APPENDIX B
AIR QUALITY REPORT

ELYSIAN PARK/USC
WATER RECYCLING PROJECT
AIR QUALITY IMPACT REPORT

taha
environmental planners

Prepared for

AECOM

Prepared by

TERRY A. HAYES ASSOCIATES INC.

July 16, 2013
taha 2012-016

ELYSIAN PARK/USC
WATER RECYCLING PROJECT
AIR QUALITY IMPACT REPORT

Prepared for

AECOM
515 South Flower Street, 9th Floor
Los Angeles, CA 90071

Prepared by

TERRY A. HAYES ASSOCIATES INC.
8522 National Boulevard, Suite 102
Culver City, CA 90232

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1.0 SUMMARY OF FINDINGS

Terry A. Hayes Associates Inc. has completed an air quality analysis for the proposed Elysian Park/USC Water Recycling Project (proposed project). Key findings are listed below:

- Regional construction emissions would result in a less-than-significant impact and no mitigation measures are required.
- Localized construction emissions would result in a less-than-significant impact and no mitigation measures are required.
- Toxic air contaminant construction emissions would result in a less-than-significant impact and no mitigation measures are required.
- Construction odors would result in a less-than-significant impact and no mitigation measures are required.
- The proposed project would not consist of long-term operational activities. Therefore, the proposed project would not result in significant impact and no mitigation measures are required.
- The proposed project would result in a less-than significant impact related to greenhouse gas emissions and no mitigation is required.

2.0 INTRODUCTION

2.1 PURPOSE

The purpose of this report is to evaluate the potential for air quality impacts of the proposed project. Potential air quality emissions are analyzed for construction of the proposed project. The proposed project has been prepared pursuant to the California Environmental Quality Act (CEQA).

2.2 PROJECT DESCRIPTION

With imported water supplies becoming increasingly restricted and unreliable, the Los Angeles Department of Water and Power (LADWP) 2010 Urban Water Management Plan calls for 59,000 acre feet per year (AFY) of potable supplies to be replaced by recycled water by 2035.[1] The proposed project is part of the effort to maximize the use of recycled water for non-potable uses. The proposed project would provide recycled water to some of the City of Los Angeles' largest water customers, and where feasible, switch their potable water use into recycled water use. The proposed pipeline route would be implemented in two phases.

The first phase of the project involves the delivery of recycled water to Elysian Park. A new 16-inch recycled water pipeline would be constructed from the existing recycled water pipeline serving Taylor Yard (Taylor Yard WRP), totaling approximately 10,800 linear feet. The proposed Elysian Park recycled water pipeline would connect to a proposed new approximately two million gallon (MG) recycled water storage tank located on the hilltop near Elysian Fields within Elysian Park via a proposed new recycled water pumping station located on the west side of Interstate 5 (I-5, Golden State Freeway) just inside Elysian Park. The proposed route for the recycled water pipeline would roughly follow Stadium Way. In addition, to provide for the potable water uses within Elysian Park (e.g., restrooms and drinking fountains), approximately 1,000 linear feet of eight-inch potable water pipeline would be constructed from Park Drive to Grace E. Simons Lodge. Approximately 2,800 linear feet of two-inch potable water service line with a booster pump would also be constructed from Grace E. Simons Lodge to Elysian Fields in order to supply the two bathrooms and drinking fountains at Elysian Fields. **Figure 2-1** shows the proposed alignments for Phase I.

The second phase of the project involves constructing approximately ten miles of new 16-inch recycled water pipeline from the proposed terminus at Mesnagers Street near Los Angeles State Historic Park (also known as the Cornfields Park) to customers located in Chinatown, downtown Los Angeles, Exposition Park, and Boyle Heights (Downtown WRP). The mainline would roughly follow Broadway south to Exposition Boulevard. To reach Boyle Heights, the pipeline would roughly follow 16th Street to Washington Boulevard to Olympic Boulevard. **Figure 2-2** shows the proposed alignments for Phase II.

[1]Recycled water is municipal wastewater that has gone through various treatment processes to meet specific water quality criteria.

LEGEND:

- Proposed Potable Water Pipeline
- Proposed Recycled Water Pipeline
- Potable Water Pumping Station
- Recycled Water Pumping Station
- Existing Water Tank

SOURCE: TAHA, 2012 and Google Earth, 2012.

APPROX. SCALE

N

0 1,060 2,120 FEET

taha 2012-016

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Air Quality Impact Report

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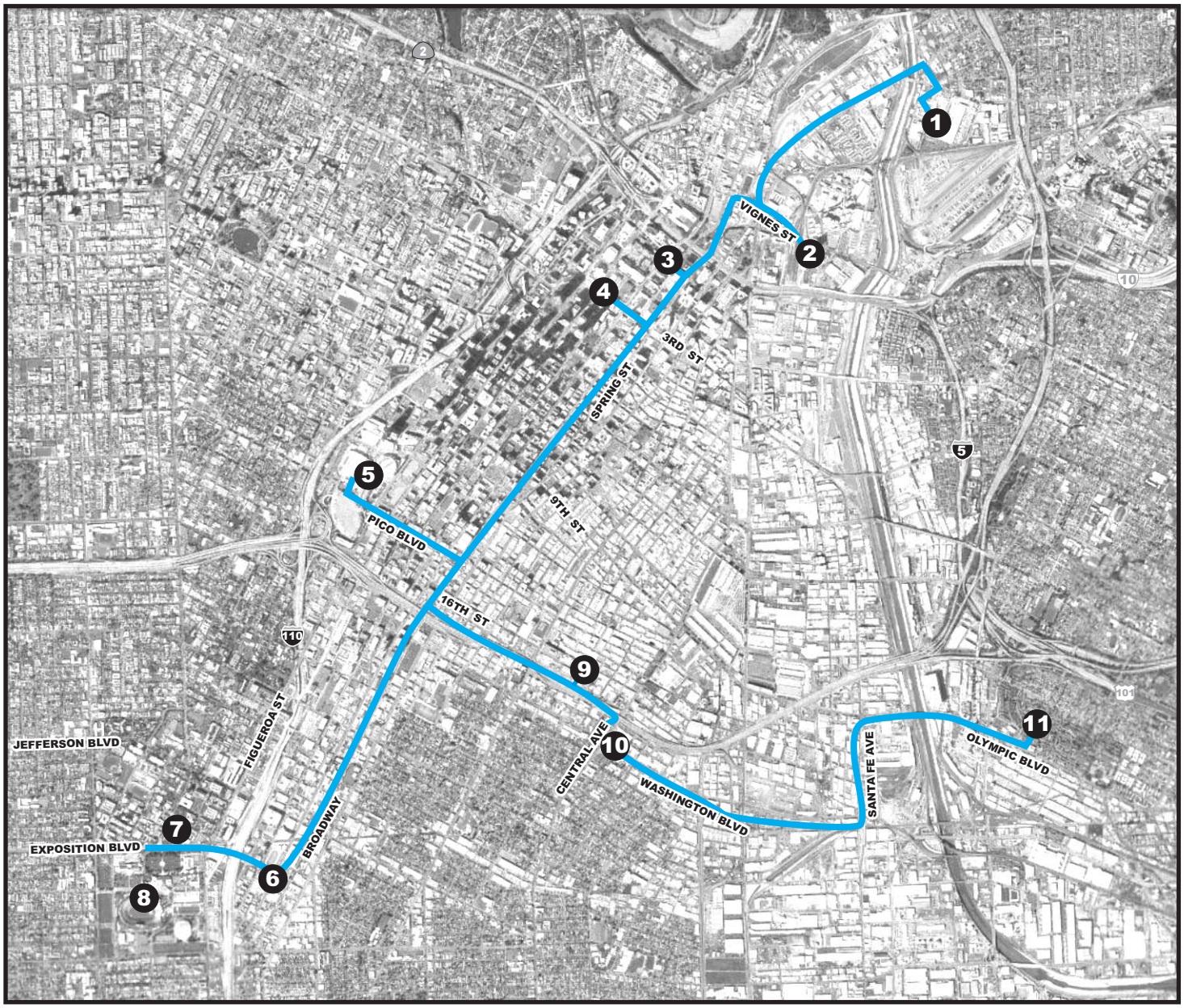
FIGURE 2-1

PROJECT ALIGNMENT - PHASE 1



LEGEND:

Proposed Pipeline Route Phase 2

(#) Customers

1. Atlas Carpet
2. Twin Towers Correctional Facility
3. LA County Central Heating and Refrigeration Plant
4. Veolia Energy
5. Convention Center and Event Center
6. Matchmaster
7. USC Main Campus
8. Exposition Park
9. Dye House, Inc.
10. Washington Garment
11. Boyle Heights Mixed-Use Project

APPROX. SCALE

N

0 0.75 1.5 MILE

SOURCE: TAHA, 2012 and Google Earth, 2012.

taha

Elysian Park/USC Water Recycling Project
Air Quality Impact Report

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FIGURE 2-2

PROJECT ALIGNMENT - PHASE 2

Phase I Elysian Park WRP

Potable and Recycled Water Pipeline Installation. A new 16-inch recycled water pipeline would be constructed beginning just southwest of the Los Angeles River along the Los Angeles River Bike Path, near the northern terminus of Dorris Place in the Elysian Valley neighborhood. The beginning of the pipeline would connect to the termination point of the Taylor Yard WRP on the west side of the Los Angeles River. A total of approximately 10,800 linear feet of pipeline would be installed connecting the Taylor Yard WRP with a proposed new 2 MG recycled water storage tank located near Elysian Fields via a proposed new 3,000 gallons per minute (gpm) recycled water pump station located on the west side of I-5 just inside Elysian Park.

Installation of the recycled water pipeline within the Los Angeles River Bike Path, Riverdale Avenue, Blake Avenue, Dorris Street, Stadium Way, and Academy Road would use trench construction known as "cut and cover." An approximately three-foot wide by 4.5-foot deep trench would be excavated within the roadway that could be covered with metal plates during periods of the day when construction is not occurring. Once a segment of pipeline has been installed, the trench would be backfilled with materials from the excavation processed and repaved. Recycled water pipeline installation would necessitate restrictions on-street parking and closure of up to two lanes of the roadway depending on the location of construction. Installation of the recycled water pipeline from Dorris Place across I-5 would require a trenchless form of construction called "microtunneling" so as not to affect traffic on the freeway. A tunnel less than 1,000 linear feet would be tunneled beneath the freeway. Launching and receiving pits would be located on either end of the tunnel. Hydraulic jacks would drive pipes through the ground. Excavated soil and other material would be disposed of at an appropriate regional landfill.

In addition, a new recycled water pumping station would be installed at the park's boundary near I-5. From the recycled water pumping station, the recycled water pipeline would be trenched along Stadium Way to Angels Point Road past the Police Academy to a hilltop adjacent to Elysian Fields. It would supply a proposed new 2 MG recycled water storage tank located on a hilltop near Elysian Fields, north of Angels Point Road. To provide for the potable water needs of Elysian Park, such as for restroom facilities and drinking fountains, a proposed new potable water booster pump would be installed within an existing pumping station near Stadium Way and Elysian Park Drive. From the potable water booster pump, a 2-inch potable water pipeline would be trenched directly up the hillside to Angels Point Road, then follow Angels Point Road to Park Road, and Park Road south to Elysian Fields.

Approximately 1,000 linear feet of 8-inch potable water pipeline would be installed to connect the proposed new 2-inch potable water pipeline serving Elysian Fields to an existing potable water service pipeline located outside of Elysian Park within Park Drive in the Echo Park neighborhood. Trenching would occur within an existing fire road from Park Drive to Grace E. Simons Lodge where it would connect to Elysian Park Drive, travel directly up the hillside to Angels Point Road, then follow Angels Point Road to Park Road, and Park Road south to Elysian Fields. An approximately 1.5-foot wide by 4-foot deep trench would be excavated for the 8-inch potable water pipeline. Once the 8-inch potable water pipeline has been installed within a segment, the trench would be backfilled with imported slurry and returned to its existing condition. For the 2-inch potable water pipeline, an approximately 4-inch wide by 1-foot deep trench would be excavated in the hillside. Following installation of each segment of the 2-inch potable water pipeline, the hillside would be backfilled with native soil material and returned to its existing condition.

Above-ground Structures. Phase I of the proposed project would include the installation of four new, permanent above-ground structures, including a 3,000 gpm recycled water pumping station, a 3,000 gpm non-potable water pumping station, and a 30,000 gallon forebay tank at the park's boundary near I-5; a 2 MG recycled water storage tank on a hilltop near Elysian Fields; and a booster pump near Stadium Way and Elysian Park Drive.

For both the proposed new recycled water pumping station and non-potable water pumping station, flat pads of approximately 65 feet long by 30 feet wide would be cleared and graded on which to place a slab foundation and the pumping stations. The pumping stations would be exposed facilities secured by chain link fencing and standing less than 5 feet in height. Clearing of vegetation in the area would be necessary prior to construction of the concrete pads. The non-potable water pumping station would be installed to provide backup supply to the proposed new recycled water system within the park.

In addition, a new 30,000-gallon potable water forebay tank would be constructed in order to serve as a forebay, or source supply, for the non-potable water pumping station. The proposed forebay tank would connect to an existing potable water pipeline, which would supply the water to fill the tank. The forebay tank is required to maintain a constant supply of water for the non-potable pumping station, and the proposed recycled water system within the park. A flat pad would be cleared and graded on which to place the approximately 24-foot diameter forebay tank. The tank would be approximately 12 feet tall. There is an existing road that would be used to access the proposed recycled water pumping station, non-potable water pumping station, and forebay tank at this location. These facilities would be located next to an existing pumping station, which would be removed as part of this project, in a portion of the park that is not used for active recreation, picnic facilities, or passive hiking.

The recycled water pumping station would supply a proposed new 2 MG recycled water storage tank, which would be constructed on a hilltop near Elysian Fields, north of Angels Point Road. A flat pad would be cleared and graded on which to place the 85-foot diameter recycled water storage tank. The tank would be a steel structure at approximately 48 feet tall. The recycled water storage tank would be located in an area of the park that is not used for active recreation and contains an existing 500,000-gallon water tank. The existing tank would be removed as part of the project.

A proposed new potable water booster pump would be installed at the southwest corner of Stadium Way and Elysian Park Drive and housed within an existing pumping station. The booster pump would be installed to increase the pressure in the potable water pipeline in the event that potable water demand exceeds supply and water pressure drops below the required level. The area of the park in which the booster pump would be installed is currently used for passive recreation.

All areas within Elysian Park temporarily cleared or disturbed during construction, including those areas used for materials and equipment staging, would be restored at the completion of the Phase I construction process. All public roads where trenching would occur, and any park roads or other roads indirectly damaged during construction, would be repaired at the end of construction.

Phase II Downtown WRP

The second phase of the project involves the delivery of recycled water to customers located in downtown Los Angeles, Exposition Park, and Boyle Heights (**Figure 2-2**). These customers have committed to using recycled water for non-potable uses. A new 16-inch recycled water

pipeline would be constructed from the recycled water pipeline serving Los Angeles State Historic Park, which terminates on Spring Street at Mesnagers Street. Approximately ten miles of new pipeline would ultimately be installed as part of the Downtown WRP.

The Phase II mainline segment would total approximately 28,200 linear feet, stretching from Los Angeles State Historic Park to Exposition Park through downtown Los Angeles. It would generally travel south along Spring Street to Alpine Street, west along Alpine Street to Broadway, south on Broadway to 37th Street, west along 37th Street to Exposition Boulevard, and west on Exposition Boulevard terminating in Exposition Park near USC's main campus. In order to cross State Route 101 (Hollywood Freeway, SR 101) on Broadway, it would be necessary to install the pipeline along the side of the roadway bridging the freeway instead of trenching (approximately 150 linear feet). In addition, there are two light rail crossings on the mainline segment. The pipeline would cross the Metro Blue Line light rail tracks located at Broadway and Washington Boulevard, and the Metro Expo Line light rail tracks at Exposition Boulevard and Figueroa Street. Light rail crossings would require trenchless construction, such as tunneling, so as not to affect rail operations.

From the mainline segment, extensions would serve specific known customers. The Atlas Carpet segment would extend approximately 1,700 linear feet from the mainline segment south from Spring Street along Avenue 18 to Albion Street and then west on Albion Street to Avenue 17 where it would terminate at the Atlas Carpet Mills, Inc.

The Twin Towers Correctional Facility segment would extend from the mainline segment approximately 1,650 feet east from Spring Street along Vignes Street to Avila Street, where it would terminate at the Los Angeles County Sheriff's Department Twin Towers Correctional Facility.

The Trigen-LA Bunker Hill segment would extend from the mainline segment approximately 1,700 feet west from Broadway along 3rd Street to Hope Street, where it would terminate at Veolia Energy facility (formerly Trigen-LA). This route includes trenching within the 3rd Street Tunnel.

The Los Angeles Convention Center segment would extend from the mainline segment approximately 3,800 feet west from Broadway along Pico Boulevard to LA Live Way, where it would terminate at the Los Angeles Convention Center. The pipeline would cross the Metro Blue Line light rail tracks located at Pico Boulevard and Flower Street, requiring trenchless construction.

The Dye House and Washington Garment segment would extend approximately 6,660 linear feet from the mainline segment approximately 5,400 feet east from Broadway along Venice Boulevard/16th Street to Central Avenue, south on Central Avenue to 18th Street, and east on 18th Street terminating at Washington Garment.

The Boyle Heights Mixed Use Project segment would extend approximately 14,100 linear feet from Washington Garment along 18th Street to Naomi Avenue, south on Naomi Avenue to Washington Boulevard, east on Washington Boulevard to Santa Fe Avenue, north on Santa Fe Avenue to Olympic Boulevard, and east on Olympic Boulevard to Evergreen Avenue. The pipeline would cross the Metro Blue Line light rail tracks located at Washington Boulevard and Long Beach Avenue, and railroad tracks located approximately 900 feet west of Santa Fe Avenue serving an industrial complex. Trenchless construction would be required for rail crossings. In addition, the Boyle Heights Mixed Use Project segment would require a bridge

crossing on Olympic Boulevard totaling 1,750 linear feet over the Los Angeles River. As discussed above, the pipeline would be hung below or along the side of the bridge.

Installation of the recycled water pipeline would mostly occur within public roads and would use cut and cover trenching. An approximately 2.5-foot wide by 5-foot deep trench would be excavated within the roadway that could be covered with metal plates during periods of the day when construction is not ongoing. Once the pipeline has been installed within a segment, the trench would be backfilled with the imported slurry and the roadway returned to its original condition. Recycled water pipeline installation would necessitate restrictions to on-street parking and closure of up to two lanes of the roadway depending on the location of construction. In general, approximately 90 linear feet of pipeline would be installed each day. Construction would occur sequentially along the alignment to minimize long-term disruption within an area. Materials and equipment staging and construction worker parking would use City facilities and public parking lots located along or near the proposed alignments.

Rail crossings would require tunneling instead of trenching. As described above, launching and receiving pits would be located on either end of the tunnel. Hydraulic jacks would drive pipes through the ground. Excess soil that cannot be reused as backfill material would be disposed of at an appropriate regional landfill. The launching and receiving pits would be backfilled with the imported slurry and the area returned to its original condition.

Construction Schedule and Procedures

Construction of Phase I is anticipated to begin in December 2014 and take approximately 42 months or 3.5 years to complete, concluding in June 2018. However, construction of Phase I is anticipated to be completed in two stages, the first of which would involve the pipeline installation, and the second stage would involve installation of the tanks and pumping stations. Thus, construction activities for Phase I may be intermittent, not occurring continuously over the estimated construction period. Construction of Phase II is anticipated to begin following the completion of Phase I. Construction activities for Phase II would begin in approximately fall 2018 and would take approximately 2.5 years to complete, concluding in spring 2021.

Generally, in accordance with the Noise Ordinance, construction activity would occur Mondays through Fridays from 7:00 a.m. to approximately 3:30 p.m. The City of Los Angeles Mayor's Directive #2 prohibits construction on major roads during rush hour periods (6:00 a.m. to 9:00 a.m. and 3:30 p.m. to 7:00 p.m.). However, due to the nature of construction activities within public roadways, construction activity could occur during rush hour periods. Therefore, LADWP would request a variance to Directive #2. Additionally, construction activity may occur on Saturdays, or at night in non-residential areas in order to complete construction of the proposed project in a timely manner. Construction of Phase I would also be coordinated with the Dodgers organization and the City of Los Angeles Department of Transportation (LADOT) to minimize traffic disturbances on game days. An appropriate combination of monitoring and resource impact avoidance would be employed during all phases of the proposed project, including implementation of Best Management Practices. The proposed project would implement Rule 403 dust control measures required by the South Coast Air Quality Management District (SCAQMD), which would include the following:

1) Water shall be applied to exposed surfaces at least two times per day to prevent generation of dust plumes;

2) The construction contractor shall utilize at least one of the following measures at each vehicle egress from the project alignment to a paved public road:

a. Install a pad consisting of washed gravel maintained in clean condition to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long;
b. Pave the surface extending at least 100 feet and at least 20 feet wide;
c. Utilize a wheel shaker/wheel spreading device consisting of raised dividers at least 24 feet long and 10 feet wide to remove bulk material from tires and vehicle undercarriages; or
d. Install a wheel washing system to remove bulk material from tires and vehicle undercarriages.

3) All haul trucks hauling soil, sand, and other loose materials shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions);

4) Construction activity on exposed or unpaved dirt surfaces shall be suspended when wind speed exceeds 25 miles per hour (such as instantaneous gusts);

5) Ground cover in disturbed areas shall be replaced in a timely fashion when work is completed in the area;

6) Identify a community liaison concerning on-site construction activity including resolution of issues related to PM_{10} generation;

7) Apply non-toxic soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for ten days or more);

8) Traffic speeds on all unpaved roads to be limited to 15 mph or less; and

9) Sweep streets at the end of the day if visible soil is carried onto adjacent public paved roads. If feasible, use water sweepers with reclaimed water.

Upon completion of the construction of the water recycling pipeline network, there will be no operational activities for the proposed project. Therefore, operational analysis will not be considered and evaluated for the proposed project.

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3.0 AIR QUALITY

This analysis examines the degree to which the proposed project may cause significant adverse changes to air quality. Both short-term construction emissions occurring from activities, such as excavating and haul truck trips are discussed in this section. The analysis focuses on air pollution from two perspectives: daily emissions and pollutant concentrations. "Emissions" refer to the quantity of pollutants released into the air, measured in pounds per day (ppd). "Concentrations" refer to the amount of pollutant material per volumetric unit of air, measured in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$).

3.1 POLLUTANTS & EFFECTS

The federal and State governments have established ambient air quality standards for outdoor concentrations of criteria air pollutants to protect public health. The federal and State standards have been set at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Criteria air pollutants include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter 2.5 microns or less in diameter ($PM_{2.5}$), particulate matter ten microns or less in diameter (PM_{10}), and lead (Pb). These pollutants are discussed below.

Carbon Monoxide. CO is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft and trains. In urban areas such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient CO concentrations generally follow the spacial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions, primarily wind speed, topography and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February.[2] The highest levels of CO typically occur during the colder months of the year when inversion conditions are more frequent. In terms of health, CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can be dizziness, fatigue, and impairment of central nervous system functions.

Ozone. O_3 is a colorless gas that is formed in the atmosphere when reactive organic gases (ROG), which includes volatile organic compounds (VOC) and nitrogen oxides (NO_X) react in the presence of ultraviolet sunlight. O_3 is not a primary pollutant; it is a secondary pollutant formed by complex interactions of two pollutants directly emitted into the atmosphere. The primary sources of ROG and NO_X, components of O_3, are automobile exhaust and industrial sources. Meteorology and terrain play major roles in O_3 formation. Ideal conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures and cloudless skies. The greatest source of smog-producing gases is the automobile. Short-term exposure (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue and some immunological changes.

[2]Inversion is an atmospheric condition in which a layer of warm air traps cooler air near the surface of the earth, preventing the normal rising of surface air.

Nitrogen Dioxide. NO_2, like O_3, is not directly emitted into the atmosphere but is formed by an atmospheric chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM_{10}. High concentrations of NO_2 can cause breathing difficulties and result in a brownish-red cast to the atmosphere with reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase of bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 ppm.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Main sources of SO_2 are coal and oil used in power plants and industries. Generally, the highest levels of SO_2 are found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels. SO_2 is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids and metals. Particulate matter also forms when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Fine particulate matter, or $PM_{2.5}$, is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., motor vehicles, power generation and industrial facilities), residential fireplaces and wood stoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as SO_2, NO_X and VOC. Inhalable particulate matter, or PM_{10}, is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood burning stoves and fireplaces; dust from construction, landfills and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances, such as lead, sulfates and nitrates can cause lung damage directly. These substances can be absorbed into the blood stream and cause damage elsewhere in the body. These substances can transport absorbed gases, such as chlorides or ammonium, into the lungs and cause injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, as well as produce haze and reduce regional visibility.

Lead. Pb in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturers of batteries, paint, ink, ceramics, ammunition and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phase-out of leaded gasoline reduced the overall inventory of airborne lead by nearly 95 percent. With the phase-out of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities have become lead-emission sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time and growth.

Toxic Air Contaminants. Toxic air contaminants (TACs) are generally defined as those contaminants that are known or suspected to cause serious health problems, but do not have a corresponding ambient air quality standard. TACs are also defined as an air pollutant that may increase a person's risk of developing cancer and/or other serious health effects; however, the emission of a toxic chemical does not automatically create a health hazard. Other factors, such as the amount of the chemical; its toxicity, and how it is released into the air, the weather, and the terrain, all influence whether the emission could be hazardous to human health. TACs are emitted by a variety of industrial processes such as petroleum refining, electric utility and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust and may exist as PM_{10} and $PM_{2.5}$ or as vapors (gases). TACs include metals, other particles, gases absorbed by particles, and certain vapors from fuels and other sources.

The emission of toxic substances into the air can be damaging to human health and to the environment. Human exposure to these pollutants at sufficient concentrations and durations can result in cancer, poisoning, and rapid onset of sickness, such as nausea or difficulty in breathing. Other less measurable effects include immunological, neurological, reproductive, developmental, and respiratory problems. Pollutants deposited onto soil or into lakes and streams affect ecological systems and eventually human health through consumption of contaminated food. The carcinogenic potential of TACs is a particular public health concern because many scientists currently believe that there is no "safe" level of exposure to carcinogens. Any exposure to a carcinogen poses some risk of contracting cancer.

The public's exposure to TACs is a significant public health issue in California. The Air Toxics "Hotspots" Information and Assessment Act is a state law requiring facilities to report emissions of TACs to air districts. The program is designated to quantify the amounts of potentially hazardous air pollutants released, the location of the release, the concentrations to which the public is exposed, and the resulting health risks.

To date, the most comprehensive study on air toxics in the Basin is the Multiple Air Toxics Exposure Study (MATES-III), conducted by the SCAQMD. The monitoring program measured more than 30 air pollutants, including both gases and particulates. The monitoring study was accompanied by a computer modeling study in which SCAQMD estimated the risk of cancer from breathing toxic air pollution throughout the region based on emissions and weather data. MATES-III found that the average cancer risk in the region from carcinogenic air pollutants ranges from about 870 in a million to 1,400 in a million, with an average regional risk of about 1,200 in a million.

Diesel Particulate Matter. According to the 2006 California Almanac of Emissions and Air Quality, the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from the exhaust of diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances.

Diesel exhaust is composed of two phases, gas and particle, and both phases contribute to the health risk. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde and polycyclic aromatic hydrocarbons. The particle phase is also composed of many different types of particles by size or composition. Fine and ultra fine diesel particulates are of the greatest health concern, and may be composed of elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals and other trace elements. Diesel exhaust is emitted from a broad range of diesel engines; the on road diesel engines of trucks, buses and cars and the off road diesel engines that include locomotives, marine vessels and heavy duty equipment. Although diesel PM 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.

The most common exposure to diesel PM is breathing the air that contains diesel PM. The fine and ultra-fine particles are respirable (similar to $PM_{2.5}$), which means that they can avoid many of the human respiratory system defense mechanisms and enter deeply into the lung. Exposure to diesel PM comes from both on-road and off-road engine exhaust that is either directly emitted from the engines or lingering in the atmosphere.

Diesel exhaust causes health effects from both short-term or acute exposures, and long-term chronic exposures. The type and severity of health effects depends upon several factors including the amount of chemical exposure and the duration of exposure. Individuals also react differently to different levels of exposure. There is limited information on exposure to just diesel PM but there is enough evidence to indicate that inhalation exposure to diesel exhaust causes acute and chronic health effects.

Acute exposure to diesel exhaust may cause irritation to the eyes, nose, throat and lungs, some neurological effects such as lightheadedness. Acute exposure may also elicit a cough or nausea as well as exacerbate asthma. Chronic exposure to diesel PM in experimental animal inhalation studies have shown a range of dose-dependent lung inflammation and cellular changes in the lung and immunological effects. Based upon human and laboratory studies, there is considerable evidence that diesel exhaust is a likely carcinogen. Human epidemiological studies demonstrate an association between diesel exhaust exposure and increased lung cancer rates in occupational settings.

Unlike other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, California Air Resources Board (CARB) has made preliminary concentration estimates based on a PM 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.

Diesel PM poses the greatest health risk among these ten TACs mentioned. Based on receptor modeling techniques, SCAQMD estimated that diesel PM accounts for 84 percent of the total risk in the South Coast Air Basin.

Greenhouse Gases. Greenhouse gas (GHG) emissions refer to a group of emissions that are generally believed to affect global climate conditions. Simply put, the greenhouse effect compares the Earth and the atmosphere surrounding it to a greenhouse with glass panes. The glass panes in a greenhouse let heat from sunlight in and reduce the amount of heat that escapes. GHGs, such as carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) keep the average surface temperature of the Earth close to 60 degrees Fahrenheit (°F). Without the

greenhouse effect, the Earth would be a frozen globe with an average surface temperature of about 5°F.

In addition to CO_2, CH_4, and N_2O, GHGs include hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and water vapor. Of all the GHGs, CO_2 is the most abundant pollutant that contributes to climate change through fossil fuel combustion. CO_2 comprised 81 percent of the total GHG emissions in California in 2002 and non-fossil fuel CO_2 comprised 2.3 percent.[3] The other GHGs are less abundant but have higher global warming potential than CO_2. To account for this higher potential, emissions of other GHGs are frequently expressed in the equivalent mass of CO_2, denoted as CO_2e. The CO_2e of CH_4 and N_2O represented 6.4 and 6.8 percent, respectively, of the 2002 California GHG emissions. Other high global warming potential gases represented 3.5 percent of these emissions.[4] In addition, there are a number of man-made pollutants, such as CO, NO_X, non-methane VOC, and SO_2, that have indirect effects on terrestrial or solar radiation absorption by influencing the formation or destruction of other climate change emissions.

3.2 REGULATORY SETTING

Federal

United States Environmental Protection Agency. The Federal Clean Air Act (CAA) governs air quality in the United States. The United State Environmental Protection Agency (USEPA) is responsible for enforcing the CAA. USEPA is also responsible for establishing the National Ambient Air Quality Standards (NAAQS). NAAQS are required under the 1977 CAA and subsequent amendments. USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. USEPA has jurisdiction over emission sources outside State waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet stricter emission standards established by CARB.

As required by the CAA, NAAQS have been established for seven major air pollutants: CO, NO_2, O_3, $PM_{2.5}$, PM_{10}, SO_2, and Pb. The CAA requires USEPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The federal standards are summarized in **Table 3-1**. The USEPA has classified the South Coast Air Basin as maintenance for CO and nonattainment for O_3, $PM_{2.5}$, PM_{10}, and Pb.

Clean Air Act. Actions taken by federal agencies could affect state, tribal, and local agencies' ability to attain and maintain the NAAQS. The 1990 amendments to federal CAA clarified and strengthen the provisions in Section 176 (c), which requires the USEPA to create rules that would ensure that federal actions would not violate the NAAQS or interfere with the purpose stated in State Implementation Plan (SIP), Transportation Implementation Plan (TIP), or Facility Implementation Plan (FIP).

[3]California Environmental Protection Agency, Climate Action Team Report to Governor Schwarzenegger and the Legislature, March 2006, p. 11.
[4]*Ibid.*

TABLE 3-1: STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS FOR THE SOUTH COAST AIR BASIN

Pollutant	Averaging Period	California		National	
		Standards	Attainment Status	Standards	Attainment Status
Ozone (O_3)	1-hour	0.09 ppm (180 µg/m^3)	Nonattainment	--	--
	8-hour	0.070 ppm (137 µg/m^3)	n/a	0.075 ppm (147 µg/m^3)	Nonattainment
Respirable Particulate Matter (PM_{10})	24-hour	50 µg/m^3	Nonattainment	150 µg/m^3	Nonattainment
	Annual Arithmetic Mean	20 µg/m^3	Nonattainment	--	--
Fine Particulate Matter ($PM_{2.5}$)	24-hour	--	--	35 µg/m^3	Nonattainment
	Annual Arithmetic Mean	12 µg/m^3	Nonattainment	15 µg/m^3	Nonattainment
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Unclassified/ Attainment
	8-hour	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Unclassified/ Attainment
Nitrogen Dioxide (NO_2)	1-hour	0.18 ppm (338 µg/m^3)	Nonattainment	100 ppb (188 µg/m^3)	n/a
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	Nonattainment	53 ppb (100 µg/m^3)	Unclassified/ Attainment
Sulfur Dioxide (SO_2)	1-hour	0.25 ppm (655 µg/m^3)	Attainment	--	--
	24-hour	0.04 ppm (105 µg/m^3)	Attainment	0.14 ppm (365 µg/m^3)	Attainment
	3-hour	--	--	--	--
	Annual Arithmetic Mean	--	--	0.030 ppm (80 µg/m^3)	Attainment
Lead (Pb)	30-day average	1.5 µg/m^3	Nonattainment	--	--
	Calendar Quarter	--	--	0.15 µg/m^3	Nonattainment

n/a = not available
SOURCE: CARB, *Ambient Air Quality Standards*, June 7, 2012.

In 1993, the USEPA promulgated the General Conformity Rule (40 CFR Section 51 and 93). Any federal supported or funded projects are required to perform a General Conformity analysis to determine that the action conforms to the applicable SIP. Federal agencies must demonstrate that the funded activities shall not perform the following actions:

- Federal actions will not cause or contribute to any new air quality standard violation;
- Federal actions will not increase the frequency or severity of any existing standard violation; and/or
- Federal actions will not delay the timely attainment of any standards, interim emission reduction, or other milestone.

Actions can be exempted from a conformity determination when the total direct and indirect emissions related to both construction and operation activities is below the specified emission rate thresholds, known as *de minimis* levels, and that the emissions would be less than ten percent of the area emission budget. **Table 3-2** shows the *de minimis* levels for criteria pollutants relevant to the project area.

TABLE 3-2: FEDERAL DE MINIMIS LEVELS

Pollutants	Area Type	De Minimis Levels (Tons per Year)
Ozone (VOC or NO_X)	Extreme Nonattainment	10
Carbon Monoxide (CO), Sulfur Dioxide (SO_2), and Nitrogen Dioxide (NO_2)	All Nonattainment and Maintenance	100
Respirable Particulate Matter (PM_{10})	Serious Nonattainment	70

SOURCE: USEPA, *General Conformity De Minimis Levels*, July 22, 2011.

State

California Air Resources Board. In addition to being subject to the requirements of CAA, air quality in California is also governed by more stringent regulations under the California Clean Air Act (CCAA). In California, the CCAA is administered by the California Air Resources Board (CARB) at the State level and by the air quality management districts and air pollution control districts at the regional and local levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for meeting the State requirements of the CAA, administering the CCAA, and establishing the California Ambient Air Quality Standards (CAAQS). The CCAA, as amended in 1992, requires all air districts in the State to endeavor to achieve and maintain the CAAQS. CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. CARB regulates mobile air pollution sources, such as motor vehicles. CARB is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB established passenger vehicle fuel specifications, which became effective in March 1996. CARB oversees the functions of local air pollution control districts and air quality management districts, which, in turn, administer air quality activities at the regional and county levels. The State standards are summarized in **Table 3-1**.

The CCAA requires CARB to designate areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a State standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a State standard and are not used as a basis for designating areas as nonattainment. Under the CCAA, the Los Angeles County portion of the Basin is designated as a nonattainment area for O_3, $PM_{2.5}$, PM_{10}, PB, and NO_2.[5]

[5]CARB, Area Designation Maps, available at http://www.arb.ca.gov/desig/adm/adm.htm, accessed June 12, 2013.

Toxic Air Contaminants. CARB's Statewide comprehensive air toxics program was established in the early 1980's. The Toxic Air Contaminant Identification and Control Act created California's program to reduce exposure to air toxics. Under the Toxic Air Contaminant Identification and Control Act, CARB is required to use certain criteria in the prioritization for the identification and control of air toxics. In selecting substances for review, CARB must consider criteria relating to "the risk of harm to public health, amount or potential amount of emissions, manner of, and exposure to, usage of the substance in California, persistence in the atmosphere, and ambient concentrations in the community" [Health and Safety Code Section 39666(f)]. The Toxic Air Contaminant Identification and Control Act also requires CARB to use available information gathered from the Air Toxics "Hot Spots" Information and Assessment Act program to include in the prioritization of compounds.

California has established a two-step process of risk identification and risk management to address the potential health effects from air toxic substances and protect the public health of Californians. During the first step (identification), CARB and the Office of Environmental Health Hazard Assessment (OEHHA) determine if a substance should be formally identified as a TAC in California. During this process, CARB and the OEHHA staff draft a report that serves as the basis for this determination. CARB staff assesses the potential for human exposure to a substance and the OEHHA staff evaluates the health effects. After CARB and the OEHHA staff hold several comment periods and workshops, the report is then submitted to an independent, nine-member Scientific Review Panel (SRP), who reviews the report for its scientific accuracy. If the SRP approves the report, they develop specific scientific findings which are officially submitted to CARB. CARB staff then prepares a hearing notice and draft regulation to formally identify the substance as a TAC. Based on the input from the public and the information gathered from the report, the CARB decides whether to identify a substance as a TAC. In 1993, the California Legislature amended the Toxic Air Contaminant Identification and Control Act by requiring CARB to identify 189 federal hazardous air pollutants as State TACs.

In the second step (risk management), CARB reviews the emission sources of an identified TAC to determine if any regulatory action is necessary to reduce the risk. The analysis includes a review of controls already in place, the available technologies and associated costs for reducing emissions, and the associated risk.

The Air Toxics "Hot Spots" Information and Assessment Act (Health and Safety Code Section 44360) supplements the Toxic Air Contaminant Identification and Control Act by requiring a Statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks. The "Hot Spots" Act also requires facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

California's Diesel Risk Reduction Program. CARB identified particulate emissions from diesel-fueled engines (diesel PM) TACs in August 1998. Following the identification process, the ARB was required by law to determine if there is a need for further control, which led to the risk management phase of the program.

For the risk management phase, CARB formed the Diesel Advisory Committee to assist in the development of a risk management guidance document and a risk reduction plan. With the assistance of the Advisory Committee and its subcommittees, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles and the Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines. The Diesel Advisory Committee approved these documents on September 28, 2000, paving the way for the next step in the regulatory process: the control measure phase.

During the control measure phase, specific Statewide regulations designed to further reduce diesel PM emissions from diesel-fueled engines and vehicles have and continue to be evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions.

Local

South Coast Air Quality Management District. The 1977 Lewis Air Quality Management Act created the SCAQMD to coordinate air quality planning efforts throughout Southern California. This Act merged four county air pollution control agencies into one regional district to better address the issue of improving air quality in Southern California. Under the Act, renamed the Lewis-Presley Air Quality Management Act in 1988, the SCAQMD is the agency principally responsible for comprehensive air pollution control in the region. Specifically, the SCAQMD is responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain State and federal ambient air quality standards in the district. Programs that were developed include air quality rules and regulations that regulate stationary sources, area sources, point sources, and certain mobile source emissions. The SCAQMD is also responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or relocated stationary sources do not create net emission increases.

The SCAQMD monitors air quality within the project area. The SCAQMD has jurisdiction over an area of 10,743 square miles, consisting of Orange County; the non-desert portions of Los Angeles, Riverside, and San Bernardino counties; and the Riverside County portion of the Salton Sea Air Basin and Mojave Desert Air Basin. The Basin is a subregion of the SCAQMD and covers an area of 6,745 square miles. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Basin is bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino and San Jacinto mountains to the north and east; and the San Diego County line to the south (**Figure 3-1**).

Air Quality Management Plan. All areas designated as nonattainment under the CCAA are required to prepare plans showing how the area would meet the State air quality standards by its attainment dates. The Air Quality Management Plan (AQMP) is the SCAQMD plan for improving regional air quality. It addresses CAA and CCAA requirements and demonstrates attainment with State and federal ambient air quality standards. The AQMP is prepared by SCAQMD and the Southern California Association of Governments (SCAG). The AQMP provides policies and control measures that reduce emissions to attain both State and federal ambient air quality standards by their applicable deadlines. Environmental review of individual projects within the Basin must demonstrate that daily construction and operational emissions thresholds, as established by the SCAQMD, would not be exceeded. The environmental review must also demonstrate that individual projects would not increase the number or severity of existing air quality violations.

LEGEND:

South Coast Air Basin

State of California

SOURCE: California Air Resources Board, State and Local Air Monitoring Network Plan, October 1998

APPROX. SCALE

N

0 75 150 MILES

taha

Elysian Park/USC Water Recycling Project
Air Quality Impact Report

taha 2012-016 AECOM

FIGURE 3-1

SOUTH COAST AIR BASIN

On December 7, 2012, the SCAQMD Governing Board adopted the 2012 AQMP to continue the progression toward clean air and compliance with State and federal requirements. It includes a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on- and off-road mobile sources and area sources. The 2012 AQMP proposes attainment demonstration of the federal 24-hour $PM_{2.5}$ standard by 2014 in the Basin through adoption of all feasible measures while incorporating current scientific information and meteorological air quality models. It also updates the USEPA approved eight-hour O_3 control plan with new commitments for short-term NO_X and VOC reductions.

Toxic Air Contaminants. The SCAQMD has a long and successful history of reducing air toxics and criteria emissions in the South Coast Air Basin (Basin). SCAQMD has an extensive control program, including traditional and innovative rules and policies. These policies can be viewed in the SCAQMD's *Air Toxics Control Plan for the Next Ten Years* (March 2000). To date, the most comprehensive study on air toxics in the Basin is the Multiple Air Toxics Exposure Study (MATES-III), conducted by the SCAQMD. The monitoring program measured more than 30 air pollutants, including both gases and particulates. The monitoring study was accompanied by a computer modeling study in which SCAQMD estimated the risk of cancer from breathing toxic air pollution throughout the region based on emissions and weather data. MATES-III found that the cancer risk in the region from carcinogenic air pollutants ranges from about 870 in a million to 1,400 in a million, with an average regional risk of about 1,200 in a million. An addendum to the plan was completed in March 2004 that included a status update on the implementation of the various mobile and stationary source strategies.

Global Climate Change

In response to growing scientific and political concern with global climate change, California adopted a series of laws to reduce emissions of GHGs into the atmosphere. Applicable regulations are provided below.

Executive Order S-3-05. On June 1, 2005, Executive Order (E.O.) S-3-05 set the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels. The Executive Order establishes State GHG emission targets of 1990 levels by 2020 (the same as AB 32) and 80 percent below 1990 levels by 2050. It calls for the Secretary of California Environmental Protection Agency (Cal/EPA) to be responsible for coordination of State agencies and progress reporting. A recent California Energy Commission report concludes, however, that the primary strategies to achieve this target should be major "decarbonization" of electricity supplies and fuels, and major improvements in energy efficiency.

In response to the E.O., the Secretary of the Cal/EPA created the Climate Action Team (CAT). California's CAT originated as a coordinating council organized by the Secretary for Environmental Protection. It included the Secretaries of the Natural Resources Agency, and the Department of Food and Agriculture, and the Chairs of the Air Resources Board, Energy Commission, and Public Utilities Commission. The original council was an informal collaboration between the agencies to develop potential mechanisms for reductions in GHG emissions in the State. The council was given formal recognition in E.O. S-3-05 and became the CAT.

The original mandate for the CAT was to develop proposed measures to meet the emission reduction targets set forth in the executive order. The CAT has since expanded and currently has members from 18 State agencies and departments. The CAT also has ten working groups which coordinate policies among their members. The working groups and their major areas of focus are:

- Agriculture: Focusing on opportunities for agriculture to reduce GHG emissions through efficiency improvements and alternative energy projects, while adapting agricultural systems to climate change
- Biodiversity: Designing policies to protect species and natural habitats from the effects of climate change
- Energy: Reducing GHG emissions through extensive energy efficiency policies and renewable energy generation
- Forestry: Coupling GHG mitigation efforts with climate change adaptation related to forest preservation and resilience, waste to energy programs and forest offset protocols
- Land Use and Infrastructure: Linking land use and infrastructure planning to efforts to reduce GHG from vehicles and adaptation to changing climatic conditions
- Oceans and Coastal: Evaluating the effects sea level rise and changes in coastal storm patterns on human and natural systems in California
- Public Health: Evaluating the effects of GHG mitigation policies on public health and adapting public health systems to cope with changing climatic conditions
- Research: Coordinating research concerning impacts of and responses to climate change in California
- State Government: Evaluating and implementing strategies to reduce GHG emissions resulting from State government operations; an
- Water: Reducing GHG impacts associated with the State's water systems and exploring strategies to protect water distribution and flood protection infrastructure

The CAT is responsible for preparing reports that summarize the State's progress in reducing GHG emissions. The most recent CAT Report was published in December 2010. The CAT Report discusses mitigation and adaptation strategies, State research programs, policy development, and future efforts.

Assembly Bill 32. In September 2006, the State passed the California Global Warming Solutions Act of 2006, also known as Assembly Bill (AB) 32, into law. AB 32 focuses on reducing GHG emissions in California, and requires the ARB to adopt rules and regulations that would achieve greenhouse gas emissions equivalent to Statewide levels in 1990 by 2020. To achieve this goal, AB 32 mandates that the CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce Statewide GHG emissions from stationary sources, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. Because the intent of AB 32 is to limit 2020 emissions to the equivalent of 1990, it is expected that the regulations would affect many existing sources of GHG emissions and not just new general development projects. Senate Bill (SB) 1368, a companion bill to AB 32, requires the California Public Utilities Commission and the California Energy Commission to establish GHG emission performance standards for the generation of electricity. These standards will also apply to power that is generated outside of California and imported into the State.

AB 32 assigns CARB with the responsibility to monitor and regulate sources of GHG emissions in order to reduce those emissions. On June 1, 2007, CARB adopted three discrete early action measures to reduce GHG emissions. These measures involved complying with a low carbon fuel standard, reducing refrigerant loss from motor vehicle air conditioning maintenance, and increasing methane capture from landfills. On October 25, 2007, CARB tripled the set of previously approved early action measures. The approved measures include improving truck efficiency (i.e., reducing aerodynamic drag), electrifying port equipment, reducing perfluorocarbons from the semiconductor industry, reducing propellants in consumer products,

promoting proper tire inflation in vehicles, and reducing sulfur hexaflouride emission from the non-electricity sector. The CARB has determined that the total Statewide aggregated GHG 1990 emissions level and 2020 emissions limit is 427 million metric tons of CO_2e. The 2020 target reductions are currently estimated to be 174 million metric tons of CO_2e.

The CARB AB 32 Scoping Plan contains the main strategies to achieve the 2020 emissions cap. The Scoping Plan was developed by the CARB with input from the CAT and proposes a comprehensive set of actions designed to reduce overall carbon emissions in California, improve the environment, reduce oil dependency, diversify energy sources, and enhance public health while creating new jobs and improving the State economy. The GHG reduction strategies contained in the Scoping Plan include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. Key approaches for reducing greenhouse gas emissions to 1990 levels by 2020 include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a Statewide renewable electricity standard of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets; and
- Adopting and implementing measures to reduce transportation sector emissions, including California's.

CARB has also developed the GHG mandatory reporting regulation, which required reporting beginning on January 1, 2008 pursuant to requirements of AB 32. The regulations require reporting for certain types of facilities that make up the bulk of the stationary source emissions in California. The regulation language identifies major facilities as those that generate more than 25,000 metric tons of CO_2 per year. Cement plants, oil refineries, electric generating facilities/providers, co-generation facilities, and hydrogen plants and other stationary combustion sources that emit more than 25,000 metric tons of CO_2 per year, make up 94 percent of the point source CO_2 emissions in California.

CEQA Guidelines Amendments. California Senate Bill (SB) 97 required the Governor's Office of Planning and Research (OPR) to develop CEQA Guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions." The CEQA Guidelines amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. Noteworthy revisions to the CEQA Guidelines include:

- Lead agencies should quantify all relevant GHG emissions and consider the full range of project features that may increase or decrease GHG emissions as compared to the existing setting;
- Consistency with the CARB Scoping Plan is not a sufficient basis to determine that a project's GHG emissions would not be cumulatively considerable;
- A lead agency may appropriately look to thresholds developed by other public agencies, including the CARB's recommended CEQA thresholds;
- To qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project. General compliance with a plan, by itself, is not mitigation;
- The effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis; and

- Given that impacts resulting from GHG emissions are cumulative, significant advantages may result from analyzing such impacts on a programmatic level. If analyzed properly, later projects may tier, incorporate by reference, or otherwise rely on the programmatic analysis.

CARB Guidance. The CARB has published draft guidance for setting interim GHG significance thresholds (October 24, 2008). The guidance is the first step toward developing the recommended Statewide interim thresholds of significance for GHG emissions that may be adopted by local agencies for their own use. The guidance does not attempt to address every type of project that may be subject to CEQA, but instead focuses on common project types that are responsible for substantial GHG emissions (i.e., industrial, residential, and commercial projects). The CARB believes that thresholds in these important sectors will advance climate objectives, streamline project review, and encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the State.

SCAQMD Guidance. The SCAQMD has convened a GHG CEQA Significance Threshold Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. Members of the working group include government agencies implementing CEQA and representatives from various stakeholder groups that will provide input to the SCAQMD staff on developing GHG CEQA significance thresholds. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD has not adopted guidance for CEQA projects under other lead agencies.

Green LA Action Plan. The City of Los Angeles has issued guidance promoting green building to reduce GHG emissions. The goal of the Green LA Action Plan (Plan) is to reduce greenhouse gas emissions 35 percent below 1990 levels by 2030.[6] The Plan identifies objectives and actions designed to make the City a leader in confronting global climate change. The measures would reduce emissions directly from municipal facilities and operations, and create a framework to address City-wide GHG emissions. The Plan lists various focus areas in which to implement GHG reduction strategies. Focus areas listed in the Plan include energy, water, transportation, land use, waste, port, airport, and ensuring that changes to the local climate are incorporated into planning and building decisions. The Plan discusses City goals for each focus area, as follows:

Energy

- Increase the generation of renewable energy;
- Encourage the use of mass transit;
- Develop sustainable construction guidelines;
- Increase City-wide energy efficiency; and
- Promote energy conservation.

Water

- Decrease per capita water use to reduce electricity demand associated with water pumping and treatment.

Transportation

- Power the City vehicle fleet with alternative fuels; and

[6]City of Los Angeles, Green LA: An Action Plan to Lead the Nation in Fighting Global Warming, May 2007.

- Promote alternative transportation (e.g., mass transit and rideshare).

Other Goals

- Create a more livable City through land use regulations;
- Increase recycling, reducing emissions generated by activity associated with the Port of Los Angeles and regional airports;
- Create more City parks, promoting the environmental economic sector; and
- Adapt planning and building policies to incorporate climate change policy.

The City adopted an ordinance to establish a green building program in April 2008. The ordinance establishes green building requirements for projects involving 50 or more dwelling units. The Green Building Program was established to reduce the use of natural resources, create healthier living environments and minimize the negative impacts of development on local, regional, and global ecosystems. The program addresses the following five areas:

- Site: location, site planning, landscaping, storm water management, construction and demolition recycling
- Water Efficiency: efficient fixtures, wastewater reuse, and efficient irrigation
- Energy and Atmosphere: energy efficiency, and clean/renewable energy
- Materials and Resources: materials reuse, efficient building systems, and use of recycled and rapidly renewable materials
- Indoor Environmental Quality: improved indoor air quality, increased natural lighting, and thermal comfort/control

3.3 EXISTING AIR QUALITY

3.3.1 Air Pollution Climatology

The proposed alignment is located within the Los Angeles County portion of the Basin. Ambient pollution concentrations recorded in Los Angeles County are among the highest in the four counties comprising the Basin.

The Basin is in an area of high air pollution potential due to its climate and topography. 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 Basin experiences warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. 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 its perimeter. The mountains and hills within the area contribute to the variation of rainfall, temperature, and winds throughout the region.

The Basin experiences frequent temperature inversions. Temperature typically decreases with height. However, under inversion conditions, temperature increases as altitude increases, thereby preventing air close to the ground from mixing with the air above it. As a result, air pollutants are trapped near the ground. During the summer, air quality problems are created due to the interaction between the ocean surface and the lower layer of the atmosphere. This interaction creates a moist marine layer. An upper layer of warm air mass forms over the cool marine layer, preventing air pollutants from dispersing upward. Additionally, hydrocarbons and NO_2 react under strong sunlight, creating smog. Light, daytime winds, predominantly from the west, further aggravate the condition by driving air pollutants inland, toward the mountains.

During the fall and winter, air quality problems are created due to CO and NO_2 emissions. CO concentrations are generally worse in the morning and late evening (around 10:00 p.m.). In the morning, CO levels are relatively high due to cold temperatures and the large number of cars traveling. High CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO emissions are produced almost entirely from automobiles, the highest CO concentrations in the Basin are associated with heavy traffic. NO_2 concentrations are also generally higher during fall and winter days.

3.3.2 Local Climate

The mountains and hills within the Basin contribute to the variation of rainfall, temperature, and winds throughout the region. Within the proposed alignment, the average wind speed, as recorded at the Downtown Wind Monitoring Station, is approximately five miles per hour, with calm winds occurring 7.9 percent of the time. Wind in the vicinity of the proposed alignment predominately blows from the southwest.[7]

The annual average temperature in the project area is 74.1°F.[8] The project area experiences an average winter temperature of 67.1°F and an average summer temperature of 80.9°F. Total precipitation in the project area averages approximately 14.9 inches annually. Precipitation occurs mostly during the winter and relatively infrequently during the summer. Precipitation averages 9.0 inches during the winter, 3.8 inches during the spring, 2.0 inches during the fall, and less than one inch during the summer.[9]

3.3.3 Air Monitoring Data

The SCAQMD monitors air quality conditions at 38 locations throughout the Basin. The proposed alignment is located in SCAQMD's Central Los Angeles County Air Monitoring Subregion, which is served by the Los Angeles-North Main Street Monitoring Station. The Los Angeles-North Main Street Monitoring Station is located on 1630 North Main Street and is approximately three miles southeast of the proposed alignment (**Figure 3-2**). Historical data from the Los Angeles-North Main Street Monitoring Station were used to characterize existing conditions in the vicinity of the project area. Criteria pollutants monitored at the Los Angeles-North Main Street Monitoring Station include O_3, CO, NO_2, PM_{10}, $PM_{2.5}$, and SO_2.

Table 3-3 shows pollutant levels, the State and federal standards, and the number of exceedances recorded at the Los Angeles-North Main Street Monitoring Station from 2009 to 2011.[10] As **Table 3-3** indicates, criteria pollutants CO, NO_2, and SO_2 did not exceed the State and federal standards from 2009 to 2011. However, the one-hour State standard for O_3 was exceeded one to three times during this period. The eight-hour State standard for O_3 was exceeded zero to five times while the eight-hour federal standard for O_3 was exceeded zero to two times. The 24-hour State standard for PM_{10} was exceeded zero to four times during this period and the annual State standard for $PM_{2.5}$ was also exceeded each year from 2009 to 2011. The 24-hour federal standard for PM_{10} and the annual federal $PM_{2.5}$ was not exceeded between the year 2009 to 2011.

[7]SCAQMD, Meteorological Data, available at http://www.aqmd.gov/smog/metdata/MeteorologicalData.html, accessed March 8, 2012. See Appendix A.

[8]Western Regional Climate Center, Historical Climate Information, available at http://www.wrcc.dri.edu, accessed March 8, 2012.

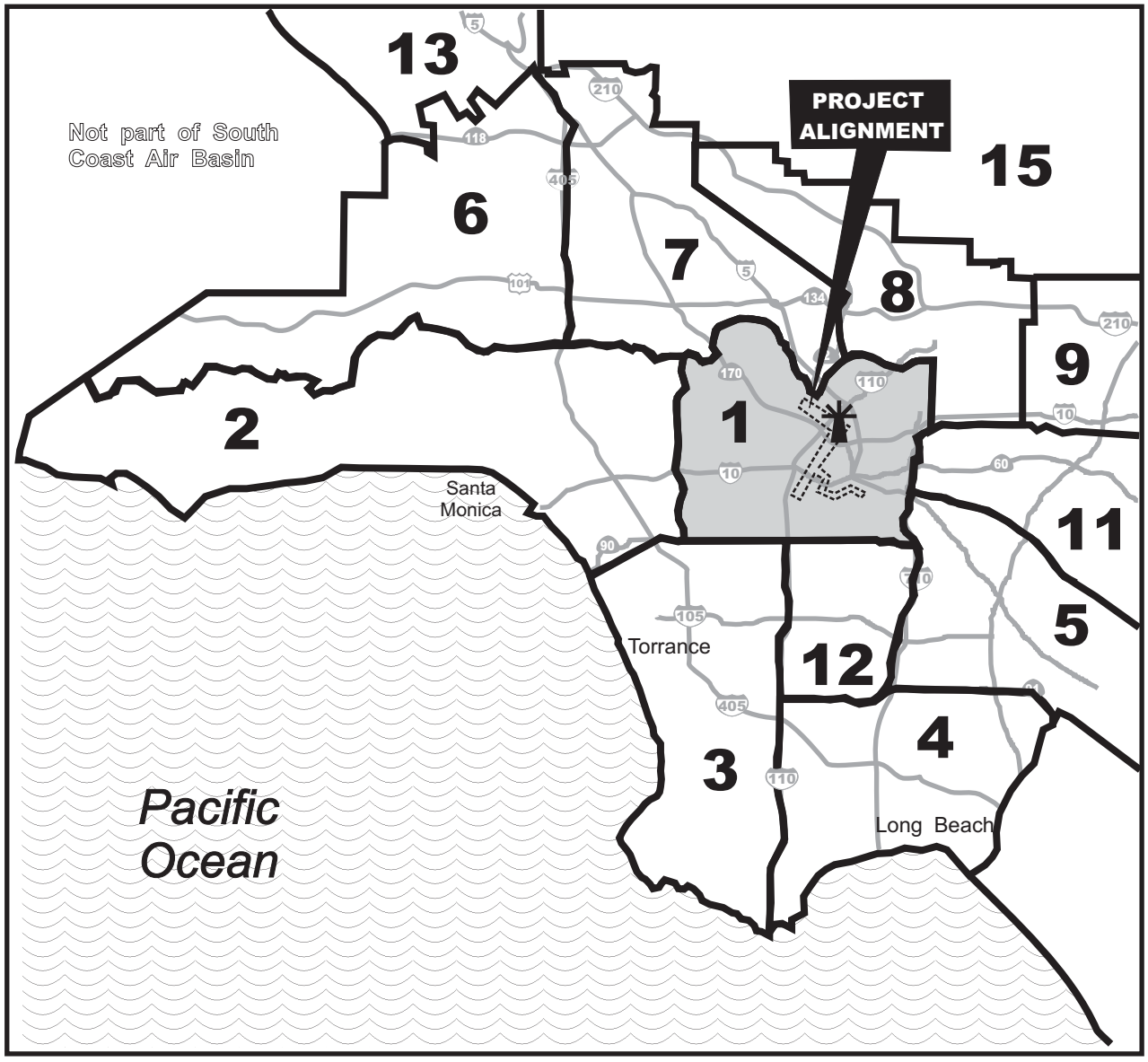
[9]*Ibid*.

[10]Monitored data for 2011 was not available when this analysis was completed.

TABLE 3-3: 2009-2011 AMBIENT AIR QUALITY DATA

Pollutant	Pollutant Concentration & Standards	2009	2010	2011
Ozone (O_3)	Maximum 1-hr Concentration (ppm)	0.14	0.10	0.13
	Days > 0.09 ppm (State 1-hr standard)	3	1	1
	Maximum 8-hr Concentration (ppm)	0.10	0.08	0.07
	Days > 0.07 ppm (State 8-hr standard)	5	1	0
	Days > 0.075 ppm (National 8-hr standard)	2	1	0
Carbon Monoxide (CO)	Maximum 1-hr concentration (ppm)	3	3	n/a
	Days > 20 ppm (State1-hr standard)	0	0	n/a
	Days > 35 ppm (National 1-hr standard)	0	0	n/a
	Maximum 8-hr concentration (ppm)	2.2	2.3	2.4
	Days > 9.0 ppm (State 8-hr standard)	0	0	0
	Days > 9 ppm (National 8-hr standard)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-hr Concentration (ppm)	0.16	0.09	0.11
	Days > 0.18 ppm (State 1-hr standard)	0	0	0
	Days > 0.100 ppm (National 1-hr standard)	n/a	n/a	n/a
Respirable Particulate Matter (PM_{10})	Maximum 24-hr concentration ($\mu g/m^3$)	70	41	53
	Days > 50 $\mu g/m^3$ (State 24-hr standard)	4	0	1
	Days > 150 $\mu g/m^3$ (National 24-hr standard)	0	0	0
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-hr concentration ($\mu g/m^3$)	64	39	49
	Exceed State Standard (12 $\mu g/m^3$)	Yes	Yes	Yes
	Days > 35 $\mu g/m^3$ (National 24-hr standard)	7	5	8
Sulfur Dioxide (SO_2)	Maximum 24-hr Concentration (ppm)	0.002	0.002	0.002
	Days > 0.04 ppm (State 24-hr standard)	0	0	0
	Days > 0.14 ppm (National 24-hr standard)	0	0	0

'n/a' = not available
SOURCE: CARB, Air Quality Data Statistics, *Top 4 Summary*, http://www.arb.ca.gov/adam/topfour/topfour1.php, accessed April 30, 2012.
CO pollutant concentration was obtained from SCAQMD, Historical Data by Year, available at http://www.aqmd.gov/smog/historicaldata.htm, accessed April 30, 2012.



LEGEND: Los Angeles Monitoring Station

Air Monitoring Areas in Los Angeles County:

1. Central Los Angeles
2. Northwest Coastal
3. Southwest Coastal
4. South Coastal
5. Southeast Los Angeles County
6. West San Fernando Valley
7. East San Fernando Valley
8. West San Gabriel Valley
9. East San Gabriel Valley
10. Pomona/Walnut Valley (not shown)
11. South San Gabriel Valley
12. South Central Los Angeles
13. Santa Clarita Valley
14. Antelope Valley (not shown)
15. San Gabriel Mountains

SOURCE: South Coast Air Quality Management District Air Monitoring Areas Map, 1999.

Approx. Scale

N

0 4.5 9.0 Miles

FIGURE 3-2

AIR MONITORING AREA

3.3.4 Greenhouse Gas Emissions

The primary effect of rising global concentrations of atmospheric GHG levels is a rise in the average global temperature of approximately 0.2 degrees Celsius per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling using 2000 emission rates shows that further warming is likely to occur given the expected rise in global atmospheric GHG concentrations from innumerable sources of GHG emissions worldwide, which would induce further changes in the global climate system during the current century.[11] Adverse impacts from global climate change worldwide and in California include:

- Declining sea ice and mountain snowpack levels, thereby increasing sea levels and sea surface evaporation rates with a corresponding increase in atmospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures;[12]

- Rising average global sea levels primarily due to thermal expansion and the melting of glaciers, ice caps, and the Greenland and Antarctic ice sheets;[13]
- Changing weather patterns, including changes to precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones;[14]

- Declining Sierra Mountains snowpack levels, which account for approximately half of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years;[15]

- Increasing the number of days conducive to ozone formation (e.g., clear days with intense sun light) by 25 to 85 percent (depending on the future temperature scenario) in high O_3 areas located in the Southern California area and the San Joaquin Valley by the end of the 21st Century;[16] and

- Increasing the potential for erosion of California's coastlines and seawater intrusion into the Sacramento Delta and associated levee systems due to the rise in sea level.[17]

Scientific understanding of the fundamental processes responsible for global climate change has improved over the past decade. However, there remain significant scientific uncertainties, for example, in predictions of local effects of climate change, occurrence of extreme weather events, and effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes in oceanic circulation. Due to the complexity of the climate system, the uncertainty surrounding the implications of climate change may never be completely eliminated. Because of these uncertainties, there continues to be significant debate as to the extent to which increased concentrations of GHGs have caused or will cause climate change, and with respect to the appropriate actions to limit and/or respond to climate change. In addition, it may not be possible to link specific development projects to future specific climate change impacts, though estimating project-specific impacts is possible.

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[11] USEPA, Draft Endangerment Finding, 74 Fed. Reg. 18886, 18904, April 24, 2009.
[12] *Ibid*.
[13] Intergovernmental Panel on Climate Change, *Climate Change 2007*, 2007.
[14] *Ibid*.
[15] California Environmental Protection Agency, Climate Action Team, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, 2006.
[16] *Ibid*.
[17] *Ibid*.

California is the fifteenth largest emitter of GHG on the planet, representing about two percent of the worldwide emissions.[18] **Table 3-4** shows the California GHG emissions inventory for years 2000 to 2009. Statewide GHG emissions slightly decreased in 2009 due to a noticeable drop in on-road transportation, electricity generation, and industrial emissions.

TABLE 3-4: CALIFORNIA GREENHOUSE GAS EMISSIONS INVENTORY

	CO_2e Emissions (Million Metric Tons)									
Sector	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Transportation	172	175	181	179	183	186	187	187	178	173
Electric Power (In-State)	60	64	51	49	50	46	51	55	55	56
Electric Power (Imports)	46	59	59	65	66	63	55	60	66	48
Commercial and Residential	43	41	43	41	43	41	42	42	42	43
Industrial	97	93	94	92	94	93	92	90	87	81
Recycling and Waste	7	7	7	7	7	7	7	7	7	7
Agriculture	29	29	32	31	32	33	34	33	33	32
Forest Net Emissions	(4.5)	(4.3)	(4.2)	(4.2)	(4.2)	(4.0)	(3.9)	(3.9)	(3.8)	(3.8)
Emissions Total	**459**	**475**	**475**	**472**	**484**	**479**	**478**	**485**	**481**	**453**

SOURCE: CARB, *California Greenhouse Gas Inventory 2000-2009*, December 2011.

The transportation sector – largely the cars and trucks that move people and goods – is the largest contributor with 38 percent of the State's total GHG emissions in 2009. On-road emissions (from passenger vehicles and heavy duty trucks) constitute 93 percent of the transportation sector total emissions. Of the on-road vehicles, light duty passenger vehicles accounted for approximately 74 percent of the total sector emissions in 2009 GHG emissions. Transportation emissions showed a decline from 187 million metric tons of CO_2e in 2007 to 173 million metric tons of CO_2e in 2009.

The electricity sector is the next largest contributor at approximately 23 percent of the Statewide GHG emissions. This sector includes power plants and cogeneration facilities that generate electricity for on-site use and for sale to the power grid. In 2009, this sector emitted approximately 105 million metric ton of CO_2e. Emissions from imported electricity generation from specified imports, unspecified imports, and transmission and distribution accounts for 68, 31, and less than 1 percent, respectively. In-State electricity generation includes CHP commercial, CHP industrial, merchant owned, transmission and distribution, and utility owned. The percent contributions from CHP commercial is approximately 2, CHP industrial is approximately 30, merchant owned is approximately 57, transmission and distribution is approximately 1, and utility owned is approximately 18.. Emissions from natural gas accounts for 87 percent of in-State GHG emissions associated with electricity generation.

The industrial sector is the third largest contributor to the Statewide GHG emissions. California's industrial sector includes industrial CHP useful heat, landfills, manufacturing, mining, oil and gas extraction, petroleum refining, petroleum marketing, pipelines, wastewater treatment, and other large industrial sources. Of these emitters, petroleum refining, manufacturing accounts for 32, oil extraction accounts for 25, gas extraction accounts for 15, CHP accounts for 12, and landfills accounts for 8 percent.

[18]CARB, Climate Change Scoping Plan, December 2008.

The sector termed recycling and waste management is a unique system, encompassing not just emissions from waste facilities but also the emissions associated with the production, distribution and disposal of products throughout the economy.

Although high global warming potential gases (e.g., PFCs, HFCs, and SF6) are a small contributor to historic GHG emissions, levels of these gases are projected to increase sharply over the next several decades making them a significant source by 2020. These gases are used in growing industries such as semiconductor manufacturing.

The forest sector greenhouse gas inventory includes CO_2 uptake and greenhouse gas emissions from wild and prescribed fires, the decomposition and combustion of residues from harvest and conversion/development, and wood products decomposition. The forest sector is unique in that forests both emit GHGs and absorb CO_2 through carbon sequestration. While the current inventory shows forests absorb 3.8 million metric tons of CO_2e, carbon sequestration has declined since 2000 due to losses of forest area and emission increases from decomposing wood products consumed in the State. For this reason, the 2020 projection assumes no net emissions from forests.

The agricultural GHG emissions shown are largely methane emissions from livestock, both from the animals and their waste. Emissions of GHG from fertilizer application are also important contributors from the agricultural sector. Opportunities to sequester CO_2 in the agricultural sector may also exist; however, additional research is needed to identify and quantify potential sequestration benefits.

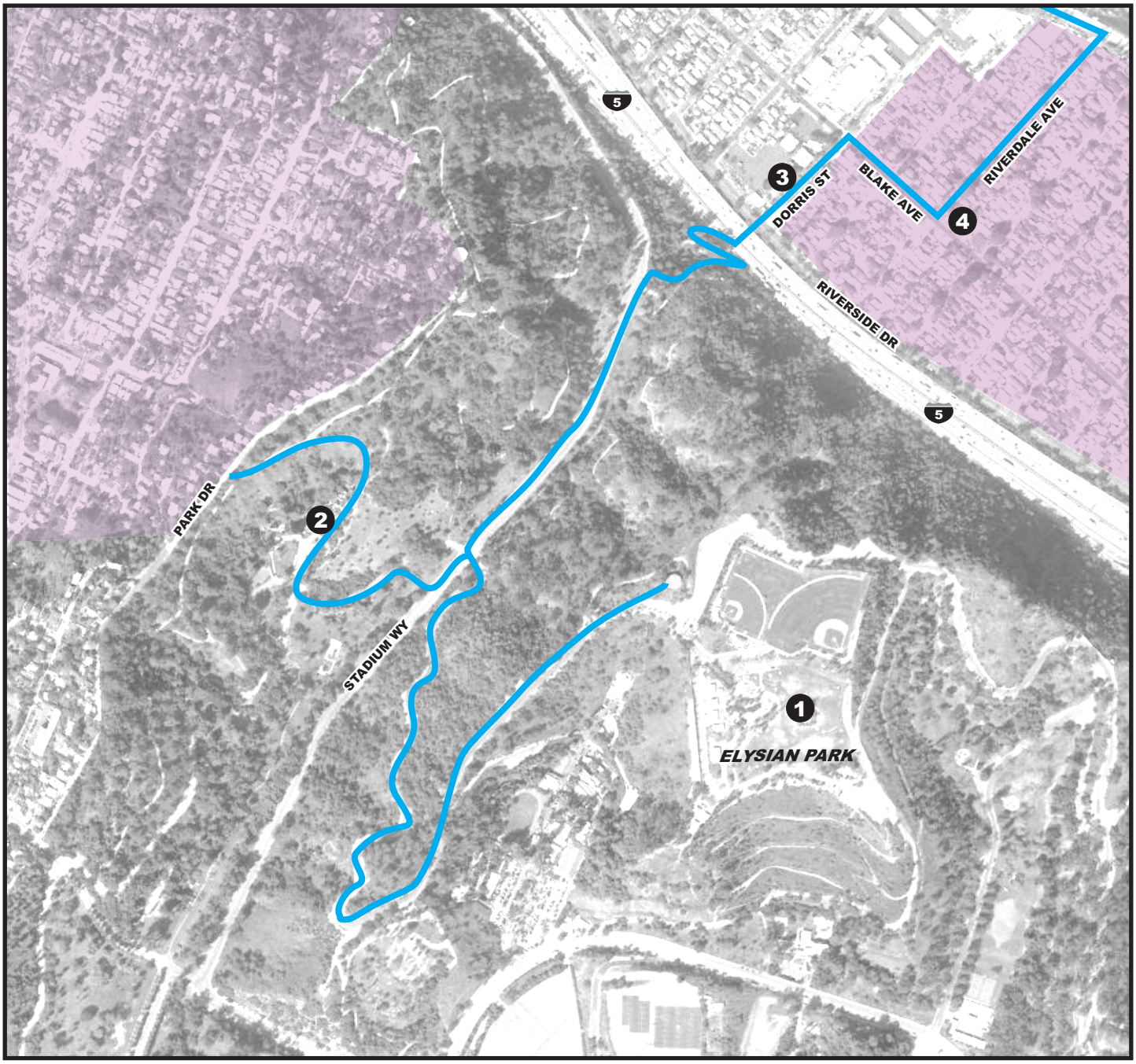
3.3.5 Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. CARB has identified the following groups who are most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes and people with cardiovascular and chronic respiratory diseases. According to the SCAQMD, sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers and retirement homes.

As shown in **Figures 3-3** and **3-4**, samples of sensitive receptors within one-quarter mile (1,320 feet) of the proposed pipeline route that include, but are not limited to, the following:

Phase I

- Single-family residences located adjacent to proposed alignment
- Los Angeles Downtown Elysian Park located adjacent to proposed alignment
- Grace E. Simons Lodge located adjacent to proposed alignment
- Dorris Place Elementary School located adjacent to the proposed alignment
- Single-family residences located approximately 115 feet to the east
- St. Ann Religious Education located approximately 940 feet to the east
- Single- and multi-family residences located approximately 1,024 feet to the west



LEGEND:

- Proposed Pipeline Route Phase 1
- Single-Family Residences (Park and Riverside Drives)
- # Air Quality Sensitive Receptor Locations

1. Elysian Park
2. Grace E. Simons Lodge
3. Dorris Place Elementary School
4. St. Ann Religious School

APPROX. SCALE

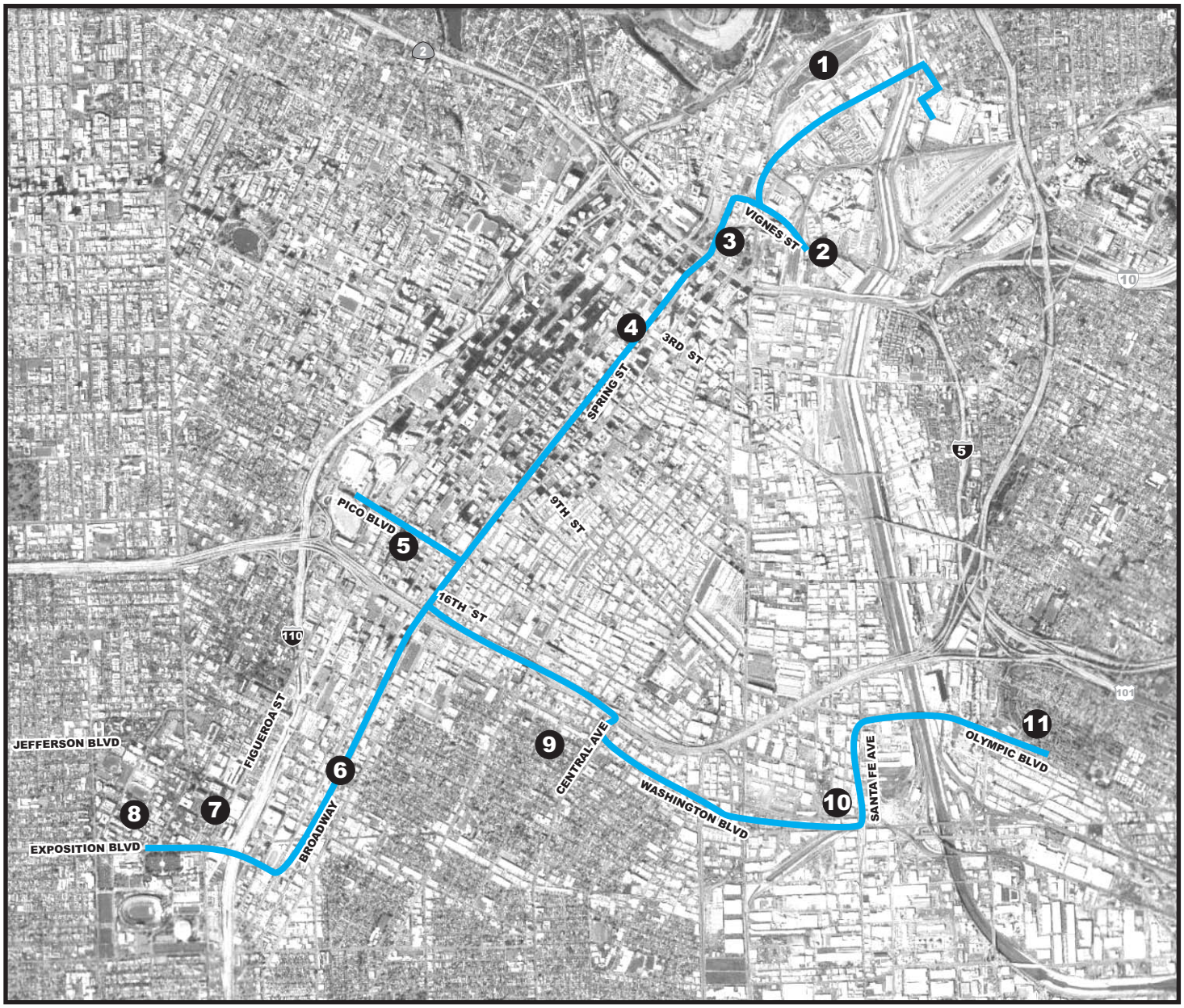
N

0 1,060 2,120 FEET

SOURCE: TAHA, 2012 and Google Earth, 2012.

FIGURE 3-3

AIR QUALITY SENSITIVE RECEPTOR LOCATIONS - PHASE 1



LEGEND:

Proposed Pipeline Route Phase 2

(#) Air Quality Sensitive Receptor Locations

1. Los Angeles Historic Park
2. Twin Towers Correctional Facility
3. Cathedral of Our Lady of Angels
4. Bradbury Building
5. City of Lights Apartments
6. John Adams Middle School
7. Single- and Multi-Family Residences - Figueroa Street
8. USC Main Campus
9. Single- and Multi-Family Residences - Washington Boulevard
10. St. Turibius School and Church
11. Wyvernwood Apartments

APPROX. SCALE

N

0 0.75 1.5 MILE

SOURCE: TAHA, 2012 and Google Earth, 2012.

FIGURE 3-4

AIR QUALITY SENSITIVE RECEPTOR LOCATIONS - PHASE 2

Phase II

The following are samples of sensitive receptors that are adjacent to the proposed pipeline route:

- Los Angeles Historic State Park
- Twin Towers Correctional Facility
- Cathedral of Our Lady of Angels
- USC Main Campus
- Bradbury Building
- City of Lights Apartments
- St. Turibius School and Church
- Wyvernwood Apartments
- John Adams Middle School
- Single- and Multi-Family Residences located on Figueroa Street
- Single- and Multi-Family Residences located on Washington Boulevard

The above sensitive receptors represent the nearest residential land uses with the potential to be impacted by the proposed project. Additional sensitive receptors are located further from the project alignment in the surround community and would be less impacted by air emissions than the above sensitive receptors.

3.4 METHODOLOGY AND SIGNIFICANCE CRITERIA

3.4.1 Methodology

Potential impacts associated with air emissions were evaluated based on current SCAQMD guidance. This includes the SCAQMD *CEQA Air Quality Handbook* and associated updates on the SCAQMD website, and the *Localized Significance Methodology for CEQA Evaluations*.[19] In addition, emissions estimations formulas were obtained from the USEPA AP-42 *Compilation of Air Pollutant Emission Factors*.

The estimate of emissions was based upon a detailed spreadsheet provided by LADWP that described the construction process. The spreadsheet included construction phases, equipment type and hours, truck trips, and worker commute trips by month and activity. Refer to the spreadsheet located in Appendix C, *Construction Emission Calculations*, of this Report for a detailed breakdown of construction activity assumptions. The spreadsheet was used to characterize daily activity throughout the construction process. Equipment engine emissions were estimated using OFFROAD2007 and truck and commute trips emissions were estimated using EMFAC2011. Fugitive dust emissions from sources including excavation were estimated using AP-42 emission factors. The analysis compares the worst-case emissions day from each year of construction activity to the SCAQMD regional significance thresholds.

Localized on-site emissions (i.e., equipment exhaust and fugitive dust) were estimated as described above. The mass emissions were compared to the localized screening thresholds (LSTs) established by the SCAQMD.

[19]SCAQMD, *Localized Significance Methodology*, June 2003, revised July 2008.

3.4.2 Significance Criteria

The following are significance criteria that SCAQMD has established to assess construction and GHG impacts. The proposed project would not include operational activity and operational significant criteria are not relevant.

Construction Phase Significance Criteria

The proposed project would have a significant impact if:

- Daily localized or regional, construction emissions were to exceed SCAQMD thresholds for VOC, NO_X, CO, SO_X, $PM_{2.5}$ or PM_{10}, as presented in **Table 3-5**;
- The proposed project would generate significant emissions of TACs; and/or
- The proposed project would create an odor nuisance.

TABLE 3-5: SCAQMD DAILY CONSTRUCTION EMISSIONS THRESHOLDS

Criteria Pollutant	Regional Emissions (Pounds Per Day)	Localized Emissions (Pounds Per Day) /a/
Volatile Organic Compounds (VOC)	75	--
Nitrogen Oxides (NO_X)	100	74
Carbon Monoxide (CO)	550	680
Sulfur Oxides (SO_X)	150	--
Fine Particulates ($PM_{2.5}$)	55	3
Particulates (PM_{10})	150	5

/a/ Localized thresholds based on 25-meter receptor distance and a one-acre project site.
SOURCE: SCAQMD, 2012.

Greenhouse Gas Significance Criteria

The SCAQMD has not approved a GHG significance threshold for the development of non-SCAQMD and non-industrial projects. The significance threshold is based on the methodologies recommended by the California Air Pollution Control Officers Association (CAPCOA) CEQA and Climate Change white paper (January 2008). CAPCOA conducted an analysis of various approaches and significance thresholds, ranging from a zero threshold (all projects are cumulatively considerable) to a high of 40,000 to 50,000 metric tons of CO_2e per year. For example, an approach assuming a zero threshold and compliance with AB 32 2020 targets would require all discretionary projects to achieve a 33 percent reduction from projected "business-as-usual" emissions to be considered less than significant. A zero threshold approach could be considered on the basis that climate change is a global phenomenon, and not controlling small source emissions would potentially neglect a major portion of the GHG inventory. However, the CEQA Guidelines also recognize that there may be a point where a project's contribution, although above zero, would not be a considerable contribution to the cumulative impact (CEQA Guidelines, Section 15130 (a)). Therefore, a threshold of greater than zero is considered more appropriate for the analysis of GHG emissions under CEQA.

Another method would use a quantitative threshold of greater than 900 metric tons CO_2e per year based on a market capture approach that requires mitigation for greater than 90 percent of likely future discretionary development. Another potential threshold would be the 10,000 metric

tons standard used by the Market Advisory Committee for inclusion in a GHG Cap and Trade System in California. The basic concepts for the various approaches suggested by CAPCOA are used herein to determine whether or not the proposed project's GHG emissions are "cumulatively considerable."

The most conservative (i.e., lowest) thresholds, suggested by CAPCOA, would not be appropriate for the proposed project given that it is located in a community that is highly urbanized. Similarly, the 900-ton threshold was also determined to be too conservative for general development in the South Coast Air Basin. Consequently, the threshold of 10,000 metric tons CO_2e is used as a quantitative benchmark for significance.

3.5 ENVIRONMENTAL IMPACTS UNDER CEQA

3.5.1 Construction Phase

Regional Impacts

Construction of the proposed project has the potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated by construction workers traveling to and from the proposed alignment. Fugitive dust emissions would primarily result from trenching activities. NO_X emissions would primarily result from the use of construction equipment. The assessment of construction air quality impacts considers each of these potential sources. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation and, for dust, the prevailing weather conditions.

It is mandatory for all construction projects in the Basin to comply with SCAQMD Rule 403 for Fugitive Dust. Specific Rule 403 control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the proposed alignment, and maintaining effective cover over exposed areas. Compliance with Rule 403 would reduce regional $PM_{2.5}$ and PM_{10} emissions associated with construction activities by approximately 61 percent.

Table 3-6 shows the maximum daily emissions associated with each construction year for both Phases I and II of the proposed project. As shown in **Table 3-6**, the criteria pollutants would not exceed the SCAQMD regional thresholds. Therefore, the proposed project would result in a less-than-significant impact related to regional construction emissions.

TABLE 3-6: REGIONAL CONSTRUCTION EMISSIONS

Construction Year	Maximum Pounds Per Day					
	VOC	NO_X	CO	SO_X	$PM_{2.5}$	PM_{10}
Phase I						
Year 2014	0.40	1.7	12	0.03	0.14	0.30
Year 2015	4.4	29	62	0.17	1.8	2.6
Year 2016	4.0	25	62	0.16	1.6	2.5
Year 2017	5.5	36	78	0.22	2.2	3.4
Year 2018	1.6	9.1	22	0.16	0.64	0.93
Maximum Regional Total	5.5	36	78	0.22	2.2	3.4
REGIONAL SIGNIFICANCE THRESHOLD	**75**	**100**	**550**	**150**	**55**	**150**
Exceed Threshold?	No	No	No	No	No	No
Phase II						
Year 2018	4.1	30	23	0.05	1.4	1.6
Year 2019	3.9	27	24	0.05	1.2	1.3
Year 2020	3.6	24	31	0.05	1.1	1.2
Year 2021	3.3	22	22	0.05	0.93	1.0
REGIONAL SIGNIFICANCE THRESHOLD	**75**	**100**	**550**	**150**	**55**	**150**
Exceed Threshold?	No	No	No	No	No	No

SOURCE: TAHA, 2013.

Localized Impacts

Construction activity would generate on-site pollutant emissions associated with equipment exhaust and fugitive dust. SCAQMD has developed localized significance thresholds to determine the potential for on-site project activity to expose adjacent sensitive receptors to significant pollutant concentrations. These thresholds were designed to identify potential health-related impacts from construction activity. **Table 3-7** shows the estimated localized emissions associated with each construction year. Maximum daily VOC, NO_X, CO, SO_X, $PM_{2.5}$, and PM_{10} emissions would not exceed the SCAQMD LST. Therefore, the proposed project would result in a less-than-significant impacts related to localized concentrations.

Installation of the recycled water pipeline would restrict street parking and closure of up to two roadway lanes. Consequently, traffic flow would be affected whenever a mixed-flow traffic lane is closed for construction activities. Reduced speeds through construction zones would result in additional localized concentrations. Traffic congestion would lessen as some automobile travelers would reroute to parallel streets when lane closures would occur. The proposed project is not projected to substantially increase traffic congestion since road closures would be limited limited to off-peak periods. In addition, construction activities would be limited to 90 feet of the public roads at one time to minimize long-term traffic disruption. Therefore, the proposed project would result in a less-than-significant impact related to localized traffic concentrations

TABLE 3-7: LOCALIZED CONSTRUCTION EMISSIONS

Construction Year	Pounds Per Day					
	VOC	NO_X	CO	SO_X	$PM_{2.5}$	PM_{10}
Phase I						
Year 2014	0.07	0.33	0.10	0.00	0.01	0.01
Year 2015	3.3	24	15	0.04	1.2	1.3
Year 2016	3.1	22	16	0.14	1.1	1.2
Year 2017	4.6	32	25	0.06	1.6	1.8
Year 2018	1.3	7.7	7.1	0.02	0.42	0.43
Maximum Localized Total	4.6	32	25	0.14	1.6	1.8
LOCALIZED SIGNIFICANCE THRESHOLD	**n/a**	**74**	**680**	**n/a**	**2**	**3**
Exceed Threshold?	No	No	No	No	No	No
Phase II						
Year 2018	3.9	27	21	0.05	1.5	1.8
Year 2019	3.6	24	22	0.05	1.3	1.6
Year 2020	3.4	22	29	0.05	1.1	1.5
Year 2021	3.2	20	21	0.05	0.99	1.2
LOCALIZED SIGNIFICANCE THRESHOLD	**n/a**	**74**	**680**	**n/a**	**2**	**3**
Exceed Threshold?	No	No	No	No	No	No

SOURCE: TAHA, 2013.

Toxic Air Contaminant Impacts

The greatest potential for toxic air contaminant (TAC) emissions during construction would be diesel particulate emissions associated with heavy-duty equipment operations. The SCAQMD has not published guidance for assessing the risk from construction projects. The California Air Pollution Control Officers Association (CAPCOA) has published *Health Risk Assessments for Proposed Land Use Projects* (July 2009). Page 2 of the document states that, "This guidance does not include how risk assessments for construction projects should be addressed in CEQA. As this is intended to be a 'living document', the risks near construction projects are expected to be included at a later time as the toxic emissions from construction activities are better quantified. State risk assessment policy is likely to change to reflect current science, and therefore this document will need modification as this occurs." As regional and localized particulate matter emissions would not result in significant impacts, it is similarly anticipated that diesel particulate emissions would not result in a significant health impact. Therefore, the proposed project would result in a less-than-significant impact related to construction TAC emissions.

Odor Impacts

Potential sources that may emit odors during construction activities include equipment exhaust. Odors from these sources would be localized and generally confined to the immediate area surrounding the proposed alignment. The proposed project would utilize typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. Therefore, the proposed project would result in a less-than-significant impact related to construction odors.

AQMP Impacts

The SCAQMD and the Southern California Association of Governments (SCAG) have responsibility for preparing an AQMP, which implements federal Clean Air Act and California Clean Air Act requirements, and details goals, policies, and programs for improving air quality in the South Coast Air Basin.

According to the SCAQMD, there are two key indicators of consistency with the AQMP: 1) whether the project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP; and 2) whether the project will not exceed the assumptions in the AQMP based on the year of project buildout. The first consistency criterion refers to violations of the California Ambient Air Quality Standards. The amount of vehicle trips during post-construction operations of the proposed project would be similar to the existing conditions as there is no operational component of the proposed project. Operational activity would not generate regional emissions that could interfere with attainment or maintenance of ambient air quality standards. In addition, the proposed project would be comply with State and local strategies designed to control air pollution. Therefore, the proposed project would comply with Consistency Criterion No. 1.

The second consistency criterion requires that the proposed project not exceed the assumptions in the AQMP. A project is consistent with the AQMP if it is consistent with the population, housing, and employment assumptions that were used in the development of the AQMP. The proposed project does not include a residential component, and therefore, would not increase population or housing in the area. In addition, the proposed project would not increase employment since upon completion of construction of the recycled water pipelines and facilities, the project area would return to existing conditions. As such, the proposed project is considered to be consistent with growth assumptions included in the AQMP, and it would comply with Consistency Criterion No. 2.

Therefore, the proposed project would not conflict with or obstruct implementation of the applicable air quality management plan. The impact would be less than significant.

Construction Phase Mitigation Measures

Impacts related to regional and localized air emissions were determined to be less-than-significant without mitigation. In addition, the proposed project shall implement the following Best Management Practices during all phases of construction:

- The proposed project shall implement Rule 403 dust control measures required by the SCAQMD.
- Residences and businesses near the pipeline alignment would be notified prior to the start of construction (e.g., flyers) of lane closures and parking restrictions in their vicinity. The notices shall include a telephone number for comments or questions related to construction activities.
- The proposed project construction would incorporate source reduction techniques and recycling measures and maintain a recycling program to divert waste in accordance with the Citywide Construction and Demolition Debris Recycling Ordinance.

Impacts After Mitigation

Regional Impacts. Impacts related to regional air emissions were determined to be less-than significant without mitigation.

Localized Impacts. Impacts related to localized air emissions were determined to be less-than- significant without mitigation.

Toxic Air Contaminant Impacts. Impacts related to toxic air contaminant emissions were determined to be less-than-significant without mitigation.

Odor Impacts. Impacts related to odors were determined to be less-than-significant without mitigation.

AQMP Impacts. Impacts related to the AQMP were determined to be less-than-significant without mitigation.

3.5.2 Operational Phase

Upon completion of the proposed pipeline route, the proposed project will not include any new operational activities. Therefore, no impacts related to regional operational emissions would occur.

Operational Phase Mitigation Measures

No impacts related to operational air quality emissions would occur. No mitigation measures are required.

Impacts After Mitigation

No impacts related to operational air quality emissions would occur.

3.6 GENERAL CONFORMITY FOR NEPA

General conformity for the National Environmental Policy Act (NEPA) is not required in this report.

3.7 CUMULATIVE IMPACTS

3.7.1 SCAQMD Methodology

A significant impact would occur if the proposed project resulted in a cumulative net increase in any criteria pollutant above threshold standards. Because the South Coast Air Basin is designated as a State and/or federal nonattainment air basin for O_3, PM_{10} and $PM_{2.5}$, and nitrogen dioxide (NO_2), there is an ongoing regional cumulative impact associated with these pollutants. An individual project can emit these pollutants without significantly contributing to this cumulative impact depending on the magnitude of emissions. The SCAQMD has indicated that the project-level thresholds may be used as an indicator defining if project emissions contribute to the regional cumulative impact. As discussed above, the proposed project would not generate air pollutant emissions that exceed the project-level thresholds. Therefore, the proposed project would not result in a cumulatively considerable impact related to construction air quality.

3.7.2 Global Climate Change

Phases I and II Elysian Park WRP

Greenhouse gas emissions were estimated for equipment exhaust, truck trips, and worker commute trips. As shown in **Table 3-9**, total GHG emissions for Phases I and II would be 5,858 metric tons per year. The SCAQMD has developed guidance for the determination of significance of GHG construction emissions, and recommends emissions from construction be amortized over 30 years. Hence, the amortized construction emissions would result in total annual emissions of 195 metric tons of CO_2e. Estimated GHG emissions would be less than the 10,000 metric tons of CO_2e per year quantitative significance threshold. The proposed project would not include significant sources of constructional and operational emissions. The proposed project would not conflict with any State or local climate change policy or regulation. Therefore, the proposed project would result in a less-than-significant impact related to GHG emissions.

TABLE 3-9: ANNUAL GREENHOUSE GAS EMISSIONS - PHASES I AND II ELYSIAN PARK WRP

Year	Carbon Dioxide Equivalent (Metric Tons per Year)
Phase I	
Year 2014	23
Year 2015	1,129
Year 2016	1,241
Year 2017	1,631
Year 2018	245
Phase II	
Year 2018	166
Year 2019	309
Year 2020	753
Year 2021	361
Total Emissions	**5,858**
Total Amortized Emissions /a/	**195**
SIGNIFICANCE THRESHOLD	**10,000**
Exceed Threshold?	No

/a/ The SCAQMD recommends annualizing construction emissions over 30 years in the GHG analysis.
SOURCE: TAHA, 2013.