IV. ENVIRONMENTAL IMPACT ANALYSIS
G. AIR QUALITY

1. INTRODUCTION

This section addresses the air emissions generated by the construction and operation of the proposed Project, including air emissions generated during implementation of the Remedial Action Plan (RAP) within Development Districts 1 and 2 (i.e., the former Cal Compact Landfill). The analysis also addresses the consistency of the proposed Project with the air quality policies set forth within the South Coast Air Quality Management District's (SCAQMD) Air Quality Management Plan, and the City of Carson General Plan. The analysis of Project-generated air emissions focuses on whether the proposed Project would cause an exceedance of an ambient air quality standard or SCAQMD significance threshold.

2. ENVIRONMENTAL SETTING

a. Regulatory Setting

A number of statutes, regulations, plans, and policies have been adopted that address air quality issues. The proposed Project site and vicinity are subject to air quality regulations developed and implemented at the federal, state, and local levels. At the federal level, the United States Environmental Protection Agency (USEPA) is responsible for implementation of the Federal Clean Air Act (CAA). Some portions of the CAA (e.g., certain mobile source and other requirements) are implemented directly by the USEPA. Other portions of the CAA (e.g., stationary source requirements) are implemented by state and local agencies.

(1) Authority for Current Air Quality Planning

A number of plans and policies have been adopted by various agencies that address air quality concerns. Those plans and policies that are relevant to the proposed Project are discussed below.

(a) Federal Clean Air Act

The CAA was first enacted in 1955 and has been amended numerous times in subsequent years, with the most recent amendments in 1990. The CAA establishes federal air quality standards, known as National Ambient Air Quality Standards (NAAQS) and specifies future dates for achieving compliance. The CAA also mandates that the state submit and implement a

State Implementation Plan (SIP) for areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met. The Project area is within the South Coast Air Basin (Basin), which is an area designated as non-attainment, as the area does not meet NAAQS for certain pollutants regulated under the CAA.

The 1990 Amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA, which are most applicable to the proposed Project, include Title I (Nonattainment Provisions) and Title II (Mobile Source Provisions).

Title I requirements are implemented for the purpose of attaining NAAQS for the following criteria pollutants: (1) ozone (O_3); (2) nitrogen oxides (NO_X); (3) sulfur dioxide (SO_2); (4) particulate patter (PM_{10}); (5) carbon monoxide (CO); and (6) lead (Pb). Table 32 on pages 357 and 358 shows the NAAQS currently in effect for each criteria pollutant. The NAAQS were amended in July 1997 to include an 8-hour standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. The Basin fails to meet national standards for O_3 (for both the 1-hour and 8-hour standards), PM_{10}, and $PM_{2.5}$ and therefore is considered a Federal "non-attainment" area for these pollutants. The CAA sets certain deadlines for meeting the NAAQS within the Basin including: (1) 1-hour O_3 by the year 2010; (2) 8-hour O_3 by the year 2021; (3) PM_{10} by the year 2006; and (4) $PM_{2.5}$ by the year 2015. Nonattainment designations are categorized into seven levels of severity: (1) basic, (2) marginal, (3) moderate, (4) serious, (5) severe-15, (6) severe-17,[94] and (7) extreme. Table 33 on page 359 lists the criteria pollutants and their relative attainment status.

Title II of the CAA pertains to mobile sources, such as cars, trucks, buses, and planes. Reformulated gasoline, automobile pollution control devices, and vapor recovery nozzles on gas pumps are a few of the mechanisms the USEPA uses to regulate mobile air emission sources. The provisions of Title II have resulted in tailpipe emission standards for vehicles, which have strengthened in recent years to improve air quality. For example, the standards for NO_X emissions have lowered substantially and the specification requirements for cleaner burning gasoline are more stringent.

(b) California Clean Air Act

The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the State to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the

[94] *The "-15" and "-17" designations reflect the number of years within which attainment must be achieved.*

Table 32

Ambient Air Quality Standards [a]

Pollutant	Averaging Time	California Standard [b]	Federal Primary Standard [b]	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone (O_3) [c]	1 hour	0.09 ppm	0.12 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Motor vehicles.
	8 hours	0.07 ppm [d]	0.08 ppm		
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, CO interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	—	0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.25 ppm	—		
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	—	0.03 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	—		
	24 hours	0.04 ppm	0.14 ppm		
Particulate Matter (PM_{10})	24 Hours	50 $\mu g/m^3$	150 $\mu g/m^3$	May irritate eyes and respiratory tract. Absorbs sunlight, reducing amount of solar energy reaching the earth. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Arithmetic Mean	20 $\mu g/m^3$ Annual Geometric Mean	50 $\mu g/m^3$ Annual Arithmetic Mean		
Particulate Matter ($PM_{2.5}$) [d]	24 Hours	—	65 $\mu g/m^3$	Increases respiratory disease, lung damage, cancer, premature death; reduced visibility; surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning. Also formed from reaction of other pollutants (acid rain, NO_X, SO_X, organics).
	Annual Arithmetic Mean	12 $\mu g/m^3$	15 $\mu g/m^3$		

Table 32 (Continued)

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standard [b]	Federal Primary Standard [b]	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Lead	Monthly	1.5 ug/m^3	—	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction (in severe cases).	Lead smelters, battery manufacturing & recycling facilities.
	Quarterly	—	1.5 ug/m^3		
Sulfates (SO_4)	24 hours	25 ug/m^3	—	Decrease in ventilatory functions; aggravation of asthmatic symptoms; aggravation of cardio-pulmonary disease; vegetation damage; degradation of visibility; property damage.	Coal or oil burning power plants and industries, refineries, diesel engines.

[a] *Ambient air quality standards are set at levels that provide a reasonable margin of safety and protect the health of the most sensitive individual in the population.*

[b] *ppm = parts per million and µg/m^3 = micrograms per cubic meter.*

[c] *Ozone is formed when NO_X and ROCs react in the presence of sunlight. There are no air quality standards for ROC. However, ROCs are recognized as pollutants of concern as they are a precursor to the formation of ozone.*

[d] *This concentration was approved by the Air Resources Board on April 28, 2005 and is anticipated to become effective in early 2006.*

[e] *A Federal air quality standard for $PM_{2.5}$ was adopted in 1997. Presently, no methodologies for determining impacts relating to $PM_{2.5}$ have been developed. In addition, no strategies or mitigation programs for this pollutant have been developed or adopted by federal, state, or regional agencies.*

Source: California Air Resources Board, Ambient Air Quality Standards*, 2005 and the USEPA, 2005.*

earliest practical date. Table 32 shows the CAAQS currently in effect for each of the criteria pollutants as well as the other pollutants recognized by the State. As shown in Table 32, the CAAQS include more stringent standards than the NAAQS for most of the criteria air pollutants. In addition, the CAAQS have established standards for other pollutants recognized by the State. In general, the California standards are more health protective than the corresponding NAAQS. California has also set standards for $PM_{2.5}$, sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

The Basin complies with the California standards for sulfates, hydrogen sulfide, and vinyl chloride, but does not meet the California standard for visibility-reducing particles. Table 33 provides the Basin's attainment status with respect to federal and state standards.

Table 33

South Coast Air Basin Attainment Status

Pollutant	National Standards	California Standards
Ozone (O_3) (1-hour standard)	Extreme	Non-attainment
Ozone (O_3) (8-hour standard)	Severe-17	N/A
Carbon Monoxide (CO)	Serious [a]	Non-attainment
Nitrogen Dioxide (NO_2)	Attainment [b]	Attainment [b]
Sulfur Dioxide (SO_2)	Attainment [b]	Attainment [b]
PM_{10}	Serious	Non-attainment
$PM_{2.5}$	Serious	Non-attainment
Lead (Pb)	Attainment [b]	Attainment [b]
Sulfates (SO_4)	N/A	Attainment [b]

N/A = not applicable

[a] *The Basin has technically met the CO standards for attainment since 2002, but the official status has not been reclassified by the USEPA.*

[b] *An air basin is designated as being in attainment for a pollutant if the standard for that pollutant was not violated at any site in that air basin during a three year period.*

Source: USEPA Region 9 and California Air Resources Board, 2005.

(c) California Air Resources Board Air Quality and Land Use Handbook

The California Air Resources Board (ARB) published the *Air Quality and Land Use Handbook: A Community Health Perspective* in April 2005, to serve as a general guide for considering impacts to sensitive receptors from facilities that emit toxic air contaminant (TAC) emissions. The recommendations provided therein are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts. The goal of the guidance document is to protect sensitive receptors, such as children, the elderly, acutely ill, and chronically ill persons, from exposure to TAC emissions. Some examples of ARB's siting recommendations include the following: (1) avoid siting sensitive receptors within 500 feet of freeways and high-traffic roads (i.e., roads within urbanized areas carrying more than 100,000 vehicles per day); (2) avoid siting sensitive receptors within 1,000 feet of a distribution center; and (3) avoid siting sensitive receptors within 300 feet of a dry cleaning facility that uses perchloroethylene.

(d) South Coast Air Quality Management District

The SCAQMD has jurisdiction over an area of approximately 10,743 square miles. This area includes all of Los Angeles County except for the Antelope Valley, Orange County, the nondesert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. The Basin is a subregion of the SCAQMD's jurisdiction. While

air quality in this area has improved, the Basin requires continued diligence to meet air quality standards.

The SCAQMD has adopted a series of Air Quality Management Plans (AQMP) to meet the CAAQS and NAAQS. These plans require, among other emission-reducing activities, control technology for existing sources; control programs for area sources and indirect sources; a SCAQMD permitting system designed to allow no net increase in emissions from any new or modified (i.e., previously permitted) emission sources; transportation control measures; sufficient control strategies to achieve a 5 percent or more annual reduction in emissions (or 15 percent or more in a 3-year period) for Reactive Organic Compounds (ROC), NO_X, CO, and PM_{10}; and demonstration of compliance with the ARB established reporting periods for compliance with air quality goals.

The SCAQMD adopted a comprehensive AQMP update, the 2003 Air Quality Management Plan for the South Coast Air Basin, on August 1, 2003.[95] The 2003 AQMP outlines the air pollution control measures needed to meet Federal health-based standards for O_3 (1-hour standard) by 2010 and PM_{10} by 2006. It also demonstrates how the Federal standard for CO, achieved for the first time at the end of 2002, will be maintained.[96] This revision to the AQMP also addresses several State and federal planning requirements and incorporates substantial new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological data, and new air quality modeling tools. The 2003 AQMP is consistent with and builds upon the approaches taken in the 1997 AQMP and the 1999 Amendments to the Ozone SIP for the South Coast Air Basin. Lastly, the 2003 AQMP takes a preliminary look at what will be needed to achieve new and more stringent health standards for ozone and $PM_{2.5}$.

In adopting the AQMP, the SCAQMD: (1) committed to analyzing 12 additional long-term control measures, such as requiring the electrification of all cranes at ports; (2) set a target for distributing needed long-term emission reductions between the SCAQMD, ARB, and the USEPA; (3) assigned emission reductions to the USEPA; and (4) forwarded to ARB and USEPA a list of more than 30 specific measures for consideration to further reduce emissions from on- and off-road mobile sources and consumer products. The AQMP identifies 26 air pollution control measures to be adopted by the SCAQMD to further reduce emissions from businesses, industry and paints. It also identifies 22 measures to be adopted by the ARB and the USEPA to further reduce pollution from cars, trucks, construction equipment, aircraft, ships, and consumer products.

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[95] *South Coast Air Quality Management District, AQMD Website, www.aqmd.gov/news1/aqmp_adopt.htm.*

[96] *The Basin has technically met the CO standards since 2002, but the official attainment status has not been reclassified by the USEPA.*

The SCAQMD adopts rules and regulations to implement portions of the AQMP. Several of these rules may apply to construction or operation of the Project. For example, SCAQMD Rule 403 requires the implementation of best available fugitive dust control measures during active construction periods capable of generating fugitive dust emissions from on-site earth-moving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads. The full text of SCAQMD Rule 403 is included in Appendix F of this Draft EIR.

The SCAQMD has published a handbook (CEQA Air Quality Handbook, November 1993) that is intended to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. This handbook provides standards, methodologies, and procedures for conducting air quality analyses in EIRs and was used extensively in the preparation of this analysis. In addition, the SCAQMD has published a guidance document (Localized Significance Threshold Methodology for CEQA Evaluations, June 2003) that is intended to provide guidance in evaluating localized effects from mass emissions during construction. This document was also used in the preparation of this analysis.

(e) Regional Comprehensive Plan and Guide

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development, and the environment. SCAG is the federally designated metropolitan planning organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. As the designated MPO, SCAG is mandated by the federal government to develop and implement regional plans that address transportation, growth management, hazardous waste management, and air quality issues. With respect to air quality planning, SCAG has prepared the Regional Comprehensive Plan and Guide (RCPG) for the SCAG region, which includes Growth Management and Regional Mobility chapters that form the basis for the land use and transportation components of the AQMP and are utilized in the preparation of air quality forecasts and the consistency analysis that is included in the AQMP.

(f) City of Carson Policies

The City of Carson General Plan was prepared in response to California state law requiring that each city and county adopt a long-term comprehensive general plan. This plan must be integrated, internally consistent, and present goals, objectives, policies, and implementation guidelines for decision makers to use. The City has included an Air Quality Element as part of its General Plan. The planning area for the City's Air Quality Element covers the entire City of Carson.

The 2004 revision of the City's General Plan Air Quality Element serves to aid the SCAQMD in attaining the State and federal ambient air quality standards at the earliest feasible date, while still maintaining economic growth and improving the quality of life. The City's Air Quality Element acknowledges the interrelationships between transportation and land use planning in meeting the City's mobility and clean air goals. With the City's adoption of the Air Quality Element and the accompanying Clean Air Program, the City is seeking to achieve consistency with regional Air Quality, Growth Management, Mobility, and Congestion Management Plans.

To achieve these goals, performance based measures have been adopted to provide flexibility in the implementation of the policies that are set forth in the City's Air Quality Element. The following City Air Quality Element goals, policies, and implementation measures are relevant to the Proposed Project:

Goal AQ-1*—Reduce particulate emissions from paved and unpaved surfaces and during building construction.*

Policy AQ-1.1—Continue to enforce ordinances which address dust generation and mandate the use of dust control measures to minimize this nuisance.

Implementation Measure AQ-1.1 Investigate further amending of existing requirements for grading permits and erosion, siltation and dust control procedures.

Policy AQ-1.2—Promote the landscaping of undeveloped and abandoned properties to prevent soil erosion and reduce dust generation.

Implementation Measure AQ-1.2—Investigate the feasibility of requiring planting of undeveloped and abandoned properties.

Policy AQ-1.3—Adopt incentives, regulations, and/or procedures to minimize particulate emissions.

Implementation Measure AQ-1.3—Amend contracting requirements for any new street cleaning equipment to require, to the maximum extent feasible, the most efficient fine particle removal.

Implementation Measure AQ-1.4—Study the feasibility of requiring the use of less impactive leaf blowers, such as equipment that will collect particulates rather than blow them around.

Goal AQ-2*— Improve air quality which meets State and Federal standards*

Policy AQ-2.1—Coordinate with other agencies in the region, particularly SCAQMD and SCAG, to implement provisions of the regions' AQMP, as amended.

Implementation Measure AQ-2.1—Continue to participate, where possible, in committees involved in the development and implementation of air quality implementation plans.

Policy AQ-2.2—Utilize incentives, regulations and implement the Transportation Demand Management requirements in cooperation with other jurisdictions to eliminate vehicle trips which would otherwise be made and to reduce vehicle miles traveled for automobile trips which still need to be made.

Policy AQ-2.3—Cooperate and participate in regional air quality management plans, programs and enforcement measures.

Implementation MeasureAQ-2.2—Continue to encourage and assist employers in developing and implementing work trip reduction plans, employee ride sharing, modified work schedules, preferential carpool and vanpool parking, or any other trip reduction approach that is consistent with the AQMP for the South Coast Air Basin.

Implementation Measure AQ-2.3—Continue City employee work trip reduction programs and use of alternative fuel vehicles.

Policy AQ-2.4—Continue to work to relieve congestion on major arterials and thereby reduce emissions.

Implementation Measure AQ-2.4—Encourage those companies that ship or receive high volumes of goods by commercial truck to limit operations to non-peak hours.

Implementation Measure AQ-2.5—Encourage those companies with high truck volumes to use the Alameda Corridor.

Policy AQ-2.5—Continue to improve existing sidewalks, bicycle trails, and parkways, and require sidewalk and bicycle trail improvements and parkways for new developments.

Implementation Measure AQ-2.6—Require new developments to provide pedestrian and bicycle trails access to nearby shopping and employment centers, thereby encouraging alternate modes of transportation and reducing vehicle miles traveled.

Policy AQ-2.6---Encourage in-fill development near activity centers and along transportation routes.

Implementation Measure AQ-2.7—Encourage infill projects to provide convenience to existing facilities and minimize trip generation.

Policy AQ-2.7—Reduce air pollutant emissions by mitigating air quality impacts associated with development projects to the greatest extent possible.

Implementation Measure AQ-2.8—Prepare potential air quality mitigation measures and thresholds of significance for use in environmental documentation.

***Goal AQ-3**—Increased use of alternate fuel vehicles.*

Policy AQ-3.1—Continue to promote the use of alternative clean fueled vehicles for personal and business use. To this end, consider the use of electric, fuel cell or other non-polluting fuels for Carson Circuit buses and other City vehicles.

Policy AQ-3.2 Continue to promote ridership on the Carson Circuit and Los Angeles County Metropolitan Transportation Authority (MTA) bus and metro rail lines.

Implementation Measure AQ-IM-3.3 Develop a cooperative program to further increase transit ridership.

***Goal AQ-4**—Increased community awareness and participation in efforts to reduce air pollution and enhance air quality.*

Policy AQ-4.1—Work with the City's Public Information Office to increase public awareness regarding air quality, implementation issues, reporting and enforcement.

Implementation Measure AQ-4.1—Publicize the SCAQMD complaint telephone number.

Policy AQ-4.2—Promote and encourage ride sharing activities within the community, including such programs as preferential parking, park-and-ride lots, alternative work week/flexible working hours and telecommuting, as well as other trip reduction strategies.

Implementation Measure AQ-4.2—Continue to implement City programs and encourage other employers' programs to promote ride sharing, alternative work week schedules, and telecommuting.

Implementation Measure AQ-4.3—Coordinate with transportation agencies to establish additional park-and-ride facilities for work and non-work trip reduction.

b. Existing Conditions

(1) Regional Context

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

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

The greatest air pollution impacts throughout the Basin occur from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This frequently reduces pollutant dispersion, thus causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day. Ozone concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Basin and adjacent desert. Over the past 30 years, substantial progress has been made in reducing air pollution levels in southern California.

The SCAQMD has published a Basin-wide air toxics study (MATES II, Multiple Air Toxics Exposure Study, March 2000). The MATES II study represents one of the most comprehensive air toxics studies ever conducted in an urban environment. The study was aimed

at determining the cancer risk from toxic air emissions throughout the Basin by conducting a comprehensive monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to fully characterize health risks for those living in the Basin. The study concluded that the average carcinogenic risk in the Basin is approximately 1,400 in one million. Mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.) represent the greatest contributors. Approximately 70 percent of all risk is attributed to diesel particulate emissions, approximately 20 percent to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde), and approximately 10 percent of all carcinogenic risk is attributed to stationary sources (which include industries and other certain businesses, such as dry cleaners and chrome plating operations). The SCAQMD is in the process of updating the MATES II Study with a MATES III Study.

The ARB prepares a series of maps that show regional trends in estimated outdoor inhalable cancer risk from air toxic emissions in an ongoing effort to provide insight as to the relative risk. The estimates represent the number of potential cancers per million people based on a lifetime of breathing air toxics (i.e., 24 hours per day outdoors for 70 years). The Year 2001 Southern Los Angeles County map, which is the most recently available map to represent existing conditions, is provided in Figure 35 on page 367. As shown in Figure 35, the cancer risk ranges from 100 to 1,500 cancers per million, while the vast majority of the area is between 250 and 1,000 cancers per million.[97] Generally, the risk from air toxics is lower near the coastline and increases inland, with higher risks concentrated near large diesel sources (e.g., freeways, airports, and ports).

The data from the SCAQMD and ARB provide a slightly different range of risk. This difference is primarily related to the fact that the SCAQMD risk is based on monitored pollutant concentrations and the ARB risk is based on dispersion modeling and emission inventories. Regardless, the SCAQMD and ARB data shows that there is an inherent health risk associated with living in urbanized areas of the Basin, where mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.) represent the greatest contributors to the overall risk.

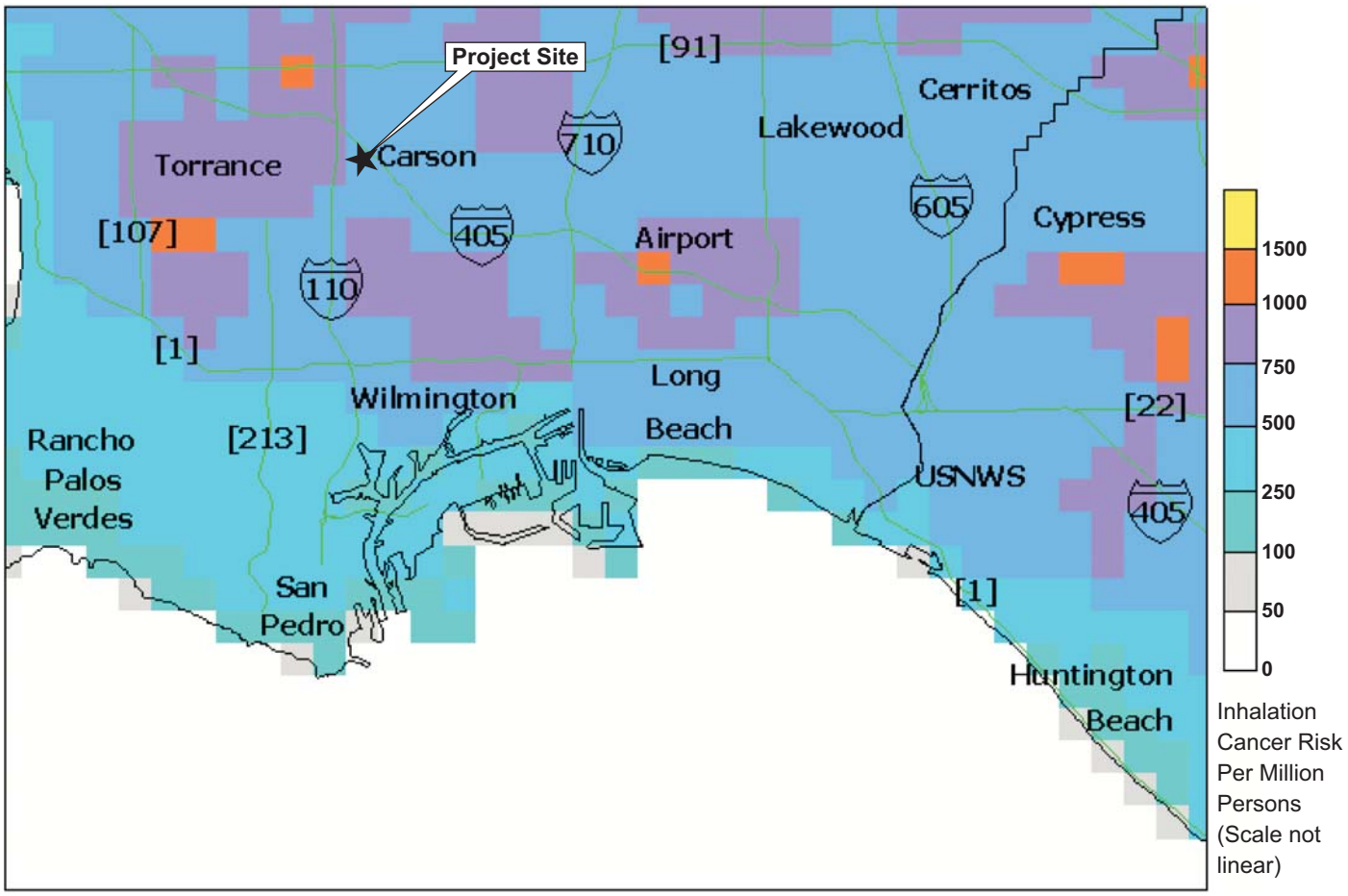
(2) Local Area Conditions

(a) Existing Pollutant Levels at Nearby Monitoring Stations

The SCAQMD maintains a network of air quality monitoring stations located throughout the South Coast Air Basin and has divided the Basin into air monitoring areas. The monitoring station closest to the Project site is the North Long Beach Monitoring Station, located at 3648 Long Beach Boulevard, approximately 6 miles southeast of the Project site. All criteria pollutants are monitored at this station (O_3, CO, NO_X, SO_2, PM_{10} and $PM_{2.5}$). The most recent

[97] *http://www.arb.ca.gov/toxics/cti/hlthrisk/cncrinhl/riskmapviewfull.htm.*

Total Risk (diesel + nondiesel)
Southern LA County: 2001 Cancer Risk Per Million
All Sources



Source: See ARB web site: http//www.arb.ca.gov/toxics/cti/hlthrisk/hlthrisk.html

PCR

Figure 35
Total Cancer Risk for Southern Los Angeles County

data available from this monitoring station encompasses the years 2000 to 2004. The data, shown in Table 34 on pages 369 and 370, show the following pollutant trends:

Ozone. During the 2000 to 2004 reporting period, the maximum one-hour ozone concentration was recorded in 2000 at 0.12 ppm. An exceedance of the California one-hour ozone standard (0.09 ppm) was recorded three days in 2001 and one day in 2003. The National standard of 0.12 ppm was not exceeded during the monitored years. The maximum eight-hour ozone concentration recorded during the reporting period was 0.08 ppm, which was also reported in 2000. During the 2000 to 2004 reporting period, the National standard of 0.08 ppm was not exceeded.

Particulate Matter (PM_{10}). The highest recorded concentration during the reporting period occurred in 2000 and was 105 micrograms per cubic meter ($\mu g/m^3$) of air particulates. During the reporting period, the California PM_{10} standard was exceeded between 2 and 12 times annually, with the highest number of exceedances in 2000 and 2001. No exceedances of the National standard occurred between the years 2000 to 2004. The highest annual arithmetic mean recorded was 37 $\mu g/m^3$ in 2001. The highest annual geometric mean recorded was 37 $\mu g/m^3$ also in 2001.

Particulate Matter ($PM_{2.5}$). The highest recorded concentration during the reporting period was 115 $\mu g/m^3$ in 2003. The National standard was exceeded between zero and 4 times annually, with the highest number of exceedances in 2000. The highest annual arithmetic mean recorded was 21 $\mu g/m^3$ in 2001. During the 2000 to 2004 reporting period, the California annual average standard of 12 $\mu g/m^3$ was exceeded each year.

Carbon Monoxide. The highest 1-hour CO concentration was 10 ppm and the highest 8-hour CO concentration was 6 ppm, both reported in 2000. Neither the California nor the National CO standards were exceeded during the 2000 to 2004 reporting period.

Nitrogen Dioxide. The highest one-hour concentration of NO_2 was recorded in 2000 and 2003, at 0.14 ppm. The annual arithmetic mean during the 2000 to 2004 reporting period was consistently at 0.03 ppm. Neither the California nor the National NO_2 standards were exceeded during the 2000 to 2004 reporting period shown.

Sulfur Dioxide. The highest one-hour concentration was 0.05 ppm, recorded in 2000 and 2001. The 24-hour concentrations recorded were 0.01 ppm for each of the years during the reporting period and the annual arithmetic mean was 0.002 from 2000 to 2003 and was recorded as 0.005 ppm in 2004. No exceedances of the California or the National SO_2 standards were recorded during this reporting period.

Table 34

Pollutant Standards and Ambient Air Quality Data[a]

Pollutant/Standard	2000	2001	2002	2003	2004
Ozone (O_3)					
O_3 (1-hour)					
Maximum Concentration (ppm)	0.12	0.09	0.08	0.10	0.09
Days > CAAQS (0.09 ppm)	3	0	0	1	0
Days > NAAQS (0.12 ppm)	0	0	0	0	0
O_3 (8-hour)					
Maximum Concentration (ppm)	0.08	0.07	0.06	0.07	0.07
Days > NAAQS (0.08 ppm)	0	0	0	0	0
Particulate Matter (PM_{10})					
PM_{10} (24-hour)					
Maximum Concentration ($\mu g/m^3$)	105	91	74	63	72
Days > CAAQS (50 $\mu g/m^3$) [b]	12	10	5	4	2
Days > NAAQS (150 $\mu g/m^3$) [b]	0	0	0	0	0
PM_{10} (Annual Average)					
Annual Arithmetic Mean (50 $\mu g/m^3$)	36	37	33	30	33
Annual Geometric Mean (20 $\mu g/m^3$)	N/A	37	33	30	N/A
Particulate Matter ($PM_{2.5}$)					
$PM_{2.5}$ (24-hour)					
Maximum Concentration ($\mu g/m^3$)	82	73	63	115	67
Days > NAAQS (65 $\mu g/m^3$)	4	1	0	3	1
$PM_{2.5}$ (Annual Average)					
Annual Geometric Mean (12 $\mu g/m^3$)	20	21	20	18	18
Carbon Monoxide (CO)					
CO (1-hour)					
Maximum Concentration (ppm)	10	6	6	6	4
Days > CAAQS (20 ppm)	0	0	0	0	0
Days > NAAQS (35 ppm)	0	0	0	0	0
CO (8-hour)					
Maximum Concentration (ppm)	6	5	5	5	3
Days > CAAQS (9 ppm)	0	0	0	0	0
Days > NAAQS (9 ppm)	0	0	0	0	0

Table 34 (Continued)

Pollutant Standards and Ambient Air Quality Data

Pollutant/Standard	2000	2001	2002	2003	2004
Nitrogen Dioxide (NO_2)					
NO_2 (1-hour—State Standard)					
Maximum Concentration (ppm)	0.14	0.12	0.12	0.14	0.12
Days > CAAQS (0.25 ppm)	0	0	0	0	0
NO_2 (Annual Average—National Standard))					
Annual Arithmetic Mean (0.05 ppm)					
Days > NAAQS (0.05 ppm)	0.03	0.03	0.03	0.03	0.03
	0	0	0	0	0
Sulfur Dioxide (SO_2)					
SO_2 (1-hour)					
Maximum Concentration (ppm)	0.05	0.05	0.03	0.03	0.04
Days > CAAQS (0.25 ppm)	0	0	0	0	0
SO_2 (24-hour)					
Maximum Concentration (ppm)	0.01	0.01	0.01	0.01	0.01
Days > CAAQS (0.04 ppm)	0	0	0	0	0
Days > NAAQS (0.14 ppm)	0	0	0	0	0
SO_2 (Annual Average)					
Annual Arithmetic Mean	0.002	0.002	0.002	0.002	N/A
Days > NAAQS (0.03 ppm)	0	0	0	0	0

[a] *ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; N/A = not available*

Ambient data for all pollutants were obtained from the North Long Beach monitoring station closest to the project site (approximately 6 mile southeast of the project site.

Ambient data for airborne lead is not included in this table since the Basin is currently in compliance with state and national standards for lead.

[b] *Measurements are usually collected every six days. Measured days counts the days that a measurement was greater than the level of the standard*

[c] *Insufficient data available to determine the value*

Source: California Air Resources Board, Ambient Monitoring Data 2000–2004.

Lead. The Basin is currently in compliance with California and National standards for Pb and, therefore, no ambient data for airborne Pb is available for the applicable monitoring stations.

(b) Existing Health Risk in the Surrounding Area

As shown above in Figure 36 on page 372, the project site is located within a cancer risk zone of 500 to 750 in one million. However, the visual resolution available in the map is 1 kilometer by 1 kilometer and, thus, impacts from individual facilities for individual neighborhoods are not discernable on this map. In general, the project site is indicative of other areas in Carson.

(c) Sensitive Receptors and Locations

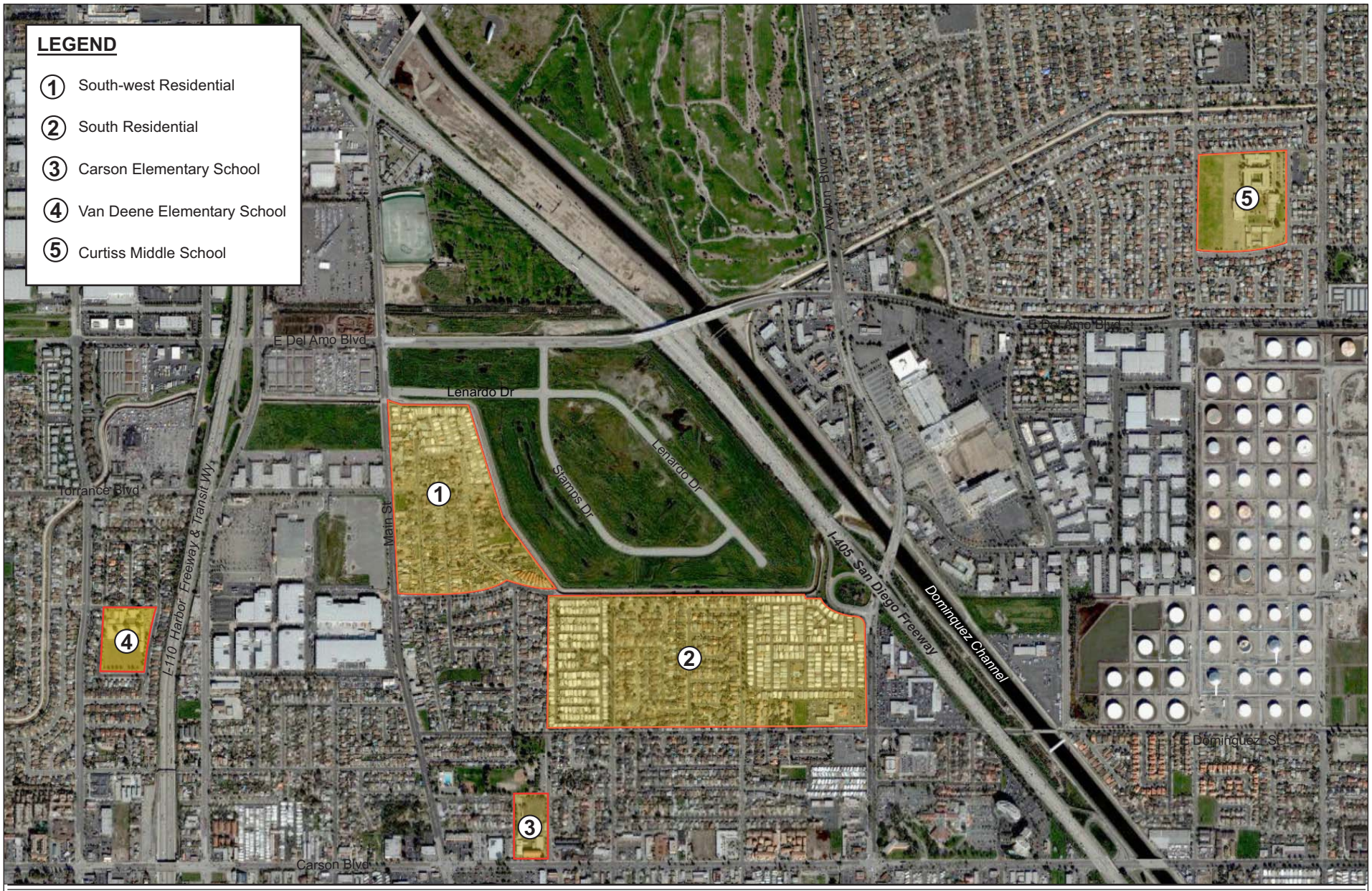
Some population groups, such as children, the elderly, and acutely and chronically ill persons, especially those with cardio-respiratory diseases, are considered more sensitive to air pollution than others. Sensitive land uses in the Project vicinity are shown in Figure 36 and include one- and two-story detached residences and mobile homes that are located to the south and west of the Project site. The closest residences are located approximately 150 feet from the Project site boundary. Other potentially sensitive uses in the more distant area include multi-family and single-family residences, schools, libraries, religious institutions, hospitals and nursing homes. The closest school to the Project site is the Carson Street Elementary School, which is located approximately half a mile to the south of the Project site.

The Project site is bounded by a nursery and the Dominguez Hills Golf Course to the north, the Torrance Lateral Flood Control Channel and residential uses to the south and west, industrial uses to the west and the I-405 Freeway to the east. In a larger context, the Project site is surrounded by various uses. East of the I-405 Freeway, land uses include neighborhood and regional retail shopping, most notably the South Bay Pavilion. To the north and east of the Project site and the I-405 Freeway is the Victoria golf course, with single-family residential uses located to the east. To the west of the Project site extending away from the site on Torrance and Del Amo Boulevards are commercial and light industrial uses. Further north on Main Street are several light industrial uses.

3. ENVIRONMENTAL IMPACTS

a. Significance Thresholds

The City of Carson has not adopted specific Citywide significance thresholds for air quality impacts. Because of the SCAQMD's regulatory role in the Basin, the SCAQMD *CEQA*



PCR

Source: Keyhole 2004

Figure 36
Air Quality Sensitive Receptor Locations

Air Quality Handbook was used to establish the screening criteria, significance thresholds, and analysis methodologies.

(1) Construction Emissions

The proposed Project would have a significant impact with regard to construction emissions if any of the following occur:

- Regional emissions from both direct and indirect sources would exceed any of the following SCAQMD prescribed threshold levels: (1) 75 pounds per day (lbs/day) for ROC; (2) 100 lbs/day for NO_X; (3) 550 lbs/day for CO; and (4) 150 lbs/day for PM_{10} or SO_X.[98]

- Project-related fugitive dust and construction equipment combustion emissions cause an incremental increase in localized PM_{10} concentrations of 10.4 $\mu g/m^3$ or cause a violation of NO_2 or CO ambient air quality standards.[99]

- Increased landfill gas emissions cause an incremental health risk to on- or off-site receptors as regulated by the SCAQMD and DTSC.

- The proposed Project creates objectionable odors affecting a substantial number of people.

(2) Operational Emissions

The proposed Project would have a significant impact with regard to operational emissions if any of the following occur:

- Regional emissions from both direct and indirect sources would exceed any of the following SCAQMD prescribed threshold levels: (1) 55 pounds per day (lbs/day) for ROC; (2) 55 lbs/day for NO_X; (3) 550 lbs/day for CO; and (4) 150 lbs/day for PM_{10} or SO_X.[100]

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[98] *South Coast Air Quality Management District, CEQA Air Quality Handbook, Chapter 6 (Determining the Air Quality Significance of a Project), 1993.*

[99] *While the SCAQMD CEQA Air Quality Handbook (CEQA Handbook, 1993), does not provide any localized thresholds, the SCAQMD currently recommends localized significance thresholds (LST) for PM_{10}, NO_2, and CO in its draft document titled "SCAQMD Localized Significance Threshold Methodology for CEQA Evaluations (SCAQMD LST Guidelines)," June 19, 2003.*

[100] *South Coast Air Quality Management District, CEQA Air Quality Handbook, Chapter 6 (Determining the Air Quality Significance of a Project), 1993.*

- The proposed Project results in an exceedance of the California 1-hour or 8-hour CO standards of 20 or 9.0 ppm, respectively, at an intersection or roadway within one-quarter mile of a sensitive receptor.

- Project-related stationary source combustion equipment emissions cause an incremental increase in localized PM_{10} concentrations of 2.5 $\mu g/m^3$.[101]

- The proposed Project creates objectionable odors affecting a substantial number of people.

- The proposed Project is incompatible with SCAQMD and SCAG air quality policies. The proposed Project would not be compatible with these polices if it:

  – causes an increase in the frequency or severity of existing air quality violations;

  – causes or contributes to new air quality violations;

  – delays timely attainment of air quality standards or the interim emission reductions specified in the AQMP; or

  – exceeds the assumptions utilized in the SCAQMD's AQMP.

- The proposed Project is incompatible with City of Carson air quality policies. The proposed Project would not be compatible with these policies if it does not substantially comply with the air quality goals and policies set forth within the City's General Plan.

(3) Toxic Air Contaminants

The proposed Project would have a significant impact with regard to toxic air contaminants if any of the following occur:

- On-site stationary sources emit carcinogenic or toxic air contaminants that individually or cumulatively exceed the maximum individual cancer risk of ten in one million or an acute or chronic hazard index of 1.0.[102]

[101] *While the SCAQMD CEQA Air Quality Handbook (CEQA Handbook, 1993), does not provide any localized thresholds, the SCAQMD currently recommends localized significance thresholds (LST) for PM_{10}, NO_2, and CO in its document titled "SCAQMD Localized Significance Threshold Methodology for CEQA Evaluations (SCAQMD LST Guidelines)," June 19, 2003.*

[102] *SCAQMD Risk Assessment Procedures for Rules 1401 and 212, November 1998.*

- Hazardous materials associated with on-site stationary sources result in an accidental release of air toxic emissions or acutely hazardous materials posing a threat to public health and safety.

- Hazardous materials associated with the landfill that result in an accidental release of air toxic emissions or acutely hazardous materials posing a threat to public health and safety.

- The Project would be occupied primarily by sensitive individuals within a quarter mile of any existing facility that emits air toxic contaminants that could result in a health risk for pollutants identified in District Rule 1401.[103]

b. Project Features

The following design features result in a reduction in air quality emissions and are proposed as part of the Project.

Construction

- On-site heavy-duty construction equipment would be equipped with diesel particulate traps, as feasible.

- Land uses that would locate on the Project site would be limited to those that do not emit high levels of potentially toxic contaminants or odors.

- Limiting excavations to avoid exposing landfill contents.

Operation

A primary objective in the design of the proposed Project is to create a development which minimizes the air pollutant emissions that are generated by the Project. To achieve this objective, the Applicant focused on reducing the number of vehicle trips as well as vehicle miles traveled. This approach to minimizing pollutant emissions implements the policy direction provided by the Southern California Association of Governments for land development projects such as the Carson Marketplace. The design program incorporated into the proposed Project to minimize pollutant emissions consists of the choice and organization of land uses within the Carson Marketplace. The following are the key Project elements that implement this design program:

[103] *SCAQMD, CEQA Air Quality Handbook, Chapter 6 (Determining the Air Quality Significance of a Project).*

- The proposed array of residential, retail, and office uses would, in itself, promote a reduction of mobile source emissions by providing a supply of housing as well as employment opportunities within close proximity to one another, making it possible for an individual to both reside and work within the Project site (jobs/housing linkage).

- The placement of commercial and office uses in the design of the Carson Marketplace serves the objective of minimizing mobile source pollutant emissions. Office and commercial uses that would be developed within the proposed Project would be located in close proximity to the access ramps of the San Diego (I-405) and Harbor (I-110) Freeways. Such concentration and placement are intended to reduce vehicle miles traveled within the Project site and within the region and subregion by reducing commute distances for non-resident workers. The provision of commercial and office space in close proximity to existing and proposed residential uses increases the probability that residents may work nearer to their home, thus reducing the vehicle miles traveled.

- The Project would include an impervious barrier to control odiferous and air toxic emissions in compliance with the approved RAP.

- All stationary-source emissions sources (e.g., emergency generator) would utilize Best Available Control Technology (BACT) to meet SCAQMD requirements.

c. Methodology

The evaluation of potential impacts to local and regional air quality that may result from the construction and long-term operations of the proposed Project is based on the following methodological approach:

(1) Regional Criteria Pollutant Impacts

(a) Construction Impacts

Daily regional emissions during construction were forecasted by assuming an aggressive construction schedule (i.e., assuming all construction occurs at the earliest feasible date) and applying the mobile-source and fugitive dust emissions factors derived from URBEMIS 2002.[104] For development, the construction process included site preparation (clearing, grubbing, deep

[104] *URBEMIS 2002 is an emissions estimation/evaluation model developed by the ARB that is based, in part, on SCAQMD CEQA Air Quality Handbook guidelines and methodologies.*

dynamic compaction, and grading), utilities and road construction, pile driving, and building construction/finishing.

(b) Operational Impacts

Project operations refer to activities that would occur at a Project site when construction is complete and the site has been occupied with its intended use. Emissions from Project operations can be divided into three main categories: (1) indirect sources; (2) area sources; and (3) stationary sources. Indirect sources are defined as buildings, facilities, structures, or properties that attract or generate mobile source activity (autos and trucks). This includes shopping centers, employment sites, schools, housing developments, etc. Area sources are sources that individually emit small quantities of air pollutants, but which cumulatively may represent significant quantities of emissions. Water heaters, fireplaces, wood heaters, lawn maintenance equipment, and the application of paints and lacquers during maintenance activities are examples of area source emissions. Stationary, or point, sources are equipment or devices operating at industrial and commercial facilities that directly emit air pollutants. Examples of facilities with stationary sources include manufacturing plants, power plants, print shops, and gasoline stations. The SCAQMD recommends that impact assessments should evaluate all three categories of emissions when determining impacts from a project's operations.

(i) Mobile-Source Emissions

The SCAQMD recommends using URBEMIS2002 for calculating indirect emissions from development projects. The air quality analysis incorporated model default values, with the following exception. Project-specific trip-generation rates were incorporated into the analysis based on the Project's traffic study.[105] In calculating mobile-source emissions, the URBEMIS 2002 default trip length assumptions were applied to the average daily trip estimates provided by the Project's traffic consultant to arrive at vehicle miles traveled.

(ii) Stationary Sources

The SCAQMD recommends that URBEMIS2002 be used to calculate area source emissions. The program allows you to estimate area-source emissions for natural gas fuel consumption from space and water heating, wood stove and fireplace combustion emissions, landscape maintenance equipment, and consumer products. Consumer products include reactive organic compound emissions released through the use of products such as hair sprays and deodorants. URBEMIS2002 default assumptions were used for evaluating area source emissions.

[105] *Kaku and Associates, Traffic Impact Study for the Carson Marketplace, August 2005.*

Pollutant emissions associated with energy demand (i.e., electricity generation) are classified by the SCAQMD as regional stationary-source emissions. Electricity is produced at various locations within, as well as outside of, the Basin. Since it is not possible to isolate where electricity is produced, these emissions are conservatively considered to occur within the Basin and are regional in nature. Criteria pollutant emissions associated with the production and consumption of energy were calculated using emission factors from the SCAQMD's CEQA Air Quality Handbook, 1993.

(2) Localized Criteria Pollutant Impacts (Construction and Operations)

The localized effects from the on-site construction emissions were evaluated to determine potential pollutant concentrations at each sensitive receptor location. The analysis was conducted using the Industrial Source Complex (ISCST3) dispersion model, a methodology that is consistent with the procedures outlined in the USEPA *1998 Guideline on Air Quality Models* and the SCAQMD *Localized Significance Threshold Methodology for CEQA Evaluations* guidance documents. A complete listing of the construction equipment by phase, construction phase duration, emissions estimation model and dispersion model input assumptions used in this analysis are included in the emissions calculation worksheets provided in Appendix F of this Draft EIR.

Local area CO concentrations for roadways were evaluated using the CALINE4 traffic pollutant dispersion model, developed by Caltrans and recommended by the SCAQMD, in combination with Emfac2002 emission factors. The analysis of roadway CO impacts followed the protocol recommended by Caltrans and published in the document titled *Transportation Project-Level Carbon Monoxide Protocol*, December 1997. The protocol recommends a hotspot evaluation of potential localized CO impacts when volume-to-capacity ratios increase by 2 percent at intersections with a level of service (LOS) of C or worse. All four corners of each intersection were then analyzed with receptor locations positioned 3 meters from each intersection for the 1-hour analysis and 7 meters for the 8-hour analysis. The estimated CO concentrations from the CALINE4 modeling results were then compared to State and federal CO standards to determine whether the project would have a significant air quality impact.

Localized PM_{10} concentrations related to operation of proposed Project stationary-source combustion equipment are evaluated by conducting a screening-level analysis followed by a more detailed analysis (i.e., dispersion modeling) as necessary. The screening-level analysis consists of reviewing the proposed Project's site plan and Project description to identify any new or modified stationary-source combustion equipment sources. If it is determined that the proposed Project would introduce a new stationary-source combustion equipment source, or modify an existing stationary-source combustion equipment source, then downwind sensitive receptor locations are identified and site-specific dispersion modeling is conducted to determine

proposed Project impacts. All emissions calculation worksheets and air quality modeling output files are provided in Appendix F of this Draft EIR.

(3) Toxic Air Contaminants (TAC) Impacts (Construction and Operations)

Potential off-site TAC impacts are evaluated by conducting a screening-level analysis followed by a more detailed analysis (i.e., dispersion modeling), as necessary. The screening-level analysis consists of reviewing the proposed Project's site plan and Project description to identify any new or modified TAC emissions sources. If it is determined that the proposed Project would introduce a new source, or modify an existing TAC emissions source, then downwind sensitive receptor locations are identified and site-specific dispersion modeling is conducted to determine proposed Project impacts.

Potential on-site TAC impacts are evaluated using ARB's *Air Quality and Land Use Handbook: A Community Health Perspective* as a general guide for considering impacts to sensitive receptors from facilities that emit TAC emissions. Coordination with SCAQMD is required to identify potential TAC emitting facilities within one-quarter mile of the proposed Project site. As the proposed Project would introduce a new sensitive land use within the ARB recommended minimum siting distances, site-specific modeling has been conducted to determine proposed Project impacts.

(4) Odor Impacts (Construction and Operations)

Potential odor impacts are evaluated by conducting a screening-level analysis followed by a more detailed analysis (i.e., dispersion modeling) as necessary. The screening-level analysis consists of reviewing the proposed Project's site plan and Project description to identify any new or modified odor sources. If it is determined that the proposed Project would introduce a new odor source, or modify an existing odor source, then downwind sensitive receptor locations are identified and site-specific dispersion modeling is conducted to determine proposed Project impacts.

d. Project Impacts

(1) Construction

(a) Regional Construction Impacts

Construction of the proposed Project and implementation of the RAPs within Development Districts 1 and 2 have the potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated from construction workers traveling to and from the Project site. In addition, fugitive dust emissions would result from site preparation activities and construction of the landfill cap. Mobile source emissions,

primarily NO_X, would result from the use of construction equipment such as dozers, loaders, and cranes. During the finishing phase, paving operations and the application of architectural coatings (i.e., paints) and other building materials would release reactive organic compounds. 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. The assessment of construction air quality impacts considers each of these potential sources.

The proposed Project would include up to 1,550 residential units (1,150 for-sale units and 400 rental units) and 1,995,125 square feet (sq.ft.) of commercial floor area which includes a 300-room hotel. In addition to the proposed urban development program, the proposed Project includes the remediation of the former landfill on the 157-acre portion of the Project site that is located south of Del Amo Boulevard (i.e., Development Districts 1 and 2) in compliance with the Remedial Action Plan ("RAP") approved by DTSC.

The approved RAP includes: (1) containment of the impacted soil and buried waste through the use of a clay cap; (2) extraction and treatment of the groundwater; (3) collection and treatment of landfill gas extraction; and (4) long-term monitoring of the groundwater and landfill gases. The Applicant is reviewing with DTSC the possibility of using a synthetic membrane cap rather than a clay cap for the waste prism. In addition, refinements may be used to enhance gas control and groundwater treatment. Of particular note is that changes in the design of the remediation would only be allowed if DTSC determines that the proposed design accomplishes the same performance objectives as the previously approved design and is protective of human health and the environment and compliant with both DTSC and SCAQMD requirements to reduce or control potential air-borne emissions associated with the former landfill. Specific details on the remedial activities that would be implemented on the landfill site are provided in Section IV.D, Hazards.

Construction and occupancy of the proposed Project is anticipated to be completed by the end of 2010. The principal phases of proposed Project construction include site preparation, implementation of the RAPs within Development Districts 1 and 2 (site remediation), off-site improvements, and site construction. Based on the Project's current construction schedule, it is anticipated that there would be some overlapping activities.

Site preparation, including mass grading, dynamic compaction, fill and cap foundation, rough grading and the establishment of building pads, is anticipated to begin in the spring of 2006 and last until the spring of 2009. Implementation of the RAPs, including the installation of the cap as well as the installation of the requisite containment, collection and treatment facilities, is anticipated to begin in summer 2007 and last until fall 2008. Construction of off-site improvements would begin in the winter of 2007 and end in the fall of 2008. Site construction, including the placement of piles, the establishment of structural slabs, utility installation, building construction, roads, parking lots and landscaping, is anticipated to begin in the winter of 2008 and be completed by the end of 2010.

Implementation of the proposed refinements to the RAP design by using a synthetic membrane cap and alternative technology would require a slight modification to the construction schedule. Without the need for a clay cap, the intensity of excavation and amount of clay imported would be reduced dramatically.

As such, under this scenario, site preparation, including mass grading, dynamic compaction, fill and cap foundation, rough grading and building pads, is anticipated to begin April 2007 and last until April 2009. Remediation construction, including construction of the cap and collection and treatment facilities, is anticipated to begin July 2007 and last until September 2008. Site construction, including piles, structural slab, utilities, buildings, roads, parking lots and landscaping, is anticipated to begin January 2008 and be complete by April 2010. In order to provide a conservative analysis it was assumed that all construction would be completed within four to five years following entitlement. This assumption is conservative as it represents the minimum timeframe anticipated for the construction of any particular building and concentrates the construction duration so it is occurring concurrently and at the earliest feasible date within the Project's overall development period. This is of particular importance as construction emissions are directly related to the duration and intensity of construction activities (i.e., emissions increase as the amount of construction increases). Emission rates representative of certain stages of construction (i.e., construction worker trips and delivery vehicle trips) can also decrease over time, as emission factors for these vehicles or equipment decrease in future years. The phasing and duration of construction activities (i.e., demolition, site preparation/excavation, and building construction/finishing) and the equipment that would be used under each construction phase is provided in Appendix F of this Draft EIR.

An analysis of peak construction emissions was performed for both the approved RAP and the proposed refinements to the RAP design. Construction emissions with implementation of the approved RAP are presented in Table 35 on page 382. As shown in Table 35, construction-related daily emissions of SO_X and PM_{10} would be considered adverse, but less than significant, as the estimated emissions for these pollutants would fall below their respective SCAQMD significance thresholds. However, construction-related daily emissions of ROC, CO, and NO_x would be considered significant without incorporation of mitigation measures as the estimated emissions for these pollutants would exceed their respective SCAQMD significance thresholds.

Peak construction emissions with implementation of the proposed refinements to the RAP design are presented in Table 36 on page 383. As shown in Table 36, construction-related daily net emissions of SO_X and PM_{10} would be considered adverse, but less than significant, as the estimated emissions for these pollutants would fall below their respective SCAQMD significance thresholds. However, construction-related daily emissions of ROC, CO, and NO_x would be considered significant without incorporation of mitigation measures as the estimated emissions for these pollutants would exceed their respective SCAQMD significance thresholds.

Table 35

Conservative Estimate of Emissions During Construction [a]
Approved RAP Design (Unmitigated)
(lbs/day)

	ROC	NO_X	CO	SO_X	PM_{10} [b]
Maximum Daily Emissions					
On-site	1,665	996	1,272	0	1,394
Off-site (Truck and Employee Trips)	17	329	152	0	6
Total [b]	1,679	1,286	1,424	0	1,400
SCAQMD Daily Significance Threshold	75	100	550	150	150
Over (Under)	1,604	1,186	874	(150)	1,250
Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**

[a] *Emission quantities are rounded to "whole number" values. As such, the "total" values presented herein may be one unit more or less than actual values. Exact values (i.e., non-rounded) are provided in the URBEMIS model printout sheets and/or calculation worksheets that are presented in Appendix F.*

[b] *On-site and off-site maximum emissions represent the maximum emissions that may occur throughout the duration of the Project and therefore may not occur at the same time. Maximum on-site and off-site emissions may not add up to total emissions.*

[c] *PM_{10} emission estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries. A copy of SCAQMD Rule 403 is included in Appendix F. It is assumed that all on-site equipment would be equipped with diesel particulate traps*

Source: PCR Services Corporation, 2005. Construction emission calculation worksheets are included in Appendix F of this EIR.

A comparison of construction emissions associated with the two scenarios shows that combined peak daily construction emissions from development and implementation of the proposed refinements to the RAP design would be reduced by 1 percent for ROC, 15 percent for NO_x, 15 percent for CO, 9 percent for PM_{10}, and similar emissions for SO_x in comparison to combined peak daily construction emissions from development and implementation of the approved RAP. However, both scenarios substantially exceed the SCAQMD significance thresholds for ROC, CO, and NO_x emissions.

These emission forecasts reflect a specific set of conservative assumptions in which the entire Project would be built out over a four to five year time period. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner burning construction equipment fleet mix, and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval).

Table 36

Conservative Estimate of Emissions During Construction [a]
Proposed RAP Design Refinements (Unmitigated)
(lbs/day)

	ROC	NO_X	CO	SO_X	PM_{10} [b]
Maximum Daily Emissions					
On-site	1,648	843	1,078	<1	1,275
Off-site (Truck and Employee Trips)	14	20	131	<1	1
Total [b]	1,662	851	1,121	<1	1,275
SCAQMD Daily Significance Threshold	75	100	550	150	150
Over (Under)	1,587	751	571	(150)	1,125
Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**
	1,662	851	1,121	<1	1,275

[a] *Emission quantities are rounded to "whole number" values. As such, the "total" values presented herein may be one unit more or less than actual values. Exact values (i.e., non-rounded) are provided in the URBEMIS model printout sheets and/or calculation worksheets that are presented in Appendix F.*

[b] *On-site and off-site maximum emissions represent the maximum emissions that may occur throughout the duration of the project and therefore may not occur at the same time. Maximum on-site and off-site emissions may not add up to total emissions.*

[b] *PM_{10} emission estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries. A copy of SCAQMD Rule 403 is included in Appendix F. It is assumed that all on-site equipment will be equipped with diesel particulate traps*

Source: PCR Services Corporation, 2005. Construction emission calculation worksheets are included in Appendix F of this EIR.

(b) Localized Construction Impacts

An analysis of localized construction impacts was conducted based on the SCAQMD's recommended Localized Significance Thresholds (LSTs) for PM_{10}, NO_2 and CO using the ISC3-ST microscale dispersion model as specified in the USEPA *1998 Guideline on Air Quality Models*. The maximum estimates of mass daily emissions discussed above were used as inputs into the ISC3-ST model to ascertain potential air pollutant concentrations at nearby sensitive receptor locations. The dispersion analysis evaluated two scenarios for both the approved RAP and the proposed refinements to the RAP design in order to estimate the maximum potential pollutant concentration for PM_{10}, CO and NO_X at each sensitive receptor location. Scenario 1 under the approved RAP and the proposed RAP design refinements would generally be considered the conservative case scenario as it assumes that the maximum mass daily emissions during construction are concentrated along the southern boundary of the Project site, adjacent to the closest residential receptors. Scenario 2 would be considered the average scenario and assumes that the maximum mass daily emissions are spread out over the entire site, which represents construction occurring at any place within the Project site.

These analysis scenarios would concentrate concurrent construction activity in different areas of the proposed Project site to ascertain the maximum impact to localized air quality at each sensitive receptor location. The ISC3-ST model was run using meteorological data from the SCAQMD Long Beach Monitoring Station, which is available from the SCAQMD web site (www.aqmd.gov).

The results of the localized analysis for approved RAP and proposed RAP are presented in Table 37 and Table 38 on pages 385 and 386, respectively. Under the analyzed scenarios, the potential maximum CO (1-hour and 8-hour) and NO_2 concentrations, when added to background ambient concentrations, would not violate their respective AAQS at any of the sensitive receptor locations. As such, localized impacts with respect to these localized pollutant concentrations during construction would be less than significant.

With respect to localized PM_{10} impacts during construction, a summary of potential maximum impacts to sensitive receptors that are shown in Figure 36 is provided below:

- Residential (Southwest) A potential maximum PM_{10} concentration level attributable to the proposed Project of 173 $\mu g/m^3$ could occur at this sensitive receptor location during the concurrent site preparation activities under Scenario 1 with the approved RAP. This level would exceed the SCAQMD significance threshold of 10.4 $\mu g/m^3$. With implementation of the proposed RAP design refinements, the PM_{10} concentration under Scenario 1 would be reduced to 158 $\mu g/m^3$. Scenario 2 PM_{10} concentrations for the approved and proposed RAP design refinements would be 100 and 91 $\mu g/m^3$, respectively. Although these concentrations are lower than Scenario 1 with the approved RAP, they would still have the potential to exceed the SCAQMD significance threshold of 10.4 $\mu g/m^3$. These potential impacts represent conditions during site grading activities and implementation of the RAPs and would be reduced as site grading activities conclude near the site perimeter and move more centrally to the Project site.

- Residential (South) A potential maximum PM_{10} concentration level attributable to the proposed Project of 146 $\mu g/m^3$ could occur at this sensitive receptor location during the concurrent site preparation activities for Scenario 1 with the approved RAP. This level would exceed the SCAQMD significance threshold of 10.4 $\mu g/m^3$. With implementation of the proposed RAP design refinements, the PM_{10} concentration for Scenario 1 would be reduced to 133 $\mu g/m^3$. Scenario 2 PM_{10} concentrations for the approved and proposed RAP design refinements would be 96 and 92 $\mu g/m^3$, respectively. Although these concentrations are lower than Scenario 1, they would still have the potential to exceed the SCAQMD significance threshold of 10.4 $\mu g/m^3$. These potential impacts represent conditions during site grading

Table 37

Estimate of Unmitigated Local Construction Impacts (Approved RAP)

Pollutant	Maximum Increase in Ambient Concentrations				
	Residential (South-west)	Residential (South)	Carson Elementary School (South)	Van Deene Elementary School (West)	Curtiss Middle School (East)
PM_{10} (24-Hour)					
Maximum Increase (µg/m^3)	173	146	31	16	9.2
Threshold (µg/m^3)[a]	10.4	10.4	10.4	10.4	10.4
Over/(Under)	163	136	20	6	(1)
Significant Impact	Yes	Yes	Yes	Yes	No
NO_2 (1-hour)					
Maximum Increase (µg/m^3)	94	113	25	16	9
Threshold (µg/m^3)	207	207	207	207	207
Over/(Under)	(113)	(94)	(182)	(191)	(198)
Adverse Concentration	No	No	No	No	No
CO (1-Hour)					
Maximum Increase (µg/m^3)	1,207	1,443	321	200	118
Threshold (µg/m^3)	11,500	11,500	11,500	11,500	11,500
Over/(Under)	(10,293)	(10,057)	(11,179)	(11,300)	(11,382)
Adverse Concentration	No	No	No	No	No
CO (8-Hour)					
Maximum Increase (µg/m^3)	275	283	46	28	15
Threshold (µg/m^3)	3,674	3,674	3,674	3,674	3,674
Over/(Under)	(3,399)	(3,391)	(3,628)	(3,646)	(3,659)
Adverse Concentration	No	No	No	No	No

Source: PCR Services Corporation, 2005.

activities and implementation of the RAPs and would be reduced as site grading activities conclude near the site perimeter and move more centrally to the Project site.

- Carson Elementary School (South) A potential maximum PM_{10} concentration level attributable to the proposed Project of 31 µg/m^3 could occur at this sensitive receptor location during the concurrent site preparation activities under Scenario 1 with the approved RAP and 28 µg/m with the proposed RAP. This level would exceed the SCAQMD significance threshold of 10.4 µg/m^3. Scenario 2 PM_{10} concentrations for the approved and proposed RAP design refinements would be 25 µg/m^3 and 24 µg/m^3 respectively. Although these concentrations are lower than Scenario 1, they would still have the potential to exceed the SCAQMD significance threshold of 10.4 µg/m^3.

- Van Deene Elementary School (West) A potential maximum PM_{10} concentration level attributable to the proposed Project of 16 µg/m^3 could occur at this sensitive

Table 38

Estimate of Unmitigated Local Construction Impacts
(Proposed RAP Design Refinements)

Pollutant	Maximum Increase in Ambient Concentrations				
	Residential (South-west)	Residential (South)	Carson Elementary School (South)	Van Deene Elementary School (West)	Curtiss Middle School (East)
PM_{10} (24-Hour)					
Maximum Increase (µg/m^3)	158	133	28	15	8
Threshold (µg/m^3)[a]	10.4	10.4	10.4	10.4	10.4
Over/(Under)	148	123	18	4	(2)
Significant Impact	Yes	Yes	Yes	Yes	No
NO_2 (1-hour)					
Maximum Increase (µg/m^3)	80	96	21	13	8
Threshold (µg/m^3)	207	207	207	207	207
Over/(Under)	(127)	(111)	(186)	(194)	(199)
Adverse Concentration	No	No	No	No	No
CO (1-Hour)					
Maximum Increase (µg/m^3)	1,022	1,222	272	169	100
Threshold (µg/m^3)	11,500	11,500	11,500	11,500	11,500
Over/(Under)	(10,478)	(10,278)	(11,228)	(11,331)	(11,400)
Adverse Concentration	No	No	No	No	No
CO (8-Hour)					
Maximum Increase (µg/m^3)	233	240	39	24	13
Threshold (µg/m^3)	3,674	3,674	3,674	3,674	3,674
Over/(Under)	(3,441)	(3,434)	(3,635)	(3,650)	(3,661)
Adverse Concentration	No	No	No	No	No

Source: PCR Services Corporation, 2005.

receptor location during the concurrent site preparation activities under Scenario 1 with the approved RAP and 15 µg/m^3 with the proposed RAP. This level would exceed the SCAQMD significance threshold of 10.4 µg/m^3. Scenario 2 for both the approved and proposed RAP design refinements would be 13 µg/m^3. Although these concentrations are lower than Scenario 1, they would still have the potential to exceed the SCAQMD significance threshold of 10.4 µg/m^3.

- Curtiss Middle School (East) A potential maximum PM_{10} concentration level attributable to the proposed Project of 11.2 µg/m^3 and 10.8 µg/m^3 could occur at this sensitive receptor location during the concurrent site preparation activities under Scenario 2 with the proposed and approved RAP design refinements respectively. This level would exceed the SCAQMD significance threshold of 10.4 µg/m^3.

Scenario 1 for both the approved and proposed RAP design refinements would be 9.2 $\mu g/m^3$ and 8.0 $\mu g/m^3$ respectively.

With respect to localized PM_{10} impacts during construction, the PM_{10} concentration contribution attributable to on-site construction activity could potentially exceed the 10.4 $\mu g/m^3$ SCAQMD significance threshold at residential receptors located south of the Project site. As such, localized PM_{10} impacts are considered significant without the incorporation of mitigation measures. Modeling input parameters are detailed in the ISC-ST3 printout sheets, which are provided in Appendix F of this Draft EIR.

(c) Toxic Air Contaminants

The greatest potential for toxic air contaminant (TAC) emissions would be related to diesel particulate emissions associated with heavy equipment operations during grading and excavation activities. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. An assessment of diesel particulate emissions was conducted to assess this potential risk using the same assumptions used for the localized analysis discussed above and incorporation of the diesel particulate trap Project design feature. As such, this analysis includes all diesel exhaust emissions associated with on-site heavy equipment and haul trucks during the construction period. The results of this analysis for both the approved and proposed RAP yields a maximum offsite individual cancer risk of 1.2 in a million southwest of the Project site. As the Project would not emit carcinogenic or toxic air contaminants that individually or cumulatively exceed the maximum individual cancer risk of ten in one million, Project-related toxic emission impacts would be less than significant.

Furthermore, should contaminated soils be found or landfill contents be exposed through the implementation of the approved RAP or the proposed RAP design refinements during project construction activities, such soils shall be treated in accordance with the requirements of the appropriate regulatory agency. In addition, the Applicant would abide by SCAQMD Rule 1166 Volatile Organic Compound Emissions from Decontamination of Soil. This rule sets requirements to control the emission of Volatile Organic Compounds (VOC) from excavating, grading, and handling, of VOC-contaminated soil. The mitigation measures set forth in Section V.E along with SCAQMD Rule 1166 ensures that the potential for accidental releases of air toxic emissions or acutely hazardous materials would be less than significant from a safety as well as air quality perspective and thus, would not pose a threat to public health and safety.

As described in Section IV.D Hazards and Hazardous Materials, the RAP envisioned that much of the soil used to construct the earthen cap, including topsoil would likely be imported. In addition, existing soil cover and soil contained in the sloped areas surrounding the cap would remain and be used as part of the cap or remain adjacent to the cap. During Remedial Design

(RD), additional soil cover samples would be collected and analyzed to further evaluate existing soil-cover quality, particularly soil that would reside near land surface such as in landscaped areas. Human-health risk evaluations and a soil management plan would be completed and provided to the DTSC for evaluation and approval to ensure that exposure to soil at the Project site does not pose unacceptable human health risks.

In addition to collecting additional soil data during RD and subsequent RAP implementation phases to evaluate potential health risks, construction and perimeter monitoring would also be completed during earth work, and construction of remediation systems. The approved RAP requires that dust and particulate emissions be controlled and that perimeter monitoring be completed during construction. Therefore, a plan would be developed based on existing and future soil quality data collected during the RD phase, and existing RAP requirements. The plan would be developed to implement engineering controls to minimize off-site migration of dust and particulates to ensure that the surrounding community's health is properly protected. Monitoring and analysis parameters would be based on constituents present at the site and at a minimum, dust and particulate matter (PM_{10}) will be monitored using high-volume air samplers (or equivalent) properly located around the property perimeter. In addition, construction equipment emission would also be periodically monitored at the property boundary in accordance with relevant SCAQMD regulations. This plan would be submitted to the DTSC during RD for review, comment, and approval before any construction activities occur.

(d) Odors

Potential sources that may emit odors during construction activities include the use of architectural coatings and solvents. SCAQMD Rule 1113 limits the amount of volatile organic compounds from architectural coatings and solvents. In addition, odiferous soils may be encountered during the implementation of the approved RAP or the proposed RAP design refinements. The Project would be required to comply with SCAQMD Rule 402 (Nuisance) which limits the discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public. Via mandatory compliance with SCAQMD Rules, no construction activities or materials are proposed which would create objectionable odors. Therefore, no impact would occur and no mitigation measures would be required.

(2) Operational Impacts

(a) Regional Operations Impacts

Regional air pollutant emissions associated with proposed Project operations would be generated by the consumption of electricity and natural gas, and by the operation of on-road vehicles. Pollutant emissions associated with energy demand (i.e., electricity generation and

natural gas consumption) are classified by the SCAQMD as regional stationary source emissions. Electricity is considered an area source since it is produced at various locations within, as well as outside of, the Basin. Since it is not possible to isolate where electricity is produced, these emissions are conservatively considered to occur within the Basin and are regional in nature. Criteria pollutant emissions associated with the production and consumption of electricity were calculated using emission factors from the SCAQMD's CEQA Air Quality Handbook (Appendix to Chapter 9).

Criteria pollutant emissions associated with natural gas combustion and other miscellaneous emissions were estimated using the URBEMIS 2002 emissions inventory model, which utilizes emission factors developed by the EPA and ARB to calculate emissions based on the type of land uses. On-site stationary sources would include chillers, boilers, and emergency generators. Any boilers (used for water and space heating) would be natural gas-fired. Criteria pollutant emissions associated with natural gas combustion were calculated using the URBEMIS 2002 emissions inventory model. These stationary sources (i.e., boilers) may require permits from the SCAQMD pursuant to Rules 201, 202, and 203. Emission increases related to those sources may be subject to SCAQMD Regulation XIII or Regulation XXX which, among other things, requires that Best Available Control Technology (BACT) be utilized to reduce pollutants and that any increases of criteria air pollutants from these types of stationary sources be offset by achieving equivalent emission reductions at a facility within the Basin.

Emissions for miscellaneous area sources were estimated to account for minor sources of criteria pollutants. Miscellaneous sources include, but are not limited to, consumer/commercial solvents, landscaping equipment, and architectural coatings. These sources may not individually emit large quantities of criteria pollutants but when combined emit quantitative amounts of criteria pollutants.

Mobile-source emissions were calculated using the URBEMIS 2002 emissions inventory model, which multiplies an estimate of daily vehicle miles traveled (VMT) by applicable Emfac2002 emissions factors. The URBEMIS 2002 model output and worksheets for calculating regional operational daily emissions are provided in Appendix F of this Draft EIR. As shown in Table 39 on page 390, regional emissions resulting from the proposed Project would not exceed regional SCAQMD thresholds for SO_x. However, the proposed Project would exceed regional SCAQMD threshold for ROC, CO, NO_x and PM_{10} and impacts associated with these criteria pollutants would be significant.

(b) Local Impacts

The SCAQMD recommends an evaluation of potential localized CO impacts when vehicle to capacity (V/C) ratios are increased by 2 percent or more at intersections with a level of service (LOS) of C or worse. As detailed in Section IV.B, Traffic and Circulation, Project traffic

Table 39

Maximum Project-Related Operational Emissions
(Pounds per Day)

Emission Source	CO	NO_X	PM_{10}	ROC	SO_X
Proposed Use Emissions					
Mobile[a]	4,404	540	589	373	3
Area[b]	6	9	<1	129	<1
Stationary[c]	39	170	5	4	14
Total Project	**4,449**	**719**	**595**	**506**	**17**
SCAQMD Significance Threshold	550	55	150	55	150
Difference	**3,901**	**664**	**445**	**451**	**(133)**
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**No**

[a] *Mobile emissions calculated using the URBEMIS2002 emissions model. Model output sheets are provided in Appendix F.*

[b] *Area sources include landscape fuel consumption, residential consumer products and miscellaneous sources (e.g., among other things, commercial solvent usage (e.g., detergents, cleaning compounds, glues, polishes, and floor finishes), delivery and loading dock equipment.) Worksheets are provided in Appendix F.*

[c] *Emissions due to Project-related electricity generation and natural gas consumption, calculated based on guidance provided in the SCAQMD CEQA Air Quality Handbook. Worksheets are provided in Appendix F.*

Source: PCR Services Corporation, 2005.

volumes would meet these criteria at 23 intersections. Intersections were selected for analysis based on information provided in the Project's Traffic Study, which is summarized in Section IV.C, Traffic, Circulation and Parking, above (see Appendix D of the Draft EIR for the complete traffic study).

CO concentration levels were forecasted at the above-mentioned intersections using the CALINE4 dispersion model developed by the California Department of Transportation, using peak-hour traffic volumes and conservative meteorological assumptions. Conservative meteorological conditions include low wind speed, stable atmospheric conditions, and the wind angle producing the highest CO concentrations for each case. CO concentrations were modeled under the future (2010) No Project and with Project conditions. As shown in Table 40 on page 391, Project-generated traffic volumes are forecasted to have a negligible effect on the projected 1-hour and 8-hour CO concentrations at these 23 intersection locations. Since a significant impact would not occur at the intersections which operate at the highest V/C ratio, no significant impact would occur at any other analyzed roadway intersections as a result of Project-generated traffic volumes. Thus, the proposed Project would not cause any new or exacerbate any existing CO hotspots, and, as a result, impacts related to localized mobile-source CO emissions would be less than significant.

Table 40

Local Area Carbon Monoxide Dispersion Analysis

Intersection	Peak Period[a]	Maximum 1-Hour 2010 Base Concentration [b] (ppm)	Maximum 1-Hour 2010 w/ Project Concentration [c] (ppm)	Significant 1-Hour Impact [d]	Maximum 8-Hour 2010 Base Concentration [e] (ppm)	Maximum 8-Hour 2010 w/ Project Concentration [f] (ppm)	Significant 8-Hour Impact [d]
Figueroa Street and Northbound I-405 Off-Ramp	A.M.	6.3	6.4	NO	4.5	4.5	NO
	P.M.	6.3	6.3	NO	4.5	4.5	NO
Hamilton Avenue and Del Amo Boulevard	A.M.	6.5	6.6	NO	4.7	4.7	NO
	P.M.	6.8	7.4	NO	4.7	5.1	NO
Main Street and Northbound I-405 Off-Ramp	A.M.	6.4	6.5	NO	4.5	4.6	NO
	P.M.	6.6	6.7	NO	4.5	4.7	NO
Main Street and Southbound I-405 On-Ramp	A.M.	6.1	6.2	NO	4.5	4.5	NO
	P.M.	6.6	6.8	NO	4.7	4.7	NO
Vermont Avenue and Del Amo Boulevard	A.M.	6.5	6.6	NO	4.6	4.7	NO
	P.M.	6.8	7.2	NO	4.8	5.0	NO
Avalon Boulevard and Del Amo Boulevard	A.M.	6.6	6.7	NO	4.7	4.8	NO
	P.M.	7.0	7.3	NO	4.9	5.1	NO
Figueroa Street and Del Amo Boulevard	A.M.	6.8	7.6	NO	5.0	5.2	NO
	P.M.	7.0	9.1	NO	4.9	6.0	NO
Hamilton Avenue and I-110 Southbound Ramps	A.M.	6.8	6.9	NO	4.8	4.9	NO
	P.M.	7.7	8.0	NO	5.2	5.3	NO
Main Street and Del Amo Boulevard	A.M.	6.8	7.1	NO	4.8	5.0	NO
	P.M.	6.8	7.8	NO	4.8	5.4	NO
Stamps Drive and Del Amo Boulevard	A.M.	6.4	7.3	NO	4.7	5.2	NO
	P.M.	6.4	8.8	NO	4.5	5.9	NO
Avalon Boulevard and Southbound I-405 Ramps	A.M.	7.1	7.5	NO	5.0	5.2	NO
	P.M.	7.5	8.2	NO	5.2	5.5	NO
Figueroa Street and Northbound I-110 Ramps	A.M.	7.5	8.0	NO	5.2	5.4	NO
	P.M.	7.6	8.7	NO	5.2	5.8	NO
Figueroa Street and Torrance Boulevard	A.M.	6.9	6.9	NO	4.8	4.9	NO
	P.M.	6.8	6.9	NO	4.9	4.9	NO

Table 40 (Continued)

Local Area Carbon Monoxide Dispersion Analysis

Intersection	Peak Period[a]	Maximum 1-Hour 2010 Base Concentration [b] (ppm)	Maximum 1-Hour 2010 w/ Project Concentration [c] (ppm)	Significant 1-Hour Impact [d]	Maximum 8-Hour 2010 Base Concentration [e] (ppm)	Maximum 8-Hour 2010 w/ Project Concentration [f] (ppm)	Significant 8-Hour Impact [d]
Lenardo Drive and Southbound I-405 Off-Ramp	A.M.	6.8	7.1	NO	4.8	5.0	NO
	P.M.	6.4	6.8	NO	4.6	4.9	NO
Main Street and Torrance Boulevard	A.M.	6.9	7.0	NO	4.8	4.9	NO
	P.M.	6.9	7.3	NO	4.9	5.0	NO
Avalon Boulevard and 213th Street	A.M.	6.6	6.7	NO	4.7	4.7	NO
	P.M.	6.8	7.0	NO	4.8	5.0	NO
Avalon Boulevard and Carson Street	A.M.	7.0	7.2	NO	5.0	5.0	NO
	P.M.	7.3	7.6	NO	5.1	5.2	NO
Figueroa Street and Carson Street	A.M.	7.0	7.0	NO	5.0	5.0	NO
	P.M.	7.8	8.1	NO	5.4	5.5	NO
Main Street and 213th Street	A.M.	6.7	6.9	NO	4.7	4.8	NO
	P.M.	6.7	6.9	NO	4.7	4.8	NO
Vermont Avenue and Carson Street	A.M.	7.3	7.4	NO	5.1	5.2	NO
	P.M.	7.8	8.0	NO	5.2	5.3	NO
Main Street and Carson Street	A.M.	6.5	6.6	NO	4.7	4.7	NO
	P.M.	7.0	7.1	NO	5.0	5.1	NO
Avalon Boulevard and Northbound I-405 Ramps	A.M.	6.3	6.4	NO	4.5	4.5	NO
	P.M.	6.3	6.3	NO	4.5	4.5	NO
Hamilton Avenue and Torrance Boulevard	A.M.	6.5	6.6	NO	4.7	4.7	NO
	P.M.	6.8	7.4	NO	4.7	5.1	NO

ppm = parts per million.

[a] *Peak hour traffic volumes are based on the Traffic Impact Study prepared for the Project by Kaku and Associates, 2005.*
[b] *SCAQMD 2010 1-hour ambient background concentration (5.1 ppm) + 2010 Base traffic CO 1-hour contribution.*
[c] *SCAQMD 2010 1-hour ambient background concentration (5.1 ppm) + 2010 w/ Project traffic CO 1-hour contribution.*
[d] *The most restrictive standard for 1-hour CO concentrations is 20 ppm and for 8-hour concentrations is 9.0 ppm.*

Table 40 (Continued)

Local Area Carbon Monoxide Dispersion Analysis

Intersection	Peak Period[a]	Maximum 1-Hour 2010 Base Concentration [b] (ppm)	Maximum 1-Hour 2010 w/ Project Concentration [c] (ppm)	Significant 1-Hour Impact [d]	Maximum 8-Hour 2010 Base Concentration [e] (ppm)	Maximum 8-Hour 2010 w/ Project Concentration [f] (ppm)	Significant 8-Hour Impact [d]

[e] *SCAQMD 2010 8-hour ambient background concentration (3.9 ppm) + 2010 Base traffic CO 8-hour contribution.*

[f] *SCAQMD 2010 8-hour ambient background concentration (3.9 ppm) + 2010 w/ Project traffic CO 8-hour contribution.*

Source: PCR Services Corporation, 2005; emission factor and dispersion modeling output sheets are provided in Appendix F.

The proposed Project would likely include the installation and operation of diesel-fired generators for emergency power generation. Unless a blackout occurs, these generators would be operated for only a few hours per month for routine testing and maintenance purposes. The Project Applicant would be required to obtain a permit to construct and a permit to operate any standby generators under SCAQMD Rules 201, 202, and 203. Under SCAQMD Regulation XIII, all generators must meet BACT requirements to minimize emissions of PM_{10} (as well as CO, ROC, and NO_X emissions). Compliance with SCAQMD Rules and Regulations regarding stationary-source combustion equipment would ensure that contributions to localized PM_{10} concentrations remain below the 2.5 $\mu g/m^3$ significance threshold. As such, any potential impacts would be less than significant.

(c) Regional Concurrent Construction and Operation Impacts

The analysis of the Project's construction emissions, presented earlier, is based on the conservative assumption that the entire Project would be constructed at a single time. This analysis is conservative in that it identifies the maximum emissions that could be generated during Project construction. The potential exists that the later stages of Project construction could occur concurrently with the occupancy of the earlier stages of development. Therefore, emissions associated with concurrent construction and operation activities were calculated. It was determined that concurrent emissions would be their greatest in the latter stages of Project construction, wherein the Proposed Project would nearly be built-out, but some construction activities would still be occurring as well as the Project's proposed off-site roadway improvements. As summarized in Table 41 on page 395, concurrent construction and operational emissions would exceed SCAQMD daily thresholds for CO, NO_X, PM_{10}, and ROC, but would not exceed the SCAQMD daily threshold for SO_X. Thus, a significant regional air quality impact would occur.

(d) Toxic Air Contaminants

The primary source of potential air toxics associated with proposed Project operations would be diesel particulates from delivery trucks (e.g., truck traffic on local streets and on-site truck idling). The SCAQMD recommends that health risk assessments be conducted for substantial sources of diesel particulates (e.g., truck stops and warehouse distribution facilities) and has provided guidance for analyzing mobile source diesel emissions.[106] Potential localized air toxic impacts from on-site sources of diesel particulate emissions would be minimal since only a limited number of heavy-duty trucks (e.g., transportation refrigeration units) would access the Project site, and the trucks that do visit the site would not idle on the Project site for extended periods of time. Based on the limited activity of the toxic air contaminant sources, the proposed

[106] *SCAQMD, Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions, December 2002.*

Table 41

Concurrent Operation and Construction Emissions [a]
(Pounds per day)

Emission Source	CO	NO_X	PM_{10}	ROC	SO_X
Combined Project and Approved RAP					
Operation Emissions [b]	3,560	575	476	405	14
On-Site Construction Emissions	893	684	819	1,434	0
Total	4,453	1,259	1,295	1,839	14
SCAQMD Construction Significance Threshold	550	100	150	75	150
Over (Under)	343	584	669	1,359	(150)
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**No**
SCAQMD Operation Significance Threshold	550	55	150	55	150
Over (Under)	3,010	520	326	350	(136)
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**No**
Combined Project and Proposed RAP Design Refinements					
Operation Emissions [b]	3,560	575	476	405	14
On-Site Construction Emissions	723	558	819	1,414	0
Total	4,283	1,133	1,295	1,819	14
SCAQMD Construction Significance Threshold	550	100	150	75	150
Over (Under)	173	458	669	1,339	(150)
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**No**
SCAQMD Operation Significance Threshold	550	55	150	55	150
Over (Under)	3,010	520	326	350	(136)
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**No**

[a] *The maximum concurrent construction and operational emissions was determined based on the maximum construction daily emissions calculated on a monthly basis and the amount of Project development occupancy. It was determined that this scenario would occur during the latter stages of the Project development assuming that 80% of the entire Project would be built out and occupied which occurs during year 2009*

[b] *Operational emissions are calculated using 80% of total build out emissions.*

Source: PCR Services Corporation, 2005.

Project would not warrant the need for a health risk assessment associated with on-site activities, and, in this regard, potential air toxic impacts would be less than significant.

Typical sources of acutely and chronically hazardous toxic air contaminants include industrial manufacturing processes, automotive repair facilities, and dry cleaning facilities. The proposed Project would not include any of these potential sources, although minimal emissions may result from the use of consumer products. As such, the proposed Project would not release substantial amounts of toxic contaminants; and no significant impact on human health would occur.

(e) On-Site Operation Impacts

On-Site Sources

As the proposed Project is located on a formal landfill, certain land use limitations are required. Deed restrictions are a legal control to prohibit specific activities. Under the RAP, deed restrictions must be recorded on the landfill site with the appropriate county recorders office to limit future land uses to commercial/light industrial activity, and to not allow such uses as residential, hospitals, schools, and day care centers. In addition, the deed restrictions must limit activities on the landfill site such as deep excavations into the clay layer or buried waste or use of groundwater wells for domestic supply or for agriculture.

The Upper OU RAP provides that deed restrictions would be approved by the DTSC prior to recording and would run with the property. The recording of the deed restriction is intended to put all potential buyers of the property on notice of the deed restrictions, which would remain in force regardless of future property transactions. The remediation of the 157-acre landfill (i.e., Development Districts 1 and 2) is being implemented as part of the Project in compliance with Remedial Action Order No. HSA87/88-040, which was issued by DTSC in 1988. The RAP for the Upper OU was approved by DTSC in 1995 and the RAP for the Lower OU was approved by DTSC in 2005. Via these RAPs, potential health affects due to air emissions relative to on-site commercial and industrial activities have been previously concluded by the DTSC to be less than significant.

DTSC is responsible for evaluating health and safety issues related to the proposed residential development on Development Districts 1 and 2. DTSC provided a letter dated February 9, 2005 indicating the "DTSC believes the concepts presented for the proposed development are appropriate at a conceptual level and could be protective of human health and safety, however, as is common for all projects under DTSC's authority, more detailed plans are necessary before DTSC can make such a final determination." DTSC will not allow residential development to occur until the agency concludes that the development would be implemented in a manner that is protective of human health and the environment. Thus, no further analysis of this issue is required in this document as the proposed residential development could not occur within Development District 1 without a determination from DTSC that such development could occur without an adverse impact on the health of future residents due to on-site air emissions.

Off-Site Sources

When considering potential air quality impacts under CEQA, particularly in reference to sensitive receptors, special consideration must be given to the location of sensitive receptors within close proximity of land uses that emit toxic air contaminants (TACs). The SCAQMD recommends a health risk assessment (HRA) if it is determined that new sensitive receptors are

proposed within one-quarter mile of an existing source of toxic emissions. Therefore, TAC emissions from sources within one-quarter mile of the proposed on-site residential locations were identified and quantified to the extent that such data was reasonably available, and evaluated in a risk assessment.

The SCAQMD provided a list of 32 potential sources within one-quarter mile of the proposed on-site sensitive receptors (i.e., residential uses) that have the potential to generate hazardous and acutely hazardous air emissions. A public records request was filed with the SCAQMD for pertinent information regarding each facility's potential to emit hazardous air pollutants. Based on information provided by the SCAQMD, this list was further refined to one potential source within one-quarter mile of the proposed residential uses that required further analysis. This one source is the San Diego Freeway (I-405). Potential SCAQMD sources were excluded from further analysis based on several factors: (1) the recent closure of some sources listed by the SCAQMD; (2) source distance was greater than one-quarter mile from proposed on-site residential uses or beyond CARB siting distances for specific types of sources; and (3) sources with sufficiently small emission inventories that would not influence the potential health risk (e.g., small quantity generators of hazardous waste or emissions).

The CARB's Air Quality and Land Use Handbook: A Community Health Perspective (March 2005) provides important air quality information about certain types of facilities (e.g., freeways, refineries, rail yards, ports, etc.) that should be considered when siting sensitive land uses such as residences. A key air pollutant common to these sources is particulate matter from diesel engines. The CARB identifies diesel particulate matter (DPM) as both a carcinogen and long-term chronic toxic air contaminant (TAC). Gasoline exhaust also results in additional TAC emissions (e.g., 1,3 butadiene, benzene, formaldehyde, etc). Because living too close to such air pollution sources may increase both cancer and non-cancer health risks, the CARB recommends that proximity be considered in the siting of new sensitive land uses. The CARB's recommendations are based primarily on data showing that air pollution exposure can be reduced as much as 80 percent with the recommended separation. The CARB recommends that site-specific project design improvements may help reduce air pollution exposures and should also be considered when siting new sensitive land uses. The recommendations are advisory and should not be interpreted as defined "buffer zones." In addition, the CARB recognizes that site-specific analysis is preferred over the use of the recommended site distances, which is similar to a screening level approach.

Where possible, the CARB recommends a minimum separation between new sensitive land uses and existing sources. However, this is not always possible, particularly where there is an elevated health risk over large geographical areas (e.g. urbanized areas of Southern California). The CARB recommends avoiding new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles per day. The basis for the recommended distance is a southern California study that showed measured

concentrations of vehicle-related pollutants drop dramatically within approximately 300 feet of the 710 and 405 freeways.[107] Another study looked at the validity of using distance from a roadway as a measure of exposure to traffic-related air pollution. This study showed that concentrations of traffic related pollutants declined by 70 percent at a distance of 500 feet.[108] The CARB concluded that these findings were also consistent with air quality modeling and risk analyses done by CARB staff.

As the Project would introduce residential uses within 500 feet of I-405, on-site sensitive receptors may potentially be exposed to high levels of TACs. Additional analysis was therefore conducted based on CARB and SCAQMD guidance to assess the potential health risks that future residents may experience due to the Project site's proximity to the freeway.

Cancer risk is often expressed as the maximum number of new cases of cancer projected to occur in a population of one million people due to exposure to a specific cancer-causing substance after a 24-hour a day, 365 days a year exposure outdoors at the same concentration over a lifetime of 70 years. For purposes of this analysis, shorter periods of 9 and 30 years were also considered. These shorter periods correspond to the "central tendency" and "high-end estimates" for residency time at a single location and are recommended for analysis by USEPA study methodology.[109] This probability is usually expressed in terms of the number of people who will develop cancer per one million people who are also exposed. It is important to understand that this cancer risk represents the probability that a person develops some form of cancer. The estimated risk does not represent mortality rates. It is also important to understand that the risk described in these calculations reflects a level of exposure that would be virtually impossible to experience, and that for most individuals, exposure to a particular contaminant, such as DPM, would be considerably less due to shorter duration of residence in the area, amount of time spent at the residence daily and throughout the year, and the split between time spent indoors versus outdoors.

The cancer risk from vehicular exhaust (e.g., DPM) occurs exclusively through inhalation and for this project was calculated using the USEPA-recommended Industrial Source Complex – Short Term (ISCST3) dispersion model. Output from the dispersion analysis was used to estimate the TAC concentrations. The cancer risk was then calculated based on those estimated DPM concentrations using the risk methodology derived from the California Office of Environmental Health Hazard Assessment (OEHHA). The specific calculations and assumptions

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[107] *Zhu, Y et al. "Study of Ultra-Fine Particles Near a Major Highway with Heavy Duty Diesel Traffic." Atmospheric Environment. 2002; 26:4323-4335.*

[108] *Knape, M. "Traffic related air pollution in city districts near motorways." The Science of the Total Environment. 1999: 235:339-341.*

[109] *OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines, August 2003*

used to determine the cancer risks are included in Appendix F. As cancer risk from vehicular exhaust occurs only through inhalation, cancer risk is directly related to the breathing rates of individuals. Since different people have different breathing rates, the potential cancer risk could vary considerably depending on the breathing rate of each person. For the purposes of this evaluation, two different cancer risk values are listed below. The "high-end" value uses the 95th percentile breathing rate (the average breathing rate of the top 5 percent of the population), so that cancer risk is not underestimated. However, in order to provide a better understanding of the probability distribution of cancer risk, an average breathing rate value is also reported. The average value represents the mean breathing rate expected within the general population.

The risk assessment guidelines established by the SCAQMD and followed here in this analysis are designed to produce conservative (high) estimates of the risk posed by TACs. The conservative nature of the analysis is due to the following factors:

- As a conservative measure, the SCAQMD does not recognize indoor adjustments for residents. However, studies have shown that the typical person spends approximately 87 percent of their time indoors, 5 percent of their time outdoors, and 7 percent of their time in vehicles. In addition, residences without an indoor source of diesel exhaust are anticipated to have lower levels of DPM. A DPM exposure assessment showed that the average indoor concentration is 2.0 $\mu g/m^3$, compared with an outdoor concentration of 3.0 $\mu g/m^3$.

- The exposure to DPM is assumed to be constant for the period analyzed. However, emissions of DPM are anticipated to decrease substantially in the future due to emission control programs and technological advancements and improvements.

- The ISCST3 air dispersion model as applied in this analysis is designed to provide conservative estimates of air pollutant concentrations.

The threshold for significance used to evaluate the exposure to TACs is 10 excess cancer cases per one million people. This is the threshold recommended by the SCAQMD and the CARB explicitly to determine impacts attributable to projects that introduce new sources of TAC emissions in an area. In contrast, the proposed Project is a predominantly commercial project that would not add new sources of TACs to the Project vicinity and would not increase the cancer risk faced by people who already live in the Project vicinity, but would rather introduce new sensitive receptors to the Project site in the form of new residents. While it was not originally intended to evaluate Projects that introduce new sensitive receptors to an area, in the absence of a more applicable threshold for exposure, SCAQMD has recommended that the 10 excess cancer cases per one million persons threshold also be used as a conservative measure of the potential risk to such new receptors.

The results of the mathematical calculations determining estimated cancer risks are listed in Table 42 on page 401. The cancer risks reported in Table 42 represent the range of potential cancer risks to residents of the proposed Project in terms of both a high-end and an average (mean) value breathing rate and assume 24 hour a day exposure outdoors for 365 days a year. The additional exposure durations of 30 and 9 years are useful since very few people can be anticipated to occupy the same residence for 70 consecutive years. Even the nine-year exposure assumes constant outdoor, on-site exposure 24 hours daily for nine straight years.

The cancer risk from the freeway exceeds the 10 in one million threshold, with the freeway truck traffic being the major source (refer to Appendix F of this Draft EIR for further discussion). A constant 70-year exposure would result in a cancer risk as high as 349 cases in one million for the maximum on-site receptor. This high level declines to less than 51 cases in one million for the average on-site receptor with a constant nine-year exposure. Of course, both of these outcomes are likely overstated, as reducing DPM is one of the CARB's highest public health priorities and the focus of a comprehensive statewide control program that is reducing DPM emissions each year. The CARB's long-term goal is to reduce DPM emissions 85 percent by 2020.

While some of these results may seem high, they come into more clear perspective when expressed in terms of the predicted Project populations. The proposed Project would include up to 1,550 dwelling units and is estimated to generate a residential population of 6,969 residents. When the cancer risks are expressed in terms of the 6,969 residents expected to occupy the project site, with all 6,969 residents occupying the location of highest risk on the site for 70 years of constant outdoor exposure, then 2.3 persons would be predicted to experience cancer.

As discussed previously, the vast majority of the City of Carson is located in an area with between 500 and 750 cancers per million.[110] The health risk assessment performed for the Project site demonstrates that the Project site is also within this range. Therefore, there is an inherent health risk associated with living in Carson. Nevertheless, the Project would result in locating sensitive receptors within an area of cancer risk in excess of the SCAQMD significance threshold of 10 in one million and, therefore, the Project would result in significant impact without the incorporation of mitigation measures.

To quantify non-carcinogenic impacts, the hazard index approach was used. The approach assumes that chronic sub-threshold exposures adversely affect a specific organ or organ system (toxicological endpoint). For each discrete chemical exposure, target organs presented in regulatory guidance were utilized. To calculate the hazard index, each chemical's concentration or dose is divided by the appropriate toxicity value. For compounds affecting the same

[110] *http://www.arb.ca.gov/toxics/cti/hlthrisk/cncrinhl/riskmapviewfull.htm.*

Table 42

Estimated Cancer Risks (per million people)—2010

Receptor	70-Year Exposure		30-Year Exposure		9-Year Exposure	
	High-End	Average	High-End	Average	High-End	Average
Maximum On-Site Residence	349	241	150	103	45	31

Source: PCR Services Corporation, 2005.

toxicological endpoint, this ratio is summed. Where the total is equal to or exceeds one, a health hazard is presumed to exist. The analysis for the proposed Project resulted in a chronic hazard index for the maximum exposed receptors of 0.2, which is approximately 50 percent of the SCAQMD recommended threshold. Therefore, non-cancer health risks are not considered significant.

(f) Odors

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed Project does not include any uses identified by the SCAQMD as being associated with odors. As the proposed uses would not be a source of odors, potential offsite odor impacts would be less than significant. However, an existing composting operation is located near the proposed residential uses northwest of the intersection of Del Amo Boulevard and Main Street. As a result, this source could result in odiferous emissions that may result in significant odor impacts that could affect proposed residential uses without incorporation of mitigation measures.

As the proposed Project is located on a former landfill, the RAP requires the installation of a landfill gas extraction, control, and treatment system. The primary objectives of the landfill gas control system are to prevent the migration and accumulation of combustible gas into enclosed buildings and to prevent off-site landfill gas migration. The RAP provides that the preferred landfill gas control, collection and treatment system consist of (1) a series of vertical gas extraction wells placed within the outer edges of the waste cells along the perimeter of the landfill; (2) thermal destruction of collected gas using a flare unit, and (3) other gas monitoring and venting systems, if determined necessary and applicable. Implementation of the RAP requirements would limit potential odiferous emissions (e.g., methane) from the formal landfill that could affect proposed residential uses and off-site residential uses to the south and southwest of the Project site.

(g) SCAQMD Handbook Policy Analysis

In accordance with the procedures established in the SCAQMD CEQA Air Quality Handbook, the following criteria are required to be addressed in order to determine the proposed Project's consistency with SCAQMD and SCAG policies:

1. Will the Project result in any of the following:

   - An increase in the frequency or severity of existing air quality violations; or
   - Cause or contribute to new air quality violations; or
   - Delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

2. Will the Project exceed the assumptions utilized in preparing the AQMP?

With respect to the first criterion, SCAQMD methodologies require that an air quality analysis for projects such as the Carson Marketplace include forecasts of Project emissions in a regional context during construction and Project occupancy. These forecasts are provided earlier in this section. Since the consistency criteria identified under the first criterion pertain to pollutant concentrations, rather than to total regional emissions, an analysis of the proposed Project's pollutant emissions on localized pollutant concentrations is used as the basis for evaluating Project consistency. As discussed in the preceding sections, localized concentrations for PM_{10}, CO, and NO_2 have been analyzed for the proposed Project. SO_2 emissions would be negligible during construction and long-term operations, and therefore would not have potential to cause or affect a violation of the SO_2 ambient air quality standard. There is no localized threshold for ROC emissions, only a regional emissions threshold.

PM_{10} is the primary pollutant of concern during construction activities, and therefore, the proposed Project's PM_{10} emissions during construction were analyzed: (1) to ascertain potential effects on localized concentrations; and (2) to determine if there is a potential for such emissions to cause or affect a violation of the ambient air quality standard for PM_{10}. Results of the PM_{10} dispersion modeling indicate that the increase in the ambient PM_{10} concentration during construction would exceed the SCAQMD-recommended 10.4 $\mu g/m^3$ PM_{10} significance threshold at multiple sensitive receptor locations. However, the potential for this impact would be short-term and would not have a long-term impact on the region's ability to meet State and Federal air quality standards. In addition, the Project would be required to comply with SCAQMD Rule 403 and would implement all feasible mitigation measures for control of PM_{10}. Nevertheless, the proposed Project will have a significant temporary impact on localized PM_{10} concentrations.

In addition, the proposed Project's maximum potential NO_X and CO daily emissions during construction were analyzed to ascertain potential effects on localized concentrations and to determine if there is a potential for such emissions to cause or affect a violation of an applicable ambient air quality standard. The analysis concluded that CO and NO_2 concentrations would not exceed their respective AAQS, and potential impacts would therefore be less than significant.

During long-term Project operations, CO is the preferred pollutant for assessing local area air quality impacts from post-construction motor vehicle operations. Based on methodologies set forth by the SCAQMD, one measure of local area air quality impacts that can indicate whether the proposed Project would cause or affect a violation of an air quality standard would be based on the estimated CO concentrations at selected receptor locations located in close proximity to the Project Site. As indicated earlier, CO emissions were analyzed using the CALINE 4 model. No violations of the State and federal carbon monoxide standards are projected to occur. Overall, the proposed Project would result in less than significant impacts with regard to CO, NO_2 and SO_2 concentrations during Project construction and operations. While PM_{10} concentrations during construction would exceed the SCAQMD 10.4 $\mu g/m^3$ significance threshold, the potential for this impact would be short-term and would not have a long-term impact on the region's ability to meet State and federal air quality standards. As such, the proposed Project would meet the first AQMP consistency criterion.

With respect to the second criterion for determining consistency with SCAQMD and SCAG air quality policies, it must be recognized that air quality planning within the Basin focuses on the attainment of ambient air quality standards at the earliest feasible date. Projections for achieving air quality goals are based on assumptions regarding population, housing and growth trends. Thus, the SCAQMD's second criterion for determining project consistency focuses on whether or not the proposed Project exceeds the assumptions utilized in preparing the forecasts presented in the AQMP.

Determining whether or not a project exceeds the assumptions reflected in the AQMP involves the evaluation of three criteria: (1) consistency with the population, housing and employment growth projections; (2) Project mitigation measures; and (3) appropriate incorporation of AQMP land use planning strategies. The following discussion provides an analysis of each of these three criteria.

- Is the project consistent with the population, housing, and employment growth projections upon which AQMP forecasted emission levels are based?

A project is consistent with the AQMP if it is consistent with the population, housing and employment assumptions which were used in the development of the AQMP. The 2003 AQMP, the most recent AQMP adopted by the SCAQMD, incorporates, in part, SCAG's 2004 Regional

Transportation Plan (RTP) socioeconomic forecast projections of regional population and employment growth.

SCAG's 2004 RTP projects that employment in the region will grow by about 1,088,296 jobs between 2005 and 2010. The proposed Project is projected to result in a net increase of approximately 5,320 jobs on the Project Site, or approximately 0.5 percent of the total job growth projected for the region. SCAG's 2004 RTP projects that population in the region will grow by about 1,326,258 people between 2005 and 2010. The proposed Project is projected to result in a net increase of approximately 6,969 residents on the Project Site, or approximately 0.5 percent of the total population growth projected for the region. Such levels of employment and population growth are consistent with the employment forecasts for the region as adopted by SCAG. Because the SCAQMD has incorporated these same projections into the AQMP, it can be concluded that the proposed Project would be consistent with the projections in the AQMP.

- Does the project implement all feasible air quality mitigation measures?

Implementation of all feasible mitigation measures is recommended to reduce air quality impacts to the extent feasible. The Proposed Project would incorporate a number of key air pollution control measures identified by the SCAQMD, as described in Section IV.G.4, Mitigation Measures, below. As such, the proposed Project meets this AQMP consistency criterion since all feasible mitigation measures would be implemented.

- To what extent is project development consistent with the land use policies set forth in the AQMP?

The proposed Project would serve to implement a number of land use policies of the City of Carson and SCAG. With regard to land use developments, such as the proposed Project, air quality policies focus on the reduction of vehicle trips and vehicles miles traveled. The proposed Project, by virtue of its location and design, exhibits many attributes that have a positive direct and indirect benefit with regard to the reduction of vehicle trips and vehicles miles traveled. Specifically, the proposed Project is a mixed-use activity center, immediately accessible to the I-405 and I-110 Freeways. The site is also served by the SR-91, and I-710 Freeways. The proposed Project would include an internal circulation system that would be linked with the regional network, and linked to new/improved freeway access at Avalon Boulevard.

The Project site is located within the central part of the City with high-intensity development including commercial and entertainment venues that would contribute to development at a location amidst the Carson Civic Center, the Home Depot Center, California State University at Dominguez Hills, the South Bay Pavilion, and the Victoria Golf Course and Park, thus adding to the centrality of such community uses. In addition, the Proposed Project

clusters population so as to support the extension of public transit service by including up to approximately 1,995,125 sq.ft. of commercial use with up to 1,550 housing units intermixed with plazas and open space. Thus, the Project provides the potential for job-housing linkages by providing opportunities to create linkages between employment and residential centers that directly translate to reductions in vehicle trips and vehicle miles traveled. In addition, bus service is available on Main Street and Del Amo Boulevard which in turn provides access to the Metro Blue Line light rail system. With easy accessibility to a number of local and regional transit facilities, the Project would also implement important air quality policies that contribute to reducing vehicle trips and vehicle miles traveled.

Additional means by which Project development reduces vehicle trips and vehicle miles traveled is by encouraging pedestrian activity in a number of ways including: (1) providing housing units intermixed with plazas and open space which would enrich street life by encouraging walking connections between adjacent uses; (2) incorporating landscaped areas and walkways linked to adjacent land uses in a manner that would create a pedestrian-friendly environment; (3) providing proximity between residential and commercial uses; and (4) providing the Project residents with easy access to nearby parks (e.g., Victoria Golf Course and Park and schools).[111] As the Project implements the SCAQMD's objective of reducing vehicle miles traveled and their related vehicular air emissions, the proposed Project would be consistent with AQMP land use policies.

Overall, the proposed Project is found to be consistent with the AQMP, as the proposed Project does not cause or worsen an exceedance of an ambient air quality standard, does not delay the attainment of an air quality standard, is consistent with the AQMP's growth projections, implements all feasible air quality mitigation measures, and is consistent with the AQMP's land use policies.

City of Carson Policies

As discussed in detail above, development of the proposed Project at the proposed site location offers the opportunity to redevelop an underutilized site with a mixed use development in the middle of an urbanized area and does so via the use of existing infrastructure, proximity to existing regional and local transit facilities, encourages pedestrian activity, and is located near existing commercial uses that would meet many of the needs of the Project's future residents. Based on these relationships, it is concluded that the proposed Project would be consistent with the City of Carson's air quality policies as it implements the air quality goals and policies set forth in the City's General Plan. Thus, less than significant impacts would occur as a result of

[111] *The sufficiency of the parks and schools to accommodate the Project's population is addressed in Sections I.3, Schools, and I.4, Parks and Recreation, respectively.*

Project development with respect to compatibility with applicable air quality policies as set forth in the City's General Plan Air Quality Element.

4. MITIGATION MEASURES

The following mitigation measures are (1) intended to implement requirements of SCAQMD Rule 403 (Fugitive Dust) and (2) set forth a program of air pollution control strategies designed to reduce the proposed Project's air quality impacts to the extent feasible.

a. Construction

Mitigation Measure G-1: General contractors shall implement a fugitive dust control program pursuant to the provisions of SCAQMD Rule 403.[112]

Mitigation Measure G-2: All construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.

Mitigation Measure G-3: General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues would turn their engines off, when not in use, to reduce vehicle emissions. Construction emissions should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.

Mitigation Measure G-4: Electricity from power poles rather than temporary diesel- or gasoline-powered generators shall be used to the extent feasible.

Mitigation Measure G-5: All construction vehicles shall be prohibited from idling in excess of ten minutes, both on- and off-site.

Mitigation Measure G-6: Project heavy-duty construction equipment shall use alternative clean fuels, such as low sulfur diesel or compressed natural gas with oxidation catalysts or particulate traps, to the extent feasible.

Mitigation Measure G-7: The Applicant shall utilize coatings and solvents that are consistent with applicable SCAQMD rules and regulations**.**

[112] *SCAQMD Rule 403 requirements are detailed in Appendix F.*

Mitigation Measure G-8: The Applicant shall comply with SCAQMD Rule 402 to reduce potential nuisance impacts due to odors from construction activities.

Mitigation Measure G-9: All construction vehicle tires shall be washed at the time these vehicles exit the project site.

Mitigation Measure G-10: All fill material carried by haul trucks shall be covered by a tarp or other means.

Mitigation Measure G-11: Any intensive dust generating activity such as grinding concrete for existing roads must be controlled to the greatest extent feasible.

Mitigation Measure G-12: The Applicant shall provide documentation to the City indicating both on- and off-site air-borne risks associated with RAP construction have been evaluated to the satisfaction of the DTSC, and at a minimum, perimeter air monitoring will be completed for dust, particulates, and constituents determined to be Constituents of Concern (COCs).

b. Operation

During the operational phase, the proposed Project would result in regional emissions that exceed regional SCAQMD significance thresholds for CO, PM_{10}, NO_X, and ROC. Emission control measures are specified for the following four sources of operational emissions: (1) service and support facilities; (2) natural gas consumption and electricity production; (3) building materials, architectural coatings, and cleaning solvents; and (4) transportation systems management and demand management.

(a) Service and Support Facilities (point sources)

Mitigation Measure G-13: All point source facilities shall obtain all required permits from the SCAQMD. The issuance of these permits by the SCAQMD shall require the operators of these facilities to implement Best Available Control Technology and other required measures that reduce emissions of criteria air pollutants.

Mitigation Measure G-14: Land uses on the Project site shall be limited to those that do not emit high levels of potentially toxic contaminants or odors.

(b) Natural Gas Consumption and Electricity Production

Mitigation Measure G-15: All residential and non-residential buildings shall meet the California Title 24 Energy Efficiency standards for water heating, space heating and cooling, to the extent feasible.

Mitigation Measure G-16: All fixtures used for lighting of exterior common areas shall be regulated by automatic devices to turn off lights when they are not needed, but a minimum level of lighting should be provided for safety.

(c) Building Materials, Architectural Coatings and Cleaning Solvents

Mitigation Measure G-17: Building materials, architectural coatings and cleaning solvents shall comply with all applicable SCAQMD rules and regulations.

(d) Transportation System Management and Demand Management

Mitigation Measure G-18: The Applicant shall, to the extent feasible, schedule deliveries during off-peak traffic periods to encourage the reduction of trips during the most congested periods.

Mitigation Measure G-19: The Applicant shall coordinate with the MTA and the City of Carson and Los Angeles Department of Transportation to provide information with regard to local bus and rail services.

Mitigation Measure G-20: During site plan review, consideration shall be given regarding the provision of safe and convenient access to bus stops and public transportation facilities.

Mitigation Measure G-21: The Applicant shall pay a fair share contribution for a low emission shuttle service between the project site and other major activity centers within the project vicinity (i.e., the MetroRail Blue Line station at Del Amo Boulevard and Santa Fe and the Carson Transfer Station at the South Bay Pavilion).

Mitigation Measure G-22: The Applicant shall provide bicycle racks located at convenient locations throughout Carson Marketplace.

Mitigation Measure G-23: The Applicant shall provide bicycle paths along the main routes through Carson Marketplace.

Mitigation Measure G-24: The Applicant shall provide convenient pedestrian access throughout Carson Marketplace.

As on-site sensitive receptors could be exposed to off-site air toxic emissions in excess of the SCAQMD significance threshold and also potential odiferous emissions (nearby composting operation), the following mitigation measure is recommended.

Mitigation Measure G-25: The Project shall include air filtration systems for residential dwelling units designed to have a minimum efficiency reporting value (MERV) of 12 as indicated by the American Society of Heating Refrigerating and Air Conditioning Engineers (ASHRAE) Standard 52.2. The air handling systems shall be maintained on a regular basis per manufacturer's recommendations by a qualified technician employed or contracted by the Applicant or successor. Operation and maintenance of the system shall ensure that it performs above the minimum reporting value.

5. LEVEL OF SIGNIFICANCE AFTER MITIGATION

a. Construction

With implementation of the above mitigation measures, heavy-duty construction equipment emissions of PM_{10}, ROC, NO_x, SO_x, and CO would be reduced by a minimum of 5 percent. However, regional construction activities would still exceed the SCAQMD daily emission thresholds for regional NO_X, CO and ROC after implementation of all feasible mitigation measures. Therefore, construction of the Project would have a significant and unavoidable impact on regional air quality.

With regard to localized emissions, construction activities would still exceed the SCAQMD daily emission threshold for PM_{10} after implementation of all feasible mitigation measures. Therefore, construction of the Project would have a significant and unavoidable impact.

No notable impacts related to TAC emissions during construction are anticipated to occur for the proposed Project. As such, potential impacts would be less than significant.

The proposed Project is not anticipated to generate a substantial amount of objectionable odor emissions during construction. Via mandatory compliance with SCAQMD Rules, no construction activities or materials are proposed that would create objectionable odors. As such, potential impacts would be less than significant.

b. Operation

Regional operational emissions would still exceed the SCAQMD daily emission threshold for regional CO, ROC, PM_{10}, and NO_X after implementation of all feasible mitigation measures. Therefore, operation of the Project would have a significant and unavoidable impact on regional air quality. In addition, regional concurrent construction and operational emissions would still exceed SCAQMD daily thresholds for CO, ROC, PM_{10}, and NO_X after implementation of all feasible mitigation measures. Therefore, concurrent construction and operational of the Project would have a significant and unavoidable impact on regional air quality.

No significant impacts related to local CO concentrations would occur for the proposed Project. Project development would be consistent with the air quality polices set forth in the SCAQMD's AQMP and the Carson General Plan Air Quality Element, resulting in an impact that is less than significant.

With respect to potential impacts to on-site residential uses, the recommended air handling systems would substantially reduce carcinogenic exposure. Pollutant concentrations within residential buildings are best reduced by installing an air cleaning system to reduce the concentration of particulates associated with the infiltration of outside air. Air filters are commonly described and rated by the ASHRAE based upon their collection efficiency, pressure drop (or airflow resistance), and particulate-holding capacity. An air filtration system with a 12 MERV would reduce particles in the range of 1 to 3 microns by a minimum of 80 percent. This mitigation measure would reduce the carcinogenic risk to residential uses substantially, but impacts would remain significant and unavoidable.

Via compliance with industry standard odor control practices, SCAQMD Rule 402 (Nuisance), and SCAQMD Best Available Control Technology Guidelines, potential impacts that could result from any potential odor source would be less than significant.

6. CUMULATIVE IMPACTS

a. Construction

Of the 25 related projects that have been identified within the proposed Project study area, there are a number of related projects that have not yet been built or are currently under construction. Since the Applicant has no control over the timing or sequencing of the related projects, any quantitative analysis to ascertain daily construction emissions that assumes multiple, concurrent construction projects would be entirely speculative. For this reason, the

SCAQMD's methodology to assess a project's cumulative impact differs from the cumulative impacts methodology employed elsewhere in this EIR.

With respect to the Project's construction-period air quality emissions and cumulative Basin-wide conditions, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the AQMP pursuant to Federal Clean Air Act mandates. As such, the proposed Project would comply with SCAQMD Rule 403 requirements, and implement all feasible mitigation measures. In addition, the proposed Project would comply with adopted AQMP emissions control measures. Per SCAQMD rules and mandates as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted AQMP emissions control measures) would also be imposed on construction projects Basin-wide, which would include each of the related projects mentioned above. Nevertheless, construction-period CO, NO_X and ROC mass regional emissions, and localized PM_{10} emissions associated with the proposed Project are already projected to result in a significant impact to air quality. As such, cumulative impacts to air quality during proposed Project construction would also be significant and unavoidable.

Similar to the proposed Project, the greatest potential for TAC emissions at each related project would be related to diesel particulate emissions associated with heavy equipment operations during grading and excavation activities. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given that the Proposed Project contribution to cancer risk from construction activities would be less than significant and is a localized impact, related projects that have not already been built would not result in a long-term (i.e., 70 years) substantial source of TAC emissions with no residual emissions after construction and corresponding individual cancer risk. Furthermore, any related project that has the potential to emit notable quantities of TACs would be regulated by the SCAQMD such that TAC emissions would be negligible. Thus, TAC emissions from the related projects are anticipated to be less than significant unto themselves, as well as cumulatively in conjunction with the proposed Project.

Also similar to the proposed Project, potential sources that may emit odors during construction activities at each related project would include the use of architectural coatings and solvents. SCAQMD Rule 1113 limits the amount of volatile organic compounds from architectural coatings and solvents. Via mandatory compliance with SCAQMD Rules, it is anticipated that construction activities or materials used in the construction of the related projects would not create objectionable odors. Thus, odor impacts from the related projects are anticipated to be less than significant unto themselves, as well as cumulatively in conjunction with the proposed Project.

b. Operation

The SCAQMD has set forth both a methodological framework as well as significance thresholds for the assessment of a project's cumulative operational air quality impacts. The SCAQMD's methodology differs from the cumulative impacts methodology employed elsewhere in this Draft EIR, in which foreseeable future development within a given service boundary or geographical area is predicted and associated impacts measured. The SCAQMD's approach for assessing cumulative impacts is based on the SCAQMD's AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the Federal and State Clean Air Acts. This forecast also takes into account SCAG's forecasted future regional growth. As such, the analysis of cumulative impacts focuses on determining whether the proposed Project is consistent with forecasted future regional growth. Therefore, if all cumulative projects are individually consistent with the growth assumptions upon which the SCAQMD's AQMP is based, then future development would not impede the attainment of ambient air quality standards and a significant cumulative air quality impact would not occur.

Based on the SCAQMD's methodology (presented in Chapter 9 of the *CEQA Air Quality Handbook*), a project would have a significant cumulative air quality impact if the ratio of daily Project-related employee vehicle miles traveled (VMT) to daily countywide vehicle miles traveled exceeds the ratio of daily Project employees to daily countywide employees. As shown in Table 43 on page 413, the daily Project to countywide VMT ratio is not greater than the Project to countywide employee ratio. Based on these criteria, development of the proposed Project would have a less than significant air quality impact. In addition, as shown in Table 41, a localized CO impact analysis was conducted for cumulative traffic (i.e., related projects and ambient growth through 2010) in which no local CO violations would occur at any of the studied intersections.

With respect to air quality policies in the City's General Plan, it is anticipated that the identified related projects within the City of Carson are subject to compliance with City regulations and subject to review by the City for compliance with the General Plan and its zoning regulations. It is reasonable to assume that future projects approved in the surrounding area would have been found, as part of their respective approval processes, to be in compliance with local and regional planning goals and policies. If a related project was found to be in conflict with applicable air quality policies and regulations, it is reasonable to assume that its approval would involve findings that the related development did not have adverse air quality impacts or that mitigation measures were incorporated into the development to reduce potential air quality impacts to less than significant levels. As discussed previously, the proposed Project would be compatible with City air quality policies. Thus, cumulative impacts with regard to consistency with applicable air quality policies would be less than significant.

Table 43

Project Cumulative Air Quality Impacts

Daily Vehicle Miles Traveled for Proposed Project Population [a]	51,342
Daily Vehicle Miles Traveled Countywide [b]	212,479,000
Daily Vehicle Miles Traveled Ratio	0.00024163
Proposed Project Population	6,969
Countywide Population [c]	10,718,100
Population Ratio	0.00065
Significance Test—Daily Vehicle Miles Traveled Ratio Greater Than Population Ratio	**No**
Daily Vehicle Miles Traveled for Proposed Project Employment [a]	13,258
Daily Vehicle Miles Traveled Countywide [b]	212,479,000
Daily Vehicle Miles Traveled Ratio	0.000062
Proposed Project Employment	4,810
Countywide Employment [c]	5,022,200
Employment Ratio	0.001
Significance Test—Daily Vehicle Miles Traveled Ratio Greater Than Employment Ratio	**No**

[a] *Increase of vehicle miles traveled as a result of the Proposed Project, Transportation and Circulation, Section C.1. Data obtained from URBEMIS 2002*

[b] *CARB, Emfac2002, V2.2. (Buildout Year = 2010)*

[c] *Data obtained from SCAG's Regional Transportation Plan, 2004*

Source: PCR Services Corporation, 2005.

Despite these conclusions, the proposed Project is more conservatively concluded to contribute to a significant cumulative regional air quality impact as the Basin is non-attainment for ozone and PM_{10}, and the proposed Project would exceed the SCAQMD daily significance thresholds for ROC and NO_X emissions (i.e., ozone precursors) and PM_{10}.[113]

With respect to TAC emissions, neither the proposed Project nor any of the related projects (which are largely residential, restaurant, retail/commercial, and medical/research developments) would represent a substantial source of TAC emissions, which are typically associated with large-scale industrial, manufacturing and transportation hub facilities. However, the proposed Project and each of the related projects would likely generate minimal TAC emissions related to the use of consumer products, landscape maintenance activities, etc. Pursuant to California Assembly Bill 1807, which directs the California Air Resources Board (ARB) to identify substances as TAC and adopt airborne toxic control measures (ATCMs) to control such substances, the SCAQMD has adopted numerous rules (primarily in Regulation XIV) that specifically address TAC emissions. These SCAQMD rules have resulted in and will

[113] *This approach is more conservative than the approach provided in the SCAQMD CEQA Air Quality Handbook.*

continue to result in substantial Basin-wide TAC emissions reductions. In addition, the proposed Project would not result in any TAC land uses requiring further evaluation using ARB's *Air Quality and Land Use Handbook: A Community Health Perspective.* As such, cumulative TAC emissions during long-term operations would be less than significant.

With respect to potential odor impacts, neither the proposed Project land use nor any of the related projects (which are primarily hospital/medical office, general office, residential, retail, and restaurant uses) land uses have a high potential to generate odor impacts.[114] Furthermore, any related project that may have a potential to generate objectionable odors would be required by SCAQMD Rule 402 (Nuisance) to implement Best Available Control Technology to limit potential objectionable odor impacts to a less than significant level. Thus, potential odor impacts from related projects are anticipated to be less than significant unto themselves, as well as cumulatively, in conjunction with the proposed Project.

[114] *According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding.*