5.2 Air Quality

5.2.1 INTRODUCTION

This section provides an overview of the existing air quality within the TVSP area and surrounding region, a summary of applicable regulations, and analyses of potential short-term and long-term air quality impacts from implementation of the proposed TVSP. Mitigation measures are recommended as necessary to reduce significant air quality impacts. This analysis is based on the following City documents and report prepared by Urban Crossroads (UC 2022) that is included in Appendix B to this Draft EIR:

- *City of Redlands 2035 General Plan*, 2017
- *City of Redlands General Plan Update and Climate Action Plan Environmental Impact Report* (GP EIR), 2017
- *City of Redlands Municipal Code*
- *Transit Villages District and Specific Plan Air Quality Impact Analysis*, Urban Crossroads, 2022, Appendix B.

5.2.2 REGULATORY SETTING

5.2.2.1 Federal Regulations

United States Environmental Protection Agency

Criteria Air Pollutants

At the federal level, the United States Environmental Protection Agency (USEPA) has been charged with implementing national air quality programs. The USEPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments to the CAA were made by Congress in 1990.

The CAA requires the USEPA to establish National Ambient Air Quality Standards (NAAQS). The USEPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. Table 5.2-1 shows the NAAQS for these pollutants. The CAA also requires each state to prepare an air quality control plan, referred to as a state implementation plan (SIP). The CAA Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies. The USEPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and to determine whether implementing the SIPs will achieve air quality goals. If the USEPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area.

The USEPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and those that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking. The USEPA's primary role at the state level is to oversee state air quality programs. The USEPA sets federal vehicle and stationary source emissions standards and provides research and guidance in air pollution programs.

Hazardous Air Pollutants

The USEPA has programs for identifying and regulating hazardous air pollutants (HAPs). Title III of the CAAA directed the USEPA to promulgate national emissions standards for HAPs (NESHAP). The NESHAP may differ for major sources than for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 tons per year (tpy) of any HAP or more than 25 tpy of any combination of HAPs; all other sources are considered area sources. The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), the USEPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring maximum achievable control technology (MACT). For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), the USEPA promulgated health-risk-based emissions standards that were deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards.

Table 5.2-1: Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour	0.09 ppm	---	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when ROG and NO_X react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial/industrial mobile equipment.
	8 hours	0.07 ppm	0.075 ppm		
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
Nitrogen Dioxide (NO_x)	1 hour	0.18 ppm	0.100 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Arithmetic Mean	0.030 ppm	0.053 ppm		
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	75 ppb	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	---	0.50 ppm		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Arithmetic Mean	---	0.03 ppm		
Respirable Particulate Matter (PM_{10})	24 hours	50 µg/m³	150 µg/m³	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Arithmetic Mean	20 µg/m³	---		
Fine Particulate Matter ($PM_{2.5}$)	24 hours	---	35 µg/m³	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO_X, sulfur oxides, and organics.
	Annual Arithmetic Mean	12 µg/m³	12 µg/m³		
Lead (Pb)	30 Day Average	1.5 µg/m³	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction (in severe cases).	*Present source:* lead smelters, battery manufacturing and recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	---	1.5 µg/m³		
	Rolling 3-Month Average	---	0.15 µg/m³		

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Hydrogen Sulfide	1 hour	0.03 ppm	…	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)	Geothermal power plants, petroleum production and refining
Sulfates (SO_4)	24 hour	25 µg/m³	…	Decrease in ventilatory functions; aggravation of asthmatic symptoms; aggravation of cardio-pulmonary disease; vegetation damage; degradation of visibility; property damage.	Industrial processes.
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	…	Reduces visibility, reduced airport safety, lower real estate value, and discourages tourism.	See $PM_{2.5}$.

ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter.
Source: AQ, 2022 (Appendix B)

The CAAA also required the USEPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions of, at a minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

5.2.2.2 State Regulations

California Air Resources Board

Criteria Air Pollutants

The California Air Resources Board (CARB), a department of the California Environmental Protection Agency, oversees air quality planning and control throughout California. CARB is responsible for coordination and oversight of state and local air pollution control programs in California and for implementation of the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, requires CARB to establish the California Ambient Air Quality Standards (CAAQS). CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. Applicable CAAQS are shown in Table 5.2-1.

The CCAA requires all local air districts in the state to endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts shall focus particular attention on reducing the emissions from transportation and area-wide emission sources and provides districts with the authority to regulate indirect sources.

Among CARB's other responsibilities are overseeing compliance by local air districts with California and federal laws, approving local air quality plans, submitting SIPs to the USEPA, monitoring air quality, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

Toxic Air Contaminants

Air quality regulations also focus on toxic air contaminants (TACs). In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no safe level of exposure. This contrasts with the criteria air pollutants, for which acceptable levels of exposure can be determined and for which the ambient standards have been established. Instead, the USEPA and CARB

regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the MACT or best available control technology (BACT) for toxics and to limit emissions. These statutes and regulations, in conjunction with additional rules set forth by the districts, establish the regulatory framework for TACs.

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807 [Chapter 1047, Statutes of 1983]) (Health and Safety Code Section 39650 et seq.) and the Air Toxics Hot Spots Information and Assessment Act (Hot Spots Act) (AB 2588 [Chapter 1252, Statutes of 1987]) (Health and Safety Code Section 44300 et seq.). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted the USEPA's list of HAPs as TACs. Most recently, diesel PM was added to the CARB list of TACs. Once a TAC is identified, CARB then adopts an airborne toxics control measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate BACT to minimize emissions.

The Air Toxics Hot Spots Information and Assessment Act requires existing facilities emitting toxic substances above a specified level to prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

CARB published the Air Quality and Land Use Handbook: A Community Health Perspective (Handbook), which provides guidance concerning land use compatibility with TAC sources. Although it is not a law or adopted policy, the Handbook offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities, to help keep children and other sensitive populations out of harm's way. In addition, CARB has promulgated the following specific rules to limit TAC emissions:

- **CARB Rule 2485** (13 CCR, Chapter 10 Section 2485), Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- **CARB Rule 2480** (13 CCR Chapter 10 Section 2480), Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- **CARB Rule 2477** (13 CCR Section 2477 and Article 8), Airborne Toxic Control Measure for In-Use Diesel Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate

California Assembly Bill 1493– Pavley

In 2002, the California Legislature adopted AB 1493 requiring the adoption of regulations to develop fuel economy standards for the transportation sector. In September 2004, pursuant to AB 1493, the CARB approved regulations to reduce fuel use and emissions from new motor vehicles beginning with the 2009 model year (Pavley Regulations). CARB, EPA, and the U.S. Department of Transportation's National Highway Traffic and Safety Administration (NHTSA) have coordinated efforts to develop fuel economy standards for model 2017-2025 vehicles, which are incorporated into the "Low Emission Vehicle" (LEV) Regulations.

California Code of Regulations (CCR) Title 13, Motor Vehicles, Section 2449(d)(3)

No vehicle or engines subject to this regulation may idle for more than 5 consecutive minutes. The idling limit does not apply to:

- idling when queuing,
- idling to verify that the vehicle is in safe operating condition,

- idling for testing, servicing, repairing or diagnostic purposes,
- idling necessary to accomplish work for which the vehicle was designed (such as operating a crane),
- idling required to bring the machine system to operating temperature, and
- idling necessary to ensure safe operation of the vehicle.

Title 24 Energy Efficiency Standards and California Green Building Standards

California Code of Regulations (CCR) Title 24 Part 6: The California Energy Code (CalGreen) was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2019 California Green Building Code Standards that became effective January 1, 2020.

The CEC anticipates that single-family homes built with the 2019 standards will use approximately 7% less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar photovoltaic systems, homes built under the 2019 standards will use about 53% less energy than homes built under the 2016 standards. Nonresidential buildings will use approximately 30% less energy due to lighting upgrade requirements. The 2019 CALGreen standards that are applicable to the proposed Project include, but are not limited to, the following:

- Short-term bicycle parking. Provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack.

- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility.

- Designated parking for clean air vehicles. Provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Title 24 Part 6 Table 5.106.5.2.

- Electric vehicle charging stations. Facilitate the future installation of electric vehicle supply equipment. The compliance requires empty raceways for future conduit and documentation that the electrical system has adequate capacity for the future load.

- Outdoor light pollution reduction. Outdoor lighting systems shall be designed to meet the backlight, uplight and glare ratings per Title 24 Part 6 Table 5.106.8.

- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste.

- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled.

- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals.

- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:

    - Water Closets. The effective flush volume of all water closets shall not exceed

      1.28 gallons per flush

- Urinals. The effective flush volume of wall-mounted urinals shall not exceed

  0.125 gallons per flush. The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush.

- Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi. When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi.

- Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi. Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi. Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute. Metering faucets shall not deliver more than 0.20 gallons per cycle. Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle.

- Outdoor portable water use in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient (MWELO), whichever is more stringent.

- Water meters. Separate submeters or metering devices shall be installed for new buildings or where any tenant within a new building or within an addition that is project to consume more than 1,000 gallons per day.

- Outdoor water use in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit.

- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements.

The 2019 CalGreen Building Standards Code has been adopted by the City of Redlands in Municipal Code Chapter 15.16.

5.2.2.3 Regional Regulations

SCAQMD

Criteria Air Pollutants

The South Coast Air Quality Management District (SCAQMD) attains and maintains air quality conditions in the Basin through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of SCAQMD includes preparation of plans for attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. SCAQMD also inspects stationary sources of air pollution and responds to citizen complaints; monitors ambient air quality and meteorological conditions; and implements programs and regulations required by the CAA, CAAA, and CCAA. Air quality plans applicable to the proposed Project are discussed below.

Air Quality Management Plan

SCAQMD and the Southern California Association of Governments (SCAG) are responsible for preparing the air quality management plan (AQMP), which addresses federal and state CAA requirements. The AQMP details goals, policies, and programs for improving air quality in the Basin.

The 2012 AQMP was adopted by the SCAQMD Governing Board on December 12, 2012. The purpose of the 2012 AQMP for the Basin is to set forth a comprehensive and integrated program that will lead the region into compliance with the federal 24-hour $PM_{2.5}$ air quality standard, and to provide an update to the Basin's commitment towards meeting the federal 8-hour ozone standards. The AQMP would also serve to satisfy recent USEPA requirements for a new attainment demonstration of the revoked 1-hour ozone standard, as well as a vehicle miles travelled (VMT) emissions offset demonstration.[1] The 2012 AQMP, as approved by CARB, serves as the official SIP submittal for the federal 2006 24-hour $PM_{2.5}$ standard. In addition, the AQMP updates specific new control measures and commitments for emissions reductions to implement the attainment strategy for the 8-hour ozone SIP. The 2012 AQMP set forth programs which require integrated planning efforts and the cooperation of all levels of government: local, regional, state, and federal.

In March 2017 AQMD finalized the 2016 AQMP, which continues to evaluate integrated strategies and control measures to meet the NAAQS, as well as explore new and innovative methods to reach its goals. Some of these approaches include utilizing incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels. Similar to the 2012 AQMP, the 2016 AQMP incorporates scientific and technological information and planning assumptions, including the 2016 RTP/SCS and updated emission inventory methodologies for various source categories. The 2022 AQMP is currently being developed by SCAQMD to address the EPA's strengthened ozone standard. Development of the 2022 AQMP is in its early stages and no formal timeline for completion and adoption is currently known.

SCAQMD Rules and Regulations

All projects are subject to SCAQMD rules and regulations. Specific rules applicable to the proposed Project include the following:

Rule 203 – Permit to Operate. A person shall not operate or use any equipment or agricultural permit unit, the use of which may cause the issuance of air contaminants, or the use of which may reduce or control the issuance of air contaminants, without first obtaining a written permit to operate from the Executive Officer or except as provided in Rule 202. The equipment or agricultural permit unit shall not be operated contrary to the conditions specified in the permit to operate.

Rule 401 – Visible Emissions. A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any 1 hour that is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.

Rule 402 – Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any such persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule do not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

[2] Additional sources of information on the health effects of criteria pollutants can be found at CARB and USEPA's websites at http://www.arb.ca.gov/research/health/health.htm and http://www.epa.gov/air/airpollutants.html, respectively.

Rule 403 – Fugitive Dust. SCAQMD Rule 403 governs emissions of fugitive dust during and after construction. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

Rule 403 requires project applicants to control fugitive dust using the best available control measures such that dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating an offsite nuisance. Applicable Rule 403 dust suppression (and PM_{10} generation) techniques to reduce impacts on nearby sensitive receptors may include, but are not limited to, the following:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).
- Water active sites at least three times daily. Locations where grading is to occur shall be thoroughly watered prior to earthmoving.
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 meters (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114.
- Reduce traffic speeds on all unpaved roads to 15 miles per hour (mph) or less.
- Suspend all grading activities when wind speeds (including instantaneous wind gusts) exceed 25 mph.
- Provide bumper strips or similar best management practices where vehicles enter and exit the construction site onto paved roads, or wash off trucks and any equipment leaving the site each trip.
- Replant disturbed areas as soon as practical.
- Sweep onsite streets (and offsite streets if silt is carried to adjacent public thoroughfares) to reduce the amount of particulate matter on public streets. All sweepers shall be compliant with SCAQMD Rule 1186.1, Less Polluting Sweepers.

Rule 481 – Spray Coating. This rule applies to all spray painting and spray coating operations and equipment and states that a person shall not use or operate any spray painting or spray coating equipment unless one of the following conditions is met:

- The spray coating equipment is operated inside a control enclosure, which is approved by the Executive Officer. Any control enclosure for which an application for permit for new construction, alteration, or change of ownership or location is submitted after the date of adoption of this rule shall be exhausted only through filters at a design face velocity not less than 100 feet per minute nor greater than 300 feet per minute, or through a water wash system designed to be equally effective for the purpose of air pollution control.
- Coatings are applied with high-volume low-pressure, electrostatic and/or airless spray equipment.
- An alternative method of coating application or control is used which has effectiveness equal to or greater than the equipment specified in the rule.

Rule 1108 - Volatile Organic Compounds. This rule governs the sale, use, and manufacturing of asphalt and limits the volatile organic compound (VOC) content in asphalt used in the Basin. This rule also regulates the VOC content of asphalt used during construction. Therefore, all asphalt used during construction of the Project must comply with SCAQMD Rule 1108.

Rule 1113 – Architectural Coatings. No person shall apply or solicit the application of any architectural coating within the SCAQMD with VOC content in excess of the values specified in a table incorporated in the Rule.

Rule 1143 – Paint Thinners and Solvents. This rule governs the manufacture, sale, and use of paint thinners and solvents used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations by limiting their VOC content. This rule regulates the VOC content of solvents used during construction. Solvents used during the construction phase must comply with this rule.

5.2.2.4 Local Regulations

City of Redlands 2035 General Plan

The General Plan Healthy Community Element contains the following policies related to air quality that are applicable to the Project:

Principle 7-P.44 Protect air quality within the city and support efforts for enhanced regional air quality.

Principle 7-P.45 Aim for a diverse and efficiently-operated ground transportation system that generates the minimum amount of pollutants feasible.

Principle 7-P.46 Increase average vehicle ridership during peak commute hours as a way of reducing vehicle miles traveled and peak period auto travel.

Principle 7-P.47 Cooperate in efforts to expand bus, rail, and other forms of mass transit in the portion of the South Coast Air Basin within San Bernardino County.

Principle 7-P.49 Protect sensitive receptors from exposure to hazardous concentrations of air pollutants.

Action 7-A.147 Cooperate with the ongoing efforts of the U.S. Environmental Protection Agency, the South Coast Air Quality Management District, and the State of California Air Resources Board in improving air quality in the regional air basin.

Action 7-A.149 Ensure that construction and grading projects minimize short-term impacts to air quality.

a. Require grading projects to provide a stormwater pollution prevention plan (SWPPP) in compliance with City requirements, which include standards for best management practices (BMPs) that control pollutants from dust generated by construction activities and those related to vehicle and equipment cleaning, fueling, and maintenance;

b. Require grading projects to undertake measures to minimize mono-nitrogen oxides (NOx) emissions from vehicle and equipment operations; and

c. Monitor all construction to ensure that proper steps are implemented

Action 7-A.152 Enforce regulations to prevent trucks from excessive idling in residential areas.

Action 7-A.153 Require applicants for sensitive land uses (e.g. residences, schools, daycare

centers, playgrounds, and medical facilities) to site development and/or incorporate design features (e.g. pollution prevention, pollution reduction, barriers, landscaping, ventilation systems, or other measures) to minimize the potential impacts of air pollution on sensitive receptors.

Action 7-A.154 Require applicants for sensitive land uses within a Proposition 65 warning contour to conduct a health risk assessment and mitigate any health impacts to a less than significant level.

5.2.3 ENVIRONMENTAL SETTING

Climate and Meteorology

The TVSP area is located within the South Coast Air Basin (Basin), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The Basin is a 6,600-square-mile coastal plain bounded by the Pacific Ocean to the southwest and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes the non-desert portions of Los Angeles, Riverside, and San Bernardino counties, and all of Orange County.

The ambient concentrations of air pollutants are determined by the amount of emissions released by sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources.

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The topography and climate of Southern California combine to make the Basin an area of high air pollution potential. The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountains around the rest of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climatological pattern is disrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cool marine layer and inhibits the pollutants in the marine layer from dispersing upward. In addition, light winds during the summer further limit ventilation. Furthermore, sunlight triggers the photochemical reactions which produce ozone.

Criteria Air Pollutants

The California Air Resources Board (CARB) and the United States Environmental Protection Agency (USEPA) currently focus on the following air pollutants as indicators of ambient air quality: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}), fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead. These pollutants are referred to as "criteria air pollutants" because they are the most prevalent air pollutants known to be injurious to human health. Extensive health-effects criteria documents regarding the effects of these pollutants on human health and welfare have been prepared over the years.[2] Standards have been established for each criteria pollutant to meet specific public health and welfare criteria set forth in the federal Clean Air Act (CAA). California has generally adopted more stringent ambient air quality standards for the criteria air pollutants (referred to as State Ambient Air Quality Standards, or state standards) and has adopted air quality standards for some pollutants for which there is no corresponding national standard, such as sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Ozone

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air; but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROGs) or volatile organic compounds (VOCs), and oxides of nitrogen (NOx).

[2] Additional sources of information on the health effects of criteria pollutants can be found at CARB and USEPA's websites at http://www.arb.ca.gov/research/health/health.htm and http://www.epa.gov/air/airpollutants.html, respectively.

While both ROGs and VOCs refer to compounds of carbon, ROG is a term used by CARB and is based on a list of exempted carbon compounds determined by CARB. VOC is a term used by the USEPA and is based on its own exempt list. The time period required for ozone formation allows the reacting compounds to spread over a large area, producing regional pollution problems. Ozone concentrations are the cumulative result of regional development patterns rather than the result of a few significant emission sources.

Once ozone is formed, it remains in the atmosphere for one or two days. Ozone is then eliminated through reaction with chemicals on the leaves of plants, attachment to water droplets as they fall to earth ("rainout"), or absorption by water molecules in clouds that later fall to earth with rain ("washout").

Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. In addition to causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide

CO is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, motor vehicles operating at slow speeds are the primary source of CO in the Basin. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.

Nitrogen Dioxide

NO_2 is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NOx, which are reported as equivalent NO_2. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Sulfur Dioxide

SO_2 is a colorless, extremely irritating gas or liquid that enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfur trioxide (SO_3). Collectively, these pollutants are referred to as sulfur oxides (SOx).

Major sources of SO_2 include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of SO_2 aggravate lung diseases, especially bronchitis. This compound also constricts the breathing passages, especially in people with asthma and people involved in moderate to heavy exercise. SO_2 potentially causes wheezing, shortness of breath, and coughing. Long-term SO_2 exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease.

Particulate Matter

PM_{10} and $PM_{2.5}$ consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively (a micron is one-millionth of a meter). PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis and respiratory illnesses in children. Particulate matter can also damage materials and reduce visibility. One common source of $PM_{2.5}$ is diesel exhaust emissions.

PM_{10} consists of particulate matter emitted directly into the air (e.g., fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust) and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and ROG. Traffic generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM_{10} and $PM_{2.5}$ are also emitted by burning wood in residential wood stoves and fireplaces and open agricultural burning. $PM_{2.5}$ can also be formed through secondary processes such as airborne reactions with certain pollutant precursors, including ROGs, ammonia (NH_3), NOx, and SOx.

Lead

Lead is a metal found naturally in the environment and present in some manufactured products. There are a variety of activities that can contribute to lead emissions, which are grouped into two general categories, stationary and mobile sources. On-road mobile sources include light-duty automobiles; light-, medium-, and heavy-duty trucks; and motorcycles.

Emissions of lead have dropped substantially over the past 40 years. The reduction before 1990 is largely due to the phase-out of lead as an anti-knock agent in gasoline for on-road automobiles. Substantial emission reductions have also been achieved due to enhanced controls in the metals processing industry. In the Basin, atmospheric lead is generated almost entirely by the combustion of leaded gasoline and contributes less than one percent of the material collected as total suspended particulates.

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs), or in federal parlance, hazardous air pollutants (HAPs), are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to the California Almanac of Emissions and Air Quality, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (DPM). DPM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

Unlike the other TACs, no ambient monitoring data are available for DPM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a particulate matter exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

CO Hotspots

An adverse CO concentration, known as a "hot spot" is an exceedance of the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. In response, vehicle emissions standards have become increasingly stringent in the last twenty years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SCAB is now designated as attainment, and CO concentrations in the region have steadily declined (AQ 2022).

Odorous Emissions

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). Offensive odors are unpleasant and can lead to public distress generating citizen complaints to local governments. Although unpleasant, offensive odors rarely cause physical harm. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source, wind speed, direction, and the sensitivity of receptors.

EXISTING CONDITIONS

SCAQMD maintains monitoring stations within district boundaries, Source/Receptor Areas (SRAs), that monitor air quality and compliance with associated ambient standards. The TVSP area is located within SRA 35, East San Bernardino. The East San Bernardino monitoring station is located approximately 0.5 mile east of the TVSP area and reports air quality statistics for O_3 and PM_{10}. The East San Bernardino Valley monitoring station does not provide information for CO, NO_2, and $PM_{2.5}$, as such, statistics were obtained from the Central San Bernardino 2 monitoring station. The Central San Bernardino monitoring station is located within SRA 34 that is located 4.6 miles northwest of the TVSP area. The most recent 3 years of data is shown on Table 5.2-2 and identifies the number of days ambient air quality standards were exceeded in the area. Additionally, data for SO_2 has been omitted as attainment is regularly met in the South Coast Air Basin and few monitoring stations measure SO_2 concentrations.

In 2020, the federal and state ambient air quality standards (NAAQS and CAAQS) were exceeded on one or more days for ozone and PM_{10} at most monitoring locations. No areas of the SCAB exceeded federal or state standards for NO_2, SO_2, CO, sulfates, or lead. See Table 5.2-3, for attainment designations for the SCAB.

Table 5.2-2: Air Quality Monitoring Summary 2018-2020

Pollutant	Standard	Year		
		2018	2019	2020
O_3				
Maximum Federal 1-Hour Concentration (ppm)		.136	0.137	0.173
Maximum Federal 8-Hour Concentration (ppm)		.114	0.117	0.136
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	3	73	104
Number of Days Exceeding State/Federal 8-Hour Standard	> 0.070 ppm	4	109	141
CO				
Maximum Federal 1-Hour Concentration	> 35 ppm	2.7	1.3	1.9
Maximum Federal 8-Hour Concentration	> 20 ppm	2.5	1.1	1.4
NO_2				
Maximum Federal 1-Hour Concentration	> 0.100 ppm	0.057	0.059	0.054
Annual Federal Standard Design Value		0.016	0.014	0.015
PM_{10}				

Maximum Federal 24-Hour Concentration (µg/m^3)	> 150 µg/m^3	4	4	7
Annual Federal Arithmetic Mean (µg/m^3)		25.9	21.2	23.4
Number of Days Exceeding Federal 24-Hour Standard	> 150 µg/m^3			
Number of Days Exceeding State 24-Hour Standard	> 50 µg/m^3			
$PM_{2.5}$				
Maximum Federal 24-Hour Concentration (µg/m^3)	> 35 µg/m^3	30.10	34.80	25.70
Annual Federal Arithmetic Mean (µg/m^3)	> 12 µg/m^3	11.17	10.06	11.6
Number of Days Exceeding Federal 24-Hour Standard	> 35 µg/m^3	0	0	0

ppm = Parts Per Million

µg/m3 = Microgram per Cubic Meter

Source: AQ, 2022 (Appendix B)

Both CARB and the USEPA use this type of monitoring data to designate areas with air quality problems and to initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Nonattainment is defined as any area that does not meet, or that contributes to ambient air quality in a nearby area that does not meet the primary or secondary ambient air quality standard for the pollutant. Attainment is defined as any area that meets the primary or secondary ambient air quality standard for the pollutant. Unclassifiable is defined as any area that cannot be classified on the basis of available information as meeting or not meeting the primary or secondary ambient air quality standard for the pollutant. California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment.

Table 5.2-3: Attainment Status of Criteria Pollutants in the South Coast Air Basin (SCAB)

Criteria Pollutant	State Designation	Federal Designation
O_3 – 1-hour standard	Nonattainment	--
O_3 – 8-hour standard	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Unclassifiable/Attainment
NO_2	Attainment	Unclassifiable/Attainment
SO_2	Unclassifiable/Attainment	Unclassifiable/Attainment
Pb[3]	Attainment	Unclassifiable/Attainment

Source: AQ, 2022 (Appendix B).

The TVSP area consists of approximately 947 acres of land that surrounds three proposed Arrow stations. The area is current developed with a mix of commercial, industrial, and residential uses (including Redlands' downtown business district and a segment of Interstate 10 freeway). Air quality emissions are currently generated by operation of these existing uses and the related vehicular trips.

[3] The federal nonattainment designation for lead is only applicable towards the Los Angeles County portion of the SCAB.

Sensitive Land Uses

Land uses such as schools, children's daycare centers, hospitals, and convalescent homes are considered to be more sensitive to poor air quality than the general public because the population groups associated with these uses have increased susceptibility to respiratory distress. In addition, residential uses are considered more sensitive to air quality conditions than commercial and industrial uses, because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation. Existing sensitive receptors within and in the vicinity of the TVSP area consists of residences.

5.2.4 THRESHOLDS OF SIGNIFICANCE

According to Appendix G of the CEQA Guidelines, a project could have a significant adverse effect on air quality resources if it would:

AQ-1 Conflict with or obstruct implementation of the applicable air quality plan;

AQ-2 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;

AQ-3 Expose sensitive receptors to substantial pollutant concentrations; or

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

The Initial Study established that the proposed Project would not result in impacts related to Threshold AQ-4; and no further assessment of this impact is required in this EIR.

Regional Thresholds

The SCAQMD's most recent regional significance thresholds from April 2019 for regulated pollutants are listed in Table 5.2-4. The SCAQMD's CEQA air quality methodology provides that any projects that result in daily emissions that exceed any of the thresholds in Table 5.2-4 would be considered to have both an individually (project-level) and cumulatively significant air quality impact.

Table 5.2-4: SCAQMD Regional Air Quality Thresholds

Pollutant	Construction	Operations
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

Source: AQ, 2022 (Appendix B)

Localized Significance Thresholds

SCAQMD developed LSTs to determine if emissions of NO_2, CO, PM_{10}, or $PM_{2.5}$ generated at a project site would expose sensitive receptors to substantial concentrations of criteria air pollutants. LSTs are the maximum emissions from a project's onsite activities that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest residence or sensitive

receptor. However, an LST analysis can only be conducted at a development project level, as LST thresholds are based on specific project site data points such as graded acres per day and distance to sensitive receptors, and quantification of LSTs is not applicable for this program-level environmental analysis. For informational purposes, Table 5.2-5, provides the localized significance thresholds for projects in the South Coast Air Basin.

Table 5.2-5: SCAQMD Localized Significance Thresholds

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO2 Standard (CAAQS)	0.18 ppm
Annual NO2 Standard (CAAQS)	0.03 ppm
24-Hour PM_{10} Standard – Construction (SCAQMD)	10.4 µg/m^3
24-Hour $PM_{2.5}$ Standard – Construction (SCAQMD)	10.4 µg/m^3
24-Hour PM_{10} Standard – Operation (SCAQMD)	2.5 µg/m^3
24-Hour $PM_{2.5}$ Standard – Operation (SCAQMD)	2.5 µg/m^3
Annual Average PM_{10} Standard (SCAQMD)	1.0 µg/m^3

Source: SCAQMD 2015

CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. With the turnover of older vehicles and introduction of cleaner fuels as well as implementation of control technology on industrial facilities, CO concentrations in the South Coast Air Basin and the state have steadily declined. The analysis of CO hotspots compares the volume of traffic that has the potential to generate a CO hotspot and the volume of traffic generated by the proposed Project.

5.2.5 METHODOLOGY

This analysis focuses on the nature and magnitude of the change in the air quality environment due to implementation of the proposed Project, based on the maximum development assumptions that are outlined in Section 3.0*, Project Description*.

Air pollutant emissions associated with the proposed Project would result from construction equipment usage and from construction-related traffic. Additionally, emissions would be generated from operations of the future residential and business uses and from traffic volumes generated by these new uses. The net increase in emissions generated by these activities and other secondary sources have been quantitatively estimated and compared to the applicable thresholds of significance recommended by SCAQMD.

Although the Project would comply with all of the applicable AQMD requirements, it should be noted that emission reductions associated with Rules 402, 1301, 1401, and 2305 cannot be quantified in the California Emissions Estimator Model (CalEEMod) and are therefore not reflected in the emissions presented herein. Conversely, Rule 403 (Fugitive Dust) and Rule 1113 (Architectural Coatings) can be modeled in CalEEMod. As such, credit for Rule 403 and Rule 1113 have been taken in the analysis.

AQMP Consistency

SCAQMD's CEQA Handbook suggests an evaluation of the following two criteria to determine whether a project involving a legislative land use action (such as the proposed General Plan land use and zoning designation changes) would be consistent or in conflict with the AQMP:

1. The project would not generate population and employment growth that would be inconsistent with SCAG's growth forecasts.
2. The project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

Consistency Criterion No. 1 refers to the SCAG's growth forecast and associated assumptions included in the AQMP. The future air quality levels projected in the AQMP are based on SCAG's growth projections, which are based, in part, on the general plans of cities and counties located within the SCAG region. Therefore, if the level of housing or employment related to the proposed Project are consistent with the applicable assumptions used in the development of the AQMP, the Project would not jeopardize attainment of the air quality levels identified in the AQMP.

Consistency Criterion No. 2 refers to the California Ambient Air Quality Standards. An impact would occur if the long-term emissions associated with the proposed Project would exceed SCAQMD's regional significance thresholds for operation-phase emissions.

Construction

Buildout of the TVSP is anticipated to occur over 18 years (2022 through 2040), with the location, type, and timing of site-specific development projects and construction activities determined by market demand. Because of the uncertainty of the specific timing and methods of construction activities for future site-specific development projects that would occur by the proposed TVSP, a worst-case construction scenario is analyzed in this EIR. It was conservatively assumed that construction would occur throughout the 18-year period, and the emissions that would be generated from buildout of the proposed TVSP was averaged over this timeframe. Given a 18-year buildout, it is conservatively assumed that project-related development might be undergoing some stage of onsite activity (demolition, site preparation, and construction) on the theoretical "maximum construction day." In addition, an estimate of the construction equipment that might be active on the theoretical "maximum construction day" was identified based on the size of parcels and type of existing development within the TVSP area. Further, it was assumed that construction from several projects could overlap. Thus, the EIR identifies the potentially worst case scenario.

Construction-generated emissions of criteria air pollutants and ozone precursors were assessed in accordance with methods recommended by SCAQMD. The proposed Specific Plan's regional emissions were modeled using the California Emissions Estimator Model (CalEEMod), as recommended by SCAQMD. CalEEMod was used to determine whether construction-related emissions of criteria air pollutants associated with the proposed TVSP could exceed applicable regional thresholds and if mitigation would be required.

Operations

Long-term (i.e., operational) regional emissions of criteria air pollutants and precursors, including mobile- and area-source emissions from the Project, were also quantified using the CalEEMod computer model. Area-source emissions were modeled according to the size and type of the land uses proposed. Mass mobile-source emissions were modeled based on the increase in daily vehicle trips that would result from the proposed Project. Predicted long-term operational emissions were compared with applicable SCAQMD thresholds for determination of significance.

5.2.6 ENVIRONMENTAL IMPACTS

As detailed in Section 3.0, *Project Description*, the proposed Project would provide a form-based code that would allow development of up to 2,400 residential units; 613,000 square feet of retail commercial, hotel, and office space; and 280,000 square feet of open space and parks within the TVSP area. However, the timing of development and operation of the development pursuant to the TVSP would be dependent upon market conditions and development applications for new projects. Due to the unknown nature and incremental timing of the Project, the air quality impact analysis includes conservative assumptions that provides for identification of the maximum potential impacts.

IMPACT AQ-1: THE PROJECT WOULD CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF AN APPLICABLE AIR QUALITY PLAN

Significant and Unavoidable Impact. The SCAQMD's 2016 AQMP is the applicable air quality plan for the proposed TVSP area. Pursuant to Consistency Criterion No. 1, the SCAQMD's 2016 AQMP is the applicable air quality plan for the proposed Project. Projects that are consistent with the regional population, housing, and employment forecasts identified by SCAG are considered to be consistent with the AQMP growth projections, since the forecast assumptions by SCAG forms the basis of the land use and transportation control portions of the AQMP. Additionally, because SCAG's regional growth forecasts are based upon, among other things, land uses designated in general plans, a project that is consistent with the land use designated in a general plan would also be consistent with the SCAG's regional forecast projections, and thus also with the AQMP growth projections.

The proposed TVSP includes amending the GP2035 to establish a new TVD land use designation to provide for infill development of new residential and commercial uses within 0.5 mile of each of the three new Arrow stations. The form-based code that would be implemented by the proposed TVSP emphasizes building form, a mix and density of different transit-oriented development, pedestrian circulation, and public realm improvements and amenities. This includes a network of complete, multi-modal streets that provide for pedestrians, bicyclists, transit patrons, and motorists.

As detailed in Section 5.11, *Population and Housing*, buildout of the proposed TVSP would allow development of 2,400 residential units and 613,000 square feet of retail commercial, hotel, and office space, representing a population of approximately 6,360 persons and 1,226 employees at buildout and full occupancy (maximum impact condition). Development pursuant to the proposed TVSP would consist mostly of infill, mixed-use, and redevelopment projects that are market and need dependent. Because the employment land designated areas in the TVSP area are existing and would not change with implementation of the TVSP, the 1,226 jobs expected in the TVSP area are included in the SCAG projections.

The SCAG 2020 RTP/SCS projections for the City of Redlands anticipate a 32.2 percent increase in employment in the City between 2016 and 2045 (an increase of 13,700 jobs). The 1,226 jobs that are anticipated to occur within the TVSP area would be approximately 8.9 percent of the anticipated job growth, and within the growth assumptions of the SCAG AQMP.

The housing added by the Specific Plan would help to meet housing demands from projected employment growth in the City while maintaining a healthy vacancy rate. The provision of housing within walking distance to the three new Arrow stations and community retail would reduce vehicle miles traveled and the related air quality emissions. In addition, the TVSP implements infill development, located in an urbanized area with existing infrastructure, near transit, and implements bicycle and pedestrian infrastructure; all of which are intended to reduce vehicle miles traveled and vehicular emissions. This is consistent with the SCAG objective to "Encourage patterns of urban development and land use that reduce costs in infrastructure construction and make better use of existing facilities." Thus, the proposed TVSP would support AQMP objectives to reduce trips, promote infill development, and balance jobs and housing, and would not conflict with implementation of the AQMP. As a result, the proposed TVSP would comply with AQMD AQMP Consistency Criterion No. 1.

Regarding Consistency Criterion No. 2, which evaluates the potential of the proposed Project to increase the frequency or severity of existing air quality violations; as described previously, an impact related to Consistency Criterion No. 2 would occur if the long-term emissions associated with the proposed Project would exceed SCAQMD's regional significance thresholds for operation-phase emissions. As detailed below in Impact AQ-2, the Project would result in regional operational-source emissions that would exceed the thresholds of significance for CO, VOC, and NO_X emissions after implementation of regulatory requirements and Mitigation Measures AQ-8 through AQ-10; and therefore, would result in an increase in the frequency or severity of existing air quality violations and contribute to new violations or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP. Therefore, the proposed Project would result in an impact related to Consistency Criterion No. 2.

Overall, despite the Project's consistency with SCAG's regional growth forecasts, the Project would lead to increased regional air quality emissions that would exceed thresholds. Therefore, the proposed TVSP would result in a conflict with, or obstruct, implementation of the AQMP and impacts would be significant and unavoidable after implementation of the mitigation measures detailed below.

IMPACT AQ-2: THE PROJECT WOULD RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF A CRITERIA POLLUTANT FOR WHICH THE PROJECT REGION IS NON-ATTAINMENT UNDER AN APPLICABLE FEDERAL OR STATE AMBIENT AIR QUALITY STANDARD

Construction

Significant and Unavoidable Impact. Construction activities associated with the Project would result in emissions of CO, VOCs, NOx, SOx, PM_{10}, and $PM_{2.5}$. Pollutant emissions associated with construction would be generated from the following construction activities: (1) demolition, grading, and excavation; (2) construction workers traveling to and from the TVSP area; (3) delivery and hauling of construction supplies to, and debris from, the TVSP area; (4) fuel combustion by onsite construction equipment; (5) building construction; application of architectural coatings; and paving. These construction activities would temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants.

As described previously, the timing of development and operation of the development pursuant to the TVSP would be dependent upon market conditions and development applications for new projects. Thus, construction activities associated with buildout of the proposed TVSP would likely occur sporadically over an 18-year period or longer. Due to the uncertainty of the specific timing and methods of construction activities related to TVSP development projects, the maximum daily emissions are based on a very conservative scenario that construction could occur throughout the TVSP implementation period, based on maximum equipment use, and multiple future TVSP development projects overlapping. The construction modeling of potential construction impacts assumed the following construction equipment would be used during construction of TVSP development projects.

Table 5.2-6: Construction Equipment Assumptions

Construction Activity	Equipment	Amount	Hours Per Day
Demolition	Concrete/Industrial Saws	1	8
	Excavators	3	8
	Rubber Tired Dozers	2	8
Site Preparation	Crawler Tractors	4	8
	Rubber Tired Dozers	3	8
Grading	Crawler Tractors	2	8
	Excavators	2	8
	Graders	1	8
	Rubber Tired Dozers	1	8
	Scrapers	2	8
Building Construction	Cranes	1	8

	Forklifts	3	8
	Generator Sets	1	8
	Tractors/Loaders/Backhoes	3	8
	Welders	1	8
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
Architectural Coating	Air Compressors	1	8

Source: AQ, 2022 (Appendix B).

The maximum daily construction emissions for the proposed TVSP were estimated using CalEEMod; and the modeling includes compliance with SCAQMD Rules 403 and 1113 (described above). Table 5.2-7 provides the maximum daily emissions of criteria air pollutants from construction under the scenario of multiple development projects being implemented simultaneously. As shown, under this scenario emissions from construction would exceed thresholds established by the SCAQMD for emissions of VOCs and NO_X.

Table 5.2-7: Maximum Peak Construction Emissions Without Mitigation

Construction Activity	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer						
Demolition	21.19	219.81	206.38	0.41	16.69	10.76
Site Preparation	24.85	287.64	147.08	0.37	73.31	40.27
Grading	34.10	384.79	249.01	0.65	55.35	29.27
Building Construction	48.18	288.26	532.02	1.45	94.37	32.79
Paving	7.08	65.36	105.42	0.17	4.33	3.26
Architectural Coating	590.53	13.78	33.00	0.07	5.20	1.89
Winter						
Demolition	21.21	220.19	205.88	0.41	16.69	10.76
Site Preparation	24.87	287.67	146.63	0.37	73.31	40.27
Grading	34.12	385.10	248.40	0.64	55.35	29.27
Building Construction	49.49	292.42	508.98	1.41	94.37	32.79
Paving	7.10	65.38	105.12	0.17	4.33	3.26
Architectural Coating	590.61	13.85	31.72	0.07	5.20	1.89
Maximum Daily Emissions	**590.61**	**385.10**	**532.02**	**1.45**	**94.37**	**40.27**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

Source: AQ, 2022 (Appendix B).

As shown in Table 5.2-7, emissions resulting from construction would exceed criteria pollutant thresholds for VOC and NOx. Development projects would be required, through City review and construction permitting, to implement SCAQMD rules, including: Rule 401, Rule 402, Rule 403, Rule 481, Rule 1108, Rule 1113, and Rule 1143 (described previously) that would reduce construction related emissions. Also, Mitigation Measures AQ-1 through AQ-7 are included to require the construction activities to utilize "Super-Compliant" low VOC paints that have no more than 10g/L of VOC, which exceeds the regulatory VOC limits put forth by SCAQMD's Rule 1113, require all construction equipment greater than 150 horsepower (>150 HP) to be CARB certified tier 3 or higher, use of electrical and alternative fueled equipment, and other similar measures. With implementation of Mitigation Measures AQ-1 through AQ-6, emissions of VOC and NOx from construction activities would be reduced and emissions from most TVSP developments would be reduced to below the SCAQMD significance thresholds. However, due to the potential overlap of development projects and construction activities, it cannot be assured that the mitigation measures would reduce emissions below the SCAQMD significance thresholds. As shown in Table 5.2-7, VOC emissions have the potential to be 7.9 times higher than the threshold, and NO_X emissions have the potential to be over 3.8 times higher

than the threshold, with this level of potential emissions exceedances during overlapping construction projects, construction emissions could continue to exceed thresholds with implementation of Mitigation Measures AQ-1 through AQ-6. Therefore, based on the very conservative scenario of construction timing and construction equipment use, impacts related to construction emissions would remain significant and unavoidable.

Operation

Significant and Unavoidable. Development pursuant to the proposed TVSP would consist mostly of infill, mixed-use, and redevelopment projects that are market and need dependent. Additionally, the residential development that would occur would help to meet housing demands from projected employment growth in the City and be in the proximity to transit and commercial uses that would reduce dependence of vehicles and result in a reduction in vehicle miles traveled.

The new development identified by the TVSP would generate in long-term emissions of criteria air pollutants from area sources generated by vehicular emissions, natural gas consumption, landscaping, applications of architectural coatings, and use of consumer products, which are typical of residential, commercial, and office uses. As shown in Table 5.2-8, operation of the land uses included in the TVSP at buildout and full occupancy would generate emissions that would exceed the applicable SCAQMD thresholds for CO, VOC, and NO_X.

Table 5.2-8: Summary of Peak Operational Emissions

Area	Emissions (lbs/day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Summer						
State Street Village	26.07	10.36	110.85	0.13	11.36	0.76
The Grand Apartments	5.52	4.66	29.63	0.06	5.40	1.68
City Center Mixed-Use	6.38	5.16	35.94	0.07	7.47	2.22
Downtown Village Future Projects	15.19	11.18	96.27	0.20	24.41	6.82
University Village	45.99	36.52	245.15	0.47	47.53	14.42
New York Street Village	18.34	12.06	97.36	0.20	24.32	6.88
Total Maximum Daily Emissions	**117.49**	**79.95**	**615.20**	**1.13**	**120.48**	**32.78**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
Winter						
State Street Village	25.80	10.74	110.20	0.13	11.36	0.76
The Grand Apartments	5.47	4.77	29.25	0.06	5.40	1.68
City Center Mixed-Use	6.27	5.33	35.59	0.07	7.47	2.22
Downtown Village Future Projects	14.78	11.76	95.36	0.19	24.41	6.82
University Village	45.31	37.57	242.81	0.46	47.53	14.42
New York Street Village	17.99	12.61	96.11	0.19	24.32	6.88
Total Maximum Daily Emissions	**115.61**	**82.78**	**609.31**	**1.09**	**120.48**	**32.78**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**

Source: AQ, 2022 (Appendix B).

As a result, Mitigation Measure AQ-7 would be implemented to require development projects in the TVSP area to achieve 5 percent efficiency beyond the incumbent California Building Code Title 24 requirements; and Mitigation Measure AQ-8 would require enhanced water conservation for TVSP development projects. However, similar to the analysis presented in the General Plan EIR, even with implementation of Mitigation Measures AQ-7 and AQ-8, emissions would continue to exceed regional thresholds of significance established by the SCAQMD, and impacts would be significant and unavoidable.

It is important to note that the majority of VOC emissions are derived from consumer products. For analytical purposes, consumer products include cleaning supplies, aerosols, and other consumer products. As such, the Project applicant cannot meaningfully control the use of consumer products by future building users via

mitigation. On this basis, it is concluded that Project operational-source VOC emissions cannot be definitively reduced below applicable SCQMD thresholds.

Additionally, it should be noted that the majority of the Project's CO and NO_X emissions are derived from vehicle usage. Since neither future project applicants nor the City have regulatory authority to control tailpipe emissions, no feasible mitigation measures exist that would reduce these emissions to levels that are less-than-significant.

Health Impacts of Exceeded Criteria Pollutant Emissions. The Draft EIR identifies a significant and unavoidable impact with respect to CO, NOx, and VOC emissions, due largely to the use of consumer products and vehicle trips. NOx is a "criteria" pollutant, a pollutant that is regulated by the US EPA pursuant to the federal Clean Air Act. The potential health impacts of criteria pollutants are analyzed on a regional level, not on a facility/project level. The SCAQMD and the San Joaquin Valley Unified Air Pollution Control District (SJVAPD), experts in the area of air quality, both recognize that a meaningful, accurate analysis of potential health impacts resulting from criteria pollutants is not currently possible and not likely to yield substantive information that promotes informed decision making. The SJVAPD, in its amicus curiae brief for the recent California Supreme Court decision in *Sierra Club v. County of Fresno* (2018)6 Cal.5th 502, explained that "it is not feasible to conduct a [health impact analysis] for criteria air pollutants because currently available computer modeling tools are not equipped for this task." The SJVAPD described a project-specific health impact analysis as "not practicable and not likely to yield valid information" because "currently available modeling tools are not well suited for this task." The SJVAPD further noted that "…the CEQA air quality analysis for criteria pollutants is not really a localized, project-level impact analysis but one of regional" cumulative impacts.

It should also be noted that CO, NOx, and VOCs are "precursor" pollutants, which makes analysis of potential health impacts even more difficult. CO, NOx, and VOCs are precursors to ozone, which is formed in the atmosphere from the chemical reaction of CO, NOx, and VOCs in the presence of sunlight. As explained by the SCAQMD in its amicus curiae brief for *Sierra Club v. County of Fresno*, it takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources." Given this, "…it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region." Therefore, SCAQMD opined that while it "may be feasible" for large, regional projects with very high emissions of CO, NOx, and VOCs to conduct an accurate health impact analysis, SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by CO, NOx, or VOC emissions from relatively small projects.

Thus, the difficulties with preparing potential health impact analysis related to the Project's CO, NOx, and VOC emissions are twofold. First, current modeling is not capable of correlating emissions of criteria pollutants to concentrations that can be reasonably linked to specific health impacts. Second, CO, NOx, and VOCs are precursor emissions and concentrations of CO, NOx, and VOC are impacted by regional atmospheric conditions. CO, NOx, and VOCs emitted by the Project may, depending upon interactions with the sun and other emissions, convert to ozone by complex chemical processes. Thus, there is a significant level of unpredictability associated with such conversion to ozone, as noted by the SCAQMD and the SJVAPD. It should also be noted that the EIR does identify health concerns related to CO and NOx emissions. Table 5.2-1 includes a list of criteria pollutants and summarizes common sources and effects. Thus, the EIR's analysis is reasonable and intended to foster informed decision making.

IMPACT AQ-3: THE PROJECT WOULD NOT EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS

CO Hotspots

Less than Significant Impact. An adverse CO concentration, known as a "hot spot", would occur if an exceedance of the State's one-hour standard of 20 ppm or the eight-hour standard of 9 ppm were to occur.

The 2003 AQMP estimated traffic volumes that could generate CO concentrations to result in a "hot spot". As shown in Table 5.2-10, the Wilshire-Veteran intersection had a daily traffic volume of approximately 100,000 vehicles per day, and the 1-hour CO concentration was 4.6 ppm. This indicates that, even with a traffic volume of 400,000 vehicles per day, CO concentrations (4.6 ppm x 4= 18.4 ppm) would still not exceed the most stringent 1-hour CO standard (20.0 ppm).[4]

Table 5.2-10: Traffic Volumes for Intersections Evaluated in 2003 AQMP

Intersection Location	Peak Traffic Volumes (vph)				
	Eastbound (a.m./p.m.)	Westbound (a.m./p.m.)	Southbound (a.m./p.m.)	Northbound (a.m./p.m.)	Total (a.m./p.m.)
Wilshire-Veteran	4,954/2,069	1,830/3,317	721/1,400	560/933	8,062/7,719
Sunset-Highland	1,417/1,764	1,342/1,540	2,304/1,832	1,551/2,238	6,614/5,374
La Cienega-Century	2,540/2,243	1,890/2,728	1,384/2,029	821/1,674	6,634/8,674
Long Beach-Imperial	1,217/2,020	1,760/1,400	479/944	756/1,150	4,212/5,514

Source: AQ, 2022 (Appendix B).

Operation of the proposed Project at buildout during AM peak hour would result in a total of 1,896 trips throughout the TVSP area and a total of 1,816 trips in the PM peak hour throughout the TVSP area. These trips distributed throughout the TVSP area would not result in daily traffic volumes of 100,000 vehicles per day or more. As such, Project-related traffic volumes are less than the traffic volumes identified in the 2003 AQMP; and are not high enough to generate a CO "hot spot". Therefore, impacts related to CO "hot spots" from operation of the proposed Project would be less than significant.

Localized Construction Air Quality Impacts

Less than Significant with Mitigation Incorporated. As described previously, an LST analysis can only be conducted at a development project level, and quantification of LST's is not applicable for this program-level environmental analysis. However, implementation of developments pursuant to the TVSP could result in localized emissions that exceed air quality standards. Thus, implementation of the TVSP could result in a significant impact related to LST's. As a result, Mitigation Measure AQ-9 is included, which requires development projects to provide modeling of the regional and the localized emissions (NO_X, CO, PM_{10}, and $PM_{2.5}$) associated with the maximum daily grading activities for the proposed development; and requires grading activity to be limited to ensure that there would be no impacts related to LST's. Therefore, impacts related to localized construction air quality impacts would be less than significant with implementation of Mitigation Measure AQ-9.

Toxic Air Contaminants

Less than Significant with Mitigation Incorporated. CARB has issued advisory recommendations for siting new sensitive land uses in proximity to sources associated with Toxic Air Contaminants (TAC's) and recommends performing site specific environmental evaluations. However, it is currently unknown what development projects that could include a sensitive receptor would be proposed next to an existing TAC, such as warehouses, industrial areas, freeways, roadways, and rail lines with traffic volumes over 10,000 vehicle per day. Therefore, consistent with CARB guidance, Mitigation Measure AQ-10 is included to require a site-specific evaluation prior to approving any sensitive land use in proximity to an existing TAC within the TVSP area. Implementation of Mitigation Measure AQ-10 would reduce potential impacts related to TACs to a less than significant level.

5.2.7 CUMULATIVE IMPACTS

[4] Based on the ratio of the CO standard (20.0 ppm) and the modeled value (4.6 ppm).

As described previously, per SCAQMD's methodology, if an individual project would result in air emissions of criteria pollutants that exceeds the SCAQMD's thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants.

As described in Impact AQ-2 above, emissions from construction of the proposed Project could exceed SCAQMD's threshold for VOC and NOx after implementation of SCAQMD Rules and mitigation measures if several development projects within the TVSP area overlap.

Also, emissions from operation of the proposed Project at buildout would exceed SCAQMD's threshold for CO, VOC, and NOx after implementation of mitigation measures. Because the large majority of operational-source CO and NOx emissions (by weight) would be generated by project vehicles, and the VOC emissions would be generated by consumer products that neither future project applicants nor the City have the ability to reduce emissions of. Therefore, similar to the analysis presented in the General Plan EIR, operational-source CO, VOC, and NOx emissions from implementation of the proposed Project would be cumulatively considerable, and cumulative air quality impacts would be significant and unavoidable.

5.2.8 EXISTING REGULATIONS, STANDARD CONDITIONS, AND PLANS, PROGRAMS, OR POLICIES

Existing Regulations

State

- Airborne Toxic Control Measure to Limit Diesel-Fuel Commercial Vehicle Idling (13 CCR 2485)
- In-Use Off-Road Diesel Idling Restriction (13 CCR 2449)
- California Green Building Standards Code (Code of Regulations, Title 24 Part 6)

Regional

- SCAQMD Rule 201: Permit to Construct
- SCAQMD Rule 402: Nuisance Odors
- SCAQMD Rule 403: Fugitive Dust
- SCAQMD Rule 1108: Volatile Organic Compounds
- SCAQMD Rule 1113: Architectural Coatings
- SCAQMD Rule 1143: Paint Thinners and Solvents

Standard Conditions

None.

Plans, Programs, or Policies

None.

5.2.9 LEVEL OF SIGNIFICANCE BEFORE MITIGATION

Without mitigation, the following impacts would be **potentially significant**:

Impact AQ-1: Buildout of the proposed TVSP would increase the frequency or severity of existing air quality violations, and an impact regarding AQMP Consistency Criterion No. 2 would occur.

Impact AQ-2: Construction and operation associated with buildout of the proposed TVSP would generate a substantial increase in criteria air pollutant emissions that exceed the threshold criteria and would cumulatively contribute to the nonattainment designations of the SCAB.

Impact AQ-3: Buildout of the proposed TVSP could result in new sources of criteria air pollutant emissions and/or toxic air contaminants proximate to existing or planned sensitive receptors.

5.2.10 MITIGATION MEASURES

Mitigation Measure AQ-1: Tier 3 Construction Equipment. Construction plans and specifications and construction permitting for developments within the TVSP area shall include the requirement that for construction equipment greater than 150 horsepower (>150 HP), the Construction Contractor shall use off-road diesel construction equipment that complies with Environmental Protection Agency (EPA)/California Air Resources Board (CARB) Tier 3 emissions standards during all construction phases and will ensure that all construction equipment be tuned and maintained in accordance with the manufacturer's specifications.

Mitigation Measure AQ-2: Low VOC Paints. Construction plans and specifications and construction permitting for developments within the TVSP area shall include the requirement that "Super-Compliant" low VOC paints shall be utilized that have been reformulated to exceed the regulatory VOC limits put forth by SCAQMD's Rule 1113. Super-Compliant low VOC paints shall be no more than 10 grams per liter (g/L) of VOC. Alternatively, the applicant may utilize tilt-up concrete buildings that do not require the use of architectural coatings.

Mitigation Measure AQ-3: Electric Construction Equipment. Construction plans and specifications and construction permitting for developments within the TVSP area shall include the requirement that contract specifications for construction activities rely on the electricity infrastructure surrounding the construction site, if available rather than electrical generators powered by internal combustion engines.

Mitigation Measure AQ-4: Alternative Fueled Construction Equipment. Construction plans and specifications and construction permitting for developments within the TVSP area shall include the requirement to use of alternative fueled, engine retrofit technology, after-treatment products (e.g., diesel oxidation catalysts, diesel particulate filters), and/or other options as they become available, including all off-road and portable diesel-powered equipment.

Mitigation Measure AQ-5: Construction Equipment Maintenance. Construction plans and specifications and construction permitting for developments within the TVSP area shall include the requirement that construction equipment be maintained in good operating condition pursuant to manufacturer specifications to reduce emissions. The Construction Contractor shall ensure that all construction equipment is being properly serviced and maintained as per the manufacturer's specification. Maintenance records shall be available at the construction site for City verification.

Mitigation Measure AQ-6: Construction Vehicle Management Plan. Prior to the issuance of any grading permits for developments within the TVSP area, the applicant and/or building operators shall submit construction plans and a construction vehicle management plan to the City of Redlands denoting the proposed schedule and projected equipment use. The construction vehicle management plan shall include such things as: idling time requirements; requiring hour meters on equipment; documenting the serial number, horsepower, age, and fuel of all onsite equipment. The plan shall include that California state law requires equipment fleets to limit idling to no more than 5 minutes. Construction contractors shall provide evidence that low emission mobile construction equipment will be utilized, or that their use was investigated and found to be infeasible for the project as determined by the City. Contractors shall also conform to any construction measures imposed by the SCAQMD as well as City Planning Staff.

Mitigation Measure AQ-7: Enhanced Energy Efficiency. Prior to the issuance of building permits, the Project applicant shall submit energy usage calculations to the Planning Division showing that the Project is designed to achieve 5 percent (%) efficiency beyond the incumbent California Building Code Title 24 requirements. Example of measures that reduce energy consumption include, but are not limited to, the following (it being understood that the items listed below are not all required and merely present examples; the list is not all-inclusive and other features that reduce energy consumption also are acceptable):

- Increase in insulation such that heat transfer and thermal bridging is minimized;
- Limit air leakage through the structure and/or within the heating and cooling distribution system;
- Use of energy-efficient space heating and cooling equipment;
- Installation of electrical hook-ups at loading dock areas;
- Installation of dual-paned or other energy efficient windows;
- Use of interior and exterior energy efficient lighting that exceeds then incumbent California Title 24 Energy Efficiency performance standards;
- Installation of automatic devices to turn off lights where they are not needed;
- Application of a paint and surface color palette that emphasizes light and off-white colors that reflect heat away from buildings;
- Design of buildings with "cool roofs" using products certified by the Cool Roof Rating Council, and/or exposed roof surfaces using light and off-white colors;
- Design of buildings to accommodate photo-voltaic solar electricity systems or the installation of photo-voltaic solar electricity systems;
  Installation of ENERGY STAR-qualified energy-efficient appliances, heating and cooling systems, office equipment, and/or lighting products.

Mitigation Measure AQ-8: Enhanced Water Conservation. To reduce water demands and associated energy use, subsequent development proposals within the TVSP area shall incorporate a Water Conservation Strategy and demonstrate a minimum 30% reduction in outdoor water usage when compared to baseline water demand (total expected water demand without implementation of the Water Conservation Strategy)[5]. Development proposals within the TVSP area shall also implement the following:

- Landscaping palette emphasizing drought tolerant plants;
- Use of water-efficient irrigation techniques;
- U.S. EPA Certified WaterSense labeled or equivalent faucets, high-efficiency toilets (HETs), and water-conserving shower heads.
- Use of recycled water when available.

Mitigation Measure AQ-9: Localized Emissions. For implementing projects within the TVSP area, the applicant shall be responsible for submitting a focused project-level air quality assessment that includes the modeling of localized on-site emissions associated with daily grading activities anticipated for the proposed development. During the City's review process of development applications in the TVSP area, the applicant shall conduct or shall have conducted modeling of the regional and the localized emissions (nitrogen oxides [NO_X], carbon monoxide [CO], Particulate Matter 10 microns in diameter or less [PM_{10}], and Particulate Matter 2.5 microns in diameter or less [$PM_{2.5}$]) associated with the maximum daily grading activities estimated for the proposed individual developments. If the modeling shows that emissions would exceed the

[5] The analysis includes a reduction of 20% indoor water usage consistent with the current CALGreen Code (11) for residential and non-residential land uses. Per CALGreen, the reduction shall be based on the maximum allowable water use per plumbing fixture and fittings as required by the California Building Standards Code.

SCAQMD's significance thresholds for those emissions, the maximum daily grading activities of the proposed development shall be limited to the extent that could occur without resulting in emissions in excess of SCAQMD's significance thresholds for those emissions.

Mitigation Measure AQ-10: Toxic Air Contaminants. Applicants for residential and other sensitive land use projects (e.g., hospitals, nursing homes, day care centers) in the TVSP area within 1,000 feet of a major sources of TACs (e.g., warehouses, industrial areas, freeways, roadways, and rail lines with traffic volumes over 10,000 vehicle per day), as measured from the property line of the project to the property line of the source/edge of the nearest travel lane, shall submit a health risk assessment (HRA) to the City of Redlands prior to future discretionary project approval. The HRA shall be prepared in accordance with policies and procedures of CEQA and the SCAQMD. If the HRA shows that the incremental cancer risk exceeds ten in one million (10E-06), PM_{10} concentrations exceed 2.5 microgram per cubic meter ($\mu g/m^3$), $PM_{2.5}$ concentrations exceed 2.5 $\mu g/m^3$, or the appropriate noncancer hazard index exceeds 1.0, the applicant will be required to identify and demonstrate that mitigation measures are capable of reducing potential cancer and non-cancer risks to an acceptable level (i.e., below ten in one million or a hazard index of 1.0), including appropriate enforcement mechanisms. Measures to reduce risk may include but are not limited to:

- Air intakes located away from high volume roadways and/or truck loading zones.
- Heating, ventilation, and air conditioning systems of the buildings provided with appropriately sized maximum efficiency rating value (MERV) filters (e.g., MERV 13 or better).

5.2.11 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impact AQ-1: Land use change of the Project would not result in an exceedance of SCAG's growth projections, but the Project would result in an increase of criteria pollutants that would exceed regional thresholds after implementation of mitigation. Therefore, the proposed Project would result in a conflict with, or obstruct, implementation of the AQMP and impacts would be **significant and unavoidable**.

Impact AQ-2: Emissions from the construction of the implementing projects have the potential to overlap, which could result in a significant impact after implementation of SCAQMD Rules and Mitigation Measures AQ-1 through AQ-7.

Emissions from operation of the proposed TVSP at buildout would exceed SCAQMD's thresholds for CO, VOC, and NOx after implementation of regulations and mitigation measures. Because a majority of operational-source CO and NOx emissions (by weight) would be generated by vehicle trips, and the VOC emissions would be generated by consumer products that neither future Project applicants nor the City have the ability to reduce emissions of. Therefore, operational-source CO, VOC, and NOx emissions from implementation of the proposed Project would be cumulatively considerable, and cumulative air quality impacts would be **significant and unavoidable**.

Impact AQ-3: After implementation of Mitigation Measures AQ-9 and AQ-10, localized and toxic air contaminant emissions would not exceed the SCAQMD's localized significance threshold for any of the pollutants or TAC related threshold. Thus, impacts would be **less than significant**.

REFERENCES

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