3.2 Air Quality

3.2.1 Introduction

This section discusses the Project setting in relation to air quality. It describes existing conditions, current applicable regulatory setting, and potential impacts from operation and construction of the Build Alternatives, including design options and MSF site options. The Project is located within the Los Angeles sub-area of the South Coast Air Basin (SoCAB). The area of potential impact for the air quality analysis is limited to the DSA, which would be most affected by temporary Project construction. Information in this section is based on the Eastside Transit Corridor Phase 2 Air Quality Impacts Report (Appendix C).

3.2.2 Regulatory Framework

Federal, state, and local governments all share responsibility for air quality management. The Federal Clean Air Act (CAA) and California Clean Air Act (CCAA) are the primary statutes that establish ambient air quality standards. They establish regulatory authorities to design and enforce air quality regulations. Applicable regulations are summarized below and described in more detail in Appendix C.

3.2.2.1 Federal

Under authority granted by CAA, the U.S. Environmental Protection Agency (USEPA) established National Ambient Air Quality Standards (NAAQS) for the following criteria pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), inhalable particulate matter or particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM_{10}), fine particulate matter or particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers ($PM_{2.5}$), and sulfur dioxide (SO_2).

Table 3.2-1 presents the NAAQS for criteria air pollutants. O_3 is a secondary pollutant, meaning that it is formed in the atmosphere from reactions of other precursor compounds under certain conditions. Primary precursor compounds that lead to formation of O_3 include volatile organic compounds (VOC) and nitrogen oxides (NOx). $PM_{2.5}$ can be emitted directly from sources (e.g., engines) or can form in the atmosphere from other precursor compounds. $PM_{2.5}$ precursor compounds in the South Coast Air Basin (SoCAB) include sulfur oxides (SOx), NOx, VOC, and ammonia. **Table 3.2-2** summarizes the health effects associated with these pollutants.

The CAA specifies dates for achieving compliance with NAAQS and mandates that states submit, implement, and enforce a state implementation plan (SIP) to attain and maintain the NAAQS. SIPs must include pollution control measures and demonstrate how standards will be met. The CAA identifies specific emission reduction goals for areas not meeting NAAQS. The CAA requires a demonstration of reasonable further progress toward attainment and provides additional sanctions for failure to attain or meet interim milestones.

A nonattainment designation means an area does not meet (or contributes to ambient air quality in a region that does not meet) the NAAQS or California Ambient Air Quality Standards (CAAQS). A maintenance designation means a pollutant was previously in nonattainment but was re-designated as

attainment. It indicates measures included in the SIP are intended to ensure that the NAAQS for a pollutant are not exceeded. **Table 3.2-3** presents the federal and state attainment designation and classification, where applicable, for each of the federal criteria air pollutants.

Table 3.2-1. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS	NAAQS Primary	NAAQS Secondary
CO	1-Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	NS
	8-Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	NS
NO_2	1-Hour	0.18 ppm (339 µg/m^3)	0.100 ppm (188 µg/m^3)	NS
	Annual	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as primary
O_3	1-Hour	0.09 ppm (180 µg/m^3)	NS	NS
	8-Hour	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)	Same as primary
Pb	30-Day Average	1.5 µg/m^3	NS	NS
	Rolling 3-Month Average	NS	0.15 µg/m^3	Same as primary
PM_{10}	24-Hour	50 µg/m^3	150 µg/m^3	Same as primary
	Annual	20 µg/m^3	NS	NS
$PM_{2.5}$	24-Hour	No separate State standard	35 µg/m^3	Same as primary
	Annual	12 µg/m^3	12.0 µg/m^3	15 µg/m^3
SO_2	1-Hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)	NS
	3-Hour	NS	NS	0.5 ppm (1,300 µg/m^3)
	24-Hour	0.04 ppm (105 µg/m^3)	NS	NS

Source: California Air Resources Board (CARB), 2016.
Key:
µg/m^3 = micrograms per cubic meter; CAAQS = California Ambient Air Quality Standard; CO = carbon monoxide; mg/m^3 = milligrams per cubic meter; NAAQS = National Ambient Air Quality Standard; NO_2 = nitrogen dioxide; NS = no standard; O_3 = ozone; Pb = lead; PM_{10} = inhalable particulate matter; $PM_{2.5}$ = fine particulate matter; ppm = parts per million; SO_2 = sulfur dioxide

Table 3.2-2. Characteristics and Health Effects of Criteria Pollutants

Pollutant	Characteristics	Health Effects	Major Sources
CO	Odorless, colorless gas that is highly toxic. Formed by the incomplete combustion of fuels.	• Impairment of oxygen transport in the bloodstream. • Aggravation of cardiovascular disease. • Fatigue, headache, dizziness.	Automobile exhaust, combustion of fuels, and combustion of wood in woodstoves and fireplaces.
NO_2	Reddish-brown gas formed during combustion.	• Increased risk of acute and chronic respiratory disease.	Automobile and diesel truck exhaust, industrial processes, and fossil-fueled power plants.
O_3	A highly reactive photochemical pollutant created by the action of sunlight on ozone precursors (VOC and NOx).	• Eye irritation. • Respiratory function impairment.	Combustion sources, such as factories and automobiles, and evaporation of solvents and fuels.
PM_{10} and $PM_{2.5}$	Small particles that measure 10 microns or less are termed PM_{10} (fine particles less than 2.5 microns are $PM_{2.5}$). Solid and liquid particles of dust, soot, aerosols, smoke, ash, and pollen and other matter that are small enough to remain suspended in the air for a long period.	• Aggravation of chronic disease and heart/lung disease symptoms.	Combustion of gasoline, oil, diesel fuel, or wood. Dust from construction sites, landfills and agriculture, wildfires and brush/waste burning, industrial sources, wind-blown dust from open lands, pollen, and fragments of bacteria.
SO_2	Colorless gas with a pungent odor.	• Increased risk of acute and chronic respiratory disease.	Motor vehicles, locomotives, ships, and off-diesel equipment that are operated with fuels that contain high levels of sulfur.

Source: CARB, 2021b; CARB, 2021c; Metro, 2014.
Key:
CO = carbon monoxide; NO_2 = nitrogen dioxide; NOx = nitrogen oxides; O_3 = ozone; PM_{10} = inhalable particulate matter; $PM_{2.5}$ = fine particulate matter; SO_2 = sulfur dioxide; VOC – volatile organic compound

Table 3.2-3. Federal and State Attainment Status

Pollutant	Federal (NAAQS) Status	State (CAAQS) Status
CO	Maintenance	Attainment
NO_2	Maintenance	Attainment
O_3	Nonattainment, Extreme	Nonattainment
Pb	Nonattainment[1]	Attainment
PM_{10}	Maintenance	Nonattainment
$PM_{2.5}$	Nonattainment[2,3]	Nonattainment
SO_2	Attainment	Attainment

Source: CARB, 2020; USEPA, 2019a.
Notes:
1 Only the Los Angeles portion of the SoCAB is considered nonattainment for Pb. All other portions of the SoCAB are in attainment of the Pb NAAQS.
2 Classified as moderate nonattainment under the 2012 PM2.5 NAAQS, serious nonattainment under the 2006 PM2.5 NAAQS, and attainment under the 1997 PM2.5 NAAQS.
3 While currently designated a nonattainment area for the 1997 and 2006 PM2.5 NAAQS, the SCAQMD is in the process of requesting redesignation to maintenance (CARB, 2021a).
Key:
CO = carbon monoxide; NO_2 = nitrogen dioxide; O_3 = ozone; Pb = lead; PM_{10} = inhalable particulate matter; $PM_{2.5}$ = fine particulate matter; SO_2 = sulfur dioxide

3.2.2.2 State

The CCAA, signed into law in 1988, requires all areas of the state to achieve and maintain the CAAQS by the earliest practicable date. CAAQS are at least as stringent as, and often more stringent than, NAAQS. **Table 3.2-1** lists currently applicable CAAQS and NAAQS. Attainment status for each pollutant concerning CAAQS is presented in **Table 3.2-3**.

The California Air Resources Board (CARB) has jurisdiction over many air pollutant emission sources in the state. Specifically, CARB can develop emission standards for stationary sources and on-road motor vehicles (when USEPA grants them a waiver to do so) and some off-road mobile sources. CARB has delegated authority to regional air pollution control and air quality management districts to develop stationary source emission standards, issue air quality permits, and enforce permit conditions.

CARB adopted the Innovative Clean Transit (ICT) Regulation in December 2018, which requires all public transit agencies to gradually transition to a 100 percent zero-emission bus (ZEB) fleet by 2040.

3.2.2.3 Regional

Under conformity regulations of the CAA, the Southern California Association of Governments (SCAG) is the metropolitan planning organization responsible for coordinating the development of transportation infrastructure in a six-county region of Southern California (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura). This ensures that air quality objectives are included with transportation goals in regional transportation plans. SCAG predicts population and business growth in the region and estimates future demand for traffic, seaports, airports, and heavy and light rail infrastructure. From the demand estimates, SCAG develops a Regional Transportation Plan (RTP) and Federal Transportation Improvement Program (FTIP) to guide transportation growth and

infrastructure development. The FTIP and RTP consider air quality requirements in the region. The FTIP is typically updated every two years. SCAG updates its forecasts and RTP approximately every four years. The most recently adopted RTP was the 2020 RTP/SCS, approved and adopted by the SCAG Regional Council on September 3, 2020.

Under authority delegated by CARB, regional air pollution control and air quality management in the DSA is managed by the South Coast Air Quality Management District (SCAQMD). SCAQMD uses SCAG's forecasts for vehicle miles traveled (VMT) and activities predicted for seaports, airports, and rail, as well as stationary source to develop updates to Air Quality Management Plans (AQMPs). SCAQMD works directly with SCAG, county transportation commissions, and local governments, and cooperates with state and federal government agencies. The SoCAB is a sub-region within SCAQMD's jurisdiction that covers a 6,745 square mile area and encompasses all of Orange County and non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The DSA is located within the Los Angeles sub-area of the SoCAB.

SCAQMD develops rules and regulations, establishes permitting requirements, inspects emissions sources, and enforces measures through educational programs or fines. In coordination with CARB and SCAG, SCAQMD also prepares and implements the AQMP, which is used by CARB in SIP development and to meet CAAQS and NAAQS. The AQMP mandates control technology for existing sources, control programs for area sources and indirect sources, a permitting system to ensure no net increase in emissions from any new or modified permitted sources of emissions, transportation control measures, sufficient control strategies to achieve emissions reduction targets, and demonstration of compliance with CARB's established reporting periods for compliance with air quality goals.

On March 3, 2017, SCAQMD adopted a comprehensive update, the 2016 AQMP for the SoCAB. The 2016 AQMP outlines air pollution control measures needed to meet federal O_3 and $PM_{2.5}$ standards. The SCAQMD is currently in the process of preparing the 2022 AQMP (SCAQMD 2021).

Relevant SCAQMD rules and regulations that apply to the Project for this air quality analysis include, but are not limited to, Rule 402 and Rule 403. Rule 402 (nuisance) prohibits the discharge of air contaminants that cause injury, detriment, nuisance, or annoyance to the public. The Project would not be likely to cause the discharge of air contaminants that cause injury, detriment, nuisance, or annoyance to the public. Therefore, the Project would operate in compliance with Rule 402. Rule 403 (fugitive dust) prohibits fugitive dust emissions from any active operation, open storage pile, or disturbed surface area that remains visible beyond the emission source property line. During proposed construction, best available control measures identified in the rule would be required to minimize fugitive dust emissions from proposed earth-moving and grading activities.

3.2.2.4 Local

3.2.2.4.1 Los Angeles Metropolitan Transportation Authority

Metro has developed a number of plans and policies related to improving air quality. Metro's *Countywide Sustainability Planning Policy* (Metro 2012) is intended to define outcomes and establish measurements related to developing a Sustainable Regional Transportation System. The *Metro Climate Action and Adaptation Plan* (Metro 2019) builds on Metro's existing commitments to environmental sustainability and stewardship and establishes a framework to reduce GHG emissions. The *Moving Beyond Sustainability* (MBS) strategic plan (Metro 2020), outlines a comprehensive

sustainability strategy that incorporates aspects of emissions and pollution control. Metro's *Construction Demolition Debris Recycling and Reuse Policy* (Metro 2007) requires Metro to give preference to recyclable and recycled products in the selection of construction materials to the maximum extent feasible during design and construction of Metro or Metro-funded capital projects. Metro's *Green Construction Policy* (Metro 2011), commits Metro to using greener, less polluting construction equipment and vehicles on all Metro construction projects performed on Metro properties and rights-of-way than the statewide fleet average. More information about these plans and policies is in Appendix C.

3.2.2.4.2 County and City General Plans

Los Angeles County and the cities within the DSA have general plans that include goals and policies supportive of improving air quality with the region. Applicable goals and policies in the *Los Angeles County 2035 General Plan* include, but are not limited to, reducing air pollution and emissions through coordinated land use, transportation, and air quality planning, and reducing emissions and fugitive dust from construction activities through implementation of best management practices (BMPs). Relevant general plan policies of the cities of Commerce, Montebello, Pico Rivera, Santa Fe Springs, and Whittier are established to guide land use planning decisions to improve air quality within the region, including through supporting transit and development of transit-oriented communities. More information about these policies is in Appendix C.

3.2.3 Methodology

This section describes the methodology and assumptions for analysis of potential impacts to air quality and assessment of health risks. Construction projects may impact air quality through emissions from construction equipment or the generation of dust. Conversely, the operation of mass transit systems may benefit air quality through reductions in the number of vehicles operating in an area.

3.2.3.1 Operational Emissions

Operational emissions include emissions related to the operation of public highway vehicles, Project parking facilities, and a Project MSF site option. For each of these emission sources under 2042 without Project Conditions and each of the Build Alternatives, emissions were quantified so that the Project's benefits or impacts could be evaluated against 2042 without Project Conditions. As detailed below, operation of proposed stations or the LRVs would not be expected to result in direct criteria pollutant emissions in the DSA.

Emissions for regional traffic, evaporative leaks from parked vehicle fuel tanks, and parking facility maintenance activities were calculated using the current USEPA-approved version of the California Emission Factor (EMFAC) model[1]. The model was queried to determine the appropriate traffic emission factors for the Los Angeles sub-area of the SoCAB, the model region most representative of the DSA. The model generates emission factors for a variety of vehicle classes, representing different types of on-road vehicles that operate in the region. EMFAC was also used to describe the highway fleet mix (relative ratio of VMT travel in the region for each vehicle class) for the SoCAB in each year of the analysis. Aggregate highway-vehicle emission factors for each pollutant were determined by

1 While EMFAC2021 is the current version of the EMFAC model (released in April 2021), EMFAC2017 is the most recent version of the model approved by the USEPA. Therefore, EMFAC2017 was used in the analysis (CARB 2021g).

weighting the EMFAC default emission factors for each vehicle class using the fleet mix. The emission factors queried were for an average vehicle speed of 35 miles per hour for the existing conditions (2019)[2] analysis, and an average vehicle speed of 30 miles per hour for the future conditions (2042).

The Project would include the addition of parking facilities to accommodate passengers at several of the proposed stations. Project-related parking would result in a new source of VOC emissions from evaporative leaks from parked vehicle fuel tanks. Evaporative emissions from vehicles left in the parking facilities throughout the day were estimated using EMFAC reactive organic gases (ROG)[3] emission factors for the Los Angeles sub-area of the SoCAB. The EMFAC model was queried to generate evaporative ROG emission factors for the vehicle classes most representative of those vehicles which would utilize the Project parking facilities (light-duty automobiles and trucks), and those factors were weighted using the regional VMT-based fleet mix for those vehicle classes, resulting in an aggregated evaporative ROG emission factor. It was estimated that each Project parking space would be occupied, and thus contribute to evaporative Project ROG emissions, for 10-hours each day. Additional parking facility maintenance activities, such as lot restriping, would also result in ROG emissions. These emissions were estimated using default model parameters for the "parking lot" land use type of the California Emission Estimator Model (CalEEMod) version 2020.4.0. Additional necessary modeling parameters for the parking facilities include the region (Los Angeles sub-area of the SoCAB), the climate zone (9), utility (Southern California Edison), and the count of spaces assumed for each facility.

Emissions from powering the electric LRT vehicles or lighting the proposed stations were not assumed to occur locally and therefore, were not estimated. Maintenance activities for the proposed stations would not be expected to result in material criteria pollutant emissions.

Operation of either of the Project MSF options would result in criteria pollutant emissions from combustion of natural gas for comfort heating and from structure and LRT maintenance and upkeep activities. These emissions were quantified using CalEEMod.

Refer to Appendix C for more information regarding methodology and assumptions used in the operational air quality analysis

3.2.3.2 CO Hot Spots

A project has the potential to result in one or more CO hot spots (high localized ambient concentrations) when project emissions occur at higher rates in small or constricted areas. For the Project, traffic volumes at major intersections represent the only emission source which could result in CO hot spots.

2 As described in Section 3.14, Transportation and Traffic, the base year data in Metro's regional travel demand forecasting model (the Corridor Based Model 2018 [CBM18]) is from 2017 and represents the data that was most recently available when the model was created in 2018. This data has been used to represent 2019, the base year in this study.
3 The definitions of VOC and ROG are essentially the same and are used interchangeably in this analysis.

The 2017 BAAQMD CEQA Guidelines indicate that CO hot spots would not occur at intersections servicing fewer than 44,000 vehicles per hour, or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).[4] This updated screening criteria was used for the CO hot spot analysis of this EIR. Traffic volumes at Project intersections are based on detailed traffic modeling conducted for the transportation analysis (see Section 3.14, Transportation).

3.2.3.3 Construction Emissions

Construction emissions were estimated for all components of each Build Alternative, including construction of stations and parking facilities, rail lines, and the MSF. Emissions from construction of the Project were estimated from the methods developed by the SCAQMD in its 1993 *CEQA Air Quality Handbook* (Handbook). The analysis used the current USEPA-approved version of the CARB EMFAC model, which is also incorporated in the current version of CalEEMod (2020.4.0), to generate on-road emission factors instead of the on-road mobile source emission factors in the Handbook. The CARB OFFROAD model emission factors, incorporated in the current version of CalEEMod, were used to generate off-road emission factors instead of the off-road mobile source emission factors in the Handbook. The analysis used factors developed for current version of CalEEMod to update the fugitive construction dust and architectural coating emission factors identified in the Handbook.

Emission reductions associated with applicable rules and regulations, such as a 66 percent reduction in fugitive dust associated with site watering as required by SCAQMD Rule 403, were also incorporated into the analysis.

The Project was modeled using CalEEMod with the alignment subdivided into smaller components which were modeled individually. The emissions associated with overlapping components of Project construction were added together to determine total peak project emissions. General Project component information, such as approximate construction durations and equipment requirements are presented in Table 3-1 of Appendix P, Eastside Transit Corridor Phase 2 Construction Impacts Report. Refer to Appendix C for more information regarding methodology and assumptions used in the construction air quality analysis.

3.2.3.4 Health Risk Assessment

CEQA analysis typically includes a Health Risk Assessment (HRA) for sensitive receptors (e.g., residents, workers, school children) near the Project that are likely to be exposed to toxic air contaminants (TAC) emitted from Project activities. Most TAC are categorized as organic (primarily volatile) or inorganic (primarily particulate) emissions. Therefore, emissions of TAC are typically calculated by applying chemical-specific mass fractions (also called speciation profiles) to the total organic gases (TOG) or PM_{10} emission rates calculated for criteria pollutant emission inventories.

4 Neither Metro nor the SCAQMD have developed screening criteria for the evaluation of CO hot spots impacts associated with vehicle traffic. Section 14 CCR § 15064.7 (c) of the State CEQA Guidelines states that lead agencies may consider the adopted or recommended thresholds of other public agencies in the consideration of thresholds of significance. The BAAQMD screening criteria directly relates potential CO hot spots impact levels to changes in traffic quantities and is the most applicable promulgated criteria for evaluating CO hot spots for the Project.

CARB developed speciation profiles (CARB 2021d) for a variety of sources, such as gasoline motor vehicles and construction dust, which were used with projected TOG and PM_{10} emission levels to determine TAC emissions for each Build Alternative.

Although not applicable to this air quality analysis, SCAQMD Rule 1401, which limits the health risk implications of newly permitted facilities or air emission units in SCAQMD's jurisdiction, was used to identify the primary TAC of concern to be evaluated for health risk impacts. Thirty-four TAC were identified from the speciation profiles for mobile emission sources. This analysis calculated speciated emissions for exhaust, evaporation, tire wear, brake wear, paved road dust, construction dust, and architectural coatings.

Where operational TAC emissions would decrease as a result of project implementation, human health hazards would decrease, and no assessment would be required. Construction of a Build Alternative would always result in short-term emissions of TAC relative to existing conditions. These short-term construction TAC emissions were analyzed to determine risk impacts to sensitive receptors nearby. Sensitive receptors in the DSA include residences and locations where the elderly, children, or other groups with a greater susceptibility to adverse health effects could be located, such as schools, hospitals, convalescent homes, parks, and daycare centers. The SCAQMD has developed a tiered approach to assess risk from exposure to TAC (SCAQMD 2017a and SCAQMD 2017b). The Tier 2 analysis approach (a series of lookup tables with additional project-specific parameters) was applied to the construction phase to determine if human health impacts may be significant.

3.2.3.4.1 Area of Potential Impact

The area of potential impact must be sufficiently large to identify the location of the maximum exposed individual for health risk purposes. The zone of impact normally encompasses the area where a person would be subject to an added lifetime cancer risk of 10 in 1 million or greater ($\geq$ 10.0 x 10^{-6}). However, because the Project is expected to have a long-term regional beneficial impact on air quality and inhalation health risk, the area of potential impact was limited to the DSA, which would be most affected by temporary Project construction. Construction of the aerial alignment would occur in segments approximately 0.5-miles in length and construction of the at-grade alignment would occur in segments approximately 1-mile in length. Tunnel boring would occur at a minimum rate of approximately 30 feet per day. For the evaluation of construction human health risk impacts, emissions from on-site construction activities anticipated to occur were quantified for each active construction segment. Since these emissions would be distributed within the (minimum 0.5-mile) active construction segment, a 0.25-mile receptor distance was used as the halfway portion for a given receptor's exposure to construction activities within the active segment. A portion of emissions from haul trucks, delivery trucks, and construction worker vehicle trips were also included to account for the localized portion of emissions from vehicle operations from the construction site to trip ends (landfills, material source locations, or worker homes).

3.2.4 Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, a Build Alternative would have a significant impact related to Air Quality if it would:

Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan.

Impact AQ-2: 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.

Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations.

Impact AQ-4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Additionally, although not explicitly listed in Appendix G of the State CEQA Guidelines, in compliance with CEQA, a Build Alternative would have a significant impact related to Human Health if it would:

Impact HR-1: Expose sensitive receptors to TAC that would be likely to cause a substantial increase in human health risks.

3.2.4.1 SCAQMD Thresholds

The SCAQMD is the agency given primary responsibility for developing plans, programs, rules and regulations that will improve the air quality in the SoCAB. The SCAQMD published CEQA significance thresholds for analyzing the significance of project air quality impacts in the *CEQA Air Quality Handbook* (SCAQMD 1993). Regular updates are published on the SCAQMD website (SCAQMD 2019). The SCAQMD has developed quantitative CEQA significance thresholds for regional criteria air pollutant emissions (relating to Impact AQ-2), localized criteria air pollutant emissions (relating to Impact AQ-3), and localized TAC emissions (relating to Impact HR-1). Each set of thresholds is described below.

3.2.4.1.1 Regional Criteria Pollutant Emissions Thresholds

The SCAQMD developed quantitative significance thresholds for mass daily regional emissions of criteria pollutants for both construction and operational sources. These thresholds are summarized in **Table 3.2-4**.

Table 3.2-4. SCAQMD Mass Daily Thresholds

Pollutant	Construction	Operation
CO	550 lbs/day	550 lbs/day
NOx	100 lbs/day	55 lbs/day
Pb	3 lbs/day	3 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
VOC	75 lbs/day	55 lbs/day

Source: SCAQMD, 2019.
Key:
CO = carbon monoxide; lbs/day = pounds per day; NOx = nitrogen oxides; Pb = lead; PM10 = fine particulate matter; PM2.5 = fine particulate matter; SOx = sulfur oxides; VOC = volatile organic compound

Typically, in a CEQA analysis, project-related impacts are compared to existing (without project) conditions. However, 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 using an existing conditions baseline would be misleading or without informational value. Use of an existing conditions baseline would be misleading for the Project because it would ignore the regional background growth in population, traffic, and transportation infrastructure that would occur between the existing conditions baseline year of 2019 and the future conditions (i.e., the 2019 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 and associated air quality impacts over time. Isolating the Project's impacts from ancillary changes in the environment would result in a misleading analysis.

Therefore, for quantification of air pollutant emissions, Project emissions are defined as the difference between a Project alternative (2042) and the existing conditions in 2019 adjusted for regional growth that would occur by 2042, pursuant to Section 15125(a)(1)(2) of the State CEQA Guidelines that provides for the use of a projected future conditions (beyond the date of project operations) baseline. For the Project, this "projected future conditions baseline" is 2042 without Project Conditions. The horizon year (2042) of the regional travel demand Corridor Based Model 2018 (CMB18), 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 design year. Use of this 2042 design year represents a characterization of the holistic, long-term benefits of the Project as transit-oriented development expands within the GSA and throughout the region. Additionally, although the Project is projected to open in 2035, emission factors for highway vehicles (the preeminent emission source affected by this project) decrease as engine technology improves and vehicle manufacturers meet more stringent state and federal engine emission and efficiency standards. Since all alternatives would reduce VMT associated with highway traffic as compared to 2042 without Project Conditions, the use of 2042 highway traffic emission rates would result in fewer criteria pollutant reductions from this emission source as compared to the reductions which might be achieved using 2035 factors. Therefore, evaluation of Project impacts during the 2042 design year would conservatively evaluate the impacts of operations.

Project emissions greater than thresholds for a given air pollutant would be considered significant under CEQA.

3.2.4.1.2 Localized Significance Thresholds

The SCAQMD developed quantitative thresholds to evaluate local air quality impacts from construction and operational activity (SCAQMD 2008 and SCAQMD 2006). These localized significance thresholds (LSTs) are only applicable to the following criteria pollutants: NOx, CO, PM_{10}, and $PM_{2.5}$. LSTs are analogous to CAAQS (pollutant levels below LSTs would not be expected to violate the CAAQS). LSTs consider ambient concentrations of pollutants for a given source receptor area and the distance from the project site to the nearest sensitive receptor. For PM_{10}, LSTs were based on SCAQMD Rule 403 – Fugitive Dust.

As described in **Section 3.2.2.3**, the DSA is located within the SoCAB, which is further divided into 38 Source-Receptor Areas (SRAs); the DSA predominantly falls within the Southeast Los Angeles County SRA. LST emission tables have been developed for project sizes up to five acres. Most construction sites could be partitioned into active areas that are less than or equal to five acres in size. **Table 3.2-5** summarizes the allowable construction emissions for a project located in the Southeast Los Angeles

County SRA. Since the Project will be located in close proximity to other receptors, the closest receptors were assumed to be within 25 meters (82 feet) of the construction site boundaries, the minimum distance provided in the LST guidance.

Table 3.2-5. Allowable Construction Emissions for Source-Receptor Area[1] for a 5-Acre Site at 25-Meter (82-Feet) Receptor Distance from Site Boundary

Pollutant	Localized Significance Threshold (lbs/day)
	Project Construction Site Size
	Southeast Los Angeles County SRA
CO_2	1,480
NO_X[2]	172
PM_{10} (Operation)	4
PM_{10} (Construction)	14
$PM_{2.5}$ (Operation)	2
$PM_{2.5}$ (Construction)	7

Source: SCAQMD, 2008.
Notes:
1 Southeast Los Angeles County SRA was used to evaluate each project alternative.
2 Threshold is applicable to both construction and operation.
Key:
CO = carbon monoxide; lbs/day = pounds per day; NOx = oxides of nitrogen; PM_{10} = inhalable particulate matter; $PM_{2.5}$ = fine particulate matter

3.2.4.1.3 TAC Health Risk Thresholds

The SCAQMD has established thresholds of significance for both carcinogenic and non-carcinogenic TAC exposure. A significant adverse health risk impact would occur if a project alternative would result in a:

- Maximum Individual Cancer Risk (MICR) ≥ 10 in 1 million, or
- Hazard Index (HI) ≥ 1.0 (for either chronic or acute exposure).

Both MICR and HI are typically evaluated based on the difference between the future with project health risk and baseline existing conditions health risk. However, as detailed in **Section 3.2.4.1**, for the purpose of evaluating incremental Project impacts for this CEQA analysis, and projected future conditions baseline (2042 without Project Conditions) is used. Therefore, for this analysis, the project increment is defined as the difference in health risk between the Proposed Project and the future 2042 without Project risk levels.

Although MICR and HI criteria are typically evaluated at each receptor in the vicinity of the Project, simplified methods have been published by SCAQMD for the evaluation of health risk impacts of a project. A Tier 1 HRA, which consists of a series of look-up values based on emission rates for each TAC, can be completed. A summation of TAC emission ratios compared to their respective Tier 1 look-up value results in a project's application screening index (ASI). An ASI less than 1 can be used to demonstrate less than significant health risk impacts of a project. However, an ASI greater than 1 does not necessarily indicate significant health risk impacts. A Tier 2 HRA, which consists of a series of look-up values with additional input options to account for project-specific parameters, such as daily

exposure duration, total exposure duration, and a larger range of receptor distances than a Tier 1 HRA considers, can also be completed.

3.2.5 Existing Setting

3.2.5.1 Air Quality Study Area

As described in **Section 3.2.2.3**, the DSA is located within the SoCAB. The SoCAB is bounded on the west by the Pacific Ocean, on the northwest by the Santa Susana Mountains and Simi Hills, on the north by the San Gabriel Mountains and San Bernardino Mountains, on the east by the San Jacinto Mountains and Santa Rosa Mountains, and on the south by the San Diego County line. The SCAQMD has divided the region into 38 SRA in which air quality is monitored. The DSA predominantly falls within the Southeast Los Angeles County SRA with the underground portion of the alignment north of Whittier Boulevard extending into the South San Gabriel Valley SRA. A variety of air pollution sources, including vehicular traffic, commercial operations, and industrial operations contribute to regional air quality in the SoCAB.

3.2.5.2 Health Risk Study Area

The DSA contains a variety of sensitive receptors, including residences and work places, and locations where the elderly, children, or other groups with a greater susceptibility to adverse health effects could be located. These locations include schools, hospitals, convalescent homes, parks, and daycare centers. Sensitive receptor locations of greater susceptibility to adverse health effects identified in the DSA and within one-kilometer [3,280-feet] radius of construction area are listed in Table 6-1 of Appendix C.

3.2.5.3 Existing Conditions

3.2.5.3.1 Climate and Atmospheric Conditions

The climate of the SoCAB is determined primarily by terrain and geography. Regional meteorology is dominated by a persistent high-pressure zone over the eastern Pacific Ocean. Seasonal variations in strength and position of this pressure system cause changes in area weather patterns. Local climactic conditions are characterized by warm summers, mild winters, infrequent rainfall, moderate daytime on-shore breezes, and moderate humidity. The SoCAB's normally mild climate is occasionally interrupted by periods of hot weather, winter storms, and hot easterly Santa Ana winds. The SoCAB area has high levels of air pollution, particularly from June through September. Factors leading to high levels of pollution include a large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. These factors reduce pollutant dispersion, exacerbating elevated air pollution levels. Pollutant concentrations in the SoCAB vary by location, season and time of day.

Local climate conditions affect the dispersion, chemical reactions, and deposition of air pollutants throughout the region. Historically, the maximum summer temperatures in the DSA typically occur in August and average 89.7 degrees Fahrenheit (°F), the minimum winter temperatures typically occur in December and average 47.2°F, and annual rainfall averages 14.78 inches (WRCC, 2013).

3.2.5.3.2 Existing Air Quality Conditions

Air quality conditions for a project area are typically the result of meteorological conditions and existing emission sources in an area.

Monitoring Data – Criteria Pollutants

Air quality data from a monitoring station near the DSA is summarized in **Table 3.2-6**. This section used monitoring data from the south San Gabriel Valley station (Pico Rivera #2, CARB Number 70085) for most pollutants; however, the central Los Angeles station (North Main Street, CARB Number 70087) was used for pollutants not monitored in Pico Rivera. These stations best represent air quality conditions at the DSA; or, in the case of O_3, best represent air quality conditions for the region. See **Table 3.2-6** for the location of the monitoring stations.

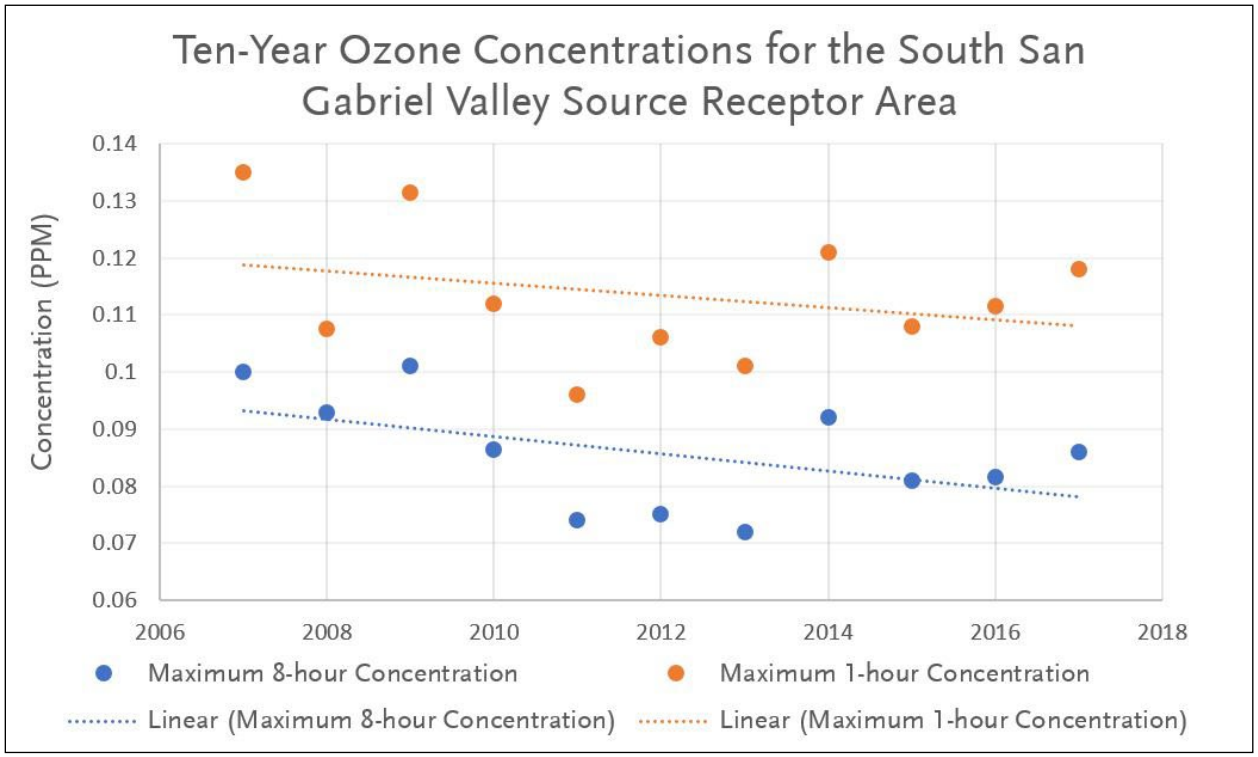
The 1-hour O_3 CAAQS was exceeded up to seven times a year during the period of 2017 through 2019 (see **Table 3.2-6**). Recorded 8-hour O_3 concentrations exceeded both the NAAQS and CAAQS up to nine times a year between 2017 and 2019. Substantial year-to-year variations in monitored O_3 levels are common. Although no clear trend in O_3 levels is demonstrated by monitoring results from 2017 through 2019, the ten-year trend shows a gradual decline in O_3 concentrations (see **Figure 3.2.1**).

Table 3.2-6. Summary of Pollutant Monitoring Data Near the DSA

Criteria Air Pollutant	Annual Monitoring Data			CAAQS	NAAQS
	2017	2018	2019		
Carbon Monoxide (CO)					
Pico Rivera					
Highest 1-hour concentration (ppmv)	2.5	2.0	1.9	20	35
Highest 8-hour concentration (ppmv)	2.0	1.5	1.4	9	9
Nitrogen Dioxide (NO_2)					
Pico Rivera					
National standard design value, 1-hour period (ppmv)	0.062	0.061	0.060	N/A	0.100
California designation value, 1-hour period (ppmv)	0.070	0.070	0.070	0.180	N/A
National standard design value, annual average (ppmv)	0.020	0.018	0.018	N/A	0.053
California designation value, annual average (ppmv)	0.019	0.019	0.019	0.03	N/A
Ozone (O_3)					
Pico Rivera					
Maximum concentration, 1-hour period, ppm	0.118	0.115	0.108	0.090	N/A
National standard design value, 8-hour period, ppm	0.076	0.075	0.075	N/A	0.07
California designation value, 8-hour period, ppm	0.083	0.083	0.083	0.07	N/A
Days above 1-hour CAAQS (0.09 ppmv)	7	3	5	N/A	N/A
Days above 8-hour CAAQS (0.07 ppmv)	9	5	8	N/A	N/A
Days above 8-hour NAAQS (0.07 ppmv)	9	5	7	N/A	N/A

Criteria Air Pollutant	Annual Monitoring Data			CAAQS	NAAQS
	2017	2018	2019		
Sulfur Dioxide (SO_2)					
Los Angeles – North Main Street					
Maximum concentration, 1-hour period (ppmv)	0.0057	0.0180	0.0101	0.25	N/A
99th percentile of 1-hour period (ppmv)	0.0030	0.0029	0.0028	N/A	0.075
Maximum concentration, 24-hour period (ppmv)	0.0015	0.0013	0.0014	0.04	N/A
Inhalable Particulate Matter (PM_{10})					
Los Angeles – North Main Street					
Maximum national concentration, 24-hour period, µg/m³	64.6	68.2	62.4	N/A	150
Maximum state concentration, 24-hour period, µg/m³	96.2	81.2	93.9	50	N/A
Maximum annual state concentration, 3-year average, µg/m³	27	34	34	20	N/A
Estimated number of days above 24-hour CAAQS (50 µg/m³)	*	31.8	*	N/A	N/A
Fine Particulate Matter ($PM_{2.5}$)					
Pico Rivera					
Maximum national concentration, 24-hour period, µg/m³	49.5	56.3	50.2	N/A	35
National 2013 annual standard design value, µg/m³	11.8	12.3	11.9	N/A	12
State annual designation value, µg/m³	12	12	12	12	N/A
Estimated number of days above 24-hour NAAQS (35 µg/m³)[1]	3.2	6.1	2.9	N/A	N/A

Source: CARB, 2019.
Notes:
1 Most PM2.5 measurements are taken every six days; therefore, the number of days over the 24-hour standard in any year is estimated mathematically.
Key:
* = there was insufficient data available throughout the year to determine the value; µg/m³ = micrograms per cubic meter;
CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppmv = parts per million by volume



Source: CARB, 2019.

Figure 3.2.1. Ten-Year Ozone Concentration Trends

The 24-hour and annual PM_{10} CAAQS were exceeded during the 2017 to 2019 monitoring period. The 24-hour and annual $PM_{2.5}$ NAAQS were also exceeded during the same period.

Intersection Analysis – CO Hot Spots

CO pollution can have localized impacts that require additional analysis. If traffic volumes and congestion along a roadway substantially change, localized concentrations of CO have the potential to adversely affect sensitive populations.

This study evaluated CO hot spots for the highest volume intersections for each Build Alternative. Under existing conditions, the highest peak hour-volume intersections in the DSA would be the intersection of Rosemead Boulevard and Washington Boulevard with 5,135 vehicles per hour, and Paramount Boulevard and Washington Boulevard with 5,089 vehicles per hour, which are both less than the BAAQMD screening threshold of 44,000 vehicles per hour, or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited. Traffic volumes less than the BAAQMD screening criteria would not be expected to result in a significant CO hot spots impact, however if traffic quantities were to exceed this screening criteria, a CO hot spots analysis, including a microscale analysis for CO concentrations, must be prepared. Although both BAAQMD and the SCAQMD have promulgated general methods for the evaluation of microscale CO concentrations, since the Project would occur within SCAQMD jurisdiction, the SCAQMD criteria would be followed if required. The SCAQMD requires that the following steps be used to determine if a localized CO impact exists (SCAQMD 1993):

- Determine "2042 without Project Conditions" ambient concentration of CO emissions
- Estimate CO emissions from the Project by modeling

- Add the "2042 without Project Conditions" ambient concentration level of CO emissions to those generated by the Project
- Compare the total Project impact to the state 1-hour and 8-hour CO standards
- If modeling indicates a CO hot spot could occur, determine if any sensitive receptors are located in the area
- Identify the level of CO emissions at sensitive receptors
- Compare the level of CO emissions at sensitive receptors to the state 1-hour and 8-hour CO standards

The maximum ambient CO concentrations for 1-hour and 8-hour averaging periods in the DSA are 2.5 parts per million by volume (ppmv) and 2.0 ppmv, respectively. These values represent the maximum concentrations observed during the past three years of sampling in the Project vicinity. Future background concentrations may be estimated by multiplying monitored maximum ambient background conditions by the ratio of future and current traffic volumes and the ratio of future to current emission factors.

Existing Operational Emissions (Criteria Pollutants)

This study compiled emissions inventories for the existing conditions baseline year. Identified potential operational emission sources include regional traffic, operation of LRVs, operation of LRV stations, evaporation of VOC from parked vehicle fuel tanks at LRV stations, operation of any MSFs, and operation of any bus routes.

Regional Highway Traffic Emissions

Emission modeling summarized in this section includes the entire vehicle fleet mix for the SoCAB used in EMFAC and includes vehicle types such as passenger cars, trucks, buses, and motorcycles. This analysis uses the EMFAC2017 model to generate emission factors for these vehicle types. To extrapolate the daily traffic data that was modeled to an annual value, an annualization value of 318 days per year was used (CDM Smith/AECOM 2019). This value was used to adjust traffic for reduced travel time on weekends and holidays. **Table 3.2-7** provides a summary of highway (regional) traffic emissions in the DSA.

Table 3.2-7. Existing Conditions Highway Traffic Emissions

Category	Emissions					
	VOC	CO	NOx	SO_2	PM_{10}[1]	$PM_{2.5}$[1]
Emission Factor (g/mi)[2]	0.097	1.891	0.353	0.004	0.349	0.098
Daily Emissions (lbs/day)[3]	101,659	1,983,240	370,334	3,922	365,674	102,897
Annual Emissions (tpy)[3]	16,164	315,335	58,883	624	58,142	16,361

Source: CDM Smith/AECOM JV, 2021.
Notes:
1 The emission factors for particulate matter (PM10 and PM2.5) include engine exhaust, tire wear, brake wear, and paved road dust.
2 The EMFAC emission factors are based on the SoCAB geographic area fleet mix and an average vehicle speed of 35 miles per hour (based on traffic modeling information).
3 Daily and annual emissions are based on a regional daily estimate of 475,761,000 VMT (CDM Smith/AECOM JV, 2021). An annualization factor of 318 days per year was used to estimate annual emissions.
Key:
CO = carbon monoxide; g/mi = grams per mile; lbs/day = pounds per day; NOx = nitrogen oxides; PM_{10} = inhalable particulate matter; $PM_{2.5}$ = fine particulate matter; SO_2 = sulfur dioxide; tpy = tons per year; VOC = volatile organic compounds

LRV Operation Emissions

No LRVs would operate in the DSA under 2042 without Project Conditions, and therefore baseline emissions from this source would be zero. Additionally, since LRVs would be powered by electricity, there would also be no direct emissions of criteria pollutants from this source under any future alternative. Thus, LRV-related emissions were not further considered for air quality impacts (see Section 3.7, Greenhouse Gas Emissions and the Eastside Transit Corridor Phase 2 Climate Change and Greenhouse Gases Impacts Report [Appendix H], which addresses potential climate-change impacts and indirect emissions of GHG from Project operations).

Station Operation Emissions

One at-grade LRV station located at the current alignment terminus at Atlantic Boulevard would operate in the DSA under 2042 without Project Conditions. However, since LRV stations would be powered by electricity, there would be no direct emissions of criteria pollutants from this source under 2042 without Project Conditions or the Build Alternatives. Thus, LRV station-related emissions were not further considered for air quality impacts (see Section 3.7, Greenhouse Gas Emissions and Appendix H, which addresses potential climate-change impacts and indirect emissions of GHG from Project operations).

Parking-Related Emissions

Under each Build Alternative, parking-related evaporative VOC emissions were analyzed for all Project-related parking facilities. Although parking at existing facilities would result in regional evaporative VOC emissions, the emissions from these existing sources would not substantially change as a result of the Project. Thus, parking-related emissions were not analyzed for existing conditions.

MSF Emissions

Under each Build Alternative, MSF-related emissions were analyzed for each Project MSF site option. No MSFs currently operate in the DSA. Thus, MSF-related emissions were not analyzed for existing conditions.

Bus Operations Emissions

No bus routes were projected to be substantially adjusted or altered due to implementation of the Project or its alternatives; therefore, emissions related to local bus routes were not considered in the estimated emissions under 2042 without Project Conditions or the Build Alternatives.

Total Operational Emissions (Criteria Pollutants)

Table 3.2-8 summarizes the total DSA operating emissions under existing conditions.

Table 3.2-8. Existing Conditions Total Operational Emissions

Emission Source	Daily Emissions (lbs/day)					
	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$
Regional Traffic	101,659	1,983,240	370,334	3,922	365,674	102,897
Total	101,659	1,983,240	370,334	3,922	365,674	102,897
Annual Emissions (tpy)						
Regional traffic	16,164	315,335	58,883	624	58,142	16,361
Total	16,164	315,335	58,883	624	58,142	16,361

Source: CDM Smith/AECOM JV, 2019.
Key:
CO = carbon monoxide; g/mi = grams per mile; lbs/day = pounds per day; NOx = nitrogen oxides; PM_{10} = inhalable particulate matter; $PM_{2.5}$ = fine particulate matter; SO_2 = sulfur dioxide; tpy = tons per year; VOC = volatile organic compounds

3.2.5.3.3 Existing Health Risk Conditions

In May 2015, the SCAQMD released the Final Multiple Air Toxics Exposure Study IV (MATES IV), which was a comprehensive monitoring and evaluation study of ambient TAC levels in the SoCAB. MATES IV was a continuation of previous air toxics studies in the SoCAB, characterizing ambient risk levels across the region (SCAQMD 2015a).

Compared to the previous MATES III study, MATES IV found a decreasing risk from air toxics exposure, with population weighted risk levels down 57 percent in the MATES IV study period (2012) as compared to the MATES III study period (2005). However, the study determined that risks are still unacceptable, and higher near major sources of emissions, such as ports or major transportation corridors. Particulate exhaust from diesel engines (DPM) was the predominant TAC contributing to carcinogenic risk in the SoCAB, representing 80 percent of carcinogenic health risks. MATES IV underscores the continued need for focused regional emission reduction efforts, particularly for DPM.

The MATES IV study originally estimated population-weighted average individual carcinogenic risk throughout the SoCAB to be approximately 418 in one million (SCAQMD, 2015b). However, as the study was being prepared, the California Office of Environmental Health Hazard Assessment (OEHHA) adopted revised methods for estimating carcinogenic risk that more accurately accounted for age-based risk susceptibility and breathing rates. Taking those factors into consideration, population-weighted average individual carcinogenic risk was calculated to be 1,023 in one million (nearly 2.45 times higher than initially estimated in the MATES IV study). More heavily urbanized portions of the basin have higher average risks than less urban areas. The highest estimated individual

carcinogenic risk identified in MATES IV study areas in the immediate vicinity of the Project was estimated at 1,671 in one million.

3.2.6 Impact Evaluation

3.2.6.1 Impact AQ-1: Air Quality Plan

Impact AQ-1: Would a Build Alternative conflict with or obstruct implementation of the applicable air quality plan?

3.2.6.1.1 Alternative 1 Washington

The applicable air quality plan is the SCAQMD 2016 AQMP, prepared in support of the SIP and approved by CARB in April 2017. As indicated in the SCAQMD Handbook, a project is consistent with the AQMP if:

- The project does not result in an increase to the frequency or severity of an existing air quality violation;
- The project does not cause or contribute to new air quality violations;
- The project does not delay the timely attainment of the air quality standards or the interim emission reductions specified in the AQMP;
- The project is consistent with the population and employment growth projections upon which the AQMP forecasted emission levels are based;
- Project development is consistent with AQMP land use policies; and
- The Project is consistent with the applicable mitigation measures assumed in preparation of the AQMP.

The SCAQMD 2016 AQMP relied on transportation, land use, and growth assumptions included in SCAG's 2016-2040 RTP/SCS in the development of its growth and regional air quality projections. In both SCAG's current 2020-2045 RTP/SCS and the 2016-2040 RTP/SCS, the DSA was identified as a priority growth area for urban transit and the Project was identified as a major transit capital project. The Project was incorporated into regional growth projections and transportation strategies in both the 2020-2045 RTP/SCS and 2016-2040 RTP/SCS.

Operational and Construction Impacts

Under Alternative 1, the Metro L (Gold) Line would be extended from a relocated/reconfigured Atlantic station in East Los Angeles approximately 9.0 miles east to the city of Whittier. This alternative would involve the construction and subsequent operation of seven stations (one relocated/reconfigured and six new) and other ancillary facilities and an MSF (see **Section 3.2.6.1.4).** The Project would not introduce new population or housing growth in the DSA and any additional employment at Metro operated facilities would not disproportionately contribute to the growth projections in the 2020-2045 RTP/SCS or 2016-2040 RTP/SCS. The construction and subsequent operation of Alternative 1 would result in a reduction in regional passenger vehicle VMT of approximately 3,180,000 miles annually.

Table 3.2-9, **Table 3.2-10**, and **Table 3.2-15** present the regional and localized emissions under Alternative 1 with each MSF site option. As shown, emissions would remain below applicable SCAQMD thresholds for all criteria pollutants during both construction and operation of the Project and would therefore not contribute to new air quality violations or an increase in the frequency or severity of existing air quality violations. Under Alternative 1, regional passenger vehicle VMT and associated criteria pollutants would be reduced, consistent with the VMT-reducing objectives of the AQMP. The Project would not delay the timely attainment of air quality standards or interim emission reductions specified in the AQMP.

Therefore, operation and construction of Alternative 1 would not conflict with or obstruct implementation of the applicable air quality plan and impacts with respect to consistency with the applicable air quality plan would be less than significant.

Design Options

Atlantic/Pomona Station Option

As with the base Alternative 1, implementation of Alternative 1 with the Atlantic/Pomona Station Option would not introduce new population or housing growth, disproportionately contribute to the growth projections, or delay the timely attainment of air quality standards or interim emission reductions specified in the AQMP. Therefore, operation and construction of Alternative 1 with the Atlantic/Pomona Station Option would not conflict with or obstruct implementation of the applicable air quality plan and impacts with respect to consistency with the applicable air quality plan would be less than significant.

Montebello At-Grade Option

As with the base Alternative 1, implementation of Alternative 1 with the Montebello At-Grade Option would not introduce new population or housing growth, disproportionately contribute to the growth projections, or delay the timely attainment of air quality standards or interim emission reductions specified in the AQMP. Therefore, operation and construction of Alternative 1 with the Montebello At-Grade Option would not conflict with or obstruct implementation of the applicable air quality plan and impacts with respect to consistency with the applicable air quality plan would be less than significant.

3.2.6.1.2 Alternative 2 Atlantic to Commerce/Citadel IOS

Operational and Construction Impacts

Base Alternative and Design Option

Operation and construction of the base Alternative 2 or Alternative 2 with the Atlantic/Pomona Station Option would not introduce new population or housing growth, disproportionately contribute to the growth projections in the 2020-2045 RTP/SCS or 2016-2040 RTP/SCS, or delay the timely attainment of air quality standards or interim emission reductions specified in the AQMP. As shown in **Table 3.2-11**, **Table 3.2-12**, and **Table 3.2-16**, emissions would remain below applicable SCAQMD thresholds for all criteria pollutants during both construction and operation of the Project and would therefore not contribute to new air quality violations or an increase in the frequency or severity of existing air quality violations. The construction and subsequent operation of Alternative 2 would result in a reduction to regional passenger vehicle VMT of approximately 1,590,000 miles annually. The

reduction in regional passenger vehicle VMT and associated criteria pollutants would be consistent with the VMT-reducing objectives of the AQMP. Therefore, operation and construction of the base Alternative 2 or Alternative 2 with the Atlantic/Pomona Station Option would not conflict with or obstruct implementation of the applicable air quality plan and impacts with respect to consistency with the applicable air quality plan would be less than significant.

3.2.6.1.3 Alternative 3 Atlantic to Greenwood IOS

Operational and Construction Impacts

Base Alternative and Design Options

Operation and construction of the base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option would not introduce new population or housing growth, disproportionately contribute to the growth projections in the 2020-2045 RTP/SCS or 2016-2040 RTP/SCS, or delay the timely attainment of air quality standards or interim emission reductions specified in the AQMP. As shown in **Table 3.2-13**, **Table 3.2-14**, **Table 3.2-17**, emissions would remain below applicable SCAQMD thresholds for all criteria pollutants during both construction and operation of the Project and would therefore not contribute to new air quality violations or an increase in the frequency or severity of existing air quality violations. The construction and subsequent operation of Alternative 3 would result in a reduction to regional passenger vehicle VMT of approximately 2,544,000 miles annually. The reduction in regional passenger vehicle VMT and associated criteria pollutants would be consistent with the VMT-reducing objectives of the AQMP. Therefore, operation and construction of the base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option would not conflict with or obstruct implementation of the applicable air quality plan and impacts with respect to consistency with the applicable air quality plan would be less than significant.

3.2.6.1.4 Maintenance and Storage Facilities

Operational and Construction Impacts

MSF Site Options and Design Option

The construction and subsequent operation of the Project alternatives with either the Commerce MSF site option, the Montebello MSF site option, or the Montebello MSF At-Grade Option would not conflict with or obstruct implementation of the applicable air quality plan and would result in reductions to regional VMT. Operation and construction of an MSF is essential in maintaining a reliable light rail system and was included in the assessment of the Project's consistency with the applicable air quality plan. Therefore, operation and construction of Commerce MSF site option, the Montebello MSF site option, or the Montebello MSF At-Grade Option would not conflict with or obstruct implementation of the applicable air quality plan and impacts with respect to consistency with the applicable air quality plan would be less than significant.

3.2.6.2 Impact AQ-2: Regional Criteria Pollutant Emissions

Impact AQ-2: Would a Build Alternative 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?

3.2.6.2.1 Alternative 1 Washington

Operational Impacts

Operational criteria air pollutant emission sources under Alternative 1 include exhaust from motor vehicle VMT in the vicinity of the Project, parking facility maintenance, parked vehicle fuel evaporation, and MSF operations which are essential in maintaining a reliable light rail system. Emissions associated with exhaust from motor vehicle VMT, which would be reduced under Alternative 1 as compared to 2042 without Project Conditions, were estimated to compare against the projected VMT-related emissions under 2042 without Project Conditions to properly account for emissions reductions associated with the Project. Emissions from powering the electric LRT vehicles were not assumed to occur locally and therefore, were not estimated. As presented in **Table 3.2-9**, there would be a net reduction in operational regional emissions of CO, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ under Alternative 1. While there would be a net increase in emissions of VOC from operation of Alternative 1, those emissions would be below the SCAQMD threshold and impacts with respect to operational regional criteria pollutant emissions would be less than significant. The emission reductions would be driven by the reduction in motor vehicle VMT associated with ridership of the Metro L (Gold) Line extension.

Table 3.2-9. Alternative 1 Operational Regional Criteria Pollutant Emissions

Emission Source	Daily Emissions (lbs/day)					
	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$
Alternative 1 (2042)						
Regional Traffic	34,734	1,005,436	154,406	3,180	445,297	121,800
MSF Operations – Commerce Site Option[1]	4.0	<0.1	<0.1	<0.1	<0.1	<0.1
MSF Operations – Montebello Site Option[1]	4.0	<0.1	<0.1	<0.1	<0.1	<0.1
Parking Facility Maintenance and Parked Vehicle Fuel Evaporation	0.5	--	--	--	--	--
Maximum Total[2]	34,738	1,005,436	154,406	3,180	445,297	121,800
2042 without Project Conditions						
Regional Traffic	34,734	1,005,454	154,409	3,180	445,304	121,803
Maximum Total	34,734	1,005,454	154,409	3,180	445,304	121,803
Alternative 1 (2042) compared to 2042 without Project Conditions						
Net Project Emissions[3]	4	(17)	(3)	(<1)	(8)	(2)
SCAQMD Threshold	55	550	55	150	150	55
Exceeds Threshold	No	No	No	No	No	No

Source: CDM Smith/AECOM JV, 2021.
Notes:
1 Only one MSF site option would be selected.
2 The maximum total shows the maximum peak daily emissions associated with implementation of either the Commerce or Montebello MSF site options.
3 Emission reductions (beneficial impacts) are shown in parentheses.
Key:
CO = carbon monoxide; g/mi = grams per mile; lbs/day = pounds per day; NOx = nitrogen oxides; PM_{10} = inhalable particulate matter; $PM_{2.5}$ = fine particulate matter; SO_2 = sulfur dioxide; tpy = tons per year; VOC = volatile organic compounds

Design Options

Atlantic/Pomona Station Option

The operation of the base Alternative 1 would result in a net reduction in operational regional criteria air pollutant emissions of CO, NOx, SO_2, PM_{10}, and $PM_{2.5}$ and a small net increase in operational regional criteria air pollutant emissions of VOC, and impacts with respect to operational regional criteria pollutant emissions would be less than significant. Implementation of Alternative 1 with the Atlantic/Pomona Station Option would result in no meaningful change to operational regional criteria air pollutant emissions as compared to the base Alternative 1 (identified in **Table 3.2-9**). Therefore, impacts of Alternative 1 with the Atlantic/Pomona Station Option with respect to operational regional criteria pollutant emissions would be less than significant.

Montebello At-Grade Option

The operation of the base Alternative 1 would result in a net reduction in operational regional criteria air pollutant emissions of CO, NOx, SO_2, PM_{10}, and $PM_{2.5}$ and a small net increase in operational regional criteria air pollutant emissions of VOC, and impacts with respect to operational regional

criteria pollutant emissions would be less than significant. Implementation of Alternative 1 with the Montebello At-Grade Option would result in no meaningful change to operational regional criteria air pollutant emissions as compared to the base Alternative 1 (identified in **Table 3.2-9**). Therefore, impacts from the operation of Alternative 1 with the Montebello At-Grade Option with respect to operational regional criteria pollutant emissions would be less than significant.

Construction Impacts

Construction criteria air pollutant emission sources under Alternative 1 include exhaust from construction worker motor vehicles traveling to and from the Project, exhaust from delivery and hauling trucks traveling to and from the Project construction site, exhaust from heavy-duty construction equipment operating on-site, and fugitive construction emissions. As presented in **Table 3.2-10**, construction of Alternative 1 with construction of either MSF site option would result in peak daily regional emissions that would be less than the SCAQMD regional significance thresholds and impacts with respect to construction regional criteria pollutant emissions would be less than significant.

Table 3.2-10. Alternative 1 Construction Regional Criteria Pollutant Emissions

Emission Source	Daily Emissions (lbs/day)					
	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
Montebello Segment Only – Base Alternative 1 and Design Option[1]						
Base Alternative 1 (aerial)	1.5	12.2	11.9	<0.1	1.0	0.6
At-Grade Option	1.5	15.2	13.2	<0.1	2.3	1.3
MSF Site Options Only[2]						
Commerce MSF[2]	6.7	15.3	11.2	<0.1	1.9	0.8
Montebello MSF[2]	6.7	15.3	11.2	<0.1	1.9	0.8
Alternative 1 Overall Construction (including all Project elements and an MSF)[3]						
Total[3]	21.2	130.6	89.4	0.3	11.7	6.4
SCAQMD Threshold	75	550	100	150	150	55
Exceeds Threshold	No	No	No	No	No	No

Source: CDM Smith/AECOM JV, 2021.
Notes:
1 Peak daily emissions associated with construction of the Montebello segment of the alignment.
2 Only one MSF site option would be selected.
3 Totals represent the peak day (maximum overlapping) construction emissions for all Project-elements, including an MSF, the greater of any staging area options, and the greater of any design options or their corresponding portion of the base Alternative. See Attachment A for daily construction emissions associated with each Project element.
Key:
CO = carbon monoxide; g/mi = grams per mile; lbs/day = pounds per day; NO_X = nitrogen oxides; PM_{10} = inhalable particulate matter; $PM_{2.5}$ = fine particulate matter; SO_2 = sulfur dioxide; tpy = tons per year; VOC = volatile organic compounds

The emissions presented in **Table 3.2-10**, **Table 3.2-12**, and **Table 3.2-14** were estimated using default CalEEMod emission factors with no mitigation applied. Reductions in fugitive dust emissions (affecting PM_{10} and $PM_{2.5}$ emissions) associated with three-times per day watering as required by SCAMQD Rule 403 were included in the emission calculations. SCAQMD thresholds would not be exceeded by construction activities under Alternative 1. Nonetheless, additional construction BMPs set forth in Metro's Green Construction Policy would further reduce construction-related emissions

beyond what is presented. Since certain construction details have not yet been determined, the following BMPs were not accounted for in the construction emission estimates. These BMPs include, but are not limited to: the required use of renewable diesel fuel in construction equipment; the required use of Tier 4 off-road emission standard equipment as regionally available; the required use of USEPA 2007 on-road emission standard compliant trucks; the limitation of vehicle idling to 5 minutes or fewer when not in use; and the use of grid-power in lieu of diesel generators where available. In particular, the use of Tier 4 off-road emission standard equipment would result in reduced emissions of NOx, since the Tier 3 (next highest after Tier 4) emission standard is an order of magnitude higher than the Tier 4 standard (i.e., use of exclusively Tier 4 equipment could reduce direct NOx emissions by up to 90 percent).

Design Options

Atlantic/Pomona Station Option

Implementation of Alternative 1 with the Atlantic/Pomona Station Option would result in daily construction regional criteria pollutant emissions that would be the same as those of the base Alternative 1. While the Atlantic/Pomona Station Option would be located at a different position along the alignment and approximately 50 additional feet of underground alignment would be required to complete its construction, that excavation would be completed with the electrically powered TBM and would not result in a change in project peak day emissions. Moreover, the magnitude of excavation activity which would be required to implement the Atlantic/Pomona Station Option would be essentially the same as that required under the base Alternative 1 for the excavation of the TBM receiving pit and underground-to-at-grade transition of the alignment. Therefore, construction of Alternative 1 with the Atlantic/Pomona Station Option would result in daily construction regional emissions that would be less than the SCAQMD thresholds and impacts with respect to construction regional criteria pollutant emissions would be less than significant.

Montebello At-Grade Option

Implementation of Alternative 1 with the Montebello At-Grade Option would result in daily construction regional criteria pollutant emissions that would be greater than those of the base Alternative 1 as presented in **Table 3.2-10**. Construction of the at-grade segment in Montebello under the Montebello At-Grade Option has a higher peak day emission than an aerial configuration at this location due to a larger count of heavy-duty equipment needed during the peak day. This additional equipment is associated with the greater amount of roadway demolition, modification, or reconstruction necessary for the at-grade construction as compared to aerial construction. However, construction of the Montebello At-Grade Option is not expected to overlap with other Project elements to contribute to overall peak day regional emissions of VOC, NO_X, CO, SO_2, PM_{10}, or $PM_{2.5}$. Therefore, as presented in **Table 3.2-10**, construction of Alternative 1 with the Montebello At-Grade Option would result in daily construction regional emissions that would be less than the SCAQMD thresholds and impacts with respect to construction regional criteria pollutant emissions would be less than significant.

3.2.6.2.2 Alternative 2 Atlantic to Commerce/Citadel IOS

Operational Impacts

Base Alternative and Design Option

The operation of the base Alternative 2 or Alternative 2 with Atlantic/Pomona Station Option would result in a net reduction in operational regional criteria air pollutant emissions. As presented in **Table 3.2-11**, there would be a net reduction in operational regional emissions of CO, NO_x, SO_2, PM_{10}, and $PM_{2.5}$ and a slight increase in emissions of VOC under the base Alternative 2. However, emissions of VOC would be less than the SCAQMD threshold and impacts with respect to operational regional criteria pollutant emissions would be less than significant. Implementation of Alternative 2 with the Atlantic/Pomona Station Option would result in no meaningful change to operational regional criteria air pollutant emissions as compared to the base Alternative 2. Emission reductions would be driven by the reduction in motor vehicle VMT associated with ridership of the Metro L (Gold) Line extension. Therefore, impacts of the base Alternative 2 or Alternative 2 with the Atlantic/Pomona Station Option with respect to operational regional criteria pollutant emissions would be less than significant.

Table 3.2-11. Build Alternative 2 Operational Regional Criteria Pollutant Emissions

Emission Source	Daily Emissions (lbs/day)					
	VOC	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$
Alternative 2 (2042)						
Regional Traffic	34,734	1,005,445	154,407	3,180	445,301	121,802
MSF Operations – Commerce Site Option	4.0	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Total	34,738	1,005,445	154,407	3,180	445,301	121,802
2042 without Project Conditions						
Regional Traffic	34,734	1,005,454	154,409	3,180	445,304	121,803
Maximum Total	34,734	1,005,454	154,409	3,180	445,304	121,803
Alternative 2 (2042) compared to 2042 without Project Conditions						
Net Project Emissions[1]	4	(9)	(1)	(<1)	(4)	(1)
SCAQMD Threshold	55	550	55	150	150	55
Exceeds Threshold	No	No	No	No	No	No

Source: CDM Smith/AECOM JV, 2021.
Notes:
1 Emission reduction (beneficial impacts) are shown in parentheses.
Key:
CO = carbon monoxide; g/mi = grams per mile; lbs/day = pounds per day; NOx = nitrogen oxides; PM_{10} = inhalable particulate matter; $PM_{2.5}$ = fine particulate matter; SO_2 = sulfur dioxide; tpy = tons per year; VOC = volatile organic compounds

Construction Impacts

Base Alternative and Design Option

As presented in **Table 3.2-12**, construction of the base Alternative 2 would result in peak daily regional emissions that would be less than the SCAQMD regional significance thresholds. Implementation of Alternative 2 with the Atlantic/Pomona Station Option would result in daily construction regional criteria pollutant emissions that would be the same as those of the base Alternative 2. Additional construction BMPs set forth in Metro's Green Construction Policy would further reduce construction-related emissions beyond what is presented. Therefore, construction of the base Alternative 2 or Alternative 2 with the Atlantic/Pomona Station Option would result in daily construction regional emissions that would be less than the SCAQMD thresholds and impacts with respect to construction regional criteria pollutant emissions would be less than significant.

Table 3.2-12. Alternative 2 Construction Regional Criteria Pollutant Emissions

Emission Source	Daily Emissions (lbs/day)					
	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$
MSF Site Options Only						
Commerce MSF	6.7	15.3	11.2	<0.1	1.9	0.8
Alternative 2 Overall Construction (including all Project elements and an MSF)[1]						
Maximum Total[1]	11.2	93.5	81.8	0.2	7.3	4.1
SCAQMD Threshold	75	550	100	150	150	55
Exceeds Threshold	No	No	No	No	No	No

Source: CDM Smith/AECOM JV, 2021.
Notes:
1 Totals represent the peak day (maximum overlapping) construction emissions for all Project-elements including the MSF and the greater of any staging area options. See Attachment A for daily construction emissions associated with each Project element.
Key:
CO = carbon monoxide; g/mi = grams per mile; lbs/day = pounds per day; NOx = nitrogen oxides; PM_{10} = inhalable particulate matter; $PM_{2.5}$ = fine particulate matter; SO_2 = sulfur dioxide; tpy = tons per year; VOC = volatile organic compounds

3.2.6.2.3 Alternative 3 Atlantic to Greenwood IOS

Operational Impacts

Base Alternative with Design Option

The operation of the base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option would result in a net reduction in operational regional criteria air pollutant emissions. As presented in **Table 3.2-13**, there would be a net reduction in operational regional emissions of CO, NOx, SO_2, PM_{10}, and $PM_{2.5}$ and a slight increase in emissions of VOC under the base Alternative 3. However, emissions of VOC would be less than the SCAQMD threshold and impacts with respect to operational regional criteria pollutant emissions would be less than significant. Implementation of Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option would result in no meaningful change to operational regional criteria air pollutant emissions as compared to the base Alternative 3. Emission reductions would be driven by the reduction in motor vehicle VMT associated with ridership of the Metro L (Gold) Line extension.

Therefore, impacts of the base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option with respect to operational regional criteria pollutant emissions would be less than significant.

Table 3.2-13. Build Alternative 3 Operational Regional Criteria Pollutant Emissions

Emission Source	Daily Emissions (lbs/day)					
	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$
Build Alternative 3 (2042)						
Regional Traffic	34,734	1,005,440	154,406	3,180	445,298	121,801
MSF Operations – Commerce Site Option[1]	4.0	<0.1	<0.1	<0.1	<0.1	<0.1
MSF Operations – Montebello Site Option[1]	4.0	<0.1	<0.1	<0.1	<0.1	<0.1
Parking Facility Maintenance and Parked Vehicle Fuel Evaporation	0.1	--	--	--	--	--
Maximum Total[2]	34,738	1,005,440	154,406	3,180	445,298	121,801
2042 without Project Conditions						
Regional Traffic	34,734	1,005,454	154,409	3,180	445,304	121,803
Maximum Total	34,734	1,005,454	154,409	3,180	445,304	121,803
Build Alternative 3 (2042) compared to 2042 without Project Conditions						
Net Project Emissions[3]	4	(14)	(2)	(0)	(6)	(2)
SCAQMD Threshold	55	550	55	150	150	55
Exceeds Threshold	No	No	No	No	No	No

Source: CDM Smith/AECOM JV, 2021.
Notes:
1 Only one MSF site option would be selected.
2 The maximum total shows the maximum peak daily emissions associated with implementation of either the Commerce or Montebello MSF site options.
3 Emission reductions (beneficial impacts) are shown in parentheses.
Key:
CO = carbon monoxide; g/mi = grams per mile; lbs/day = pounds per day; NOx = nitrogen oxides; PM_{10} = inhalable particulate matter; $PM_{2.5}$ = fine particulate matter; SO_2 = sulfur dioxide; tpy = tons per year; VOC = volatile organic compounds

Construction Impacts

Base Alternative and Design Options

As presented in **Table 3.2-14**, construction of the base Alternative 3 would result in peak daily regional emissions that would be less than the SCAQMD regional significance thresholds. Implementation of Alternative 3 with the Atlantic/Pomona Station Option would result in daily construction regional criteria pollutant emissions that would be the same as those of the base Alternative 3. Implementation of Alternative 3 with the Montebello At-Grade Option would result in daily construction regional criteria pollutant emissions that would be greater than those of the base Alternative 3 due to a larger count of heavy-duty equipment needed during the peak day to construct the at-grade segment. This additional equipment is associated with the greater amount of roadway demolition, modification, or reconstruction necessary for the at-grade construction as compared to aerial construction. However,

construction of the Montebello At-Grade Option is not expected to overlap with other project elements to contribute to overall peak day regional emissions of VOC, NO_x, CO, SO_2, PM_{10}, or $PM_{2.5}$. Additional construction BMPs set forth in Metro's Green Construction Policy would further reduce construction-related emissions beyond what is presented. Therefore, construction of the base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option would result in daily construction regional emissions that would be less than the SCAQMD thresholds and impacts with respect to construction regional criteria pollutant emissions would be less than significant.

Table 3.2-14. Build Alternative 3 Construction Regional Criteria Pollutant Emissions

Emission Source	Daily Emissions (lbs/day)					
	VOC	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$
Montebello Segment Only – Base Alternative 3 and Design Option[1]						
Base Alternative (aerial)	1.5	12.2	11.9	<0.1	1.0	0.6
At-Grade Option	1.5	15.2	13.2	<0.1	2.3	1.3
MSF Site Options Only[2]						
Commerce MSF	6.7	15.3	11.2	<0.1	1.9	0.8
Montebello MSF	6.7	15.3	11.2	<0.1	1.9	0.8
Alternative 3 Overall Construction (including all Project elements and an MSF)						
Maximum Total[3]	15.1	96.5	81.8	0.2	7.3	4.1
SCAQMD Threshold	75	550	100	150	150	55
Exceeds Threshold	No	No	No	No	No	No

Source: CDM Smith/AECOM JV, 2021.
Notes:
1 Peak daily emissions associated with construction of the Montebello segment of the alignment.
2 Only one MSF site option would be selected.
3 Totals represent the peak day (maximum overlapping) construction emissions for all Project-elements including an MSF, the greater of any staging area options, and the greater of any design options or their corresponding portion of the base Alternative. See Attachment A for daily construction emissions associated with each Project element.
Key:
CO = carbon monoxide; g/mi = grams per mile; lbs/day = pounds per day; NOx = nitrogen oxides; PM_{10} = inhalable particulate matter; $PM_{2.5}$ = fine particulate matter; SO_2 = sulfur dioxide; tpy = tons per year; VOC = volatile organic compounds

3.2.6.2.4 Maintenance and Storage Facilities

Operational Impacts

MSF Site Options and Design Option

As described above, the operation of the Project, including the operation of the Commerce MSF site option, the Montebello MSF site option, or the Montebello MSF At-Grade Option, would not result in regional criteria pollutant emissions that would exceed SCAQMD thresholds. Operation of an MSF is essential in maintaining a reliable light rail system and MSF emissions were included in the assessment of regional criteria pollutant emissions. Therefore, operation of the Commerce MSF site option, the Montebello MSF site option, or the Montebello MSF At-Grade Option would not result in regional criteria pollutant emissions that would exceed SCAQMD thresholds and impacts with respect to regional criteria pollutant emissions would be less than significant.

Construction Impacts

MSF Site Options and Design Option

As described above, the construction of the Project, including the construction of the Commerce MSF site option, the Montebello MSF site option, or the Montebello MSF At-Grade Option would not result in regional criteria pollutant emissions that would exceed SCAQMD thresholds and impacts with respect to regional criteria pollutant emissions would be less than significant.

3.2.6.3 Impact AQ-3: Localized Pollutant Concentrations

Impact AQ-3: Would a Build Alternative expose sensitive receptors to substantial pollutant concentrations?

3.2.6.3.1 Alternative 1 Washington

Operational Impacts

Operational criteria air pollutant emission sources under Alternative 1 with the potential to result in substantial pollutant concentrations include exhaust from motor vehicle VMT. Within the Project's urban setting, the primary localized operational pollutant of concern is CO.

The highest CO concentrations are typically found close to congested roadways. These CO points of peak concentrations, known as CO Hot Spots, are a function of roadway congestion and hourly traffic volumes along local roadway segments, particularly at intersections. Although the Project would reduce regional VMT, and therefore reduce traffic volumes at roadway intersections in the DSA, certain local roadway intersections would see increased traffic volumes as a result of the Project. The highest-volume intersections identified in the DSA under Alternative 1 are the intersection of Pioneer Boulevard and Washington Boulevard with 6,070 vehicles per hour, and the intersection of Norwalk Boulevard and Washington Boulevard with 6,046 vehicles per hour. In the 2017 update to the *BAAQMD CEQA Guidelines*, BAAQMD indicated that intersections with traffic volumes less than 44,000 vehicles per hour, or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadways), would not result in substantial CO concentrations. Since the highest-volume intersections identified in the DSA would have traffic volumes below that of the BAAQMD screening threshold, the operation of Alternative 1 would not expose sensitive receptors to substantial CO concentrations and impacts with respect to operational localized criteria pollutant emissions would be less than significant.

Design Options

Atlantic/Pomona Station Option

Operation of Alternative 1 with the Atlantic/Pomona Station Option would result in no meaningful change to operational localized criteria air pollutant emissions as compared to the base Alternative 1. Since the highest-volume intersections identified in the DSA would have traffic volumes below that of the BAAQMD screening threshold, the operation of Alternative 1 with the Atlantic/Pomona Station

Option would not expose sensitive receptors to substantial CO concentrations and impacts with respect to operational localized criteria pollutant emissions would be less than significant.

Montebello At-Grade Option

Operation of Alternative 1 with the Montebello At-Grade Option would result in no meaningful change to operational localized criteria air pollutant emissions as compared to the base Alternative 1. Since the highest-volume intersections identified in the DSA would have traffic volumes below that of the BAAQMD screening threshold, the operation of Alternative 1 with the Montebello At-Grade Option would not expose sensitive receptors to substantial CO concentrations and impacts with respect to operational localized criteria pollutant emissions would be less than significant.

Construction Impacts

Construction criteria air pollutant emission sources under Alternative 1 with the potential to result in substantial pollutant concentrations include exhaust from heavy-duty construction equipment operating on-site and fugitive construction emissions. Consistent with SCAQMD LST guidance, off-site emissions, such as those from worker vehicle and hauling or delivery vehicle exhaust, would be distributed over the DSA and were not considered in the evaluation of localized impacts.

As shown in **Table 3.2-15**, construction of Alternative 1 would result in peak daily on-site emissions that would be less than the SCAQMD LSTs and impacts with respect to construction localized criteria pollutant concentrations would be less than significant.

Table 3.2-15. Build Alternative 1 Construction Localized Emissions

Emission Source	Daily On-Site Emissions (lbs/day)			
	CO	NO_x	PM_{10}	$PM_{2.5}$
Montebello Segment – Base Alternative and Design Option[1]				
Base Alternative 1 (aerial)	9.7	11.1	0.5	0.4
At-Grade Option	13.6	11.4	1.8	1.1
MSF Site Options[2]				
Commerce MSF	12.3	10.4	1.1	0.5
Montebello MSF	12.3	10.4	1.1	0.5
Alternative 1 Overall Construction				
Maximum Total[3]	107.8	82.3	6.6	4.8
SCAQMD LST[4]	1,480	172	14.0	7.0
Exceeds Threshold	No	No	No	No

Source: CDM Smith/AECOM JV, 2021.
Notes:
1 Localized emissions associated with construction of the Montebello segment of the alignment.
2 Only one MSF site option would be selected.
3 Totals represent the maximum overlapping construction emissions for all Project-elements that may overlap the overall construction peak day, including staging area options and the Montebello At-Grade Option that has greater localized construction emissions than the base Alternative 1. See Attachment D for hot spots calculations.
4 Thresholds are for the Southeast Los Angeles County SRA assuming a 25-meter receptor distance and a 5-acre site.
Key:
CO = carbon monoxide; lbs/day = pounds per day; LST = localized significance threshold; MSF = maintenance and storage facility; NO_x = nitrogen oxides; $PM_{2.5}$ = fine particulate matter; PM_{10} = inhalable particulate matter; SRA = source receptor area

Design Options

Atlantic/Pomona Station Option

Implementation of Alternative 1 with the Atlantic/Pomona Station Option would result in daily construction localized criteria pollutant emissions that would be the same as those of the base Alternative 1. While the Atlantic/Pomona Station Option would be located at a different position along the alignment and approximately 50 additional feet of underground alignment would be required to complete its construction, that excavation would be completed with the electrically powered TBM and would not result in a change in project peak day emissions. Moreover, the magnitude of excavation activity which would be required to implement the Atlantic/Pomona Station Option would be essentially the same as that required under the base Alternative 1 for the excavation of the TBM receiving pit and underground-to-at-grade transition of the alignment. Therefore, construction of Alternative 1 with the Atlantic/Pomona Station Option would result in daily construction localized emissions that would be less than the SCAQMD thresholds and impacts with respect to construction localized criteria pollutant emissions would be less than significant.

Montebello At-Grade Option

Implementation of the Montebello At-Grade Option would result in localized criteria pollutant emissions that would be greater than those of base Alternative 1. Similar to construction of the base Alternative 1, the Montebello At-Grade Option would be expected to overlap with other project elements to contribute to overall peak day regional emissions of NO_X, CO, PM_{10}, or $PM_{2.5}$. However, as presented in **Table 3.2-15**, construction of Alternative 1 with the Montebello At-Grade Option would result in construction localized emissions that would be less than the SCAQMD thresholds and impacts with respect to construction localized criteria pollutant concentrations would be less than significant.

3.2.6.3.2 Alternative 2 Atlantic to Commerce/Citadel IOS

Operational Impacts

Operational criteria air pollutant emission sources under the base Alternative 2 or Alternative 2 with the Atlantic/Pomona Station Option with the potential to result in substantial pollutant concentrations include exhaust from motor vehicle VMT. Within the Project's urban setting, the primary localized pollutant of concern is CO. The CO points of peak concentrations, known as CO Hot Spots, are a function of roadway congestion and hourly traffic volumes along local roadway segments, particularly at intersections. Although the Project would reduce regional VMT, and therefore reduce traffic volumes at roadway intersections in the DSA, certain local roadway intersections would see increased traffic volumes as a result of the project. The highest-volume intersections identified in the DSA were the intersection of Pioneer Boulevard and Washington Boulevard with 6,070 vehicles per hour, and the intersection of Norwalk Boulevard and Washington Boulevard with 6,046 vehicles per hour. In the 2017 update to the *BAAQMD CEQA Guidelines*, BAAQMD indicated that intersections with traffic volumes less than 44,000 vehicles per hour, or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadways), would not result in substantial CO concentrations. Operation of Alternative 2 with the Atlantic/Pomona Station Option would result in no meaningful change to operational localized criteria air pollutant emissions as compared to operation of the base Alternative 2. Since the highest-volume intersections identified in the DSA would have traffic volumes

below that of the BAAQMD screening threshold, the operation of the base Alternative 2 or Alternative 2 with the Atlantic/Pomona Station Option would not expose sensitive receptors to substantial CO concentrations and impacts with respect to operational localized criteria pollutant emissions would be less than significant.

Construction Impacts

Base Alternative and Design Option

Construction criteria air pollutant emission sources under the base Alternative 2 or Alternative 2 with the Atlantic/Pomona Station Option include exhaust from heavy-duty construction equipment operating on-site and fugitive construction emissions. Consistent with SCAQMD LST guidance, off-site emissions, such as those from worker vehicle and hauling or delivery vehicle exhaust, would be distributed over the DSA and were not considered in the evaluation of localized impacts.

As presented in **Table 3.2-16,** the construction of the base Alternative 2 would result in construction localized criteria air pollutant emissions that would be less than the SCAQMD thresholds and impacts with respect to construction regional criteria pollutant emissions would be less than significant. Implementation of Alternative 2 with the Atlantic/Pomona Station Option would result in daily construction localized criteria pollutant emissions that would be the same as those of the base Alternative 2. Excavation for the Atlantic/Pomona Station Option would be completed with the electrically powered TBM and would not result in a change in project peak day emissions. Additionally, the magnitude of excavation required to implement the Atlantic/Pomona Station Option would be essentially the same as the excavation required to implement the base Alternative 2. Therefore, construction of the base Alternative 2 or Alternative 2 with the Atlantic/Pomona Station Option would result in daily construction localized emissions that would be less than the SCAQMD thresholds and impacts with respect to construction localized criteria pollutant emissions would be less than significant.

Table 3.2-16. Build Alternative 2 Construction Localized Emissions

Emission Source	Daily On-Site Emissions (lbs/day)			
	CO	NOx	PM_{10}	$PM_{2.5}$
MSF Site Options				
Commerce MSF	12.3	10.4	1.1	0.5
Alternative 2 Overall Construction				
Maximum Total[1]	80.6	72.7	3.7	3.0
SCAQMD LST[2]	1,480	172	14.0	7.0
Exceeds Threshold	No	No	No	No

Source: CDM Smith/AECOM JV, 2021.
Notes:
1 Totals represent the maximum overlapping construction emissions for all Project-elements including the greater of any alternative staging options, which may overlap the overall construction peak day. See Attachment D for hot spots calculations.
2 Thresholds are for the Southeast Los Angeles County SRA assuming a 25-meter receptor distance and a 5-acre site.
Key:
CO = carbon monoxide; lbs/day = pounds per day; LST = localized significance threshold; MSF = maintenance and storage facility; NOx = nitrogen oxides; PM_{10} = inhalable particulate matter; $PM_{2.5}$ = fine particulate matter; SRA = source receptor area

3.2.6.3.3 Alternative 3 Atlantic to Greenwood IOS

Operational Impacts

Base Alternative and Design Options

Operational criteria air pollutant emission sources under the base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option include exhaust from motor vehicle VMT. Within the Project's urban setting, the primary localized pollutant of concern is CO. The CO points of peak concentrations, known as CO Hot Spots, are a function of roadway congestion and hourly traffic volumes along local roadway segments, particularly at intersections. Although the Project would reduce regional VMT, and therefore reduce traffic volumes at roadway intersections in the DSA, certain local roadway intersections would see increased traffic volumes as a result of the Project. The highest-volume intersections identified in the DSA were the intersection of Pioneer Boulevard and Washington Boulevard with 6,070 vehicles per hour, and the intersection of Norwalk Boulevard and Washington Boulevard with 6,046 vehicles per hour. In the 2017 update to the *BAAQMD CEQA Guidelines*, BAAQMD indicated that intersections with traffic volumes less than 44,000 vehicles per hour, or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadways), would not result in substantial CO concentrations. Operation of Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option would result in no meaningful change to operational localized criteria air pollutant emissions as compared to operation of the base Alternative 3. Since the highest-volume intersections identified in the DSA would have traffic volumes below that of the BAAQMD screening threshold, the operation of the base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option would not expose sensitive receptors to substantial CO concentrations and impacts with respect to operational localized criteria pollutant concentrations would be less than significant.

Construction Impacts

Base Alternative and Design Options

Construction criteria air pollutant emission sources under the base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option include exhaust from heavy-duty construction equipment operating on-site and fugitive construction emissions. Consistent with SCAQMD guidance, off-site emissions, such as those from worker vehicle and hauling or delivery vehicle exhaust, would be distributed over the DSA and were not considered in the evaluation of localized impacts.

As presented in **Table 3.2-17,** the construction of the base Alternative 3 would result in construction localized criteria air pollutant emissions that would be less than the SCAQMD thresholds and impacts with respect to construction regional criteria pollutant emissions would be less than significant. Implementation of Alternative 3 with the Atlantic/Pomona Station Option would result in daily construction localized criteria pollutant emissions that would be the same as those of the base Alternative 3. Excavation for the Atlantic/Pomona Station Option would be completed with the electrically powered TBM and would not result in a change in project peak day emissions. Additionally, the magnitude of excavation to implement the Atlantic/Pomona Station Option would be essentially the same as excavation required to implement the base Alternative 3. Implementation of the Montebello At-Grade Option would result in localized criteria pollutant emissions that would be

greater than those of the base Alternative 3. However, as presented in **Table 3.2-17**, construction of Alternative 3 with the Montebello At-Grade Option would result in construction localized emissions that would be less than the SCAQMD thresholds. Therefore, construction of the base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option would result in daily construction localized emissions that would be less than the SCAQMD thresholds and impacts with respect to construction localized criteria pollutant emissions would be less than significant.

Table 3.2-17. Build Alternative 3 Construction Localized Emissions

Emission Source	Daily On-Site Emissions (lbs/day)			
	CO	NOx	PM_{10}	$PM_{2.5}$
Montebello Segment – Base Alternative and Design Option[1]				
Base Alternative 1 (aerial)	9.7	11.1	0.5	0.4
At-Grade Option	13.6	11.4	1.8	1.1
MSF Site Options[2]				
Commerce MSF	12.3	10.4	1.1	0.5
Montebello MSF	12.3	10.4	1.1	0.5
Alternative 3 Overall Construction				
Maximum Total[3]	85.9	75.0	4.4	3.2
SCAQMD LST[4]	1,480	172	14.0	7.0
Exceeds Threshold	No	No	No	No

Source: CDM Smith/AECOM JV, 2021.
Notes:
1 Localized emissions associated with construction of the Montebello segment of the alignment.
2 Only one MSF site option would be selected.
3 Totals represent the maximum overlapping construction emissions for all Project-elements that may overlap the overall construction peak day, including staging area options and the Montebello At-Grade Option that has greater localized construction emissions than the base Alternative 3. See Attachment D for hot spots calculations.
4 Thresholds are for the Southeast Los Angeles County SRA assuming a 25-meter receptor distance and a 5-acre site.
Key:
CO = carbon monoxide; lbs/day = pounds per day; LST = localized significance threshold; MSF = maintenance and storage facility; NOx = nitrogen oxides; PM_{10} = inhalable particulate matter; $PM_{2.5}$ = fine particulate matter; SRA = source receptor area

3.2.6.3.4 Maintenance and Storage Facilities

Operational Impacts

MSF Site Options and Design Option

The operation of the Commerce MSF site option, the Montebello MSF site option, or the Montebello MSF At-Grade Option, would not result in localized criteria pollutant emissions that would exceed the applicable screening criteria. Operation of an MSF is essential in maintaining a reliable light rail system and MSF emissions were included in the assessment of regional criteria pollutant emissions. Therefore, operation of the Commerce MSF site option, the Montebello MSF site option, or the Montebello MSF At-Grade Option would not substantially contribute to localized pollutant concentration impacts. Impacts with respect to localized criteria pollutant concentrations would be less than significant.

Construction Impacts

MSF Site Options and Design Option

The construction of the Commerce MSF site option, the Montebello MSF site option, or the Montebello MSF At-Grade Option would not result in localized criteria pollutant impacts that would exceed SCAQMD LST thresholds and impacts with respect to regional criteria pollutant emissions would be less than significant.

3.2.6.4 Impact AQ-4: Other Emissions

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

3.2.6.4.1 Alternative 1 Washington

Operational Impacts

Other operational emission sources under Alternative 1 with the potential to adversely affect a substantial number of people include waste from passengers accessing the stations.

SCAQMD has established Rule 402 (Nuisance), which prevents nuisance odor conditions through the establishment of odor complaint tracking systems and other requirements. Typical sources of potentially-nuisance odors include agricultural uses, wastewater treatment facilities, food processing and chemical plants, landfills, and refineries. Trash receptacles at stations would be a relatively unsubstantial source of odors and would be subject to regular servicing, maintenance, and cleaning as to prevent unpleasant odors at the station, and the operation of Alternative 1 would not result in unpleasant odors that would affect a substantial number of people.

Therefore, operation of Alternative 1 would have less than significant impacts with respect to other emissions (such as those leading to odors) with the potential to adversely affect a substantial number of people.

Design Options

Atlantic/Pomona Station Option

The operation of Alternative 1 with the Atlantic/Pomona Station Option would comply with applicable rules established for the control of odors. Therefore, operation of Alternative 1 with Atlantic/Pomona Option would have less than significant impacts with respect to other emissions (such as those leading to odors) with the potential to adversely affect a substantial number of people.

Montebello At-Grade Option

The operation of Alternative 1 with the Montebello At-Grade Option would comply with applicable rules established for the control of odors. Therefore, operation of Alternative 1 with the Montebello At-Grade Option would have less than significant impacts with respect to other emissions (such as those leading to odors) with the potential to adversely affect a substantial number of people.

Construction Impacts

Other construction emission sources under Alternative 1 with the potential to adversely affect a substantial number of people include odors from diesel vehicle exhaust.

Diesel vehicle exhaust has a distinctive odor and the use of diesel-fueled equipment during construction would have the potential to generate near-field odors that may be considered unpleasant to certain individuals. Construction of Alternative 1 would occur over a broad area and would be completed in sequential segments, therefore a receptor's exposure to potential unpleasant construction-related near-field odors would be temporary and short-term. Due to the temporary and highly mobile nature of project construction, the construction of Alternative 1 would not result in unpleasant odors that would affect a substantial number of people.

Therefore, construction of Alternative 1 would have less than significant impacts with respect to other emissions (such as those leading to odors) with the potential to adversely affect a substantial number of people.

Design Options

Atlantic/Pomona Station Option

The construction of Alternative 1 with the Atlantic/Pomona Station Option would result in odors that would be short term, highly mobile, and controlled. Thus, construction of Alternative 1 with the Atlantic/Pomona Station Option would have less than significant impacts with respect to other emissions (such as those leading to odors) with the potential to adversely affect a substantial number of people.

Montebello At-Grade Option

The construction of Alternative 1 with the Montebello At-Grade Option would result in odors that would be short term, highly mobile, and controlled. Thus, construction of Alternative 1 with the Montebello At-Grade Option would have less than significant impacts with respect to other emissions (such as those leading to odors) with the potential to adversely affect a substantial number of people.

3.2.6.4.2 Alternative 2 Atlantic to Commerce/Citadel IOS

Operational Impacts

Base Alternative with Design Option

Other operational emission sources under the base Alternative 2 or Alternative 2 with the Atlantic/Pomona Station Option with the potential to adversely affect a substantial number of people include waste from passengers accessing the stations.

SCAQMD has established Rule 402 (Nuisance), which prevents nuisance odor conditions through the establishment of odor complaint tracking systems and other requirements. Trash receptacles at stations would be a relatively unsubstantial source of odors and would be subject to regular servicing, maintenance, and cleaning as to prevent unpleasant odors at the stations, and operations would not result in unpleasant odors that would affect a substantial number of people.

Therefore, operation of the base Alternative 2 or Alternative 2 with the Atlantic/Pomona Station Option would have less than significant impacts with respect to other emissions (such as those leading to odors) with the potential to adversely affect a substantial number of people.

Construction Impacts

Base Alternative with Design Option

Other construction emission sources under the base Alternative 2 or Alternative 2 with the Atlantic/Pomona Station Option with the potential to adversely affect a substantial number of people include odors from diesel vehicle exhaust.

Construction of the base Alternative 2 or Alternative 2 with the Atlantic/Pomona Station Option would occur over a broad area and would be completed in sequential segments; therefore, a receptor's exposure to potential unpleasant construction-related near-field odors, such as diesel vehicle exhaust, would be temporary and short-term and would not affect a substantial number of people.

Thus, construction of the base Alternative 2 or Alternative 2 with the Atlantic/Pomona Station Option would have less than significant impacts with respect to other emissions (such as those leading to odors) with the potential to adversely affect a substantial number of people.

3.2.6.4.3 Alternative 3 Atlantic to Greenwood IOS

Operational Impacts

Base Alternative with Design Option

Other operational emission sources under base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option with the potential to adversely affect a substantial number of people include waste from passengers accessing the stations.

SCAQMD has established Rule 402 (Nuisance), which prevents nuisance odor conditions through the establishment of odor complaint tracking systems and other requirements. Trash receptacles at stations would be a relatively unsubstantial source of odors and would be subject to regular servicing, maintenance, and cleaning as to prevent unpleasant odors at the stations, and operations would not result in unpleasant odors that would affect a substantial number of people.

Thus, operation of base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option would have less than significant impacts with respect to other emissions (such as those leading to odors) with the potential to adversely affect a substantial number of people.

Construction Impacts

Base Alternative with Design Option

Other construction emission sources under base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option with the potential to adversely affect a substantial number of people include odors from diesel vehicle exhaust.

Construction of the base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option would occur over a broad area and would be completed in sequential segments; therefore, a receptor's exposure to potential unpleasant construction-related near-field odors, such as diesel vehicle exhaust, would be temporary and short-term and would not affect a substantial number of people.

Thus, construction of base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option would have less than significant impacts with respect to other emissions (such as those leading to odors) with the potential to adversely affect a substantial number of people.

3.2.6.4.4 Maintenance and Storage Facilities

Operational Impacts

MSF Site Options and Design Option

Operation of the Commerce MSF site option, the Montebello MSF site option, or the Montebello MSF At-Grade Option would not be expected to generate substantial odors. Operational activities located at the MSF would include the use of common household cleaners, paints, adhesives, lubricants, and other common materials necessary to maintain LRT vehicles. These materials are not anticipated to generate odors detectable beyond the MSF property line. Therefore, operation of an MSF would have less than significant impacts with respect to other emissions (such as those leading to odors) with the potential to adversely affect a substantial number of people.

Construction Impacts

MSF Site Options and Design Option

While construction of the Commerce MSF site option, the Montebello MSF site option, or the Montebello MSF At-Grade Option would generate odors associated with diesel vehicle exhaust, impacts would be temporary and would not be expected to extend beyond the site boundary for substantial periods of time. Thus, construction of an MSF would have less than significant impacts with respect to other emissions (such as those leading to odors) with the potential to adversely affect a substantial number of people.

3.2.6.5 Impact HR-1: Human Health Risks

HR-1: Would a Build Alternative expose sensitive receptors to TAC that would be likely to cause a substantial increase in human health risks?

3.2.6.5.1 Alternative 1 Washington

Operational Impacts

Operational TAC emission sources under Alternative 1 with the potential to cause a substantial increase in human health risks include exhaust from motor vehicle VMT. As indicated in **Section 3.2.6.1.1**, regional emissions of PM_{10} would be reduced under Alternative 1 while regional emissions of VOC would be increased. TAC are classified either as organic (a subset of VOC) or particulate (a subset of PM_{10}) compounds to which exposure can contribute to short-term (acute), long-term (chronic), or carcinogenic human health hazards. Since emissions of PM_{10} would decrease from the operation of the Project, exposure to TAC from PM_{10} for residents living and working within the DSA would also decrease. The primary TAC of concern for this analysis is DPM, a subset of PM_{10} emissions that drives carcinogenic risks throughout the region. Although emissions of VOC would increase from the operation of the Project, exposure to TAC from VOC for residents living and working within the DSA would not substantially increase. VOC emission increases would be driven by the use of low-TAC content consumer products, including cleaners, adhesives, and paints at the MSF. Additionally, the MSF location would be in commercial and industrial areas away from residences and other sensitive receptors. High TAC-content VOC emissions, such as those from vehicle exhaust, would be decreased alongside PM_{10} emissions proportional to the regional reductions in VMT. Therefore, the operation of Alternative 1 would not expose sensitive receptors to TAC that would be likely to cause a substantial increase in human health risks and impacts with respect to operational human health risk would be less than significant.

Design Options

Atlantic/Pomona Station Option

Similar to the base Alternative 1, operation of Alternative 1 with the Atlantic/Pomona Station Option would result in a reduction in relevant TAC emissions and impacts with respect to operational human health risk would be less than significant.

Montebello At-Grade Option

Similar to the base Alternative 1, operation of Alternative 1 with the Montebello At-Grade Option would result in a reduction in relevant TAC emissions and impacts with respect to operational human health risk would be less than significant.

Construction Impacts

Construction TAC emission sources under Alternative 1 with the potential to cause a substantial increase in human health risks include exhaust from heavy-duty construction equipment operating on-site and fugitive construction emissions. Off-site emissions, such as those from worker vehicle and hauling or delivery vehicle exhaust, would be distributed over the DSA and only the portion of these emissions that would occur near to sensitive receptors were considered in the evaluation of human health risks.

As explained in **Section 3.2.3.4**, localized TAC pollutant concentrations were evaluated using HRA screening criteria and a Tier 2 assessment was performed to evaluate local project TAC emissions. Tier 2 screening criteria are designed to be conservative and include a variety of assumptions intended to

be protective of the most vulnerable individuals of a population. Moreover, the Alternative 1 Tier 2 HRA considered only construction-related emissions and did not account for the operational reductions to carcinogenic human health risks that would occur as a result of Project implementation as discussed in **Section 3.2.6.5.1**.

As shown in **Table 3.2-18**, construction of Alternative 1 would result in local exposure to TAC that would be less than the SCAQMD Tier 2 screening criteria for acute, chronic, and carcinogenic exposure and impacts with respect to construction human health risk would be less than significant.

Table 3.2-18. Build Alternative 1 Tier 2 HRA Screening Results

Affected Organ System	Non-Cancer Health Hazards			Carcinogenic Health Risk	
	Acute HI (1-hr)	Chronic HI (1-yr)	Chronic HI (8-hr)	Resident[1]	Adult Worker
All Affected Organ Systems[2]	0.0016	0.0034	0.0002	N/A	N/A
All Cancer[3]	N/A	N/A	N/A	1.8 in one million	0.1 in one million
Maximum Total[4]	0.0016	0.0034	0.0002	1.8 in one million	0.1 in one million
Tier 2 Risk Threshold	1.0	1.0	1.0	10 in one million	10 in one million
Exceeds Threshold	No	No	No	No	No

Source: CDM Smith/AECOM JV, 2021.
Notes:
1 Residential cancer risk incorporates the maximum exposure parameters, including age-related breathing rates and exposure factors, for potential residents ages 0 (third trimester) through 30.
2 TAC exposure affects each organ system (nervous, alimentary, cardiovascular, reproductive, etc.) differently. Acute and Chronic HIs are calculated as the combined effect of exposure to all TAC upon each organ system. The sum of HIs across all organ systems is presented.
3 Construction-related exposure to carcinogenic TAC anticipated to occur for two years (the minimum screening exposure duration). In reality, construction of any given alignment segment, and the associated TAC exposure of residents near to that segment, would occur over a period shorter than two years and impacts would be expected to be lower than presented.
4 Totals represent the maximum overlapping construction emissions for all project-elements including the greater of any TAC emissions associated with any design options or alternative staging areas.
Key:
HI = Hazard Index; hr = hour; N/A = not applicable; TAC = toxic air contaminant; yr = year

Design Options

Atlantic/Pomona Station Option

As presented previously in **Section 3.2.6.3.1**, implementation of the Atlantic/Pomona Station Option would result in localized criteria pollutant emissions that would be the same as those of the base Alternative 1. Therefore, as with the base Alternative 1, the construction of Alternative 1 with the Atlantic/Pomona Station Option would result in local exposure to TAC that would be less than the SCAQMD Tier 2 screening criteria for acute, chronic, and carcinogenic exposure and impacts with respect to construction human health risk would be less than significant.

Montebello At-Grade Option

As with the base Alternative 1, the construction of Alternative 1 with the Montebello At-Grade Option would result in construction TAC emissions that would be less than the SCAQMD screening criteria

and impacts with respect to construction human health risk would be less than significant. As presented previously in **Section 3.2.6.3.1**, implementation of the Montebello At-Grade Option would result in localized criteria pollutant emissions that would be greater than those of the base alternative. However, similar TAC emission sources and construction activities would be required to complete either the alternative with Montebello At-Grade Option or the base alternative, and the types and relative quantities of TAC emissions would be similar overall. Implementation of Alternative 1 with the Montebello At-Grade Option would be expected to result in greater TAC emissions and greater human health risk impacts as compared to the base alternative. The TAC emissions associated with implementation of the Montebello At-Grade Option are accounted for in the results presented in **Table 3.2-18**. As shown in **Table 3.2-18**, construction of Alternative 1 would result in local exposure to TAC that would be less than the SCAQMD Tier 2 screening criteria for acute, chronic, and carcinogenic exposure and impacts with respect to construction human health risk would be less than significant

3.2.6.5.2 Alternative 2 Atlantic to Commerce/Citadel IOS

Operational Impacts

Base Alternative and Design Option

As indicated in **Section 3.2.6.2.1**, regional emissions of PM_{10} would be reduced under the base Alternative 2 and Alternative 2 with the Atlantic/Pomona Station Option while regional emissions of VOC would be increased. TAC are either organic (a subset of VOC) or particulate (a subset of PM_{10}) compounds to which exposure can contribute to short-term (acute), long-term (chronic), or carcinogenic human health hazards. Since emissions of PM_{10} would decrease from the operation of the Project, exposure to TAC from PM_{10} for residents living and working within the DSA would also decrease. The primary TAC of concern for this analysis is DPM, a subset of PM_{10} emissions that drives carcinogenic risks throughout the region. Although emissions of VOC would increase from the operation of the Project, exposure to TAC from VOC for residents living and working within the DSA would not substantially increase. VOC emission increases would be driven by the use of low-TAC content consumer products, including cleaners, adhesives, and paints at the MSF. Additionally, the MSF location would be in commercial and industrial areas away from residences and other sensitive receptors. High TAC-content VOC emissions, such as those from vehicle exhaust, would be decreased alongside PM_{10} emissions proportional to the regional reductions in VMT. Therefore, operation of the base Alternative 2 or Alternative 2 with the Atlantic/Pomona Station Option would result in a reduction in relevant TAC emissions and impacts with respect to operational human health risk would be less than significant.

Construction Impacts

Base Alternative and Design Option

As shown in **Table 3.2-19**, construction of the base Alternative 2 would result in local exposure to TAC that would be less than the SCAQMD Tier 2 screening criteria for acute, chronic, and carcinogenic exposure. Implementation of the Atlantic/Pomona Station Option would result in localized criteria pollutant emissions that would be the same as those of the base Alternative 2. Therefore, the construction of the base Alternative 2 or Alternative 2 with the Atlantic/Pomona Station Option would result in local exposure to TAC that would be less than the SCAQMD Tier 2 screening criteria for acute, chronic, and carcinogenic exposure and impacts with respect to construction human health risk would be less than significant.

Table 3.2-19. Build Alternative 2 Tier 2 HRA Screening Results

Affected Organ System	Non-Cancer Health Hazards			Carcinogenic Health Risk	
	Acute HI (1-hr)	Chronic HI (1-yr)	Chronic HI (8-hr)	Resident[1]	Adult Worker
All Affected Organ Systems[2]	0.0020	0.0043	0.0003	N/A	N/A
All Cancer[3]	N/A	N/A	N/A	2.2 in one million	0.1 in one million
Maximum Total[4]	0.0020	0.0043	0.0003	2.2 in one million	0.1 in one million
Tier 2 Risk Threshold	1.0	1.0	1.0	10 in one million	10 in one million
Exceeds Threshold	No	No	No	No	No

Source: CDM Smith/AECOM JV, 2021.
Notes:
1 Residential cancer risk incorporates the maximum exposure parameters, including age-related breathing rates and exposure factors, for potential residents ages 0 (third trimester) through 30.
2 TAC exposure affects each organ system (nervous, alimentary, cardiovascular, reproductive, etc.) differently. Acute and Chronic HIs are calculated as the combined effect of exposure to all TAC upon each organ system. The sum of HIs across all organ systems is presented.
3 Construction-related exposure to carcinogenic TAC anticipated to occur for two years (the minimum screening exposure duration). In reality, construction of any given alignment segment, and the associated TAC exposure of residents near to that segment, would occur over a period shorter than two years and impacts would be expected to be lower than presented.
4 Totals represent the maximum overlapping construction emissions for all project-elements including the greater of any TAC emissions associated with alternative staging areas.
Key:
HI = Hazard Index; hr = hour; N/A = not applicable; TAC = toxic air contaminant; yr = year

3.2.6.5.3 Alternative 3 Atlantic to Greenwood IOS

Operational Impacts

Base Alternative and Design Option

As indicated in **Section 3.2.6.3.3**, regional emissions of PM_{10} would be reduced under the base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option while regional emissions of VOC would be increased. TAC are either organic (a subset of VOC) or particulate (a subset of PM_{10}) compounds to which exposure can contribute to short-term (acute), long-term (chronic), or carcinogenic human health hazards. Since emissions of PM_{10} would decrease from the operation of the Project, exposure to TAC from PM_{10} for residents living and working within the DSA would also decrease. The primary TAC of concern for this analysis is DPM, a subset of PM_{10} emissions that drives carcinogenic risks throughout the region. Although emissions of VOC would increase from the operation of the Project, exposure to TAC from VOC for residents living and working within the DSA would not substantially increase. VOC emission increases would be driven by the use of low-TAC content consumer products, including cleaners, adhesives, and paints at the MSFs. Additionally, the MSF location would be in commercial and industrial areas away from residences and other sensitive receptors. High TAC-content VOC emissions, such as those from vehicle exhaust, would be decreased alongside PM_{10} emissions proportional to the regional reductions in VMT. Therefore, operation of the base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option would not expose sensitive receptors to TAC that would be likely to cause a substantial increase in human health risks and impacts with respect to operational human health risk would be less than significant.

Construction Impacts

Base Alternative and Design Options

As shown in **Table 3.2-20**, construction of the base Alternative 3 would result in local exposure to TAC that would be less than the SCAQMD Tier 2 screening criteria for acute, chronic, and carcinogenic exposure. Implementation of the Atlantic/Pomona Station Option result in localized criteria pollutant emissions that would be the same as those of the base Alternative 3. Implementation of the Montebello At-Grade Option would result in localized criteria pollutant emissions that would be greater than those of the base Alternative 3. However, similar TAC emission sources and construction activities would be required to complete either the Alternative 3 with the Montebello At-Grade Option or the base Alternative 3, and the types and relative quantities of TAC emissions would also be similar. Therefore, construction of the base Alternative 3 or Alternative 3 with the Atlantic/Pomona Station Option and/or the Montebello At-Grade Option would result in local exposure to TAC that would be less than the SCAQMD Tier 2 screening criteria for acute, chronic, and carcinogenic exposure and impacts with respect to construction human health risk would be less than significant.

Table 3.2-20. Build Alternative 3 Tier 2 HRA Screening Results

Affected Organ System	Non-Cancer Health Hazards			Carcinogenic Health Risk	
	Acute HI (1-hr)	Chronic HI (1-yr)	Chronic HI (8-hr)	Resident[1]	Adult Worker
All Affected Organ Systems[2]	0.0017	0.0036	0.0002	N/A	N/A
All Cancer[3]	N/A	N/A	N/A	1.8 in one million	0.1 in one million
Maximum Total[4]	0.0017	0.0036	0.0002	1.8 in one million	0.1 in one million
Tier 2 Risk Threshold	1.0	1.0	1.0	10 in one million	10 in one million
Exceeds Threshold	No	No	No	No	No

Source: CDM Smith/AECOM JV, 2021.
Notes:
1 Residential cancer risk incorporates the maximum exposure parameters, including age-related breathing rates and exposure factors, for potential residents ages 0 (third trimester) through 30.
2 TAC exposure affects each organ system (nervous, alimentary, cardiovascular, reproductive, etc.) differently. Acute and Chronic HIs are calculated as the combined effect of exposure to all TAC upon each organ system. The sum of HIs across all organ systems is presented.
3 Construction-related exposure to carcinogenic TAC anticipated to occur for two years (the minimum screening exposure duration). In reality, construction of any given alignment segment, and the associated TAC exposure of residents near to that segment, would occur over a period shorter than two years and impacts would be expected to be lower than presented.
4 Totals represent the maximum overlapping construction emissions for all project-elements including the greater of any TAC emissions associated with any design options or alternative staging areas.
Key:
HI = Hazard Index; hr = hour; N/A = not applicable; TAC = toxic air contaminant; yr = year

3.2.6.5.4 Maintenance and Storage Facilities

Operational Impacts

MSF Site Options and Design Option

Operation of the Commerce MSF site option, the Montebello MSF site option, or the Montebello MSF At-Grade Option would result in a reduction to regional TAC emissions and exposure. While the

Project would result in operational TAC emissions from evaporative TOG associated with vehicles parked at Project parking facilities, these emissions would be minimal and would be overwhelmingly offset by the regional reductions in TAC driven by project VMT reductions. Therefore, operation of the Commerce MSF site option, the Montebello MSF site option, or the Montebello MSF At-Grade Option would not result in TAC emissions that would exceed the applicable SCAQMD criteria and impacts with respect to human health risk would be less than significant.

Construction Impacts

MSF Site Options and Design Option

The construction of the Commerce MSF site option, the Montebello MSF site option, or the Montebello MSF At-Grade Option would result in construction TAC emissions that would be less than the SCAQMD screening criteria, including construction of an MSF. The maximum construction TAC emissions associated with implementation of an MSF site option are included in the assessment of human health risk impacts under Alternative 1, Alternative 2, and Alterative 3 and as shown in tables **Table 3.2-18**, **Table 3.2-19**, and **Table 3.2-20** respectively, construction would result in local exposure to TAC that would be less than the SCAQMD Tier 2 screening criteria for acute, chronic, and carcinogenic exposure and impacts with respect to construction human health risk would be less than significant.

3.2.7 Project Measures and Mitigation Measures

As identified in **Section 3.2.6**, the Build Alternatives and Build Alternatives with the design option(s) would have less than significant impacts on air quality under Impact AQ-1 (Air Quality Plan), Impact AQ-2 (Regional Criteria Pollutant Emissions), Impact AQ-3 (Localized Pollutant Concentrations), Impact AQ-4 (Other Emissions), and Impact HR-1 (Human Health Risks). No project measures or mitigation measures would be required for operation or construction. **Table 3.2-21** identifies the combined impact of the base alternatives with the associated MSF site option(s), and the alternatives with one or both design options (as applicable) with the associated MSF site option(s). All impacts would be less than significant for all alternatives and design options.

3.2.8 Significance After Mitigation

As identified in **Table 3.2-21**, no mitigation is required for the Build Alternatives and Build Alternatives with the design option(s). Impacts would be less than significant under Impacts AQ-1, AQ-2, AQ-3, and AQ-4.

Table 3.2-21. Summary of Impact Determinations for Build Alternatives and MSF Options

CEQA Impact Topic		Alternative 1: Washington Boulevard								Alternative 2: Commerce/Citadel IOS		Alternative 3: Washington/Greenwood IOS							
		Base Alternative 1[1]		Alternative 1 + Atlantic/Pomona Station Option		Alternative 1 + Montebello At-Grade Option		Alternative 1 + Atlantic/Pomona Station Option + Montebello At-Grade Option		Base Alternative 2[2]	Alternative 2 + Atlantic/ Pomona Station Option	Base Alternative 3[3]		Alternative 3 + Atlantic/Pomona Station Option		Alternative 3 + Montebello At-Grade Option		Alternative 3 + Atlantic/Pomona Station Option + Montebello At-Grade Option	
		Commerce MSF	Montebello MSF	Commerce MSF	Montebello MSF	Commerce MSF	Montebello MSF At-Grade Option	Commerce MSF	Montebello MSF At-Grade Option	Commerce MSF		Commerce MSF	Montebello MSF	Commerce MSF	Montebello MSF	Commerce MSF	Montebello MSF At-Grade Option	Commerce MSF	Montebello MSF At-Grade Option
Impact AQ-1 Air Quality Plan	Applicable Mitigation	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
	Impacts After Mitigation	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Impact AQ-2 Regional Criteria Pollutant Emissions	Applicable Mitigation	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
	Impacts After Mitigation	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Impact AQ-3 Localized Pollutant Concentrations	Applicable Mitigation	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
	Impacts After Mitigation	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Impact AQ-4 Other Emissions	Applicable Mitigation	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
	Impacts After Mitigation	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
Impact HR-1 Human Health Risks	Applicable Mitigation	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None
	Impacts After Mitigation	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS

Source: CDM Smith/AECOM JV, 2022.
Notes:
The Base Alternatives are shaded in light yellow. Design options are not shaded.
1 The Base Alternative 1 includes the Atlantic station (reconfigured/relocated) and aerial Greenwood station.
2 The Base Alternative 2 includes the Atlantic station (reconfigured/relocated).
3 The Base Alternative 3 includes the Atlantic station (reconfigured/relocated) and aerial Greenwood station.
Key:
NI = No Impact LTS = Less Than Significant SU = Significant and Unavoidable

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