from either of these MSFs. Alternative 1 localized emissions included exhaust emissions from off-road equipment and trucks, and fugitive dust from demolition, earth movement activities, and truck travel. As shown in Table 6-14, Alternative 1 localized construction emissions would exceed the PM_{10} LST for construction activity in the Valley, therefore, Alternative 1 localized construction emissions would have adverse health risk implications (as discussed in Section 3.3.1 and Section 6.2.2) and would be considered to be significant.

Table 6-14. Alternative 1: Unmitigated Localized Construction Criteria Pollutant Emissions

Construction Area	Daily Emissions (lbs/day)[a]			
	NO_X	CO	PM_{10}[b]	$PM_{2.5}$[b]
Valley Construction Components[c]				
MRT Segment 1-Van Nuys Metrolink to Getty Center	43.1	190.6	2.9	1.3
Van Nuys MRT Station	5.0	23.4	0.2	0.1
Sherman Way MRT Station	5.0	23.4	0.2	0.1
Metro G Line MRT Station	5.0	23.4	0.5	0.2
Sherman Oaks-Ventura Boulevard MRT Station	5.0	23.4	0.5	0.2
TPSS 6-Skirball	4.1	13.3	2.4	1.0
TPSS 11-Raymer-Van Nuys	4.1	13.3	2.7	1.1
MSF	4.1	13.3	3.7	1.3
Components In Proximity to Each Other				
MRT Segment 1 + Van Nuys Station + TPSS 11 + MSF	56.2	240.6	9.6	3.8
Peak Daily Localized Emissions	**56.2**	**240.6**	**9.6**	**3.8**
SCAQMD Localized Significance Threshold[d]	114	786	7	4
Exceeds Threshold?	No	No	**Yes**	No
Westside Construction Components[c]				
MRT Segment 2-Getty Center to North of I-405-Wilshire Interchange	23.1	96.9	1.1	0.5
MRT Segment 3-405-Wilshire Interchange Stretch	13.3	50.2	0.9	0.4
MRT Segment 4-South of I-405-Wilshire Interchange to Metro E Line	18.4	73.6	1.4	0.4
Getty Center MRT Station	5.0	23.4	0.3	0.2
Wilshire Blvd-Metro D Line-VA Hospital MRT Station	4.7	20.5	0.2	0.1
Santa Monica Boulevard MRT Station	5.0	23.4	0.3	0.2
Exposition Boulevard MRT Station	5.0	23.4	0.3	0.2
TPSS 2-Wilshire Boulevard	4.1	13.3	2.4	1.0
TPSS 3-Sunset On-ramp	4.1	13.3	2.3	1.0
TPSS 4-405-Near Getty Center on East side of I-405	4.1	13.3	2.4	1.0
e-Bus MSF	4.1	13.3	3.3	1.2

Construction Area	Daily Emissions (lbs/day)[a]			
	NO_X	CO	PM_{10}[b]	$PM_{2.5}$[b]
Components In Proximity to Each Other				
MRT Segment 2 + MRT Segment 3 + Wilshire Blvd MRT Station + TPSS 2	45.2	180.8	4.6	2.1
Peak Daily Localized Emissions	**45.2**	**180.8**	**4.6**	**2.1**
SCAQMD Localized Significance Threshold[e]	147	827	6	4
Exceeds Threshold?	No	No	No	No

Source: HTA, 2024

[a]Daily emissions for each construction component represent the contribution to the maximum daily localized emissions in the Valley or Westside.

[b]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.

[c]TPSSs listed in table would be located at standalone locations and not within the construction area of a station, MSF, track alignment, or tunnel. Each of these standalone TPSSs had their own construction phasing in the construction emissions analysis. For TPSSs located within the construction area of a station, MSF, track alignment, or tunnel, their construction activity was accounted for in the overall construction activity for the component.

[d]LST values are based on a 2-acre site with a 25-meter receptor distance in SRA 7 East San Fernando Valley.

[e]LST values are based on a 2-acre site with a 25-meter receptor distance in SRA 2 Northwest Coastal LA County.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District

As discussed in Section 3.1, the emissions analysis incorporated Tier 4 Final engines for off-road equipment greater than or equal to 50 horsepower, trucks with model years 2007 or newer, and included dust control measures to be implemented during each phase of construction, as required by SCAQMD Rule 403. The construction analysis for Alternative 1 conservatively assumed all equipment would be diesel powered, the Metro *Green Construction Policy* contains measures that aim to reduce construction emissions through utilization of hybrid drive off-road equipment and using electric power instead of diesel power. There are no feasible mitigation measures that would reduce Alternative 1 PM_{10} emissions below SCAQMD localized significance thresholds, therefore, Alternative 1 construction emissions would potentially expose sensitive receptors to substantial concentrations and impacts would be significant and unavoidable.

The SCAQMD's LSTs for each SRA represent the maximum emissions a project can emit without causing or contributing to a violation of any short-term NAAQS or CAAQS. As noted previously, the NAAQS and CAAQS are health-protective standards that define the maximum amount of ambient pollution that can be present without harming public health. Consequently, projects with emissions below the applicable LSTs would not be in violation of the NAAQS or CAAQS and, thus, EPA and CARB health-protective standards. Because Alternative 1 construction emissions exceed the PM_{10} LST, Alternative 1 would cause or contribute to a violation of one or more health-protective CAAQS and NAAQS. Given that diesel particulate matter (DPM) emissions constitute a portion of localized PM_{10} emissions, impacts related to localized DPM emissions during construction are also considered to be significant and unavoidable due to the following: (1) the elevated background carcinogenic risk, (2) the duration of construction activity, and (3) the proximity of sensitive receptors to DPM emissions sources.

6.3.4 Impact AQ-4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

6.3.4.1 Operational Impacts

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment facilities, food processing plants, chemical plants, composting areas, refineries, landfills, dairies, and fiberglass molding facilities. Alternative 1 is a transit project with a track alignment, TPSSs, stations, monorail MSF, and electric bus MSF which are not associated with any of the aforementioned land uses. Alternative 1 would include various trash receptacles associated with the stations and MSFs. On-site trash receptacles used by Alternative 1 would be covered and properly maintained to prevent adverse odors. With proper housekeeping practices, trash receptacles would be maintained in a manner that promotes odor control, and no adverse odor impacts are anticipated from the uses. Therefore, Alternative 1 operations would not create a significant level of objectionable odors affecting a substantial number of people and impacts with respect to odors would be less than significant.

6.3.4.2 Construction Impacts

During construction of Alternative 1, exhaust from equipment, activities associated with the application of architectural coatings and other interior and exterior finishes, and paving activities may produce discernible odors typical of most construction sites. Such odors would be, at worst, a temporary source of nuisance to adjacent uses, if at all, and would not affect a substantial number of people. Alternative 1 would use architectural coatings compliant with SCAQMD Rule 1113, which would limit the odors associated with off-gassing from those coatings. Additionally, material deliveries and heavy-duty haul truck trips could occasionally produce odors from diesel exhaust. These odors would not affect a substantial number of people because construction would be temporary, and construction-generated emissions dissipate rapidly with increasing distance from the source. Overall, odors associated with Alternative 1 construction would be temporary and intermittent in nature and would not create a significant level of objectionable odors affecting a substantial number of people.

6.4 Mitigation Measures

6.4.1 Operational Impacts

No mitigation measures are required.

6.4.2 Construction Impacts

As previously discussed, Alternative 1 would exceed SCAQMD regional thresholds for NO_X and CO, as well as SCAQMD localized thresholds for PM_{10}, and would result in significant and unavoidable impacts. Therefore, the following mitigation measures (MM) shall be implemented for Alternative 1 construction.

MM AQ-1: *The Project shall require zero emissions or near zero emissions on-road haul trucks such as heavy-duty trucks with natural gas engines that meet or exceed the California Air Resources Board's adopted optional nitrogen oxides emissions standard at 0.02 grams per brake horsepower hour (g/bhp-hr), if and when feasible. Operators shall maintain records of all trucks associated with project construction to document that* *each truck used meets these emission standards. These records shall be submitted monthly to Metro for review and shall be made available to regulatory agencies upon request. To ensure compliance, Metro or its designated representative shall conduct regular inspections of construction operations, including on-site verification of truck compliance. Inspections shall occur at least twice per month during active construction. Any contractor found to be using non-compliant trucks without prior approval from Metro shall be subject to penalties, including suspension of operations until compliance is achieved.*

MM AQ-2: *Construction contracts shall include language that compels contractors to implement all policies and emissions control measures as presented in Metro's Green Construction Policy.*

MM AQ-3: *Construction contracts shall include language that compels contractors to implement all fugitive dust control measures as detailed in SCAQMD Rule 403 (Fugitive Dust).*

6.4.3 Impacts After Mitigation

Although construction of Alternative 1 would require implementation of MM AQ-1, it is not technically feasible at the time of document preparation to verify the commercial availability of ZE and NZE trucks to the extent needed to reduce construction-period NO_X, CO, and PM_{10} emissions below SCAQMD's regional and localized emissions thresholds. MM AQ-2 and MM AQ-3 simply enforce Metro and SCAQMD policies that are already required, independent of any additional prescribed mitigation.

Given the current uncertainty around the availability of sufficient ZE and NZE trucks to reduce Alternative 1 construction-period NO_X, CO, and PM_{10} impacts below SCAQMD's regional and localized emissions thresholds, this impact would remain significant and unavoidable.

7 ALTERNATIVE 3

7.1 Alternative Description

Alternative 3 is an aerial monorail alignment that would run along the I-405 corridor and would include seven aerial monorail transit (MRT) stations and an underground tunnel alignment between the Getty Center and Wilshire Boulevard with two underground stations. This alternative would provide transfers to five high-frequency fixed guideway transit and commuter rail lines, including the Los Angeles County Metropolitan Transportation Authority's (Metro) E, Metro D, and Metro G Lines, the East San Fernando Valley Light Rail Transit Line, and the Metrolink Ventura County Line. The length of the alignment between the terminus stations would be approximately 16.1 miles, with 12.5 miles of aerial guideway and 3.6 miles of underground configuration.

The seven aerial and two underground MRT stations would be as follows:

1. Metro E Line Expo/Sepulveda Station (aerial)
2. Santa Monica Boulevard Station (aerial)
3. Wilshire Boulevard/Metro D Line Station (underground)
4. UCLA Gateway Plaza Station (underground)
5. Getty Center Station (aerial)
6. Ventura Boulevard/Sepulveda Boulevard Station (aerial)
7. Metro G Line Sepulveda Station (aerial)
8. Sherman Way Station (aerial)
9. Van Nuys Metrolink Station (aerial)

7.1.1 Operating Characteristics

7.1.1.1 Alignment

As shown on Figure 7-1, from its southern terminus at the Metro E Line Expo/Sepulveda Station, the alignment of Alternative 3 would generally follow I-405 to the Los Angeles-San Diego-San Luis Obispo (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 Interstate 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 U.S. Department of Veterans Affairs (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.

Figure 7-1. Alternative 3: Alignment

Source: LASRE, 2024; HTA, 2024

The alignment would proceed east underground and turn north under Veteran Avenue toward the proposed Wilshire Boulevard/Metro D Line Station located under the University of California, Los Angeles (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.

The Alternative 3 alignment 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 (Valley).

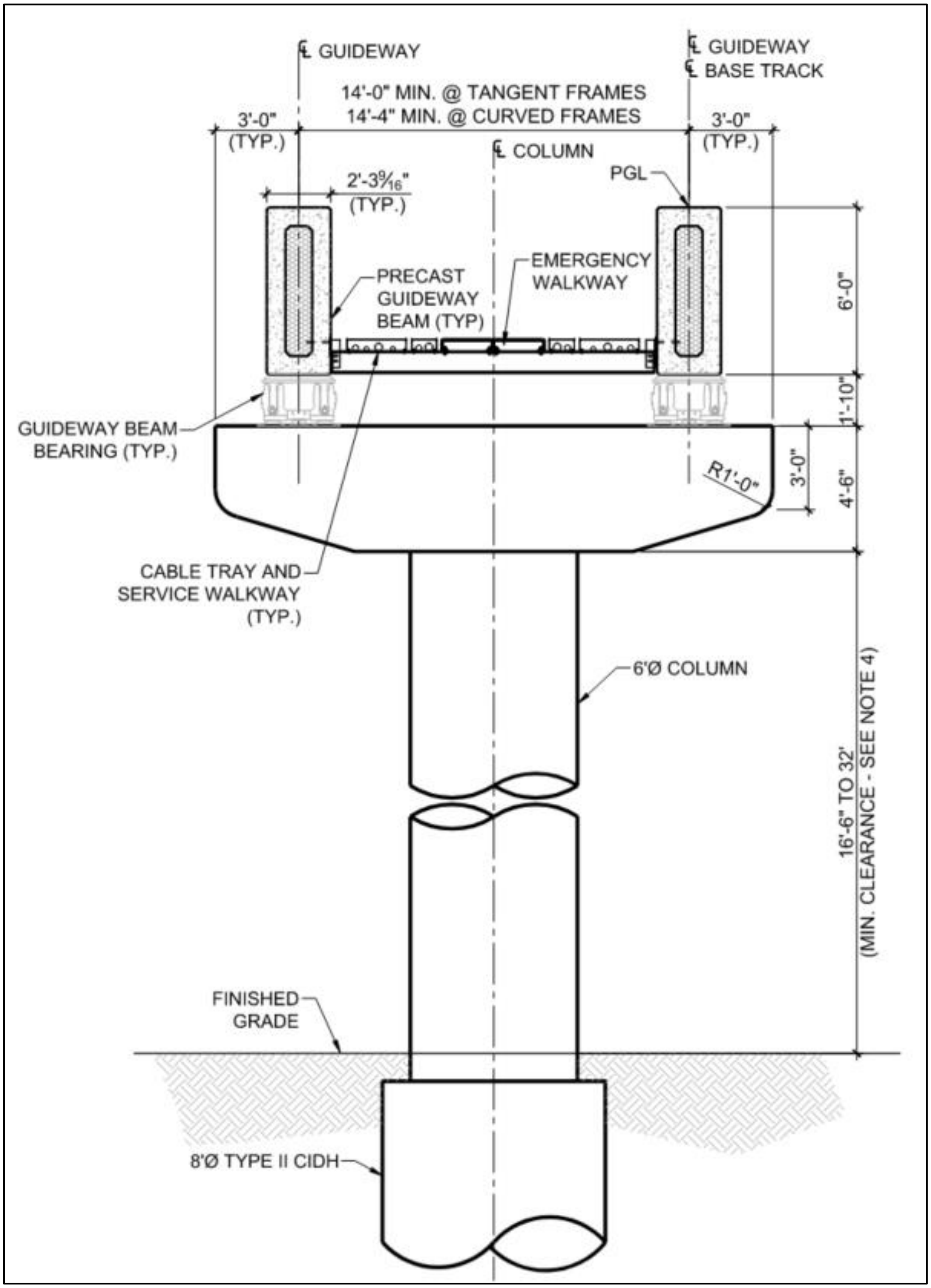
Near Greenleaf Street, the alignment would cross over the northbound freeway lanes and on-ramps toward the proposed Ventura Boulevard Station on the east side of I-405. This station would be located above a transit plaza and replace an existing segment of Dickens Street adjacent to I-405, just south of Ventura Boulevard. Immediately north of the Ventura Boulevard Station, the alignment would cross over the northbound I-405 to U.S. Highway 101 (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 7-1.

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.

7.1.1.2 Guideway Characteristics

Alternative 3 would utilize straddle-beam monorail technology, which allows the monorail vehicle to straddle a guide beam that both supports and guides the vehicle. Alternative 3 would operate on aerial and underground guideways with dual-beam configurations. Northbound and southbound trains would travel on parallel beams either in the same tunnel or supported by a single-column or straddle-bent aerial structure. Figure 7-2 shows a typical cross-section of the aerial monorail guideway.

Figure 7-2. Typical Aerial Monorail Guideway Cross-Section

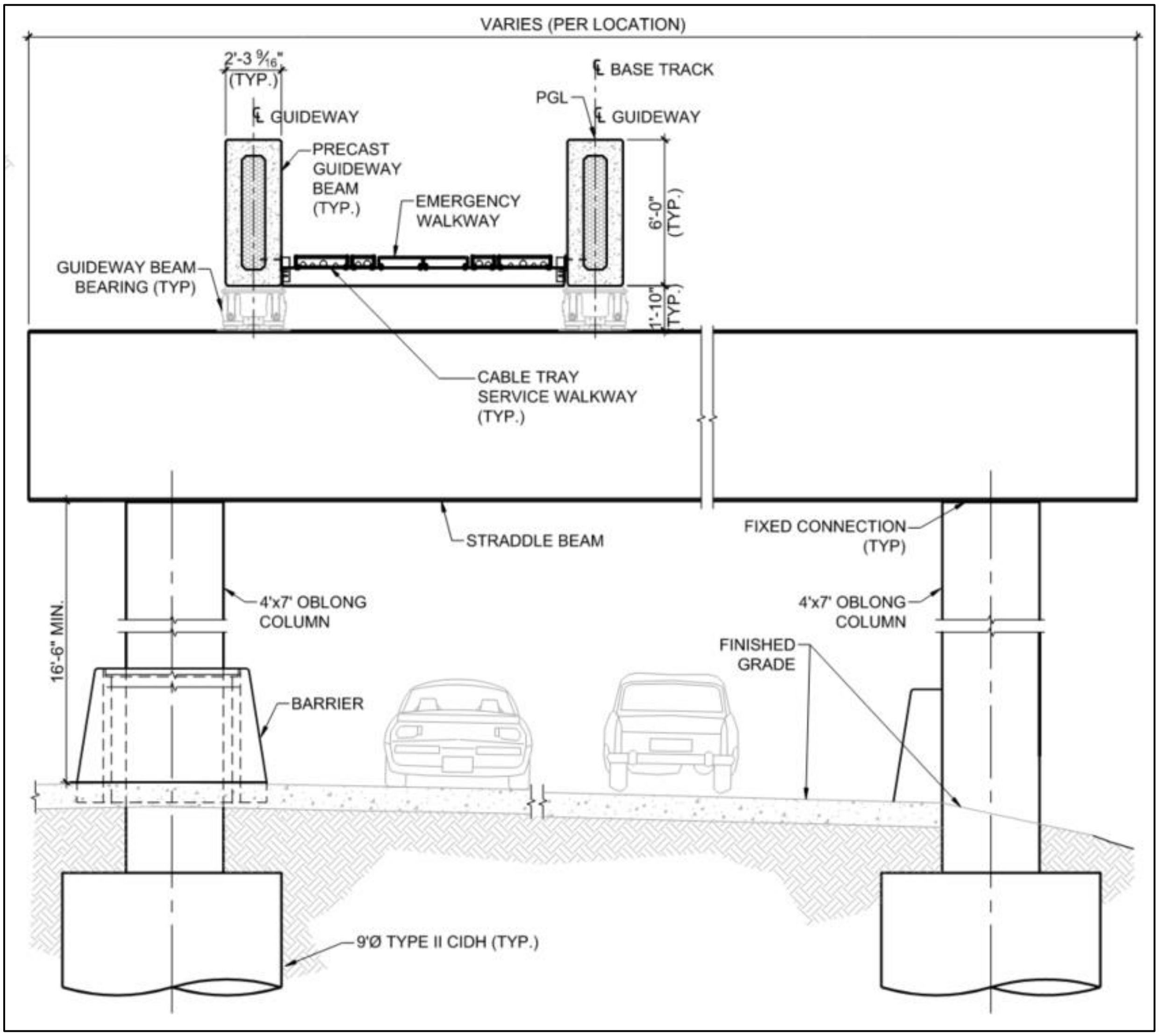


Source: LASRE, 2024

On a typical guideway section (i.e., not at a station), guide beams would rest on 20-foot-wide column caps (i.e., the structure connecting the columns and the guide beams), with typical spans (i.e., the distance between columns) ranging from 70 to 190 feet. The bottom of the column caps would typically be between 16.5 feet and 32 feet above ground level.

Over certain segments of roadway and freeway facilities, a straddle-bent configuration, as shown on Figure 7-3, consisting of two concrete columns constructed outside of the underlying roadway would be used to support the guide beams and column cap. 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 7-3. Typical Monorail Straddle-Bent Cross-Section

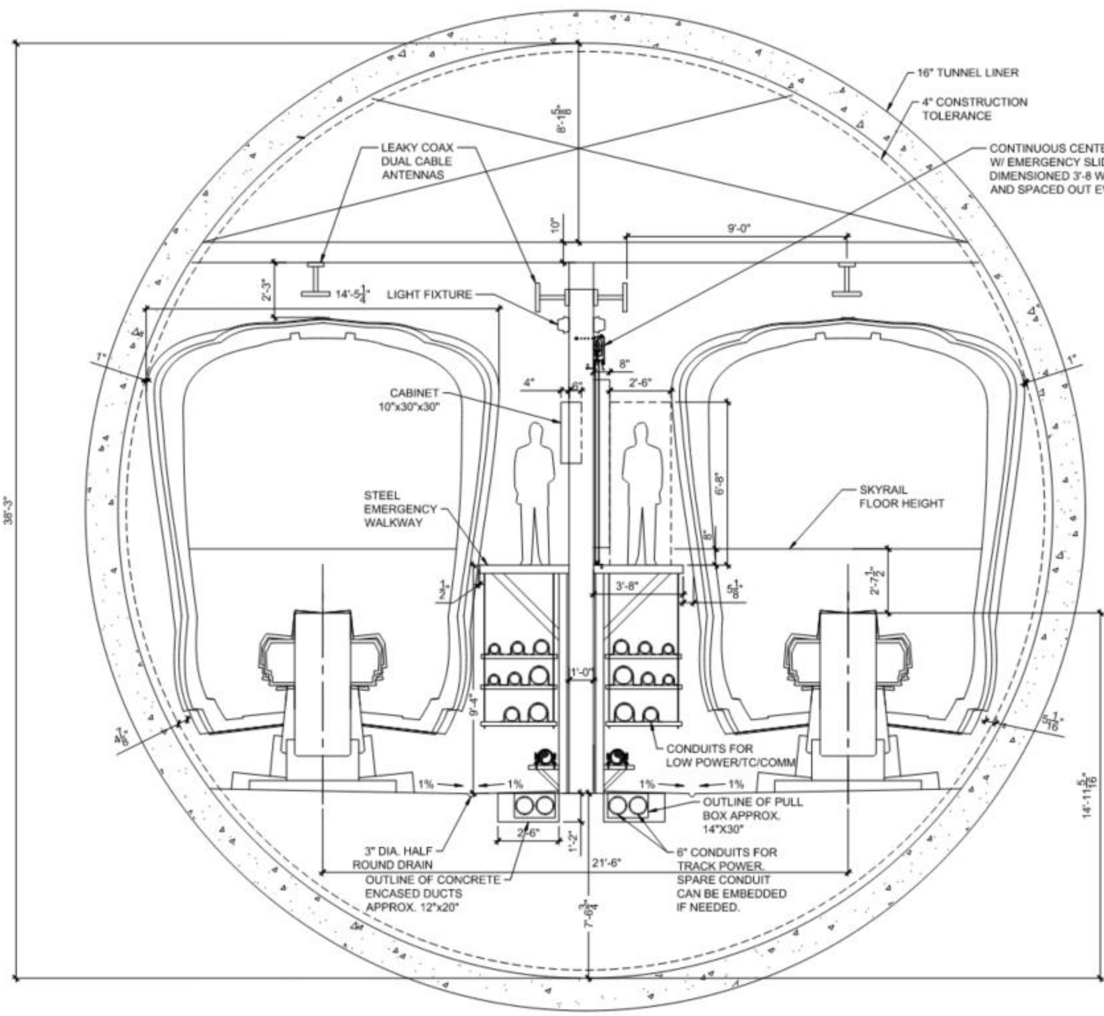


Source: LASRE, 2024

Structural support columns would vary in size and arrangement by alignment location. Columns would be 6 feet in diameter along main alignment segments adjacent to I-405 and be 4 feet wide by 6 feet long in the I-405 median. Straddle-bent columns would be 4 feet wide by 7 feet long. At stations, six rows of dual 5-foot by-8-foot columns would support the aerial guideway. Beam switch locations and long-span structures would also utilize different sized columns, with dual 5-foot columns supporting switch locations and either 9-foot or 10-foot-diameter columns supporting long-span structures. Crash protection barriers would be used to protect the columns. All columns would have a cast-in-drilled-hole (CIDH) pile foundation extending 1 foot in diameter beyond the column width with varying depths for appropriate geotechnical considerations and structural support.

For underground sections, a single 40-foot-diameter tunnel would be needed to accommodate dual-beam configuration. The tunnel would be divided by a 1-foot-thick center wall dividing two compartments with a 14.5-foot-wide space for trains and a 4-foot-wide 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, measuring 8 feet tall from the top of the tunnel, would allow for air circulation and ventilation. Figure 7-4 illustrates these components at a typical cross-section of the underground monorail guideway.

Figure 7-4. Typical Underground Monorail Guideway Cross-Section



Source: LASRE, 2024

7.1.1.3 Vehicle Technology

Alternative 3 would utilize straddle-beam monorail technology, which allows the monorail vehicle to straddle a guide beam that both supports and guides the vehicle. Rubber tires would sit both atop and on each side of the guide beam to provide traction and guide the train. Trains would be automated and powered by power rails mounted to the guide beam, with planned peak-period headways of 166 seconds and off-peak-period headways of 5 minutes. Monorail trains could consist of up to eight cars. Alternative 3 would have a maximum operating speed of 56 miles per hour; actual operating speeds would depend on the design of the guideway and distance between stations.

Monorail train cars would be 10.5 feet wide, with two double doors on each side. End cars would be 46.1 feet long with a design capacity of 97 passengers, and intermediate cars would be 35.8 feet long and have a design capacity of 90 passengers.

7.1.1.4 Stations

Alternative 3 would include seven aerial and two underground MRT stations with platforms approximately 320 feet long. Aerial stations would be elevated 50 feet to 75 feet above the ground level, and underground stations would be 80 feet to 110 feet underneath the existing ground level. The Metro E Line Expo/Sepulveda, Santa Monica Boulevard, Ventura Boulevard/Sepulveda Boulevard, Sherman Way, and Van Nuys Metrolink Stations would be center-platform stations where passengers would travel up to a shared platform that would serve both directions of travel. The Wilshire Boulevard/Metro D Line, UCLA Gateway Plaza, Getty Center, and Metro G Line Sepulveda Stations would be side-platform stations where passengers would select and travel up or down to station platforms depending on their direction of travel. 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 from ground level to the concourse.

Aerial station platforms would be approximately 320 feet long and would be supported by six rows of dual 5-foot by- 8-foot columns. The platforms would be covered, but not enclosed. Side-platform stations would be 61.5 feet wide 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 be 49 feet wide, with a 25-foot-wide center platform.

Underground side platforms would be 320 feet long and 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 doors would be integrated into the automatic train control system and would not open unless a train is stopped at the platform.

The following information describes each station, with relevant entrance, walkway, and transfer information. Bicycle parking would be provided at each station.

Metro E Line Expo/Sepulveda Station

- 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.

- 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.

Santa Monica Boulevard Station

- 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.

Wilshire Boulevard/Metro D Line Station

- 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.
- No dedicated station parking would be provided at this station.

UCLA Gateway Plaza Station

- 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.

Getty Center Station

- 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 proposed station’s concourse level with the Getty Center tram station. The proposed connection would occur outside the fare paid zone.
- An entrance to the walkway above the Getty Center’s parking lot would be the proposed station’s only entrance.
- No dedicated station parking would be provided at this station.

Ventura Boulevard/Sepulveda Boulevard Station

- 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.

Metro G Line Sepulveda Station

- 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 the new proposed Metro G Line bus rapid transit (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.
- 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.

Sherman Way Station

- 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, directly across the street from the I-405 northbound off-ramp to Sherman Way East.
- 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.

Van Nuys Metrolink Station

- 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 to the 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.
- Existing Metrolink 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.

7.1.1.5 Station-to-Station Travel Times

Table 7-1 presents the station-to-station distance 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 7-1. 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

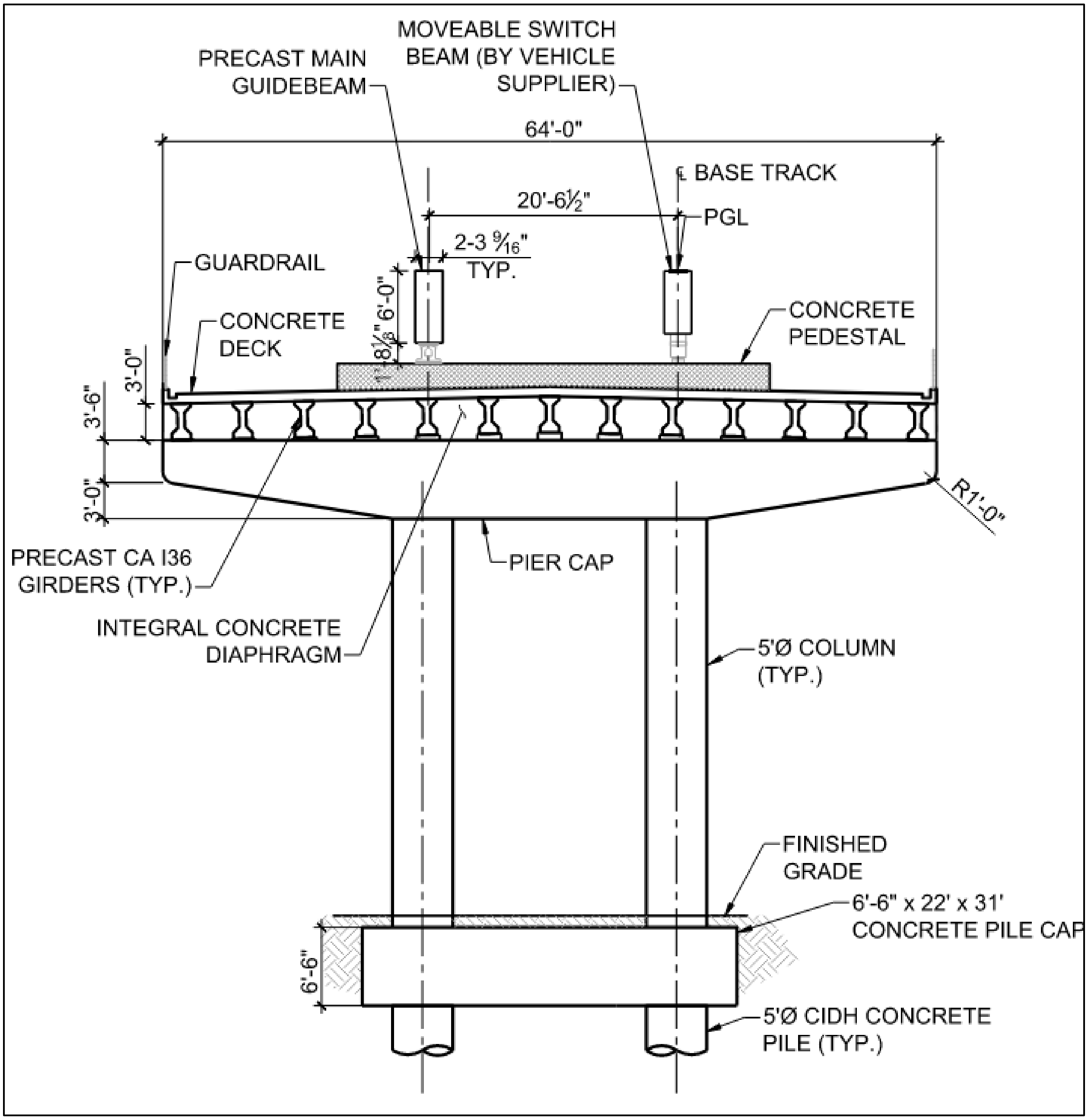
— = no data

7.1.1.6 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.

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, with dual 5-foot-diameter columns. Underground pile caps for additional structural support would also be required at these locations. Figure 7-5 shows a typical cross-section of the monorail beam switch.

Figure 7-5. Typical Monorail Beam Switch Cross-Section



Source: LASRE, 2024

7.1.1.7 Maintenance and Storage Facility

MSF Base Design

In the maintenance and storage facility (MSF) Base Design for Alternative 3, the MSF would be located on Los Angeles Department of Water and Power 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 LOSSAN rail corridor to the north, Saticoy

Street to the south, and property lines extending north of Tyrone and Hazeltine Avenues to the east and west, respectively.

Monorail trains would access the site from the main alignment's northern tail tracks 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

MSF Design Option 1

In the MSF Design Option 1, the MSF 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 7-6 shows the locations of the MSF Base Design and MSF Design Option 1 for Alternative 3.

Figure 7-6. Alternative 3: Maintenance and Storage Facility Options

Source: LASRE, 2024; HTA, 2024

7.1.1.8 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. Table 7-2 lists the TPSS locations proposed for Alternative 3.

Figure 7-7 shows the TPSS locations along the Alternative 3 alignment.

Table 7-2. 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 7-7. Alternative 3: Traction Power Substation Locations

Source: LASRE, 2024; HTA, 2024

7.1.1.9 Roadway Configuration Changes

Table 7-3 lists the roadway changes necessary to accommodate the guideway of Alternative 3. Figure 7-8 shows the location of these roadway changes in the Sepulveda Transit Corridor Project (Project) Study Area, except for the I-405 configuration changes, which occur throughout the corridor.

Table 7-3. 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 7-8. Alternative 3: Roadway Changes

Source: LASRE, 2024; HTA, 2024

In addition to the changes made to accommodate the guideway, as listed in Table 7-3, roadways and sidewalks near stations would be reconstructed, which would result in modifications to curb ramps and driveways.

7.1.1.10 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.

7.1.1.11 Fire/Life Safety – Emergency Egress

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.

7.1.2 Construction Activities

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 works, such as site preparation, demolition, and utility relocation, could start in advance of construction of the transit facilities.

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 working limits to provide sufficient work area. The first stage of I-405 widening would include a narrowing of adjacent freeway lanes to a minimum width of 11 feet (which would eliminate 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, 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 existing median and drainage infrastructure would be followed by the installation of new K-rails 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 Alternative 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 and 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

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 underground segment of the guideway. The TBM would be launched from a staging area on Veteran Avenue south of Wilshire Boulevard, and head north toward an exit portal location north of Leo Baeck Temple. 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 from the surface to the top of the tunnel. 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.

Alternative 3 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.

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, and the I-405 northbound on-ramp at Burbank Boulevard.

Table 7-4 and Figure 7-9 show the potential construction staging areas for Alternative 3. 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)

Table 7-4. 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 7-9. Alternative 3: Construction Staging Locations

Source: LASRE, 2024; HTA, 2024

7.2 Existing Conditions

7.2.1 Regional Climate and Meteorology

The Project Study Area is located within the South Coast Air Basin (Basin), an area covering approximately 6,745 square miles and bounded by the Pacific Ocean to the west and south and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the distinctive climate of the Basin, which is a coastal plain with connecting broad valleys and low hills.

The Southern California region, which includes the Basin, lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography) as well as human-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of pollutants throughout the Basin, making it an area of high pollution potential.

The worst air pollution throughout the Basin occurs from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day. O_3 concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Basin and adjacent desert. Substantial progress has been made in reducing air pollution levels in Southern California in recent years. However, the Basin still faces considerable challenges to attain the federal and state air quality standards.

Weather stations closest to the Project Study Area are the Western Regional Climate Center (WRCC) monitoring stations at Woodland Hills Pierce College (COOP ID 041484) and the University of California, Los Angeles (UCLA) (COOP ID 049152). These monitoring stations were selected to accurately represent the climate conditions occurring in the northern and southern portions of the Project Study Area. According to climate data recorded from 1949 to 2012 for the Woodland Hills station, the average annual maximum temperature in the area is approximately 81 degrees Fahrenheit (°F), and the average annual minimum temperature is approximately 48°F. The average precipitation in the area is approximately 16 inches annually, occurring primarily from December through March (WRCC, 2023a). According to climate data recorded from 1933 to 2016 for the UCLA station, the average annual maximum temperature in the area is approximately 71°F, and the average annual minimum temperature is approximately 55°F. The average precipitation in the area is approximately 17 inches annually, occurring primarily from December through March (WRCC, 2023b).

7.2.2 Pollutants of Concern

7.2.2.1 Criteria Pollutants

National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) have been established for six pollutants: O_3, NO_2, CO, SO_2, respirable particulate matter of diameter less than 10 microns (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead. Brief descriptions of the criteria air pollutants, common sources, and documented health concerns from exposure are provided in Table 7-5.

Table 7-5. Criteria Air Pollutants and Characteristics

Pollutant	Characteristics
Ozone (O_3)	• Colorless gas and secondary pollutant formed by complex atmospheric interactions between two or more reactive organic gas compounds (including volatile organic compounds and nitrogen oxides (NO_X) in the presence of ultraviolet sunlight. Automobile travel and industrial sources are the greatest sources of atmospheric O_3 formation. • Short-term exposure (lasting for a few hours) to O_3 levels typical in Southern California can result in breathing pattern changes, restricted breathing, increased susceptibility to infections, inflammation of the lung tissue, and immunological changes.
Nitrogen Dioxide (NO_2)	• Formed in the atmosphere through chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation and contribute to the formation of PM_{10}. • High concentrations can cause breathing difficulties, are linked to chronic pulmonary fibrosis, an increase of bronchitis in children (2 and 3 years old), and result in a brownish-red cast to the atmosphere with reduced visibility.
Carbon Monoxide (CO)	• Colorless, odorless gas formed by incomplete combustion of fossil fuels (e.g., motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains) • Excess exposure can reduce the blood's ability to transport oxygen, causing dizziness, fatigue, and impairment of central nervous system functions.
Sulfur Dioxide (SO_2)	• Refers to any compounds of sulfur and oxygen. A colorless, pungent gas that forms primarily through the combustion of sulfur-containing coal and oil. • Stringent controls placed on stationary SO_2 emissions and limits on sulfur content of fuels have reduced atmospheric SO_2 concentrations. Highest levels of SO_2 are found near large industrial complexes (e.g., power plants) and can harm plant leaves and erode iron and steel. • An irritant gas that attacks the throat and lungs; can cause acute respiratory symptoms and diminished lung function in children.
Respirable Particulate Matter (PM_{10})	• Comprises airborne liquid and solid particles (e.g., smoke, soot, dust, salts, acids, and metals) formed by atmospheric chemical reactions of gases emitted from industrial and motor vehicles. • Results from crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. • Collects in the upper portion of the respiratory system and can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections.

Pollutant	Characteristics
Fine Particulate Matter ($PM_{2.5}$)	• Formed in the atmosphere from gases (i.e., sulfur dioxide, nitrogen oxides, and volatile organic compounds) and results from fuel combustion (e.g., motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. • Inhalation (i.e., lead, sulfates, nitrates, chlorides, ammonia) can be absorbed into the bloodstream and damage human organs, tissues, and cells throughout the body. Suspended $PM_{2.5}$ can damage and discolor surfaces and produce haze and reduce regional visibility.
Lead (Pb)	• Occurs in atmosphere as PM emitted from leaded gasoline combustion; manufacture of batteries, paint, ink, ceramics, and ammunition; and secondary lead smelting facilities. • Phased-out leaded gasoline reduced overall airborne lead by 95 percent between 1978 and 1987. Current emission sources of greater concern include lead smelters, battery recycling, and manufacturing facilities. • Prolonged exposure can lead to serious threats to human health (i.e., gastrointestinal disturbances, anemia, kidney disease, and neuromuscular and neurological dysfunction). Infancy and childhood exposure can impair neurobehavioral performance.

Source: CARB, 2024c

7.2.2.2 Toxic Air Contaminants

Toxic air contaminants (TAC) are generally defined as those air pollutants that may increase a person's risk of developing cancer and/or other serious health effects; however, the emission of a toxic chemical does not automatically create a health hazard. Although NAAQS and CAAQS have been established for criteria pollutants, no ambient standards exist for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, California Air Resources Board (CARB) has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA, 2015a, 2015b).

Air toxics are generated by many sources, including stationary sources, such as dry cleaners, gas stations, auto body shops, and combustion sources; mobile sources, such as diesel trucks, ships, and trains; and area sources, such as farms, landfills, and construction sites. Adverse health effects of TACs can be carcinogenic (cancer-causing), short-term (acute) non-carcinogenic, and long-term (chronic) non-carcinogenic. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to the brain and nervous system, and respiratory disorders. The principal TAC associated with the Project is DPM emitted during construction activities.

DPM differs from other air toxics in that it is a complex mixture of hundreds of substances rather than a single substance. DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances such as polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB, 2024c). As more than 90 percent of DPM is less than 1 micrometer (µm) in diameter (about 1/70th the diameter of a human hair), the majority of DPM is small enough to be inhaled into the lungs. Although particles the size of DPM can deposit throughout the lung, the largest fraction deposits in the deepest regions of the lungs where the lung is most susceptible to injury. Health effects associated with exposure to DPM include premature death, hospitalizations, and emergency department visits for exacerbated chronic heart and lung disease, including asthma, increased respiratory symptoms, and decreased lung function in children (CARB, 2024d).

The U.S. Environmental Protection Agency (EPA) is tasked with the regulatory authority of monitoring pollutant concentrations and determining whether areas have attained the NAAQS. Those areas with recurring concentrations of criteria pollutants exceeding the air quality standard values are designated as “Nonattainment” of the standard and are required to prepare air quality plans to demonstrate regional control strategies that will reduce emissions.

7.2.3 Regional Attainment Status

EPA is tasked with the regulatory authority of monitoring pollutant concentrations and determining whether areas have attained the NAAQS. Those areas with recurring concentrations of criteria pollutants exceeding the air quality standard values are designated as “Nonattainment” of the standard and are required to prepare air quality plans to demonstrate regional control strategies that will reduce emissions. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Recently in February 2024, the federal $PM_{2.5}$ annual standard was revised from 12 $\mu g/m^3$ to 9 $\mu g/m^3$, making the federal standard more stringent than the state standard of 12 $\mu g/m^3$. Local monitoring data are used to designate areas as nonattainment, maintenance, attainment, or unclassified areas for ambient air quality standards. The four designations are defined as follows.

- Nonattainment—assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- Maintenance—assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- Attainment—assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- Unclassified—assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table 7-6 presents the attainment status designations for the non-desert portion of Los Angeles County within the SCAQMD jurisdiction. The Basin portion of Los Angeles County is currently designated nonattainment of the NAAQS for O_3 and $PM_{2.5}$, and is designated nonattainment of the CAAQS for O_3, PM_{10}, and $PM_{2.5}$.

Table 7-6. Attainment Status Designations – South Coast Air Basin Portion of Los Angeles County

Pollutant	Averaging Time	CAAQS Status	NAAQS Status
Ozone (O_3)	1-Hour	Nonattainment	Nonattainment (Extreme)
	8-Hour	Nonattainment	Nonattainment (Extreme)
Carbon Monoxide (CO)	1-Hour	Attainment	Attainment (Maintenance)
	8-Hour	Attainment	Attainment (Maintenance)
Nitrogen Dioxide (NO_2)	1-Hour	Attainment	Unclassifiable/Attainment
	Annual Average	Attainment	Attainment (Maintenance)
Sulfur Dioxide (SO_2)	1-Hour	Attainment	Unclassifiable/Attainment
	24-Hour	Attainment	Unclassifiable/Attainment
Respirable Particulate Matter (PM_{10})	24-Hour	Nonattainment	Attainment (Maintenance)
	Annual Average	Nonattainment	No Federal Standard
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No State Standard	Nonattainment (Serious)
	Annual Average	Nonattainment	Nonattainment (Moderate)
Lead (Pb)	30-Day Average	Attainment	No Federal Standard
	3-Month Average	Attainment	Nonattainment (Partial)

Source: CARB, 2024b; EPA, 2024

CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard

7.2.4 Local Air Quality

The attainment status designations are based on concentrations of air pollutants measured at air monitoring sites throughout the Basin. The SCAQMD divides the Basin into 38 source receptor areas (SRA), the boundaries of which were determined by the proximity to the nearest air monitoring station and local topography and meteorological patterns. The SCAQMD operates a total of 34 air monitoring sites that are used to characterize air quality within the 38 SRAs. The Project Study Area predominately transects portions of SRA 6 (West San Fernando Valley) and SRA 7 (East San Fernando Valley) in the northern portion and SRA 2 (Northwest Coastal Los Angeles County) in the southern portion. However, although project alternatives are included in SRA 7 (East San Fernando Valley), there is no longer an active monitoring station in this SRA; therefore, the SRA 6 monitoring station data was used. Figure 7-10 displays the Project Study Area overlain on the portions of the SCAQMD SRAs that it covers, as well as the locations of monitoring stations in SRA 2 (West Los Angeles – Veterans Administration monitoring site) and SRA 6 (Reseda monitoring site). The following discussions address pollutant concentrations measured at stations from 2021 to 2023.

Figure 7-10. SCAQMD Source Receptor Areas in Project Study Area

Source: HTA, 2024

Table 7-7 presents pollutant concentrations measured at the Reseda monitoring station that provides data representative of air quality conditions within SRA 6. As shown in Table 7-7, concentrations of O_3 exceeded applicable standards numerous times during the most recent three-year period of data available. The 24-hour federal standard for $PM_{2.5}$ was also exceeded for one year during this period. The air monitoring data recorded at the Reseda monitoring station reflects the nonattainment status of the Basin portion of Los Angeles County for O_3 and $PM_{2.5}$. The Reseda monitoring station is not equipped to measure concentrations of PM_{10}. Concentrations of all other pollutants monitored at this site remained below applicable federal and state air quality standards, consistent with the attainment or maintenance designations corresponding to the Basin portion of Los Angeles County.

Table 7-7. Reseda Air Monitoring Station Data (SRA 6)

Pollutant	Averaging Time	Maximum Concentrations and Frequencies of Exceeded Standards		
		2021	2022	2023
Ozone (O_3)	Maximum 1-Hour Concentration (ppm)	0.110	0.11	0.104
	Days >0.09 ppm (CAAQS)	4	7	10
	Maximum 8-Hour Concentration (ppm)	0.083	0.096	0.096
	Days >0.070 ppm (NAAQS/CAAQS)	33	24	30
Carbon Monoxide (CO)	Maximum 1-Hour Concentration (ppm)	2.6	2.2	2.3
	Days >20 ppm (CAAQS)	0	0	0
	Maximum 8-Hour Concentration (ppm)	1.9	1.8	1.7
	Days >9.0 ppm (NAAQS/CAAQS)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-Hour Concentration (ppm)	0.0542	0.0547	0.0481
	Days >0.10 ppm (NAAQS)	0	0	0
	Annual Average Concentration (ppm)	0.010	0.010	0.010
	>0.030 ppm (CAAQS)	0	0	0
Respirable Particulate Matter (PM_{10})	Maximum 24-Hour Concentration (µg/m³)	—	—	—
	Days >150 µg/m³ (NAAQS)			
	Days >50 µg/m³ (CAAQS)			
	Annual Average Concentration (µg/m³)	—	—	—
	>20 µg/m³ (CAAQS)			
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration (µg/m³)	55.5	20.5	21.9
	Days >35 µg/m³ (NAAQS)	3	0	0
	Annual Average Concentration (µg/m³)	10.1	8.8	8.8
	>12 µg/m³ (CAAQS)	No	No	No
	>9 µg/m³ (NAAQS)	No[a]	No	No

Source: SCAQMD, 2024

[a]The federal standard for annual $PM_{2.5}$ was revised to 9 µg/m³ in 2024. Prior to 2024, the federal standard was 12 µg/m³, therefore, concentrations in 2021 would not have exceeded the federal standard for annual $PM_{2.5}$.

µg/m³ = micrometers per cubic meter
CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard
ppm = parts per million
SRA = source receptor area

Table 7-8 presents pollutant concentrations measured at the West Los Angeles-Veterans Administration Monitoring Station that provides data representative of air quality conditions within SRA 2. Concentrations of O_3 exceeded applicable standards numerous times during the most recent three-year

period of data available as shown in Table 7-8. The air monitoring data recorded at the West Los Angeles-Veterans Administration monitoring station reflects the nonattainment status of the Basin portion of Los Angeles County for the O_3. The West Los Angeles – Veterans Administration monitoring station is not equipped to measure concentrations of particulate matter (PM_{10} and $PM_{2.5}$). Concentrations of all other pollutants monitored at this site remained below applicable federal and state air quality standards, consistent with the attainment or maintenance designations corresponding to the Basin portion of Los Angeles County.

Table 7-8. West Los Angeles - Veterans Administration Air Monitoring Station Data (SRA 2)

Pollutant	Averaging Time	Maximum Concentrations and Frequencies of Exceeded Standards		
		2021	2022	2023
Ozone (O_3)	Maximum 1-Hour Concentration (ppm)	0.095	0.081	0.109
	Days >0.09 ppm (CAAQS)	1	0	1
	Maximum 8-Hour Concentration (ppm)	0.082	0.07	0.066
	Days >0.070 ppm (NAAQS/CAAQS)	1	0	0
Carbon Monoxide (CO)	Maximum 1-Hour Concentration (ppm)	2	1.7	1.4
	Days >20 ppm (CAAQS)	0	0	0
	Maximum 8-Hour Concentration (ppm)	1.6	1.5	1.2
	Days >9.0 ppm (NAAQS/CAAQS)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-Hour Concentration (ppm)	0.061	0.051	0.044
	Days >0.10 ppm (NAAQS)	0	0	0
	Annual Average Concentration (ppm)	0.010	0.011	0.009
	>0.030 ppm (CAAQS)	No	No	No
Respirable Particulate Matter (PM_{10})	Maximum 24-Hour Concentration (μg/m^3)	—	—	—
	Days >150 μg/m^3 (NAAQS)			
	Days >50 μg/m^3 (CAAQS)			
	Annual Average Concentration (μg/m^3)	—	—	—
	>20 μg/m^3 (CAAQS)			
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration (μg/m^3)	—	—	—
	Days >35 μg/m^3 (NAAQS)			
	Annual Average Concentration (μg/m^3)	—	—	—
	>12 μg/m^3 (CAAQS)			
	>9 μg/m^3 (NAAQS)			

Source: SCAQMD, 2024

— = no data
μg/m^3 = micrometers per cubic meter
CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard
ppm = parts per million
SRA = source receptor area

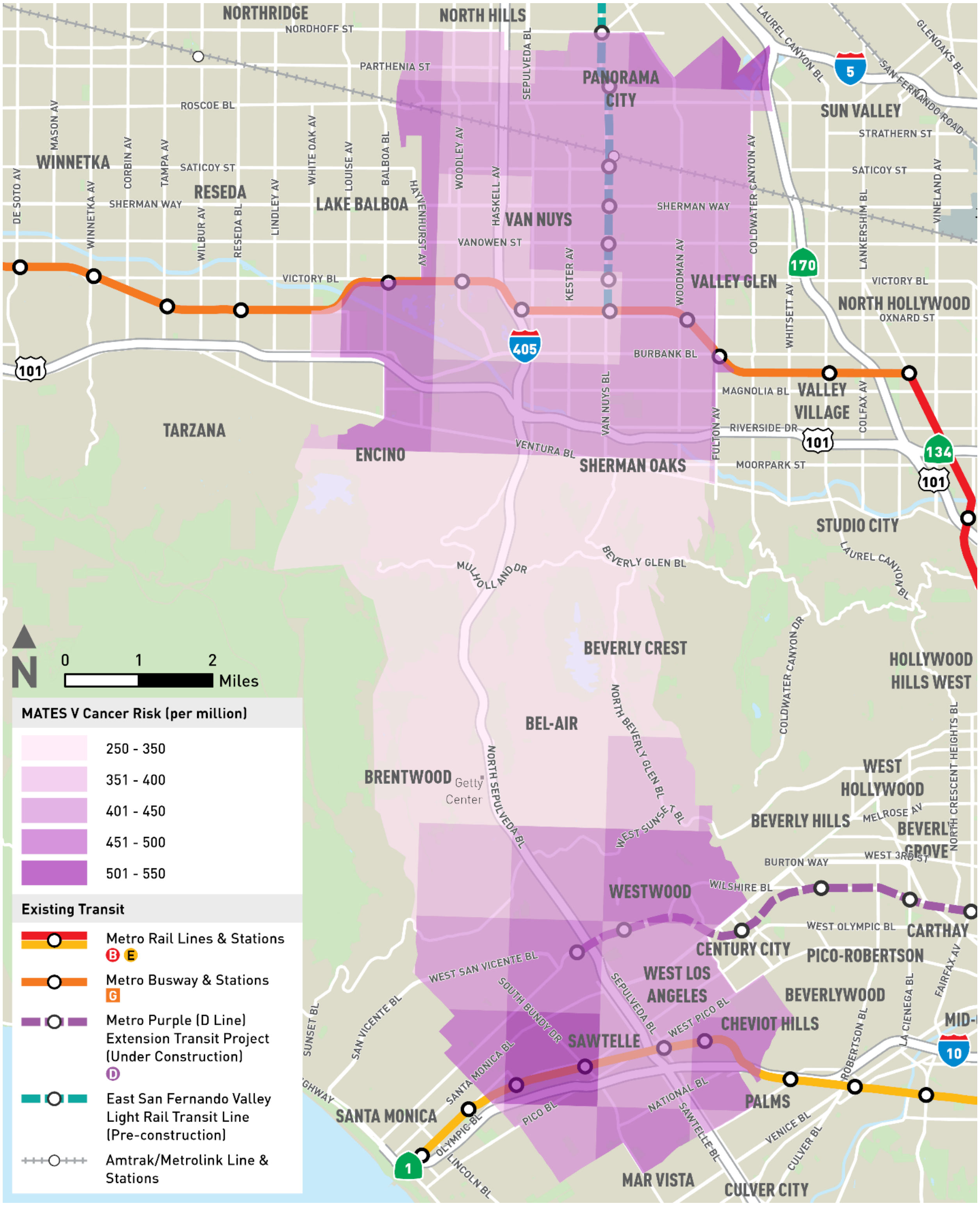
7.2.5 Ambient Carcinogenic Risk

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study conducted by the SCAQMD throughout the Basin, the first of which was published in 1986 to determine Basin-wide risks associated with major airborne carcinogens (pollutants that are scientifically documented to cause cancer). The most recent study is the MATES V published in 2021. MATES V was based on measurements during 2018 and 2019, and a modeling analysis based on emissions inventory data for 2018. A network of 10 fixed sites was used to monitor over 30 TACs once every six days over the course of a year between 2018 and 2019, and computer modeling was used to estimate air toxic levels throughout the Basin based on ambient concentrations and the emissions inventory. MATES V included methodology updates compared to previous versions, these included estimating cancer risk via inhalation and non-inhalation pathways rather than only the inhalation pathway. MATES V also estimated non-cancer health impacts via the inhalation and non-inhalation pathways, whereas previous versions did not estimate non-cancer risks. With MATES V including inhalation and non-inhalation pathways, cancer risk estimates were eight percent higher than the inhalation-only estimates (SCAQMD, 2021b).

MATES V found that air toxic levels continue to decline compared to previous MATES versions. As part of MATES V, SCAQMD developed a cancer risk map that plotted the modeled cancer risk on a grid spanning the Basin. Each grid cell is characterized by the modeled cancer risk produced by MATES V. Cancer risk is expressed as the number of extra cancer cases occurring over a 70-year lifetime per one million people exposed to toxic air contaminants. MATES V estimated cancer risk in the Basin ranged from 585 to 842 per million. Similar to previous MATES studies, the SCAQMD determined that DPM is the largest contributor to air toxics cancer risk. However, at the 10 monitoring stations, DPM levels were 53 percent lower compared to MATES IV and 86 percent lower than MATES II (SCAQMD, 2021b).

Figure 7-11 shows the Project Study Area overlain on the MATES V Estimated Risk grid developed by SCAQMD. Ambient estimated risks in the Project Study Area range from approximately 250 per million to 550 per million according to MATES V modeling results.

Figure 7-11. MATES V Estimated Cancer Risk in the Project Study Area



Source: SCAQMD, 2021b

7.2.6 Sensitive Receptors

Sensitive individuals refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses where sensitive individuals are most likely to spend extended periods of time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (SCAQMD, 1993). These types of land uses are considered sensitive receptors in air quality planning. Alternative 3 is located in a dense urban environment where sensitive receptors are located in close proximity to various components of Alternative 3. Sensitive receptor locations were identified within 1,000 feet of the Alternative 3 construction area and would encompass the sensitive receptor locations during construction and operations. Sensitive receptor locations for Alternative 3 are shown on Figure 7-12 through Figure 7-17.

Figure 7-12. Alternative 3: Sensitive Receptor Map Sheet 1 of 6

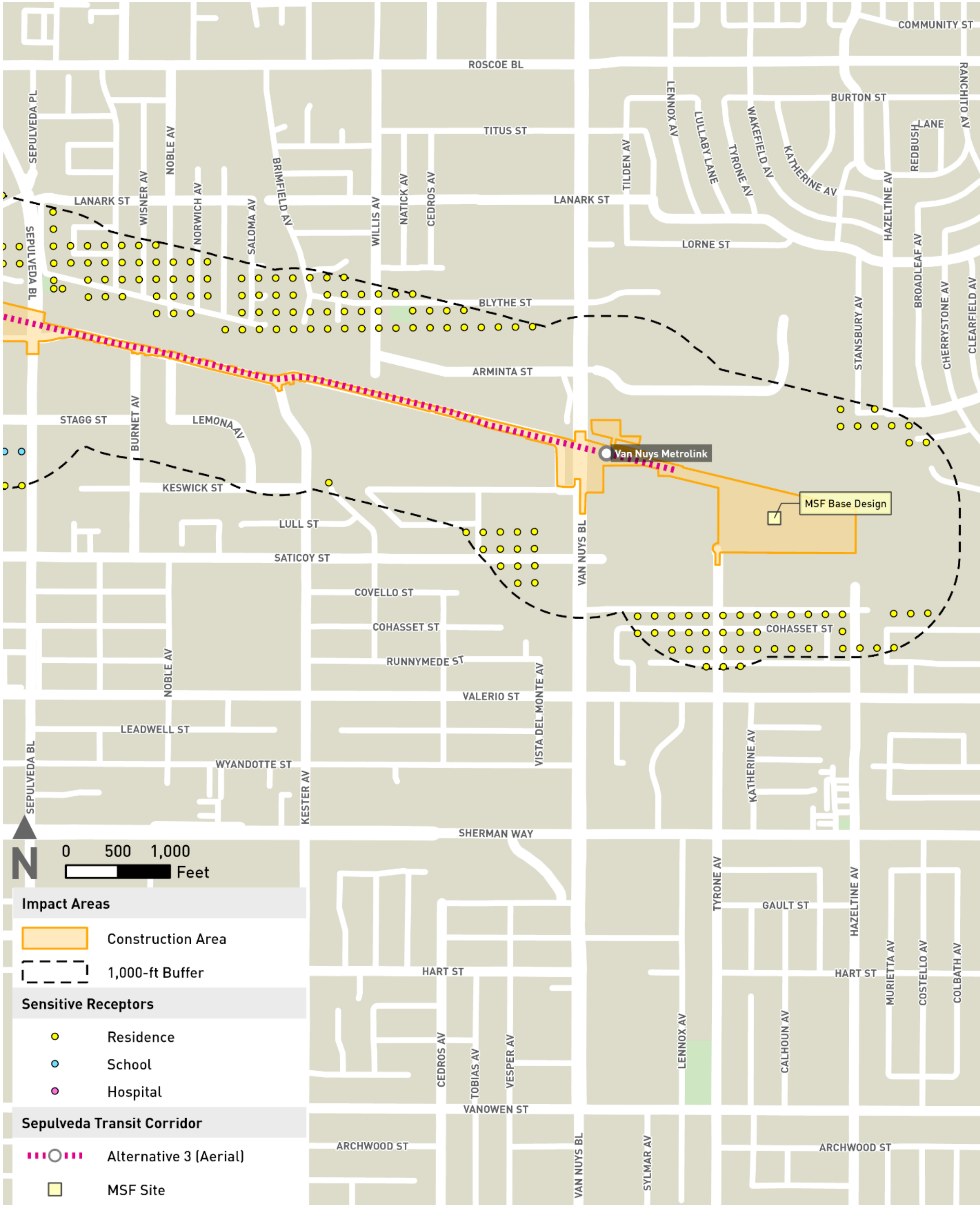


Figure 7-13. Alternative 3: Sensitive Receptor Map Sheet 2 of 6

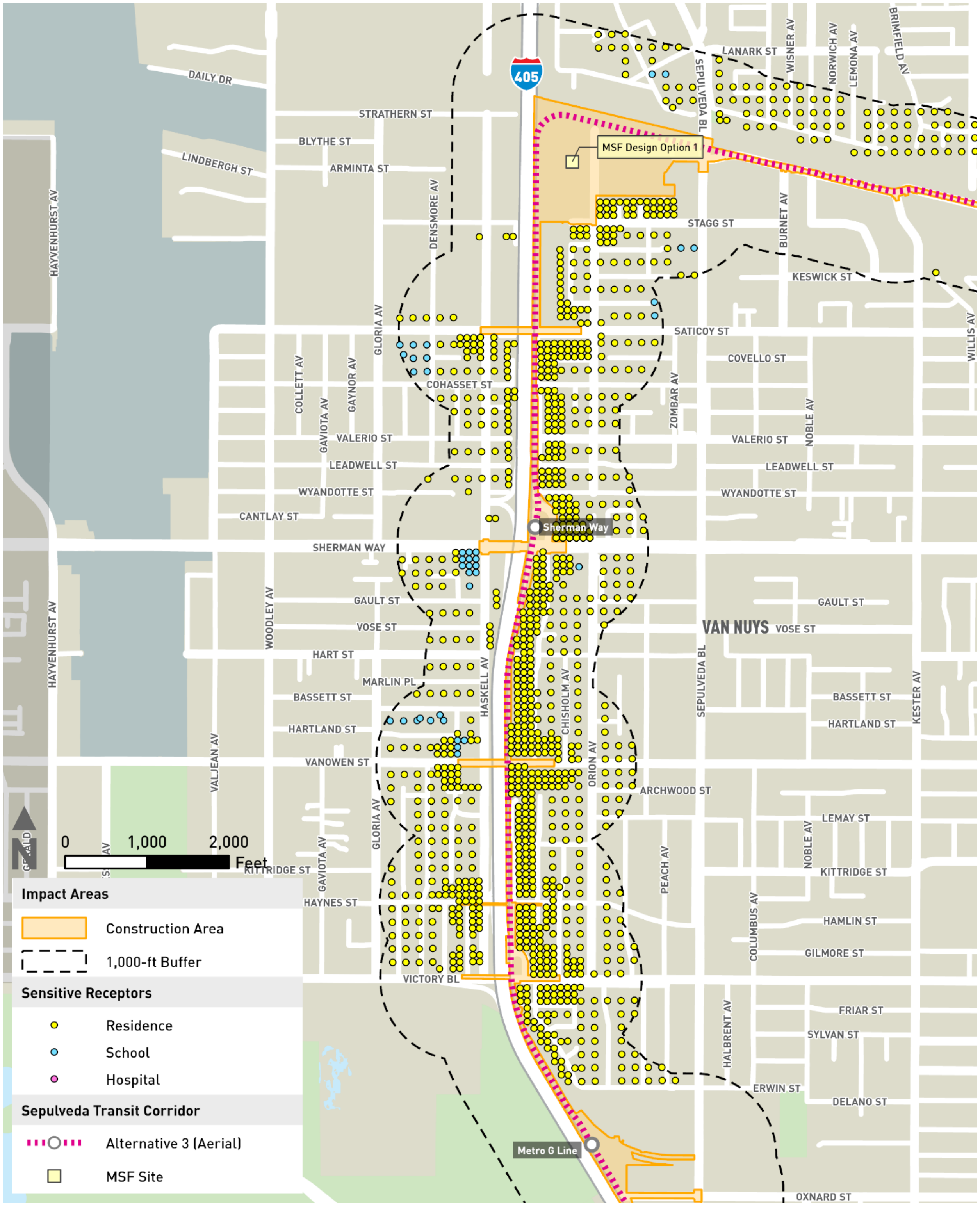


Figure 7-14. Alternative 3: Sensitive Receptor Map Sheet 3 of 6

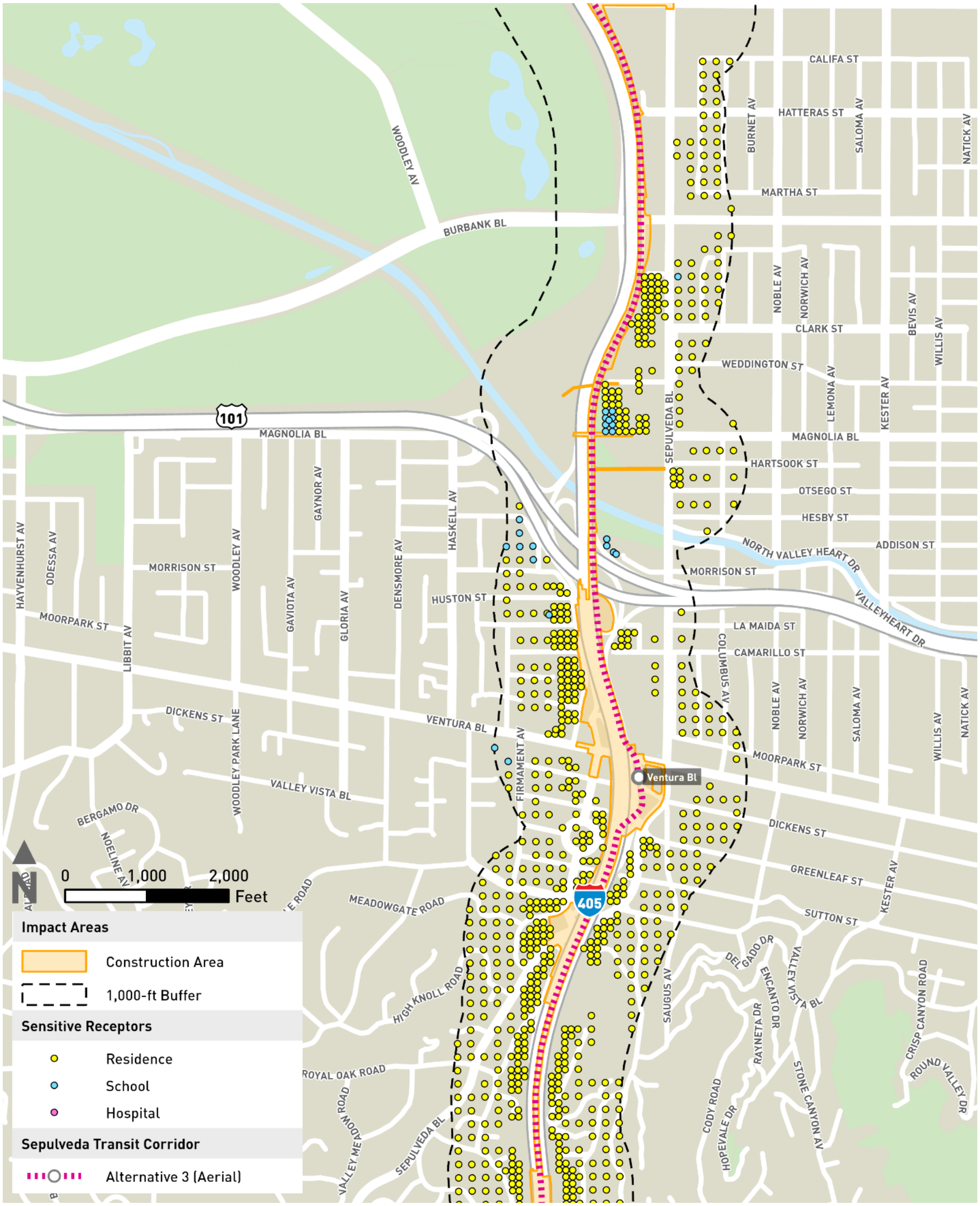


Figure 7-15. Alternative 3: Sensitive Receptor Map Sheet 4 of 6

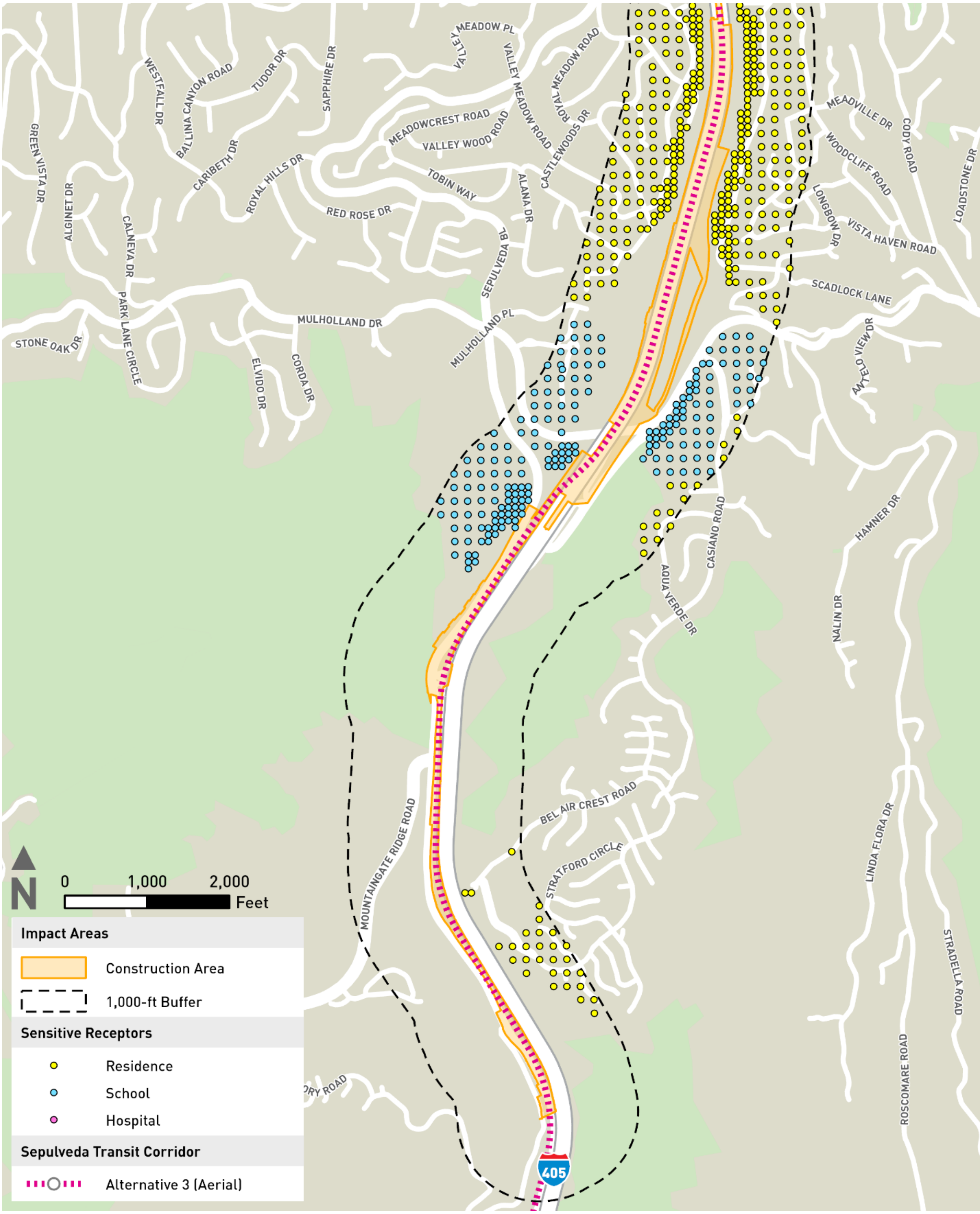


Figure 7-16. Alternative 3: Sensitive Receptor Map Sheet 5 of 6

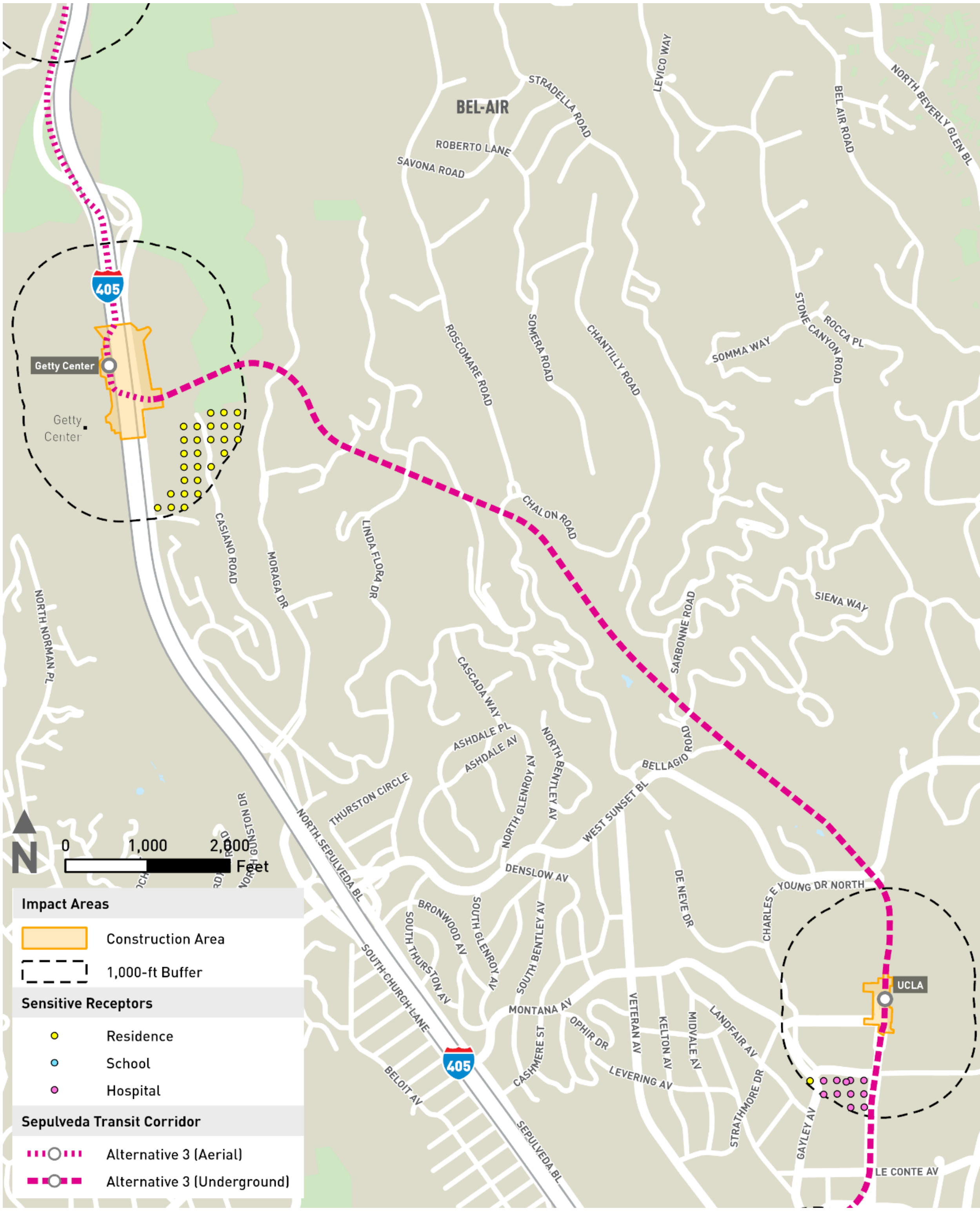
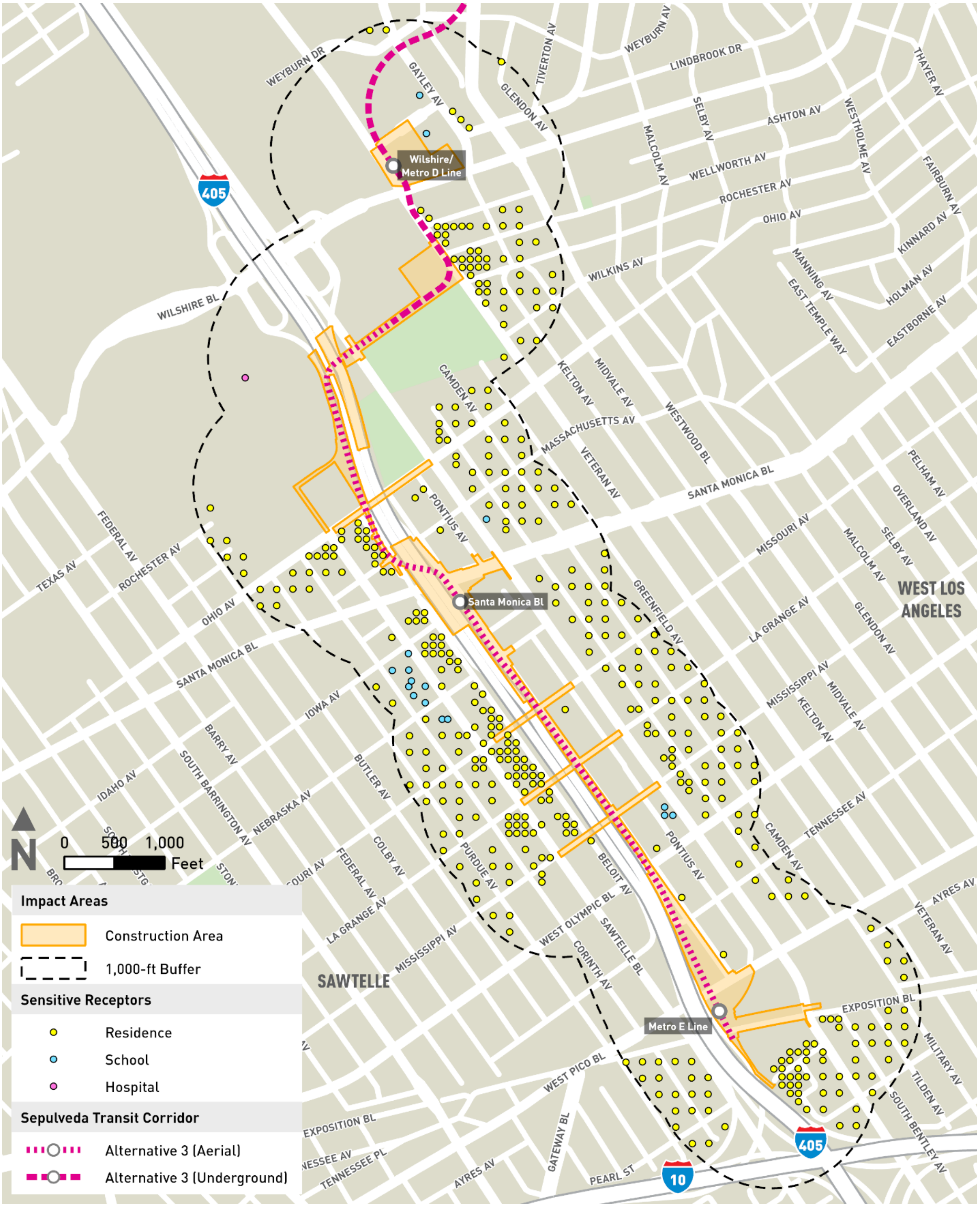


Figure 7-17. Alternative 3: Sensitive Receptor Map Sheet 6 of 6



Source: HTA, 2024

7.2.7 Regional Highway Emissions

As required by CEQA, existing conditions (Baseline 2021) emissions from regional mobile sources were estimated in the analysis for comparison with project alternatives for informational purposes only. As discussed in Section 3.6, air quality impacts would be evaluated by comparing emissions of project alternatives to 2045 without Project conditions. Table 7-9 summarizes the criteria pollutant for existing conditions and 2045 without Project conditions.

Table 7-9. Existing Conditions (Baseline Year 2021) and 2045 without Project Conditions Regional Mobile Source Criteria Pollutant Emissions

Project Alternative	Daily VMT[a]	Daily Emissions (lbs/day)					
		VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Existing Conditions	456,869,300	27,490	222,016	1,219,501	3,920	329,216	86,051
2045 without Project Conditions	568,557,200	8,987	88,927	623,264	3,487	408,902	105,487

Source: HTA, 2024

[a]VMT data provided from *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a) used 2019 as the base year for the VMT analysis because it is the most recent year for which Metro's CBM18B Transportation Analysis Model has been calibrated.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SO_2 = sulfur dioxide
VOC = volatile organic compounds

7.3 Impacts Evaluation

7.3.1 Impact AQ-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?

7.3.1.1 Operational Impacts

The Project, identified as project number 1160001 (Sepulveda Pass Transit Corridor Phase 2), is included in the Southern California Association of Governments (SCAG) Connect SoCal 2024. Connect SoCal 2024 is Southern California's long-range Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS), which serves as the foundation for estimating the region's transportation sector air pollutant emissions through 2050. The SCAG General Council adopted the plan on April 4, 2024. The Federal Highway Administration and the Federal Transit Administration found the plan to conform to the State Implementation Plan (SIP) on May 10, 2024. Transportation projects identified in a conforming RTP are consistent with the emissions reduction strategies outlined in the applicable regional Air Quality Management Plan (AQMP).

The region's 2022 AQMP was adopted by the South Coast Air Quality Management District (SCAQMD) Governing Board on December 2, 2022. The 2022 AQMP outlines comprehensive control strategies to meet particulate matter ($PM_{2.5}$), ozone (O_3), and lead (Pb) standards, and maintain carbon monoxide (CO), nitrogen dioxide (NO_2), and PM_{10} standards. Transportation projects identified in a currently conforming RTP are consistent with the transportation sector emissions budgets used in the formulation

of the regional AQMP. Therefore, all project alternatives, including Alternative 3, would be considered consistent with the AQMP resulting in a less than significant impact.

7.3.1.2 Construction Impacts

Construction projects within the jurisdiction of the SCAQMD must comply with several rules and regulations aimed at controlling air pollution and minimizing environmental impact. Key SCAQMD rules that typically apply to construction projects include the following, among others:

- Rule 403 - Fugitive Dust, to reduce emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area. Requires that contractors implement best management practices such as watering down construction sites, covering trucks, and using windbreaks.
- Rule 401 - Visible Emissions, which prohibits the discharge of visible air contaminants into the atmosphere. Contractors must ensure that emissions from construction activities do not exceed the visible emissions limits, typically by controlling dust and particulate matter.
- Rule 1403 - Asbestos Emissions from Demolition/Renovation Activities, to regulate the emissions of asbestos during demolition and renovation activities. Contractors must conduct thorough inspections for asbestos, notify SCAQMD before starting work, and follow specific procedures for handling and disposing of asbestos-containing materials.
- Rule 1113 - Architectural Coatings, which limits the volatile organic compound (VOC) content in architectural coatings. Contractors must use paints and coatings that comply with the VOC content limits specified by the rule.
- Rule 1108 - Cutback Asphalt, which limits the VOC emissions from the use of cutback asphalt and emulsified asphalt. Contractors must use compliant asphalt products with low VOC content.
- Rule 1157 - PM_{10} Emission Reductions from Aggregate and Related Operations, which serves to reduce PM_{10} emissions from aggregate operations, which can be a component of construction projects involving earth-moving activities. Contractors must implement dust control measures during material handling and processing operations.

Alternative 3 would comply with all relevant SCAQMD rules, and as such, would implement all required AQMP emissions control measures during construction. Impacts would be less than significant.

7.3.2 Impact AQ-2: Would the project result in cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under and applicable federal or state ambient air quality standard?

7.3.2.1 Operational Impacts

Operations of Alternative 3 would generate long-term regional criteria pollutant emissions from mobile sources including regional vehicle miles traveled (VMT) and employees traveling to and from the MSF, area sources related to landscape equipment, consumer products, and reapplication of architectural coatings, and maintenance testing for emergency generators. As described in Section 7.1.1.7, the MSF Base Design and MSF Design Option 1 would have the same facilities; therefore, operational emissions for MSF Design Option 1 would be equivalent to the criteria pollutant emissions modeled for the MSF Base Design. Regardless of which MSF is selected in future final design decisions, the analysis adequately accounted for emissions from either of these MSFs. For Alternative 3, its precast concrete facility would be offsite in Antelope Valley or Riverside County. Criteria pollutant emissions related to hauling precast components from the precast facility to the construction worksites were included in the emissions analysis.

The Alternative 3 peak daily criteria pollutant emissions were estimated for two scenarios: Alternative 3 compared to 2045 without Project conditions and Alternative 3 compared to Existing Conditions 2021. As discussed in Section 3.6.1, air quality impacts would be evaluated based on the net change in emissions between project alternatives in Horizon Year 2045 and 2045 without Project conditions in Horizon Year 2045. The comparison for Alternative 3 2045 and Existing Conditions 2021 is presented for informational purposes only. Detailed emissions calculations are summarized in Appendix A.

Table 7-10 summarizes the Alternative 3 peak daily criteria pollutant emissions for each source category compared to 2045 without Project conditions. As stated in the *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a), implementation of Alternative 3 would reduce regional daily VMT by 451,100 miles per day compared to 2045 without Project conditions. As shown in Table 7-10, Alternative 3 would not exceed SCAQMD's regional operational significance thresholds for any pollutant, rather it would result in an environmental benefit by resulting in a net decrease of daily criteria pollutant emissions for all pollutants except reactive organic gases (ROG). As shown in Table 7-10, daily VOC emissions would marginally increase relative to 2045 without Project conditions, but the magnitude of that increase would remain substantially below the applicable SCAQMD regional screening threshold for mass daily emissions.

Table 7-10. Alternative 3: Peak Daily Regional Operational Criteria Pollutant Emissions Compared to 2045 without Project Conditions

Source Category	Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}[a]	$PM_{2.5}$[a]
Alternative 3						
Area – MSF[b]	3	<0.1	4	<0.1	<0.1	<0.1
Area – Stations[c]	7	<1	39	<0.1	<0.1	<0.1
Mobile – Regional VMT Analysis	8,980	88,857	622,769	3,484	408,578	105,403
Mobile – Employee Travel	<1	2	14	<0.1	7	2
Emergency Generators[d]	12	52	29	<0.1	2	2
Alternative 3 Peak Daily Emissions[e]	**9,002**	**88,911**	**622,855**	**3,484**	**408,587**	**105,407**
2045 without Project Conditions						
Mobile – 2045 VMT Analysis Emissions	8,987	88,927	623,264	3,487	408,902	105,487
Net Change in Emissions	**15**	**-16**	**-409**	**-3**	**-315**	**-80**
SCAQMD Regional Significance Thresholds	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.
[b]Total on-site emissions from the MSF.
[c]Total on-site emissions from all stations.
[d]Emergency generators located at MSF and underground stations.
[e]Totals may vary due to rounding.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less

SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide

VOC = volatile organic compoundsSCAQMD's cumulative air quality impact methodology indicates that if an individual project results in air emissions of criteria pollutants that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. Because Alternative 3 net operational emissions would not exceed the applicable SCAQMD's regional operational significance thresholds, Alternative 3 operational emissions would not be cumulatively considerable. Additionally, recognizing that SCAQMD's regional significance thresholds were established to achieve attainment of the NAAQS and CAAQS, which in turn define the maximum amount of an air pollutant that can be present in ambient air without harming public health,
Alternative 3's contribution of pollutant emissions is not expected to result in measurable human health impacts on a regional scale.

As discussed above, the comparison for Alternative 3 and Existing Conditions 2021 is presented for informational purposes only. Table 7-11 summarizes the Alternative 3 peak daily criteria pollutant emissions for each source category compared to Existing Conditions 2021. As shown in Table 7-11, Alternative 3 would exceed SCAQMD's regional significance thresholds for PM_{10} and $PM_{2.5}$. All other criteria pollutants would be below regional significance thresholds and even resulting in a net decrease in peak daily emissions of VOCs, NO_X, CO, and SO_2. The significant increase in PM is attributable to background growth in regional VMT from 2021 to 2045 and PM fugitive dust emission factors (i.e., the combination of tire wear, brake wear, and resuspended road dust) that comprise greater than 90 percent of the total per-mile emissions factors for PM_{10} and $PM_{2.5}$. Fugitive dust emission factors for tire wear, brake wear, and paved roads remain relatively constant over this time frame, whereas exhaust emission factors tend to decrease in future years due to expected improvements in vehicle engine technology, fuel efficiency, and turnover in older, more heavily polluting vehicles. Consequently, Alternative 3 results in a net increase in PM_{10} and $PM_{2.5}$ emissions because fugitive dust emissions are a function of VMT growth.

Table 7-11. Alternative 3: Peak Daily Regional Operational Criteria Pollutant Emissions (Horizon Year 2045) Compared to Existing Conditions (Baseline Year 2021)

Source Category	Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}[a]	$PM_{2.5}$[a]
Alternative 3						
Area – MSF[b]	3	<0.1	4	<0.1	<0.1	<0.1
Area – Stations[c]	7	<1	39	<0.1	<0.1	<0.1
Mobile – Regional VMT Analysis	8,980	88,857	622,769	3,484	408,578	105,403
Mobile – Employee Travel	<1	2	14	<0.1	7	2
Emergency Generators[d]	12	52	29	<0.1	2	2
Alternative 3 Peak Daily Emissions[e]	**9,002**	**88,911**	**622,855**	**3,484**	**408,587**	**105,407**
Existing Conditions						
Mobile – 2021 VMT Analysis Emissions	27,490	222,016	1,219,501	3,920	329,216	86,051
Net Change in Emissions	**-18,489**	**-133,105**	**-596,646**	**-436**	**79,371**	**19,356**
SCAQMD Regional Significance Thresholds	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	**Yes**	**Yes**

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.
[b]Total on-site emissions from the MSF.
[c]Total on-site emissions from all stations.
[d]Emergency generators located at MSF and underground stations.
[e]Totals may vary due to rounding.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
VMT = vehicle miles traveled
VOC = volatile organic compounds

7.3.2.2 Construction Impacts

Alternative 3 construction activities would generate criteria pollutant emissions from off-road equipment, mobile sources including workers, vendor trucks, and haul trucks traveling to and from construction sites, demolition, soil handling activities, paving, application of architectural coatings, and operation of temporary concrete batch plants. These emissions sources would be related to constructing the monorail aerial alignment, underground tunneling, stations, TPSSs, and MSF.

Construction emissions would vary substantially from day to day, depending on the level of activity and the specific type of construction activity. The peak daily construction emissions for Alternative 3 were estimated for each construction year. Based on the construction schedule for Alternative 3, construction phases for components could potentially overlap; therefore, the estimates of peak daily emissions included these potential overlaps by combining the relevant construction phase daily emissions. The peak daily emissions are predicted values for the worst-case day and do not represent the emissions that would occur for every day of construction. Table 7-12 summarizes the peak daily regional emissions for each construction year.

Table 7-12. Alternative 3: Unmitigated Peak Daily Regional Construction Criteria Pollutant Emissions

Construction Year	Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}[a]	$PM_{2.5}$[a]
2029	13	95	346	<1	17	5
2030	14	117	375	<1	34	11
2031	16	129	474	<1	42	15
2032	33	243	795	2	60	16
2033	23	203	624	2	64	19
2034	21	155	428	1	41	11
2035	10	103	295	<1	26	7
2036	5	33	138	<1	5	2
2037	3	17	73	<1	2	<1
Peak Daily Emissions	**33**	**243**	**795**	**2**	**64**	**19**
SCAQMD Regional Significance Thresholds	75	100	550	150	150	55
Threshold Exceeded?	No	**Yes**	**Yes**	No	No	No

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
VOC = volatile organic compounds

As shown in Table 7-12, Alternative 3 construction emissions would exceed the SCAQMD regional significance thresholds for NOX and CO emissions. SCAQMD's cumulative air quality impact methodology indicates that if an individual project results in air emissions of criteria pollutants that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. Because Alternative 3 construction emissions would exceed the applicable SCAQMD's regional construction significance thresholds for NOX and CO, Alternative 3 construction emissions would be cumulatively considerable. Additionally, recognizing that SCAQMD's regional significance thresholds were established to achieve attainment of the NAAQS and CAAQS, which in turn define the maximum amount of an air pollutant that can be present in ambient air without harming public health, the project's contribution of pollutant emissions may result in measurable human health impacts on a regional scale.

As discussed in Section 3.1, the emissions analysis incorporated Tier 4 Final engines for off-road equipment greater than or equal to 50 horsepower, trucks with model years 2007 or newer, and included dust control measures to be implemented during each phase of construction, as required by SCAQMD Rule 403. The construction analysis for Alternative 3 conservatively assumed all equipment would be diesel powered, the Metro Green Construction Policy contains measures that aim to reduce construction emissions through utilization of hybrid drive off-road equipment and using electric power instead of diesel power. There are no feasible mitigation measures that would reduce Alternative 3 NOX and CO emissions below SCAQMD significance thresholds; therefore, Alternative 3 construction emissions would result in cumulatively considerable net increase of criteria pollutants for which the project region is nonattainment under an applicable federal or state ambient air quality standard and impacts would be significant and unavoidable.

7.3.3 Impact AQ-3: Would the project expose sensitive receptors to substantial pollutant concentrations?

The term sensitive receptor refers to receptors located at land uses associated with people who are considered to be more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirmed are more susceptible to respiratory distress and other air quality-related health problems on average than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality.

7.3.3.1 Operational Impacts

Localized Emissions Analysis

To assess the potential localized air quality impacts resulting from Alternative 3 on nearby sensitive receptors during operations, the daily on-site operations emissions generated at Alternative 3 components, primarily the MSF and all stations were compared to SCAQMD's applicable operations LSTs. As described in Section 7.1.1.7, the monorail MSF Base Design and MSF Design Option 1 would have the same facilities; therefore, operational emissions for MSF Design Option 1 would be equivalent to the criteria pollutant emissions modeled for the MSF Base Design. Overall, the emissions analysis accounted for emissions from either MSF. Alternative 3 localized emissions would be generated from area sources, such as landscaping equipment, use of consumer products, and reapplication of architectural coatings; and emergency generator maintenance testing. As discussed in Section 3.6.5, localized emissions from the MSF and all stations would be summed together and compared to the operational LSTs. As shown in Table 7-13, Alternative 3 localized operational emissions would not exceed SCAQMD significance thresholds, therefore impacts of local criteria pollutants would be less than significant.

Table 7-13. Alternative 3: Unmitigated Localized Operations Criteria Pollutant Emissions

Source Category	Daily Emissions (lbs/day)			
	NO_X	CO	PM_{10}[a]	$PM_{2.5}$[a]
Area – MSF and e-Bus MSF[b]	<0.1	4	<0.1	<0.1
Area – Stations[c]	<1	39	<0.1	<0.1
Emergency Generators[d]	52	29	2	2
Alternative 3 Total Localized Emissions	**52**	**72**	**2**	**2**
SCAQMD Localized Significance Thresholds[e]	172	1,434	3	2
Exceeds Threshold?	No	No	No	No

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.
[b]Total on-site emissions from the MSF.
[c]Total on-site emissions from all stations.
[d]Emergency generators are located at MSF and underground stations.
[e]LSTs based on most stringent values for a 5-acre site with a 25-meter receptor distance in SRA 2 and SRA 7.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District

The SCAQMD's LSTs for each SRA represent the maximum emissions a project can emit without causing or contributing to a violation of any short-term NAAQS or CAAQS. As noted previously, the NAAQS and CAAQS are health-protective standards that define the maximum amount of ambient pollution that can be present without harming public health. Consequently, projects with emissions below the applicable LSTs would not be in violation of the NAAQS or CAAQS and, thus, EPA and CARB health protective standards. Because Alternative 3 operational emissions would not exceed the LSTs, Alternative 3 would not cause or contribute to a violation of any health-protective CAAQS and NAAQS.

Carbon Monoxide Hot Spots

A CO hot spot is a localized concentration of CO that is above the state or national 1-hour or 8-hour ambient air standards for the pollutant. CO hot spots at roadway intersections are typically found in areas with significant traffic congestion. CO is a public health concern because at high enough concentrations, it can cause health problems such as fatigue, headache, confusion, dizziness, and even death. However, it should be noted that ambient concentrations of CO have declined dramatically in California because of existing controls and programs.

Currently, all areas of the state, including the Project Study Area, meet the state and federal CO standards and are designated attainment or maintenance. As part of SCAQMD's 2003 AQMP, which is the most recent AQMP that addresses CO concentrations, a revision to the *Federal Attainment Plan for Carbon Monoxide* (CO Plan) that was originally approved in 1992 was provided and included a CO hot spots analysis at four specified heavily traveled intersections in Los Angeles at the peak morning and afternoon time periods. These four intersection locations selected for CO modeling are considered to be worst-case intersections that would likely experience the highest CO concentrations. The CO hot spots analysis in the 2003 AQMP did not predict a violation of CO standards at the four intersections. Of these four intersections, the busiest intersection evaluated was that at Wilshire Boulevard and Veteran Avenue, which was described as the most heavily congested intersection in Los Angeles County with an average daily traffic volume of approximately 100,000 vehicles per day. Based on the CO modeling, the 2003 AQMP estimated that the 1-hour and 8-hour concentrations at this intersection was 4.6 ppm and 3.4 ppm, respectively, which would not exceed the most stringent 1-hour CO standard of 20.0 ppm and 8-hour CO standards of 9 ppm (SCAQMD, 2003).

The *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a) analyzed traffic volume data at intersections in the Project Study Area affected by Alternative 3 in Horizon Year 2045. The highest daily traffic volumes generated at an intersection within the vicinity of Alternative 3 would be an estimated cumulative total of 75,210 vehicles per day at the intersection of Wilshire Boulevard and Sepulveda Boulevard. Because the daily number of vehicles at this study intersection would not exceed 100,000 vehicles per day, it can be concluded that Alternative 3 would not exceed the most stringent 1-hour and 8-hour CO standards and no detailed CO hot spots analysis for Alternative 3 would be required. Therefore, Alternative 3 would not result in impacts related to CO hot spots and would not contribute a significant level of CO such that localized air quality and human health would be substantially degraded.

7.3.3.2 Construction Impacts

Localized Emissions Analysis

Using the conservative methodology described in Section 3.3.1 to assess the potential localized air quality impacts resulting from Alternative 3 on nearby receptors during construction, the daily on-site construction emissions from the Alternative 3 components (alignment, stations, TPSSs, MSFs) were compared to SCAQMD's applicable construction localized significance thresholds (LST). As described in Section 7.1.1.7, the monorail MSF Base Design and MSF Design Option 1 would have the same facilities, therefore, construction emissions for MSF Design Option 1 would be equivalent to the criteria pollutant emissions modeled for the MSF Base Design. Regardless of which MSF is selected in future final design decisions, the analysis adequately accounted for emissions from either of these MSFs. Alternative 3 localized emissions included exhaust emissions from off-road equipment and trucks, and fugitive dust from demolition, earth movement activities, and truck travel. As shown in Table 7-14, Alternative 3 localized construction emissions would exceed the PM_{10} LST for construction activity in the Valley and Westside, therefore, Alternative 3 localized construction emissions would have adverse health risk implications (as discussed in Section 3.3.1 and Section 7.2.2) and would be considered to be significant.

Table 7-14. Alternative 3: Unmitigated Localized Construction Criteria Pollutant Emissions

Construction Area	Daily Emissions (lbs/day)[a]			
	NO_X	CO	PM_{10}[b]	$PM_{2.5}$[b]
Valley Construction Components[c]				
MRT Segment 1-Van Nuys Metrolink to Getty Center	43.1	190.6	2.9	1.3
Van Nuys MRT Station	5.0	23.4	0.2	0.1
Sherman Way MRT Station	5.0	23.4	0.2	0.1
Metro G Line MRT Station	5.0	23.4	0.5	0.2
Sherman Oaks/Ventura Boulevard MRT Station	5.0	23.4	0.5	0.2
TPSS 6-Skirball	4.1	13.3	2.4	1.0
TPSS 11-Raymer-Van Nuys	4.1	13.3	2.7	1.1
MSF	4.1	13.3	3.7	1.3
Components In Proximity to Each Other				
MRT Segment 1 + Van Nuys Station + TPSS 11 + MSF	56.2	240.6	9.6	3.8
Peak Daily Localized Emissions	**56.2**	**240.6**	**9.6**	**3.8**
SCAQMD Localized Significance Threshold[d]	114	786	7	4
Exceeds Threshold[e]?	No	No	**Yes**	No
Westside Construction Components[c]				
MRT Segment 6-Getty Center to Federal Building	30.4	116.3	6.6	0.9
MRT Segment 7-Federal Building to South of 405-Wilshire Interchange	14.5	57.6	0.5	0.2
MRT Segment 4-South of 405-Wilshire Interchange to Metro E Line	18.4	73.6	1.7	0.6
Getty Center MRT Station	5.0	23.4	0.3	0.2
UCLA Gateway MRT Station	5.7	24.0	2.3	0.4
Wilshire Boulevard/Metro D Station	6.2	24.4	3.7	0.5
Santa Monica Boulevard MRT Station	5.0	23.4	0.3	0.2
Exposition Boulevard MRT Station	5.0	23.4	0.3	0.2
TPSS 4- I-405-Near Getty Center on East side of I-405	4.1	13.3	2.4	1.0

Construction Area	Daily Emissions (lbs/day)[a]			
	NO_X	CO	PM_{10}[b]	$PM_{2.5}$[b]
Components In Proximity to Each Other				
MRT Segment 7 + Wilshire Boulevard/Metro D MRT Station	20.7	82.0	4.2	0.8
Peak Daily Localized Emissions	**30.4**	**116.3**	**6.6**	**1.0**
SCAQMD Localized Significance Threshold[e]	147	827	6	4
Exceeds Threshold?	No	No	**Yes**	No

Source: HTA, 2024

[a]Daily emissions for each construction component represent the contribution to the maximum daily localized emissions in the Valley or Westside.

[b]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.

[c]TPSSs listed in table would be located at standalone locations and not within the construction area of a station, MSF, track alignment, or tunnel. Each of these standalone TPSSs had their own construction phasing in the construction emissions analysis. For TPSSs located within the construction area of a station, MSF, track alignment, or tunnel, their construction activity was accounted for in the overall construction activity for the component.

[d]LST values are based on a 2-acre site with a 25-meter receptor distance in SRA 7 East San Fernando Valley.

[e]LST values are based on a 2-acre site with a 25-meter receptor distance in SRA 2 Northwest Coastal LA County.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District

As discussed in Section 3.1, the emissions analysis incorporated Tier 4 Final engines for off-road equipment greater than or equal to 50 horsepower, trucks with model years 2007 or newer, and included dust control measures to be implemented during each phase of construction, as required by SCAQMD Rule 403. The construction analysis for Alternative 3 conservatively assumed all equipment would be diesel powered, the Metro *Green Construction Policy* contains measures that aim to reduce construction emissions through utilization of hybrid drive off-road equipment and using electric power instead of diesel power. There are no feasible mitigation measures that would reduce Alternative 3 PM_{10} emissions below SCAQMD localized significance thresholds, therefore, Alternative 3 construction emissions would potentially expose sensitive receptors to substantial concentrations and impacts would be significant and unavoidable.

The SCAQMD's LSTs for each SRA represent the maximum emissions a project can emit without causing or contributing to a violation of any short-term NAAQS or CAAQS. As noted previously, the NAAQS and CAAQS are health-protective standards that define the maximum amount of ambient pollution that can be present without harming public health. Consequently, projects with emissions below the applicable LSTs would not be in violation of the NAAQS or CAAQS and, thus, EPA and CARB health-protective standards. Because Alternative 3 construction emissions exceed the PM_{10} LST, Alternative 3 would cause or contribute to a violation of one or more health-protective CAAQS and NAAQS. Given that diesel particulate matter (DPM) emissions constitute a portion of localized PM_{10} emissions, impacts related to localized DPM emissions during construction are also considered to be significant and unavoidable due to the following: (1) the elevated background carcinogenic risk, (2) the duration of construction activity, and (3) the proximity of sensitive receptors to DPM emissions sources.

7.3.4 Impact AQ-4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

7.3.4.1 Operational Impacts

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment facilities, food processing plants, chemical plants, composting areas, refineries, landfills, dairies, and fiberglass molding facilities. Alternative 3 is a transit project with a track alignment, TPSSs, stations, and an MSF which are not associated with any of the aforementioned land uses. Alternative 3 would include various trash receptacles associated with the stations and MSFs. On-site trash receptacles used by Alternative 3 would be covered and properly maintained to prevent adverse odors. With proper housekeeping practices, trash receptacles would be maintained in a manner that promotes odor control, and no adverse odor impacts are anticipated from the uses. Therefore, Alternative 3 operations would not create a significant level of objectionable odors affecting a substantial number of people and impacts with respect to odors would be less than significant.

7.3.4.2 Construction Impacts

During construction of Alternative 3, exhaust from equipment, activities associated with the application of architectural coatings and other interior and exterior finishes, and paving activities may produce discernible odors typical of most construction sites. Such odors would be, at worst, a temporary source of nuisance to adjacent uses, if at all, and would not affect a substantial number of people. Alternative 3 would use architectural coatings compliant with SCAQMD Rule 1113, which would limit the odors associated with off-gassing from those coatings. Additionally, material deliveries and heavy-duty haul truck trips could occasionally produce odors from diesel exhaust. These odors would not affect a substantial number of people because construction would be temporary, and construction-generated emissions dissipate rapidly with increasing distance from the source. Overall, odors associated with Alternative 3 construction would be temporary and intermittent in nature and would not create a significant level of objectionable odors affecting a substantial number of people.

7.4 Mitigation Measures

7.4.1 Operational Impacts

No mitigation measures are required.

7.4.2 Construction Impacts

As previously discussed, Alternative 3 would exceed SCAQMD regional thresholds for NO_X and CO, as well as SCAQMD localized thresholds for $PM_{10,}$ and would result in significant and unavoidable impacts. Therefore, the following mitigation measures (MM) shall be implemented for Alternative 3 construction.

MM AQ-1: *The Project shall require zero emissions or near zero emissions on-road haul trucks such as heavy-duty trucks with natural gas engines that meet or exceed the California Air Resources Board's adopted optional nitrogen oxides emissions standard at 0.02 grams per brake horsepower hour (g/bhp-hr), if and when feasible. Operators shall maintain records of all trucks associated with project construction to document that each truck used meets these emission standards. These records shall be submitted monthly to Metro for review and shall be made available to regulatory agencies upon request. To ensure compliance, Metro or its designated representative shall conduct* *regular inspections of construction operations, including on-site verification of truck compliance. Inspections shall occur at least twice per month during active construction. Any contractor found to be using non-compliant trucks without prior approval from Metro shall be subject to penalties, including suspension of operations until compliance is achieved.*

MM AQ-2: *Construction contracts shall include language that compels contractors to implement all policies and emissions control measures as presented in Metro's Green Construction Policy.*

MM AQ-3: *Construction contracts shall include language that compels contractors to implement all fugitive dust control measures as detailed in SCAQMD Rule 403 (Fugitive Dust).*

7.4.3 Impacts After Mitigation

Although construction of Alternative 3 would require implementation of MM AQ-1, it is not technically feasible at the time of document preparation to verify the commercial availability of ZE and NZE trucks to the extent needed to reduce construction-period NO_X, CO, and PM_{10} emissions below SCAQMD's regional and localized emissions thresholds. MM AQ-2 and MM AQ-3 simply enforce Metro and SCAQMD policies that are already required, independent of any additional prescribed mitigation.

Given the current uncertainty around the availability of sufficient ZE and NZE trucks to reduce Alternative 3 construction-period NO_X, CO, and PM_{10} impacts below SCAQMD's regional and localized emissions thresholds, this impact would remain significant and unavoidable.

8 ALTERNATIVE 4

8.1 Alternative Description

Alternative 4 is a heavy rail transit (HRT) system with a hybrid underground and aerial guideway track configuration that would include four underground stations and four aerial stations. This alternative would provide transfers to five high-frequency fixed guideway transit and commuter rail lines, including the Los Angeles County Metropolitan Transportation Authority's (Metro) E, Metro D, and Metro G Lines, the East San Fernando Valley Light Rail Transit Line, and the Metrolink Ventura County Line. The length of the alignment between the terminus stations would be approximately 13.9 miles, with 5.7 miles of aerial guideway and 8.2 miles of underground configuration.

The four underground and four aerial HRT stations would be as follows:

1. Metro E Line Expo/Sepulveda Station (underground)
2. Santa Monica Boulevard Station (underground)
3. Wilshire Boulevard/Metro D Line Station (underground)
4. UCLA Gateway Plaza Station (underground)
5. Ventura Boulevard/Sepulveda Boulevard Station (aerial)
6. Metro G Line Sepulveda Station (aerial)
7. Sherman Way Station (aerial)
8. Van Nuys Metrolink Station (aerial)

8.1.1 Operating Characteristics

8.1.1.1 Alignment

As shown on Figure 8-1, 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 of Los Angeles (Westside) and the Santa Monica Mountains to a tunnel portal south of Ventura Boulevard in the San Fernando Valley (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 Los Angeles-San Diego-San Luis Obispo (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 8-1. 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 Interstate 405 (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

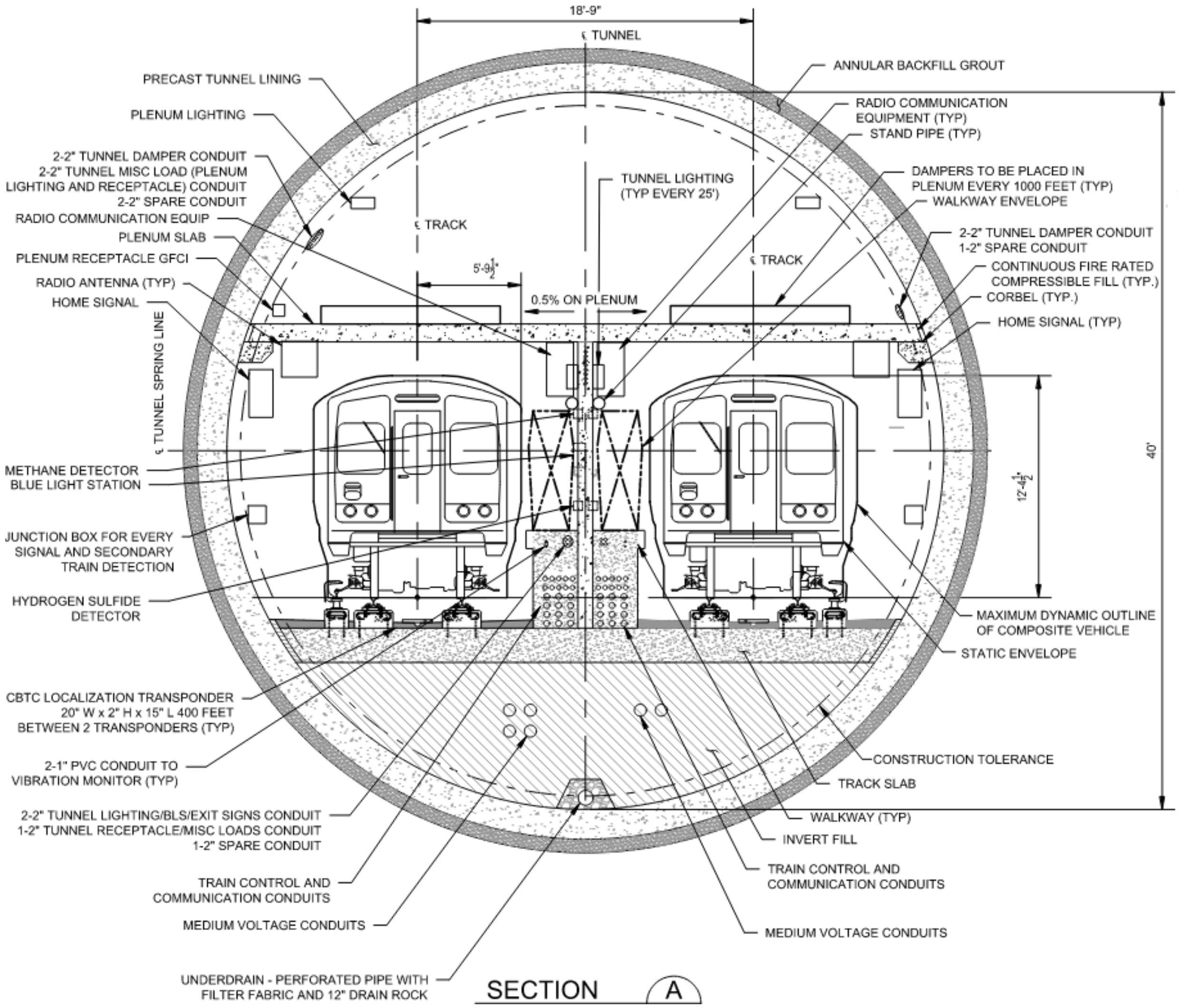
Station located over Dickens Street, immediately west of the Sepulveda Boulevard and Dickens Street intersection. North of the station, the aerial guideway would transition to the center median of Sepulveda Boulevard. The aerial guideway would continue north on Sepulveda Boulevard and cross over U.S. Highway 101 (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 maintenance and storage facility (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 City of Los Angeles Department of Water and Power (LADWP) property.

8.1.1.2 Guideway Characteristics

Alternative 4 would utilize a single-bore tunnel configuration for underground tunnel sections, with an outside diameter of approximately 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. At the crown of tunnel, a dedicated air plenum would be provided by constructing a concrete slab above the railway corridor. The air plenum would allow for ventilation throughout the underground portion of the alignment. Figure 8-2 illustrates these components at a typical cross-section of the underground guideway.

Figure 8-2. Typical Underground Guideway Cross-Section

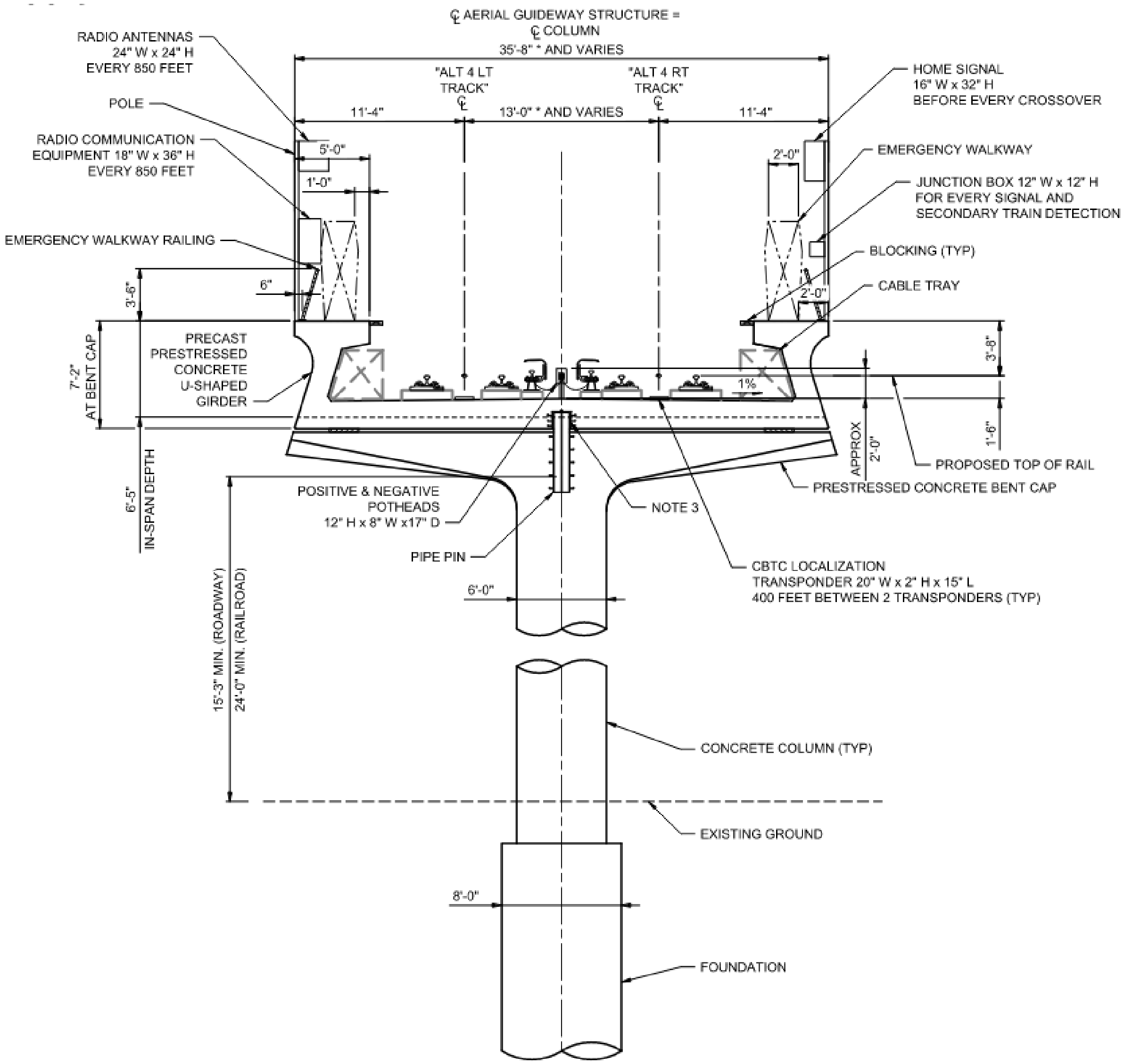


Source: STCP, 2024

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 pier would be the primary aerial 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 8-3 shows a typical cross-section of the single-column aerial guideway.

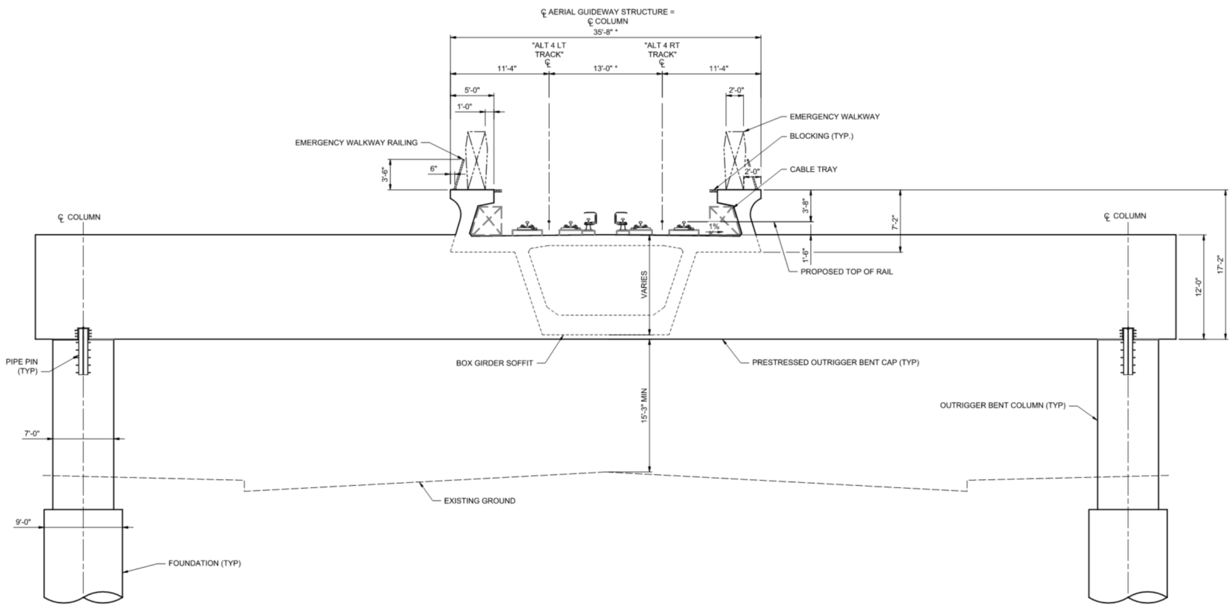
Figure 8-3. Typical Aerial Guideway Cross-Section



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 8-4 illustrates a typical straddle-bent configuration.

Figure 8-4. Typical Aerial Straddle-Bent Cross-Section



Source: STCP, 2024

8.1.1.3 Vehicle Technology

Alternative 4 would utilize steel-wheel HRT trains, with automated train operations and planned peak-period headways of 2.5 minutes and off-peak-period headways ranging from 4 to 6 minutes. Each train could consist of three or four cars with open gangways between cars. The HRT vehicle would have a maximum operating speed of 70 miles per hour; actual operating speeds would depend on the design of the guideway and distance between stations. Train cars would be approximately 10 feet wide with three double doors on each side. Each car would be approximately 72 feet long with capacity for 170 passengers. Trains would be powered by a third rail.

8.1.1.4 Stations

Alternative 4 would include four underground stations and four aerial stations with station platforms measuring 280 feet long for both station configurations. The aerial stations would be constructed a minimum of 15.25 feet above ground level, supported by rows of dual columns with 8-foot diameters. The southern terminus station would be adjacent to the Metro E Line Expo/Sepulveda Station, and the northern terminus station would be adjacent to the Van Nuys Metrolink/Amtrak Station.

All stations would be side-platform stations where passengers would select and travel to station platforms depending on their direction of travel. All stations would include 20-foot-wide side platforms separated by 30 feet for side-by-side trains. Aerial station platforms would be covered, but not enclosed. Each underground station would include an upper and lower concourse level prior to reaching the train platforms. Each aerial station, except for the Sherman Way Station, would include a mezzanine level prior to reaching the station platforms. At the Sherman Way Station, 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 from the ground level to the concourse or mezzanine.

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

The following information describes each station, with relevant entrance, walkway, and transfer information. Bicycle parking would be provided at each station.

Metro E Line Expo/Sepulveda Station

- 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.
- 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.

Santa Monica Boulevard Station

- 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.

Wilshire Boulevard/Metro D Line Station

- 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.
- No dedicated station parking would be provided at this station.

UCLA Gateway Plaza Station

- This underground station would be located underneath Gateway Plaza on the University of California, Los Angeles (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.

Ventura Boulevard/Sepulveda Boulevard Station

- 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.

Metro G Line Sepulveda Station

- 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.
- 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.

Sherman Way Station

- 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.

Van Nuys Metrolink Station

- 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.
- Existing Metrolink 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.

8.1.1.5 Station-to-Station Travel Times

Table 8-1 presents the station-to-station distance and travel times at peak period 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 8-1. 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

— = no data

8.1.1.6 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.

8.1.1.7 Maintenance and Storage Facility

The MSF for Alternative 4 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 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.

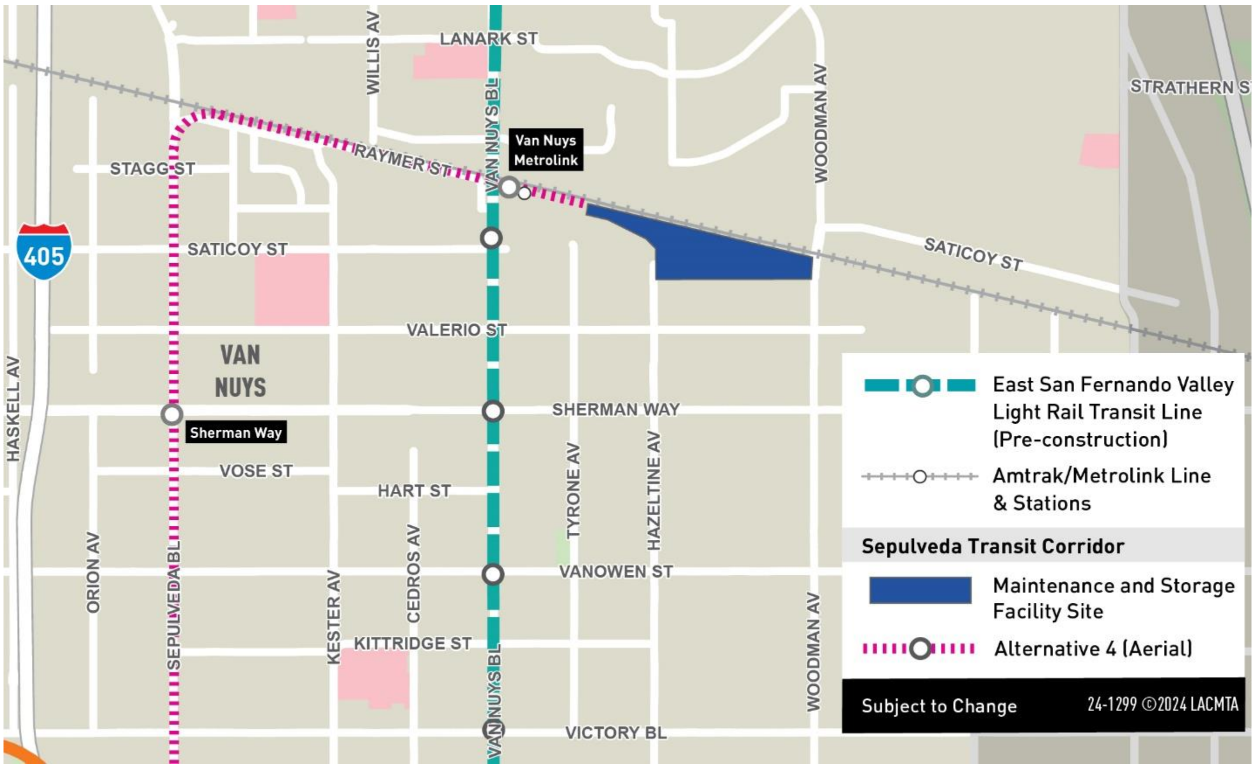
The site would include the following facilities:

- Two entrance gates with guard shacks
- Main shop building
- Maintenance-of-way building
- Storage tracks
- Carwash building
- Cleaning and inspections platforms
- Material storage building
- Hazmat storage locker

- Traction power substation (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 8-5 shows the location of the MSF site for Alternative 4.

Figure 8-5. Alternative 4: Maintenance and Storage Facility Site



Source: STCP, 2024; HTA, 2024

8.1.1.8 Traction Power Substations

TPSSs transform and convert high voltage alternating current supplied from power utility feeders into direct current suitable for transit operation. Twelve 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 the 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. Table 8-2 lists the TPSS locations for Alternative 4.

Figure 8-6 shows the TPSS locations along the Alternative 4 alignment.

Table 8-2. 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)

TPSS No.	Location Description	Configuration
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 8-6. Alternative 4: Traction Power Substation Locations

Source: STCP, 2024; HTA, 2024

8.1.1.9 Roadway Configuration Changes

Table 8-3 lists the roadway changes necessary to accommodate the guideway of Alternative 4. Figure 8-7 shows the location of roadway changes in the Sepulveda Transit Corridor Project (Project) Study Area, and Figure 8-8 shows detail of the street vacation at Del Gado Drive.

In addition to the changes made to accommodate the guideway, as listed in Table 8-3, roadways and sidewalks near stations would be reconstructed, resulting in modifications to curb ramps and driveways.

Table 8-3. Alternative 4: Roadway Changes

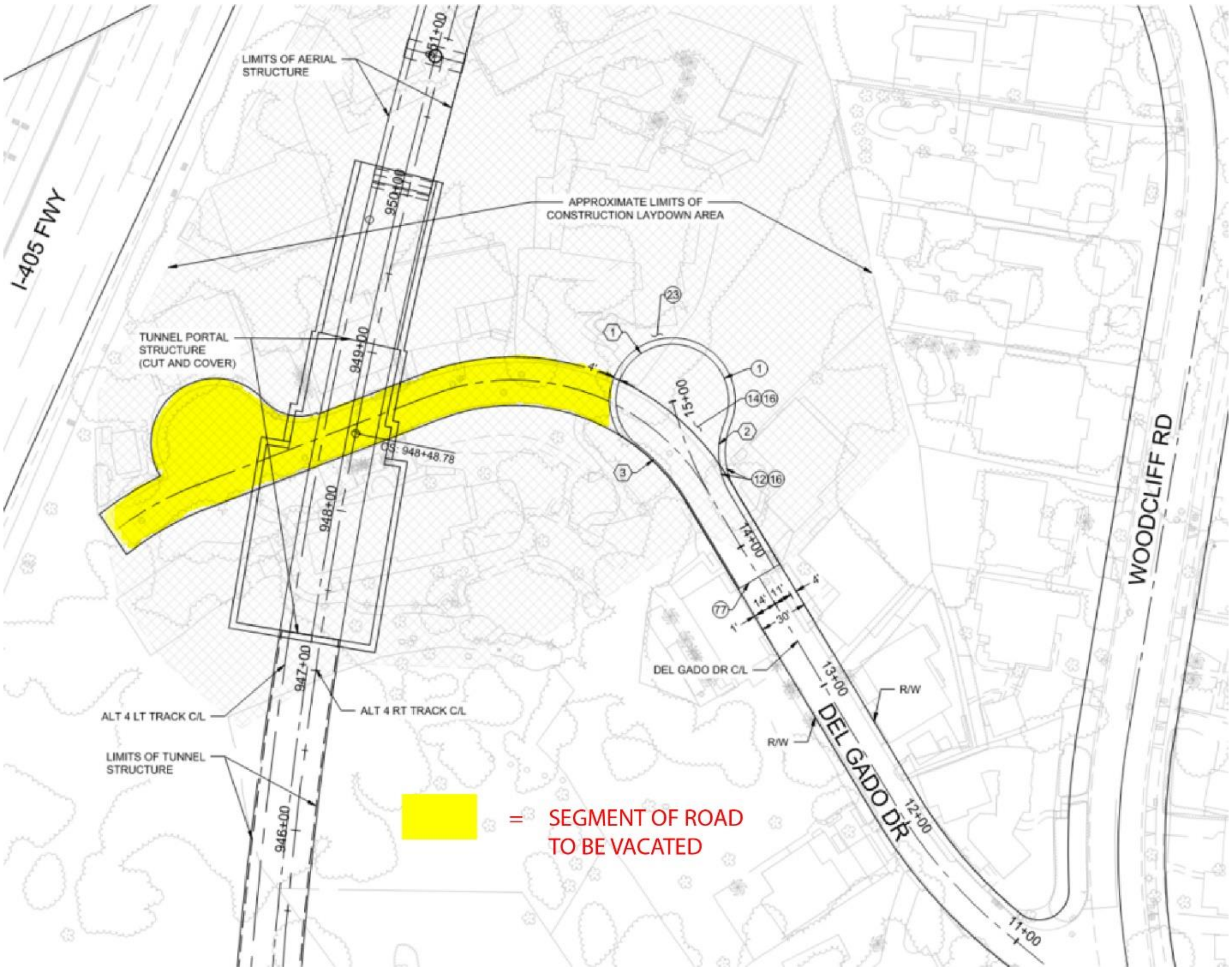
Location	From	To	Description of Change
Del Gado Drive	Woodcliff Road	Not Applicable	Vacation of approximately 325 feet of Del Gado Drive east of I-405 to accommodate tunnel portal
Sepulveda Boulevard	Ventura Boulevard	Raymer Street	Construction of raised median and removal of all on-street parking on 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 8-7. Alternative 4: Roadway Changes

Source: STCP, 2024; HTA, 2024

Figure 8-8. Alternative 4: Street Vacation at Del Gado Drive



Source: STCP, 2024; HTA, 2024

8.1.1.10 Ventilation Facilities

For ventilation of the alignment'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. Each underground station would include a fan room with additional ventilation facilities. Alternative 4 would also 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. 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.

8.1.1.11 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. Similarly, the aerial guideway 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.

8.1.2 Construction Activities

Temporary 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.

For the guideway, Alternative 4 would consist of a single-bore tunnel through the Westside and Santa Monica Mountains. The tunnel would be comprised of 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). Two tunnel boring machines (TBM) with approximately 45-foot-diameter cutting faces would be used to construct the two tunnel segments underground. For the Westside segment, the TBM would be launched from Staging Area No. 1 in Table 8-4 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 8-4. Figure 8-9 shows the location of construction staging locations along the Alternative 4 alignment.

Table 8-4. 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 8-9. Alternative 4: On-Site Construction Staging Locations

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 50 feet near UCLA. The tunnel segment through the Westside 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 viaduct 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 right-of-way 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 cast-in-drilled-hole (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 work zones would also be co-located with future MSF and station locations. All work zones would comprise the permanent facility footprint with additional temporary construction easements from adjoining properties.

The Metro E Line, Santa Monica Boulevard, Wilshire Boulevard/Metro D Line, and UCLA Gateway Plaza Stations would be constructed using a “cut-and-cover” method whereby the 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, Sherman Way, and Van Nuys Metrolink Stations would include construction of CIDH elevated viaduct with two parallel side platforms supported by outrigger bents.

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 8-4 and Figure 8-9 present potential construction staging areas along the alignment for Alternative 4. Table 8-5 and Figure 8-10 present candidate sites for off-site staging and laydown areas.

Table 8-5. 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 8-10. Alternative 4: Potential Off-Site Construction Staging Locations

Source: STCP, 2024; HTA, 2024

Construction of the HRT guideway between the Van Nuys Metrolink Station and the MSF 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.

Alternative 4 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.

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.

8.2 Existing Conditions

8.2.1 Regional Climate and Meteorology

The Project Study Area is located within the South Coast Air Basin (Basin), an area covering approximately 6,745 square miles and bounded by the Pacific Ocean to the west and south and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the distinctive climate of the Basin, which is a coastal plain with connecting broad valleys and low hills.

The Southern California region, which includes the Basin, lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography) as well as human-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of pollutants throughout the Basin, making it an area of high pollution potential.

The worst air pollution throughout the Basin occurs from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day. O_3 concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Basin and adjacent desert. Substantial progress has been made in reducing air pollution levels in Southern California in recent years. However, the Basin still faces considerable challenges to attain the federal and state air quality standards.

Weather stations closest to the Project Study Area are the Western Regional Climate Center (WRCC) monitoring stations at the Woodland Hills Pierce College (COOP ID 041484) and the University of California, Los Angeles (UCLA) (COOP ID 049152). These monitoring stations were selected to accurately represent the climate conditions occurring in the northern and southern portions of the Project Study Area. According to climate data recorded from 1949 to 2012 for the Woodland Hills station, the average annual maximum temperature in the area is approximately 81 degrees Fahrenheit (°F), and the average annual minimum temperature is approximately 48°F. The average precipitation in the area is approximately 16 inches annually, occurring primarily from December through March (WRCC, 2023a). According to climate data recorded from 1933 to 2016 for the UCLA station, the average annual maximum temperature in the area is approximately 71°F, and the average annual minimum temperature is approximately 55°F. The average precipitation in the area is approximately 17 inches annually, occurring primarily from December through March (WRCC, 2023b).

8.2.2 Pollutants of Concern

8.2.2.1 Criteria Pollutants

National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) have been established for six pollutants: O_3, NO_2, CO, SO_2, respirable particulate matter of diameter less than 10 microns (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead. Brief descriptions of the criteria air pollutants, common sources, and documented health concerns from exposure are provided in Table 8-6.

Table 8-6. Criteria Air Pollutants and Characteristics

Pollutant	Characteristics
Ozone (O_3)	• Colorless gas and secondary pollutant formed by complex atmospheric interactions between two or more reactive organic gas compounds (including volatile organic compounds and nitrogen oxides [NO_X]) in the presence of ultraviolet sunlight. Automobile travel and industrial sources are the greatest sources of atmospheric O_3 formation. • Short-term exposure (lasting for a few hours) to O_3 levels typical in Southern California can result in breathing pattern changes, restricted breathing, increased susceptibility to infections, inflammation of the lung tissue, and immunological changes.
Nitrogen Dioxide (NO_2)	• Formed in the atmosphere through chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation and contribute to the formation of PM_{10}. • High concentrations can cause breathing difficulties, are linked to chronic pulmonary fibrosis, an increase of bronchitis in children (2 and 3 years old), and result in a brownish-red cast to the atmosphere with reduced visibility.
Carbon Monoxide (CO)	• Colorless, odorless gas formed by incomplete combustion of fossil fuels (e.g., motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains) • Excess exposure can reduce the blood's ability to transport oxygen, causing dizziness, fatigue, and impairment of central nervous system functions.
Sulfur Dioxide (SO_2)	• Refers to any compounds of sulfur and oxygen. A colorless, pungent gas that forms primarily through the combustion of sulfur-containing coal and oil. • Stringent controls placed on stationary SO_2 emissions and limits on sulfur content of fuels have reduced atmospheric SO_2 concentrations. Highest levels of SO_2 are found near large industrial complexes (e.g., power plants) and can harm plant leaves and erode iron and steel. • An irritant gas that attacks the throat and lungs; can cause acute respiratory symptoms and diminished lung function in children.

Pollutant	Characteristics
Respirable Particulate Matter (PM_{10})	• Comprising airborne liquid and solid particles (e.g., smoke, soot, dust, salts, acids, and metals) formed by atmospheric chemical reactions of gases emitted from industrial and motor vehicles. • Results from crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. • Collects in the upper portion of the respiratory system and can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections.
Fine Particulate Matter ($PM_{2.5}$)	• Formed in the atmosphere from gases (i.e., sulfur dioxide, nitrogen oxides, and volatile organic compounds) and results from fuel combustion (e.g., motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. • Inhalation (i.e., lead, sulfates, nitrates, chlorides, ammonia) can be absorbed into the bloodstream and damage human organs, tissues, and cells throughout the body. Suspended $PM_{2.5}$ can damage and discolor surfaces and produce haze and reduce regional visibility
Lead (Pb)	• Occurs in atmosphere as PM emitted from leaded gasoline combustion; manufacture of batteries, paint, ink, ceramics, and ammunition; and secondary lead smelting facilities. • Phased-out leaded gasoline reduced overall airborne lead by 95 percent between 1978 and 1987. Current emission sources of greater concern include lead smelters, battery recycling, and manufacturing facilities. • Prolonged exposure can lead to serious threats to human health (i.e., gastrointestinal disturbances, anemia, kidney disease, and neuromuscular and neurological dysfunction). Infancy and childhood exposure can impair neurobehavioral performance.

Source: CARB, 2024c

8.2.2.2 Toxic Air Contaminants

Toxic air contaminants (TAC) are generally defined as those air pollutants that may increase a person's risk of developing cancer and/or other serious health effects; however, the emission of a toxic chemical does not automatically create a health hazard. Although NAAQS and CAAQS have been established for criteria pollutants, no ambient standards exist for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, California Air Resources Board (CARB) has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA, 2015a, 2015b).

Air toxics are generated by many sources, including stationary sources, such as dry cleaners, gas stations, auto body shops, and combustion sources; mobile sources, such as diesel trucks, ships, and trains; and area sources, such as farms, landfills, and construction sites. Adverse health effects of TACs can be carcinogenic (cancer-causing), short-term (acute) non-carcinogenic, and long-term (chronic) non-carcinogenic. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to the brain and nervous system, and respiratory disorders. The principal TAC associated with the Project is DPM emitted during construction activities.

DPM differs from other air toxics in that it is a complex mixture of hundreds of substances rather than a single substance. DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances such as polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB, 2024d). As more than 90 percent of DPM is less than 1 micrometer (µm) in diameter (about 1/70th the diameter of a human hair), the majority of DPM is small enough to be inhaled into the lungs. Although particles the size of DPM can deposit throughout the lung, the largest fraction deposits in the deepest regions of the lungs where the lung is most susceptible to injury. Health effects associated with exposure to DPM include premature death, hospitalizations, and emergency department visits for exacerbated chronic heart and lung disease, including asthma, increased respiratory symptoms, and decreased lung function in children (CARB, 2024d).

The U.S. Environmental Protection Agency (EPA) is tasked with the regulatory authority of monitoring pollutant concentrations and determining whether areas have attained the NAAQS. Those areas with recurring concentrations of criteria pollutants exceeding the air quality standard values are designated as "Nonattainment" of the standard and are required to prepare air quality plans to demonstrate regional control strategies that will reduce emissions.

8.2.3 Regional Attainment Status

EPA is tasked with the regulatory authority of monitoring pollutant concentrations and determining whether areas have attained the NAAQS. Those areas with recurring concentrations of criteria pollutants exceeding the air quality standard values are designated as "Nonattainment" of the standard and are required to prepare air quality plans to demonstrate regional control strategies that will reduce emissions. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Recently in February 2024, the federal $PM_{2.5}$ annual standard was revised from 12 $\mu g/m^3$ to 9 $\mu g/m^3$, making the federal standard more stringent than the state standard of 12 $\mu g/m^3$. Local monitoring data are used to designate areas as nonattainment, maintenance, attainment, or unclassified areas for ambient air quality standards. The four designations are defined as follows.

- Nonattainment—assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- Maintenance—assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- Attainment—assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- Unclassified—assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table 8-7 presents the attainment status designations for the non-desert portion of Los Angeles County within the SCAQMD jurisdiction. The Basin portion of Los Angeles County is currently designated nonattainment of the NAAQS for O_3 and $PM_{2.5}$, and is designated nonattainment of the CAAQS for O_3, PM_{10}, and $PM_{2.5}$.

Table 8-7. Attainment Status Designations – South Coast Air Basin Portion of Los Angeles County

Pollutant	Averaging Time	CAAQS Status	NAAQS Status
Ozone (O_3)	1-Hour	Nonattainment	Nonattainment (Extreme)
	8-Hour	Nonattainment	Nonattainment (Extreme)
Carbon Monoxide (CO)	1-Hour	Attainment	Attainment (Maintenance)
	8-Hour	Attainment	Attainment (Maintenance)
Nitrogen Dioxide (NO_2)	1-Hour	Attainment	Unclassifiable/Attainment
	Annual Average	Attainment	Attainment (Maintenance)
Sulfur Dioxide (SO_2)	1-Hour	Attainment	Unclassifiable/Attainment
	24-Hour	Attainment	Unclassifiable/Attainment
Respirable Particulate Matter (PM_{10})	24-Hour	Nonattainment	Attainment (Maintenance)
	Annual Average	Nonattainment	No Federal Standard
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No State Standard	Nonattainment (Serious)
	Annual Average	Nonattainment	Nonattainment (Moderate)
Lead (Pb)	30-Day Average	Attainment	No Federal Standard
	3-Month Average	Attainment	Nonattainment (Partial)

Source: CARB, 2024b; EPA, 2024

CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard

8.2.4 Local Air Quality

The attainment status designations are based on concentrations of air pollutants measured at air monitoring sites throughout the Basin. The SCAQMD divides the Basin into 38 source receptor areas (SRA), the boundaries of which were determined by the proximity to the nearest air monitoring station and local topography and meteorological patterns. The SCAQMD operates a total of 34 air monitoring sites that are used to characterize air quality within the 38 SRAs. The Project Study Area predominately transects portions of SRA 6 (West San Fernando Valley) and SRA 7 (East San Fernando Valley) in the northern portion and SRA 2 (Northwest Coastal Los Angeles County) in the southern portion. However, although project alternatives are included in SRA 7 (East San Fernando Valley), there is no longer an active monitoring station in this SRA; therefore, the SRA 6 monitoring station data was used. Figure 8-11 displays the Project Study Area overlain on the portions of the SCAQMD SRAs that it covers, as well as the locations of monitoring stations in SRA 2 (West Los Angeles – Veterans Administration monitoring site) and SRA 6 (Reseda monitoring site). The following discussions address pollutant concentrations measured at stations from 2021 to 2023.

Figure 8-11. SCAQMD Source Receptor Areas in Project Study Area

Source: HTA, 2024

Table 8-8 presents pollutant concentrations measured at the Reseda monitoring station that provides data representative of air quality conditions within SRA 6. As shown in Table 8-8, concentrations of O_3 exceeded applicable standards numerous times during the most recent three-year period of data available. The 24-hour federal standard for $PM_{2.5}$ was also exceeded for one year during this period. The air monitoring data recorded at the Reseda monitoring station reflects the nonattainment status of the Basin portion of Los Angeles County for O_3 and $PM_{2.5}$. The Reseda monitoring station is not equipped to measure concentrations of PM_{10}. Concentrations of all other pollutants monitored at this site remained below applicable federal and state air quality standards, consistent with the attainment or maintenance designations corresponding to the Basin portion of Los Angeles County.

Table 8-8. Reseda Air Monitoring Station Data (SRA 6)

Pollutant	Averaging Time	Maximum Concentrations and Frequencies of Exceeded Standards		
		2021	2022	2023
Ozone (O_3)	Maximum 1-Hour Concentration (ppm)	0.110	0.11	0.104
	Days >0.09 ppm (CAAQS)	4	7	10
	Maximum 8-Hour Concentration (ppm)	0.083	0.096	0.096
	Days >0.070 ppm (NAAQS/CAAQS)	33	24	30
Carbon Monoxide (CO)	Maximum 1-Hour Concentration (ppm)	2.6	2.2	2.3
	Days >20 ppm (CAAQS)	0	0	0
	Maximum 8-Hour Concentration (ppm)	1.9	1.8	1.7
	Days >9.0 ppm (NAAQS/CAAQS)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-Hour Concentration (ppm)	0.0542	0.0547	0.0481
	Days >0.10 ppm (NAAQS)	0	0	0
	Annual Average Concentration (ppm)	0.010	0.010	0.010
	>0.030 ppm (CAAQS)	0	0	0
Respirable Particulate Matter (PM_{10})	Maximum 24-Hour Concentration (μg/m^3)	—	—	—
	Days >150 μg/m^3 (NAAQS)			
	Days >50 μg/m^3 (CAAQS)			
	Annual Average Concentration (μg/m^3)	—	—	—
	>20 μg/m^3 (CAAQS)			
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration (μg/m^3)	55.5	20.5	21.9
	Days >35 μg/m^3 (NAAQS)	3	0	0
	Annual Average Concentration (μg/m^3)	10.1	8.8	8.8
	>12 μg/m^3 (CAAQS)	No	No	No
	>9 μg/m^3 (NAAQS)	No[a]	No	No

Source: SCAQMD, 2024

[a]The federal standard for annual $PM_{2.5}$ was revised to 9 μg/m^3 in 2024. Prior to 2024, the federal standard was 12 μg/m^3, therefore, concentrations in 2021 would not have exceeded the federal standard for annual $PM_{2.5}$.

μg/m^3 = micrometers per cubic meter
CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard
ppm = parts per million
SRA = source receptor area

Table 8-9 presents pollutant concentrations measured at the West Los Angeles-Veterans Administration Monitoring Station that provides data representative of air quality conditions within SRA 2. Concentrations of O_3 exceeded applicable standards numerous times during the most recent three-year

period of data available as shown in Table 8-9. The air monitoring data recorded at the West Los Angeles-Veterans Administration monitoring station reflects the nonattainment status of the Basin portion of Los Angeles County for the O_3. The West Los Angeles – Veterans Administration monitoring station is not equipped to measure concentrations of particulate matter (PM_{10} and $PM_{2.5}$). Concentrations of all other pollutants monitored at this site remained below applicable federal and state air quality standards, consistent with the attainment or maintenance designations corresponding to the Basin portion of Los Angeles County.

Table 8-9. West Los Angeles - Veterans Administration Air Monitoring Station Data (SRA 2)

Pollutant	Averaging Time	Maximum Concentrations and Frequencies of Exceeded Standards		
		2021	2022	2023
Ozone (O_3)	Maximum 1-Hour Concentration (ppm)	0.095	0.081	0.109
	Days >0.09 ppm (CAAQS)	1	0	1
	Maximum 8-Hour Concentration (ppm)	0.082	0.07	0.066
	Days >0.070 ppm (NAAQS/CAAQS)	1	0	0
Carbon Monoxide (CO)	Maximum 1-Hour Concentration (ppm)	2	1.7	1.4
	Days > 20 ppm (CAAQS)	0	0	0
	Maximum 8-Hour Concentration (ppm)	1.6	1.5	1.2
	Days >9.0 ppm (NAAQS/CAAQS)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-Hour Concentration (ppm)	0.061	0.051	0.044
	Days >0.10 ppm (NAAQS)	0	0	0
	Annual Average Concentration (ppm)	0.010	0.011	0.009
	>0.030 ppm (CAAQS)	No	No	No
Respirable Particulate Matter (PM_{10})	Maximum 24-Hour Concentration (µg/m³)	—	—	—
	Days >150 µg/m³ (NAAQS)			
	Days >50 µg/m³ (CAAQS)			
	Annual Average Concentration (µg/m³)	—	—	—
	>20 µg/m³ (CAAQS)			
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration (µg/m³)	—	—	—
	Days >35 µg/m³ (NAAQS)			
	Annual Average Concentration (µg/m³)	—	—	—
	>12 µg/m³ (NAAQS/CAAQS)			
	>9 µg/m³ (NAAQS)			

Source: SCAQMD, 2024

µg/m³ = micrometers per cubic meter
CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard
ppm = parts per million
SRA = source receptor area

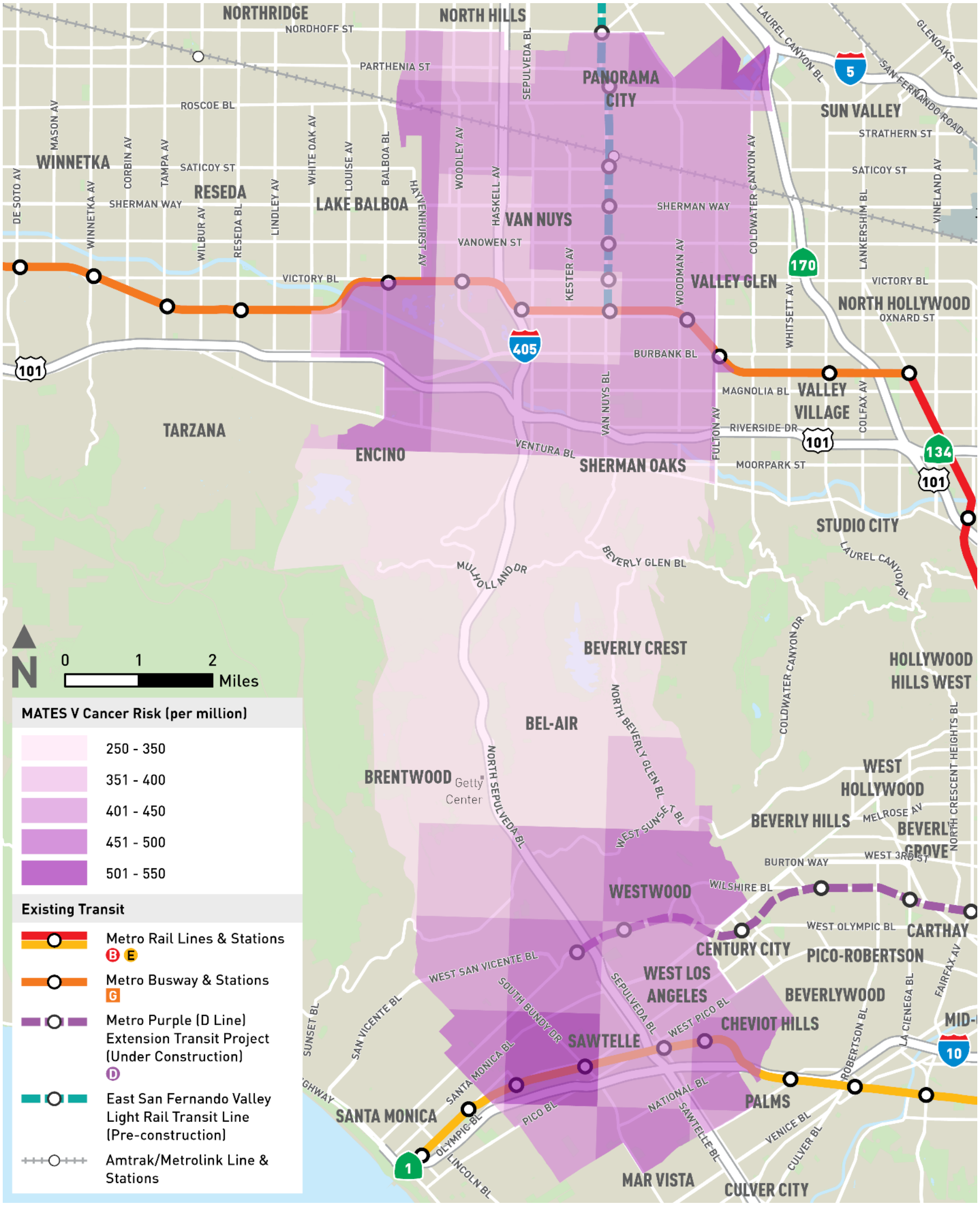
8.2.5 Ambient Carcinogenic Risk

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study conducted by the SCAQMD throughout the Basin, the first of which was published in 1986 to determine Basin-wide risks associated with major airborne carcinogens (pollutants that are scientifically documented to cause cancer). The most recent study is the MATES V published in 2021. MATES V was based on measurements during 2018 and 2019, and a modeling analysis based on emissions inventory data for 2018. A network of 10 fixed sites was used to monitor over 30 TACs once every six days over the course of a year between 2018 and 2019, and computer modeling was used to estimate air toxic levels throughout the Basin based on ambient concentrations and the emissions inventory. MATES V included methodology updates compared to previous versions, these included estimating cancer risk via inhalation and non-inhalation pathways rather than only the inhalation pathway. MATES V also estimated non-cancer health impacts via the inhalation and non-inhalation pathways, whereas previous versions did not estimate non-cancer risks. With MATES V including inhalation and non-inhalation pathways, cancer risk estimates were eight percent higher than the inhalation-only estimates (SCAQMD, 2021b).

MATES V found that air toxic levels continue to decline compared to previous MATES versions. As part of MATES V, SCAQMD developed a cancer risk map that plotted the modeled cancer risk on a grid spanning the Basin. Each grid cell is characterized by the modeled cancer risk produced by MATES V. Cancer risk is expressed as the number of extra cancer cases occurring over a 70-year lifetime per one million people exposed to toxic air contaminants. MATES V estimated cancer risk in the Basin ranged from 585 to 842 per million. Similar to previous MATES studies, the SCAQMD determined that DPM is the largest contributor to air toxics cancer risk. However, at the 10 monitoring stations, DPM levels were 53 percent lower compared to MATES IV and 86 percent lower than MATES II (SCAQMD, 2021b).

Figure 8-12 shows the Project Study Area overlain on the MATES V Estimated Risk grid developed by SCAQMD. Ambient estimated risks in the Project Study Area range from approximately 250 per million to 550 per million according to MATES V modeling results.

Figure 8-12. MATES V Estimated Cancer Risk in the Project Study Area



Source: SCAQMD, 2021b

8.2.6 Sensitive Receptors

Sensitive individuals refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses where sensitive individuals are most likely to spend extended periods of time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (SCAQMD, 1993). These types of land uses are considered sensitive receptors in air quality planning. Alternative 4 is located in a dense urban environment where sensitive receptors are located in close proximity to various components of Alternative 4. Sensitive receptor locations were identified within 1,000 feet of the Alternative 4 construction area and would encompass the sensitive receptor locations during construction and operations. Sensitive receptor locations for Alternative 4 are shown on Figure 8-13 through Figure 8-17.

Figure 8-13. Alternative 4: Sensitive Receptor Map Sheet 1 of 5

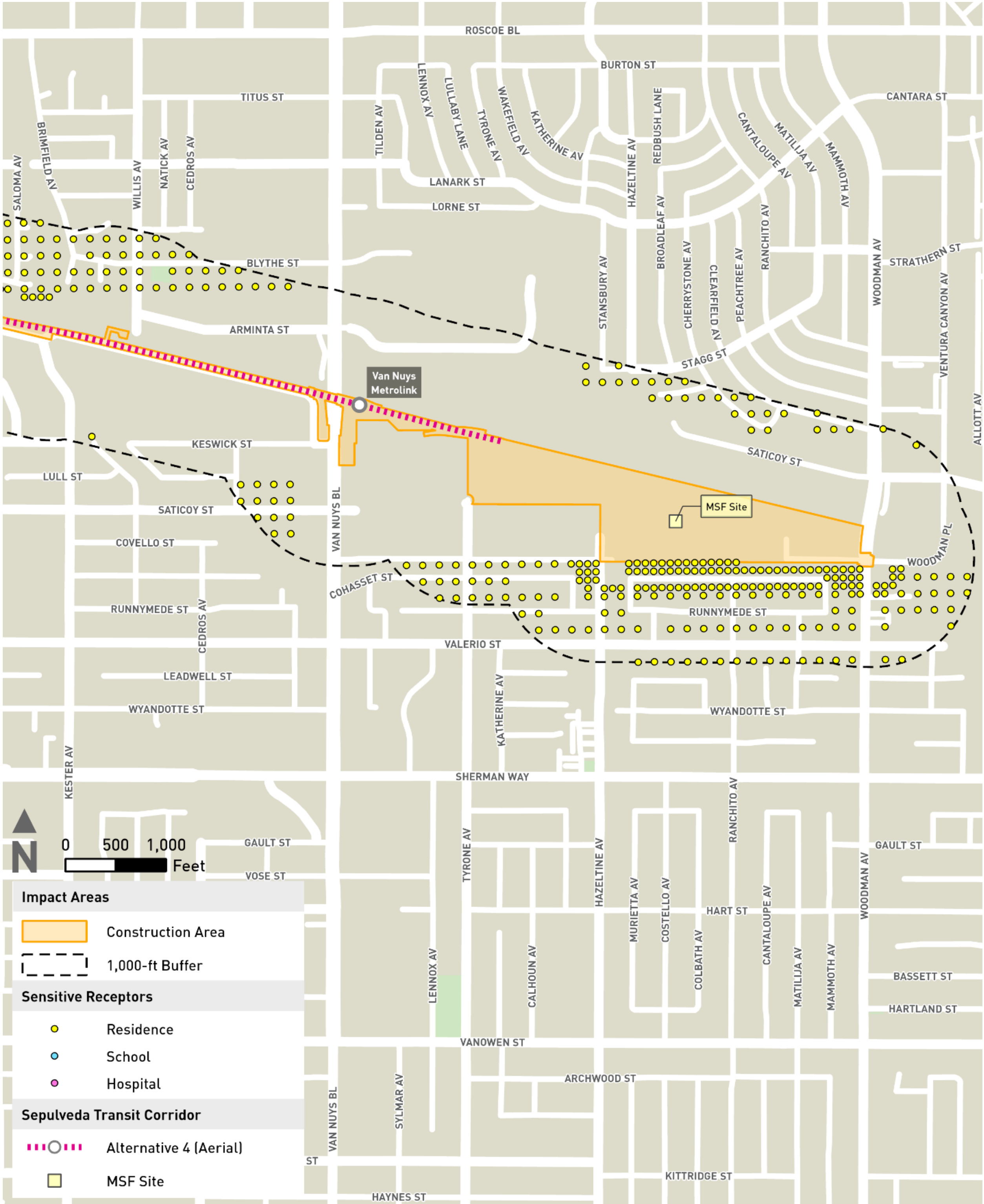


Figure 8-14. Alternative 4: Sensitive Receptor Map Sheet 2 of 5

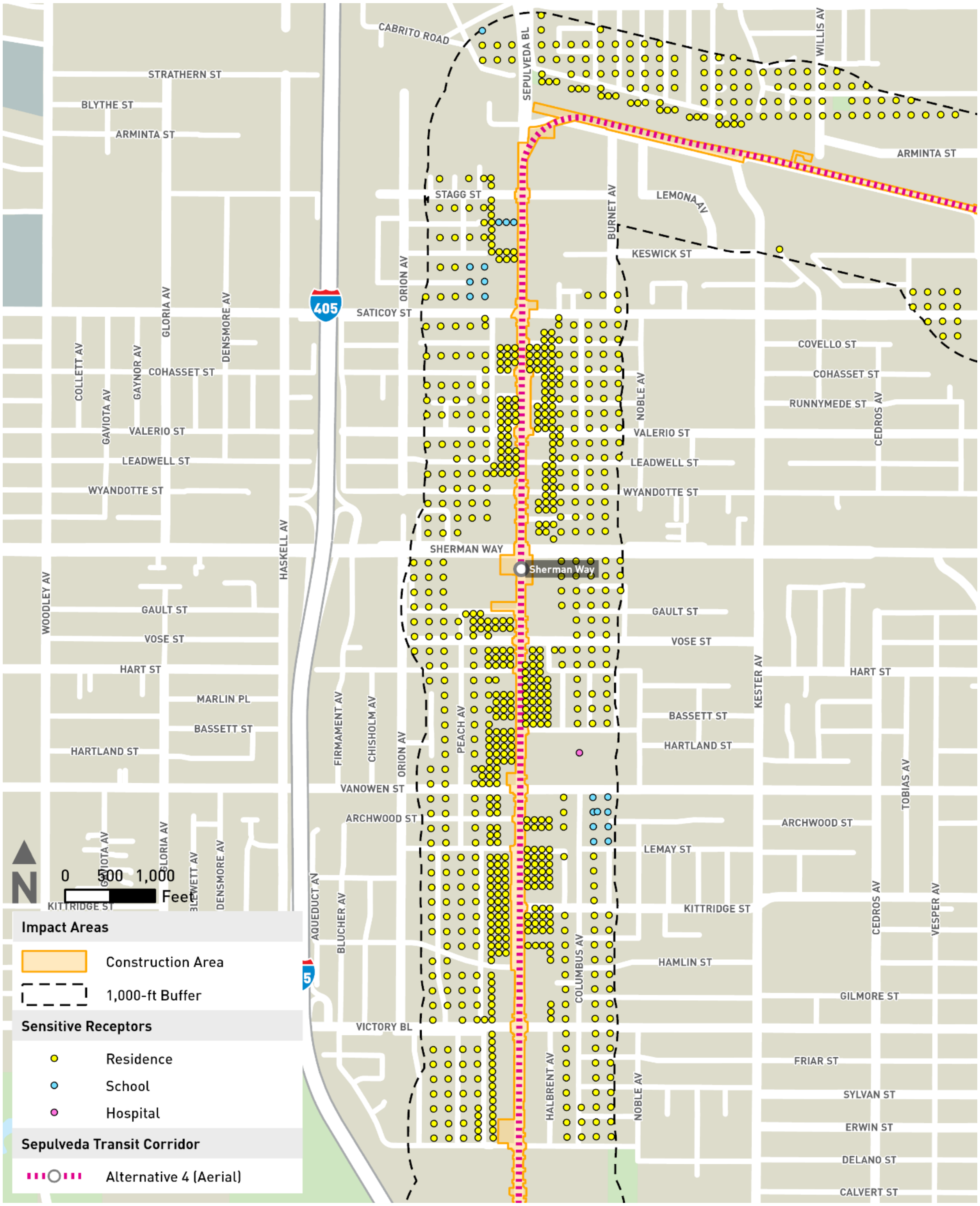


Figure 8-15. Alternative 4 Sensitive Receptor Map Sheet 3 of 5

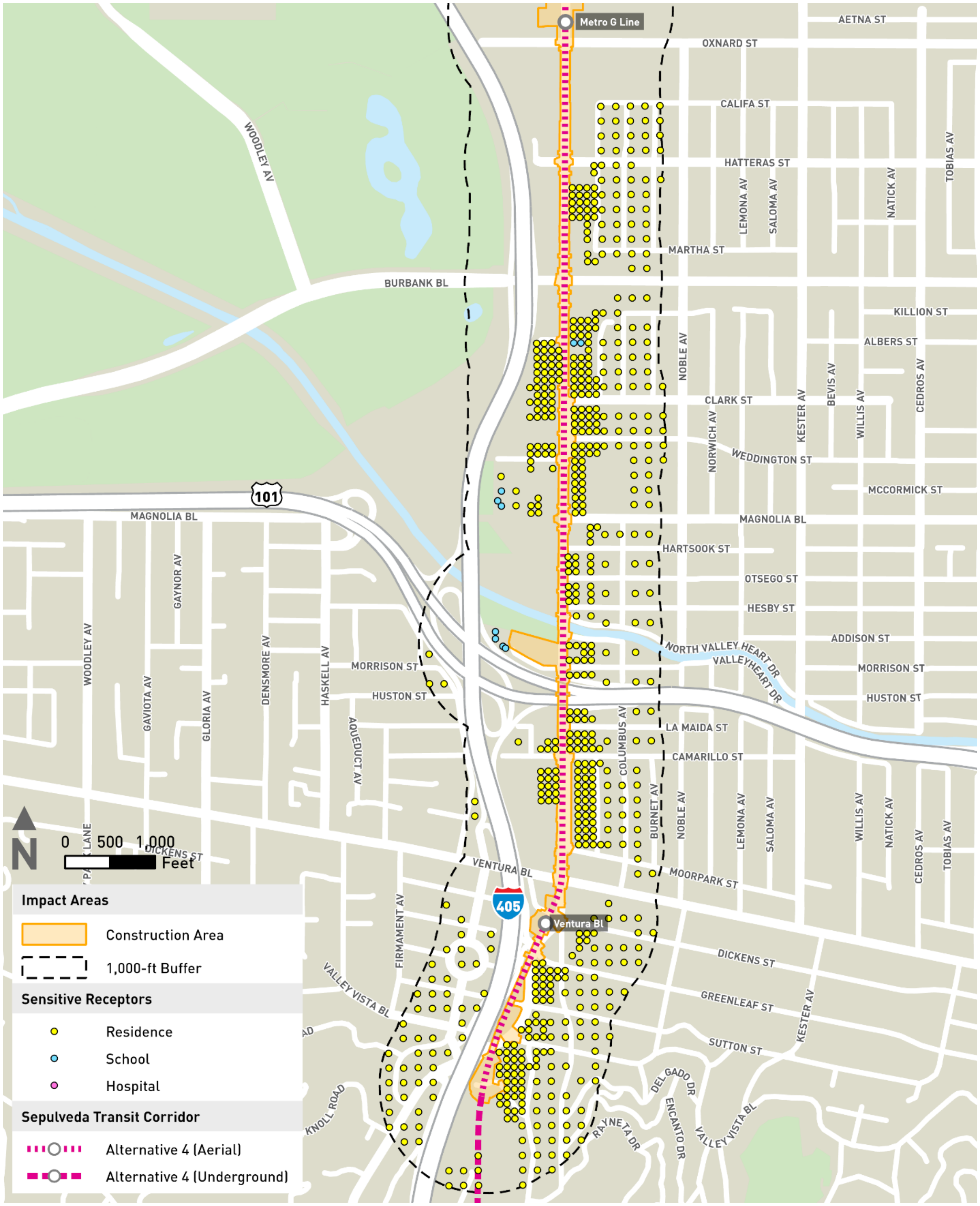
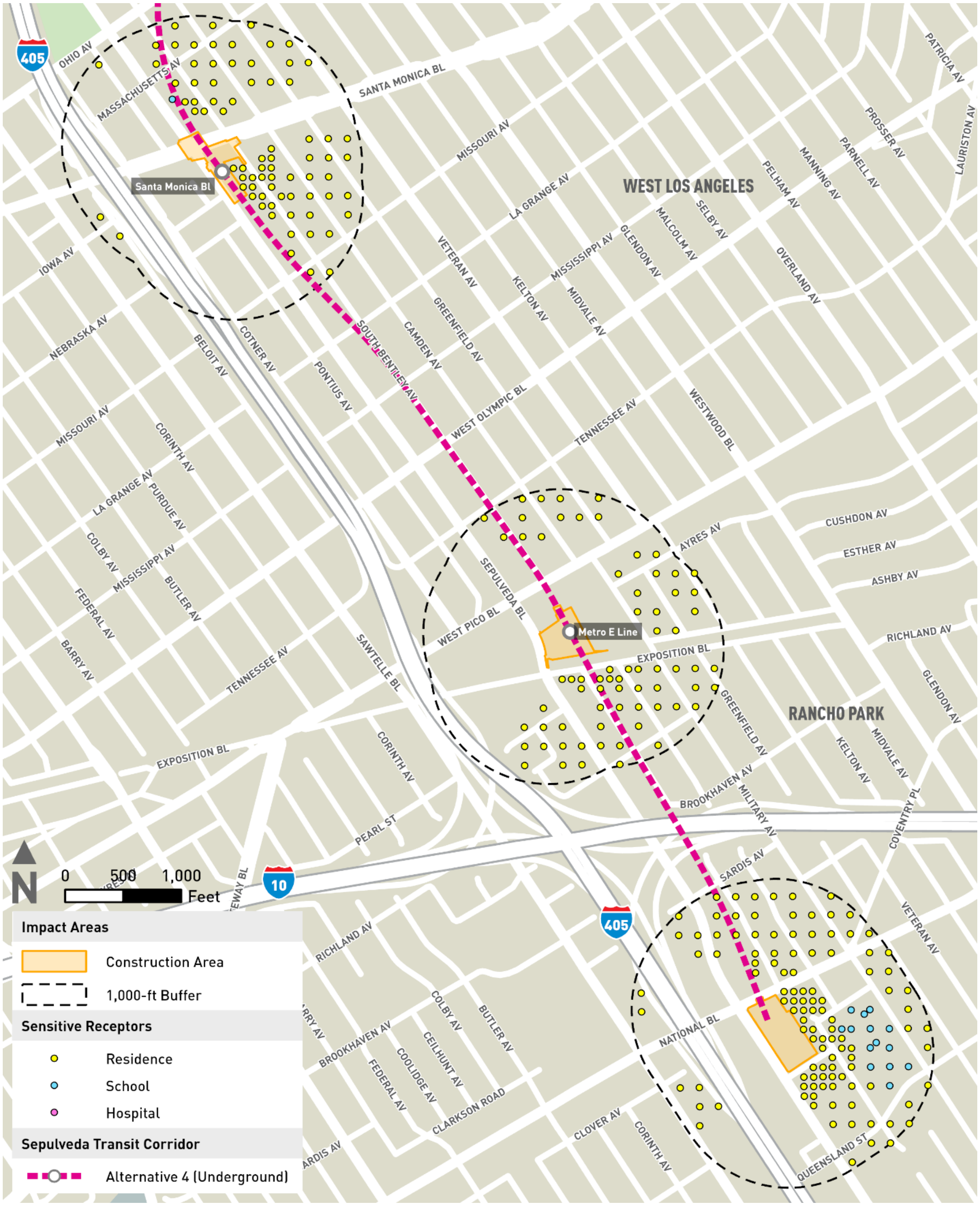


Figure 8-16. Alternative 4 Sensitive Receptor Map Sheet 4 of 5

Metro

Figure 8-17. Alternative 4 Sensitive Receptor Map Sheet 5 of 5



Source: HTA, 2024

8.2.7 Regional Highway Emissions

As required by California Environmental Quality Act (CEQA), existing conditions (Baseline 2021) emissions from regional mobile sources were estimated in the analysis for comparison with project alternatives for informational purposes only. As discussed in Section 3.6, air quality impacts would be evaluated by comparing emissions of project alternatives to 2045 without Project conditions. Table 8-10 summarizes the criteria pollutant for existing conditions and 2045 without Project conditions.

Table 8-10. Existing Conditions (Baseline Year 2021) and 2045 without Project Conditions Regional Mobile Source Criteria Pollutant Emissions

Project Alternative	Daily VMT[a]	Daily Emissions (lbs/day)					
		VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Existing Conditions	456,869,300	27,490	222,016	1,219,501	3,920	329,216	86,051
2045 without Project Conditions	568,557,200	8,987	88,927	623,264	3,487	408,902	105,487

Source: HTA, 2024

[a]VMT data provided from *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a) used 2019 as the base year for the VMT analysis because it is the most recent year for which Metro's CBM18B Transportation Analysis Model has been calibrated.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SO_2 = sulfur dioxide
VMT = vehicle miles traveled
VOC = volatile organic compounds

8.3 Impacts Evaluation

8.3.1 Impact AQ-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?

8.3.1.1 Operational Impacts

The Project, identified as project number 1160001 (Sepulveda Pass Transit Corridor Phase 2), is included in the Southern California Association of Governments (SCAG) Connect SoCal 2024. Connect SoCal 2024 is Southern California's long-range Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS), which serves as the foundation for estimating the region's transportation sector air pollutant emissions through 2050. The SCAG General Council adopted the plan on April 4, 2024. The Federal Highway Administration and the Federal Transit Administration found the plan to conform to the State Implementation Plan (SIP) on May 10, 2024. Transportation projects identified in a conforming RTP are consistent with the emissions reduction strategies outlined in the applicable regional Air Quality Management Plan (AQMP).

The region's 2022 AQMP was adopted by the South Coast Air Quality Management District (SCAQMD) Governing Board on December 2, 2022. The 2022 AQMP outlines comprehensive control strategies to meet particulate matter ($PM_{2.5}$), ozone (O_3), and lead (Pb) standards, and maintain carbon monoxide (CO), nitrogen dioxide (NO_2), and PM_{10} standards. Transportation projects identified in a currently conforming RTP are consistent with the transportation sector emissions budgets used in the formulation

of the regional AQMP. Therefore, all project alternatives, including Alternative 4, would be considered consistent with the AQMP resulting in a less than significant impact.

8.3.1.2 Construction Impacts

Construction projects within the jurisdiction of the SCAQMD must comply with several rules and regulations aimed at controlling air pollution and minimizing environmental impact. Key SCAQMD rules that typically apply to construction projects include the following, among others:

- Rule 403 - Fugitive Dust, to reduce emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area. Requires that contractors implement best management practices such as watering down construction sites, covering trucks, and using windbreaks.
- Rule 401 - Visible Emissions, which prohibits the discharge of visible air contaminants into the atmosphere. Contractors must ensure that emissions from construction activities do not exceed the visible emissions limits, typically by controlling dust and particulate matter.
- Rule 1403 - Asbestos Emissions from Demolition/Renovation Activities, to regulate the emissions of asbestos during demolition and renovation activities. Contractors must conduct thorough inspections for asbestos, notify SCAQMD before starting work, and follow specific procedures for handling and disposing of asbestos-containing materials.
- Rule 1113 - Architectural Coatings, which limits the volatile organic compound (VOC) content in architectural coatings. Contractors must use paints and coatings that comply with the VOC content limits specified by the rule.
- Rule 1108 - Cutback Asphalt, which limits the VOC emissions from the use of cutback asphalt and emulsified asphalt. Contractors must use compliant asphalt products with low VOC content.
- Rule 1157 - PM_{10} Emission Reductions from Aggregate and Related Operations, which serves to reduce PM_{10} emissions from aggregate operations, which can be a component of construction projects involving earth-moving activities. Contractors must implement dust control measures during material handling and processing operations.

Alternative 4 would comply with all relevant SCAQMD rules, and as such, would implement all required AQMP emissions control measures during construction. Impacts would be less than significant.

8.3.2 Impact AQ-2: Would the project result in cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under and applicable federal or state ambient air quality standard?

8.3.2.1 Operational Impacts

Operations of Alternative 4 would generate long-term regional criteria pollutant emissions from mobile sources including regional VMT and employees traveling to and from the MSF, area sources related to landscape equipment, consumer products, and reapplication of architectural coatings, and maintenance testing for emergency generators.

The Alternative 4 peak daily criteria pollutant emissions were estimated for two scenarios: Alternative 4 compared to 2045 without Project conditions and Alternative 4 compared to Existing Conditions 2021. As discussed in Section 3.6.1, air quality impacts would be evaluated based on the net change in emissions between project alternatives in Horizon Year 2045 and 2045 without Project conditions in

Horizon Year 2045. The comparison for Alternative 4 2045 and Existing Conditions 2021 is presented for informational purposes only. Detailed emissions calculations are summarized in Appendix A.

Table 8-11 summarizes the Alternative 4 peak daily criteria pollutant emissions for each source category compared to 2045 without Project conditions. As stated in the *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a), implementation of Alternative 4 would reduce regional daily VMT by 767,800 miles per day compared to 2045 without Project conditions. As shown in Table 8-11, Alternative 4 would not exceed SCAQMD's regional operational significance thresholds for any pollutant, rather it would result in an environmental benefit by resulting in a net decrease of daily criteria pollutant emissions for all pollutants except reactive organic gases (ROG). As shown in Table 8-11, daily VOC emissions would marginally increase relative to 2045 without Project conditions, but the magnitude of that increase would remain substantially below the applicable SCAQMD regional screening threshold for mass daily emissions.

Table 8-11. Alternative 4: Peak Daily Regional Operational Criteria Pollutant Emissions Compared to 2045 without Project Conditions

Source Category	Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}[a]	$PM_{2.5}$[a]
Alternative 4						
Area – MSF[b]	8	<0.1	12	<0.1	<0.1	<0.1
Area – Stations[c]	7	<1	41	<0.1	<0.1	<0.1
Mobile – Regional VMT Analysis	8,975	88,807	622,422	3,482	408,350	105,344
Mobile – Employee Travel	<1	1	7	<0.1	4	1
Emergency Generators[d]	4	17	10	<0.1	<1	<1
Alternative 4 Peak Daily Emissions[e]	**8,994**	**88,826**	**622,492**	**3,482**	**408,355**	**105,346**
2045 without Project Conditions						
Mobile – 2045 VMT Analysis Emissions	8,987	88,927	623,264	3,487	408,902	105,487
Net Change in Emissions	**7**	**-101**	**-772**	**-5**	**-548**	**-141**
SCAQMD Regional Significance Thresholds	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

Source: HTA, 2024

[a] PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.
[b] Total on-site emissions from the MSF.
[c] Total on-site emissions from all stations.
[d] Emergency generator located at MSF.
[e] Totals may vary due to rounding.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
VMT = vehicle miles traveled
VOC = volatile organic compounds

SCAQMD's cumulative air quality impact methodology indicates that if an individual project results in air emissions of criteria pollutants that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria

pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. Because Alternative 4 net operational emissions would not exceed the applicable SCAQMD's regional operational significance thresholds, Alternative 4 operational emissions would not be cumulatively considerable. Additionally, recognizing that SCAQMD's regional significance thresholds were established to achieve attainment of the NAAQS and CAAQS, which in turn define the maximum amount of an air pollutant that can be present in ambient air without harming public health, Alternative 4's contribution of pollutant emissions is not expected to result in measurable human health impacts on a regional scale.

As discussed above, the comparison for Alternative 4 and Existing Conditions 2021 is presented for informational purposes only. Table 8-12 summarizes the Alternative 4 peak daily criteria pollutant emissions for each source category compared to Existing Conditions 2021. As shown in Table 8-12, Alternative 4 would exceed SCAQMD's regional significance thresholds for PM_{10} and $PM_{2.5}$. All other criteria pollutants would be below regional significance thresholds and even resulting in a net decrease in peak daily emissions of VOCs, NO_X, CO, and SO_2. The significant increase in PM is attributable to background growth in regional VMT from 2021 to 2045 and PM fugitive dust emission factors (i.e., the combination of tire wear, brake wear, and resuspended road dust) that comprise greater than 90 percent of the total per-mile emissions factors for PM10 and PM2.5. Fugitive dust emission factors for tire wear, brake wear, and paved roads remain relatively constant over this time frame, whereas exhaust emission factors tend to decrease in future years due to expected improvements in vehicle engine technology, fuel efficiency, and turnover in older, more heavily polluting vehicles. Consequently, Alternative 4 results in a net increase in PM_{10} and $PM_{2.5}$ emissions because fugitive dust emissions are a function of VMT growth.

Table 8-12. Alternative 4: Peak Daily Regional Operational Criteria Pollutant Emissions (Horizon Year 2045) Compared to Existing Conditions (Baseline Year 2021)

Source Category	Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}[a]	$PM_{2.5}$[a]
Alternative 4						
Area – MSF[b]	8	<0.1	12	<0.1	<0.1	<0.1
Area – Stations[c]	7	<1	41	<0.1	<0.1	<0.1
Mobile – Regional VMT Analysis	8,975	88,807	622,422	3,482	408,350	105,344
Mobile – Employee Travel	<1	1	7	<0.1	4	1
Emergency Generators[d]	4	17	10	<0.1	<1	<1
Alternative 4 Peak Daily Emissions[e]	**8,994**	**88,826**	**622,492**	**3,482**	**408,355**	**105,346**
Existing Conditions						
Mobile – 2021 VMT Analysis Emissions	27,490	222,016	1,219,501	3,920	329,216	86,051
Net Change in Emissions	**-18,496**	**-133,190**	**-597,009**	**-438**	**79,139**	**19,295**
SCAQMD Regional Significance Thresholds	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	**Yes**	**Yes**

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.
[b]Total on-site emissions from the MSF.
[c]Total on-site emissions from all stations.
[d]Emergency generator located at MSF.
[e]Totals may vary due to rounding.

CO = carbon monoxide

lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
VMT = vehicle miles traveled
VOC = volatile organic compounds

8.3.2.2 Construction Impacts

Alternative 4 construction activities would generate criteria pollutant emissions from off-road equipment, mobile sources including workers, vendor trucks, and haul trucks traveling to and from construction sites, demolition, soil handling activities, paving, application of architectural coatings, and operation of temporary concrete batch plants. These emissions sources would be related to constructing the HRT system alignment, TPSSs, stations, and the MSF.

Construction emissions would vary substantially from day to day, depending on the level of activity and the specific type of construction activity. The peak daily construction emissions for Alternative 4 were estimated for each construction year. Based on the construction schedule for Alternative 4, construction phases for components could potentially overlap; therefore, the estimates of peak daily emissions included these potential overlaps by combining the relevant construction phase daily emissions. The peak daily emissions are predicted values for the worst-case day and do not represent the emissions that would occur for every day of construction. Table 8-13 summarizes the peak daily regional emissions for each construction year.

Table 8-13. Alternative 4: Unmitigated Peak Daily Regional Construction Criteria Pollutant Emissions

Construction Year	Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}[a]	$PM_{2.5}$[a]
2027	2	21	57	<0.1	2	<1
2028	12	113	331	<1	29	7
2029	20	246	601	2	72	18
2030	26	339	747	3	101	25
2031	29	340	788	2	89	22
2032	38	359	900	2	100	28
2033	33	247	716	1	33	10
2034	24	195	442	<1	22	7
2035	19	119	294	<1	15	5
2036	1	14	41	<0.1	2	<1
2037	1	14	41	<0.1	2	<1
Peak Daily Emissions	**38**	**359**	**900**	**3**	**101**	**28**
SCAQMD Regional Significance Thresholds	75	100	550	150	150	55
Threshold Exceeded?	No	**Yes**	**Yes**	No	No	No

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less

PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
VOC = volatile organic compounds

As shown in Table 8-13, Alternative 4 construction emissions would exceed the SCAQMD regional significance thresholds for NOX and CO emissions. SCAQMD's cumulative air quality impact methodology indicates that if an individual project results in air emissions of criteria pollutants that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. Because Alternative 4 construction emissions would exceed the applicable SCAQMD's regional construction significance thresholds for NOX and CO, Alternative 4 construction emissions would be cumulatively considerable. Additionally, recognizing that SCAQMD's regional significance thresholds were established to achieve attainment of the NAAQS and CAAQS, which in turn define the maximum amount of an air pollutant that can be present in ambient air without harming public health, the project's contribution of pollutant emissions may result in measurable human health impacts on a regional scale.

As discussed in Section 3.1, the emissions analysis incorporated Tier 4 Final engines for off-road equipment greater than or equal to 50 horsepower, trucks with model years 2007 or newer, and included dust control measures to be implemented during each phase of construction, as required by SCAQMD Rule 403. The construction analysis for Alternative 4 conservatively assumed all equipment would be diesel powered, the Metro Green Construction Policy contains measures that aim to reduce construction emissions through utilization of hybrid drive off-road equipment and using electric power instead of diesel power. There are no feasible mitigation measures that would reduce Alternative 4 NOX and CO emissions below SCAQMD significance thresholds; therefore, Alternative 4 construction emissions would result in cumulatively considerable net increase of criteria pollutants for which the project region is nonattainment under an applicable federal or state ambient air quality standard and impacts would be significant and unavoidable.

8.3.3 Impact AQ-3: Would the project expose sensitive receptors to substantial pollutant concentrations?

The term sensitive receptor refers to receptors located at land uses associated with people who are considered to be more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirmed are more susceptible to respiratory distress and other air quality-related health problems on average than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality.

8.3.3.1 Operational Impacts

Localized Emissions Analysis

To assess the potential localized air quality impacts resulting from Alternative 4 on nearby sensitive receptors during operations, the daily on-site operations emissions generated at Alternative 4 components, primarily the MSF and all stations were compared to SCAQMD's applicable operations LSTs. Alternative 4 localized emissions would be generated from area sources, such as landscaping equipment, use of consumer products, and reapplication of architectural coatings; and emergency generator maintenance testing. As discussed in Section 3.6.5, localized emissions from the MSF and all stations would be summed together and compared to the operational LSTs. As shown in Table 8-14, Alternative 4 localized operational emissions would not exceed SCAQMD significance thresholds, therefore impacts of local criteria pollutants would be less than significant.

Table 8-14. Alternative 4: Unmitigated Localized Operations Criteria Pollutant Emissions

Source Category	Daily Emissions (lbs/day)			
	NO_X	CO	PM_{10}[e]	$PM_{2.5}$[a]
Area – MSF[a]	<0.1	12	<0.1	<0.1
Area – Stations[c]	<1	41	<0.1	<0.1
Emergency Generators[d]	17	10	<1	<1
Alternative 4 Total Localized Emissions	**18**	**63**	**<1**	**<1**
SCAQMD Localized Significance Thresholds[e]	172	1,434	3	2
Exceeds Threshold?	No	No	No	No

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.
[b]Total on-site emissions from the MSF.
[c]Total on-site emissions from all stations.
[d]Emergency generator located at MSF.
[e]LSTs based on most stringent values for a 5-acre site with a 25-meter receptor distance in SRA 2 and SRA 7.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District

The SCAQMD's LSTs for each SRA represent the maximum emissions a project can emit without causing or contributing to a violation of any short-term NAAQS or CAAQS. As noted previously, the NAAQS and CAAQS are health-protective standards that define the maximum amount of ambient pollution that can be present without harming public health. Consequently, projects with emissions below the applicable LSTs would not be in violation of the NAAQS or CAAQS and, thus, EPA and CARB health protective standards. Because Alternative 4 operational emissions would not exceed the LSTs, Alternative 4 would not cause or contribute to a violation of any health-protective CAAQS and NAAQS.

Carbon Monoxide Hot Spots

A CO hot spot is a localized concentration of CO that is above the state or national 1-hour or 8-hour ambient air standards for the pollutant. CO hot spots at roadway intersections are typically found in areas with significant traffic congestion. CO is a public health concern because at high enough concentrations, it can cause health problems such as fatigue, headache, confusion, dizziness, and even death. However, it should be noted that ambient concentrations of CO have declined dramatically in California because of existing controls and programs.

Currently, all areas of the state, including the Project Study Area, meet the state and federal CO standards and are designated attainment or maintenance. As part of SCAQMD's 2003 AQMP, which is the most recent AQMP that addresses CO concentrations, a revision to the *Federal Attainment Plan for Carbon Monoxide* (CO Plan) that was originally approved in 1992 was provided and included a CO hot spots analysis at four specified heavily traveled intersections in Los Angeles at the peak morning and afternoon time periods. These four intersection locations selected for CO modeling are considered to be worst-case intersections that would likely experience the highest CO concentrations. The CO hot spots analysis in the 2003 AQMP did not predict a violation of CO standards at the four intersections. Of these four intersections, the busiest intersection evaluated was that at Wilshire Boulevard and Veteran Avenue, which was described as the most heavily congested intersection in Los Angeles County with an average daily traffic volume of approximately 100,000 vehicles per day. Based on the CO modeling, the 2003 AQMP estimated that the 1-hour and 8-hour concentrations at this intersection was 4.6 ppm and 3.4 ppm, respectively, which would not exceed the most stringent 1-hour CO standard of 20.0 ppm and 8-hour CO standards of 9 ppm (SCAQMD, 2003).

The *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a) analyzed traffic volume data at intersections in the Project Study Area affected by Alternative 4 in Horizon Year 2045. The highest daily traffic volumes generated at an intersection within the vicinity of Alternative 4 would be an estimated cumulative total of 74,840 vehicles per day at the intersection of Sepulveda Boulevard and Sherman Way. Because the daily number of vehicles at this study intersection would not exceed 100,000 vehicles per day, it can be concluded that Alternative 4 would not exceed the most stringent 1-hour and 8-hour CO standards and no detailed CO hot spots analysis for Alternative 4 would be required. Therefore, Alternative 4 would not result in impacts related to CO hot spots and would not contribute a significant level of CO such that localized air quality and human health would be substantially degraded.

8.3.3.2 Construction Impacts

Localized Emissions Analysis

Using the conservative methodology described in Section 3.3.1 to assess the potential localized air quality impacts resulting from Alternative 4 on nearby receptors during construction, the daily on-site construction emissions from the Alternative 4 components (alignment, stations, TPSSs, MSF) were compared to SCAQMD's applicable construction localized significance thresholds (LST). Alternative 4 localized emissions included exhaust emissions from off-road equipment and trucks, and fugitive dust from demolition, earth movement activities, and truck travel. As shown in Table 8-15, Alternative 4 localized construction emissions would exceed the PM_{10} and $PM_{2.5}$ LSTs for construction activity in the Valley and exceed the PM_{10} LST in the Westside, therefore, Alternative 4 localized construction emissions would have adverse health risk implications (as discussed in Section 3.3.1 and Section 8.2.2) and would be considered to be significant.

Table 8-15. Alternative 4: Unmitigated Localized Construction Criteria Pollutant Emissions

Construction Area	Daily Emissions (lbs/day)[a]			
	NO_X	CO	PM_{10}[b]	$PM_{2.5}$[b]
Valley Construction Components[c]				
Segment 2-Reach 2 Tunnel (North Portal to UCLA Gateway Plaza Station)	23.6	64.3	9.0	1.1
Segment 3-Aerial Guideway (North Portal to MSF)	44.4	200.5	1.2	0.7
VTA Station Staging Area	3.2	12.0	0.3	0.1
Ventura Boulevard Station	8.2	57.1	0.7	0.3
Metro G Line Sepulveda Station	22.5	77.3	0.6	0.3
Sherman Way Station	22.5	77.3	0.6	0.4
Metrolink Van Nuys Station	28.1	91.5	0.7	0.4

Construction Area	Daily Emissions (lbs/day)[a]			
	NO_X	CO	PM_{10}[b]	$PM_{2.5}$[b]
TPSS 11-STA 1260	—	—	—	—
MSF	3.0	15.4	14.9	5.9
Precast Yard	16.6	48.6	13.4	2.4
Components In Proximity to Each Other				
Segment 2 + Ventura Boulevard Station	31.7	121.4	9.7	1.4
Segment 3 + Metrolink Van Nuys Station + TPSS 11 + MSF + Precast	92.2	356.0	30.2	9.4
Peak Daily Localized Emissions	**92.2**	**356.0**	**30.2**	**9.4**
SCAQMD Localized Significance Threshold[d]	114	786	7	4
Exceeds Threshold?	No	No	**Yes**	**Yes**
Westside Construction Components[c]				
Segment 1-Reach 1 Tunnel (Southern Terminus to UCLA Gateway Plaza Station)	13.4	53.8	8.0	1.0
Segment 2-Reach 2 Tunnel (North Portal to UCLA Gateway Plaza Station)	—	—	—	—
Metro E Line Station	27.3	33.2	0.9	0.3
Santa Monica Station	15.4	80.4	2.6	0.4
D Line Wilshire-Westwood Station	17.8	47.1	4.7	0.8
UCLA Gateway Plaza Station	15.3	80.5	3.3	0.7
Components In Proximity to Each Other				
Not Applicable	—	—	—	—
Peak Daily Localized Emissions	**27.3**	**80.5**	**8.0**	**1.0**
SCAQMD Localized Significance Threshold[e]	147	827	6	4
Exceeds Threshold?	No	No	**Yes**	No

Source: HTA, 2024

[a]Daily emissions for each construction component represent the contribution to the maximum daily localized emissions in the Valley or Westside.

[b]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.

[c]TPSSs listed in table would be located at standalone locations and not within the construction area of a station, MSF, track alignment, or tunnel. Each of these standalone TPSSs had their own construction phasing in the construction emissions analysis. For TPSSs located within the construction area of a station, MSF, track alignment, or tunnel, their construction activity was accounted for in the overall construction activity for the component.

[d]LST values are based on a 2-acre site with a 25-meter receptor distance in SRA 7 East San Fernando Valley.

[e]LST values are based on a 2-acre site with a 25-meter receptor distance in SRA 2 Northwest Coastal LA County.

SCAQMD = South Coast Air Quality Management District

As discussed in Section 3.1, the emissions analysis incorporated Tier 4 Final engines for off-road equipment greater than or equal to 50 horsepower, trucks with model years 2007 or newer, and included dust control measures to be implemented during each phase of construction, as required by SCAQMD Rule 403. The construction analysis for Alternative 4 conservatively assumed all equipment would be diesel powered, the Metro *Green Construction Policy* contains measures that aim to reduce construction emissions through utilization of hybrid drive off-road equipment and using electric power instead of diesel power. There are no feasible mitigation measures that would reduce Alternative 4 PM_{10} and $PM_{2.5}$ emissions below SCAQMD localized significance thresholds, therefore, Alternative 4 construction emissions would potentially expose sensitive receptors to substantial concentrations and impacts would be significant and unavoidable.

The SCAQMD's LSTs for each SRA represent the maximum emissions a project can emit without causing or contributing to a violation of any short-term NAAQS or CAAQS. As noted previously, the NAAQS and CAAQS are health-protective standards that define the maximum amount of ambient pollution that can be present without harming public health. Consequently, projects with emissions below the applicable LSTs would not be in violation of the NAAQS or CAAQS and, thus, EPA and CARB health-protective standards. Because Alternative 4 construction emissions exceed the PM_{10} LST, Alternative 4 would cause or contribute to a violation of one or more health-protective CAAQS and NAAQS. Given that diesel particulate matter (DPM) emissions constitute a portion of localized PM_{10} emissions, impacts related to localized DPM emissions during construction are also considered to be significant and unavoidable due to the following: (1) the elevated background carcinogenic risk, (2) the duration of construction activity, and (3) the proximity of sensitive receptors to DPM emissions sources.

8.3.4 Impact AQ-4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

8.3.4.1 Operational Impacts

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment facilities, food processing plants, chemical plants, composting areas, refineries, landfills, dairies, and fiberglass molding facilities. Alternative 4 is a transit project with a track alignment, TPSSs, stations, and an MSF which are not associated with any of the aforementioned land uses. Alternative 4 would include various trash receptacles associated with the stations and MSF. On-site trash receptacles used by Alternative 4 would be covered and properly maintained to prevent adverse odors. With proper housekeeping practices, trash receptacles would be maintained in a manner that promotes odor control, and no adverse odor impacts are anticipated from the uses. Therefore, Alternative 4 operations would not create a significant level of objectionable odors affecting a substantial number of people and impacts with respect to odors would be less than significant.

8.3.4.2 Construction Impacts

During construction of Alternative 4, exhaust from equipment, activities associated with the application of architectural coatings and other interior and exterior finishes, and paving activities may produce discernible odors typical of most construction sites. Such odors would be, at worst, a temporary source of nuisance to adjacent uses, if at all, and would not affect a substantial number of people. Alternative 4 would use architectural coatings compliant with SCAQMD Rule 1113, which would limit the odors associated with off-gassing from those coatings. Additionally, material deliveries and heavy-duty haul truck trips could occasionally produce odors from diesel exhaust. These odors would not affect a substantial number of people because construction would be temporary, and construction-generated emissions dissipate rapidly with increasing distance from the source. Overall, odors associated with Alternative 4 construction would be temporary and intermittent in nature and would not create a significant level of objectionable odors affecting a substantial number of people.

8.4 Mitigation Measures

8.4.1 Operational Impacts

No mitigation measures are required.

8.4.2 Construction Impacts

As previously discussed, Alternative 4 would exceed SCAQMD regional thresholds for NO_X and CO, as well as SCAQMD localized thresholds for PM_{10} and $PM_{2.5}$, and would result in significant and unavoidable impacts. Therefore, the following mitigation measures (MM) shall be implemented for Alternative 4 construction.

MM AQ-1: *The Project shall require zero emissions or near zero emissions on-road haul trucks such as heavy-duty trucks with natural gas engines that meet or exceed the California Air Resources Board's adopted optional nitrogen oxides emissions standard at 0.02 grams per brake horsepower hour (g/bhp-hr), if and when feasible. Operators shall maintain records of all trucks associated with project construction to document that each truck used meets these emission standards. These records shall be submitted monthly to Metro for review and shall be made available to regulatory agencies upon request. To ensure compliance, Metro or its designated representative shall conduct regular inspections of construction operations, including on-site verification of truck compliance. Inspections shall occur at least twice per month during active construction. Any contractor found to be using non-compliant trucks without prior approval from Metro shall be subject to penalties, including suspension of operations until compliance is achieved.*

MM AQ-2: *Construction contracts shall include language that compels contractors to implement all policies and emissions control measures as presented in Metro's Green Construction Policy.*

MM AQ-3: *Construction contracts shall include language that compels contractors to implement all fugitive dust control measures as detailed in SCAQMD Rule 403 (Fugitive Dust).*

8.4.3 Impacts After Mitigation

Although construction of Alternative 4 would require implementation of MM AQ-1, it is not technically feasible at the time of document preparation to verify the commercial availability of ZE and NZE trucks to the extent needed to reduce construction-period NO_X, CO, PM_{10}, and $PM_{2.5}$ emissions below SCAQMD's regional and localized emissions thresholds. MM AQ-2 and MM AQ-3 simply enforce Metro and SCAQMD policies that are already required, independent of any additional prescribed mitigation.

Given the current uncertainty around the availability of sufficient ZE and NZE trucks to reduce Alternative 4 construction-period NO_X, CO, PM_{10}, and $PM_{2.5}$ impacts below SCAQMD's regional and localized emissions thresholds, this impact would remain significant and unavoidable.

9 ALTERNATIVE 5

9.1 Alternative Description

Alternative 5 consists of a heavy rail transit (HRT) system with a primarily underground guideway track configuration, including seven underground stations and one aerial station. This alternative would include five transfers to high-frequency fixed guideway transit and commuter rail lines, including the Los Angeles County Metropolitan Transportation Authority's (Metro) E, Metro D, and Metro G Lines, East San Fernando Valley Light Rail Transit Line, and the Metrolink Ventura County Line. The length of the alignment between the terminus stations would be approximately 13.8 miles, with 0.7 miles of aerial guideway and 13.1 miles of underground configuration.

The seven underground and one aerial HRT stations would be as follows:

1. Metro E Line Expo/Sepulveda Station (underground)
2. Santa Monica Boulevard Station (underground)
3. Wilshire Boulevard/Metro D Line Station (underground)
4. UCLA Gateway Plaza Station (underground)
5. Ventura Boulevard/Sepulveda Boulevard Station (underground)
6. Metro G Line Sepulveda Station (underground)
7. Sherman Way Station (underground)
8. Van Nuys Metrolink Station (aerial)

9.1.1 Operating Characteristics

9.1.1.1 Alignment

As shown on Figure 9-1, from its southern terminus station at the Metro E Line Expo/Sepulveda Station, the alignment of Alternative 5 would run underground north through the Westside of Los Angeles (Westside), the Santa Monica Mountains, and the San Fernando Valley (Valley) to a tunnel portal east of Sepulveda Boulevard and south of Raymer Street. As it approaches the tunnel portal, the alignment would curve eastward and begin to transition to an aerial guideway along the south side of the Los Angeles-San Diego-San Luis Obispo (LOSSAN) rail corridor that would continue 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 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 9-1. Alternative 5: Alignment

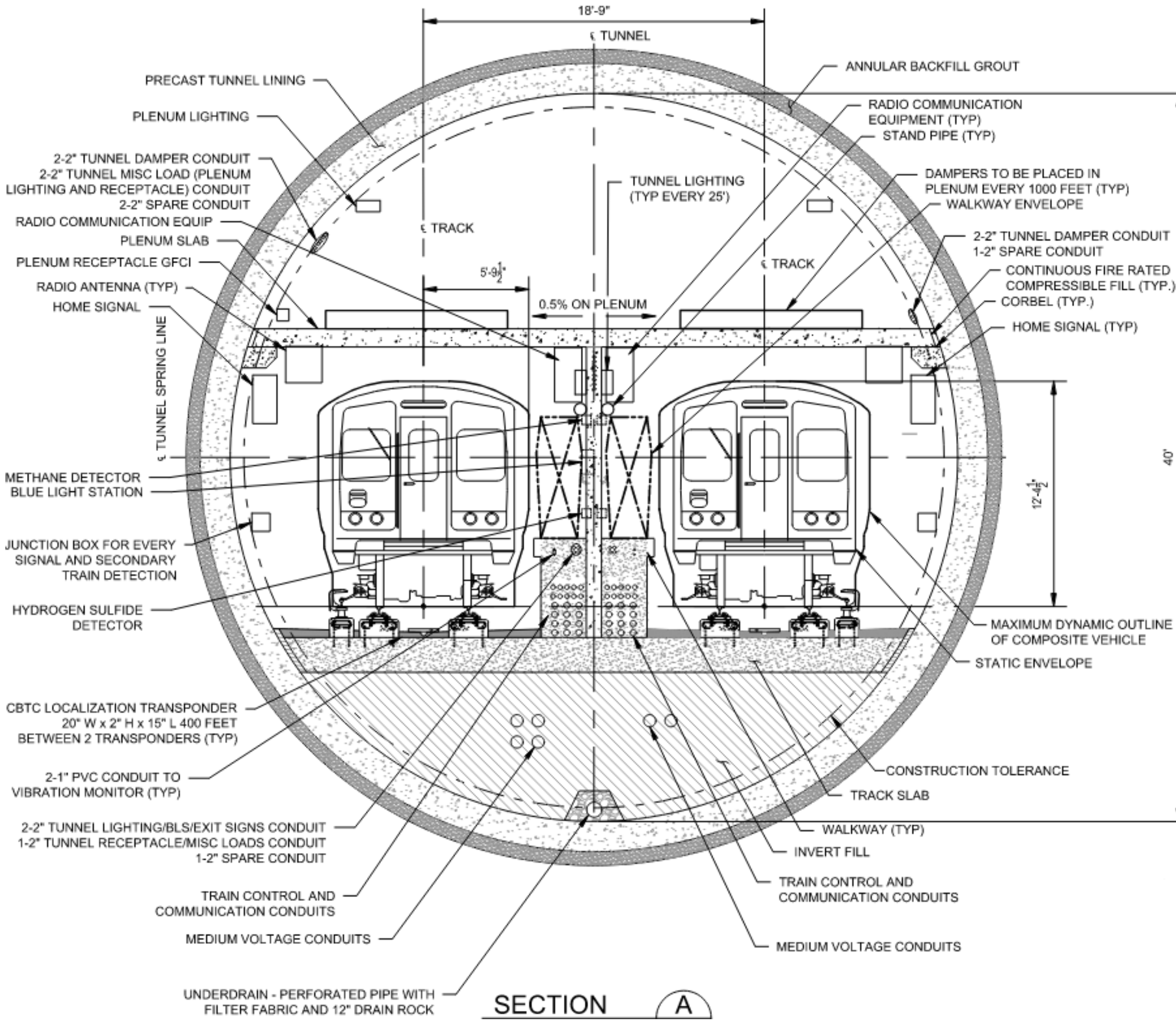
Source: STCP, 2024; HTA, 2024

From the UCLA Gateway Plaza Station, the alignment would turn to the northwest beneath the Santa Monica Mountains to the east of Interstate 405 (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 maintenance and storage facility (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 City of Los Angeles Department of Water and Power (LADWP) property.

9.1.1.2 Guideway Characteristics

For underground sections, Alternative 5 would utilize a single-bore tunnel configuration with an outside diameter of approximately 43.5 feet. The tunnel would include two parallel tracks at 18.75-foot 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. At the crown of tunnel, a dedicated air plenum would be provided by constructing a concrete slab above the railway corridor. The air plenum would allow for ventilation throughout the underground portion of the alignment. Figure 9-2 illustrates these components at a typical cross-section of the underground guideway.

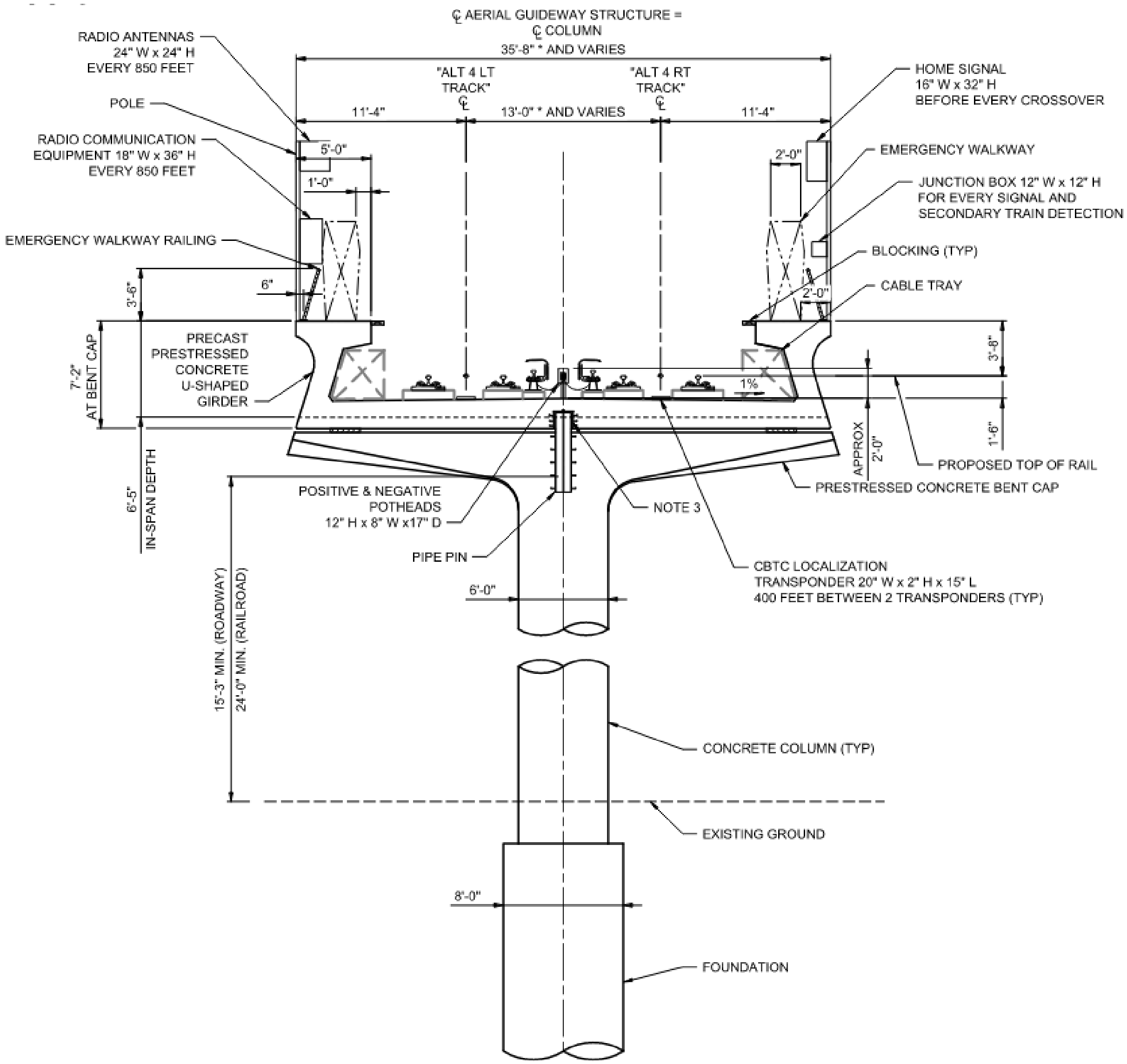
Figure 9-2. Typical Underground Guideway Cross-Section



Source: STCP, 2024

In aerial sections adjacent to Raymer Street and the LOSSAN rail corridor, the guideway would consist of single-column spans. The single-column spans would include a U-shaped concrete girder structure that supports the railway track atop a series of individual columns. The single-column 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 two-track centerlines. On the outer side of the tracks, emergency walkways would be constructed with a minimum width of 2 feet. The single-column aerial guideway would be the primary aerial structure throughout the aerial portion of the alignment. Figure 9-3 shows a typical cross-section of the single-column aerial guideway.

Figure 9-3. Typical Aerial Guideway Cross-Section



Source: STCP, 2024

9.1.1.3 Vehicle Technology

Alternative 5 would utilize steel-wheel HRT trains, with automated train operations and planned peak-period headways of 2.5 minutes and off-peak-period headways ranging from 4 to 6 minutes. Each train could consist of three or four cars with open gangways between cars. The HRT vehicle would have a maximum operating speed of 70 miles per hour; actual operating speeds would depend on the design of the guideway and distance between stations. Train cars would be approximately 10 feet wide with three double doors on each side. Each car would be approximately 72 feet long with capacity for 170 passengers. Trains would be powered by a third rail.

9.1.1.4 Stations

Alternative 5 would include seven underground stations and one aerial station with station platforms measuring 280 feet long for both station configurations. The aerial station would be constructed a minimum of 15.25 feet above ground level, supported by rows of dual columns with 8-foot diameters. The southern terminus station would be adjacent to the Metro E Line Expo/Sepulveda Station, and the northern terminus station would be adjacent to the Van Nuys Metrolink/Amtrak Station.

All stations would be side-platform stations where passengers would select and travel up to station platforms depending on their direction of travel. All stations would include 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. The Van Nuys Metrolink Station would include a mezzanine level prior to reaching the station platforms. Each station would have a minimum of two elevators, two escalators, and one stairway from ground level to the concourse or mezzanine.

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

The following information describes each station, with relevant entrance, walkway, and transfer information. Bicycle parking would be provided at each station.

Metro E Line Expo/Sepulveda Station

- 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 direct internal transfer to the Metro E Line would be provided at street level within the fare paid zone.
- 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.

Santa Monica Boulevard Station

- 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.

Wilshire Boulevard/Metro D Line Station

- 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.
- No dedicated station parking would be provided at this station.

UCLA Gateway Plaza Station

- This underground station would be located underneath Gateway Plaza on the University of California, Los Angeles (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.

Ventura Boulevard/Sepulveda Boulevard Station

- 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 U.S. Highway 101 (US-101) On-Ramp.

Metro G Line Sepulveda Station

- 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.
- 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.

Sherman Way Station

- 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.

Van Nuys Metrolink Station

- 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.

- Existing Metrolink 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.

9.1.1.5 Station-to-Station Travel Times

Table 9-1 presents the station-to-station distance and travel times at peak period 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 9-1. 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

— no data

9.1.1.6 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.

9.1.1.7 Maintenance and Storage Facility

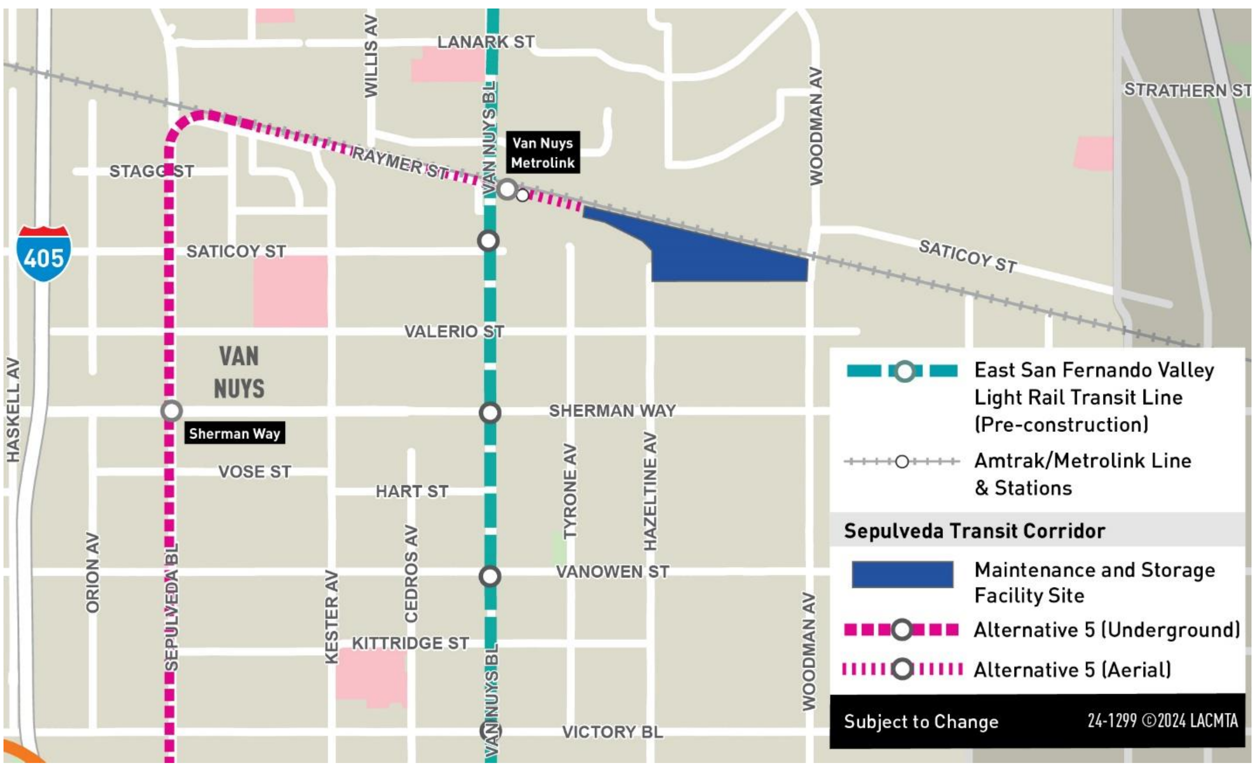
The MSF for Alternative 5 would be located east of the Van Nuys Metrolink Station and would encompass approximately 46 acres. The MSF would be designed to accommodate 184 rail cars and would be bounded by single-family residences to the south, the LOSSAN rail corridor to the north, Woodman Avenue on 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
- Maintenance-of-way building
- Storage tracks
- Carwash building
- Cleaning and inspections platforms
- Material storage building
- Hazmat storage locker
- Traction power substation (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 9-4 shows the location of the MSF site for Alternative 5.

Figure 9-4. Alternative 5: Maintenance and Storage Facility Site



Source: STCP, 2024; HTA, 2024

9.1.1.8 Traction Power Substations

TPSSs transform and convert high voltage alternating current supplied from power utility feeders into direct current suitable for transit operation. Thirteen TPSS facilities would be located along the alignment and would be spaced approximately 0.5 to 2.5 miles apart. All TPSS facilities would be located within the stations, adjacent to the tunnel through the Santa Monica Mountains, or within the MSF. Table 9-2 lists the TPSS locations for Alternative 5.

Figure 9-5 shows the TPSS locations along the Alternative 5 alignment.

Table 9-2. 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: Sepulveda Transit Corridor Partners (STCP) has stated that Alternative 5 TPSS locations are derived from and assumed to be similar to the Alternative 4 TPSS locations.

Figure 9-5. Alternative 5: Traction Power Substation Locations

Source: STCP, 2024; HTA, 2024

9.1.1.9 Roadway Configuration Changes

Table 9-3 lists the roadway changes necessary to accommodate the guideway of Alternative 5. Figure 9-6 shows the location of the roadway changes within the Sepulveda Transit Corridor Project (Project) Study Area. In addition to the changes made to accommodate the guideway, as listed in Table 9-3, roadways and sidewalks near stations would be reconstructed, resulting in modifications to curb ramps and driveways.

Table 9-3. 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 9-6. Alternative 5: Roadway Changes

Source: STCP, 2024; HTA, 2024

9.1.1.10 Ventilation Facilities

For ventilation, 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 5 would also 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.

9.1.1.11 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. Similarly, the aerial guideway near the LOSSAN rail corridor 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.

9.1.2 Construction Activities

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.

For the guideway, Alternative 5 would consist of a single-bore tunnel through the Westside, Valley, and Santa Monica Mountains. The tunnel 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 north from the Ventura Boulevard Station to the portal near Raymer Street (Valley segment). Tunnel boring machines (TBM) with approximately 45-foot-diameter cutting faces would be used to construct the tunnel segments underground. For the Westside segment, the TBM would be launched from Staging Area No. 1 in Table 9-4 at Sepulveda Boulevard and National Boulevard. For the Santa Monica Mountains segment, the TBMs 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 9-4. For the Valley segment, the TBM would be launched from Staging Area No. 8 as shown in Table 9-4 and extracted from the Ventura Boulevard Station. Figure 9-7 shows the location of construction staging locations along the Alternative 5 alignment.

Table 9-4. 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 9-7. Alternative 5: On-Site Construction Staging Locations

Source: STCP, 2024; HTA, 2024

The distance from the surface to the top of the tunnel for the Westside tunnel 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 varies greatly from approximately 470 feet as it passes under the Santa Monica Mountains to 50 feet near UCLA. 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 the 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.

Construction work zones would also be co-located with future MSF and station locations. All work zones would comprise 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.

In addition to work zones, Alternative 5 would include 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 9-4 and Figure 9-7 present the potential construction staging areas along the alignment for Alternative 5. Table 9-5 and Figure 9-8 present candidate sites for off-site staging and laydown areas.

Table 9-5. Alternative 5: 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 9-8. Alternative 5: Potential Off-Site Construction Staging Locations

Source: STCP, 2024; HTA, 2024

Construction of the HRT guideway between the Van Nuys Metrolink Station and the MSF 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.

Alternative 5 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.

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.

9.2 Existing Conditions

9.2.1 Regional Climate and Meteorology

The Project Study Area is located within the South Coast Air Basin (Basin), an area covering approximately 6,745 square miles and bounded by the Pacific Ocean to the west and south and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the distinctive climate of the Basin, which is a coastal plain with connecting broad valleys and low hills.

The Southern California region, which includes the Basin, lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area’s natural physical characteristics (weather and topography) as well as human-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of pollutants throughout the Basin, making it an area of high pollution potential.

The worst air pollution throughout the Basin occurs from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day. O_3 concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Basin and adjacent desert. Substantial progress has been made in reducing air pollution levels in Southern California in recent years. However, the Basin still faces considerable challenges to attain the federal and state air quality standards.

Weather stations closest to the Project Study Area are the Western Regional Climate Center (WRCC) monitoring stations at the Woodland Hills Pierce College (COOP ID 041484) and the University of California, Los Angeles (UCLA) (COOP ID 049152). These monitoring stations were selected to accurately represent the climate conditions occurring in the northern and southern portions of the Project Study Area. According to climate data recorded from 1949 to 2012 for the Woodland Hills station, the average annual maximum temperature in the area is approximately 81 degrees Fahrenheit (°F), and the average annual minimum temperature is approximately 48°F. The average precipitation in the area is approximately 16 inches annually, occurring primarily from December through March (WRCC, 2023a). According to climate data recorded from 1933 to 2016 for the UCLA station, the average annual maximum temperature in the area is approximately 71°F, and the average annual minimum temperature is approximately 55°F. The average precipitation in the area is approximately 17 inches annually, occurring primarily from December through March (WRCC, 2023b).

9.2.2 Pollutants of Concern

9.2.2.1 Criteria Pollutants

National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) have been established for six pollutants: O_3, NO_2, CO, SO_2, respirable particulate matter of diameter less than 10 microns (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead. Brief descriptions of the criteria air pollutants, common sources, and documented health concerns from exposure are provided in Table 9-6.

Table 9-6. Criteria Air Pollutants and Characteristics

Pollutant	Characteristics
Ozone (O_3)	• Colorless gas and secondary pollutant formed by complex atmospheric interactions between two or more reactive organic gas compounds (including volatile organic compounds and nitrogen oxides [NO_X]) in the presence of ultraviolet sunlight. Automobile travel and industrial sources are the greatest sources of atmospheric O_3 formation. • Short-term exposure (lasting for a few hours) to O_3 levels typical in Southern California can result in breathing pattern changes, restricted breathing, increased susceptibility to infections, inflammation of the lung tissue, and immunological changes.
Nitrogen Dioxide (NO_2)	• Formed in the atmosphere through chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation and contribute to the formation of PM_{10}. • High concentrations can cause breathing difficulties, are linked to chronic pulmonary fibrosis, an increase of bronchitis in children (2 and 3 years old), and result in a brownish-red cast to the atmosphere with reduced visibility.
Carbon Monoxide (CO)	• Colorless, odorless gas formed by incomplete combustion of fossil fuels (e.g., motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains) • Excess exposure can reduce the blood's ability to transport oxygen, causing dizziness, fatigue, and impairment of central nervous system functions.
Sulfur Dioxide (SO_2)	• Refers to any compounds of sulfur and oxygen. A colorless, pungent gas that forms primarily through the combustion of sulfur-containing coal and oil. • Stringent controls placed on stationary SO_2 emissions and limits on sulfur content of fuels have reduced atmospheric SO_2 concentrations. Highest levels of SO_2 are found near large industrial complexes (e.g., power plants) and can harm plant leaves and erode iron and steel. • An irritant gas that attacks the throat and lungs; can cause acute respiratory symptoms and diminished lung function in children.

Pollutant	Characteristics
Respirable Particulate Matter (PM_{10})	• Comprising airborne liquid and solid particles (e.g., smoke, soot, dust, salts, acids, and metals) formed by atmospheric chemical reactions of gases emitted from industrial and motor vehicles. • Results from crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. • Collects in the upper portion of the respiratory system and can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections.
Fine Particulate Matter ($PM_{2.5}$)	• Formed in the atmosphere from gases (i.e., sulfur dioxide, nitrogen oxides, and volatile organic compounds) and results from fuel combustion (e.g., motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. • Inhalation (i.e., lead, sulfates, nitrates, chlorides, ammonia) can be absorbed into the bloodstream and damage human organs, tissues, and cells throughout the body. Suspended $PM_{2.5}$ can damage and discolor surfaces and produce haze and reduce regional visibility.
Lead (Pb)	• Occurs in atmosphere as PM emitted from leaded gasoline combustion; manufacture of batteries, paint, ink, ceramics, and ammunition; and secondary lead smelting facilities. • Phased-out leaded gasoline reduced overall airborne lead by 95 percent between 1978 and 1987. Current emission sources of greater concern include lead smelters, battery recycling, and manufacturing facilities. • Prolonged exposure can lead to serious threats to human health (i.e., gastrointestinal disturbances, anemia, kidney disease, and neuromuscular and neurological dysfunction). Infancy and childhood exposure can impair neurobehavioral performance.

Source: CARB, 2024c

9.2.2.2 Toxic Air Contaminants

Toxic air contaminants (TAC) are generally defined as those air pollutants that may increase a person's risk of developing cancer and/or other serious health effects; however, the emission of a toxic chemical does not automatically create a health hazard. Although NAAQS and CAAQS have been established for criteria pollutants, no ambient standards exist for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, California Air Resources Board (CARB) has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA, 2015a, 2015b).

Air toxics are generated by many sources, including stationary sources, such as dry cleaners, gas stations, auto body shops, and combustion sources; mobile sources, such as diesel trucks, ships, and trains; and area sources, such as farms, landfills, and construction sites. Adverse health effects of TACs can be carcinogenic (cancer-causing), short-term (acute) non-carcinogenic, and long-term (chronic) non-carcinogenic. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to the brain and nervous system, and respiratory disorders. The principal TAC associated with the Project is DPM emitted during construction activities.

DPM differs from other air toxics in that it is a complex mixture of hundreds of substances rather than a single substance. DPM is typically composed of carbon particles (“soot,” also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances such as polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB, 2024d). As more than 90 percent of DPM is less than 1 micrometer (µm) in diameter (about 1/70th the diameter of a human hair), the majority of DPM is small enough to be inhaled into the lungs. Although particles the size of DPM can deposit throughout the lung, the largest fraction deposits in the deepest regions of the lungs where the lung is most susceptible to injury. Health effects associated with exposure to DPM include premature death, hospitalizations, and emergency department visits for exacerbated chronic heart and lung disease, including asthma, increased respiratory symptoms, and decreased lung function in children (CARB, 2024d).

The U.S. Environmental Protection Agency (EPA) is tasked with the regulatory authority of monitoring pollutant concentrations and determining whether areas have attained the NAAQS. Those areas with recurring concentrations of criteria pollutants exceeding the air quality standard values are designated as “Nonattainment” of the standard and are required to prepare air quality plans to demonstrate regional control strategies that will reduce emissions.

9.2.3 Regional Attainment Status

EPA is tasked with the regulatory authority of monitoring pollutant concentrations and determining whether areas have attained the NAAQS. Those areas with recurring concentrations of criteria pollutants exceeding the air quality standard values are designated as “Nonattainment” of the standard and are required to prepare air quality plans to demonstrate regional control strategies that will reduce emissions. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Recently in February 2024, the federal $PM_{2.5}$ annual standard was revised from 12 $\mu g/m^3$ to 9 $\mu g/m^3$, making the federal standard more stringent than the state standard of 12 $\mu g/m^3$. Local monitoring data are used to designate areas as nonattainment, maintenance, attainment, or unclassified areas for ambient air quality standards. The four designations are defined as follows.

- Nonattainment—assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- Maintenance—assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- Attainment—assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- Unclassified—assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table 9-7 presents the attainment status designations for the non-desert portion of Los Angeles County within the SCAQMD jurisdiction. The Basin portion of Los Angeles County is currently designated nonattainment of the NAAQS for O_3 and $PM_{2.5}$, and is designated nonattainment of the CAAQS for O_3, PM_{10}, and $PM_{2.5}$.

Table 9-7. Attainment Status Designations – South Coast Air Basin Portion of Los Angeles County

Pollutant	Averaging Time	CAAQS Status	NAAQS Status
Ozone (O_3)	1-Hour	Nonattainment	Nonattainment (Extreme)
	8-Hour	Nonattainment	Nonattainment (Extreme)
Carbon Monoxide (CO)	1-Hour	Attainment	Attainment (Maintenance)
	8-Hour	Attainment	Attainment (Maintenance)
Nitrogen Dioxide (NO_2)	1-Hour	Attainment	Unclassifiable/Attainment
	Annual Average	Attainment	Attainment (Maintenance)
Sulfur Dioxide (SO_2)	1-Hour	Attainment	Unclassifiable/Attainment
	24-Hour	Attainment	Unclassifiable/Attainment
Respirable Particulate Matter (PM_{10})	24-Hour	Nonattainment	Attainment (Maintenance)
	Annual Average	Nonattainment	No Federal Standard
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No State Standard	Nonattainment (Serious)
	Annual Average	Nonattainment	Nonattainment (Moderate)
Lead (Pb)	30-Day Average	Attainment	No Federal Standard
	3-Month Average	Attainment	Nonattainment (Partial)

Source: CARB, 2024b; EPA, 2024

CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard

9.2.4 Local Air Quality

The attainment status designations are based on concentrations of air pollutants measured at air monitoring sites throughout the Basin. The SCAQMD divides the Basin into 38 source receptor areas (SRA), the boundaries of which were determined by the proximity to the nearest air monitoring station and local topography and meteorological patterns. The SCAQMD operates a total of 34 air monitoring sites that are used to characterize air quality within the 38 SRAs. The Project Study Area predominately transects portions of SRA 6 (West San Fernando Valley) and SRA 7 (East San Fernando Valley) in the northern portion and SRA 2 (Northwest Coastal Los Angeles County) in the southern portion. However, although project alternatives are included in SRA 7 (East San Fernando Valley), there is no longer an active monitoring station in this SRA; therefore, the SRA 6 monitoring station data was used. Figure 9-9 displays the Project Study Area overlain on the portions of the SCAQMD SRAs that it covers, as well as the locations of monitoring stations in SRA 2 (West Los Angeles – Veterans Administration monitoring site) and SRA 6 (Reseda monitoring site). The following discussions address pollutant concentrations measured at stations from 2021 to 2023.

Figure 9-9. SCAQMD Source Receptor Areas in Project Study Area

Source: HTA, 2024

Table 9-8 presents pollutant concentrations measured at the Reseda monitoring station that provides data representative of air quality conditions within SRA 6. As shown in Table 9-8, concentrations of O_3 exceeded applicable standards numerous times during the most recent three-year period of data available. The 24-hour federal standard for $PM_{2.5}$ was also exceeded for one year during this period. The air monitoring data recorded at the Reseda monitoring station reflects the nonattainment status of the Basin portion of Los Angeles County for O_3 and $PM_{2.5}$. The Reseda monitoring station is not equipped to measure concentrations of PM_{10}. Concentrations of all other pollutants monitored at this site remained below applicable federal and state air quality standards, consistent with the attainment or maintenance designations corresponding to the Basin portion of Los Angeles County.

Table 9-8. Reseda Air Monitoring Station Data (SRA 6)

Pollutant	Averaging Time	Maximum Concentrations and Frequencies of Exceeded Standards		
		2021	2022	2023
Ozone (O_3)	Maximum 1-Hour Concentration (ppm)	0.110	0.11	0.104
	Days >0.09 ppm (CAAQS)	4	7	10
	Maximum 8-Hour Concentration (ppm)	0.083	0.096	0.096
	Days >0.070 ppm (NAAQS/CAAQS)	33	24	30
Carbon Monoxide (CO)	Maximum 1-Hour Concentration (ppm)	2.6	2.2	2.3
	Days >20 ppm (CAAQS)	0	0	0
	Maximum 8-Hour Concentration (ppm)	1.9	1.8	1.7
	Days >9.0 ppm (NAAQS/CAAQS)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-Hour Concentration (ppm)	0.0542	0.0547	0.0481
	Days >0.10 ppm (NAAQS)	0	0	0
	Annual Average Concentration (ppm)	0.010	0.010	0.010
	>0.030 ppm (CAAQS)	0	0	0
Respirable Particulate Matter (PM_{10})	Maximum 24-Hour Concentration (µg/m^3)	—	—	—
	Days >150 µg/m^3 (NAAQS)			
	Days >50 µg/m^3 (CAAQS)			
	Annual Average Concentration (µg/m^3)	—	—	—
	>20 µg/m^3 (CAAQS)			
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration (µg/m^3)	55.5	20.5	21.9
	Days >35 µg/m^3 (NAAQS)	3	0	0
	Annual Average Concentration (µg/m^3)	10.1	8.8	8.8
	>12 µg/m^3 (CAAQS)	No	No	No
	>9 µg/m^3 (NAAQS)	No[a]	No	No

Source: SCAQMD, 2024

[a]The federal standard for annual $PM_{2.5}$ was revised to 9 µg/m^3 in 2024. Prior to 2024, the federal standard was 12 µg/m^3, therefore, concentrations in 2021 would not have exceeded the federal standard for annual $PM_{2.5}$.

µg/m^3 = micrometers per cubic meter
CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard
ppm = parts per million
SRA = source receptor area

Table 9-9 presents pollutant concentrations measured at the West Los Angeles-Veterans Administration Monitoring Station that provides data representative of air quality conditions within SRA 2. Concentrations of O_3 exceeded applicable standards numerous times during the most recent three-year

period of data available as shown in Table 9-9. The air monitoring data recorded at the West Los Angeles-Veterans Administration monitoring station reflects the nonattainment status of the Basin portion of Los Angeles County for the O_3. The West Los Angeles – Veterans Administration monitoring station is not equipped to measure concentrations of particulate matter (PM_{10} and $PM_{2.5}$). Concentrations of all other pollutants monitored at this site remained below applicable federal and state air quality standards, consistent with the attainment or maintenance designations corresponding to the Basin portion of Los Angeles County.

Table 9-9. West Los Angeles - Veterans Administration Air Monitoring Station Data (SRA 2)

Pollutant	Averaging Time	Maximum Concentrations and Frequencies of Exceeded Standards		
		2021	2022	2023
Ozone (O_3)	Maximum 1-Hour Concentration (ppm)	0.095	0.081	0.109
	Days >0.09 ppm (CAAQS)	1	0	1
	Maximum 8-Hour Concentration (ppm)	0.082	0.07	0.066
	Days >0.070 ppm (NAAQS/CAAQS)	1	0	0
Carbon Monoxide (CO)	Maximum 1-Hour Concentration (ppm)	2	1.7	1.4
	Days >20 ppm (CAAQS)	0	0	0
	Maximum 8-Hour Concentration (ppm)	1.6	1.5	1.2
	Days >9.0 ppm (NAAQS/CAAQS)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-Hour Concentration (ppm)	0.061	0.051	0.044
	Days >0.10 ppm (NAAQS)	0	0	0
	Annual Average Concentration (ppm)	0.010	0.011	0.009
	>0.030 ppm (CAAQS)	No	No	No
Respirable Particulate Matter (PM_{10})	Maximum 24-Hour Concentration (µg/m^3)	—	—	—
	Days >150 µg/m^3 (NAAQS)			
	Days >50 µg/m^3 (CAAQS)			
	Annual Average Concentration (µg/m^3)	—	—	—
	>20 µg/m^3 (CAAQS)			
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration (µg/m^3)	—	—	—
	Days >35 µg/m^3 (NAAQS)			
	Annual Average Concentration (µg/m^3)	—	—	—
	>12 µg/m^3 (CAAQS)			
	9 µg/m^3 (NAAQS)			

Source: SCAQMD, 2024

µg/m^3 = micrometers per cubic meter
CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard
ppm = parts per million
SRA = source receptor area

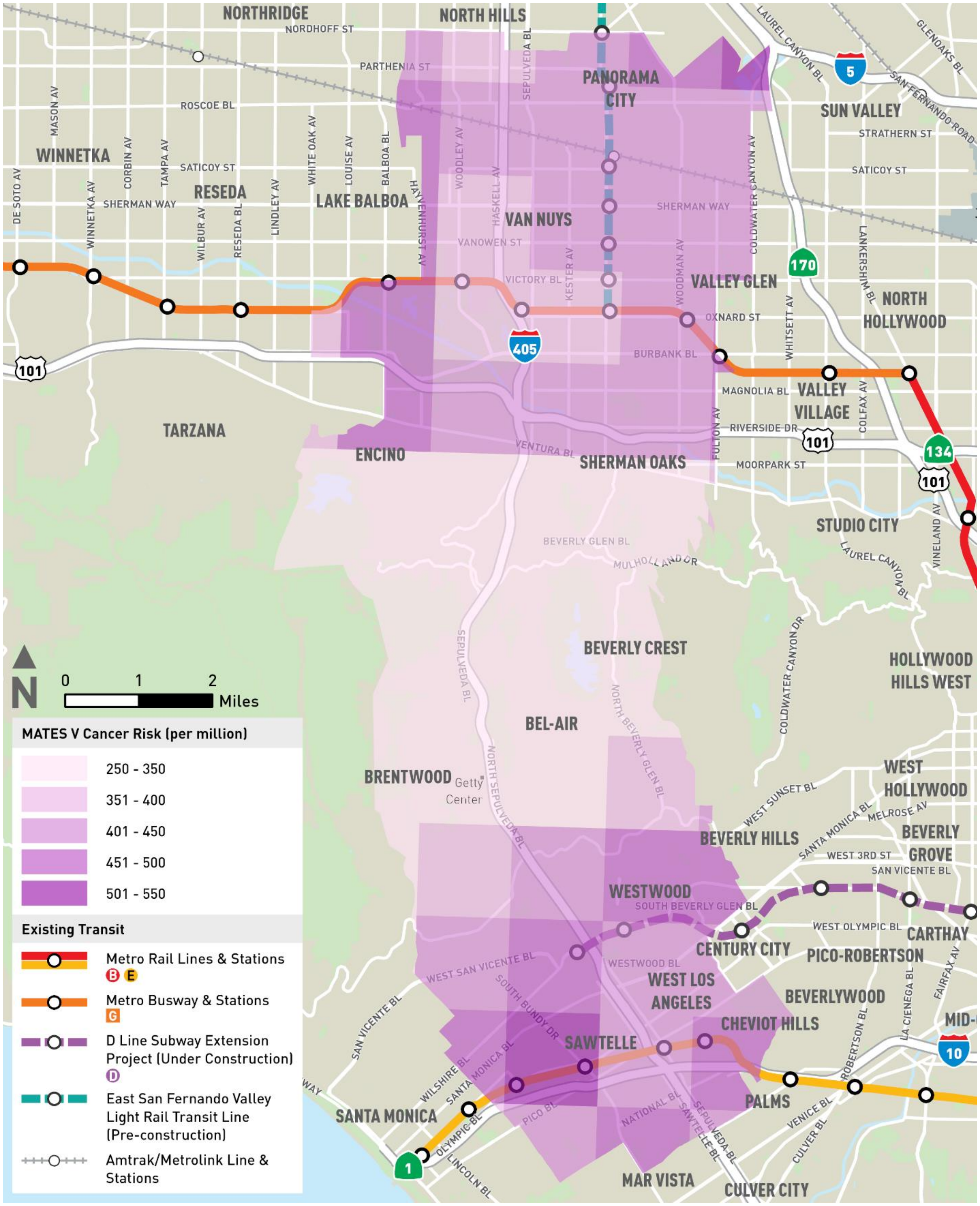
9.2.5 Ambient Carcinogenic Risk

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study conducted by the SCAQMD throughout the Basin, the first of which was published in 1986 to determine Basin-wide risks associated with major airborne carcinogens (pollutants that are scientifically documented to cause cancer). The most recent study is the MATES V published in 2021. MATES V was based on measurements during 2018 and 2019, and a modeling analysis based on emissions inventory data for 2018. A network of 10 fixed sites was used to monitor over 30 TACs once every six days over the course of a year between 2018 and 2019, and computer modeling was used to estimate air toxic levels throughout the Basin based on ambient concentrations and the emissions inventory. MATES V included methodology updates compared to previous versions, these included estimating cancer risk via inhalation and non-inhalation pathways rather than only the inhalation pathway. MATES V also estimated non-cancer health impacts via the inhalation and non-inhalation pathways, whereas previous versions did not estimate non-cancer risks. With MATES V including inhalation and non-inhalation pathways, cancer risk estimates were eight percent higher than the inhalation-only estimates (SCAQMD, 2021b).

MATES V found that air toxic levels continue to decline compared to previous MATES versions. As part of MATES V, SCAQMD developed a cancer risk map that plotted the modeled cancer risk on a grid spanning the Basin. Each grid cell is characterized by the modeled cancer risk produced by MATES V. Cancer risk is expressed as the number of extra cancer cases occurring over a 70-year lifetime per one million people exposed to toxic air contaminants. MATES V estimated cancer risk in the Basin ranged from 585 to 842 per million. Similar to previous MATES studies, the SCAQMD determined that DPM is the largest contributor to air toxics cancer risk. However, at the 10 monitoring stations, DPM levels were 53 percent lower compared to MATES IV and 86 percent lower than MATES II (SCAQMD, 2021b).

Figure 9-10 shows the Project Study Area overlain on the MATES V Estimated Risk grid developed by SCAQMD. Ambient estimated risks in the Project Study Area range from approximately 250 per million to 550 per million according to MATES V modeling results.

Figure 9-10. MATES V Estimated Cancer Risk in the Project Study Area



Source: SCAQMD, 2021b

9.2.6 Sensitive Receptors

Sensitive individuals refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses where sensitive individuals are most likely to spend extended periods of time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (SCAQMD, 1993). These types of land uses are considered sensitive receptors in air quality planning. Alternative 5 is located in a dense urban environment where sensitive receptors are located in close proximity to various components of Alternative 5. Sensitive receptor locations were identified within 1,000 feet of the Alternative 5 construction area and would encompass the sensitive receptor locations during construction and operations. Sensitive receptor locations for Alternative 5 are shown on Figure 9-11 through Figure 9-15.

Figure 9-11. Alternative 5: Sensitive Receptor Map Sheet 1 of 5

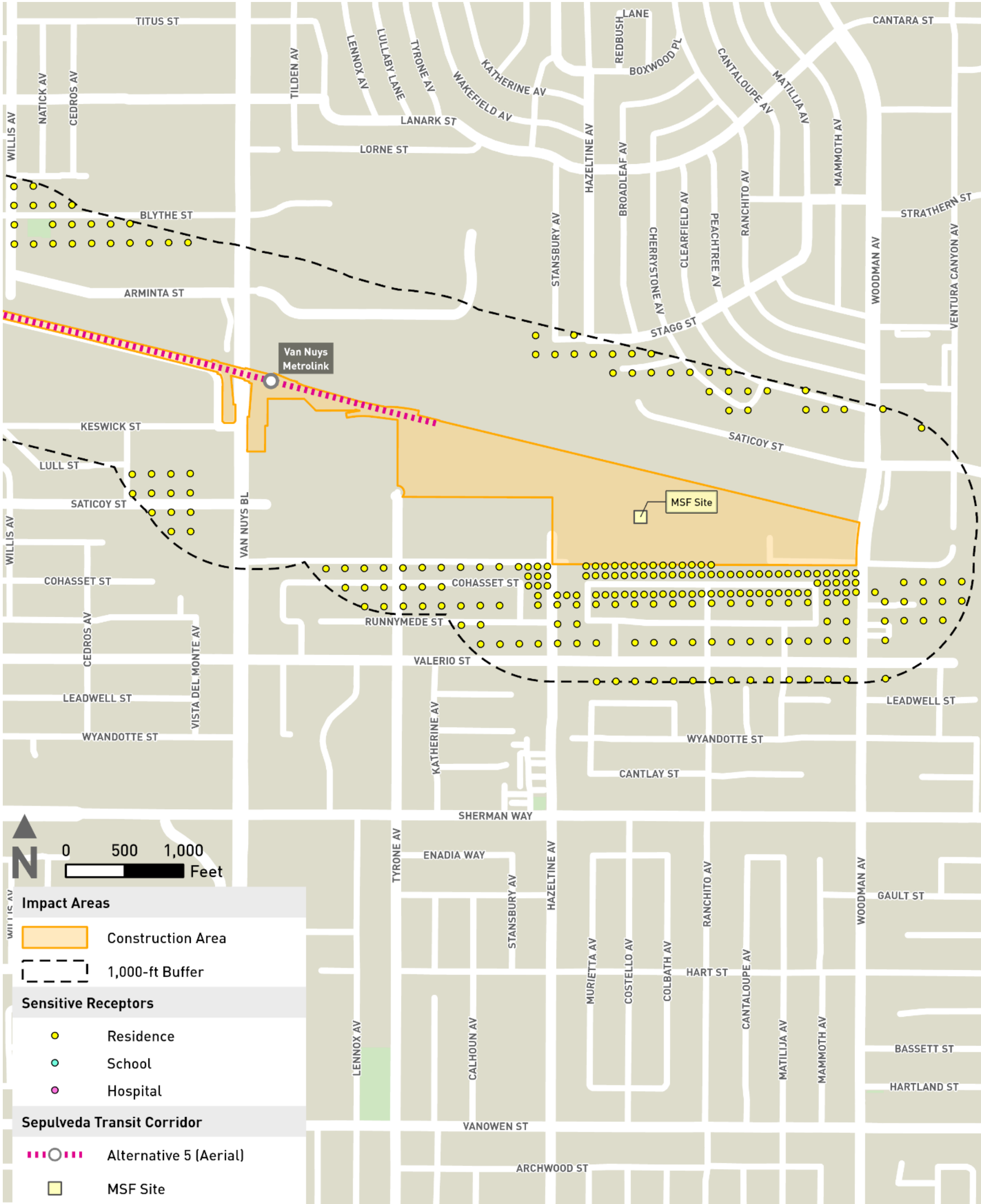


Figure 9-12. Alternative 5: Sensitive Receptor Map Sheet 2 of 5

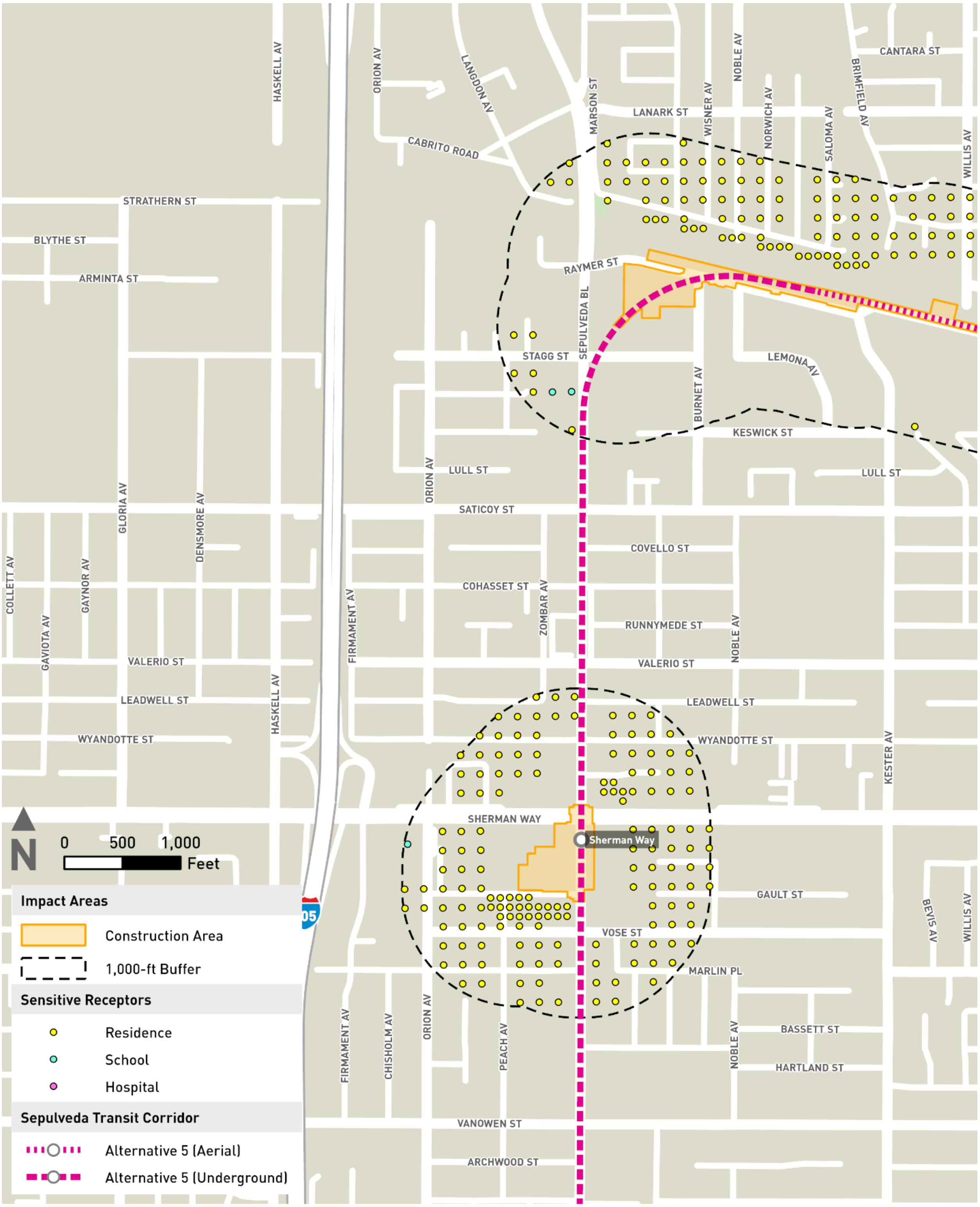


Figure 9-13. Alternative 5: Sensitive Receptor Map Sheet 3 of 5

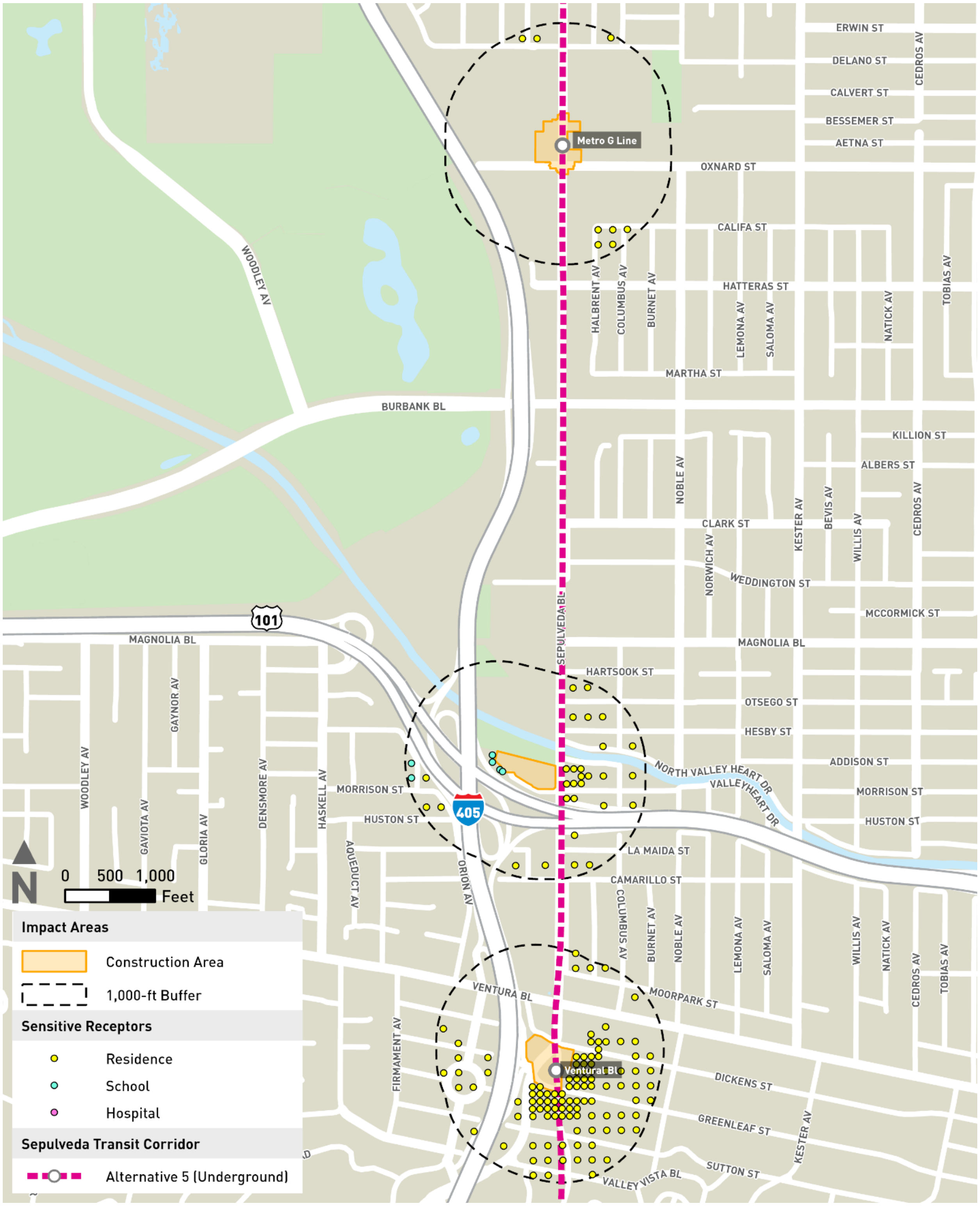
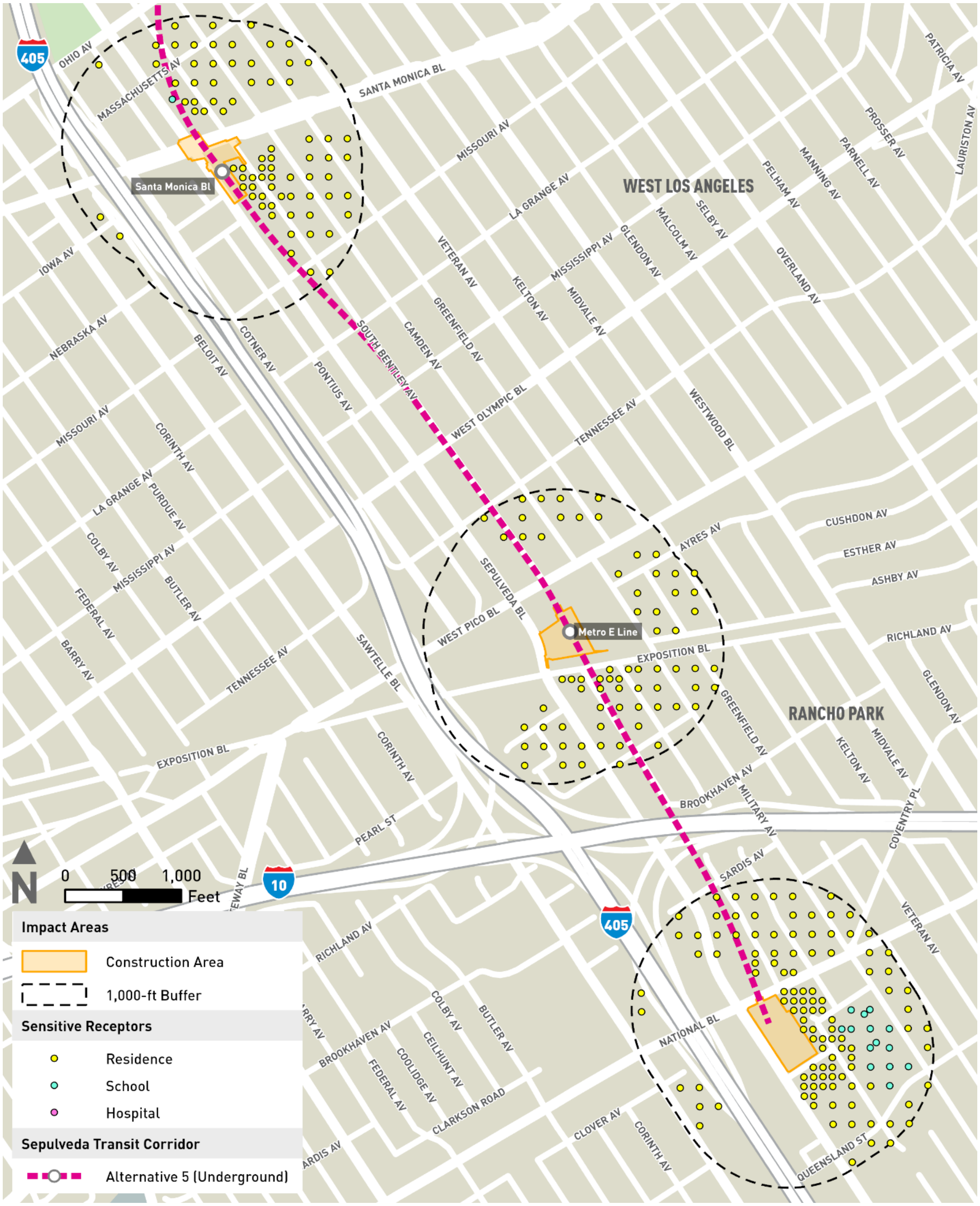


Figure 9-14. Alternative 5 Sensitive Receptor Map Sheet 4 of 5

Figure 9-15. Alternative 5 Sensitive Receptor Map Sheet 5 of 5



Source: HTA, 2024

9.2.7 Regional Highway Emissions

As required by California Environmental Quality Act (CEQA), existing conditions (Baseline 2021) emissions from regional mobile sources were estimated in the analysis for comparison with project alternatives for informational purposes only. As discussed in Section 3.6, air quality impacts would be evaluated by comparing emissions of project alternatives to 2045 without Project conditions. Table 9-10 summarizes the criteria pollutant for existing conditions and 2045 without Project conditions.

Table 9-10. Existing Conditions (Baseline Year 2021) and 2045 without Project Conditions Regional Mobile Source Criteria Pollutant Emissions

Project Alternative	Daily VMT[a]	Daily Emissions (lbs/day)					
		VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Existing Conditions	456,869,300	27,490	222,016	1,219,501	3,920	329,216	86,051
2045 without Project Conditions	568,557,200	8,987	88,927	623,264	3,487	408,902	105,487

Source: HTA, 2024

[a]VMT data provided from *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a) used 2019 as the base year for the VMT analysis because it is the most recent year for which Metro's CBM18B Transportation Analysis Model has been calibrated.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SO_2 = sulfur dioxide
VMT = vehicle miles traveled
VOC = volatile organic compounds

9.3 Impacts Evaluation

9.3.1 Impact AQ-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?

9.3.1.1 Operational Impacts

The Project, identified as project number 1160001 (Sepulveda Pass Transit Corridor Phase 2), is included in the Southern California Association of Governments (SCAG) Connect SoCal 2024. Connect SoCal 2024 is Southern California's long-range Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS), which serves as the foundation for estimating the region's transportation sector air pollutant emissions through 2050. The SCAG General Council adopted the plan on April 4, 2024. The Federal Highway Administration and the Federal Transit Administration found the plan to conform to the State Implementation Plan (SIP) on May 10, 2024. Transportation projects identified in a conforming RTP are consistent with the emissions reduction strategies outlined in the applicable regional Air Quality Management Plan (AQMP).

The region's 2022 AQMP was adopted by the South Coast Air Quality Management District (SCAQMD) Governing Board on December 2, 2022. The 2022 AQMP outlines comprehensive control strategies to meet particulate matter ($PM_{2.5}$), ozone (O_3), and lead (Pb) standards, and maintain carbon monoxide (CO), nitrogen dioxide (NO_2), and PM_{10} standards. Transportation projects identified in a currently conforming RTP are consistent with the transportation sector emissions budgets used in the formulation

of the regional AQMP. Therefore, all project alternatives, including Alternative 5, would be considered consistent with the AQMP resulting in a less than significant impact.

9.3.1.2 Construction Impacts

Construction projects within the jurisdiction of the SCAQMD must comply with several rules and regulations aimed at controlling air pollution and minimizing environmental impact. Key SCAQMD rules that typically apply to construction projects include the following, among others:

- Rule 403 - Fugitive Dust, to reduce emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area. Requires that contractors implement best management practices such as watering down construction sites, covering trucks, and using windbreaks.
- Rule 401 - Visible Emissions, which prohibits the discharge of visible air contaminants into the atmosphere. Contractors must ensure that emissions from construction activities do not exceed the visible emissions limits, typically by controlling dust and particulate matter.
- Rule 1403 - Asbestos Emissions from Demolition/Renovation Activities, to regulate the emissions of asbestos during demolition and renovation activities. Contractors must conduct thorough inspections for asbestos, notify SCAQMD before starting work, and follow specific procedures for handling and disposing of asbestos-containing materials.
- Rule 1113 - Architectural Coatings, which limits the volatile organic compound (VOC) content in architectural coatings. Contractors must use paints and coatings that comply with the VOC content limits specified by the rule.
- Rule 1108 - Cutback Asphalt, which limits the VOC emissions from the use of cutback asphalt and emulsified asphalt. Contractors must use compliant asphalt products with low VOC content.
- Rule 1157 - PM_{10} Emission Reductions from Aggregate and Related Operations, which serves to reduce PM_{10} emissions from aggregate operations, which can be a component of construction projects involving earth-moving activities. Contractors must implement dust control measures during material handling and processing operations.

Alternative 5 would comply with all relevant SCAQMD rules, and as such, would implement all required AQMP emissions control measures during construction. Impacts would be less than significant.

9.3.2 Impact AQ-2: Would the project result in cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under and applicable federal or state ambient air quality standard?

9.3.2.1 Operational Impacts

Operations of Alternative 5 would generate long-term regional criteria pollutant emissions from mobile sources including regional vehicle miles traveled (VMT) and employees traveling to and from the MSF, area sources related to landscape equipment, consumer products, and reapplication of architectural coatings, and maintenance testing for emergency generators.

The Alternative 5 peak daily criteria pollutant emissions were estimated for two scenarios: Alternative 5 compared to 2045 without Project conditions and Alternative 5 compared to Existing Conditions 2021. As discussed in Section 3.6.1, air quality impacts would be evaluated based on the net change in emissions between project alternatives in Horizon Year 2045 and 2045 without Project conditions in

Horizon Year 2045. The comparison for Alternative 5 2045 and Existing Conditions 2021 is presented for informational purposes only. Detailed emissions calculations are summarized in Appendix A.

Table 9-11 summarizes the Alternative 5 peak daily criteria pollutant emissions for each source category compared to 2045 without Project conditions. As stated in the *Sepulveda Transit Corridor Project Transportation Technical Report*, (Metro, 2025a) implementation of Alternative 5 would reduce regional daily VMT by 775,100 miles per day compared to 2045 without Project conditions. As shown in Table 9-11, Alternative 5 would not exceed SCAQMD's regional operational significance thresholds for any pollutant, rather it would result in an environmental benefit by resulting in a net decrease of daily criteria pollutant emissions for all pollutants except reactive organic gases (ROG). As shown in Table 9-11, daily VOC emissions would marginally increase relative to 2045 without Project conditions, but the magnitude of that increase would remain substantially below the applicable SCAQMD regional screening threshold for mass daily emissions.

Table 9-11. Alternative 5: Peak Daily Regional Operational Criteria Pollutant Emissions Compared to 2045 without Project Conditions

Source Category	Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}[a]	$PM_{2.5}$[a]
Alternative 5						
Area – MSF[b]	8	<0.1	12	<0.1	<0.1	<0.1
Area – Stations[c]	9	<1	51	<0.1	<0.1	<0.1
Mobile – Regional VMT Analysis	8,975	88,806	622,414	3,482	408,345	105,343
Mobile – Employee Travel	<1	1	7	<0.1	4	1
Emergency Generators[d]	4	17	10	<0.1	<1	<1
Alternative 5 Peak Daily Emissions[e]	**8,996**	**88,825**	**622,495**	**3,482**	**408,349**	**105,345**
2045 without Project Conditions						
Mobile – 2045 VMT Analysis Emissions	8,987	88,927	623,264	3,487	408,902	105,487
Net Change in Emissions	**9**	**-102**	**-769**	**-5**	**-553**	**-142**
SCAQMD Regional Significance Thresholds	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.
[b]Total on-site emissions from the MSF.
[c]Total on-site emissions from all stations.
[d]Emergency generator located at MSF.
[e]Totals may vary due to rounding.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
VMT = vehicle miles traveled
VOC = volatile organic compounds

SCAQMD's cumulative air quality impact methodology indicates that if an individual project results in air emissions of criteria pollutants that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria

pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. Because Alternative 5 net operational emissions would not exceed the applicable SCAQMD's regional operational significance thresholds, Alternative 5 operational emissions would not be cumulatively considerable. Additionally, recognizing that SCAQMD's regional significance thresholds were established to achieve attainment of the NAAQS and CAAQS, which in turn define the maximum amount of an air pollutant that can be present in ambient air without harming public health, Alternative 5's contribution of pollutant emissions is not expected to result in measurable human health impacts on a regional scale.

As discussed above, the comparison for Alternative 3 and Existing Conditions 2021 is presented for informational purposes only. Table 9-12 summarizes the Alternative 5 peak daily criteria pollutant emissions for each source category compared to Existing Conditions 2021. As shown in Table 9-12, Alternative 5 would exceed SCAQMD's regional significance thresholds for PM_{10} and $PM_{2.5}$. All other criteria pollutants would be below regional significance thresholds and even resulting in a net decrease in peak daily emissions of VOCs, NO_X, CO, and SO_2. The significant increase in PM is attributable to background growth in regional VMT from 2021 to 2045 and PM fugitive dust emission factors (i.e., the combination of tire wear, brake wear, and resuspended road dust) that comprise greater than 90 percent of the total per-mile emissions factors for PM_{10} and $PM_{2.5}$. Fugitive dust emission factors for tire wear, brake wear, and paved roads remain relatively constant over this time frame, whereas exhaust emission factors tend to decrease in future years due to expected improvements in vehicle engine technology, fuel efficiency, and turnover in older, more heavily polluting vehicles. Consequently, Alternative 5 results in a net increase in PM_{10} and $PM_{2.5}$ emissions because fugitive dust emissions are a function of VMT growth.

Table 9-12. Alternative 5: Peak Daily Regional Operational Criteria Pollutant Emissions (Horizon Year 2045) Compared to Existing Conditions (Baseline Year 2021)

Source Category	Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}[a]	$PM_{2.5}$[a]
Alternative 5						
Area – MSF[b]	8	<0.1	12	<0.1	<0.1	<0.1
Area – Stations[c]	9	<1	51	<0.1	<0.1	<0.1
Mobile – Regional VMT Analysis	8,975	88,806	622,414	3,482	408,345	105,343
Mobile – Employee Travel	<1	1	7	<0.1	4	1
Emergency Generators[d]	4	17	10	<0.1	<1	<1
Alternative 5 Peak Daily Emissions[e]	**8,996**	**88,825**	**622,495**	**3,482**	**408,349**	**105,345**
Existing Conditions						
Mobile – 2021 VMT Analysis Emissions	27,490	222,016	1,219,501	3,920	329,216	86,051
Net Change in Emissions	**-18,495**	**-133,191**	**-597,006**	**-438**	**79,133**	**19,293**
SCAQMD Regional Significance Thresholds	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	**Yes**	**Yes**

Source: HTA, 2024

[a] PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.
[b] Total on-site emissions from the MSF.
[c] Total on-site emissions from all stations.
[d] Emergency generator located at MSF.
[e] Totals may vary due to rounding.

CO = carbon monoxide

lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
VMT = vehicle miles traveled
VOC = volatile organic compounds

9.3.2.2 Construction Impacts

Alternative 5 construction activities would generate criteria pollutant emissions from off-road equipment, mobile sources including workers, vendor trucks, and haul trucks traveling to and from construction sites, demolition, soil handling activities, paving, application of architectural coatings, and operation of temporary concrete batch plants. These emissions sources would be related to constructing the HRT system alignment, TPSSs, stations, and the MSF.

Construction emissions would vary substantially from day to day, depending on the level of activity and the specific type of construction activity. The peak daily construction emissions for Alternative 5 were estimated for each construction year. Based on the construction schedule for Alternative 5, construction phases for components could potentially overlap; therefore, the estimates of peak daily emissions included these potential overlaps by combining the relevant construction phase daily emissions. The peak daily emissions are predicted values for the worst-case day and do not represent the emissions that would occur for every day of construction. Table 9-13 summarizes the peak daily regional emissions for each construction year.

Table 9-13. Alternative 5: Unmitigated Peak Daily Regional Construction Criteria Pollutant Emissions

Construction Year	Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}[a]	$PM_{2.5}$[a]
2026	3	21	81	<1	2	<1
2027	7	68	215	<1	11	3
2028	17	153	465	1	42	11
2029	25	339	707	3	102	25
2030	31	442	890	3	135	33
2031	32	424	872	3	120	29
2032	34	436	841	3	124	33
2033	30	289	545	2	69	17
2034	21	172	305	<1	21	7
2035	16	101	191	<1	13	4
2036	4	37	77	<1	4	1
2037	1	14	41	<0.1	2	<1
Peak Daily Emissions	**34**	**442**	**890**	**3**	**135**	**33**
SCAQMD Regional Significance Thresholds	75	100	550	150	150	55
Threshold Exceeded?	No	**Yes**	**Yes**	No	No	No

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides

$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
VOC = volatile organic compounds

As shown in Table 9-13, Alternative 5 construction emissions would exceed the SCAQMD regional significance thresholds for NOX and CO emissions. SCAQMD's cumulative air quality impact methodology indicates that if an individual project results in air emissions of criteria pollutants that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. Because Alternative 5 construction emissions would exceed the applicable SCAQMD's regional construction significance thresholds for NOX and CO, Alternative 5 construction emissions would be cumulatively considerable. Additionally, recognizing that SCAQMD's regional significance thresholds were established to achieve attainment of the NAAQS and CAAQS, which in turn define the maximum amount of an air pollutant that can be present in ambient air without harming public health, the project's contribution of pollutant emissions may result in measurable human health impacts on a regional scale.

As discussed in Section 3.1, the emissions analysis incorporated Tier 4 Final engines for off-road equipment greater than or equal to 50 horsepower, trucks with model years 2007 or newer, and included dust control measures to be implemented during each phase of construction, as required by SCAQMD Rule 403. The construction analysis for Alternative 5 conservatively assumed all equipment would be diesel powered, the Metro Green Construction Policy contains measures that aim to reduce construction emissions through utilization of hybrid drive off-road equipment and using electric power instead of diesel power. There are no feasible mitigation measures that would reduce Alternative 5 NOX and CO emissions below SCAQMD significance thresholds; therefore, Alternative 5 construction emissions would result in cumulatively considerable net increase of criteria pollutants for which the project region is nonattainment under an applicable federal or state ambient air quality standard and impacts would be significant and unavoidable.

9.3.3 Impact AQ-3: Would the project expose sensitive receptors to substantial pollutant concentrations?

The term sensitive receptor refers to receptors located at land uses associated with people who are considered to be more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirmed are more susceptible to respiratory distress and other air quality-related health problems on average than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality.

9.3.3.1 Operational Impacts

Localized Emissions Analysis

To assess the potential localized air quality impacts resulting from Alternative 5 on nearby sensitive receptors during operations, the daily on-site operations emissions generated at Alternative 5 components, primarily the MSF and all stations were compared to SCAQMD's applicable operations

LSTs. Alternative 5 localized emissions would be generated from area sources, such as landscaping equipment, use of consumer products, and reapplication of architectural coatings; and emergency generator maintenance testing. As discussed in Section 3.6.5, localized emissions from the MSF and all stations would be summed together and compared to the operational LSTs. As shown in Table 9-14, Alternative 5 localized operational emissions would not exceed SCAQMD significance thresholds; therefore, impacts of local criteria pollutants would be less than significant.

Table 9-14. Alternative 5: Unmitigated Localized Operations Criteria Pollutant Emissions

Source Category	Daily Emissions (lbs/day)			
	NO_X	CO	PM_{10}[a]	$PM_{2.5}$[a]
Area – MSF[b]	<0.1	12	<0.1	<0.1
Area – Stations[c]	<1	51	<0.1	<0.1
Emergency Generators[d]	17	10	<1	<1
Alternative 5 Total Localized Emissions	**18**	**73**	**<1**	**<1**
SCAQMD Localized Significance Thresholds[e]	172	1,434	3	2
Exceeds Threshold?	No	No	No	No

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.
[b]Total on-site emissions from the MSF.
[c]Total on-site emissions from all stations.
[d]Emergency generator located at MSF.
[e]LSTs based on most stringent values for a 5-acre site with a 25-meter receptor distance in SRA 2 and SRA 7.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SRA = source receptor areas

The SCAQMD's LSTs for each SRA represent the maximum emissions a project can emit without causing or contributing to a violation of any short-term NAAQS or CAAQS. As noted previously, the NAAQS and CAAQS are health-protective standards that define the maximum amount of ambient pollution that can be present without harming public health. Consequently, projects with emissions below the applicable LSTs would not be in violation of the NAAQS or CAAQS and, thus, EPA and CARB health protective standards. Because Alternative 5 operational emissions would not exceed the LSTs, Alternative 5 would not cause or contribute to a violation of any health-protective CAAQS and NAAQS.

Carbon Monoxide Hot Spots

A CO hot spot is a localized concentration of CO that is above the state or national 1-hour or 8-hour ambient air standards for the pollutant. CO hot spots at roadway intersections are typically found in areas with significant traffic congestion. CO is a public health concern because at high enough concentrations, it can cause health problems such as fatigue, headache, confusion, dizziness, and even death. However, it should be noted that ambient concentrations of CO have declined dramatically in California because of existing controls and programs.

Currently, all areas of the state, including the Project Study Area, meet the state and federal CO standards and are designated attainment or maintenance. As part of SCAQMD's 2003 AQMP, which is the most recent AQMP that addresses CO concentrations, a revision to the *Federal Attainment Plan for Carbon Monoxide* (CO Plan) that was originally approved in 1992 was provided and included a CO hot spots analysis at four specified heavily traveled intersections in Los Angeles at the peak morning and afternoon time periods. These four intersection locations selected for CO modeling are considered to be worst-case intersections that would likely experience the highest CO concentrations. The CO hot spots analysis in the 2003 AQMP did not predict a violation of CO standards at the four intersections. Of these four intersections, the busiest intersection evaluated was that at Wilshire Boulevard and Veteran Avenue, which was described as the most heavily congested intersection in Los Angeles County with an average daily traffic volume of approximately 100,000 vehicles per day. Based on the CO modeling, the 2003 AQMP estimated that the 1-hour and 8-hour concentrations at this intersection was 4.6 ppm and 3.4 ppm, respectively, which would not exceed the most stringent 1-hour CO standard of 20.0 ppm and 8-hour CO standards of 9 ppm (SCAQMD, 2003).

The *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a) analyzed traffic volume data at intersections in the Project Study Area affected by Alternative 5 in Horizon Year 2045. The highest daily traffic volumes generated at an intersection within the vicinity of Alternative 5 would be an estimated cumulative total of 74,680 vehicles per day at the intersection of Sepulveda Boulevard and Sherman Way. Because the daily number of vehicles at this study intersection would not exceed 100,000 vehicles per day, it can be concluded that Alternative 5 would not exceed the most stringent 1-hour and 8-hour CO standards and no detailed CO hot spots analysis for Alternative 5 would be required. Therefore, Alternative 5 would not result in impacts related to CO hot spots and would not contribute a significant level of CO such that localized air quality and human health would be substantially degraded.

9.3.3.2 Construction Impacts

Localized Emissions Analysis

Using the conservative methodology described in Section 3.3.1 to assess the potential localized air quality impacts resulting from Alternative 5 on nearby receptors during construction, the daily on-site construction emissions from the Alternative 5 components (alignment, stations, TPSSs, MSF) were compared to SCAQMD's applicable construction localized significance thresholds (LST). Alternative 5 localized emissions included exhaust emissions from off-road equipment and trucks, and fugitive dust from demolition, earth movement activities, and truck travel. As shown in Table 9-15, Alternative 5 localized construction emissions would exceed the PM_{10} and $PM_{2.5}$ LSTs for construction activity in the Valley and exceed the PM_{10} LST in the Westside, therefore, Alternative 5 localized construction emissions would have adverse health risk implications (as discussed in Section 3.3.1 and Section 9.2.2) and would be considered to be significant.

Table 9-15. Alternative 5: Unmitigated Localized Construction Criteria Pollutant Emissions

Construction Area	Daily Emissions (lbs/day)[a]			
	NO_X	CO	PM_{10}[b]	$PM_{2.5}$[b]
Valley Construction Components[c]				
Segment 4-Reach 2 Tunnel (Sepulveda-Ventura Station to UCLA Gateway Plaza Station)	13.9	46.7	9.0	1.1
Segment 5-Reach 3 Tunnel (Portal to Sepulveda-Ventura Station)	23.6	46.5	9.4	0.6
Segment 6-Reach 3 Portal to MSF	28.7	91.3	1.1	0.6
TBM Access Shaft/Staging Site	—	36.1	—	—
Ventura Boulevard Station	15.3	—	1.0	0.3

Construction Area	Daily Emissions (lbs/day)[a]			
	NO_X	CO	PM_{10}[b]	$PM_{2.5}$[b]
Metro G Line Sepulveda Station	27.5	40.8	1.8	0.6
Sherman Way Station	12.1	53.2	0.6	0.3
Metrolink Van Nuys Station	22.6	143.6	0.7	0.4
TPSS 11-STA 1260	—	—	—	—
MSF	7.5	—	12.4	5.9
Precast Yard	16.7	48.6	13.7	2.5
Components In Proximity to Each Other				
Segment 4 + Ventura Boulevard Station	29.2	46.7	10.0	1.4
Segment 6 + Van Nuys Station + TPSS 11 + MSF + Precast Yard	75.4	283.4	27.9	9.3
Peak Daily Localized Emissions	**75.4**	**283.4**	**27.9**	**9.3**
SCAQMD Localized Significance Threshold[d]	114	786	7	4
Exceeds Threshold?	No	No	**Yes**	**Yes**
Westside Construction Components[c]				
Segment 1-Reach 1 Tunnel (Southern Terminus to UCLA Gateway Plaza Station)	13.5	53.8	8.1	1.0
Segment 4-Reach 2 Tunnel (Sepulveda-Ventura Station to UCLA Gateway Plaza Station)	—	—	—	—
Metro E Line Station	27.3	40.8	0.9	0.3
Santa Monica Station	15.4	80.4	2.6	0.4
D Line Wilshire-Westwood Station	17.8	47.1	4.6	0.8
UCLA Gateway Plaza Station	15.3	80.5	3.4	0.7
Components In Proximity to Each Other				
Not Applicable	—	—	—	—
Peak Daily Localized Emissions	27.3	80.5	8.1	1.0
SCAQMD Localized Significance Threshold[e]	147	827	6	4
Exceeds Threshold?	No	No	**Yes**	No

Source: HTA, 2024

[a]Daily emissions for each construction component represent the contribution to the maximum daily localized emissions in the Valley or Westside.

[b]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.

[c]TPSSs listed in table would be located at standalone locations and not within the construction area of a station, MSF, track alignment, or tunnel. Each of these standalone TPSSs had their own construction phasing in the construction emissions analysis. For TPSSs located within the construction area of a station, MSF, track alignment, or tunnel, their construction activity was accounted for in the overall construction activity for the component.

[d]LST values are based on a 2-acre site with a 25-meter receptor distance in SRA 7 East San Fernando Valley.

[e]LST values are based on a 2-acre site with a 25-meter receptor distance in SRA 2 Northwest Coastal LA County.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SRA = source receptor area

As discussed in Section 3.1, the emissions analysis incorporated Tier 4 Final engines for off-road equipment greater than or equal to 50 horsepower, trucks with model years 2007 or newer, and included dust control measures to be implemented during each phase of construction, as required by SCAQMD Rule 403. The construction analysis for Alternative 5 conservatively assumed all equipment would be diesel powered, the Metro *Green Construction Policy* contains measures that aim to reduce construction emissions through utilization of hybrid drive off-road equipment and using electric power instead of diesel power. There are no feasible mitigation measures that would reduce Alternative 5 PM_{10} emissions below SCAQMD localized significance thresholds, therefore, Alternative 5 construction emissions would potentially expose sensitive receptors to substantial concentrations and impacts would be significant and unavoidable.

The SCAQMD's LSTs for each SRA represent the maximum emissions a project can emit without causing or contributing to a violation of any short-term NAAQS or CAAQS. As noted previously, the NAAQS and CAAQS are health-protective standards that define the maximum amount of ambient pollution that can be present without harming public health. Consequently, projects with emissions below the applicable LSTs would not be in violation of the NAAQS or CAAQS and, thus, EPA and CARB health-protective standards. Because Alternative 5 construction emissions exceed the PM_{10} LST, Alternative 5 would cause or contribute to a violation of one or more health-protective CAAQS and NAAQS. Given that diesel particulate matter (DPM) emissions constitute a portion of localized PM_{10} emissions, impacts related to localized DPM emissions during construction are also considered to be significant and unavoidable due to the following: (1) the elevated background carcinogenic risk, (2) the duration of construction activity, and (3) the proximity of sensitive receptors to DPM emissions sources.

9.3.4 Impact AQ-4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

9.3.4.1 Operational Impacts

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment facilities, food processing plants, chemical plants, composting areas, refineries, landfills, dairies, and fiberglass molding facilities. Alternative 5 is a transit project with a track alignment, TPSSs, stations, and an MSF which are not associated with any of the aforementioned land uses. Alternative 5 would include various trash receptacles associated with the stations and MSFs. On-site trash receptacles used by Alternative 5 would be covered and properly maintained to prevent adverse odors. With proper housekeeping practices, trash receptacles would be maintained in a manner that promotes odor control, and no adverse odor impacts are anticipated from the uses. Therefore, Alternative 5 operations would not create a significant level of objectionable odors affecting a substantial number of people and impacts with respect to odors would be less than significant.

9.3.4.2 Construction Impacts

During construction of Alternative 5, exhaust from equipment, activities associated with the application of architectural coatings and other interior and exterior finishes, and paving activities may produce discernible odors typical of most construction sites. Such odors would be, at worst, a temporary source of nuisance to adjacent uses, if at all, and would not affect a substantial number of people. Alternative 5 would use architectural coatings compliant with SCAQMD Rule 1113, which would limit the odors associated with off-gassing from those coatings. Additionally, material deliveries and heavy-duty haul truck trips could occasionally produce odors from diesel exhaust. These odors would not affect a substantial number of people because construction would be temporary, and construction-generated emissions dissipate rapidly with increasing distance from the source. Overall, odors associated with Alternative 5 construction would be temporary and intermittent in nature and would not create a significant level of objectionable odors affecting a substantial number of people.

9.4 Mitigation Measures

9.4.1 Operational Impacts

No mitigation measures are required.

9.4.2 Construction Impacts

As previously discussed,, Alternative 5 would exceed SCAQMD regional thresholds for NO_X and CO, as well as SCAQMD localized thresholds for PM_{10} and $PM_{2.5}$, and would result in significant and unavoidable impacts. Therefore, the following mitigation measures (MM) shall be implemented for Alternative 5 construction.

MM AQ-1: *The Project shall require zero emissions or near zero emissions on-road haul trucks such as heavy-duty trucks with natural gas engines that meet or exceed the California Air Resources Board's adopted optional nitrogen oxides emissions standard at 0.02 grams per brake horsepower hour (g/bhp-hr), if and when feasible. Operators shall maintain records of all trucks associated with project construction to document that each truck used meets these emission standards. These records shall be submitted monthly to Metro for review and shall be made available to regulatory agencies upon request. To ensure compliance, Metro or its designated representative shall conduct regular inspections of construction operations, including on-site verification of truck compliance. Inspections shall occur at least twice per month during active construction. Any contractor found to be using non-compliant trucks without prior approval from Metro shall be subject to penalties, including suspension of operations until compliance is achieved.*

MM AQ-2: *Construction contracts shall include language that compels contractors to implement all policies and emissions control measures as presented in Metro's Green Construction Policy.*

MM AQ-3: *Construction contracts shall include language that compels contractors to implement all fugitive dust control measures as detailed in SCAQMD Rule 403 (Fugitive Dust).*

9.4.3 Impacts After Mitigation

Although construction of Alternative 5 would require implementation of MM AQ-1, it is not technically feasible at the time of document preparation to verify the commercial availability of ZE and NZE trucks to the extent needed to reduce construction-period NO_X, CO, PM_{10}, and $PM_{2.5}$ emissions below SCAQMD's regional and localized emissions thresholds. MM AQ-2 and MM AQ-3 simply enforce Metro and SCAQMD policies that are already required, independent of any additional prescribed mitigation.

Given the current uncertainty around the availability of sufficient ZE and NZE trucks to reduce Alternative 5 construction-period NO_X, CO, PM_{10}, and $PM_{2.5}$ impacts below SCAQMD's regional and localized emissions thresholds, this impact would remain significant and unavoidable.

10 ALTERNATIVE 6

10.1 Alternative Description

Alternative 6 is a heavy rail transit (HRT) system with an underground track configuration. This alternative would provide transfers to five high-frequency fixed guideway transit and commuter rail lines, including the Los Angeles County Metropolitan Transportation Authority's (Metro) E, Metro D, and Metro G Lines, East San Fernando Valley Light Rail Transit Line, and the Metrolink Ventura County Line. The length of the alignment between the terminus stations would be approximately 12.9 miles.

The seven underground HRT stations would be as follows:

1. Metro E Line Expo/Bundy Station (underground)
2. Santa Monica Boulevard Station (underground)
3. Wilshire Boulevard/Metro D Line Station (underground)
4. UCLA Gateway Plaza Station (underground)
5. Ventura Boulevard/Van Nuys Boulevard Station (underground)
6. Metro G Line Van Nuys Station (underground)
7. Van Nuys Metrolink Station (underground)

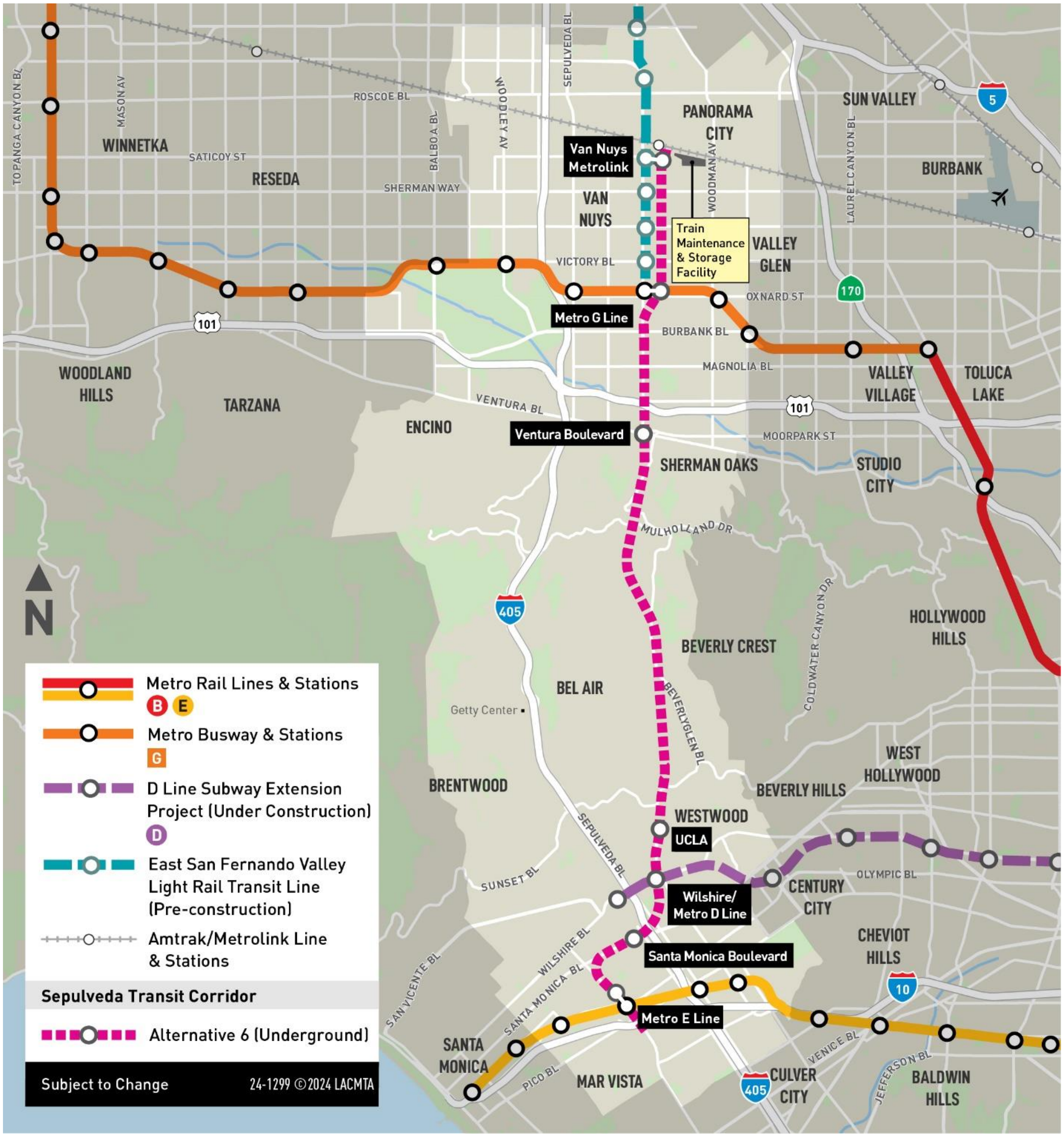
10.1.1 Operating Characteristics

10.1.1.1 Alignment

As shown on Figure 10-1, from its southern terminus station at the Metro E Line Expo/Bundy Station, the alignment of Alternative 6 would run underground through the Westside of Los Angeles (Westside), the Santa Monica Mountains, and the San Fernando Valley (Valley) to the alignment's northern terminus adjacent to the Van Nuys Metrolink/Amtrak Station.

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 Interstate 405 (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 10-1. Alternative 6: Alignment



Source: HTA, 2024

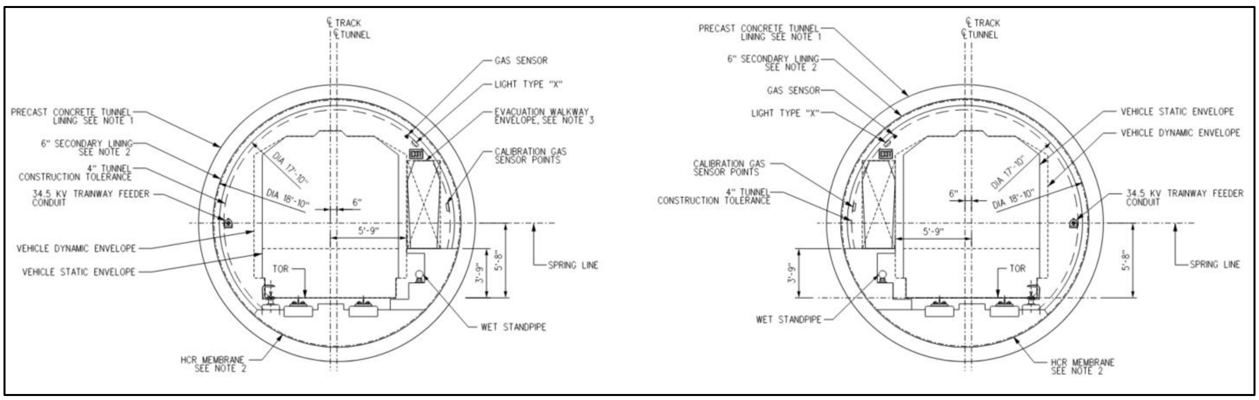
After leaving the UCLA Gateway Plaza Station, the alignment would continue to the north and travel under the Santa Monica Mountains. While still under the mountains, the alignment would shift slightly to the west to travel under the City of Los Angeles Department of Water and Power (LADWP) Stone Canyon 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 maintenance and storage facility (MSF) east of the Van Nuys Metrolink Station.

10.1.1.2 Guideway Characteristics

The alignment of Alternative 6 would be underground using Metro's standard twin-bore tunnel design. Figure 10-2 shows a typical cross-section of the underground guideway. Cross-passages would be constructed at regular intervals in accordance with Metro Rail Design Criteria (MRDC). 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 10-2. Typical Underground Guideway Cross-Section



Source: HTA, 2024

10.1.1.3 Vehicle Technology

Alternative 6 would utilize driver-operated steel-wheel HRT trains, as used on the Metro B and D Lines, with planned peak headways of 4 minutes and off-peak-period headways ranging from 8 to 20 minutes. Trains would consist of four or six cars and are expected to consist of six cars during the peak period. The HRT vehicle would have a maximum operating speed of 67 miles per hour; actual operating speeds would depend on the design of the guideway and distance between stations. Train cars would be 10.3 feet wide with three double doors on each side. Each car would be approximately 75 feet long with capacity for 133 passengers. Trains would be powered by a third rail.

10.1.1.4 Stations

Alternative 6 would include seven underground stations with station platforms measuring 450 feet long. The southern terminus underground station would be adjacent to the existing Metro E Line Expo/Bundy Station, and the northern terminus underground 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.

The following information describes each station, with relevant entrance, walkway, and transfer information. Bicycle parking would be provided at each station.

Metro E Line Expo/Bundy Station

- 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.
- 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.

Santa Monica Boulevard Station

- 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.

Wilshire Boulevard/Metro D Line Station

- 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.
- No dedicated station parking would be provided at this station.

UCLA Gateway Plaza Station

- This underground station would be located underneath Gateway Plaza on the University of California, Los Angeles (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.

Ventura Boulevard/Van Nuys Boulevard Station

- 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.

Metro G Line Van Nuys Station

- 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.
- 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.

Van Nuys Metrolink Station

- 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 Los Angeles-San Diego-San Luis Obispo (LOSSAN) rail corridor.
- Existing Metrolink Station parking would be reconfigured, maintaining approximately the same number of spaces. Metrolink parking would not be available to Metro transit riders.

10.1.1.5 Station-to-Station Travel Times

Table 10-1 presents the station-to-station distance 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 10-1. 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

10.1.1.6 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.

10.1.1.7 Maintenance and Storage Facility

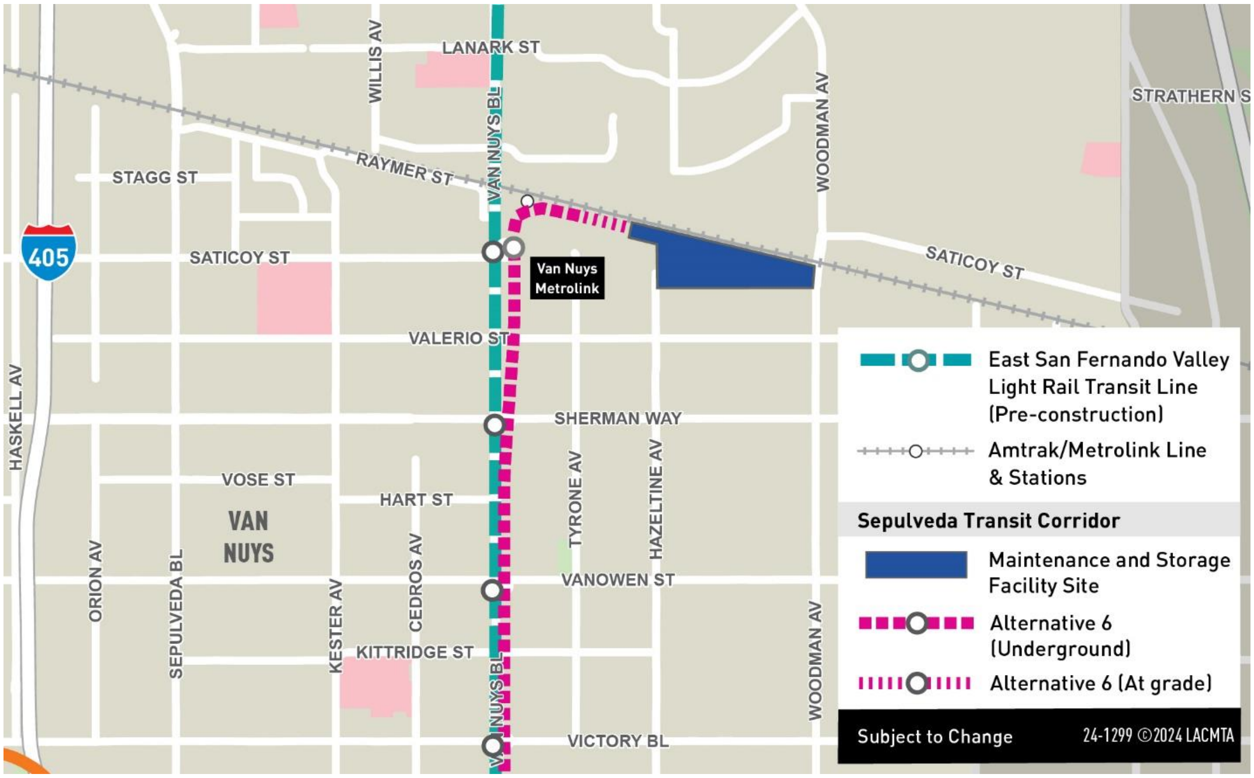
The MSF for Alternative 6 would be located east of the Van Nuys Metrolink Station and would encompass approximately 41 acres. The MSF would be designed to accommodate 94 vehicles and would be bounded by single-family residences to the south, the LOSSAN rail corridor to the north, Woodman Avenue to the 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
- Maintenance-of-way facility
- Storage tracks
- Carwash
- Cleaning platform
- Administrative offices
- Pedestrian bridge connecting the administrative offices to employee parking
- Two traction power substations (TPSS)

Figure 10-3 shows the location of the MSF for Alternative 6.

Figure 10-3. Alternative 6: Maintenance and Storage Facility Site



Source: HTA, 2024

10.1.1.8 Traction Power Substations

TPSSs transform and convert high voltage alternating current supplied from power utility feeders into direct current suitable for transit operation. 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. Table 10-2 lists the TPSS locations for Alternative 6.

Figure 10-4 shows the TPSS locations along the Alternative 6 alignment.

Table 10-2. 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 10-4. Alternative 6: Traction Power Substation Locations

Source: HTA, 2024

10.1.1.9 Roadway Configuration Changes

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

10.1.1.10 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, along with 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.

10.1.1.11 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.

10.1.2 Construction Activities

Temporary construction activities for Alternative 6 would include construction of ancillary facilities, as well as guideway and station construction and construction staging and laydown areas, which would be co-located with future MSF and station locations. Construction of the transit facilities through substantial completion is expected to have a duration of 7½ years. Early works, such as site preparation, demolition, and utility relocation, could start in advance of construction of the transit facilities.

For the guideway, twin-bore tunnels would be constructed using two tunnel boring machines (TBM). The tunnel alignment would be constructed over three segments—including the Westside, Santa Monica Mountains, and Valley—using a different pair of TBMs for each segment. For the Westside segment, the TBMs would be launched from the Metro E Line Station and retrieved at the UCLA Gateway Plaza Station. For the Santa Monica Mountains segment, the TBMs would operate from the Ventura Boulevard Station in a southerly direction for retrieval from UCLA Gateway Plaza Station. In the Valley, TBMs would be launched from the Van Nuys Metrolink Station and retrieved at the Ventura Boulevard Station.

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.

Construction work zones would also be co-located with future MSF and station locations. All work zones would comprise the permanent facility footprint with additional temporary construction easements from adjoining properties. In addition to permanent facility locations, TBM launch at the Metro E Line Station would require the closure of I-10 westbound off-ramps at Bundy Drive for the duration of the Sepulveda Transit Corridor Project (Project) construction.

Alternative 6 would include seven underground stations. 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.

Station and MSF sites would be used for construction staging areas. A construction staging area, shown on Figure 10-5, 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 and would require extended ramp closure. Construction staging areas would provide the necessary space for the following activities:

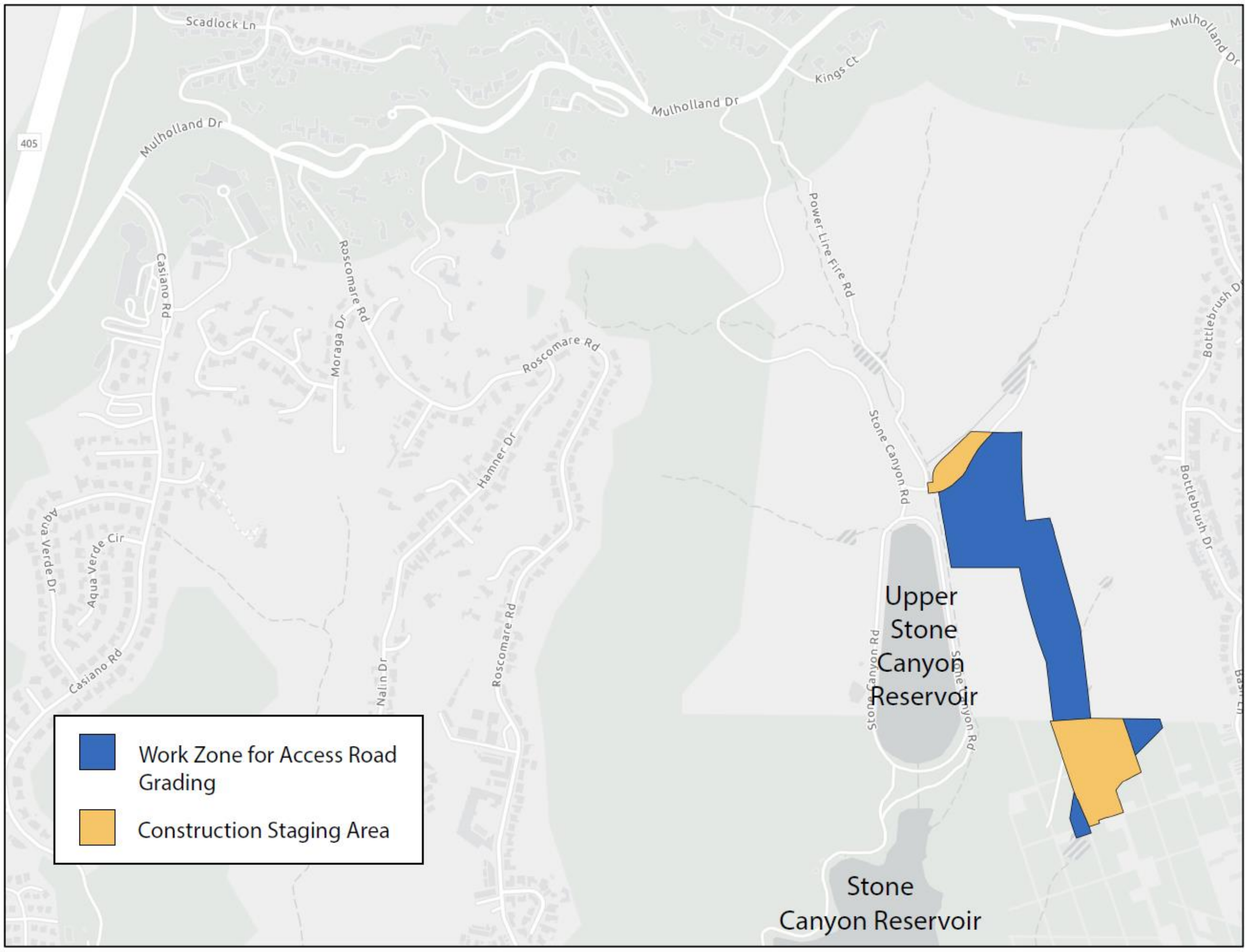
- Contractors' equipment
- Receiving deliveries
- Testing of soils for minerals or hazards
- Storing materials
- Site offices
- Work zone for excavation
- Other construction activities (including parking and change facilities for workers, location of construction office trailers, storage, staging and 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, as well as additional vent shafts at stations and crossovers. 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. Construction of all mid-mountain facilities would take place within the footprint shown on Figure 10-5.

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.

Figure 10-5. Alternative 6: Mid-Mountain Construction Staging Site



Source: HTA, 2024

Alternative 6 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.

10.2 Existing Conditions

10.2.1 Regional Climate and Meteorology

The Project Study Area is located within the South Coast Air Basin (Basin), an area covering approximately 6,745 square miles and bounded by the Pacific Ocean to the west and south and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the distinctive climate of the Basin, which is a coastal plain with connecting broad valleys and low hills.

The Southern California region, which includes the Basin, lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography) as well as human-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of pollutants throughout the Basin, making it an area of high pollution potential.

The worst air pollution throughout the Basin occurs from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day. O_3 concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Basin and adjacent desert. Substantial progress has been made in reducing air pollution levels in Southern California in recent years. However, the Basin still faces considerable challenges to attain the federal and state air quality standards.

Weather stations closest to the Project Study Area are the Western Regional Climate Center (WRCC) monitoring stations at the Woodland Hills Pierce College (COOP ID 041484) and UCLA (COOP ID 049152). These monitoring stations were selected to accurately represent the climate conditions occurring in the northern and southern portions of the Project Study Area. According to climate data recorded from 1949 to 2012 for the Woodland Hills station, the average annual maximum temperature in the area is approximately 81 degrees Fahrenheit (°F), and the average annual minimum temperature is approximately 48°F. The average precipitation in the area is approximately 16 inches annually, occurring primarily from December through March (WRCC, 2023a). According to climate data recorded from 1933 to 2016 for the UCLA station, the average annual maximum temperature in the area is approximately 71°F, and the average annual minimum temperature is approximately 55°F. The average precipitation in the area is approximately 17 inches annually, occurring primarily from December through March (WRCC, 2023b).

10.2.2 Pollutants of Concern

10.2.2.1 Criteria Pollutants

National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) have been established for six pollutants: ozone (O_3), NO_2, CO, SO_2, respirable particulate matter of diameter less than 10 microns (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead. Brief descriptions of the criteria air pollutants, common sources, and documented health concerns from exposure are provided in Table 10-3.

Table 10-3. Criteria Air Pollutants and Characteristics

Pollutant	Characteristics
Ozone (O_3)	• Colorless gas and secondary pollutant formed by complex atmospheric interactions between two or more reactive organic gas compounds (including volatile organic compounds and nitrogen oxides [NO_X]) in the presence of ultraviolet sunlight. Automobile travel and industrial sources are the greatest sources of atmospheric O_3 formation. • Short-term exposure (lasting for a few hours) to O_3 levels typical in Southern California can result in breathing pattern changes, restricted breathing, increased susceptibility to infections, inflammation of the lung tissue, and immunological changes.
Nitrogen Dioxide (NO_2)	• Formed in the atmosphere through chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation and contribute to the formation of PM_{10}. • High concentrations can cause breathing difficulties, are linked to chronic pulmonary fibrosis, an increase of bronchitis in children (2 and 3 years old), and result in a brownish-red cast to the atmosphere with reduced visibility.
Carbon Monoxide (CO)	• Colorless, odorless gas formed by incomplete combustion of fossil fuels (e.g., motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains). • Excess exposure can reduce the blood's ability to transport oxygen, causing dizziness, fatigue, and impairment of central nervous system functions.
Sulfur Dioxide (SO_2)	• Refers to any compounds of sulfur and oxygen. A colorless, pungent gas that forms primarily through the combustion of sulfur-containing coal and oil. • Stringent controls placed on stationary SO_2 emissions and limits on sulfur content of fuels have reduced atmospheric SO_2 concentrations. Highest levels of SO_2 are found near large industrial complexes (e.g., power plants) and can harm plant leaves and erode iron and steel. • An irritant gas that attacks the throat and lungs; can cause acute respiratory symptoms and diminished lung function in children.
Respirable Particulate Matter (PM_{10})	• Comprising airborne liquid and solid particles (e.g., smoke, soot, dust, salts, acids, and metals) formed by atmospheric chemical reactions of gases emitted from industrial and motor vehicles. • Results from crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. • Collects in the upper portion of the respiratory system and can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections.
Fine Particulate Matter ($PM_{2.5}$)	• Formed in the atmosphere from gases (i.e., sulfur dioxide, nitrogen oxides, and volatile organic compounds) and results from fuel combustion (e.g., motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. • Inhalation (i.e., lead, sulfates, nitrates, chlorides, ammonia) can be absorbed into the bloodstream and damage human organs, tissues, and cells throughout the body. Suspended $PM_{2.5}$ can damage and discolor surfaces and produce haze and reduce regional visibility.

Pollutant	Characteristics
Lead (Pb)	• Occurs in atmosphere as PM emitted from leaded gasoline combustion; manufacture of batteries, paint, ink, ceramics, and ammunition; and secondary lead smelting facilities. • Phased-out leaded gasoline reduced overall airborne lead by 95percent between 1978 and 1987. Current emission sources of greater concern include lead smelters, battery recycling, and manufacturing facilities. • Prolonged exposure can lead to serious threats to human health (i.e., gastrointestinal disturbances, anemia, kidney disease, and neuromuscular and neurological dysfunction). Infancy and childhood exposure can impair neurobehavioral performance.

Source: CARB, 2024c

10.2.2.2 Toxic Air Contaminants

Toxic air contaminants (TAC) are generally defined as those air pollutants that may increase a person's risk of developing cancer and/or other serious health effects; however, the emission of a toxic chemical does not automatically create a health hazard. Although NAAQS and CAAQS have been established for criteria pollutants, no ambient standards exist for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, California Air Resources Board (CARB) has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA, 2015a, 2015b).

Air toxics are generated by many sources, including stationary sources, such as dry cleaners, gas stations, auto body shops, and combustion sources; mobile sources, such as diesel trucks, ships, and trains; and area sources, such as farms, landfills, and construction sites. Adverse health effects of TACs can be carcinogenic (cancer-causing), short-term (acute) non-carcinogenic, and long-term (chronic) non-carcinogenic. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to the brain and nervous system, and respiratory disorders. The principal TAC associated with the Project is DPM emitted during construction activities.

DPM differs from other air toxics in that it is a complex mixture of hundreds of substances rather than a single substance. DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances such as polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB, 2024d). As more than 90 percent of DPM is less than 1 micrometer (µm) in diameter (about 1/70th the diameter of a human hair), the majority of DPM is small enough to be inhaled into the lungs. Although particles the size of DPM can deposit throughout the lung, the largest fraction deposits in the deepest regions of the lungs where the lung is most susceptible to injury. Health effects associated with exposure to DPM include premature death, hospitalizations, and emergency department visits for exacerbated chronic heart and lung disease, including asthma, increased respiratory symptoms, and decreased lung function in children (CARB, 2024d).

The U.S. Environmental Protection Agency (EPA) is tasked with the regulatory authority of monitoring pollutant concentrations and determining whether areas have attained the NAAQS. Those areas with recurring concentrations of criteria pollutants exceeding the air quality standard values are designated as "Nonattainment" of the standard and are required to prepare air quality plans to demonstrate regional control strategies that will reduce emissions.

10.2.3 Regional Attainment Status

The EPA is tasked with the regulatory authority of monitoring pollutant concentrations and determining whether areas have attained the NAAQS. Those areas with recurring concentrations of criteria pollutants exceeding the air quality standard values are designated as "Nonattainment" of the standard and are required to prepare air quality plans to demonstrate regional control strategies that will reduce emissions. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Recently in February 2024, the federal $PM_{2.5}$ annual standard was revised from 12 µg/m^3 to 9 µg/m^3, making the federal standard more stringent than the state standard of 12 µg/m^3. Local monitoring data are used to designate areas as nonattainment, maintenance, attainment, or unclassified areas for ambient air quality standards. The four designations are defined as follows.

- Nonattainment—assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- Maintenance—assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- Attainment—assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- Unclassified—assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table 10-4 presents the attainment status designations for the non-desert portion of Los Angeles County within the SCAQMD jurisdiction. The Basin portion of Los Angeles County is currently designated nonattainment of the NAAQS for O_3 and $PM_{2.5}$, and is designated nonattainment of the CAAQS for O_3, PM_{10}, and $PM_{2.5}$.

Table 10-4. Attainment Status Designations – South Coast Air Basin Portion of Los Angeles County

Pollutant	Averaging Time	CAAQS Status	NAAQS Status
Ozone (O_3)	1-Hour	Nonattainment	Nonattainment (Extreme)
	8-Hour	Nonattainment	Nonattainment (Extreme)
Carbon Monoxide (CO)	1-Hour	Attainment	Attainment (Maintenance)
	8-Hour	Attainment	Attainment (Maintenance)
Nitrogen Dioxide (NO_2)	1-Hour	Attainment	Unclassifiable/Attainment
	Annual Average	Attainment	Attainment (Maintenance)
Sulfur Dioxide (SO_2)	1-Hour	Attainment	Unclassifiable/Attainment
	24-Hour	Attainment	Unclassifiable/Attainment
Respirable Particulate Matter (PM_{10})	24-Hour	Nonattainment	Attainment (Maintenance)
	Annual Average	Nonattainment	No Federal Standard
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No State Standard	Nonattainment (Serious)
	Annual Average	Nonattainment	Nonattainment (Moderate)
Lead (Pb)	30-Day Average	Attainment	No Federal Standard
	3-Month Average	Attainment	Nonattainment (Partial)

Source: CARB, 2024b; EPA, 2024

CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard

10.2.4 Local Air Quality

The attainment status designations are based on concentrations of air pollutants measured at air monitoring sites throughout the Basin. The SCAQMD divides the Basin into 38 source receptor areas (SRA), the boundaries of which were determined by the proximity to the nearest air monitoring station and local topography and meteorological patterns. The SCAQMD operates a total of 34 air monitoring sites that are used to characterize air quality within the 38 SRAs. The Project Study Area predominately transects portions of SRA 6 (West San Fernando Valley) and SRA 7 (East San Fernando Valley) in the northern portion and SRA 2 (Northwest Coastal Los Angeles County) in the southern portion. However, although project alternatives are included in SRA 7 (East San Fernando Valley), there is no longer an active monitoring station in this SRA; therefore, the SRA 6 monitoring station data was used. Figure 10-6 displays the Project Study Area overlain on the portions of the SCAQMD SRAs that it covers, as well as the locations of monitoring stations in SRA 2 (West Los Angeles – Veterans Administration monitoring site) and SRA 6 (Reseda monitoring site). The following discussions address pollutant concentrations measured at stations from 2021 to 2023.

Figure 10-6. SCAQMD Source Receptor Areas in Project Study Area

Source: HTA, 2024

Table 10-5 presents pollutant concentrations measured at the Reseda monitoring station that provides data representative of air quality conditions within SRA 6. As shown in Table 10-5, concentrations of O_3 exceeded applicable standards numerous times during the most recent three-year period of data available. The 24-hour federal standard for $PM_{2.5}$ was also exceeded for one year during this period. The air monitoring data recorded at the Reseda monitoring station reflects the nonattainment status of the Basin portion of Los Angeles County for O_3 and $PM_{2.5}$. The Reseda monitoring station is not equipped to measure concentrations of PM_{10}. Concentrations of all other pollutants monitored at this site remained below applicable federal and state air quality standards, consistent with the attainment or maintenance designations corresponding to the Basin portion of Los Angeles County.

Table 10-5. Reseda Air Monitoring Station Data (SRA 6)

Pollutant	Averaging Time	Maximum Concentrations and Frequencies of Exceeded Standards		
		2021	2022	2023
Ozone (O_3)	Maximum 1-Hour Concentration (ppm)	0.110	0.11	0.104
	Days > 0.09 ppm (CAAQS)	4	7	10
	Maximum 8-Hour Concentration (ppm)	0.083	0.096	0.096
	Days >0.070 ppm (NAAQS/CAAQS)	33	24	30
Carbon Monoxide (CO)	Maximum 1-Hour Concentration (ppm)	2.6	2.2	2.3
	Days > 20 ppm (CAAQS)	0	0	0
	Maximum 8-Hour Concentration (ppm)	1.9	1.8	1.7
	Days >9.0 ppm (NAAQS/CAAQS)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-Hour Concentration (ppm)	0.0542	0.0547	0.0481
	Days > 0.10 ppm (NAAQS)	0	0	0
	Annual Average Concentration (ppm)	0.010	0.010	0.010
	>0.030 ppm (CAAQS)	0	0	0
Respirable Particulate Matter (PM_{10})	Maximum 24-Hour Concentration (μg/m^3)	—	—	—
	Days > 150 μg/m^3 (NAAQS)			
	Days > 50 μg/m^3 (CAAQS)			
	Annual Average Concentration (μg/m^3)	—	—	—
	> 20 μg/m^3 (CAAQS)			
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration (μg/m^3)	55.5	20.5	21.9
	Days > 35 μg/m^3 (NAAQS)	3	0	0
	Annual Average Concentration (μg/m^3)	10.1	8.8	8.8
	> 12 μg/m^3 (CAAQS)	No	No	No
	> 9 μg/m^3 (NAAQS)	No[1]	No	No

Source: SCAQMD, 2024

μg/m^3 = micrometers per cubic meter
CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard
ppm = parts per million
SRA = source receptor area
Note: The federal standard for annual $PM_{2.5}$ was revised to 9 μg/m^3 in 2024. Prior to 2024, the federal standard was 12 μg/m^3, therefore, concentrations in 2021 would not have exceeded the federal standard for annual $PM_{2.5}$.

Table 10-6 presents pollutant concentrations measured at the West Los Angeles-Veterans Administration Monitoring Station that provides data representative of air quality conditions within SRA 2. Concentrations of O_3 exceeded applicable standards numerous times during the most recent three-year period of data available as shown in Table 10-6. The air monitoring data recorded at the West Los Angeles-Veterans Administration monitoring station reflects the nonattainment status of the Basin portion of Los Angeles County for the O_3. The West Los Angeles – Veterans Administration monitoring station is not equipped to measure concentrations of particulate matter (PM_{10} and $PM_{2.5}$). Concentrations of all other pollutants monitored at this site remained below applicable federal and state air quality standards, consistent with the attainment or maintenance designations corresponding to the Basin portion of Los Angeles County.

Table 10-6. West Los Angeles - Veterans Administration Air Monitoring Station Data (SRA 2)

Pollutant	Averaging Time	Maximum Concentrations and Frequencies of Exceeded Standards		
		2021	2022	2023
Ozone (O_3)	Maximum 1-Hour Concentration (ppm)	0.095	0.081	0.109
	Days >0.09 ppm (CAAQS)	1	0	1
	Maximum 8-Hour Concentration (ppm)	0.082	0.07	0.066
	Days >0.070 ppm (NAAQS/CAAQS)	1	0	0
Carbon Monoxide (CO)	Maximum 1-Hour Concentration (ppm)	2	1.7	1.4
	Days >20 ppm (CAAQS)	0	0	0
	Maximum 8-Hour Concentration (ppm)	1.6	1.5	1.2
	Days >9.0 ppm (NAAQS/CAAQS)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-Hour Concentration (ppm)	0.061	0.051	0.044
	Days >0.10 ppm (NAAQS)	0	0	0
	Annual Average Concentration (ppm)	0.010	0.011	0.009
	>0.030 ppm (CAAQS)	No	No	No
Respirable Particulate Matter (PM_{10})	Maximum 24-Hour Concentration (μg/m^3) Days >150 μg/m^3 (NAAQS) Days >50 μg/m^3 (CAAQS)	—	—	—
	Annual Average Concentration (μg/m^3) >20 μg/m^3 (CAAQS)	—	—	—
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-Hour Concentration (μg/m^3) Days >35 μg/m^3 (NAAQS)	—	—	—
	Annual Average Concentration (μg/m^3) >12 μg/m^3 (CAAQS) >9 μg/m^3 (NAAQS)	—	—	—

Source: SCAQMD, 2024

μg/m^3 = micrometers per cubic meter
CAAQS = California Ambient Air Quality Standard
NAAQS = National Ambient Air Quality Standard
ppm = parts per million
SRA = source receptor area

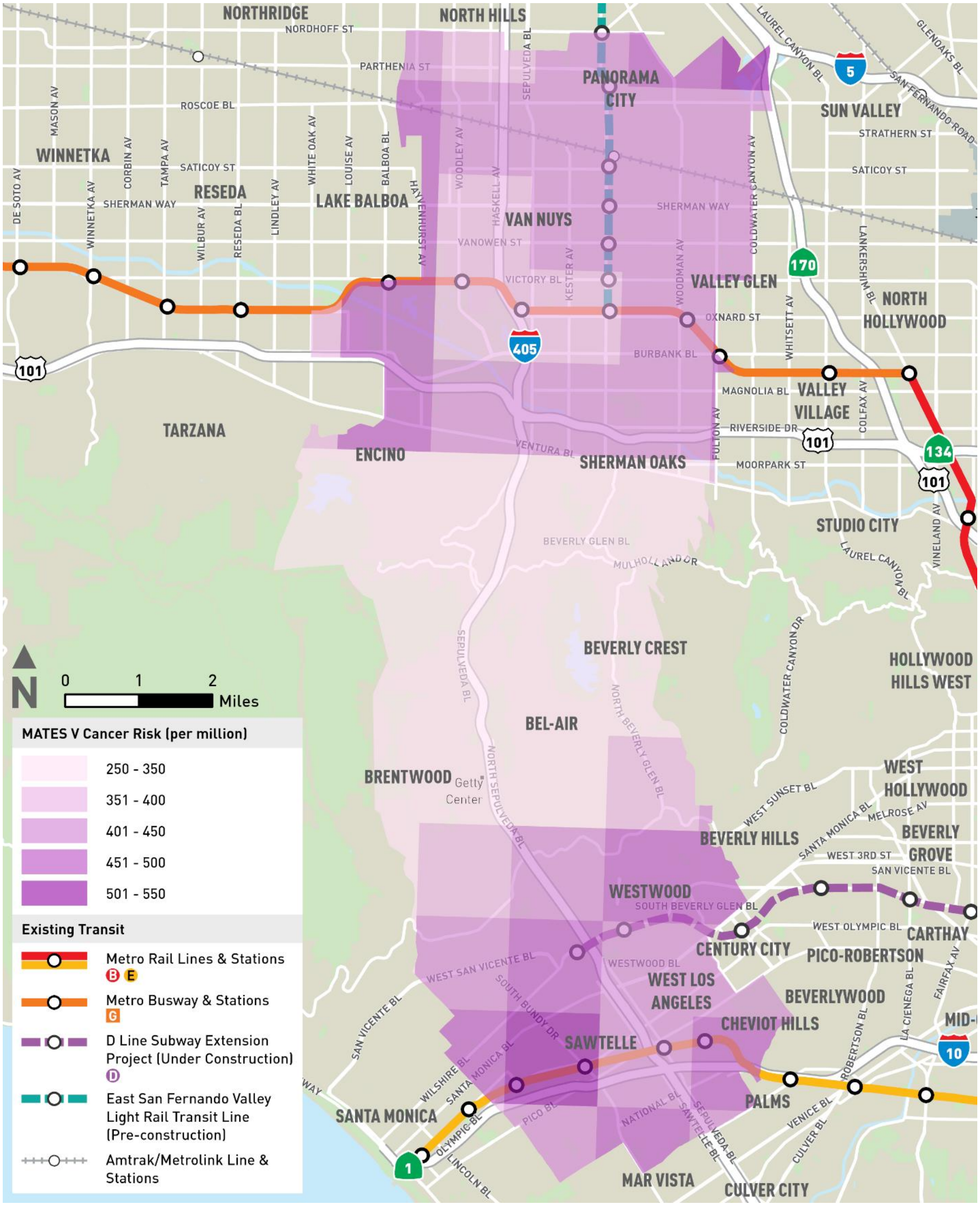
10.2.5 Ambient Carcinogenic Risk

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study conducted by the SCAQMD throughout the Basin, the first of which was published in 1986 to determine Basin-wide risks associated with major airborne carcinogens (pollutants that are scientifically documented to cause cancer). The most recent study is the MATES V published in 2021. MATES V was based on measurements during 2018 and 2019, and a modeling analysis based on emissions inventory data for 2018. A network of 10 fixed sites was used to monitor over 30 TACs once every six days over the course of a year between 2018 and 2019, and computer modeling was used to estimate air toxic levels throughout the Basin based on ambient concentrations and the emissions inventory. MATES V included methodology updates compared to previous versions, these included estimating cancer risk via inhalation and non-inhalation pathways rather than only the inhalation pathway. MATES V also estimated non-cancer health impacts via the inhalation and non-inhalation pathways, whereas previous versions did not estimate non-cancer risks. With MATES V including inhalation and non-inhalation pathways, cancer risk estimates were eight percent higher than the inhalation-only estimates (SCAQMD, 2021b).

MATES V found that air toxic levels continue to decline compared to previous MATES versions. As part of MATES V, SCAQMD developed a cancer risk map that plotted the modeled cancer risk on a grid spanning the Basin. Each grid cell is characterized by the modeled cancer risk produced by MATES V. Cancer risk is expressed as the number of extra cancer cases occurring over a 70-year lifetime per one million people exposed to toxic air contaminants. MATES V estimated cancer risk in the Basin ranged from 585 to 842 per million. Similar to previous MATES studies, the SCAQMD determined that DPM is the largest contributor to air toxics cancer risk. However, at the 10 monitoring stations, DPM levels were 53 percent lower compared to MATES IV and 86 percent lower than MATES II (SCAQMD, 2021b).

Figure 10-7 shows the Project Study Area overlain on the MATES V Estimated Risk grid developed by SCAQMD. Ambient estimated risks in the Project Study Area range from approximately 250 per million to 550 per million according to MATES V modeling results.

Figure 10-7. MATES V Estimated Cancer Risk in the Project Study Area



Source: SCAQMD, 2021b

10.2.6 Sensitive Receptors

Sensitive individuals refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses where sensitive individuals are most likely to spend extended periods of time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (SCAQMD, 1993). These types of land uses are considered sensitive receptors in air quality planning. Alternative 6 is located in a dense urban environment where sensitive receptors are located in close proximity to various components of Alternative 6. Sensitive receptor locations were identified within 1,000 feet of the Alternative 6 construction area and would encompass the sensitive receptor locations during construction and operations. Sensitive receptor locations for Alternative 6 are shown on Figure 10-8 through Figure 10-11.

Figure 10-8. Alternative 6: Sensitive Receptor Map Sheet 1 of 4

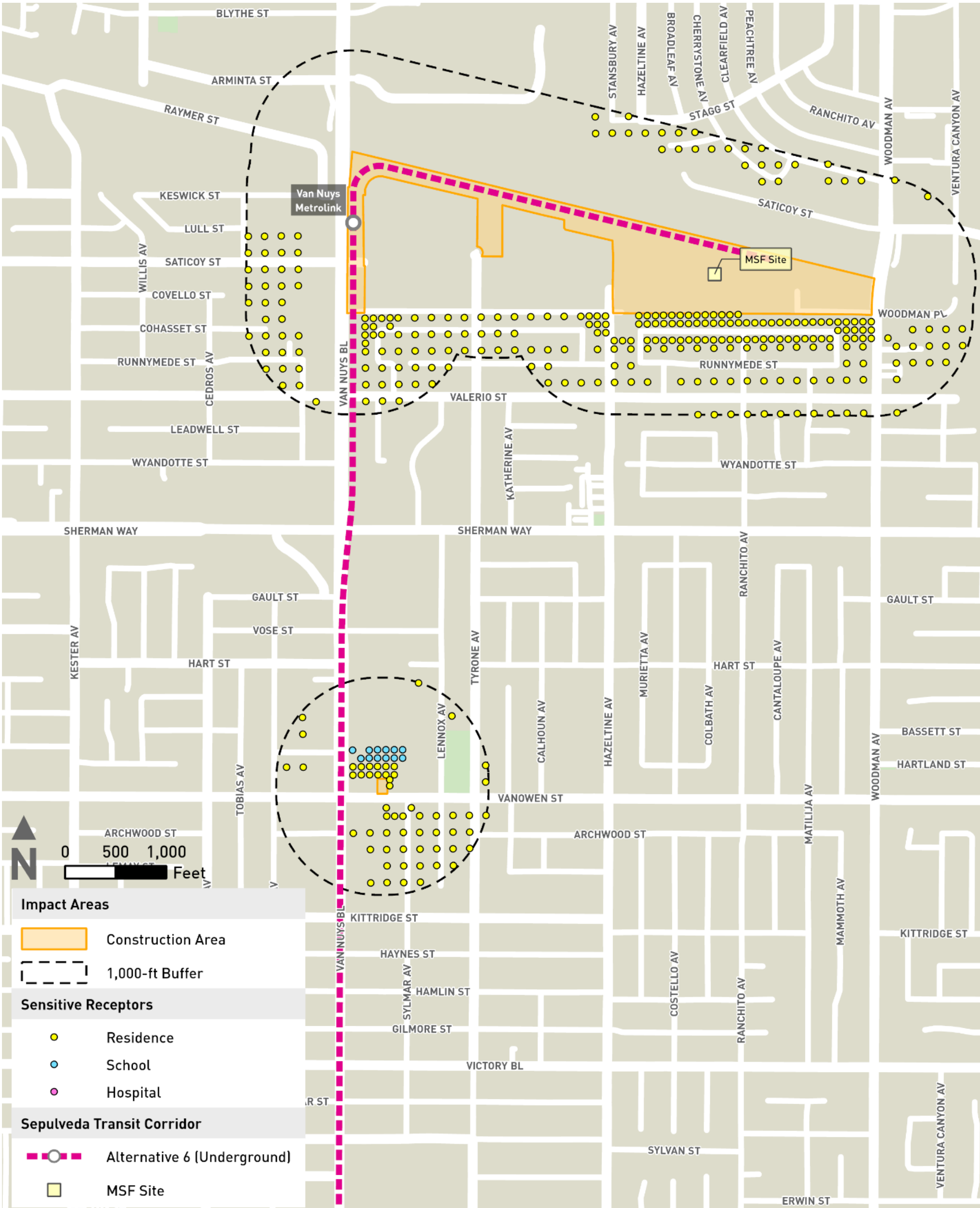


Figure 10-9. Alternative 6: Sensitive Receptor Map Sheet 2 of 4

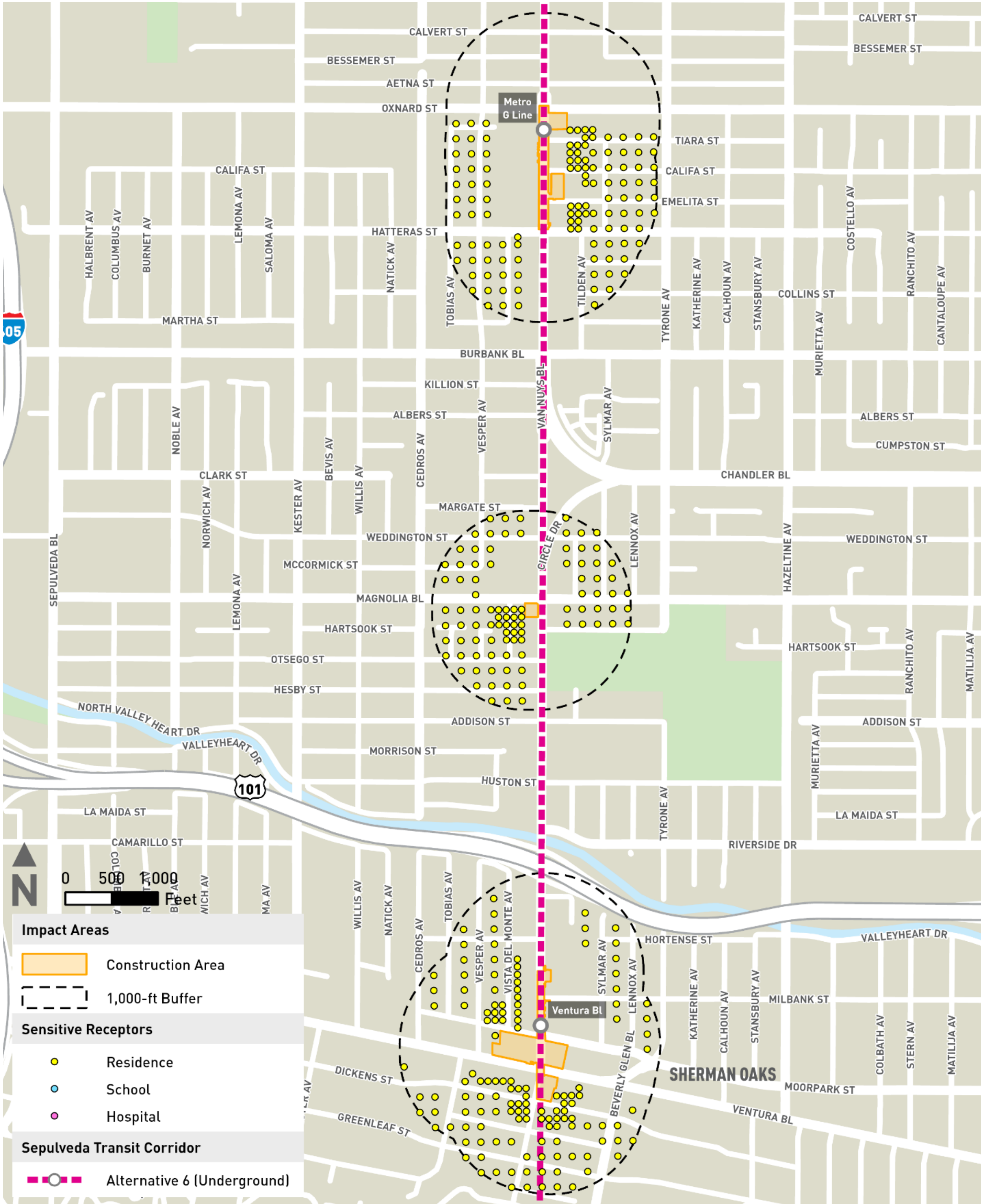


Figure 10-10. Alternative 6: Sensitive Receptor Map Sheet 3 of 4

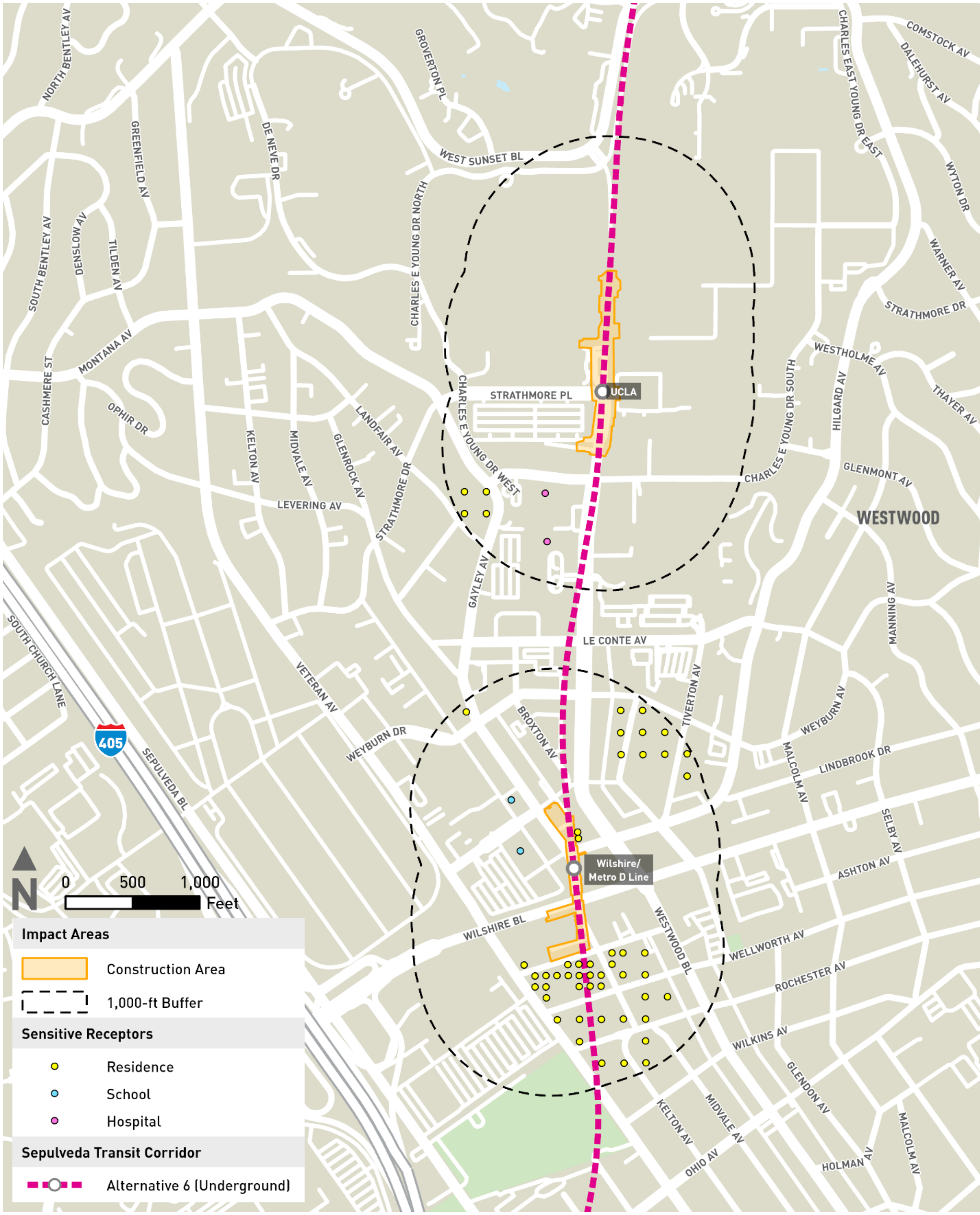
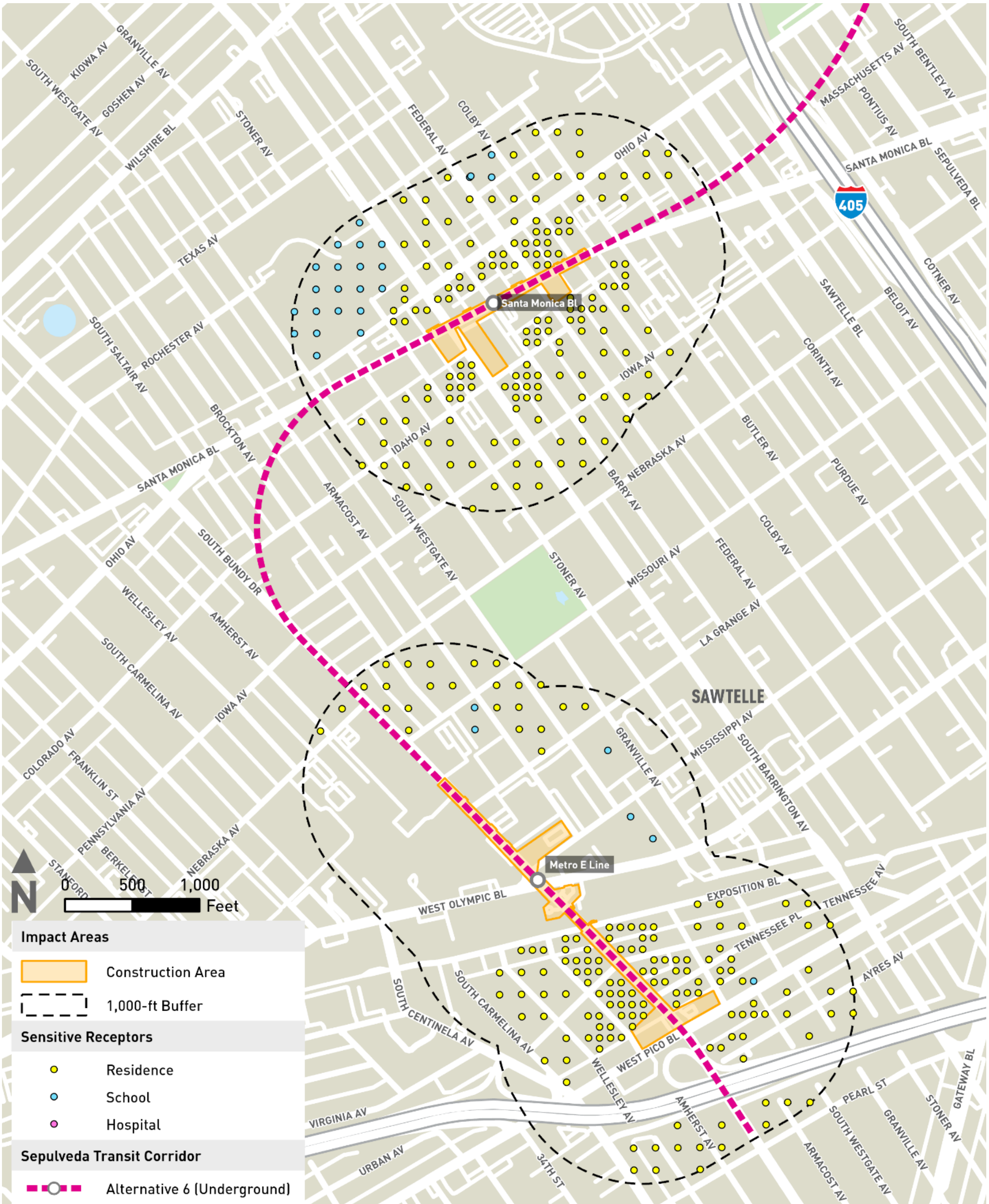


Figure 10-11. Alternative 6: Sensitive Receptor Map Sheet 4 of 4



Source: HTA, 2024

10.2.7 Regional Highway Emissions

As required by California Environmental Quality Act (CEQA), existing conditions (Baseline 2021) emissions from regional mobile sources were estimated in the analysis for comparison with project alternatives for informational purposes only. As discussed in Section 3.6, air quality impacts would be evaluated by comparing emissions of project alternatives to 2045 without Project conditions. Table 10-7 summarizes the criteria pollutant for existing conditions and 2045 without Project conditions.

Table 10-7. Existing Conditions (Baseline Year 2021) and 2045 without Project Conditions Regional Mobile Source Criteria Pollutant Emissions

Project Alternative	Daily VMT[a]	Daily Emissions (lbs/day)					
		VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Existing Conditions	456,869,300	27,490	222,016	1,219,501	3,920	329,216	86,051
2045 without Project Conditions	568,557,200	8,987	88,927	623,264	3,487	408,902	105,487

Source: HTA, 2024

[a]VMT data provided from the *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a) used 2019 as the base year for the VMT analysis because it is the most recent year for which Metro's CBM18B Transportation Analysis Model has been calibrated.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SO_2 = sulfur dioxide
VMT = vehicle miles traveled
VOC = volatile organic compounds

10.3 Impacts Evaluation

10.3.1 Impact AQ-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?

10.3.1.1 Operational Impacts

The Project, identified as project number 1160001 (Sepulveda Pass Transit Corridor Phase 2), is included in the Southern California Association of Governments (SCAG) Connect SoCal 2024. Connect SoCal 2024 is Southern California's long-range Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS), which serves as the foundation for estimating the region's transportation sector air pollutant emissions through 2050. The SCAG General Council adopted the plan on April 4, 2024. The Federal Highway Administration and the Federal Transit Administration found the plan to conform to the State Implementation Plan (SIP) on May 10, 2024. Transportation projects identified in a conforming RTP are consistent with the emissions reduction strategies outlined in the applicable regional Air Quality Management Plan (AQMP).

The region's 2022 AQMP was adopted by the South Coast Air Quality Management District (SCAQMD) Governing Board on December 2, 2022. The 2022 AQMP outlines comprehensive control strategies to meet particulate matter ($PM_{2.5}$), ozone (O_3), and lead (Pb) standards, and to maintain carbon monoxide (CO), nitrogen dioxide (NO_2), and PM_{10} standards. Transportation projects identified in a currently conforming RTP are consistent with the transportation sector emissions budgets used in the formulation

of the regional AQMP. Therefore, all project alternatives, including Alternative 6, would be considered consistent with the AQMP resulting in a less than significant impact.

10.3.1.2 Construction Impacts

Construction projects within the jurisdiction of the SCAQMD must comply with several rules and regulations aimed at controlling air pollution and minimizing environmental impact. Key SCAQMD rules that typically apply to construction projects include the following, among others:

- Rule 403 - Fugitive Dust, to reduce emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area. Requires that contractors implement best management practices such as watering down construction sites, covering trucks, and using windbreaks.
- Rule 401 - Visible Emissions, which prohibits the discharge of visible air contaminants into the atmosphere. Contractors must ensure that emissions from construction activities do not exceed the visible emissions limits, typically by controlling dust and particulate matter.
- Rule 1403 - Asbestos Emissions from Demolition/Renovation Activities, to regulate the emissions of asbestos during demolition and renovation activities. Contractors must conduct thorough inspections for asbestos, notify SCAQMD before starting work, and follow specific procedures for handling and disposing of asbestos-containing materials.
- Rule 1113 - Architectural Coatings, which limits the volatile organic compound (VOC) content in architectural coatings. Contractors must use paints and coatings that comply with the VOC content limits specified by the rule.
- Rule 1108 - Cutback Asphalt, which limits the VOC emissions from the use of cutback asphalt and emulsified asphalt. Contractors must use compliant asphalt products with low VOC content.
- Rule 1157 - PM_{10} Emission Reductions from Aggregate and Related Operations, which serves to reduce PM_{10} emissions from aggregate operations, which can be a component of construction projects involving earth-moving activities. Contractors must implement dust control measures during material handling and processing operations.

Alternative 6 would comply with all relevant SCAQMD rules, and as such, would implement all required AQMP emissions control measures during construction. Impacts would be less than significant.

10.3.2 Impact AQ-2: Would the project result in cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under and applicable federal or state ambient air quality standard?

10.3.2.1 Operational Impacts

Operations of Alternative 6 would generate long-term regional criteria pollutant emissions from mobile sources including regional vehicle miles traveled (VMT) and employees traveling to and from the MSF and area sources related to landscape equipment, consumer products, and reapplication of architectural coatings.

The Alternative 6 peak daily criteria pollutant emissions were estimated for two scenarios: Alternative 6 compared to 2045 without Project conditions and Alternative 6 compared to Existing Conditions 2021. As discussed in Section 3.6.1, air quality impacts would be evaluated based on the net change in emissions between project alternatives in Horizon Year 2045 and 2045 without Project conditions in

Horizon Year 2045. The comparison for Alternative 6 2045 and Existing Conditions 2021 is presented for informational purposes only. Detailed emissions calculations are summarized in Appendix A.

Table 10-8 summarizes the Alternative 6 peak daily criteria pollutant emissions for each source category compared to 2045 without Project conditions in Horizon Year 2045. As stated in the *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a), implementation of Alternative 6 would reduce regional daily VMT by 695,400 miles per day compared to 2045 without Project conditions. As shown in Table 10-8, Alternative 6 would not exceed SCAQMD's regional operational significance thresholds for any pollutant, rather it would result in an environmental benefit by resulting in a net decrease of daily criteria pollutant emissions for all pollutants except reactive organic gases (ROG). As shown in Table 10-8, daily VOC emissions would marginally increase relative to 2045 without Project conditions, but the magnitude of that increase would remain substantially below the applicable SCAQMD regional screening threshold for mass daily emissions.

Table 10-8. Alternative 6: Peak Daily Regional Operational Criteria Pollutant Emissions Compared to 2045 without Project Conditions

Source Category	Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}[a]	$PM_{2.5}$[a]
Alternative 6						
Area – MSF[b]	4	<0.1	5	<0.1	<0.1	<0.1
Area – Stations[c]	18	<1	109	<0.1	<1	<1
Mobile – Regional VMT Analysis	8,976	88,818	622,502	3,483	408,402	105,358
Mobile – Employee Travel	1	3	20	<0.1	11	3
Emergency Generators[d]	—	—	—	—	—	—
Alternative 6 Peak Daily Emissions[e]	**8,999**	**88,823**	**622,636**	**3,483**	**408,413**	**105,361**
2045 without Project Conditions						
Mobile – 2045 VMT Analysis Emissions	8,987	88,927	623,264	3,487	408,902	105,487
Net Change in Emissions	**12**	**-105**	**-628**	**-4**	**-489**	**-126**
SCAQMD Regional Significance Thresholds	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.
[b]Total on-site emissions from the MSF.
[c]Total on-site emissions from all stations.
[d]Emergency generators would not be required.
[e]Totals may vary due to rounding.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
VMT = vehicle miles traveled
VOC = volatile organic compounds

SCAQMD's cumulative air quality impact methodology indicates that if an individual project results in air emissions of criteria pollutants that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria

pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. Because Alternative 6 net operational emissions would not exceed the applicable SCAQMD's regional operational significance thresholds, Alternative 6 operational emissions would not be cumulatively considerable. Additionally, recognizing that SCAQMD's regional significance thresholds were established to achieve attainment of the NAAQS and CAAQS, which in turn define the maximum amount of an air pollutant that can be present in ambient air without harming public health, Alternative 6's contribution of pollutant emissions is not expected to result in measurable human health impacts on a regional scale.

As discussed above, the comparison for Alternative 6 and Existing Conditions 2021 is presented for informational purposes only. Table 10-9 summarizes the Alternative 6 peak daily criteria pollutant emissions for each source category compared to Existing Conditions 2021. As shown in Table 10-9, Alternative 6 would exceed SCAQMD's regional significance thresholds for PM_{10} and $PM_{2.5}$. All other criteria pollutants would be below regional significance thresholds and even resulting in a net decrease in peak daily emissions of VOCs, NO_X, CO, and SO_2. The significant increase in PM is attributable to background growth in regional VMT from 2021 to 2045 and PM fugitive dust emission factors (i.e., the combination of tire wear, brake wear, and resuspended road dust) that comprise greater than 90 percent of the total per-mile emissions factors for PM10 and PM2.5. Fugitive dust emission factors for tire wear, brake wear, and paved roads remain relatively constant over this time frame, whereas exhaust emission factors tend to decrease in future years due to expected improvements in vehicle engine technology, fuel efficiency, and turnover in older, more heavily polluting vehicles. Consequently, Alternative 6 results in a net increase in PM_{10} and $PM_{2.5}$ emissions because fugitive dust emissions are a function of VMT growth.

Table 10-9. Alternative 6: Peak Daily Regional Operational Criteria Pollutant Emissions (Horizon Year 2045) Compared to Existing Conditions (Baseline Year 2021)

Source Category	Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}[a]	$PM_{2.5}$[a]
Alternative 6						
Area – MSF[b]	4	<0.1	5	<0.1	<0.1	<0.1
Area – Stations[c]	18	<1	109	<0.1	<1	<1
Mobile – Regional VMT Analysis	8,976	88,818	622,502	3,483	408,402	105,358
Mobile – Employee Travel	1	3	20	<0.1	11	3
Emergency Generators[d]	—	—	—	—	—	—
Alternative 6 Peak Daily Emissions[e]	**8,999**	**88,823**	**622,636**	**3,483**	**408,413**	**105,361**
Existing Conditions						
Mobile – 2021 VMT Analysis Emissions	27,490	222,016	1,219,501	3,920	329,216	86,051
Net Change in Emissions	**-18,491**	**-133,193**	**-596,865**	**-438**	**79,197**	**19,310**
SCAQMD Regional Significance Thresholds	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	**Yes**	**Yes**

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.
[b]Total on-site emissions from the MSF.
[c]Total on-site emissions from all stations.
[d]Emergency generators would not be required.
[e]Totals may vary due to rounding.

CO = carbon monoxide

lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
VMT = vehicle miles traveled
VOC = volatile organic compounds

10.3.2.2 Construction Impacts

Alternative 6 construction activities would generate criteria pollutant emissions from off-road equipment, mobile sources including workers, vendor trucks, and haul trucks traveling to and from construction sites, demolition, soil handling activities, paving, application of architectural coatings, and operation of temporary concrete batch plants. These emissions sources would be related to constructing the HRT system alignment, TPSSs, stations, and the MSF.

Construction emissions would vary substantially from day to day, depending on the level of activity and the specific type of construction activity. The peak daily construction emissions for Alternative 6 were estimated for each construction year. Based on the construction schedule for Alternative 6, construction phases for components could potentially overlap; therefore, the estimates of peak daily emissions included these potential overlaps by combining the relevant construction phase daily emissions. The peak daily emissions are predicted values for the worst-case day and do not represent the emissions that would occur for every day of construction. Table 10-10 summarizes the peak daily regional emissions for each construction year.

Table 10-10. Alternative 6: Unmitigated Peak Daily Regional Construction Criteria Pollutant Emissions

Construction Year	Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}[a]	$PM_{2.5}$[a]
2029	26	192	505	<1	55	14
2030	15	204	359	1	75	17
2031	10	128	292	1	64	14
2032	6	84	184	<1	47	10
2033	19	150	337	<1	44	11
2034	23	142	319	<1	32	9
2035	29	226	434	1	39	11
2036	21	197	385	<1	33	10
2037	5	54	105	<1	10	3
Peak Daily Emissions	**29**	**226**	**505**	**1**	**75**	**17**
SCAQMD Regional Significance Thresholds	75	100	550	150	150	55
Threshold Exceeded?	No	**Yes**	No	No	No	No

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District

SO_2 = sulfur dioxide
VOC = volatile organic compounds

As shown in Table 10-10, Alternative 6 construction emissions would exceed the SCAQMD regional significance thresholds for NOX emissions. SCAQMD's cumulative air quality impact methodology indicates that if an individual project results in air emissions of criteria pollutants that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. Because Alternative 6 construction emissions would exceed the applicable SCAQMD's regional construction significance thresholds for NOX, Alternative 6 construction emissions would be cumulatively considerable. Additionally, recognizing that SCAQMD's regional significance thresholds were established to achieve attainment of the NAAQS and CAAQS, which in turn define the maximum amount of an air pollutant that can be present in ambient air without harming public health, the project's contribution of pollutant emissions may result in measurable human health impacts on a regional scale.

As discussed in Section 3.1, the emissions analysis incorporated Tier 4 Final engines for off-road equipment greater than or equal to 50 horsepower, trucks with model years 2007 or newer, and included dust control measures to be implemented during each phase of construction, as required by SCAQMD Rule 403. The construction analysis for Alternative 6 conservatively assumed all equipment would be diesel powered, the Metro Green Construction Policy contains measures that aim to reduce construction emissions through utilization of hybrid drive off-road equipment and using electric power instead of diesel power. There are no feasible mitigation measures that would reduce Alternative 6 NOX emissions below SCAQMD significance thresholds; therefore, Alternative 6 construction emissions would result in cumulatively considerable net increase of criteria pollutants for which the project region is nonattainment under an applicable federal or state ambient air quality standard and impacts would be significant and unavoidable.

10.3.3 Impact AQ-3: Would the project expose sensitive receptors to substantial pollutant concentrations?

The term sensitive receptor refers to receptors located at land uses associated with people who are considered to be more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirmed are more susceptible to respiratory distress and other air quality-related health problems on average than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality.

10.3.3.1 Operational Impacts

Localized Emissions Analysis

To assess the potential localized air quality impacts resulting from Alternative 6 on nearby sensitive receptors during operations, the daily on-site operations emissions generated at Alternative 6 components, primarily the MSF and all stations were compared to SCAQMD's applicable operations LSTs. Alternative 6 localized emissions would be generated from area sources, such as landscaping equipment, use of consumer products, and reapplication of architectural coatings; and emergency generator maintenance testing. As discussed in Section 3.6.5, localized emissions from the MSF and all stations would be summed together and compared to the operational LSTs. As shown in Table 10-11, Alternative 6 localized operational emissions would not exceed SCAQMD significance thresholds; therefore, impacts of local criteria pollutants would be less than significant.

Table 10-11. Alternative 6: Unmitigated Localized Operations Criteria Pollutant Emissions

Source Category	Daily Emissions (lbs/day)			
	NO_X	CO	PM_{10}[a]	$PM_{2.5}$[a]
Area – MSF[b]	<0.1	5	<0.1	<0.1
Area – Stations[c]	<1	109	<1	<1
Emergency Generators[d]	—	—	—	
Alternative 6 Total Localized Emissions	**<1**	**114**	**<1**	**<1**
SCAQMD Localized Significance Thresholds[e]	172	1,434	3	2
Exceeds Threshold?	No	No	No	No

Source: HTA, 2024

[a]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.
[b]Total on-site emissions from the MSF.
[c]Total on-site emissions from all stations.
[d]Emergency generators would not be required.
[e]LSTs based on most stringent values for a 5-acre site with a 25-meter receptor distance in SRA 2 and SRA 7.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SRA = source receptor area

The SCAQMD's LSTs for each SRA represent the maximum emissions a project can emit without causing or contributing to a violation of any short-term NAAQS or CAAQS. As noted previously, the NAAQS and CAAQS are health-protective standards that define the maximum amount of ambient pollution that can be present without harming public health. Consequently, projects with emissions below the applicable LSTs would not be in violation of the NAAQS or CAAQS and, thus, EPA and CARB health protective standards. Because Alternative 6 operational emissions would not exceed the LSTs, Alternative 6 would not cause or contribute to a violation of any health-protective CAAQS and NAAQS.

Carbon Monoxide Hot Spots

A CO hot spot is a localized concentration of CO that is above the state or national 1-hour or 8-hour ambient air standards for the pollutant. CO hot spots at roadway intersections are typically found in areas with significant traffic congestion. CO is a public health concern because at high enough concentrations, it can cause health problems such as fatigue, headache, confusion, dizziness, and even death. However, it should be noted that ambient concentrations of CO have declined dramatically in California because of existing controls and programs.

Currently, all areas of the state, including the Project Study Area, meet the state and federal CO standards and are designated attainment or maintenance. As part of SCAQMD's 2003 AQMP, which is the most recent AQMP that addresses CO concentrations, a revision to the *Federal Attainment Plan for Carbon Monoxide* (CO Plan) that was originally approved in 1992 was provided and included a CO hot spots analysis at four specified heavily traveled intersections in Los Angeles at the peak morning and afternoon time periods. These four intersection locations selected for CO modeling are considered to be worst-case intersections that would likely experience the highest CO concentrations. The CO hot spots analysis in the 2003 AQMP did not predict a violation of CO standards at the four intersections. Of these four intersections, the busiest intersection evaluated was that at Wilshire Boulevard and Veteran

Avenue, which was described as the most heavily congested intersection in Los Angeles County with an average daily traffic volume of approximately 100,000 vehicles per day. Based on the CO modeling, the 2003 AQMP estimated that the 1-hour and 8-hour concentrations at this intersection was 4.6 ppm and 3.4 ppm, respectively, which would not exceed the most stringent 1-hour CO standard of 20.0 ppm and 8-hour CO standards of 9 ppm (SCAQMD, 2003).

The *Sepulveda Transit Corridor Project Transportation Technical Report* (Metro, 2025a) analyzed traffic volume data at intersections in the Project Study Area affected by Alternative 6 in Horizon Year 2045. The highest daily traffic volumes generated at an intersection within the vicinity of Alternative 6 would be an estimated cumulative total of 74,780 vehicles per day at the intersection of Wilshire Boulevard and Sepulveda Boulevard. Because the daily number of vehicles at this study intersection would not exceed 100,000 vehicles per day, it can be concluded that Alternative 6 would not exceed the most stringent 1-hour and 8-hour CO standards and no detailed CO hot spots analysis for Alternative 6 would be required. Therefore, Alternative 6 would not result in impacts related to CO hot spots and would not contribute a significant level of CO such that localized air quality and human health would be substantially degraded.

10.3.3.2 Construction Impacts

Localized Emissions Analysis

Using the conservative methodology described in Section 3.3.1 to assess the potential localized air quality impacts resulting from Alternative 6 on nearby receptors during construction, the daily on-site construction emissions from the Alternative 6 components (alignment, stations, TPSSs, MSF) were compared to SCAQMD's applicable construction localized significance thresholds (LST). Alternative 6 localized emissions included exhaust emissions from off-road equipment and trucks, and fugitive dust from demolition, earth movement activities, and truck travel. As shown in Table 10-12, Alternative 6 localized construction emissions would exceed the PM_{10} LST for construction activity in the Valley and Westside, therefore, Alternative 6 localized construction emissions would have adverse health risk implications (as discussed in Section 3.3.1 and Section 10.2.2) and would be considered to be significant.

Table 10-12. Alternative 6: Unmitigated Localized Construction Criteria Pollutant Emissions

Construction Area	Daily Emissions (lbs/day)[a]			
	NO_X	CO	PM_{10}[b]	$PM_{2.5}$[b]
Valley Construction Components[c]				
Segment 2-Mountain	13.6	22.9	4.8	0.7
Segment 3-Valley	24.8	34.3	6.4	0.8
Van Nuys Metrolink Station	18.3	36.5	—	—
Metro G Line Station	18.4	36.5	—	—
Ventura Boulevard Station	18.3	36.5	4.1	0.6
Vanowen Street/Van Nuys Boulevard TPSS	1.6	1.8	—	—
Magnolia TPSS	1.6	1.8	—	—
MSF	17.7	33.2	—	—
Precast Yard	—	—	7.7	1.2
Components In Proximity to Each Other				
Van Nuys Metrolink Station + MSF + Precast Yard	36.0	69.7	7.7	1.2
Segment 2 + Ventura Boulevard Station	32.0	59.4	8.9	1.2
Peak Daily Localized Emissions	**36.0**	**69.7**	**8.9**	**1.2**
SCAQMD Localized Significance Threshold[d]	114	786	7	4
Exceeds Threshold?	No	No	**Yes**	No

Construction Area	Daily Emissions (lbs/day)[a]			
	NO_X	CO	PM_{10}[b]	$PM_{2.5}$[b]
Westside Construction Components[c]				
Segment 1-Westside	—	—	—	—
Segment 2-Mountain	—	—	—	—
UCLA Gateway Plaza Station	25.1	60.0	1.9	0.7
Wilshire Boulevard/Metro D Line Station	25.1	60.0	2.2	0.7
Santa Monica Boulevard Station	25.1	60.0	15.7	2.8
Metro E Line Expo/Bundy Station	25.1	60.0	2.5	0.8
Components In Proximity to Each Other				
Not Applicable	—	—	—	—
Peak Daily Localized Emissions	25.1	60.0	15.7	2.8
SCAQMD Localized Significance Threshold[e]	147	827	6	4
Exceeds Threshold?	No	No	**Yes**	No

Source: HTA, 2024

[a]Daily emissions for each construction component represent the contribution to the maximum daily localized emissions in the Valley or Westside.

[b]PM_{10} and $PM_{2.5}$ emissions include exhaust and fugitive dust emissions.

[c]TPSSs listed in table would be located at standalone locations and not within the construction area of a station, MSF, track alignment, or tunnel. Each of these standalone TPSSs had their own construction phasing in the construction emissions analysis. For TPSSs located within the construction area of a station, MSF, track alignment, or tunnel, their construction activity was accounted for in the overall construction activity for the component.

[d]LST values are based on a 2-acre site with a 25-meter receptor distance in SRA 7 East San Fernando Valley.

[e]LST values are based on a 2-acre site with a 25-meter receptor distance in SRA 2 Northwest Coastal LA County.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter of 2.5 microns or less
PM_{10} = particulate matter of 10 microns or less
SCAQMD = South Coast Air Quality Management District
SRA = source receptor area

As discussed in Section 3.1, the emissions analysis incorporated Tier 4 Final engines for off-road equipment greater than or equal to 50 horsepower, trucks with model years 2007 or newer, and included dust control measures to be implemented during each phase of construction, as required by SCAQMD Rule 403. The construction analysis for Alternative 6 conservatively assumed all equipment would be diesel powered, the Metro *Green Construction Policy* contains measures that aim to reduce construction emissions through utilization of hybrid drive off-road equipment and using electric power instead of diesel power. There are no feasible mitigation measures that would reduce Alternative 6 PM_{10} emissions below SCAQMD localized significance thresholds, therefore, Alternative 6 construction emissions would potentially expose sensitive receptors to substantial concentrations and impacts would be significant and unavoidable.

The SCAQMD's LSTs for each SRA represent the maximum emissions a project can emit without causing or contributing to a violation of any short-term NAAQS or CAAQS. As noted previously, the NAAQS and CAAQS are health-protective standards that define the maximum amount of ambient pollution that can be present without harming public health. Consequently, projects with emissions below the applicable LSTs would not be in violation of the NAAQS or CAAQS and, thus, EPA and CARB health-protective standards. Because Alternative 6 construction emissions exceed the PM_{10} LST, Alternative 6 would cause or contribute to a violation of one or more health-protective CAAQS and NAAQS. Given that diesel particulate matter (DPM) emissions constitute a portion of localized PM_{10} emissions, impacts related to localized DPM emissions during construction are also considered to be significant and unavoidable due to the following: (1) the elevated background carcinogenic risk, (2) the duration of construction activity, and (3) the proximity of sensitive receptors to DPM emissions sources.

10.3.4 Impact AQ-4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

10.3.4.1 Operational Impacts

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment facilities, food processing plants, chemical plants, composting areas, refineries, landfills, dairies, and fiberglass molding facilities. Alternative 6 is a transit project with a track alignment, TPSSs, stations, and an MSF which are not associated with any of the aforementioned land uses. Alternative 6 would include various trash receptacles associated with the stations and MSFs. On-site trash receptacles used by Alternative 6 would be covered and properly maintained to prevent adverse odors. With proper housekeeping practices, trash receptacles would be maintained in a manner that promotes odor control, and no adverse odor impacts are anticipated from the uses. Therefore, Alternative 6 operations would not create a significant level of objectionable odors affecting a substantial number of people and impacts with respect to odors would be less than significant.

10.3.4.2 Construction Impacts

During construction of Alternative 6, exhaust from equipment, activities associated with the application of architectural coatings and other interior and exterior finishes, and paving activities may produce discernible odors typical of most construction sites. Such odors would be, at worst, a temporary source of nuisance to adjacent uses, if at all, and would not affect a substantial number of people. Alternative 6 would use architectural coatings compliant with SCAQMD Rule 1113, which would limit the odors associated with off-gassing from those coatings. Additionally, material deliveries and heavy-duty haul truck trips could occasionally produce odors from diesel exhaust. These odors would not affect a substantial number of people because construction would be temporary, and construction-generated emissions dissipate rapidly with increasing distance from the source. Overall, odors associated with Alternative 6 construction would be temporary and intermittent in nature and would not create a significant level of objectionable odors affecting a substantial number of people.

10.4 Mitigation Measures

10.4.1 Operational Impacts

No mitigation measures are required.

10.4.2 Construction Impacts

As previously discussed, Alternative 6 would exceed SCAQMD regional thresholds for NO_X, as well as SCAQMD localized thresholds for PM_{10}, and would result in significant and unavoidable impacts. Therefore, the following mitigation measures (MM) shall be implemented for Alternative 6 construction.

MM AQ-1: *The Project shall require zero emissions or near zero emissions on-road haul trucks such as heavy-duty trucks with natural gas engines that meet or exceed the California Air Resources Board's adopted optional nitrogen oxides emissions standard at 0.02 grams per brake horsepower hour (g/bhp-hr), if and when feasible. Operators shall maintain records of all trucks associated with project construction to document that each truck used meets these emission standards. These records shall be submitted monthly to Metro for review and shall be made available to regulatory agencies upon request. To ensure compliance, Metro or its designated representative shall conduct regular inspections of construction operations, including on-site verification of truck compliance. Inspections shall occur at least twice per month during active construction. Any contractor found to be using non-compliant trucks without prior approval from Metro shall be subject to penalties, including suspension of operations until compliance is achieved.*

MM AQ-2: *Construction contracts shall include language that compels contractors to implement all policies and emissions control measures as presented in Metro's Green Construction Policy.*

MM AQ-3: *Construction contracts shall include language that compels contractors to implement all fugitive dust control measures as detailed in SCAQMD Rule 403 (Fugitive Dust).*

10.4.3 Impacts After Mitigation

Although construction of Alternative 6 would require implementation of MM AQ-1, it is not technically feasible at the time of document preparation to verify the commercial availability of ZE and NZE trucks to the extent needed to reduce construction-period NO_X and PM_{10} emissions below SCAQMD's regional and localized emissions thresholds. MM AQ-2 and MM AQ-3 simply enforce Metro and SCAQMD policies that are already required, independent of any additional prescribed mitigation.

Given the current uncertainty around the availability of sufficient ZE and NZE trucks to reduce Alternative 6 construction-period NO_X and PM_{10} impacts below SCAQMD's regional and localized emissions thresholds, this impact would remain significant and unavoidable.

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Appendix A. Air Quality and Greenhouse Gas Emissions Modeling Files