APPENDIX I

Air Quality Analysis

Air Quality Analysis for the Campus Point Project San Diego, California

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Acronyms

$\mu g/m^3$	micrograms per cubic meter
°F	degrees Fahrenheit
AAQS	Ambient Air Quality Standards
AB	Assembly Bill
CAA	Clean Air Act
CalEEMod	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board (CARB)
CFR	Code of Federal Regulations
CO	carbon monoxide
DPM	diesel particulate matter
EPA	Environmental Protection Agency
LOS	level of service
NOx	nitrogen dioxide
PM_{10}	particulate matter less than 10 microns
$PM_{2.5}$	particulate matter less than 2.5 microns
ppm	parts per million
RAQS	Regional Air Quality Strategy
ROG	reactive organic gas
SANDAG	San Diego Association of Governments
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SIP	State Implementation Plan
SO_2	sulfur dioxide
TAC	toxic air contaminant
TCM	Transportation Control Measures
U.S.C.	United States Code
VMT	vehicle miles traveled

Executive Summary

This report evaluates potential local and regional air quality impacts associated with the Campus Point project in San Diego (proposed project). The 58.2-acre project site is bound by Campus Point Drive to the east; open space to the northeast, north, and west; and scientific research facilities to the south.

The proposed project would increase the density of the 58.2-acre Campus Point site, which currently contains a two-story, 463,791-square-foot multi-tenant building used for scientific research (referred to as “CP1”) as well as a 267,934-square-foot scientific research building which is currently undergoing tenant improvements (“CP2”). Both of these existing buildings have utility structures associated with them, 9,044 square feet and 7,310 square feet, respectively. The utility structures are roofed but are not normally occupied.

The proposed project would add a third scientific research structure to the site (“CP3”). The CP3 building would be 10 levels with a total of 315,000 square feet of scientific research space plus one 31,500-square-foot subterranean level through discretionary approval from the City of San Diego (City). The project also proposes a 13,383-square-foot building east of CP3 which would house “AlexHaus,” a brewery with a kitchen and restaurant as well as a retail component on the first floor. A new six-level parking structure would be constructed along the southern boundary of the project site which would accommodate a total of 1,500 parking stalls. At full buildout, the site would peak at 1,060,108 square feet and 2,973 parking stalls. The project would be designed to meet Leadership in Energy and Environmental Design (LEED) Gold certification.

The primary goal of the San Diego Air Pollution Control District’s Regional Air Quality Strategy (RAQS) is to reduce ozone precursor emissions. The project would be consistent with the land use designations and the zoning of the project site and therefore, with the growth anticipated by the General Plan and San Diego Association of Governments (SANDAG). The project would therefore not result in an increase in emissions that are not already accounted for in the RAQS. Thus, the project would not interfere with implementation of the RAQS or other air quality plans.

Additionally, as calculated in this analysis, project construction emissions would not exceed the applicable regional emissions thresholds. These thresholds are designed to provide limits below which project emissions would not significantly change regional air quality. Therefore, as project emissions are well below these limits, project construction would not result in regional emissions that would exceed the National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS) or contribute to existing violations. Additionally, construction emissions would be temporary, intermittent, and would cease at the end of project construction.

Long-term emissions of regional air pollutants occur from operational sources. Based on emissions estimates, project operational emissions would not exceed the applicable regional emissions thresholds. Therefore, as project emissions are well below these limits, project operations would not result in regional emissions that would exceed the NAAQS or CAAQS or contribute to existing violations.

Maximum carbon monoxide (CO) concentrations occur at the intersection of Genesee Avenue and La Jolla Village Drive and would be less than the CAAQS and NAAQS. All other intersections would carry less peak hour traffic and experience shorter delays than this intersection. Thus, it can be concluded that CO concentrations at these intersections would be less than the CO concentrations calculated in this analysis. There would be no harmful concentrations of CO and localized air quality emissions would not exceed applicable standards with implementation of the project; therefore, sensitive receptors would not be exposed to substantial pollutant concentrations.

The project does not include industrial or agricultural uses that are typically associated with objectionable odors. The project would involve the use of diesel-powered equipment during construction. Diesel exhaust may occasionally be noticeable at adjacent properties; however, construction activities would be temporary and the odors would dissipate quickly in an outdoor environment. Therefore, this impact would be less than significant.

1.0 Introduction

The purpose of this report is to assess potential short-term local and regional air quality impacts resulting from development of the proposed project.

Air pollution affects all southern Californians. Effects can include the following:

- Increased respiratory infections
- Increased discomfort
- Missed days from work and school
- Increased mortality

The proposed project is located within the San Diego Air Basin (SDAB), one of 15 air basins that geographically divide the state of California. The SDAB is currently classified as a federal non-attainment area for ozone, and a state non-attainment area for particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and ozone.

Air quality impacts can result from the construction and operation of the proposed project. Construction impacts are short term and result from fugitive dust, equipment exhaust, and indirect effects associated with construction workers and deliveries. Operational impacts can occur on two levels: regional impacts resulting from growth-inducing development, or local hot-spot effects stemming from sensitive receivers being placed close to highly congested roadways. In the case of this project, operational impacts are primarily due to emissions to the basin from mobile sources associated with vehicular travel along the roadways within the project area.

The analysis of impacts is based on federal and state Ambient Air Quality Standards (AAQS) and is assessed in accordance with the guidelines, policies, and standards established by the City of San Diego and the San Diego Air Pollution Control District (SDAPCD). Project compatibility with the adopted air quality plan for the area is also assessed.

2.0 Project Description

The 58.2-acre project site is bound by Campus Point Drive to the east; open space to the northeast, north, and to the west; and research facilities to the south. The project site is located within the University Community Planning Area of San Diego. Figure 1 shows the regional location of the project. Figure 2 shows an aerial photograph of the project vicinity. Figure 3 shows the proposed site plan for the project.

The proposed project would increase the density of the 58.2-acre Campus Pointe site, which currently contains a two-story, 463,791-square-foot multi-tenant building used for scientific research (referred to as “CP1”) as well as a 267,934-square-foot scientific research building which is currently undergoing tenant improvements (“CP2”). Both of these existing buildings have utility structures associated with them, 9,044 square feet and 7,310 square feet, respectively. The utility structures are roofed but are not normally occupied.

The proposed project would add a third scientific research structure to the site (“CP3”). The CP3 building would be 10 levels with a total of 315,000 square feet of scientific research space plus one 31,500-square-foot subterranean level. The project also proposes a 13,383-square-foot building east of CP3 which would house “AlexHaus,” a brewery with a kitchen and restaurant as well as a retail component on the first floor. The second floor of the AlexHaus building would include a greenhouse, conference room, mechanical/storage space, and a clubhouse.

A new six-level parking structure would be constructed along the southern boundary of the project site which would accommodate a total of 1,500 parking stalls. Other proposed site improvements include a soccer field and a reconfiguration of the main “boulevard” which provides circulation through the southern portion of the project site. At full buildout, there would be a total of 1,060,108 square feet of scientific research space (including the two existing buildings); parking spaces would peak at 2,973 for the site, for an overall parking ratio of 2.8 spaces per 1,000 square feet.

Project Location

FIGURE 1

Regional Location

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Map Source: Gensler

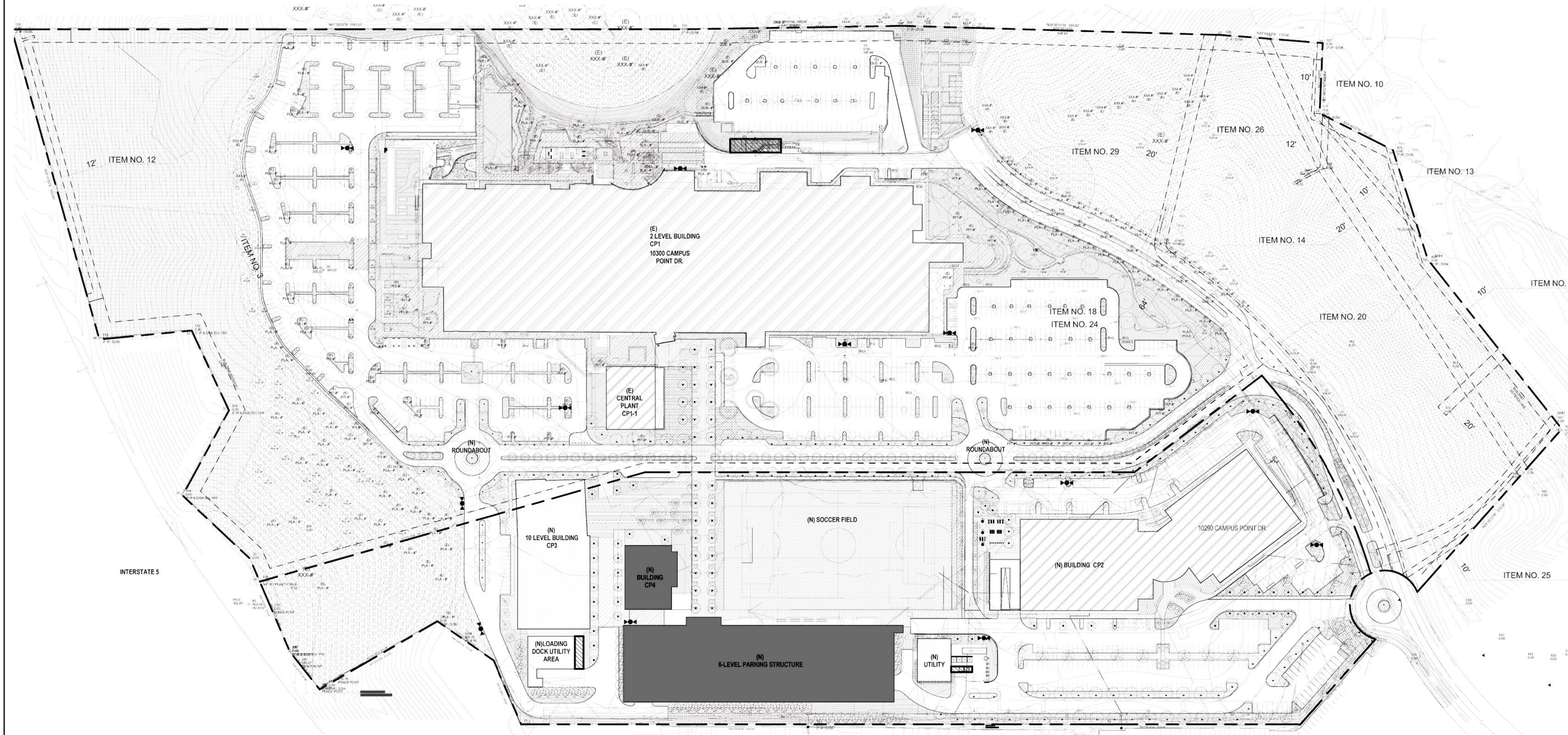

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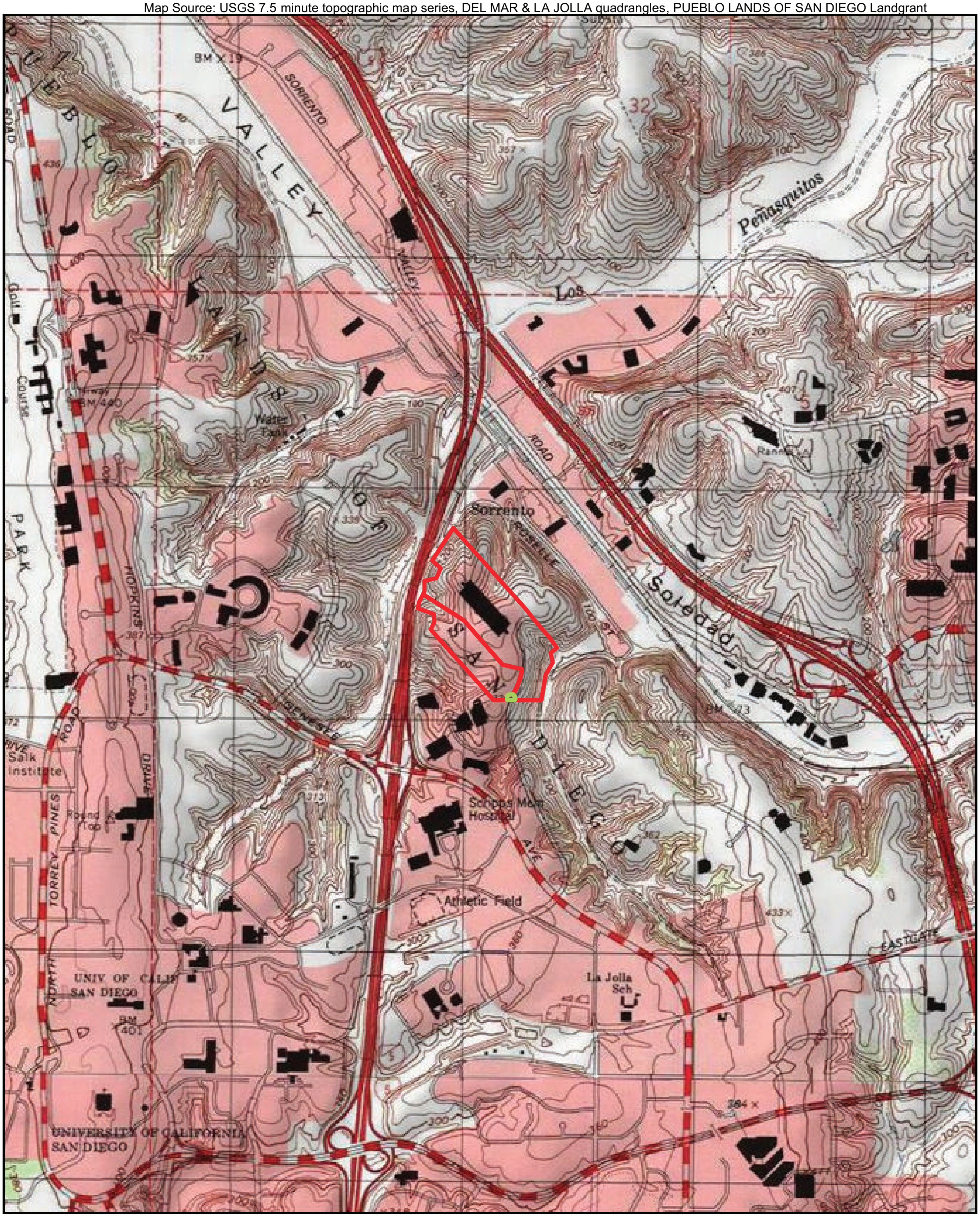
FIGURE 3

Proposed Site Plan

Map Source: USGS 7.5 minute topographic map series, DEL MAR & LA JOLLA quadrangles, PUEBLO LANDS OF SAN DIEGO Landgrant



0 Feet 2,000

Project Site

Off-site Improvement Area

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FIGURE 2

Project Location on USGS Map

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3.0 Regulatory Framework

Motor vehicles are San Diego County's leading source of air pollution and the largest contributor to greenhouse gases (County of San Diego 2013). In addition to these sources, other mobile sources include construction equipment, trains, and airplanes.

Emission standards for mobile sources are established by federal and state agencies such as the California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (EPA). Reducing mobile source emissions requires the technological improvement of existing mobile sources, such as those associated with new or modification projects. The State of California has developed statewide programs to encourage cleaner cars and cleaner fuels. The regulatory framework described below details the federal and state agencies that are in charge of monitoring and controlling mobile source air pollutants and the measures currently being taken to achieve and maintain healthful air quality in the SDAB.

In addition to mobile sources, stationary sources also contribute to air pollution in the SDAB. Stationary sources include gasoline stations, power plants, dry cleaners, and other commercial and industrial uses. Stationary sources of air pollution are regulated by the local air pollution control or management district, in this case the SDAPCD.

The state of California is divided geographically into 15 air basins for the purpose of managing the air resources of the state on a regional basis. Areas within each air basin are considered to share the same air masses and, therefore, are expected to have similar ambient air quality. If an air basin is not in either federal or state attainment for a particular pollutant, the basin is classified as a moderate, serious, severe, or extreme non-attainment area (there is also a marginal classification for federal non-attainment areas).

Once a non-attainment area has achieved the air quality standards for a particular pollutant, it may be redesignated as an attainment area for that pollutant. To be redesignated, the area must meet air quality standards and prepare a maintenance plan demonstrating the ability of the basin to meet and maintain air quality standards, as well as satisfy other requirements of the Clean Air Act (CAA). Areas that are redesignated attainment are called maintenance areas.

3.1 Federal Regulations

Ambient Air Quality Standards represent the maximum levels of background pollution considered safe, with an adequate margin of safety, to protect the public health and welfare. The federal CAA was enacted in 1970 and amended in 1977 and 1990 [42 United States Code [U.S.C.] 7401] for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. In 1971, in order to achieve the purposes of Section 109 of the CAA [42 U.S.C. 7409], the U.S. EPA developed primary and secondary NAAQS. The current NAAQS are presented in Table 1 (CARB 2015a).

TABLE 1
AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone[8]	1 Hour	0.09 ppm (180 $\mu g/m^3$)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.07 ppm (137 $\mu g/m^3$)		0.070 ppm (137 $\mu g/m^3$)		
Respirable Particulate Matter (PM_{10})[9]	24 Hour	50 $\mu g/m^3$	Gravimetric or Beta Attenuation	150 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 $\mu g/m^3$		–		
Fine Particulate Matter ($PM_{2.5}$)[9]	24 Hour	No Separate State Standard		35 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 $\mu g/m^3$	Gravimetric or Beta Attenuation	12 $\mu g/m^3$	15 $\mu g/m^3$	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-dispersive Infrared Photometry	35 ppm (40 mg/m^3)	–	Non-dispersive Infrared Photometry
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	–	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–	–	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 $\mu g/m^3$)	Gas Phase Chemi-luminescence	100 ppb (188 $\mu g/m^3$)	–	Gas Phase Chemi-luminescence
	Annual Arithmetic Mean	0.030 ppm (57 $\mu g/m^3$)		0.053 ppm (100 $\mu g/m^3$)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 $\mu g/m^3$)	Ultraviolet Fluorescence	75 ppb (196 $\mu g/m^3$)	–	Ultraviolet Fluorescence; Spectro-photometry (Pararosaniline Method)
	3 Hour	–		–	0.5 ppm (1,300 $\mu g/m^3$)	
	24 Hour	0.04 ppm (105 $\mu g/m^3$)		0.14 ppm (for certain areas)[10]	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[10]	–	
Lead[12,13]	30 Day Average	1.5 $\mu g/m^3$	Atomic Absorption	–	–	High Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 $\mu g/m^3$ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	–		0.15 $\mu g/m^3$		
Visibility Reducing Particles[14]	8 Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 $\mu g/m^3$	Ion Chroma-tography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 $\mu g/m^3$)	Gas Chroma-tography			
See footnotes on next page.						

ppm = parts per million; ppb = parts per billion; μg/m^3 = micrograms per cubic meter; – = not applicable.

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent measurement method which can be shown to the satisfaction of the Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Reference method as described by the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.

[8] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[9] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 μg/m^3 to 12.0 μg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 μg/m^3, as was the annual secondary standards of 15 μg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 μg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[10] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[11] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[12] The ARB has identified lead and vinyl chloride as ‘toxic air contaminants’ with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[13] The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 μg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[14] In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and “extinction of 0.07 per kilometer” for the statewide and Lake Tahoe Air Basin standards, respectively.

SOURCE: CARB 2015a.

Six pollutants of primary concern have been designated: ozone, CO, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead, and respirable particulate matter (PM_{10} and $PM_{2.5}$). The primary NAAQS ". . . in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health . . . " and the secondary standards ". . . protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air" (42 U.S.C. 7409(b)(2)). The primary standards were established, with a margin of safety, considering long-term exposure for the most sensitive groups in the general population (i.e., children, senior citizens, and people with breathing difficulties).

3.2 State Regulations

3.2.1 Criteria Pollutants

The U.S. EPA allows states the option to develop different (stricter) standards. The state of California has developed the California Ambient Air Quality Standards (CAAQS) and generally has set more stringent limits on the criteria pollutants (see Table 1). In addition to the federal criteria pollutants, the CAAQS also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride (see Table 1). Similar to the federal CAA, the state classifies specific geographic areas as either "attainment" or "nonattainment" areas for each pollutant based on the comparison of measured data with the CAAQS. The SDAB is a non-attainment area for the state ozone standards, the state PM_{10} standard, and the state $PM_{2.5}$ standard.

3.2.2 Toxic Air Contaminants

The public's exposure to toxic air contaminants (TACs) is a significant public health issue in California. Diesel-exhaust particulate matter emissions have been established as TACs. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health (AB 1807: Health and Safety Code Sections 39650–39674). The Legislature established a two-step process to address the potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase.

The California Air Toxics Program establishes the process for the identification and control of TACs and includes provisions to make the public aware of significant toxic exposures and for reducing risk. Additionally, the Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly Bill) was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels. The Children's Environmental Health Protection Act, Senate Bill 25 (Chapter 731, Escutia, Statutes of 1999), focuses on children's exposure to air pollutants. The act requires CARB to review its air quality standards from a children's health perspective, evaluate the statewide air monitoring network, and develop any additional air toxic control measures needed to protect children's health. Locally, toxic air pollutants are regulated through the SDAPCD's Regulation XII. Of particular concern statewide are diesel-exhaust particulate matter emissions. Diesel-exhaust particulate matter was established as a TAC in 1998, and is estimated to represent a majority of the cancer risk from TACs statewide (based on the statewide average). Diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB and are listed as carcinogens either under the state's Proposition 65 or under the federal Hazardous Air Pollutants program.

Following the identification of diesel particulate matter (DPM) as a TAC in 1998, CARB has worked on developing strategies and regulations aimed at reducing the risk from DPM. The overall strategy for achieving these reductions is found in the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (CARB 2000). A stated goal of the plan is to reduce the statewide cancer risk arising from exposure to DPM by 85 percent by 2020.

In April 2005, CARB published the Air Quality and Land Use Handbook: A Community Health Perspective (CARB 2005). The handbook makes recommendations directed at protecting sensitive land uses from air pollutant emissions while balancing a myriad of other land use issues (e.g., housing, transportation needs, economics, etc.). It notes that the handbook is not regulatory or binding on local agencies and recognizes that application takes a qualitative approach. As reflected in the CARB Handbook, there is currently no adopted standard for the significance of health effects from mobile sources. Therefore, the CARB has provided guidelines for the siting of land uses near heavily traveled roadways. Of pertinence to this study, the CARB guidelines indicate that siting new sensitive land uses within 500 feet of a freeway or urban roads with 100,000 or more vehicles/day should be avoided when possible.

As an ongoing process, CARB will continue to establish new programs and regulations for the control of diesel particulate and other air-toxics emissions as appropriate. The continued development and implementation of these programs and policies will ensure that the public's exposure to DPM will continue to decline.

3.2.3 State Implementation Plan

The State Implementation Plan (SIP) is a collection of documents that set forth the state's strategies for achieving the NAAQS. In California, the SIP is a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls. The CARB is the lead agency for all purposes related to the SIP under state law. Local air districts and other agencies, such as the Department of Pesticide Regulation and the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB for review and approval. The CARB then forwards SIP revisions to the U.S. EPA for approval and publication in the Federal Register. All of the items included in the California SIP are listed in the Code of Federal Regulations (CFR) at 40 CFR 52.220.

The SDAPCD is responsible for preparing and implementing the portion of the SIP applicable to the SDAB. The SDAPCD adopts rules, regulations, and programs to attain federal and state air quality standards, and appropriates money (including permit fees) to achieve these objectives.

3.2.4 The California Environmental Quality Act

Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires discussion of any inconsistencies between the proposed project and applicable general plans and regional plans, including the applicable air quality attainment or maintenance plan (or SIP).

3.3 San Diego Air Pollution Control District

The SDAPCD is the agency that regulates air quality in the SDAB. The SDAPCD prepared the RAQS in response to the requirements set forth in the California CAA AB 2595 (County of San Diego 1992). Attached, as part of the RAQS, are the Transportation Control Measures (TCM) for the air quality plan prepared by SANDAG in accordance with AB 2595 and adopted by SANDAG on March 27, 1992, as Resolution Number 92-49 and Addendum. The RAQS and TCM set forth the steps needed to accomplish attainment of state AAQS. The required triennial updates of the RAQS and corresponding TCM were adopted in 1995, 1998, 2001, 2004, and 2009.

The SDAPCD has also established a set of rules and regulations initially adopted on January 1, 1969 and periodically reviewed and updated. These rules and regulations are available for review on the agency's website.

4.0 Environmental Setting

4.1 Geographic Setting

The proposed project is located in the City of San Diego about 1.75 miles east of the Pacific Ocean. The eastern portion of the SDAB is surrounded by mountains to the north, east, and south. These mountains tend to restrict airflow and concentrate pollutants in the valleys and low-lying areas below.

4.2 Climate

The project area, like the rest of San Diego County, has a Mediterranean climate characterized by warm, dry summers and mild, wet winters. The mean annual temperature for the project area is 63 degrees Fahrenheit (°F). The average annual precipitation is 10 inches, falling primarily from November to April. Winter low temperatures in the project area average about 49°F, and summer high temperatures average about 74°F. The average relative humidity is 69 percent and is based on the yearly average humidity at Lindbergh Field (Western Regional Climate Center 2015).

The dominant meteorological feature affecting the region is the Pacific High Pressure Zone, which produces the prevailing westerly to northwesterly winds. These winds tend to blow pollutants away from the coast toward the inland areas. Consequently, air quality near the coast is generally better than that which occurs at the base of the coastal mountain range.

Fluctuations in the strength and pattern of winds from the Pacific High Pressure Zone interacting with the daily local cycle produce periodic temperature inversions that influence the dispersal or containment of air pollutants in the SDAB. Beneath the inversion layer pollutants become "trapped" as their ability to disperse diminishes. The mixing depth is the area under the inversion layer. Generally, the morning inversion layer is lower than the afternoon inversion layer. The greater the change between the morning and afternoon mixing depths, the greater the ability of the atmosphere to disperse pollutants.

Throughout the year, the height of the temperature inversion in the afternoon varies between approximately 1,500 and 2,500 feet above mean sea level. In winter, the morning inversion layer is about 800 feet above mean sea level. In summer, the morning inversion layer is about 1,100 feet above mean sea level. Therefore, air quality generally tends to be better in the winter than in the summer.

The prevailing westerly wind pattern is sometimes interrupted by regional "Santa Ana" conditions. A Santa Ana occurs when a strong high pressure develops over the Nevada-Utah area and overcomes the prevailing westerly coastal winds, sending strong, steady, hot, dry northeasterly winds over the mountains and out to sea.

Strong Santa Anas tend to blow pollutants out over the ocean, producing clear days. However, at the onset or during breakdown of these conditions, or if the Santa Ana is weak, local air quality may be adversely affected. In these cases, emissions from the South Coast Air Basin to the north are blown out over the ocean, and low pressure over Baja California draws this pollutant-laden air mass southward. As the high pressure weakens, prevailing northwesterly winds reassert themselves and send this cloud of contamination ashore in the SDAB. When this event does occur, the combination of transported and locally produced contaminants produce the worst air quality measurements recorded in the basin.

4.3 Existing Air Quality

The project area is within the SDAB. Air quality at a particular location is a function of the kinds, amounts, and dispersal rates of pollutants being emitted into the air locally and throughout the basin. The major factors affecting pollutant dispersion are wind speed and direction, the vertical dispersion of pollutants (which is affected by inversions), and the local topography.

Air quality is commonly expressed as the number of days in which air pollution levels exceed state standards set by the CARB or federal standards set by the EPA. The SDAPCD maintains 10 air quality monitoring stations located throughout the greater San Diego metropolitan region. Air pollutant concentrations and meteorological information are continuously recorded at these stations. Measurements are then used by scientists to help forecast daily air pollution levels.

The closest monitoring station that monitors a wide range of pollutants is the San Diego – Kearny Villa Road monitoring station, located approximately 6.6 miles southeast of the project site (see Figure 2). The San Diego – Kearny Villa Road monitoring station measures ozone, NO_2, PM_{10}, and $PM_{2.5}$. Table 2 provides a summary of measurements collected at the San Diego – Kearny Villa Road monitoring station for the years 2010 through 2014.

4.3.1 Ozone

Nitrogen oxides and hydrocarbons (reactive organic gases [ROG]) are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone. Ozone is the primary air pollution problem in the SDAB. Because sunlight plays such an important role in its formation, ozone pollution, or smog, is mainly a concern during the daytime in summer months. The SDAB is currently designated a federal and state non-attainment area for ozone. During the past 20 years, San Diego had experienced a decline in the number of days with unhealthy levels of ozone despite the region's growth in population and vehicle miles traveled (County of San Diego 2013).

About half of smog-forming emissions come from automobiles. Population growth in San Diego has resulted in a large increase in the number of automobiles expelling ozone-forming pollutants while operating on area roadways. In addition, the occasional transport of smog-filled air from Los Angeles only adds to the SDAB's ozone problem. More strict automobile emission controls, including more efficient automobile engines, have played a large role in why ozone levels have steadily decreased.

In order to address adverse health effects due to prolonged exposure, the U.S. EPA phased out the national 1-hour ozone standard and replaced it with the more protective 8-hour ozone standard. The SDAB is currently a nonattainment area for the 8-hour standard.

Not all of the ozone within the SDAB is derived from local sources. Under certain meteorological conditions, such as during Santa Ana wind events, ozone and other pollutants are transported from the Los Angeles Basin and combine with ozone formed from local emission sources to produce elevated ozone levels in the SDAB.

TABLE 2
SUMMARY OF AIR QUALITY MEASUREMENTS RECORDED AT THE KEARNY VILLA ROAD MONITORING STATION

Pollutant/Standard	2010	2011	2012	2013	2014
Ozone					
Days State 1-hour Standard Exceeded (0.09 ppm)	0	0	1	0	1
Days State 8-hour Standard Exceeded (0.07 ppm)	0	2	3	1	4
Days Federal 8-hour Standard Exceeded (0.075 ppm)	0	1	1	0	1
Max. 1-hr (ppm)	0.073	0.093	0.099	0.081	0.099
Max 8-hr (ppm)	0.061	0.084	0.077	0.071	0.082
Nitrogen Dioxide					
Days State 1-hour Standard Exceeded (0.18 ppm)	Na	Na	0	0	0
Days Federal 1-hour Standard Exceeded (0.100 ppm)	Na	Na	0	0	0
Max 1-hr (ppm)	Na	Na	0.057	0.067	0.051
Annual Average (ppm)	Na	Na	Na	0.011	0.010
PM_{10}*					
Measured Days State 24-hour Standard Exceeded (50 $\mu g/m^3$)	Na	Na	0	0	0
Calculated Days State 24-hour Standard Exceeded (50 $\mu g/m^3$)	Na	Na	Na	0.0	0.0
Measured Days Federal 24-hour Standard Exceeded (150 $\mu g/m^3$)	Na	Na	0	0	0
Calculated Days Federal 24-hour Standard Exceeded (150 $\mu g/m^3$)	Na	Na	Na	0.0	0.0
Max. Daily ($\mu g/m^3$)	Na	Na	35.0	38.0	39.0
State Annual Average ($\mu g/m^3$)	Na	Na	Na	20.0	19.5
Federal Annual Average ($\mu g/m^3$)	Na	Na	14.7	19.9	19.4
$PM_{2.5}$*					
Measured Days Federal 24-hour Standard Exceeded (35 $\mu g/m^3$)	Na	Na	0	0	0
Calculated Days Federal 24-hour Standard Exceeded (35 $\mu g/m^3$)	Na	Na	Na	0.0	0.0
Max. Daily ($\mu g/m^3$)	Na	Na	20.1	22.0	20.2
State Annual Average ($\mu g/m^3$)	Na	Na	Na	8.3	8.2
Federal Annual Average ($\mu g/m^3$)	Na	Na	Na	8.3	8.1

SOURCE: CARB 2015b.
*Calculated days value. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

Local agencies can control neither the source nor the transportation of pollutants from outside the air basin. The SDAPCD's policy, therefore, has been to control local sources effectively enough to reduce locally produced contamination to clean air standards. Through the use of air pollution control measures outlined in the RAQS, the SDAPCD has effectively reduced ozone levels in the SDAB.

Actions that have been taken in the SDAB to reduce ozone concentrations include:

- **TCMs if vehicle travel and emissions exceed attainment demonstration levels.** TCMs are strategies that will reduce transportation-related emissions by reducing vehicle use or improving traffic flow.

- **Enhanced motor vehicle inspection and maintenance program.** The smog check program is overseen by the Bureau of Automotive Repair. The program requires most vehicles to pass a smog test once every two years before registering in the state of California. The smog check program monitors the amount of pollutants automobiles produce. One focus of the program is identifying “gross polluters,” or vehicles that exceed two times the allowable emissions for a particular model. Regular maintenance and tune-ups, changing the oil, and checking tire inflation can improve gas mileage and lower air pollutant emissions. It can also reduce traffic congestion due to preventable breakdowns, further lowering emissions.

- **Air Quality Improvement Program.** This program, established by AB 118, is a voluntary incentive program administered by the CARB to fund clean vehicle and equipment projects, research on biofuels production and the air quality impacts of alternative fuels, and workforce training.

4.3.2 Carbon Monoxide

The SDAB is classified as a state attainment area and as a federal maintenance area for CO. Until 2003, no violations of the state standard for CO had been recorded in the SDAB since 1991, and no violations of the national standard had been recorded in the SDAB since 1989. Violations that took place in 2003 were likely the result of massive wildfires that occurred throughout the County. No violations of the state or federal CO standards have occurred since 2003.

Small-scale, localized concentrations of CO above the state and national standards have the potential to occur at intersections with stagnation points such as those that occur on major highways and heavily traveled and congested roadways. Localized high concentrations of CO are referred to as “CO hot spots” and are a concern at congested intersections when automobile engines burn fuel less efficiently and their exhaust contains more CO.

4.3.3 PM_{10}

PM_{10} is particulate matter with an aerodynamic diameter of 10 microns or less. Ten microns is about one-seventh of the diameter of a human hair. Particulate matter is a complex mixture of very tiny solid or liquid particles composed of chemicals, soot, and dust. Sources of PM_{10} emissions in the SDAB consist mainly of urban activities, dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere.

Under typical conditions (i.e., no wildfires), particles classified under the PM_{10} category are mainly emitted directly from activities that disturb the soil including travel on roads and construction, mining, or agricultural operations. Other sources include windblown dust, salts, brake dust, and tire wear (County of San Diego 1998). For several reasons hinging on the area’s dry climate and coastal location, the SDAB has special difficulty in developing adequate tactics to meet present state particulate standards. The SDAB is designated as federal unclassified and state nonattainment for PM_{10}.

4.3.4 $PM_{2.5}$

Airborne, inhalable particles with aerodynamic diameters of 2.5 microns or less have been recognized as an air quality concern requiring regular monitoring. Federal $PM_{2.5}$ standards include an annual arithmetic mean of 15 micrograms per cubic meter ($\mu g/m^3$) and a 24-hour concentration of 35 $\mu g/m^3$. State $PM_{2.5}$ standards established in 2002 are an annual arithmetic mean of 12 $\mu g/m^3$.

The SDAB was classified as an attainment area for the previous federal 24-hour $PM_{2.5}$ standard of 65 $\mu g/m^3$ and has also been classified as an attainment area for the revised federal 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$ (U.S. EPA 2004, 2009). The SDAB is a non-attainment area for the state $PM_{2.5}$ standard.

4.3.5 Other Criteria Pollutants

The national and state standards for NO_2, SO_x, and previous standard for lead are being met in the SDAB, and the latest pollutant trends suggest that these standards will not be exceeded in the foreseeable future. As discussed above, new standards for these pollutants have been adopted, and new designations for the SDAB will be determined in the future. The SDAB is also in attainment of the state standards for vinyl chloride, hydrogen sulfides, sulfates, and visibility reducing particulates.

5.0 Thresholds of Significance

Thresholds used to evaluate potential impacts to air quality are based on applicable criteria in the CEQA Guidelines Appendix G, the SDAPCD regulations, and the City of San Diego's Significance Determination Thresholds for assessing potential air quality impacts under CEQA. The project would have a significant air quality impact if it would:

1. Obstruct or conflict with the implementation of the San Diego RAQS or applicable portions of the SIP.
2. Result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation.
3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including the release of emissions which exceed quantitative thresholds for ozone precursors).
4. Expose sensitive receptors to substantial pollutant concentration including air toxics such as diesel particulates.
5. Create objectionable odors affecting a substantial number of people.

Vehicle emissions are regulated at the federal and state levels. Air quality management districts and air pollution control districts do not set vehicle emission standards. The SDAPCD is responsible for preparing and implementing the portion of the SIP applicable to the SDAB. The SIP contains the state's strategies for achieving the NAAQS. The SDAPCD also prepared the RAQS in response to requirements set forth in the California CAA (AB 2595).

The SDAPCD has also established a set of rules and regulations initially adopted on January 1, 1969, and periodically reviewed and updated. The rules and regulations define requirements regarding stationary sources of air pollutants and fugitive dust.

The SDAPCD does not provide specific numerics for determining the significance of mobile source-related impacts, or for evaluating CEQA projects or projects that do not require an APCD permit to operate (e.g., non-stationary sources). However, it does specify Air Quality Impact Analysis trigger levels for new or modified stationary sources (SDAPCD Rules 20.2 and 20.3). The APCD does not consider these trigger levels to represent adverse air quality impacts, rather, if these trigger levels are exceeded by a project, the SDAPCD requires an air quality analysis to determine if a significant air quality impact would occur. While these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes these levels are used to evaluate the increased emissions that would be discharged to the SDAB if the project were approved.

The SDAPCD trigger levels are also utilized by the City of San Diego in their Significance Determination Thresholds (City of San Diego 2011) as one of the considerations when determining the potential significance of air quality impacts for projects within the city. SDAPCD Rules 20.2 and 20.3 do not specify trigger levels for ROG or $PM_{2.5}$. The threshold for ROG used by the City is based on levels per the SCAQMD and Monterey Bay Air Quality Management District, which have similar federal and state attainment status as San Diego (City of San Diego 2011). The terms ROG and volatile organic compound (VOC) are essentially synonymous and are used interchangeably in this analysis. The threshold for $PM_{2.5}$ was developed from the SCAQMD Final Methodology to Calculate $PM_{2.5}$ and $PM_{2.5}$ Significance Thresholds and the SDAPCD's PM_{10} limit (SCAQMD 2006).

The air quality impact screening levels used in this analysis are shown in Table 3.

TABLE 3
AIR QUALITY IMPACT ANALYSIS TRIGGER LEVELS

Pollutant	Emission Rate (lb/day)	Emission Rate (tons/yr)
NOx	250	40
SOx	250	40
CO	550	100
PM_{10}	100	15
Lead	3.2	0.6
VOC, ROG	137	15
$PM_{2.5}$	100[1]	--

SOURCE: SDAPCD, Rule 20.2 (12/17/1998); City of San Diego 2011.
[1]$PM_{2.5}$ threshold developed from the SCAQMD *Final Methodology to Calculate $PM_{2.5}$ and $PM_{2.5}$ Significance Thresholds* (SCAQMD 2006) and the PM_{10} standard of the SDAPCD.

6.0 Air Quality Assessment

Air quality impacts can result from the construction and operation of the project. Construction impacts are short term and result from fugitive dust, equipment exhaust, and indirect effects associated with construction workers and deliveries. Operational impacts can occur on two levels: regional impacts resulting from growth-inducing development or local hot-spot effects stemming from sensitive receivers being placed close to highly congested roadways. In the case of this project, operational impacts are primarily due to emissions to the basin from mobile sources associated with the vehicular travel along the roadways within the project area.

Air emissions were calculated using the California Emissions Estimator Model (CalEEMod) 2013.2.2 (California Air Pollution Control Officers Association [CAPCOA] 2013). The CalEEMod program is a tool used to estimate air emissions resulting from land development projects based on California-specific emission factors. The model estimates emissions from two basics sources: construction sources and operational sources (e.g., area and mobile sources).

Inputs to CalEEMod include such items as the air basin containing the project, land uses, trip generation rates, trip lengths, vehicle fleet mix (percentage autos, medium truck, etc.), trip distribution (i.e., percent home to work, etc.), duration of construction phases, construction equipment usage, grading areas, season, and ambient temperature, as well as other parameters. CalEEMod includes specific SDAB emission data. The CalEEMod output files contained in Attachment 1 indicate the specific outputs for each model run. Emissions of NO_x, CO, SO_x, PM_{10}, $PM_{2.5}$, and ROGs are calculated. Emission factors are not available for lead, and consequently, lead emissions are not calculated. The SDAB is currently in attainment of the federal and state lead standards. Furthermore, fuel used in construction equipment and most other vehicles is not leaded.

6.1 Construction-related Air Quality Effects

Construction-related activities are temporary, short-term sources of air emissions. Sources of construction-related air emissions include:

- Fugitive dust from grading activities;
- Construction equipment exhaust;
- Construction-related trips by workers, delivery trucks, and material-hauling trucks; and
- Construction-related power consumption.

Construction-related pollutants result from dust raised during demolition and grading, emissions from construction vehicles, and chemicals used during construction. Fugitive dust emissions vary greatly during construction and are dependent on the amount and type of activity, silt content of the soil, and the weather. Vehicles moving over paved and unpaved surfaces, demolition, excavation, earth movement, grading, and wind erosion from exposed surfaces are all sources of fugitive dust. Construction operations are subject to the requirements established in Regulation 4, Rules 52, 54, and 55, of the SDAPCD's rules and regulations.

Heavy-duty construction equipment is usually diesel powered. In general, emissions from diesel-powered equipment contain more NO_x, SO_x, and particulate matter than gasoline-powered engines. However, diesel-powered engines generally produce less CO and less ROG than do gasoline-powered engines. Standard construction equipment includes tractors/loaders/backhoes, rubber-tired dozers, excavators, graders, cranes, forklifts, rollers, paving equipment, generator sets, welders, cement and mortar mixers, and air compressors.

Emissions associated with construction of this project were calculated using the CalEEMod assuming that construction would last for approximately 18 months. Primary inputs are the numbers of each piece of equipment and the length of each construction stage. Specific construction equipment parameters are not available at this time. However, CalEEMod can estimate the required construction equipment when project-specific information is unavailable. The estimates are based on surveys, performed by the SCAQMD and the Sacramento Metropolitan Air Quality Management District, of typical construction projects which provide a basis for scaling equipment needs and schedule with a project's size. Air emission estimates in CalEEMod are based on the duration of construction phases; construction equipment type, quantity, and usage; grading area; season; and ambient temperature, among other parameters. A VOC content of 150 grams per liter for exterior architectural coatings and 100 grams per liter for interior architectural coatings was assumed in accordance with SDAPCD Rule 67.0.

Table 4 shows the total projected construction maximum daily emission levels for each criteria pollutant. The detailed construction equipment parameters and CalEEMod output files for construction emissions are contained in Attachment 1.

TABLE 4
SUMMARY OF WORST-CASE CONSTRUCTION EMISSIONS
(pounds per day)

Phase	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Site Preparation	5	55	42	0	21	13
Grading/Excavation	7	75	50	0	12	7
Building Construction	6	42	50	0	5	3
Paving	2	20	15	0	1	1
Architectural Coatings	90	2	4	0	1	0
Maximum Daily Emissions	**90**	**75**	**50**	**0**	**21**	**13**
Significance Threshold	*137*	*250*	*550*	*250*	*100*	*100*

Standard dust control measures would be implemented as a part of project construction in accordance with SDAPCD rules and regulations. Fugitive dust emissions were calculated using CalEEMod default values, and did not take into account the required dust control measures. Thus, the emissions shown in Table 4 are conservative.

For assessing the significance of the air quality emissions resulting during construction of the project, the construction emissions were compared to the trigger levels shown in Table 3. As seen in Table 4, maximum daily construction emissions are projected to be less than the applicable thresholds for all criteria pollutants. Thus, impacts would be less than significant.

6.2 Operation-related Emissions

6.2.1 Mobile and Area Source Emissions

Mobile source emissions would originate from traffic generated by the project. Area source emissions would result from activities such as the use of natural gas and consumer products. In addition, landscaping maintenance activities associated with the proposed land uses would produce pollutant emissions.

Operational emissions due to implementation of the project were calculated using CalEEMod. CalEEMod estimates vehicle emissions by first calculating trip rate, trip length, trip purpose (e.g., home to work, home to shop, home to other), and trip type percentages for each land use type, based on the land use types and quantities. Vehicle trip generation rates were obtained from the Traffic Impact Analysis prepared for the project (Urban Systems Associates, Inc. 2015). The project would generate 2,524 daily trips. An average regional trip length of 5.8 miles for urban areas was used to determine vehicle miles traveled (VMT) based on SANDAG regional data (SANDAG 2014). All other CalEEMod default trip characteristics were used.

Area source emissions associated with the project include consumer products, architectural coatings, and landscaping equipment. Hearths (fireplaces) and woodstoves are also a source of area emissions; however, the project would not include hearths or woodstoves.

Consumer products are chemically formulated products used by household and institutional consumers, including, but not limited to, detergents, cleaning compounds, polishes, floor finishes, disinfectants, sanitizers, and aerosol paints but not including other paint products, furniture coatings, or architectural coatings. Emissions due to consumer products are calculated using total building area and product emission factors.

For architectural coatings, ROG off-gassing emissions result from evaporation of solvents contained in surface coatings such as in paints and primers. ROG evaporative emissions are calculated using building surface area, architectural coating emission factors, and a reapplication rate of 10 percent of area per year. A VOC content of 150 grams per liter for exterior architectural coatings and 100 grams per liter for interior architectural coatings was assumed in accordance with SDAPCD Rule 67.0.

Landscaping maintenance includes fuel combustion emission from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers as well as air compressors, generators, and pumps. Emission calculations take into account building area, equipment emission factors, and the number of operational days (summer days).

Table 5 provides a summary of the operational emissions generated by the project. CalEEMod output files for project operation are contained in Attachment 1. As shown, project-generated emissions are projected to be less than the significance thresholds for all criteria pollutants.

TABLE 5
SUMMARY OF PROJECT OPERATIONAL EMISSIONS
(pounds/day)

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Sources	21	0	0	0	0	0
Energy Sources	0	1	1	0	0	0
Mobile Sources	7	11	58	0	9	2
Total	**28**	**12**	**59**	**0**	**9**	**3**
Significance Threshold	*137*	*250*	*550*	*250*	*100*	*100*

NOTE: Totals may vary due to independent rounding.

6.2.2 Localized Carbon Monoxide Impacts

Localized CO concentration is a direct function of motor vehicle activity at signalized intersections (e.g., idling time and traffic flow conditions), particularly during peak commute hours and meteorological conditions. Under specific meteorological conditions (e.g., stable conditions that result in poor dispersion), CO concentrations may reach unhealthy levels with respect to local sensitive land uses. Guidance for the evaluation of CO hot spots is provided in the Transportation Project-level Carbon Monoxide Protocol (CO protocol) (University of California, Davis 1997) prepared for the Environmental Program of the California Department of Transportation by the Institute of Transportation Studies, University of California Davis.

The SDAB is a CO maintenance area under the federal CAA. This means that SDAB was previously a non-attainment area and is currently implementing a 10-year plan for continuing to meet and maintain air quality standards. As a result, ambient CO levels have declined significantly. CO hot spots have been found to occur only at signalized intersections that operate at or below level of service (LOS) E with peak-hour trips for that intersection exceeding 3,000 trips. According to the CO Protocol, in maintenance areas, only projects that are likely to worsen air quality necessitate further analysis. The CO Protocol indicates projects may worsen air quality if they worsen traffic flow, defined as increasing average delay at signalized intersections operating at LOS E or F or causing an intersection that would operate at LOS D or better without the project, to operate at LOS E or F. Unsignalized intersections are not evaluated as they are typically signalized as volumes increase and delays increase, and traffic volumes at unsignalized intersections are typically much lower than at signalized intersections.

The traffic report (Urban Systems 2015) indicated two signalized intersections operating at LOS E or F, and with the addition of the project, the delay at these intersections would increase. These intersections are at Genesee Avenue and the Interstate 5 southbound ramp and Genesee Avenue and La Jolla Village Drive.

CALINE4, a computer air emission dispersion model, with a graphic interface (CalRoads View), was used to calculate CO concentrations at receivers located at each intersection. These concentrations were derived from inputs including traffic volumes from the traffic analysis and emission factors from EMFAC2014 (CARB 2014). The detailed modeling is based on the existing plus project and buildout plus project peak hour traffic volumes and emission factors from EMFAC2014. The one-hour background concentration of CO for the area, 3.0 parts per minute (ppm), was included in the model. This ambient concentration is considered conservative, as it was the highest recorded hourly concentration over the past five years at the San Diego – Beardsley Street monitoring station, the closest monitoring station that measures CO (CARB 2015b).

This concentration was assumed for all intersections. The average regional winter low temperature of 49°F was included in the model as reported by the Western Regional Climate Center data for the project area. For a worst-case meteorological setting, the wind angle assumes all wind is blowing at each receptor. The mixing height of pollutants was set at 1,000 feet with a stable atmosphere. Assuming a 5-mile-per-hour approach speed and a 15-mile-per-hour departure speed for all vehicle classes, EMFAC 2014 emissions factors were calculated and included in the CalRoads model analysis. The results of the modeling for these intersections are summarized in Table 6. CALINE4 output is contained in Attachment 2.

TABLE 6
MAXIMUM CO CONCENTRATIONS (ppm)

Roadway	Existing + Project		Buildout + Project		Standard CAAQS/ NAAQS	
	1-Hour Concentration	8-Hour Concentration[1]	1-Hour Concentration	8-Hour Concentration[1]	1-Hour	8-Hour
Genesee Avenue and I-5 southbound ramps	5.6	3.9	4.8	3.4	20/35	9.0/9
Genesee Avenue and La Jolla Village Drive	5.7	4.0	5.1	3.6		

[1]8-hour concentrations developed based on a 0.7 persistence factor.

As shown, the maximum 1-hour concentration would be 5.7 ppm. This concentration is below the federal and state 1-hour standards. In order to determine the 8-hour concentration, the 1-hour value was multiplied by a persistence factor of 0.7, as recommended in the CO Protocol. Based on this calculation, the maximum 8-hour concentration would be 4.0 ppm. Thus, increases of CO due to the project would be below the federal and state 8-hour standards. Therefore, localized air quality emissions would be less than significant.

6.3 Conformance with Regional Plans and City Criteria

1. *Would the proposed project obstruct or conflict with the implementation of the San Diego RAQS or applicable portions of the SIP?*

The California Clean Air Act requires areas that are designated as non-attainment of state ambient air quality standards for ozone, CO, SO_2, and NO_2 to prepare and implement plans to attain the standards by the earliest practicable date. The SDAB is designated non-attainment for the state ozone standard. Accordingly, the RAQS was developed to identify feasible emission control measures and provide expeditious progress toward attaining the state standards for ozone. The two pollutants addressed in the RAQS are ROG and NOx, which are precursors to the formation of ozone. Projected increases in motor vehicle usage, population, and growth create challenges in controlling emissions and by extension to maintaining and improving air quality. The RAQS, in conjunction with the TCM, were most recently adopted in 2009 as the air quality plan for the region.

The CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed in general plans. As such, projects that propose development that is consistent with the growth anticipated by SANDAG's growth projections and/or the general plan would be consistent with the RAQS. In the event that a project would propose development that is less dense than anticipated by the growth projections, the project would likewise be consistent with the RAQS. In the event a project proposes development that is greater than anticipated in the growth projections, further analysis would be warranted to determine if the project would exceed the growth projections used in the RAQS for the specific subregional area.

The project is consistent with the General Plan land use designation, and is therefore consistent with the growth assumptions anticipated by the General Plan and SANDAG. The project would, therefore, not result in an increase in emissions that are not already accounted for in the RAQS. Thus, the project would not interfere with implementation of the RAQS or other air quality plans.

2. *Would the proposed project result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

As shown in Table 4, project construction would not exceed the applicable regional emissions thresholds. These thresholds are designed to provide limits below which project emissions would not significantly change regional air quality. Therefore, as project emissions are well below these limits, project construction would not result in regional emissions that would exceed the NAAQS or CAAQS or contribute to existing violations. Additionally, construction emissions would be temporary, intermittent, and would cease at the end of project construction.

Long-term emissions of regional air pollutants occur from operational sources. As shown in Table 5, project operation would not exceed the applicable regional emissions thresholds. These thresholds are designed to provide limits below which project emissions would not significantly change regional air quality. Therefore, as project emissions are well below these limits, project operations would not result in regional emissions that would exceed the NAAQS or CAAQS or contribute to existing violations. Therefore, the project would result in a less than significant impact.

3. *Would the proposed project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including release emissions which exceed quantitative thresholds for ozone precursors)?*

The region is classified as attainment for all criterion pollutants except ozone, PM_{10}, and $PM_{2.5}$. The SDAB is non-attainment for the 8-hour federal and state ozone standards. Ozone is not emitted directly, but is a result of atmospheric activity on precursors. NO_X and ROG are known as the chief "precursors" of ozone. These compounds react in the presence of sunlight to produce ozone.

As shown in Tables 4 and 5, emissions of ozone precursors (ROG and NO_X), PM_{10}, and $PM_{2.5}$ from construction and operation would be below the applicable thresholds. Therefore, the project would not generate emissions in quantities that would result in an exceedance of the NAAQS or CAAQS for ozone, PM_{10}, or $PM_{2.5}$, and impacts would be less than significant.

4. *Would the proposed project expose sensitive receptors to substantial pollutant concentration including air toxics such as diesel particulates?*

As shown in Table 6, the maximum 1-hour and 8-hour concentrations of CO would occur at the intersection of Genesee Avenue and La Jolla Village Drive and would be 5.7 ppm and 4.0 ppm, respectively. These concentrations are less than the CAAQS and NAAQS. All other intersections would carry less peak hour traffic and experience shorter delays than the intersection of Genesee Avenue and La Jolla Village Drive. Thus, it can be concluded that CO concentrations at these intersections would be less than the CO concentrations shown in Table 6. There would be no harmful concentrations of CO and localized air quality emission would not exceed applicable standards with implementation of the project; therefore, sensitive receptors would not be exposed to substantial pollutant concentrations.

5. *Would the proposed project create objectionable odors affecting a substantial number of people?*

The project would involve the use of diesel-powered construction equipment. Diesel exhaust may be noticeable temporarily at adjacent properties; however, construction activities would be temporary. The project does not include industrial or agricultural uses that are typically associated with objectionable odors. The project is commercial and is not anticipated to generate objectionable odors or be located adjacent to a known odor generator. Odor impacts due to on-site sources are less than significant.

7.0 Conclusions

The primary goal of the RAQS is to reduce ozone precursor emissions. The project would be consistent with the land use designations and the zoning of the project site, and therefore, with the growth anticipated by the General Plan and SANDAG. The proposed project would therefore not result in an increase in emissions that are not already accounted for in the RAQS. Thus, the project would not interfere with implementation of the RAQS or other air quality plans.

As shown in Table 4, project construction emissions would not exceed the applicable regional emissions thresholds. These thresholds are designed to provide limits below which project emissions would not significantly change regional air quality. Therefore, as project emissions are well below these limits, project construction would not result in regional emissions that would exceed the NAAQS or CAAQS or contribute to existing violations. Additionally, construction emissions would be temporary, intermittent, and would cease at the end of project construction.

Long-term emissions of regional air pollutants occur from operational sources. As shown in Table 5, project operational emissions would not exceed the applicable regional emissions thresholds. Therefore, as project emissions are well below these limits, project operations would not result in regional emissions that would exceed the NAAQS or CAAQS or contribute to existing violations.

Maximum CO concentrations occur at the intersection of Genesee Avenue and La Jolla Village Drive and would be less than the CAAQS and NAAQS. All other intersections would carry less peak hour traffic and experience shorter delays than this intersection. Thus, it can be concluded that CO concentrations at these intersections would be less than the CO concentrations shown in Table 6. There would be no harmful concentrations of CO and localized air quality emission would not exceed applicable standards with implementation of the project; therefore, sensitive receptors would not be exposed to substantial pollutant concentrations.

The project does not include industrial or agricultural uses that are typically associated with objectionable odors. The project would involve the use of diesel-powered construction equipment. Diesel exhaust may be noticeable temporarily at adjacent properties; however, construction activities would be temporary. Therefore, this impact would be less than significant.

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ATTACHMENTS

ATTACHMENT 1

CalEEMod Output Files

5230.2 Campus Point - Project 2020

San Diego County APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Research & Development	315.00	1000sqft	9.44	315,000.00	0
Research & Development	12.38	1000sqft	0.28	12,383.00	0
High Turnover (Sit Down Restaurant)	1.00	1000sqft	0.02	1,000.00	0
Unenclosed Parking with Elevator	447.00	1000sqft	10.26	447,000.00	0

1.2 Other Project Characteristics

Urbanization Urban

Wind Speed (m/s) 2.6

Precipitation Freq (Days) 40

Climate Zone 13

Operational Year 2020

Utility Company San Diego Gas & Electric

CO2 Intensity (lb/MWhr) 556.22

CH4 Intensity (lb/MWhr) 0.022

N2O Intensity (lb/MWhr) 0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - RPS 33% goal
CalEEMod accounts for 10.2%
Additional 22.8% reduction applied

Land Use - 315,000 SF Research and Development Building
13,383 SF Research and Development Amenity Building with 1,000 SF Brewery
447,000 SK Parking Structure

Construction Phase - 6 months arch coatings

Architectural Coating - SDAPCD VOC content limit = 150 g/L

Vehicle Trips - 2,520 R&D Trips
4 Brewery Trips

Area Coating - SDAPCD VOC content limit = 150 g/L

Energy Use - 2013 Title 24
21.8% increase electricity efficiency
16.8% increase natural gas efficiency

Mobile Land Use Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	150.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	250
tblConstructionPhase	NumDays	20.00	120.00
tblConstructionPhase	PhaseEndDate	11/2/2017	7/13/2017
tblConstructionPhase	PhaseEndDate	8/10/2017	6/15/2017
tblConstructionPhase	PhaseStartDate	5/19/2017	1/27/2017
tblConstructionPhase	PhaseStartDate	7/14/2017	5/19/2017
tblEnergyUse	T24E	10.06	7.87
tblEnergyUse	T24E	1.48	1.16

tblEnergyUse	T24NG	37.80	31.45
tblEnergyUse	T24NG	4.54	3.78
tblLandUse	LotAcreage	7.23	9.44
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	720.49	556.22
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2020
tblVehicleTrips	CC_TL	7.30	5.80
tblVehicleTrips	CC_TL	7.30	5.80
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	5.80
tblVehicleTrips	CNW_TL	7.30	5.80
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CW_TL	9.50	5.80
tblVehicleTrips	CW_TL	9.50	5.80
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	ST_TR	158.37	4.00
tblVehicleTrips	ST_TR	1.90	7.70
tblVehicleTrips	SU_TR	131.84	4.00
tblVehicleTrips	SU_TR	1.11	7.70
tblVehicleTrips	WD_TR	127.15	4.00
tblVehicleTrips	WD_TR	8.11	7.70

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	6.5536	74.9058	50.2545	0.0855	18.2141	3.5855	21.1539	9.9699	3.2986	12.6745	0.0000	8,066.045 6	8,066.045 6	1.9437	0.0000	8,106.863 1
2017	95.8643	41.0813	51.7751	0.0942	3.7346	2.1352	5.8698	1.0075	2.0125	3.0200	0.0000	8,637.428 9	8,637.428 9	0.8439	0.0000	8,655.150 2
Total	**102.4179**	**115.9871**	**102.0296**	**0.1797**	**21.9487**	**5.7206**	**27.0237**	**10.9774**	**5.3111**	**15.6945**	**0.0000**	**16,703.47 46**	**16,703.47 46**	**2.7876**	**0.0000**	**16,762.01 33**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	6.5536	74.9058	50.2545	0.0855	18.2141	3.5855	21.1539	9.9699	3.2986	12.6745	0.0000	8,066.045 6	8,066.045 6	1.9437	0.0000	8,106.863 1
2017	95.8643	41.0813	51.7751	0.0942	3.7346	2.1352	5.8698	1.0075	2.0125	3.0200	0.0000	8,637.428 9	8,637.428 9	0.8439	0.0000	8,655.150 2
Total	**102.4179**	**115.9871**	**102.0296**	**0.1797**	**21.9487**	**5.7206**	**27.0237**	**10.9774**	**5.3111**	**15.6945**	**0.0000**	**16,703.47 46**	**16,703.47 46**	**2.7876**	**0.0000**	**16,762.01 33**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	21.0315	7.4000e-004	0.0797	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1697	0.1697	4.6000e-004		0.1793
Energy	0.1117	1.0156	0.8531	6.0900e-003		0.0772	0.0772		0.0772	0.0772		1,218.6767	1,218.6767	0.0234	0.0223	1,226.0934
Mobile	7.1015	11.6760	60.8540	0.1384	9.6693	0.1654	9.8346	2.5811	0.1526	2.7337		10,587.2756	10,587.2756	0.4284		10,596.2711
Total	**28.2447**	**12.6923**	**61.7867**	**0.1445**	**9.6693**	**0.2429**	**9.9121**	**2.5811**	**0.2301**	**2.8111**		**11,806.1220**	**11,806.1220**	**0.4522**	**0.0223**	**11,822.5438**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	21.0315	7.4000e-004	0.0797	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1697	0.1697	4.6000e-004		0.1793
Energy	0.1117	1.0156	0.8531	6.0900e-003		0.0772	0.0772		0.0772	0.0772		1,218.6767	1,218.6767	0.0234	0.0223	1,226.0934
Mobile	6.9443	10.8181	57.5758	0.1257	8.7365	0.1515	8.8880	2.3321	0.1398	2.4719		9,610.4389	9,610.4389	0.3930		9,618.6927
Total	**28.0876**	**11.8344**	**58.5086**	**0.1318**	**8.7365**	**0.2290**	**8.9654**	**2.3321**	**0.2173**	**2.5493**		**10,829.2853**	**10,829.2853**	**0.4169**	**0.0223**	**10,844.9653**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.56	6.76	5.31	8.82	9.65	5.72	9.55	9.65	5.57	9.31	0.00	8.27	8.27	7.81	0.00	8.27

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/29/2016	2/11/2016	5	10	
2	Grading	Grading	2/12/2016	3/24/2016	5	30	
3	Building Construction	Building Construction	3/25/2016	5/18/2017	5	300	
4	Architectural Coating	Architectural Coating	1/27/2017	7/13/2017	5	120	
5	Paving	Paving	5/19/2017	6/15/2017	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,163,075; Non-Residential Outdoor: 387,692 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	162	0.38
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	174	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	130	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	293.00	127.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	59.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	5.0771	54.6323	41.1053	0.0391		2.9387	2.9387		2.7036	2.7036		4,065.0053	4,065.0053	1.2262		4,090.7544
Total	**5.0771**	**54.6323**	**41.1053**	**0.0391**	**18.0663**	**2.9387**	**21.0049**	**9.9307**	**2.7036**	**12.6343**		**4,065.0053**	**4,065.0053**	**1.2262**		**4,090.7544**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0667	0.0829	0.7823	1.7600e-003	0.1479	1.1100e-003	0.1490	0.0392	1.0200e-003	0.0402		146.8209	146.8209	7.8300e-003		146.9854
Total	**0.0667**	**0.0829**	**0.7823**	**1.7600e-003**	**0.1479**	**1.1100e-003**	**0.1490**	**0.0392**	**1.0200e-003**	**0.0402**		**146.8209**	**146.8209**	**7.8300e-003**		**146.9854**

3.2 Site Preparation - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	5.0771	54.6323	41.1053	0.0391		2.9387	2.9387		2.7036	2.7036	0.0000	4,065.0053	4,065.0053	1.2262		4,090.7544
Total	**5.0771**	**54.6323**	**41.1053**	**0.0391**	**18.0663**	**2.9387**	**21.0049**	**9.9307**	**2.7036**	**12.6343**	**0.0000**	**4,065.0053**	**4,065.0053**	**1.2262**		**4,090.7544**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0667	0.0829	0.7823	1.7600e-003	0.1479	1.1100e-003	0.1490	0.0392	1.0200e-003	0.0402		146.8209	146.8209	7.8300e-003		146.9854
Total	**0.0667**	**0.0829**	**0.7823**	**1.7600e-003**	**0.1479**	**1.1100e-003**	**0.1490**	**0.0392**	**1.0200e-003**	**0.0402**		**146.8209**	**146.8209**	**7.8300e-003**		**146.9854**

3.3 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	6.4795	74.8137	49.1374	0.0617		3.5842	3.5842		3.2975	3.2975		6,414.980 7	6,414.980 7	1.9350		6,455.615 4
Total	**6.4795**	**74.8137**	**49.1374**	**0.0617**	**8.6733**	**3.5842**	**12.2576**	**3.5965**	**3.2975**	**6.8940**		**6,414.980 7**	**6,414.980 7**	**1.9350**		**6,455.615 4**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0741	0.0921	0.8693	1.9500e-003	0.1643	1.2300e-003	0.1655	0.0436	1.1300e-003	0.0447		163.1343	163.1343	8.7000e-003		163.3171
Total	**0.0741**	**0.0921**	**0.8693**	**1.9500e-003**	**0.1643**	**1.2300e-003**	**0.1655**	**0.0436**	**1.1300e-003**	**0.0447**		**163.1343**	**163.1343**	**8.7000e-003**		**163.3171**

3.3 Grading - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	6.4795	74.8137	49.1374	0.0617		3.5842	3.5842		3.2975	3.2975	0.0000	6,414.9807	6,414.9807	1.9350		6,455.6154
Total	**6.4795**	**74.8137**	**49.1374**	**0.0617**	**8.6733**	**3.5842**	**12.2576**	**3.5965**	**3.2975**	**6.8940**	**0.0000**	**6,414.9807**	**6,414.9807**	**1.9350**		**6,455.6154**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0741	0.0921	0.8693	1.9500e-003	0.1643	1.2300e-003	0.1655	0.0436	1.1300e-003	0.0447		163.1343	163.1343	8.7000e-003		163.3171
Total	**0.0741**	**0.0921**	**0.8693**	**1.9500e-003**	**0.1643**	**1.2300e-003**	**0.1655**	**0.0436**	**1.1300e-003**	**0.0447**		**163.1343**	**163.1343**	**8.7000e-003**		**163.3171**

3.4 Building Construction - 2016

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485		2,669.2864	2,669.2864	0.6620		2,683.1890
Total	**3.4062**	**28.5063**	**18.5066**	**0.0268**		**1.9674**	**1.9674**		**1.8485**	**1.8485**		**2,669.2864**	**2,669.2864**	**0.6620**		**2,683.1890**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.5326	12.3277	19.0134	0.0301	0.8430	0.1839	1.0269	0.2405	0.1691	0.4096		3,006.8420	3,006.8420	0.0240		3,007.3461
Worker	1.0857	1.3487	12.7345	0.0286	2.4069	0.0181	2.4250	0.6384	0.0166	0.6550		2,389.9173	2,389.9173	0.1275		2,392.5948
Total	**2.6183**	**13.6764**	**31.7479**	**0.0587**	**3.2499**	**0.2020**	**3.4519**	**0.8789**	**0.1857**	**1.0646**		**5,396.7592**	**5,396.7592**	**0.1515**		**5,399.9409**

3.4 Building Construction - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485	0.0000	2,669.286 4	2,669.286 4	0.6620		2,683.189 0
Total	**3.4062**	**28.5063**	**18.5066**	**0.0268**		**1.9674**	**1.9674**		**1.8485**	**1.8485**	**0.0000**	**2,669.286 4**	**2,669.286 4**	**0.6620**		**2,683.189 0**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.5326	12.3277	19.0134	0.0301	0.8430	0.1839	1.0269	0.2405	0.1691	0.4096		3,006.842 0	3,006.842 0	0.0240		3,007.346 1
Worker	1.0857	1.3487	12.7345	0.0286	2.4069	0.0181	2.4250	0.6384	0.0166	0.6550		2,389.917 3	2,389.917 3	0.1275		2,392.594 8
Total	**2.6183**	**13.6764**	**31.7479**	**0.0587**	**3.2499**	**0.2020**	**3.4519**	**0.8789**	**0.1857**	**1.0646**		**5,396.759 2**	**5,396.759 2**	**0.1515**		**5,399.940 9**

3.4 Building Construction - 2017

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730		2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**		**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.4004	11.0182	18.0087	0.0300	0.8430	0.1596	1.0026	0.2405	0.1468	0.3873		2,955.9741	2,955.9741	0.0227		2,956.4514
Worker	0.9836	1.2256	11.4613	0.0286	2.4069	0.0175	2.4244	0.6384	0.0161	0.6546		2,297.5541	2,297.5541	0.1180		2,300.0314
Total	**2.3840**	**12.2438**	**29.4700**	**0.0586**	**3.2499**	**0.1771**	**3.4270**	**0.8789**	**0.1629**	**1.0419**		**5,253.5282**	**5,253.5282**	**0.1407**		**5,256.4828**

3.4 Building Construction - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1024	26.4057	18.1291	0.0268		1.7812	1.7812		1.6730	1.6730	0.0000	2,639.8053	2,639.8053	0.6497		2,653.4490
Total	**3.1024**	**26.4057**	**18.1291**	**0.0268**		**1.7812**	**1.7812**		**1.6730**	**1.6730**	**0.0000**	**2,639.8053**	**2,639.8053**	**0.6497**		**2,653.4490**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.4004	11.0182	18.0087	0.0300	0.8430	0.1596	1.0026	0.2405	0.1468	0.3873		2,955.9741	2,955.9741	0.0227		2,956.4514
Worker	0.9836	1.2256	11.4613	0.0286	2.4069	0.0175	2.4244	0.6384	0.0161	0.6546		2,297.5541	2,297.5541	0.1180		2,300.0314
Total	**2.3840**	**12.2438**	**29.4700**	**0.0586**	**3.2499**	**0.1771**	**3.4270**	**0.8789**	**0.1629**	**1.0419**		**5,253.5282**	**5,253.5282**	**0.1407**		**5,256.4828**

3.5 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	89.8476					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3323	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733		281.4481	281.4481	0.0297		282.0721
Total	**90.1799**	**2.1850**	**1.8681**	**2.9700e-003**		**0.1733**	**0.1733**		**0.1733**	**0.1733**		**281.4481**	**281.4481**	**0.0297**		**282.0721**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1981	0.2468	2.3079	5.7600e-003	0.4847	3.5200e-003	0.4882	0.1286	3.2500e-003	0.1318		462.6474	462.6474	0.0238		463.1463
Total	**0.1981**	**0.2468**	**2.3079**	**5.7600e-003**	**0.4847**	**3.5200e-003**	**0.4882**	**0.1286**	**3.2500e-003**	**0.1318**		**462.6474**	**462.6474**	**0.0238**		**463.1463**

3.5 Architectural Coating - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	89.8476					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3323	2.1850	1.8681	2.9700e-003		0.1733	0.1733		0.1733	0.1733	0.0000	281.4481	281.4481	0.0297		282.0721
Total	**90.1799**	**2.1850**	**1.8681**	**2.9700e-003**		**0.1733**	**0.1733**		**0.1733**	**0.1733**	**0.0000**	**281.4481**	**281.4481**	**0.0297**		**282.0721**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1981	0.2468	2.3079	5.7600e-003	0.4847	3.5200e-003	0.4882	0.1286	3.2500e-003	0.1318		462.6474	462.6474	0.0238		463.1463
Total	**0.1981**	**0.2468**	**2.3079**	**5.7600e-003**	**0.4847**	**3.5200e-003**	**0.4882**	**0.1286**	**3.2500e-003**	**0.1318**		**462.6474**	**462.6474**	**0.0238**		**463.1463**

3.6 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9074	20.2964	14.7270	0.0223		1.1384	1.1384		1.0473	1.0473		2,281.058 8	2,281.058 8	0.6989		2,295.736 0
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9074**	**20.2964**	**14.7270**	**0.0223**		**1.1384**	**1.1384**		**1.0473**	**1.0473**		**2,281.058 8**	**2,281.058 8**	**0.6989**		**2,295.736 0**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0504	0.0628	0.5868	1.4700e-003	0.1232	9.0000e-004	0.1241	0.0327	8.3000e-004	0.0335		117.6222	117.6222	6.0400e-003		117.7491
Total	**0.0504**	**0.0628**	**0.5868**	**1.4700e-003**	**0.1232**	**9.0000e-004**	**0.1241**	**0.0327**	**8.3000e-004**	**0.0335**		**117.6222**	**117.6222**	**6.0400e-003**		**117.7491**

3.6 Paving - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9074	20.2964	14.7270	0.0223		1.1384	1.1384		1.0473	1.0473	0.0000	2,281.0588	2,281.0588	0.6989		2,295.7360
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9074**	**20.2964**	**14.7270**	**0.0223**		**1.1384**	**1.1384**		**1.0473**	**1.0473**	**0.0000**	**2,281.0588**	**2,281.0588**	**0.6989**		**2,295.7360**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0504	0.0628	0.5868	1.4700e-003	0.1232	9.0000e-004	0.1241	0.0327	8.3000e-004	0.0335		117.6222	117.6222	6.0400e-003		117.7491
Total	**0.0504**	**0.0628**	**0.5868**	**1.4700e-003**	**0.1232**	**9.0000e-004**	**0.1241**	**0.0327**	**8.3000e-004**	**0.0335**		**117.6222**	**117.6222**	**6.0400e-003**		**117.7491**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Diversity

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.9443	10.8181	57.5758	0.1257	8.7365	0.1515	8.8880	2.3321	0.1398	2.4719		9,610.4389	9,610.4389	0.3930		9,618.6927
Unmitigated	7.1015	11.6760	60.8540	0.1384	9.6693	0.1654	9.8346	2.5811	0.1526	2.7337		10,587.2756	10,587.2756	0.4284		10,596.2711

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High Turnover (Sit Down Restaurant)	4.00	4.00	4.00	3,609	3,261
Research & Development	2,425.50	2,425.50	2425.50	4,393,662	3,969,822
Research & Development	95.35	95.35	95.35	172,720	156,058
Unenclosed Parking with Elevator	0.00	0.00	0.00		
Total	2,524.85	2,524.85	2,524.85	4,569,991	4,129,142

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High Turnover (Sit Down	5.80	5.80	5.80	8.50	72.50	19.00	37	20	43
Research & Development	5.80	5.80	5.80	33.00	48.00	19.00	82	15	3
Research & Development	5.80	5.80	5.80	33.00	48.00	19.00	82	15	3
Unenclosed Parking with	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.513300	0.073549	0.191092	0.130830	0.036094	0.005140	0.012550	0.022916	0.001871	0.002062	0.006564	0.000586	0.003446

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
NaturalGas Mitigated	0.1117	1.0156	0.8531	6.0900e-003		0.0772	0.0772		0.0772	0.0772		1,218.6767	1,218.6767	0.0234	0.0223	1,226.0934
NaturalGas Unmitigated	0.1117	1.0156	0.8531	6.0900e-003		0.0772	0.0772		0.0772	0.0772		1,218.6767	1,218.6767	0.0234	0.0223	1,226.0934

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Research & Development	374.204	4.0400e-003	0.0367	0.0308	2.2000e-004		2.7900e-003	2.7900e-003		2.7900e-003	2.7900e-003		44.0240	44.0240	8.4000e-004	8.1000e-004	44.2919
Research & Development	9519.04	0.1027	0.9332	0.7839	5.6000e-003		0.0709	0.0709		0.0709	0.0709		1,119.8872	1,119.8872	0.0215	0.0205	1,126.7026
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	465.507	5.0200e-003	0.0456	0.0383	2.7000e-004		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		54.7655	54.7655	1.0500e-003	1.0000e-003	55.0988
Total		**0.1117**	**1.0156**	**0.8531**	**6.0900e-003**		**0.0772**	**0.0772**		**0.0772**	**0.0772**		**1,218.6767**	**1,218.6767**	**0.0234**	**0.0223**	**1,226.0934**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0.465507	5.0200e-003	0.0456	0.0383	2.7000e-004		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		54.7655	54.7655	1.0500e-003	1.0000e-003	55.0988
Research & Development	0.374204	4.0400e-003	0.0367	0.0308	2.2000e-004		2.7900e-003	2.7900e-003		2.7900e-003	2.7900e-003		44.0240	44.0240	8.4000e-004	8.1000e-004	44.2919
Research & Development	9.51904	0.1027	0.9332	0.7839	5.6000e-003		0.0709	0.0709		0.0709	0.0709		1,119.8872	1,119.8872	0.0215	0.0205	1,126.7026
Total		**0.1117**	**1.0156**	**0.8531**	**6.0900e-003**		**0.0772**	**0.0772**		**0.0772**	**0.0772**		**1,218.6767**	**1,218.6767**	**0.0234**	**0.0223**	**1,226.0934**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	21.0315	7.4000e-004	0.0797	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1697	0.1697	4.6000e-004		0.1793
Unmitigated	21.0315	7.4000e-004	0.0797	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1697	0.1697	4.6000e-004		0.1793

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	4.4308					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	16.5932					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.5000e-003	7.4000e-004	0.0797	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1697	0.1697	4.6000e-004		0.1793
Total	**21.0315**	**7.4000e-004**	**0.0797**	**1.0000e-005**		**2.9000e-004**	**2.9000e-004**		**2.9000e-004**	**2.9000e-004**		**0.1697**	**0.1697**	**4.6000e-004**		**0.1793**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	4.4308					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	16.5932					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.5000e-003	7.4000e-004	0.0797	1.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004		0.1697	0.1697	4.6000e-004		0.1793
Total	**21.0315**	**7.4000e-004**	**0.0797**	**1.0000e-005**		**2.9000e-004**	**2.9000e-004**		**2.9000e-004**	**2.9000e-004**		**0.1697**	**0.1697**	**4.6000e-004**		**0.1793**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

ATTACHMENT 2

CALINE4 – CO Hot Spot

```
            CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                     JUNE 1989 VERSION
                     PAGE   1

                JOB: C:\Lakes\CALRoads View\Campus_Point_1_Ex
                RUN: CALINE4 RUN      (WORST CASE ANGLE)
          POLLUTANT: Carbon Monoxide

  I.  SITE VARIABLES

       U=   0.5 M/S             Z0= 100. CM            ALT=     0. (M)
     BRG= WORST CASE            VD=  0.0 CM/S
    CLAS=     7 (G)             VS=  0.0 CM/S
    MIXH= 1000. M              AMB=  3.0 PPM
   SIGTH=    5. DEGREES       TEMP=  9.4 DEGREE (C)

  II.  LINK VARIABLES

      LINK       *  LINK COORDINATES (M)   *                 EF     H     W
   DESCRIPTION   *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*-------------------------*------------------------------
 A.  LINK A      * ***** ***** ***** ***** *  AG   2874   9.1    0.0  30.0
 B.  LINK B      * ***** ***** ***** ***** *  AG   2112   5.7    0.0  30.0
 C.  LINK C      * ***** ***** ***** ***** *  AG    945   9.1    0.0  30.0
 D.  LINK D      * ***** ***** ***** ***** *  AG    808   5.7    0.0  30.0
 E.  LINK E      * ***** ***** ***** ***** *  AG    703   9.1    0.0  30.0
 F.  LINK F      * ***** ***** ***** ***** *  AG   1602   5.7    0.0  30.0

 III.  RECEPTOR LOCATIONS

               *    COORDINATES (M)
   RECEPTOR    *    X      Y      Z
 ------------*---------------------
 1. RECPT  1 * 478608 ******   1.8
 2. RECPT  2 * 478647 ******   1.8
 3. RECPT  3 * 478644 ******   1.8
 4. RECPT  4 * 478604 ******   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *           CONC/LINK
             *  BRG  * CONC  *             (PPM)
  RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F
 ------------*-------*-------*------------------------------
 1. RECPT  1 *  167. *   4.6 *  0.4  0.2  0.0  0.2  0.2  0.7
 2. RECPT  2 *  271. *   4.7 *  1.1  0.0  0.1  0.3  0.3  0.0
 3. RECPT  3 *  296. *   5.6 *  1.7  0.3  0.0  0.2  0.0  0.4
 4. RECPT  4 *  301. *   5.2 *  2.0  0.0  0.0  0.2  0.0  0.0

1
EXIT
```

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: C:\Lakes\CALRoads View\Campus_Point_1_Ex
RUN: CALINE4 RUN (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S	Z0= 100. CM	ALT= 0. (M)
BRG= WORST CASE	VD= 0.0 CM/S	
CLAS= 7 (G)	VS= 0.0 CM/S	
MIXH= 1000. M	AMB= 3.0 PPM	
SIGTH= 5. DEGREES	TEMP= 9.4 DEGREE (C)	

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. LINK A	*****	*****	*****	*****	AG	3072	5.4	0.0	30.0
B. LINK B	*****	*****	*****	*****	AG	2372	3.2	0.0	30.0
C. LINK C	*****	*****	*****	*****	AG	1758	5.4	0.0	30.0
D. LINK D	*****	*****	*****	*****	AG	1579	3.2	0.0	30.0
E. LINK E	*****	*****	*****	*****	AG	1280	5.4	0.0	30.0
F. LINK F	*****	*****	*****	*****	AG	2159	3.2	0.0	30.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. RECPT 1	478608	******	1.8
2. RECPT 2	478647	******	1.8
3. RECPT 3	478644	******	1.8
4. RECPT 4	478604	******	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F
1. RECPT 1	166.	4.3	0.3	0.1	0.0	0.2	0.2	0.5
2. RECPT 2	271.	4.3	0.7	0.0	0.1	0.3	0.3	0.0
3. RECPT 3	297.	4.8	1.0	0.2	0.0	0.2	0.0	0.3
4. RECPT 4	24.	4.5	0.7	0.0	0.0	0.2	0.5	0.1

1
EXIT

```
           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   1

               JOB: C:\Lakes\CALRoads View\Campus_Point_8_Ex
               RUN: CALINE4 RUN      (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

        U=   0.5 M/S             Z0= 100. CM            ALT=     0. (M)
      BRG= WORST CASE            VD=  0.0 CM/S
     CLAS=     7 (G)             VS=  0.0 CM/S
     MIXH= 1000. M              AMB=  3.0 PPM
    SIGTH=    5. DEGREES       TEMP=  9.4 DEGREE (C)

  II.  LINK VARIABLES

      LINK      *  LINK COORDINATES (M)   *              EF     H     W
   DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ---------------*-------------------------*------------------------------
 A.  LINK A     * ***** ***** ***** ***** *  AG   1196   9.1    0.0  30.0
 B.  LINK B     * ***** ***** ***** ***** *  AG   1600   5.7    0.0  30.0
 C.  LINK C     * ***** ***** ***** ***** *  AG   1861   9.1    0.0  30.0
 D.  LINK D     * ***** ***** ***** ***** *  AG   1758   5.7    0.0  30.0
 E.  LINK E     * ***** ***** ***** ***** *  AG    648   9.1    0.0  30.0
 F.  LINK F     * ***** ***** ***** ***** *  AG    579   5.7    0.0  30.0
 G.  LINK G     * ***** ***** ***** ***** *  AG   1934   9.1    0.0  30.0
 H.  LINK H     * ***** ***** ***** ***** *  AG   1702   5.7    0.0  30.0

 III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
   RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. RECPT  1 * 479953 ******   1.8
 2. RECPT  2 * 479996 ******   1.8
 3. RECPT  3 * 479996 ******   1.8
 4. RECPT  4 * 479953 ******   1.8

1

           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   2

               JOB: C:\Lakes\CALRoads View\Campus_Point_8_Ex
               RUN: CALINE4 RUN      (WORST CASE ANGLE)
```

POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. RECPT 1	82.	5.7	0.0	0.3	1.3	0.2	0.0	0.1	0.8	0.0
2. RECPT 2	245.	5.3	0.4	0.0	0.6	0.6	0.0	0.2	0.6	0.0
3. RECPT 3	344.	5.0	0.0	0.4	0.5	0.0	0.1	0.2	0.8	0.0
4. RECPT 4	7.	5.5	0.5	0.0	0.0	0.3	0.0	0.1	1.2	0.4

1
EXIT

```
          CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                   JUNE 1989 VERSION
                   PAGE   1

              JOB: C:\Lakes\CALRoads View\Campus_Point_8_Ex
              RUN: CALINE4 RUN      (WORST CASE ANGLE)
        POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

        U=   0.5 M/S             Z0= 100. CM            ALT=     0. (M)
      BRG= WORST CASE            VD=  0.0 CM/S
     CLAS=     7 (G)             VS=  0.0 CM/S
     MIXH= 1000. M              AMB=  3.0 PPM
    SIGTH=    5. DEGREES       TEMP=  9.4 DEGREE (C)

  II.  LINK VARIABLES

      LINK       *  LINK COORDINATES (M)   *                 EF     H     W
   DESCRIPTION   *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
-----------------*-------------------------*-----------------------------
A.  LINK A       * ***** ***** ***** ***** *  AG   1690   5.4    0.0  30.0
B.  LINK B       * ***** ***** ***** ***** *  AG   2215   3.2    0.0  30.0
C.  LINK C       * ***** ***** ***** ***** *  AG   2518   5.4    0.0  30.0
D.  LINK D       * ***** ***** ***** ***** *  AG   2209   3.2    0.0  30.0
E.  LINK E       * ***** ***** ***** ***** *  AG   1007   5.4    0.0  30.0
F.  LINK F       * ***** ***** ***** ***** *  AG    895   3.2    0.0  30.0
G.  LINK G       * ***** ***** ***** ***** *  AG   2595   5.4    0.0  30.0
H.  LINK H       * ***** ***** ***** ***** *  AG   2491   3.2    0.0  30.0

III.  RECEPTOR LOCATIONS

            *    COORDINATES (M)
  RECEPTOR  *    X      Y      Z
------------*---------------------
1. RECPT  1 * 479953 ******   1.8
2. RECPT  2 * 479996 ******   1.8
3. RECPT  3 * 479996 ******   1.8
4. RECPT  4 * 479953 ******   1.8

1

          CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                   JUNE 1989 VERSION
                   PAGE   2

              JOB: C:\Lakes\CALRoads View\Campus_Point_8_Ex
              RUN: CALINE4 RUN      (WORST CASE ANGLE)
```

POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. RECPT 1	82.	5.1	0.0	0.2	1.0	0.2	0.0	0.1	0.6	0.0
2. RECPT 2	243.	4.8	0.4	0.0	0.5	0.4	0.0	0.1	0.4	0.0
3. RECPT 3	344.	4.6	0.0	0.3	0.4	0.0	0.1	0.2	0.6	0.0
4. RECPT 4	7.	4.9	0.4	0.0	0.0	0.2	0.0	0.1	1.0	0.3

1
EXIT

APPENDIX J

Noise Analysis

RECON

Noise Analysis for the Campus Point Project San Diego, California

Prepared for
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Contact: Steven Schrader

Prepared by
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P 619.308.9333 F 619.308.9334
RECON Number 5230-2
November 30, 2015

Jessica Fleming, Air Quality and Noise Specialist

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FIGURES

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TABLES

ATTACHMENTS

Executive Summary

The proposed Campus Point project is located at 10290 and 10300 Campus Point Drive in San Diego, California. The 58.2-acre project site is bound by Campus Point Drive to the east; open space to the northeast, north, and to the west; and research facilities to the south.

The project site currently contains a two-story, 463,791-square-foot multi-tenant building used for scientific research as well as a 267,934-square-foot scientific research building which is currently undergoing tenant improvements. The project would add a third scientific research structure to the site. The building would be 10 stories with a total of 315,000 square feet of scientific research space plus one 31,500-square-footf subterranean level. The project also proposes a 13,383-square-foot building which would house "AlexHaus," a brewery with a kitchen and restaurant as well as a retail component on the first floor. The second floor of the AlexHaus building would include a greenhouse, conference room, mechanical/storage space, and a clubhouse. A new six-level parking structure would be constructed along the southern boundary of the project site which would accommodate a total of 1,500 parking stalls. Other proposed site improvements include a soccer field and a reconfiguration of the main "boulevard" which provides circulation through the southern portion of the project site.

This report discusses potential noise impacts from future vehicle traffic on Interstate 5 (I-5), Genesee Drive, Campus Point Drive, and operational and construction noise impacts to adjacent receivers. Measures are identified as needed to comply with the City's noise standards.

Traffic Noise

The exterior noise and land use compatibility level for research and development uses is a community noise equivalent level (CNEL) of 75 decibels (dB). Exterior traffic noise levels were calculated at the open space areas and at the building façades. Exterior noise levels at these areas are not projected to exceed 75 CNEL, thus exterior noise impacts would be less than significant.

The interior threshold for commercial/research structures is 50 CNEL. The project is designed to achieve Leadership in Energy and Environmental Design Gold certification. This certification would require several energy- and insulation-efficient measures to be included in the design of the structures. Therefore, it was assumed that the project design would include masonry construction with double-glazed windows. Typical tilt-up concrete or masonry construction with double-glazed windows would result in a minimum of 35 dB noise level reduction from exterior sources to interior locations (Federal Highway Administration 2011). The highest exterior noise levels are projected to be less than 75 CNEL at the façade of the proposed buildings. Thus, interior noise levels would not exceed 40 CNEL, and would comply with the City's interior standard of 55 CNEL for office uses.

On-site Generated Noise

The project would include stationary sources of noise such as the parking garage, mechanical equipment, and loading docks. The applicable noise limits between the project site and the neighboring industrial area is 75 dB(A) L_{eq} at any time of the day. Noise levels were also modeled for a series of 16 specific receiver locations along the project site property line. As calculated in this analysis, on-site generated noise levels are projected to be less than applicable noise ordinance standards.

Construction Noise

Noise due to construction of the proposed project would not exceed the limits of the City's Noise Abatement and Control Ordinance. Additionally, construction of the project would only occur between the hours of 7:00 a.m. and 7:00 p.m., Monday through Saturday, and thus would comply with local standards and regulations. Because construction activities associated with the project would comply with the applicable regulation for construction, temporary increases in noise levels from construction activities would be less than significant.

Sensitive Habitat

Operational noise levels are not anticipated to exceed 60 A-weighted decibels average sound level [dB(A) L_{eq}] at the property line. Operational noise levels within the Multi-Habitat Planning Area (MHPA) adjacent to the project site would be less than significant.

As discussed in the Biological Resources Report prepared for the project, noise generated during project construction may result in indirect impacts to coastal California gnatcatcher habitat within the MHPA. A construction noise level of 82 dB(A) L_{eq} at 50 feet would attenuate to 60 dB(A) L_{eq} at approximately 650 feet. If construction were to occur within 650 feet of an occupied habitat within the MHPA during the breeding season, indirect impacts to coastal California gnatcatcher inside of the MHPA from construction noise would be considered significant. The mitigation outlined in Section 6.4 would be required to reduce this impact to less than significant.

1.0 Introduction

1.1 Project Description

The 58.2-acre project site is bound by Campus Point Drive to the east; open space to the northeast, north, and to the west; and research facilities to the south. The project site is located within the University Community Planning Area of San Diego. Figure 1 shows the regional location of the project. Figure 2 shows an aerial photograph of the project vicinity. Figure 3 shows the proposed site plan for the project.

The proposed project would increase the density of the 58.2-acre Campus Pointe site, which currently contains a two-story, 463,791-square-foot multi-tenant building used for scientific research (referred to as “CP1”) as well as a 267,934-square-foot scientific research building which is currently undergoing tenant improvements (“CP2”). Both of these existing buildings have utility structures associated with them, 9,044 square feet and 7,310 square feet, respectively. The utility structures are roofed but are not normally occupied.

The proposed project would add a third scientific research structure to the site (“CP3”). The CP3 building would be 10 levels with a total of 315,000 square feet of scientific research space plus one 31,500-square-foot subterranean level. The project also proposes a 13,383-square-foot building east of CP3 which would house “AlexHaus,” a brewery with a kitchen and restaurant as well as a retail component on the first floor. The second floor of the AlexHaus building would include a greenhouse, conference room, mechanical/storage space, and a clubhouse.

A new six-level parking structure would be constructed along the southern boundary of the project site which would accommodate a total of 1,500 parking stalls. Other proposed site improvements include a soccer field and a reconfiguration of the main “boulevard” which provides circulation through the southern portion of the project site. At full buildout, there would be a total of 1,060,108 square feet of scientific research space (including the two existing buildings); parking spaces would peak at 2,973 for the site, for an overall parking ratio of 2.8 spaces per 1,000 square feet.

This report analyzes transportation noise impacts to the proposed uses as well as noise impacts to neighboring commercial uses and sensitive bird species from construction activity. Impacts are assessed in accordance with the guidelines, policies, and standards established by the City of San Diego. Measures are recommended, as required, to reduce significant impacts.

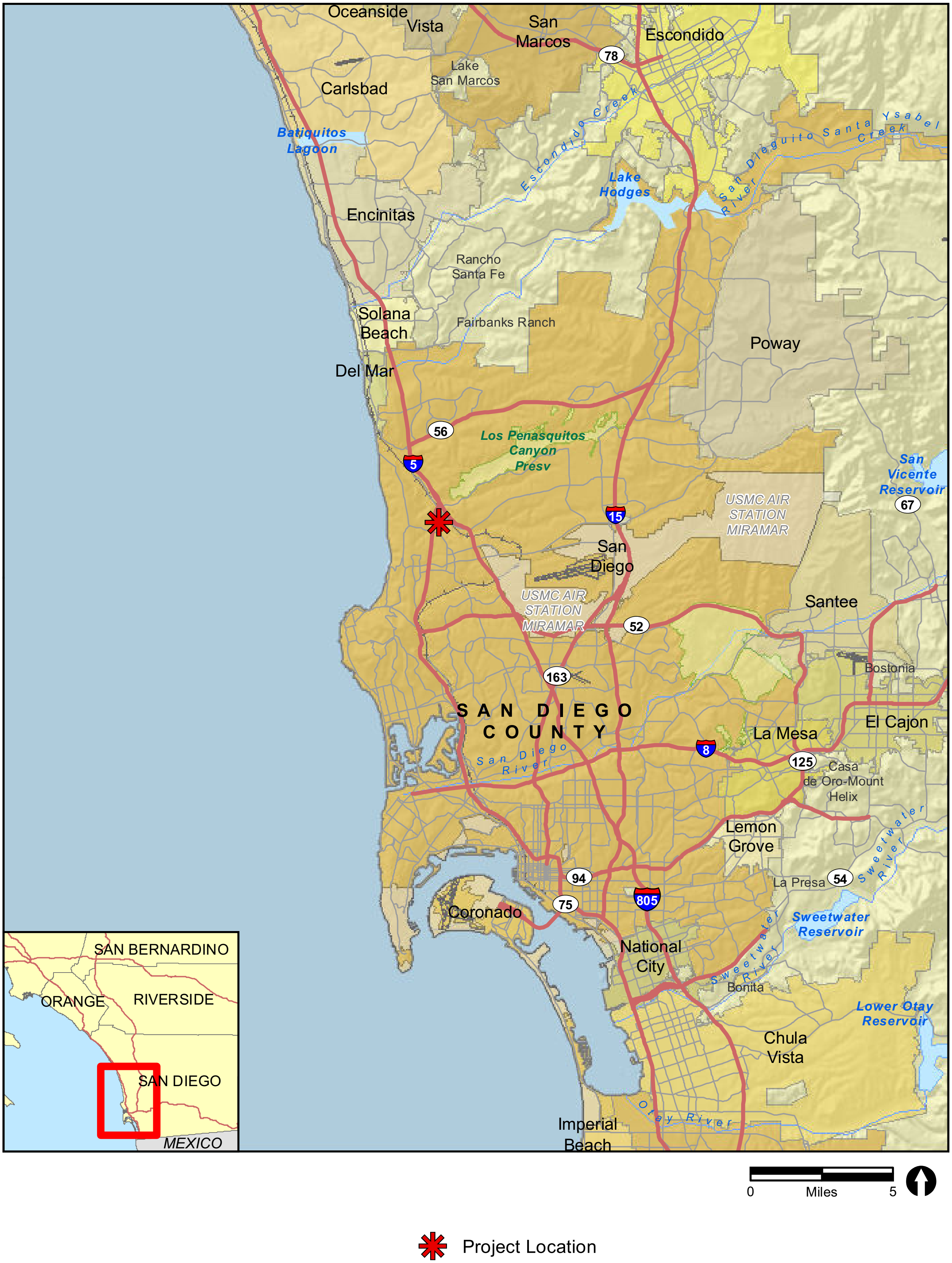

FIGURE 1

Regional Location

RECON

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Image Source: USDA FSA (flown June 2014)

Project Site

Off-site Improvement Area

Noise Measurement Location

0 Feet 400

FIGURE 2

Aerial Photograph of Project Vicinity and Noise Measurement Locations

RECON

M:\JOBS3\5230\common_gis\fig2_nos.mxd 11/24/2015 ccn

Map Source: Gensler

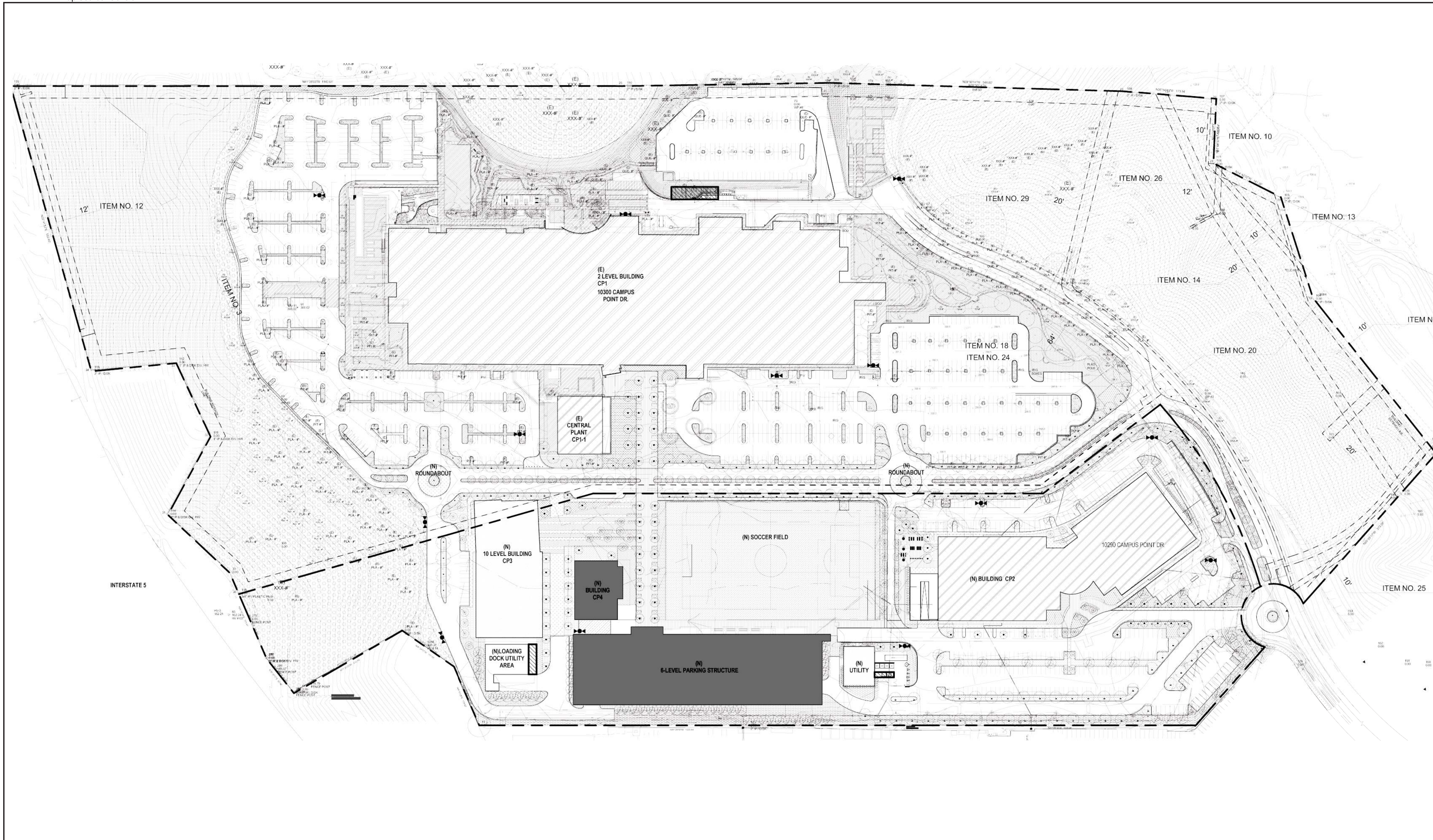

FIGURE 3
Proposed Site Plan

RECON

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1.2 Fundamentals of Noise

Sound levels are described in units called the decibel (dB). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the energy would result in a 3 dB decrease.

Additionally, in technical terms, sound levels are described as either a “sound power level” or a “sound pressure level,” which while commonly confused are two distinct characteristics of sound. Both share the same unit of measure, the dB. However, sound power, expressed as L_{pw}, is the energy converted into sound by the source. The L_{pw} is used to estimate how far a noise will travel and to predict the sound levels at various distances from the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers such as an ear drum or microphone and is the sound pressure level. Noise measurement instruments only measure sound pressure, and noise level limits used in standards are generally sound pressure levels.

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale, which approximates the frequency response of the average young ear when listening to most ordinary everyday sounds, was devised. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Therefore, the “A-weighted” noise scale is used for measurements and standards involving the human perception of noise. Noise levels using A-weighted measurements are designated with the notation dB(A).

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. The noise descriptors used for this study are the 1-hour equivalent noise level (L_{eq}) and the community noise equivalent level (CNEL).

The L_{eq} is the average A-weighted decibel [dB(A)] sound level over a one-hour period. The CNEL is a 24-hour A-weighted average sound level [dB(A) L_{eq}] from midnight to midnight obtained after the addition of 5 decibels (dB) to sound levels occurring between 7:00 p.m. and 10:00 p.m., and 10 dB to sound levels occurring between 10:00 p.m. and 7:00 a.m. A-weighting is a frequency correction that often correlates well with the subjective response of humans to noise. Adding 5 dB and 10 dB to the evening and nighttime hours, respectively, accounts for the added sensitivity of humans to noise during these time periods.

Sound from a small localized source (approximating a “point” source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level decreases or drops off at a rate of 6 dB(A) for each doubling of the distance.

Traffic noise is not a single, stationary point source of sound. The movement of vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point when viewed over some time interval. The drop-off rate for a line source is 3 dB(A) for each doubling of distance.

The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site (such as parking lots or smooth bodies of water) receives no additional ground attenuation, and the changes in noise levels with distance (drop-off rate) are simply the geometric spreading of the source. A soft site (such as soft dirt, grass, or scattered bushes and trees) receives an additional ground attenuation value of 1.5 dB(A) per doubling of distance. Thus, a point source over a soft site would attenuate at 7.5 dB(A) per doubling of distance.

Human perception of noise has no simple correlation with acoustical energy. A change in noise levels is generally perceived as follows: 3 dB(A) barely perceptible, 5 dB(A) readily perceptible, and 10 dB(A) perceived as a doubling or halving of noise (California Department of Transportation [Caltrans] 2013).

2.0 Existing Conditions

Existing noise levels at the project site were measured on March 21, 2013, using a Larson-Davis Model 820 Type 1 Integrating Sound Level Meter, serial number 1825. The following parameters were used:

Filter:	A-weighted
Response:	Slow
Time History Period:	5 seconds

The meter was calibrated before the day's measurements. Four ground-floor measurements (5 feet above the ground) were taken.

As shown on Figure 2, there is one existing building on-site along with large paved parking lots; the northern, northeastern, and western perimeter primarily consists of grass, scattered bushes, and trees. Additional parking lots and scientific research buildings are located to the south. Campus Point Drive is located to the east. Vegetation and Interstate 5 (I-5) are located to the west.

Noise measurements were taken on the project site to obtain existing ambient noise levels. The weather was warm and partly cloudy with a slight breeze. A total of four 20-minute measurements were made on the project site, as described below. The primary source of on-site noise was due to traffic on I-5, Interstate 805, and Campus Point Drive. The locations of the measurements are shown on Figure 2, and the noise measurement data are contained in Attachment 1.

Measurement 1 was located at the eastern portion of the project site approximately 50 feet from the edge of Campus Point Drive. The main noise source at this location was vehicle traffic on Campus Point Drive. Traffic volumes were counted on Campus Point Drive, and the results are shown in Table 1. The average measured noise level during Measurement 1 was 56.1 dB(A) L_{eq}.

TABLE 1
20-MINUTE TRAFFIC COUNTS

Measurement	Roadway	Direction	Autos	Medium Trucks	Heavy Trucks	Motor-cycles	Buses
1	Campus Point Drive	Northbound	1	3	0	0	0
1	Campus Point Drive	Southbound	2	3	0	0	0

NOTE: Traffic not counted during Measurements 2-4.

Measurement 2 was located at the southwestern portion of the project. The measurement was located at the top of a large slope overlooking I-5 to the west. The main noise source at this location was vehicle traffic on I-5. During the measurement period, traffic was moving freely on I-5. The average measured noise level during Measurement 2 was 68.5 dB(A) L_{eq}.

Measurement 3 was located at the western portion of project. The measurement was located at the top of a large slope overlooking I-5 to the west. The main noise source at this location was vehicle traffic on I-5. During the measurement period, traffic was moving freely on I-5. The average measured noise level during Measurement 3 was 72.1 dB(A) L_{eq}.

Measurement 4 was located at the northern property boundary. The measurement was located in the vegetation near the parking lot at the north end of the project site. Construction was occurring to the southwest of the measurement. The main source of noise was construction. The average measured noise level during Measurement 4 was 58.9 dB(A) L_{eq}.

3.0 Applicable Standards

3.1 General Plan

The City's Noise Element of the General Plan specifies compatibility standards for different categories of land use. The noise-land use compatibility guidelines are intended to be used for future development within San Diego to prevent future incompatibilities. The City's land use/noise compatibility guidelines are shown in Table 2. As shown, research and development uses are compatible with noise levels up to 65 CNEL and conditionally compatible with noise levels up to 75 CNEL. The interior noise standard for research and development uses is 50 CNEL.

TABLE 2
CITY OF SAN DIEGO NOISE AND LAND USE COMPATIBILITY GUIDELINES

Land Use Category	Exterior Noise Exposure [dB(A) CNEL]				
	60	65	70	75	
Open Space, Parks, and Recreational[1]					
Community and Neighborhood Parks; Passive Recreation	Compatible	Conditionally Compatible	Incompatible	Incompatible	Incompatible
Regional Parks; Outdoor Spectator Sports, Golf Courses; Athletic Fields; Water Recreational Facilities; Horse Stables; Park Maintenance Facilities	Compatible	Compatible	Conditionally Compatible	Incompatible	Incompatible
Agricultural					
Crop Raising and Farming; Aquaculture, Dairies; Horticulture Nurseries and Greenhouses; Animal Raising, Maintaining and Keeping; Commercial Stables	Compatible	Compatible	Compatible	Conditionally Compatible	Incompatible
Residential					
Single Units; Mobile Homes; Senior Housing	Compatible	Conditionally Compatible 45	Incompatible	Incompatible	Incompatible
Multiple Units; Mixed-Use Commercial/Residential; Live Work; Group Living Accommodations	Compatible	Conditionally Compatible 45	Conditionally Compatible 45	Incompatible	Incompatible
Institutional					
Hospitals; Nursing Facilities; Intermediate Care Facilities; Kindergarten through Grade 12 Educational Facilities; Libraries; Museums; Places of Worship; Child Care Facilities	Compatible	Conditionally Compatible 45	Incompatible	Incompatible	Incompatible
Vocational or Professional Educational Facilities; Higher Education Institution Facilities (Community or Junior Colleges, Colleges, or Universities)	Compatible	Compatible 45	Compatible 45	Incompatible	Incompatible
Cemeteries	Compatible	Compatible	Compatible	Conditionally Compatible	Incompatible
Sales					
Building Supplies/Equipment; Food, Beverage, and Groceries; Pets and Pet Supplies; Sundries, Pharmaceutical, and Convenience Sales; Wearing Apparel and Accessories	Compatible	Compatible	Conditionally Compatible 50	Conditionally Compatible 50	Incompatible
Commercial Services					
Building Services; Business Support; Eating and Drinking; Financial Institutions; Assembly and Entertainment; Radio and Television Studios; Golf Course Support	Compatible	Compatible	Conditionally Compatible 50	Conditionally Compatible 50	Incompatible
Visitor Accommodations	Compatible	Conditionally Compatible 45	Conditionally Compatible 45	Conditionally Compatible 45	Incompatible
Offices					
Business and Professional; Government; Medical, Dental, and Health Practitioner; Regional and Corporate Headquarters	Compatible	Compatible	Conditionally Compatible 50	Conditionally Compatible 50	Incompatible
Vehicle and Vehicular Equipment Sales and Services Use					
Commercial or Personal Vehicle Repair and Maintenance; Commercial or Personal Vehicle Sales and Rentals; Vehicle Equipment and Supplies Sales and Rentals; Vehicle Parking	Compatible	Compatible	Conditionally Compatible	Conditionally Compatible	Incompatible
Wholesale, Distribution, Storage Use Category					
Equipment and Materials Storage Yards; Moving and Storage Facilities; Warehouse; Wholesale Distribution	Compatible	Compatible	Conditionally Compatible	Conditionally Compatible	Incompatible
Industrial					
Heavy Manufacturing; Light Manufacturing; Marine Industry; Trucking and Transportation Terminals; Mining and Extractive Industries	Compatible	Compatible	Conditionally Compatible	Conditionally Compatible	Incompatible
Research and Development	Compatible	Compatible	Conditionally Compatible	Conditionally Compatible 50	Incompatible

Compatible	Indoor Uses	Standard construction methods should attenuate exterior noise to an acceptable indoor noise level.
	Outdoor Uses	Activities associated with the land use may be carried out.
Conditionally Compatible	Indoor Uses	Building structure must attenuate exterior noise to the indoor noise level indicated by the number for occupied areas.
	Outdoor Uses	Feasible noise mitigation techniques should be analyzed and incorporated to make the outdoor activities acceptable.
Incompatible	Indoor Uses	New construction should not be undertaken.
	Outdoor Uses	Severe noise interference makes outdoor activities unacceptable.

SOURCE: City of San Diego 2008.

3.2 Noise Abatement and Control Ordinance

3.2.1 On-Site Generated Noise

Section 59.5.0401 of the City's Noise Abatement and Control Ordinance states that:

A. It shall be unlawful for any person to cause noise by any means to the extent that the one-hour average sound level exceeds the applicable limit.

B. The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts…

The applicable noise limits are summarized in Table 3.

TABLE 3
APPLICABLE NOISE LEVEL LIMITS

Land Use	Time of Day	One-Hour Average Sound Level [dB(A) L_{eq}]
Single-Family Residential	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	50 45 40
Multi-Family Residential (up to a maximum density of 1 unit/2,000 square feet)	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	55 50 45
All Other Residential	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	60 55 50
Commercial	7:00 a.m. to 7:00 p.m. 7:00 p.m. to 10:00 p.m. 10:00 p.m. to 7:00 a.m.	65 60 60
Industrial or Agricultural	Anytime	75

The project site and the properties located to the south and west are both zoned Industrial Park IP-1-1. The IP-1-1 zone allows for research and development uses with some limited manufacturing. The properties to the west and northwest and zoned Industrial – Light (IL-3-1), which allows for a wide range of manufacturing and distribution activities.

The applicable noise limits between the project site and the neighboring industrial area is 75 dB(A) L_{eq} any time of the day.

3.2.2 Construction Noise

Section 59.5.0404 of the City's Noise Abatement and Control Ordinance states that:

A. It shall be unlawful for any person, between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified in

Section 21.04 of the San Diego Municipal Code, with exception of Columbus Day and Washington's Birthday, or on Sundays, to erect, construct, demolish, excavate for, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise. . . .

B. . . . it shall be unlawful for any person, including the City of San Diego, to conduct any construction activity so as to cause, at or beyond the property lines of any property zoned residential, an average sound level greater than 75 decibels during the 12-hour period from 7:00 a.m. to 7:00 p.m.

3.3 Sensitive Habitat

Construction may result in indirect impacts on listed and sensitive bird species within adjacent habitats due to noise levels generated by construction equipment. The U.S. Fish and Wildlife Service and other resource agencies, such as the U.S. Army Corps of Engineers and California Department of Fish and Wildlife, require limitation of noise levels to the habitats of threatened and endangered noise-sensitive bird species, such as coastal California gnatcatcher (*Polioptila californica californica*), and raptors/birds of prey, such as western burrowing owl (*Athene cunicularia hypugaea*) during their breeding seasons. In San Diego, the noise levels generated by a proposed project shall not exceed 60 dB(A) L_{eq} at the designated habitat or a known nesting site (City of San Diego 2012). Where the existing ambient noise level exceeds 60 dB(A) L_{eq}, the project noise level would be limited to less than or equal to the existing ambient noise level. For occupied habitat within the Multi-Habitat Planning Area (MHPA), construction or operational noise levels exceeding 60 dB(A) L_{eq} (or existing ambient noise level if already above 60 dB(A) L_{eq}) during the breeding season is considered significant.

4.0 Analysis Methodology

4.1 Traffic Noise Analysis

Noise generated by future traffic was modeled using SoundPLAN. The SoundPLAN program (Navcon Engineering 2015) uses the Federal Highway Administration's Traffic Noise Model algorithms and reference levels to calculate noise levels at selected receiver locations. The model uses various input parameters, such as projected hourly average traffic rates; vehicle mix, distribution, and speed; roadway lengths and gradients; distances between sources, barriers, and receivers; and shielding provided by intervening terrain, barriers, and structures. Receivers, roadways, and barriers were input into the model using three-dimensional coordinates. The locations of future buildings were obtained from project plans and drawings.

The main source of traffic noise at the project site is I-5. Traffic noise is also generated on Genesee Avenue and Campus Point Drive. Calculations were completed for a peak traffic hour. Peak hour traffic volumes for Campus Point Drive and Genesee Avenue were calculated as 10 percent of the total average daily traffic (ADT). Peak hour volumes for I-5 were obtained from the project traffic impact analysis. Peak hour traffic noise levels were assumed to be equivalent to the CNEL.

Existing and future (year 2035) traffic volumes on I-5, Campus Point Drive, and Genesee Avenue were obtained from the project traffic impact analysis prepared for the proposed project (Urban Systems Associates 2015). Peak hour traffic volumes for I-5 were also obtained from the traffic impact analysis.

In San Diego County, I-5 is generally an eight-lane, north-south freeway. It is the main highway on the west coast and extends from the Canadian/United States border to the Mexico/United States border. The freeway segment adjacent to the project consists of eight general purpose travel lanes and two high-occupancy vehicle (HOV) lanes with a posted speed limit of 65 miles per hour (mph).

The vehicle classification mix for the I-5 was developed from Caltrans traffic operations data and truck counts for freeway segments north and south of the adjacent segment, which were averaged to determine the percentage of automobiles, medium trucks, and heavy trucks from the total volume. Based on this data, the I-5 has a current traffic vehicle classification mix of 95.9 percent autos, 2.8 percent medium trucks, and 1.3 percent heavy trucks (Caltrans 2011). This vehicle classification mix was used for modeling traffic noise levels from I-5.

Within the study area, Campus Point Drive is currently constructed as a four-lane, undivided roadway with a posted speed limit of 35 mph. Campus Point Drive has a future (year 2035) traffic volume of 8,524 ADT north of Campus Point Court. Within the study area, Genesee Avenue is currently constructed as a four-lane, divided roadway with a posted speed limit of 45 mph. Genesee Avenue has a future (year 2035) traffic volume of 43,884 to 54,532 ADT between the southbound I-5 ramps and Campus Point Drive. Ten percent of the ADT was assumed to be the peak vehicles per hour (VPH). The traffic mix assumed for I-5 was also assumed for Campus Point Drive and Genesee Avenue.

Table 4 summarizes the traffic parameters used in this analysis.

TABLE 4
YEAR 2035 ROADWAY TRAFFIC PARAMETERS

Roadway/ Freeway	Segment	2035 ADT	2035 VPH	Traffic Mix (VPH) Automobiles	Medium Trucks	Heavy Trucks	Speed (mph)
Campus Point Drive	North of Campus Point Court	8,524	852	817	23	11	35
Genesee Avenue	I-5 SB Ramp to I-5 NB Ramp	54,532	5,453	5,230	150	74	45
	I-5 NB Ramp to Scripps Hospital Driveway	54,187	5,419	5,197	149	73	
	Scripps Hospital Driveway to Campus Point Drive	43,884	4,388	4,208	121	59	
I-5	Northbound	--	12,746	12,223	351	172	65
	Southbound	--	12,269	11,766	338	165	

Ground floor vehicle traffic contours across the project site were calculated using SoundPLAN. Exterior traffic noise levels were calculated at the open space areas and at the building facades.

4.2 On-site Generated Noise Analysis

The noise sources on-site would be the parking garage, mechanical equipment, and loading docks. Noise levels due to on-site sources were modeled using SoundPLAN (Navcon Engineering 2015). The SoundPLAN program models noise propagation following the International Organization for Standardization method *ISO 9613-2 – Acoustics, Attenuation of Sound during Propagation Outdoors*. The model calculates noise levels at selected receiver locations using input parameter estimates such as total noise generated by each noise source, distances between sources, barriers, and receivers; and shielding provided by intervening terrain, barriers, and structures.

4.3 Construction Noise Analysis

Project construction noise would be generated by diesel engine-driven construction equipment used for site preparation and grading, removal of existing structures and pavement, loading, unloading, and placing materials and paving. Diesel engine-driven trucks also would bring materials to the site and remove the soils from excavation.

Construction equipment with a diesel engine typically generates maximum noise levels from 80 to 90 dB(A) L_{eq} at a distance of 50 feet (Federal Transit Administration 2006). Table 5 summarizes typical construction equipment noise levels.

TABLE 5
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

Equipment	Noise Level at 50 Feet [dB(A) L_{eq}]
Air Compressor	81
Backhoe	80
Compactor	82
Concrete Mixer	85
Crane, Derrick	88
Dozer	85
Grader	85
Jack Hammer	88
Loader	85
Paver	89
Pump	76
Roller	74
Scraper	89
Truck	88

SOURCE: Federal Transit Administration 2006.

During excavating, grading, and paving operations, equipment moves to different locations and goes through varying load cycles, and there are breaks for the operators and for non-equipment tasks, such as measurement. Although maximum noise levels may be 85 to 90 dB(A) at a distance of 50 feet during most construction activities, hourly average noise levels from the grading phase of construction would be 82 dB(A) L_{eq} at 50 feet from the center of construction activity when assessing the loudest pieces of equipment working simultaneously. Construction noise is considered a point source and would attenuate at approximately 6 dB(A) for every doubling of distance.

5.0 Future Acoustical Environment and Impacts

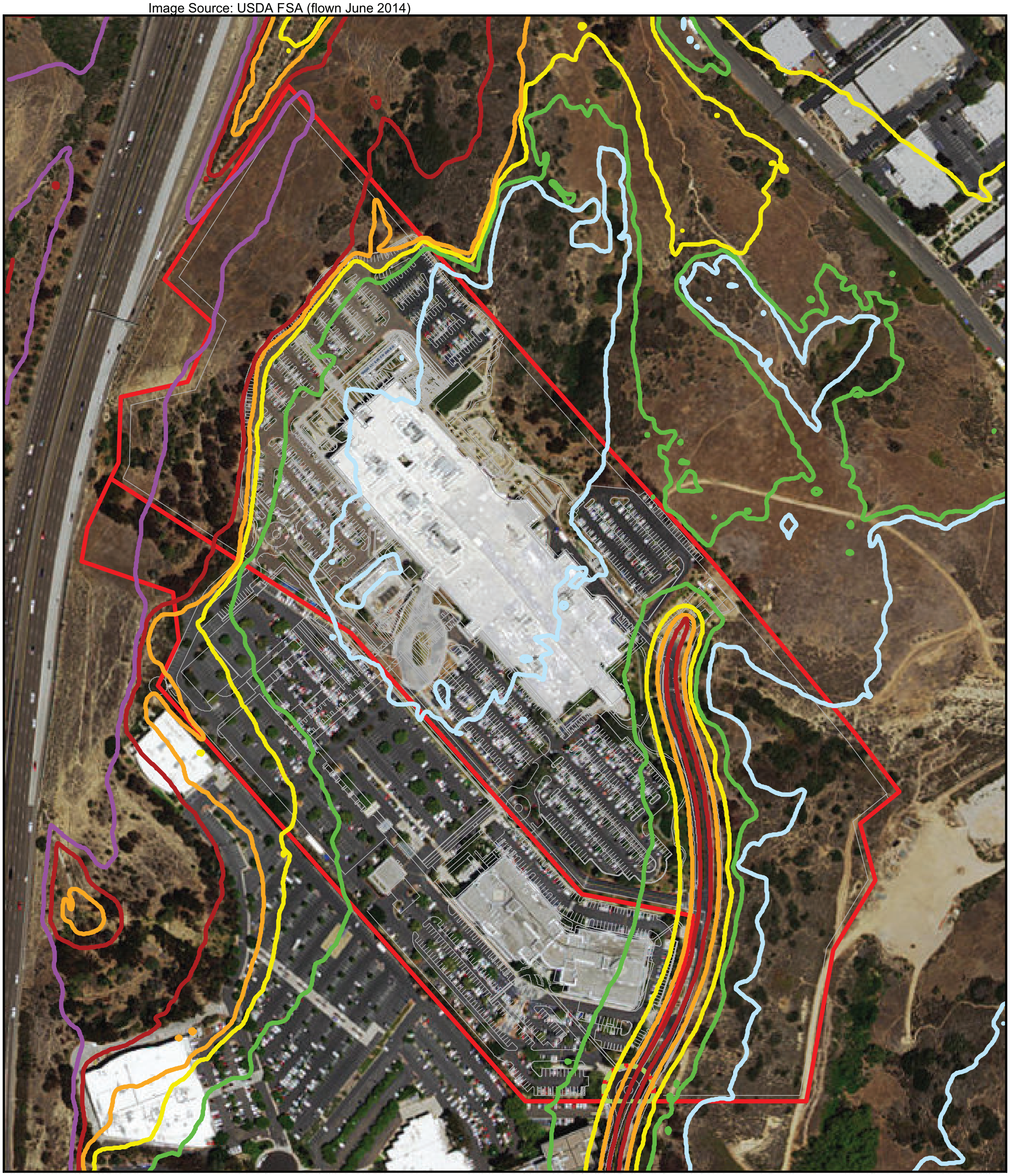
The methods used in the analysis of future conditions are described in the Analysis Methodology section of this report.

5.1 Traffic Noise

5.1.1 On-Site

Traffic noise contours were developed using the SoundPLAN program. Noise level contours are shown in Figure 4. These contours take into account topography but do not take into account shielding provided by proposed buildings. SoundPLAN data are contained in Attachment 2. As shown, exterior noise levels at the existing and proposed buildings are not projected to exceed 65 CNEL.

Image Source: USDA FSA (flown June 2014)



Project Parcels
Off-site Improvement Area
Site Plan

Future Noise Contours
50
55
60
65
70
75

0 Feet 350

FIGURE 4

Future Vehicle Traffic Noise Contours

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Exterior noise levels were also modeled at a series of ground floor and building façade receivers to determine compliance with the City's exterior noise compatibility standard of 75 CNEL and the interior compatibility standard of 50 CNEL. Noise levels take into account topography.

Modeled receiver locations are shown in Figure 5. Table 6 summarizes the projected future noise levels at the 26 modeled receivers. As shown, exterior noise levels at the project site and the exterior use areas are not projected to exceed the City's compatibility level of 75 CNEL. Exterior noise impacts would be less than significant.

TABLE 6
FUTURE EXTERIOR NOISE LEVELS

	CNEL									
Receiver	1st Floor	2nd Floor	3rd Floor	4th Floor	5th Floor	6th Floor	7th Floor	8th Floor	9th Floor	10th Floor
1	55	58	66	69	70	71	72	73	74	74
2	62	66	67	69	70	71	72	73	74	75
3	56	--	--	--	--	--	--	--	--	--
4	46	49	58	60	62	62	63	64	65	67
5	47	49	50	52	53	57	61	63	64	66
6	63	--	--	--	--	--	--	--	--	--
7	52	--	--	--	--	--	--	--	--	--
8	42	--	--	--	--	--	--	--	--	--
9	47	--	--	--	--	--	--	--	--	--
10	49	--	--	--	--	--	--	--	--	--
11	48	--	--	--	--	--	--	--	--	--
12	48	49	51	--	--	--	--	--	--	--
13	54	55	56	--	--	--	--	--	--	--
14	56	58	59	--	--	--	--	--	--	--
15	59	61	62	--	--	--	--	--	--	--
16	51	52	54	--	--	--	--	--	--	--
17	47	49	50	--	--	--	--	--	--	--
18	54	56	--	--	--	--	--	--	--	--
19	45	46	--	--	--	--	--	--	--	--
20	47	46	--	--	--	--	--	--	--	--
21	48	50	--	--	--	--	--	--	--	--
22	52	54	--	--	--	--	--	--	--	--
23	51	53	--	--	--	--	--	--	--	--
24	46	47	--	--	--	--	--	--	--	--
25	45	46	--	--	--	--	--	--	--	--
26	47	48	--	--	--	--	--	--	--	--

The interior noise level standard for research and development uses is 50 CNEL. As shown in Table 6, exterior noise levels are projected to range from 42 to 75 CNEL. Standard masonry construction would provide 25 dB exterior to interior noise level reduction (FHWA 2011). A 25 dB reduction would result in interior noise levels that would be 50 CNEL or less. However, the project is designed to achieve Leadership in Energy and Environmental Design certification and would likely achieve even greater reduction. This certification would require several energy- and insulation-efficiency measures to be included in the design of the structures. Therefore, it

Image Source: USDA FSA (flown June 2014)

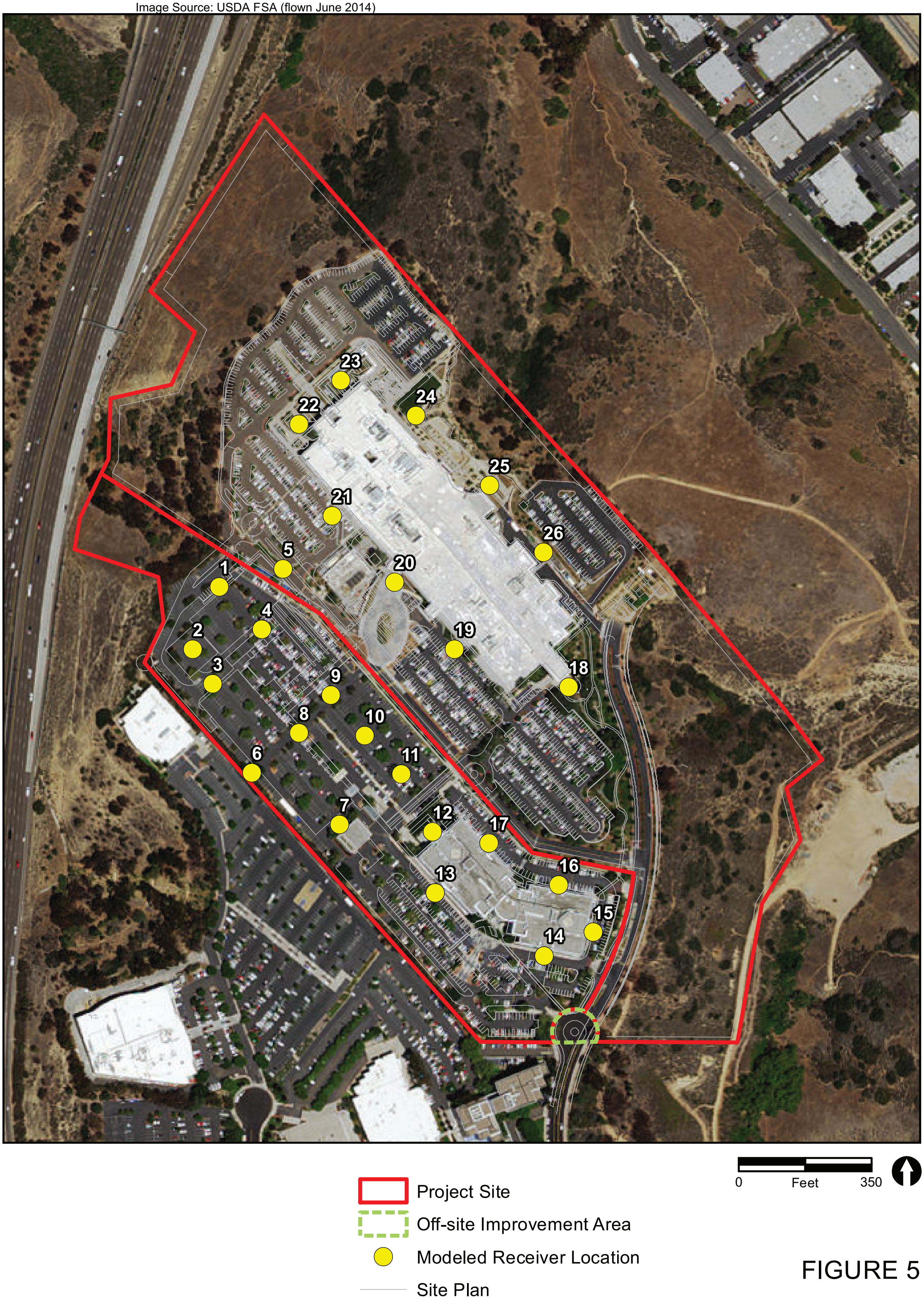

FIGURE 5

Modeled Receiver Locations

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was assumed that the project design would include the use of double-glazed masonry windows. Concrete tilt-up and masonry construction with double-glazed windows would provide a 35 dB exterior to interior noise level reduction (FHWA 2011). Interior noise impacts would be less than significant.

5.1.2 Off-Site

The project would increase traffic volumes on local roadways. Noise level increases would be greatest nearest the project site, as this location would represent the greatest concentration of project-related traffic. The project would not substantially alter the vehicle classifications mix on local or regional roadways, nor would the project alter the speed on an existing roadway or create a new roadway; thus, the primary factor affecting off-site noise levels would be increased traffic volumes. The increase in noise due to the addition of project traffic was calculated by comparing the existing to the existing plus project traffic volumes. The results are shown in Table 7.

TABLE 7
EXISTING AND EXISTING PLUS PROJECT TRAFFIC NOISE LEVEL INCREASE

Roadway	Segment		Traffic (ADT)		Noise Level Increase
	From	To	Existing	With Project	
Genesee Avenue	I-5 SB Ramps	I-5 NB Ramps	39,850	40,582	0.1
	I-5 NB Ramps	Scripps Hospital	38,814	39,773	0.1
	Scripps Hospital	Campus Point Drive	33,993	34,977	0.1
	Campus Point Drive	Regents Road	30,602	31,788	0.2
	Regents Road	Eastgate Mall	28,038	28,972	0.1
	Eastgate Mall	Executive Drive	25,884	26,565	0.1
	Executive Drive	La Jolla Village Drive	26,998	27,427	0.1
Campus Point Drive	Genesee Avenue	Campus Point Court	11,117	13,540	0.9
	North of Campus Point Court		5,388	7,912	1.7

As shown, the project traffic would contribute less than a decibel increase to the noise levels of adjacent roadways. A change in noise level of 3 dB(A) is considered barely perceptible (Caltrans 2013). Thus, the project would result in a less than perceptible change in vehicle traffic noise levels.

5.2 On-site Generated Noise

The project would include stationary sources of noise such as the parking garage, mechanical equipment, and loading docks. The following is a discussion of the stationary noise sources associated with each building.

Building CP1: Building CP1 is an existing building, and no new mechanical equipment or other sources of stationary noise would be constructed or installed at this building. Thus, Building CP1 was not included in this analysis.

Building CP2: The project would include the construction of two loading docks to the west of Building CP2. The loading dock noise sources include truck drive-by noise, truck loading/unloading, and truck engine noise. Average hourly noise levels would equate to 60.5 dB(A) L_{eq} at a distance of 25 feet for each loading dock. An equipment yard would also be located west of Building CP2. The equipment in the yard would include natural gas tanks, storage, and an eye wash station. None of these would be a significant source of stationary noise.

Building CP3: Building CP3 is a 10-story structure that would be equipped with heating, ventilation and air conditioning (HVAC) equipment within the building at each floor. Smaller air handlers and exhaust systems would be located on the roof and screened from view. It is not known at this time which manufacturer, brand, or model of unit or units will be selected for use in the project. It is not known at this time which manufacturer, brand, or model of unit or units will be selected for use in the project. Based on review of various manufacturer specifications for example units, a representative noise level for a 20-ton unit would be a sound power level of 92 dB. Based on the mechanical design of Building CP2 and the square footage of Building CP3, it was assumed that 16 units would be required.

A loading dock and utility area would be located south of Building CP3. Noise associated with this area would be similar to the noise associated with the loading dock and equipment area located adjacent to Building CP2.

Building CP4: Building CP4 would consist of a brewery, restaurant, and market. Brewery equipment would be primarily located inside the proposed building. Noise levels measurements at an existing Karl Strauss brewery indicate that individual pieces of equipment would generate noise levels between 50 and 70 dB(A) L_{eq} at a distance of 5 feet (Ryan Companies US 2015). These noise levels are equivalent to a sound power level range of 62 to 82 dB(A) L_{pw}. Due to the noise attenuation provided by standard construction (-40 to -50 dB), indoor equipment is not anticipated to result in noise impacts at adjacent property lines.

Building CP4 would also require rooftop HVAC equipment. As with Building CP3, it is not known at this time which manufacturer, brand, or model of unit or units will be selected for use in the project. It was assumed a 20-ton unit with a sound power level of 92 dB would be required.

Parking Garage: The proposed parking garage would be a source of noise. Activities making up a single parking event included vehicle arrival, limited idling, occupants exiting a vehicle, door closures, conversations among passengers, occupants entering a vehicle, startup of a vehicle, and departure of a vehicle. The parking area was modeled based on a typical vehicle movement generating a sound power level of 85.4 dB(A) per movement (Bayerisches Landesamt für Umwelt 2007). A full movement includes the arrival and departure in the same hour as well as travel through the parking area. The parking garage was modeled as an area source.

Emergency Generators: Emergency generators would be located south of Buildings CP3 and CP4. Emergency generators may be used to supply necessary power requirements to vital systems. Emergency generators produce noise levels of approximately 82 dB(A) L_{eq} at 50 feet, which is a sound power level of approximately 117 dB(A). Emergency generators are typically operated under two conditions: loss of main electrical supply, or preventive maintenance/testing. The emergency generators would be shielded with a block wall screen. Masonry walls would reduce noise levels by at least 40 dB. The operation of mechanical equipment associated with emergency operations is exempt from the noise standards outlined in the Municipal Code; thus, noise generated by emergency generators is not compared to the limits shown in Table 3. Because the emergency generator would be shielded from adjacent uses and would only be used during emergencies and for routine maintenance/testing, noise would be less than significant.

Noise levels were also modeled for a series of 16 specific receiver locations along the project site property line. Receiver and noise source locations are shown on Figure 6. Table 8 summarizes the projected future noise levels at the modeled receivers. SoundPLAN data are contained in Attachment 3.

TABLE 8
ON-SITE GENERATED NOISE LEVELS

Receiver	Noise Level [dB(A) L_{eq}]
1	50
2	53
3	48
4	42
5	41
6	41
7	29
8	27
9	28
10	27
11	27
12	40
13	42
14	31
15	41
16	27

Image Source: USDA FSA (flown June 2014)

Project Site

Off-site Improvement Area

Site Plan

Noise Source

Property Line Receiver

FIGURE 6

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On-Site Noise Sources and Property Line Receivers

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The applicable noise limits between the project site and the neighboring industrial area is 75 dB(A) L_{eq} any time of the day. As shown, on-site generated noise levels are projected to be less than applicable noise ordinance standards.

5.3 Construction Noise

Noise associated with the demolition, grading, building, and paving for the project would potentially result in short-term impacts to surrounding residential properties. A variety of noise-generating equipment would be used during the construction phase of the project such as scrapers, backhoes, front-end loaders, and concrete saws, along with others. The exact number and pieces of construction equipment required are not known at this time. In the absence of specifics, it was assumed that the loudest noise levels would occur during grading activities. Although maximum noise levels may be 85 to 90 dB(A) L_{eq} at a distance of 50 feet during most construction activities, hourly average noise levels would be 82 dB(A) L_{eq} at 50 feet from the center of construction activity when assessing the loudest pieces of equipment working simultaneously.

Section 59.5.0404 of the City's Noise Abatement and Control Ordinance regulates construction noise. As stated in Section 59.5.0404, construction noise shall not exceed 75 dB(A) L_{eq} at the nearest residential property. There are no residential uses in the vicinity of the project. The surrounding land uses include industrial, commercial, office, open space, and undeveloped land. The nearest sensitive land use is a hospital located more than 1,500 feet to the south. A worst-case noise level of 82 dB(A) L_{eq} at 50 feet would attenuate to 52 dB(A) L_{eq} at 1,500 feet. Noise due to construction of the project would not exceed the limits of the City's Noise Abatement and Control Ordinance. Additionally, construction of the proposed project would only occur between the hours of 7:00 a.m. and 7:00 p.m., Monday through Saturday, and thus would comply with local standards and regulations. Because construction activities associated with the project would comply with the applicable regulation for construction, temporary increases in noise levels from construction activities would be less than significant.

5.4 Sensitive Habitat

There is sensitive Diegan coastal sage scrub located within the MHPA along the eastern portion of the project site which may contain coastal California gnatcatchers and nesting bird habitat for migratory and non-migratory birds. Noise impacts would be significant if the proposed project resulted in construction or operation noise levels during the breeding season that would exceed 60 dB(A) L_{eq} or the existing ambient noise level, if above 60 dB(A) L_{eq}.

As shown in Table 8, operational noise levels are not anticipated to exceed 60 dB(A) L_{eq} at the property line. Operational noise levels within the MHPA adjacent to the project site would be less than significant.

As discussed in the biological resources report prepared for the project, noise generated during project construction may result in indirect impacts to potentially occurring coastal California gnatcatcher within the MHPA. A construction noise level of 82 dB(A) L_{eq} at 50 feet would attenuate to 60 dB(A) L_{eq} at approximately 650 feet. If construction were to occur within 650 feet of an occupied habitat within the MHPA during the breeding season, indirect impacts to coastal California gnatcatcher inside of the MHPA from construction noise would be considered significant. The following mitigation would be required.

Noise Abatement Measure — Prior to the issuance of any construction permits for construction anticipated to occur within 650 of occupied MHPA habitat, the City Manager (or appointed designee) shall verify that the MHPA boundaries and the following project requirements regarding the coastal California gnatcatcher are shown on the construction plans:

No clearing, grubbing, grading, or other construction activities shall occur between March 1 and August 15, the breeding season of the coastal California gnatcatcher, until the following requirements have been met to the satisfaction of the City Manager:

A. A qualified biologist (possessing a valid Endangered Species Act Section 10(a)(1)(A) recovery permit) shall survey those habitat areas within the MHPA that would be subject to construction noise levels exceeding 60 dB(A) hourly average for the presence of the coastal California gnatcatcher. Surveys for the coastal California gnatcatcher shall be conducted pursuant to the protocol survey guidelines established by the U.S. Fish and Wildlife Service within the breeding season prior to the commencement of any construction. If coastal California gnatcatchers are present, then the following conditions must be met:

   I. Between March 1 and August 15, no clearing, grubbing, or grading of occupied gnatcatcher habitat shall be permitted. Areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist; <u>and</u>

   II. Between March 1 and August 15, no construction activities shall occur within any portion of the site where construction activities would result in noise levels exceeding a hourly equivalent noise level (L_{eq}) of 60 dB(A) at the edge of occupied coastal California gnatcatcher habitat. An analysis showing that noise generated by construction activities would not exceed 60 dB(A) L_{eq} at the edge of occupied habitat must be completed by a qualified acoustician and approved by the City Manager at least two weeks prior to the commencement of construction activities. Prior to the commencement of construction activities during the breeding season, areas restricted from such activities shall be staked or fenced under the supervision of a qualified biologist; <u>or</u>

   III. At least two weeks prior to the commencement of construction activities, noise attenuation measures (e.g., berms, walls) shall be implemented to ensure that noise levels resulting from construction activities will not exceed 60 dB(A) L_{eq} at the edge of habitat occupied by the coastal California gnatcatcher. Concurrent with the commencement of construction activities and the construction of necessary noise attenuation facilities, noise monitoring* shall be conducted, under the direction of a qualified acoustician, at the edge of the occupied habitat area to ensure that noise levels do not exceed 60 dB(A) L_{eq}. If the noise attenuation techniques implemented are determined to be inadequate by measurement, then the associated construction activities shall cease until such time that adequate noise attenuation can be demonstrated, or until the end of the breeding season (August 16).

*Construction noise monitoring shall continue to be monitored at least twice weekly on varying days, or more frequently depending on the construction activity, to verify that construction related noise levels at the edge of occupied habitat are maintained at or below 60 dB(A) L_{eq} or the ambient noise level, if existing conditions exceed 60 dB(A) L_{eq}. If not, other measures shall be implemented in consultation with the biologist and the mayor, as necessary, to reduce noise levels to below 60 dB(A) L_{eq} or the ambient noise level if existing conditions exceed 60 dB(A) L_{eq}. Such measures may include, but are not limited to, limitations on the placement of construction equipment and the simultaneous use of equipment.

B. If coastal California gnatcatchers are not detected during the protocol survey, the qualified biologist shall submit substantial evidence to the mayor and applicable resource agencies which demonstrates whether or not mitigation measures such as noise walls are necessary between March 1 and August 15 as follows:

   I. If this evidence indicates the potential is high for coastal California gnatcatcher to be present based on historical records or site conditions, then condition A.III shall be adhered to as specified above.

   II. If this evidence concludes that no impacts to this species are anticipated, no mitigation measures would be necessary.

6.0 Conclusions and Noise Abatement Measures

6.1 Traffic Noise

As discussed in Section 5.1, exterior noise levels at the project site and the exterior use areas are not projected to exceed the City's compatibility level of 75 CNEL. Exterior noise impacts would be less than significant. Assuming a structural attenuation of 35 dB from exterior sources would result in interior noise levels less than 50 CNEL in these buildings. Thus, interior noise levels are anticipated to be less than 50 CNEL and considered normally acceptable.

6.2 On-Site Generated Noise

The project would include stationary sources of noise such as the parking garage, mechanical equipment, and loading docks. The applicable noise limits between the project site and the neighboring industrial area is 75 dB(A) L_{eq} any time of the day. Noise levels were also modeled for a series of 16 specific receiver locations along the project site property line. As calculated in this analysis, on-site generated noise levels are projected to be less than applicable noise ordinance standards.

6.3 Construction Noise

Noise due to construction of the proposed project would not exceed the limits of the City's Noise Abatement and Control Ordinance. Additionally, construction of the project would only occur between the hours of 7:00 a.m. and 7:00 p.m., Monday through Saturday, and thus would comply with local standards and regulations. Because construction activities associated with the project would comply with the applicable regulation for construction, temporary increases in noise levels from construction activities would be less than significant.

6.4 Sensitive Habitat

As shown in Table 7, operational noise levels are not anticipated to exceed 60 dB(A) L_{eq} at the property line. Operational noise levels within the MHPA adjacent to the project site would be less than significant.

As discussed in the biological resources report prepared for the project, noise generated during project construction may result in indirect impacts to potentially occurring coastal California gnatcatcher inside of the MHPA. A construction noise level of 82 dB(A) L_{eq} at 50 feet would attenuate to 60 dB(A) L_{eq} at approximately 650 feet. If construction were to occur within 650 feet of an occupied habitat within the MHPA during the breeding season, indirect impacts to coastal California gnatcatcher inside of the MHPA from construction noise would be considered significant. The mitigation outlined in Section 5.4 would be required. Implementation of this mitigation would reduce construction noise impacts to a level less than significant.

7.0 References Cited

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ATTACHMENTS

ATTACHMENT 1

Noise Measurement Data

C:\NOISE\LARDAV\SLMUTIL\21MAR13.bin Interval Data

Measurement 1

Site	Location	Meas Number	Date	Time	Duration	Leq	SEL	Lmax	Lmin	Peak	Uwpk	L(5)	L(10)	L(33)	L(50)	L(67)	L(90)
0	Campus Point	0	21Mar 13	11:00:00	60.0	54.9	72.7	61.6	49.7	81.2	97.6	60.3	58.6	54.3	52.6	51.5	50.3
0	Campus Point	0	21Mar 13	11:01:00	60.0	52.0	69.8	55.7	49.4	80.2	88.7	54.0	53.6	52.5	52.0	51.2	50.1
0	Campus Point	0	21Mar 13	11:02:00	60.0	52.6	70.4	57.2	50.1	81.1	100.7	55.5	54.7	52.7	52.0	51.4	50.5
0	Campus Point	0	21Mar 13	11:03:00	60.0	60.6	78.4	68.3	51.7	81.5	97.0	67.0	65.5	58.2	56.8	56.0	53.1
0	Campus Point	0	21Mar 13	11:04:00	0.3	53.3	48.2	53.3	53.2	63.6	0.0	53.3	53.3	53.3	53.3	53.3	53.2
0	Campus Point	0	21Mar 13	11:04:25	34.7	52.0	67.4	55.6	49.9	78.2	84.2	53.9	53.3	52.3	51.8	51.4	50.5
0	Campus Point	0	21Mar 13	11:05:00	60.0	52.2	69.9	55.1	49.9	80.6	86.7	53.9	53.5	52.5	52.1	51.5	50.5
0	Campus Point	0	21Mar 13	11:06:00	60.0	52.4	70.2	57.7	49.3	85.2	86.7	55.5	54.6	52.6	51.7	50.9	50.1
0	Campus Point	0	21Mar 13	11:07:00	60.0	58.6	76.3	68.8	49.2	81.3	92.8	67.1	62.7	54.0	52.7	51.6	49.7
0	Campus Point	0	21Mar 13	11:08:00	60.0	61.0	78.8	66.4	50.8	84.3	91.6	65.6	64.9	61.4	59.4	55.0	52.6
0	Campus Point	0	21Mar 13	11:09:00	60.0	51.0	68.8	56.2	48.6	80.4	0.0	53.9	52.6	51.0	50.5	50.1	48.9
0	Campus Point	0	21Mar 13	11:10:00	60.0	50.9	68.6	55.2	48.8	74.9	84.2	54.1	53.5	50.3	49.8	49.5	49.1
0	Campus Point	0	21Mar 13	11:11:00	60.0	53.1	70.9	60.6	49.9	79.3	90.3	58.9	55.9	51.7	51.2	50.8	50.2
0	Campus Point	0	21Mar 13	11:12:00	60.0	51.5	69.3	53.2	49.8	76.6	0.0	52.7	52.5	51.8	51.5	51.2	50.5
0	Campus Point	0	21Mar 13	11:13:00	60.0	58.4	76.2	71.8	51.2	85.2	90.3	62.1	56.3	54.4	53.3	52.5	51.5
0	Campus Point	0	21Mar 13	11:14:00	60.0	60.3	78.1	71.2	50.9	89.6	103.9	67.7	65.1	56.3	54.8	53.9	52.4
0	Campus Point	0	21Mar 13	11:15:00	60.0	50.9	68.6	54.4	48.8	76.2	84.2	52.8	52.2	51.1	50.6	50.2	49.3
0	Campus Point	0	21Mar 13	11:16:00	60.0	50.2	68.0	54.9	48.7	75.1	0.0	51.9	51.1	50.3	49.9	49.5	49.1
0	Campus Point	0	21Mar 13	11:17:00	60.0	55.8	73.6	66.9	49.0	86.1	86.7	60.9	59.5	54.7	52.8	50.4	49.4
0	Campus Point	0	21Mar 13	11:18:00	60.0	59.5	77.3	71.0	49.2	84.4	94.7	66.3	62.3	57.1	53.7	51.9	50.4
0	Campus Point	0	21Mar 13	11:19:00	60.0	55.7	73.5	64.3	51.8	84.9	86.7	59.0	57.8	55.6	54.4	53.6	52.4
0	Campus Point	0	21Mar 13	11:20:00	60.0	56.9	74.6	69.4	50.3	81.9	84.2	63.7	57.5	53.4	52.6	51.7	51.0
0	Campus Point	0	21Mar 13	11:21:00	60.0	72.1	89.9	78.4	53.7	93.8	97.0	76.9	76.1	73.4	70.0	60.9	58.2
0	Campus Point	0	21Mar 13	11:22:00	60.0	56.3	74.1	63.2	51.4	83.6	89.5	60.7	59.8	55.8	54.5	53.7	51.7
0	Campus Point	0	21Mar 13	11:23:00	60.0	55.9	73.6	63.3	49.7	83.1	90.3	61.1	59.2	55.5	53.7	52.3	50.6
0	Campus Point	0	21Mar 13	11:24:00	60.0	50.9	68.6	57.2	49.0	75.8	84.2	52.8	51.8	50.7	50.3	49.9	49.3
0	Campus Point	0	21Mar 13	11:25:00	60.0	51.0	68.8	53.0	49.8	83.9	86.7	52.4	52.0	51.3	50.9	50.5	50.1
0	Campus Point	0	21Mar 13	11:26:00	0.3	52.1	47.0	52.2	51.9	62.2	84.2	52.2	52.2	52.2	52.2	52.2	51.9

Measurement 2

Site	Location	Meas Number	Date	Time	Duration	Leq	SEL	Lmax	Lmin	Peak	Uwpk	L(5)	L(10)	L(33)	L(50)	L(67)	L(90)
0	Campus Point	0	21Mar 13	11:43:00	60.0	68.7	86.4	70.4	65.8	84.1	90.3	69.9	69.8	69.3	68.9	68.2	66.9
0	Campus Point	0	21Mar 13	11:44:00	60.0	68.9	86.6	71.0	66.9	83.6	88.7	70.6	70.3	69.3	68.7	68.2	67.4
0	Campus Point	0	21Mar 13	11:45:00	60.0	68.7	86.5	70.6	66.9	83.0	90.3	70.1	69.9	69.2	68.7	68.2	67.4
0	Campus Point	0	21Mar 13	11:46:00	60.0	68.8	86.5	71.3	67.0	83.4	88.7	70.7	70.1	68.9	68.6	68.2	67.5
0	Campus Point	0	21Mar 13	11:47:00	60.0	68.0	85.8	70.1	65.3	83.1	88.7	69.9	69.6	68.5	67.8	67.3	66.3
0	Campus Point	0	21Mar 13	11:48:00	60.0	68.0	85.8	70.3	65.1	83.9	90.3	69.9	69.6	68.6	68.0	67.2	65.8
0	Campus Point	0	21Mar 13	11:49:00	60.0	68.3	86.1	70.5	66.2	82.9	88.7	70.0	69.7	68.8	68.2	67.7	66.9
0	Campus Point	0	21Mar 13	11:50:00	60.0	68.4	86.2	70.4	66.0	83.5	88.7	70.1	69.8	68.8	68.4	68.0	67.0
0	Campus Point	0	21Mar 13	11:51:00	60.0	70.5	88.3	75.4	67.5	89.8	106.7	73.6	72.7	70.1	69.7	69.3	68.4
0	Campus Point	0	21Mar 13	11:52:00	60.0	72.4	90.2	79.5	62.7	94.9	100.7	77.6	76.4	71.5	69.7	68.5	66.2
0	Campus Point	0	21Mar 13	11:53:00	60.0	69.1	86.9	71.3	67.5	84.8	93.8	70.7	70.2	69.3	68.9	68.5	68.1
0	Campus Point	0	21Mar 13	11:54:00	60.0	68.4	86.2	70.9	65.8	83.0	91.6	70.4	69.9	69.0	68.0	67.4	66.4

0	Campus Point	0	21Mar 13	11:55:00	60.0	68.3	86.1	70.0	65.8	84.4	88.7	69.8	69.6	68.8	68.3	67.7	66.7
0	Campus Point	0	21Mar 13	11:56:00	60.0	68.3	86.0	70.3	63.0	83.3	90.3	69.9	69.7	69.0	68.3	67.5	65.7
0	Campus Point	0	21Mar 13	11:57:00	60.0	68.2	86.0	70.2	63.2	83.4	86.7	69.8	69.4	68.6	68.3	67.8	67.0
0	Campus Point	0	21Mar 13	11:58:00	60.0	68.9	86.7	71.3	63.8	83.2	90.3	70.9	70.5	69.3	68.7	68.3	66.3
0	Campus Point	0	21Mar 13	11:59:00	60.0	68.3	86.1	70.1	65.6	84.7	88.7	69.8	69.4	68.7	68.3	68.0	67.0
0	Campus Point	0	21Mar 13	12:00:00	60.0	69.8	87.6	72.2	67.8	84.7	94.7	71.7	71.3	70.0	69.6	69.2	68.3
0	Campus Point	0	21Mar 13	12:01:00	60.0	67.4	85.2	71.1	63.6	83.4	88.7	70.4	69.6	67.8	67.0	66.2	64.7
0	Campus Point	0	21Mar 13	12:02:00	60.0	68.3	86.1	69.9	65.8	82.7	88.7	69.8	69.6	68.9	68.4	67.8	67.0
0	Campus Point	0	21Mar 13	12:03:00	60.0	67.8	85.5	70.3	65.3	83.0	88.7	69.6	69.2	68.0	67.5	67.1	66.1
0	Campus Point	0	21Mar 13	12:04:00	20.5	67.4	80.5	68.5	66.0	80.8	86.7	68.5	68.5	67.7	67.3	66.9	66.3

Measurement 3

0	Campus Point	0	21Mar 13	12:15:40	19.2	72.0	84.9	74.3	69.7	89.7	90.3	73.7	73.2	72.5	72.0	71.5	70.4
0	Campus Point	0	21Mar 13	12:16:00	60.0	72.6	90.4	74.6	70.9	87.0	90.3	73.9	73.7	72.9	72.5	72.2	71.4
0	Campus Point	0	21Mar 13	12:17:00	60.0	72.3	90.1	74.6	70.3	87.7	90.3	73.9	73.7	72.7	72.2	71.7	70.8
0	Campus Point	0	21Mar 13	12:18:00	60.0	72.8	90.6	75.1	70.8	88.5	90.3	74.6	74.0	73.1	72.7	72.3	71.5
0	Campus Point	0	21Mar 13	12:19:00	60.0	71.7	89.5	74.7	69.7	85.9	90.3	73.7	73.1	71.8	71.5	71.2	70.3
0	Campus Point	0	21Mar 13	12:20:00	60.0	70.9	88.7	72.9	67.3	87.9	89.5	72.6	72.2	71.4	70.8	70.2	69.1
0	Campus Point	0	21Mar 13	12:21:00	60.0	71.4	89.2	73.2	69.8	85.5	91.6	72.8	72.6	71.7	71.3	70.8	70.2
0	Campus Point	0	21Mar 13	12:22:00	60.0	72.0	89.8	73.8	70.2	88.3	91.6	73.7	73.4	72.5	72.0	71.4	70.5
0	Campus Point	0	21Mar 13	12:23:00	60.0	71.9	89.7	73.5	70.2	86.6	90.3	73.5	73.1	72.3	71.8	71.3	70.4
0	Campus Point	0	21Mar 13	12:24:00	60.0	72.7	90.4	74.4	70.5	87.8	91.6	74.4	74.0	73.0	72.6	72.2	71.3
0	Campus Point	0	21Mar 13	12:25:00	60.0	71.8	89.6	74.1	67.6	89.3	92.8	73.8	73.6	72.5	71.7	71.0	69.3
0	Campus Point	0	21Mar 13	12:26:00	60.0	72.2	90.0	73.4	70.9	87.5	91.6	73.4	73.2	72.6	72.3	71.9	71.3
0	Campus Point	0	21Mar 13	12:27:00	60.0	71.8	89.6	74.0	67.4	87.2	91.6	73.7	73.4	72.6	72.1	70.9	69.0
0	Campus Point	0	21Mar 13	12:28:00	60.0	72.1	89.9	75.1	69.9	87.4	93.8	74.0	73.2	72.3	71.8	71.4	70.5
0	Campus Point	0	21Mar 13	12:29:00	60.0	72.5	90.3	75.1	70.2	88.7	95.5	74.6	74.2	72.7	72.1	71.7	71.1
0	Campus Point	0	21Mar 13	12:30:00	60.0	70.8	88.5	73.8	68.2	87.3	91.6	72.8	72.3	70.9	70.4	69.9	69.1
0	Campus Point	0	21Mar 13	12:31:00	60.0	71.9	89.7	74.2	69.3	87.6	97.0	73.6	73.1	72.1	71.7	71.3	70.4
0	Campus Point	0	21Mar 13	12:32:00	60.0	73.0	90.8	74.6	70.7	88.6	91.6	74.4	74.0	73.4	73.0	72.5	71.5
0	Campus Point	0	21Mar 13	12:33:00	60.0	72.4	90.2	74.4	69.2	87.5	90.3	74.0	73.7	72.8	72.4	71.9	70.5
0	Campus Point	0	21Mar 13	12:34:00	60.0	72.2	90.0	73.9	70.7	86.3	90.3	73.7	73.3	72.5	72.1	71.6	71.1
0	Campus Point	0	21Mar 13	12:35:00	60.0	72.7	90.5	75.2	69.2	87.5	93.8	74.6	74.1	73.3	72.7	71.9	70.5
0	Campus Point	0	21Mar 13	12:36:00	60.0	72.1	89.9	74.1	69.4	88.7	97.0	73.6	73.3	72.6	72.2	71.7	70.5
0	Campus Point	0	21Mar 13	12:37:00	5.5	69.9	77.3	70.7	69.3	83.6	88.7	70.7	70.7	70.3	69.9	69.6	69.3

Measurement 4

0	Campus Point	0	21Mar 13	12:55:00	60.0	56.5	74.3	57.9	54.9	77.9	100.3	57.8	57.6	56.8	56.5	56.2	55.5
0	Campus Point	0	21Mar 13	12:56:00	60.0	56.4	74.2	58.5	54.3	71.5	95.5	58.0	57.7	56.8	56.4	56.0	55.1
0	Campus Point	0	21Mar 13	12:57:00	60.0	70.5	88.2	80.1	57.1	99.1	106.5	76.4	75.2	67.4	64.9	63.0	60.1
0	Campus Point	0	21Mar 13	12:58:00	60.0	58.5	76.3	59.9	56.9	73.3	90.3	59.8	59.7	59.0	58.5	58.1	57.3
0	Campus Point	0	21Mar 13	12:59:00	60.0	59.0	76.8	61.4	57.5	74.4	91.6	60.7	60.2	59.0	58.7	58.5	58.1
0	Campus Point	0	21Mar 13	13:00:00	60.0	58.1	75.9	60.6	56.9	74.1	90.3	59.5	58.9	58.2	57.8	57.5	57.1
0	Campus Point	0	21Mar 13	13:01:00	60.0	58.1	75.9	59.9	56.6	75.2	92.8	59.6	59.2	58.4	57.9	57.5	57.0
0	Campus Point	0	21Mar 13	13:02:00	60.0	58.9	76.7	62.1	56.9	78.6	90.3	61.0	60.4	59.0	58.4	57.8	57.2
0	Campus Point	0	21Mar 13	13:03:00	60.0	58.9	76.6	62.8	56.3	75.6	93.8	61.3	60.2	59.3	58.4	57.6	56.6
0	Campus Point	0	21Mar 13	13:04:00	60.0	58.5	76.3	60.3	56.0	73.1	93.8	59.8	59.6	58.8	58.5	58.2	56.8
0	Campus Point	0	21Mar 13	13:05:00	60.0	59.4	77.2	62.3	57.2	76.1	86.7	61.8	60.9	59.5	58.9	58.5	58.0
0	Campus Point	0	21Mar 13	13:06:00	60.0	63.2	80.9	75.5	56.8	87.6	93.8	68.5	65.8	59.6	58.7	58.0	57.2

0	Campus Point	0	21Mar 13 13:07:00	60.0	59.2	77.0	61.6	57.5	75.2	94.7	60.7	60.2	59.5	59.2	58.7	57.6
0	Campus Point	0	21Mar 13 13:08:00	60.0	58.9	76.6	61.3	57.0	78.8	90.3	60.3	59.9	59.1	58.7	58.3	57.5
0	Campus Point	0	21Mar 13 13:09:00	60.0	58.2	76.0	60.2	57.0	73.0	91.6	59.6	59.1	58.4	58.0	57.7	57.2
0	Campus Point	0	21Mar 13 13:10:00	60.0	59.9	77.7	61.8	57.8	76.1	92.8	61.3	60.9	60.2	59.8	59.5	59.0
0	Campus Point	0	21Mar 13 13:11:00	60.0	58.9	76.7	61.9	56.1	75.0	90.3	61.0	60.7	59.4	58.4	57.6	56.6
0	Campus Point	0	21Mar 13 13:12:00	60.0	57.6	75.4	59.2	55.6	77.7	93.8	59.2	58.8	57.9	57.6	57.3	56.7
0	Campus Point	0	21Mar 13 13:13:00	60.0	57.8	75.6	59.9	56.3	72.8	95.5	59.6	59.1	58.0	57.6	57.3	56.6
0	Campus Point	0	21Mar 13 13:14:00	60.0	59.1	76.9	60.4	57.8	74.8	86.7	60.4	59.9	59.4	59.0	58.7	58.1
0	Campus Point	0	21Mar 13 13:15:00	60.0	58.6	76.4	60.2	56.7	73.8	91.6	59.9	59.8	59.1	58.6	58.2	57.2
0	Campus Point	0	21Mar 13 13:16:00	45.3	58.6	75.2	60.9	57.2	81.8	94.7	60.3	59.9	59.0	58.5	57.9	57.3

ATTACHMENT 2

SoundPLAN Data – Future Vehicle Traffic Noise

5230.2 Campus Point
SoundPLAN Data - Future Vehicle Traffic

Stationing km	ADT Veh/24h	Traffic values Vehicles type	Vehicle nai	day Veh/h	Speed km/h	Control device	Constr. Speed km/h	Affect. veh. %	Road surface	Gradient Min / Max %
I-5 NB	Traffic direction:	In entry direction								
0+000	305904	Total	-	12746	-	none	-	-	Average (of DGAC and PCC)	5.521739
0+000	305904	Automobiles	-	12223	105	none	-	-	Average (of DGAC and PCC)	5.521739
0+000	305904	Medium trucks	-	351	105	none	-	-	Average (of DGAC and PCC)	5.521739
0+000	305904	Heavy trucks	-	172	105	none	-	-	Average (of DGAC and PCC)	5.521739
0+000	305904	Buses	-	-	-	none	-	-	Average (of DGAC and PCC)	5.521739
0+000	305904	Motorcycles	-	-	-	none	-	-	Average (of DGAC and PCC)	5.521739
0+000	305904	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	5.521739
1+658	-					-	-	-	-	-
I-5 SB	Traffic direction:	In entry direction								
0+000	294456	Total	-	12269	-	none	-	-	Average (of DGAC and PCC)	2.4 / 18.7
0+000	294456	Automobiles	-	11766	105	none	-	-	Average (of DGAC and PCC)	2.4 / 18.7
0+000	294456	Medium trucks	-	338	105	none	-	-	Average (of DGAC and PCC)	2.4 / 18.7
0+000	294456	Heavy trucks	-	165	105	none	-	-	Average (of DGAC and PCC)	2.4 / 18.7
0+000	294456	Buses	-	-	-	none	-	-	Average (of DGAC and PCC)	2.4 / 18.7
0+000	294456	Motorcycles	-	-	-	none	-	-	Average (of DGAC and PCC)	2.4 / 18.7
0+000	294456	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	2.4 / 18.7
1+636	-					-	-	-	-	-
Campus Point	Traffic direction:	In entry direction								
0+000	56928	Total	-	2372	-	none	-	-	Average (of DGAC and PCC)	5.444444
0+000	56928	Automobiles	-	2275	56	none	-	-	Average (of DGAC and PCC)	5.444444
0+000	56928	Medium trucks	-	65	56	none	-	-	Average (of DGAC and PCC)	5.444444
0+000	56928	Heavy trucks	-	32	56	none	-	-	Average (of DGAC and PCC)	5.444444
0+000	56928	Buses	-	-	-	none	-	-	Average (of DGAC and PCC)	5.444444
0+000	56928	Motorcycles	-	-	-	none	-	-	Average (of DGAC and PCC)	5.444444
0+000	56928	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	5.444444
0+724	20424	Total	-	851	-	none	-	-	Average (of DGAC and PCC)	0.1 / 1.9
0+724	20424	Automobiles	-	817	56	none	-	-	Average (of DGAC and PCC)	0.1 / 1.9
0+724	20424	Medium trucks	-	23	56	none	-	-	Average (of DGAC and PCC)	0.1 / 1.9
0+724	20424	Heavy trucks	-	11	56	none	-	-	Average (of DGAC and PCC)	0.1 / 1.9
0+724	20424	Buses	-	-	-	none	-	-	Average (of DGAC and PCC)	0.1 / 1.9
0+724	20424	Motorcycles	-	-	-	none	-	-	Average (of DGAC and PCC)	0.1 / 1.9
0+724	20424	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	0.1 / 1.9
1+283	-					-	-	-	-	-
Genesee	Traffic direction:	In entry direction								
0+000	130896	Total	-	5454	-	none	-	-	Average (of DGAC and PCC)	35
0+000	130896	Automobiles	-	5230	72	none	-	-	Average (of DGAC and PCC)	35
0+000	130896	Medium trucks	-	150	72	none	-	-	Average (of DGAC and PCC)	35
0+000	130896	Heavy trucks	-	74	72	none	-	-	Average (of DGAC and PCC)	35
0+000	130896	Buses	-	-	-	none	-	-	Average (of DGAC and PCC)	35
0+000	130896	Motorcycles	-	-	-	none	-	-	Average (of DGAC and PCC)	35
0+000	130896	Auxiliary Vehicle	-	-	-	none	-	-	Average (of DGAC and PCC)	35
0+966	-					-	-	-	-	-

5230.2 Campus Point
SoundPLAN Data - Future Vehicle Traffic

No.	eceiver nan	Building side	Floor	Limit L(Aeq1h) dB(A)	Level w/o NP L(Aeq1h) dB(A)	Level w. NP L(Aeq1h) dB(A)	Difference L(Aeq1h) dB(A)	Conflict L(Aeq1h) dB(A)
1	1		1.Fl	-	54.5	0	-54.5	-
1	1		2.Fl	-	58.3	0	-58.3	-
1	1		3.Fl	-	65.9	0	-65.9	-
1	1		4.Fl	-	69.0	0	-69.0	-
1	1		5.Fl	-	70.3	0	-70.3	-
1	1		6.Fl	-	71.2	0	-71.2	-
1	1		7.Fl	-	71.9	0	-71.9	-
1	1		8.Fl	-	72.8	0	-72.8	-
1	1		9.Fl	-	73.5	0	-73.5	-
1	1		10.Fl	-	74.3	0	-74.3	-
2	2		1.Fl	-	62.1	0	-62.1	-
2	2		2.Fl	-	65.8	0	-65.8	-
2	2		3.Fl	-	67.2	0	-67.2	-
2	2		4.Fl	-	68.7	0	-68.7	-
2	2		5.Fl	-	70.1	0	-70.1	-
2	2		6.Fl	-	71.2	0	-71.2	-
2	2		7.Fl	-	72.3	0	-72.3	-
2	2		8.Fl	-	73.4	0	-73.4	-
2	2		9.Fl	-	74.2	0	-74.2	-
2	2		10.Fl	-	74.8	0	-74.8	-
3	3		1.Fl	-	56.4	0	-56.4	-
4	4		1.Fl	-	45.9	0	-45.9	-
4	4		2.Fl	-	49.3	0	-49.3	-
4	4		3.Fl	-	58.0	0	-58.0	-
4	4		4.Fl	-	59.8	0	-59.8	-
4	4		5.Fl	-	61.6	0	-61.6	-
4	4		6.Fl	-	62.4	0	-62.4	-
4	4		7.Fl	-	63.1	0	-63.1	-
4	4		8.Fl	-	64.3	0	-64.3	-
4	4		9.Fl	-	65.3	0	-65.3	-
4	4		10.Fl	-	66.8	0	-66.8	-
5	5		1.Fl	-	47.0	0	-47.0	-
5	5		2.Fl	-	48.7	0	-48.7	-
5	5		3.Fl	-	50.4	0	-50.4	-
5	5		4.Fl	-	51.6	0	-51.6	-
5	5		5.Fl	-	53.4	0	-53.4	-
5	5		6.Fl	-	57.1	0	-57.1	-
5	5		7.Fl	-	61.2	0	-61.2	-
5	5		8.Fl	-	63.0	0	-63.0	-
5	5		9.Fl	-	64.1	0	-64.1	-
5	5		10.Fl	-	65.5	0	-65.5	-
6	6		1.Fl	-	63.4	0	-63.4	-
7	7		1.Fl	-	52.1	0	-52.1	-
8	8		1.Fl	-	42.0	0	-42.0	-
9	9		1.Fl	-	47.4	0	-47.4	-
10	10		1.Fl	-	48.6	0	-48.6	-
11	11		1.Fl	-	47.5	0	-47.5	-
12	12		1.Fl	-	47.5	0	-47.5	-
12	12		2.Fl	-	48.6	0	-48.6	-
12	12		3.Fl	-	51.3	0	-51.3	-
13	13		1.Fl	-	54.4	0	-54.4	-
13	13		2.Fl	-	55.0	0	-55.0	-

13	13	3.Fl	-	56.3	0	-56.3	-
14	14	1.Fl	-	56.1	0	-56.1	-
14	14	2.Fl	-	57.6	0	-57.6	-
14	14	3.Fl	-	58.6	0	-58.6	-
15	15	1.Fl	-	59.0	0	-59.0	-
15	15	2.Fl	-	61.2	0	-61.2	-
15	15	3.Fl	-	62.1	0	-62.1	-
16	16	1.Fl	-	50.7	0	-50.7	-
16	16	2.Fl	-	52.4	0	-52.4	-
16	16	3.Fl	-	53.7	0	-53.7	-
17	17	1.Fl	-	46.9	0	-46.9	-
17	17	2.Fl	-	49.0	0	-49.0	-
17	17	3.Fl	-	50.0	0	-50.0	-
18	18	1.Fl	-	54.0	0	-54.0	-
18	18	2.Fl	-	56.2	0	-56.2	-
19	19	1.Fl	-	44.7	0	-44.7	-
19	19	2.Fl	-	45.6	0	-45.6	-
20	20	1.Fl	-	47.1	0	-47.1	-
20	20	2.Fl	-	46.0	0	-46.0	-
21	21	1.Fl	-	47.6	0	-47.6	-
21	21	2.Fl	-	50.2	0	-50.2	-
22	22	1.Fl	-	51.9	0	-51.9	-
22	22	2.Fl	-	54.1	0	-54.1	-
23	23	1.Fl	-	51.3	0	-51.3	-
23	23	2.Fl	-	53.4	0	-53.4	-
24	24	1.Fl	-	45.9	0	-45.9	-
24	24	2.Fl	-	47.2	0	-47.2	-
25	25	1.Fl	-	45.0	0	-45.0	-
25	25	2.Fl	-	46.0	0	-46.0	-
26	26	1.Fl	-	47.1	0	-47.1	-
26	26	2.Fl	-	48.0	0	-48.0	-

Source name	Lane			Level w/o NP L(Aeq1h) dB(A)	Level w. NP L(Aeq1h) dB(A)
1	1.Fl	54.5	0.0		
Campus Point				9.1	0
Genesee				12.9	0
I-5 NB				50.7	0
I-5 SB				52.1	0
1	2.Fl	58.3	0.0		
Campus Point				15.2	0
Genesee				19.5	0
I-5 NB				53.9	0
I-5 SB				56.3	0
1	3.Fl	65.9	0.0		
Campus Point				16.6	0
Genesee				21.1	0
I-5 NB				60.4	0
I-5 SB				64.5	0
1	4.Fl	69.0	0.0		
Campus Point				13.7	0
Genesee				19.2	0
I-5 NB				64.3	0
I-5 SB				67.2	0
1	5.Fl	70.3	0.0		
Campus Point				11.3	0
Genesee				16.3	0
I-5 NB				65.8	0
I-5 SB				68.4	0
1	6.Fl	71.2	0.0		
Campus Point				15.8	0
Genesee				20.0	0
I-5 NB				66.7	0
I-5 SB				69.3	0
1	7.Fl	71.9	0.0		
Campus Point				17.9	0
Genesee				22.5	0
I-5 NB				67.2	0
I-5 SB				70.2	0
1	8.Fl	72.8	0.0		
Campus Point				17.6	0
Genesee				23.0	0
I-5 NB				68.0	0
I-5 SB				71.1	0
1	9.Fl	73.5	0.0		
Campus Point				18.1	0
Genesee				23.3	0
I-5 NB				68.6	0
I-5 SB				71.8	0
1	10.Fl	74.3	0.0		
Campus Point				21.8	0
Genesee				26.6	0
I-5 NB				69.2	0
I-5 SB				72.6	0
2	1.Fl	62.1	0.0		
Campus Point				21.9	0

Genesee				42.0	0
I-5 NB				57.0	0
I-5 SB				60.4	0
2	2.Fl	65.8	0.0		
Campus Point				20.7	0
Genesee				43.3	0
I-5 NB				60.9	0
I-5 SB				64.0	0
2	3.Fl	67.2	0.0		
Campus Point				25.6	0
Genesee				44.8	0
I-5 NB				62.5	0
I-5 SB				65.4	0
2	4.Fl	68.7	0.0		
Campus Point				30.3	0
Genesee				45.6	0
I-5 NB				63.7	0
I-5 SB				67.0	0
2	5.Fl	70.1	0.0		
Campus Point				31.8	0
Genesee				46.7	0
I-5 NB				65.2	0
I-5 SB				68.3	0
2	6.Fl	71.2	0.0		
Campus Point				33.8	0
Genesee				47.0	0
I-5 NB				66.5	0
I-5 SB				69.4	0
2	7.Fl	72.3	0.0		
Campus Point				36.8	0
Genesee				48.1	0
I-5 NB				67.6	0
I-5 SB				70.5	0
2	8.Fl	73.4	0.0		
Campus Point				39.9	0
Genesee				50.2	0
I-5 NB				68.2	0
I-5 SB				71.9	0
2	9.Fl	74.2	0.0		
Campus Point				42.3	0
Genesee				51.5	0
I-5 NB				69.1	0
I-5 SB				72.5	0
2	10.Fl	74.8	0.0		
Campus Point				43.1	0
Genesee				51.5	0
I-5 NB				70.2	0
I-5 SB				72.8	0
3	1.Fl	56.4	0.0		
Campus Point				13.9	0
Genesee				17.3	0
I-5 NB				50.9	0
I-5 SB				55.0	0
4	1.Fl	45.9	0.0		
Campus Point				37.3	0

Genesee				33.9	0
I-5 NB				41.1	0
I-5 SB				42.6	0
4	2.Fl	49.3	0.0		
Campus Point				37.9	0
Genesee				34.7	0
I-5 NB				39.3	0
I-5 SB				48.3	0
4	3.Fl	58.0	0.0		
Campus Point				38.3	0
Genesee				35.6	0
I-5 NB				52.0	0
I-5 SB				56.6	0
4	4.Fl	59.8	0.0		
Campus Point				39.7	0
Genesee				36.2	0
I-5 NB				54.8	0
I-5 SB				58.1	0
4	5.Fl	61.6	0.0		
Campus Point				40.9	0
Genesee				36.5	0
I-5 NB				56.3	0
I-5 SB				60.0	0
4	6.Fl	62.4	0.0		
Campus Point				41.6	0
Genesee				38.1	0
I-5 NB				57.5	0
I-5 SB				60.7	0
4	7.Fl	63.1	0.0		
Campus Point				42.7	0
Genesee				43.2	0
I-5 NB				58.2	0
I-5 SB				61.2	0
4	8.Fl	64.3	0.0		
Campus Point				43.9	0
Genesee				47.7	0
I-5 NB				59.5	0
I-5 SB				62.3	0
4	9.Fl	65.3	0.0		
Campus Point				45.1	0
Genesee				50.7	0
I-5 NB				60.4	0
I-5 SB				63.3	0
4	10.Fl	66.8	0.0		
Campus Point				46.3	0
Genesee				52.1	0
I-5 NB				61.9	0
I-5 SB				64.8	0
5	1.Fl	47.0	0.0		
Campus Point				34.5	0
Genesee				31.9	0
I-5 NB				43.1	0
I-5 SB				44.1	0
5	2.Fl	48.7	0.0		
Campus Point				36.1	0

Genesee				33.9	0
I-5 NB				44.3	0
I-5 SB				46.1	0
5	3.Fl	50.4	0.0		
Campus Point				36.0	0
Genesee				37.4	0
I-5 NB				46.0	0
I-5 SB				47.9	0
5	4.Fl	51.6	0.0		
Campus Point				36.4	0
Genesee				34.8	0
I-5 NB				47.0	0
I-5 SB				49.4	0
5	5.Fl	53.4	0.0		
Campus Point				37.1	0
Genesee				33.1	0
I-5 NB				48.4	0
I-5 SB				51.5	0
5	6.Fl	57.1	0.0		
Campus Point				37.6	0
Genesee				22.2	0
I-5 NB				50.2	0
I-5 SB				56.1	0
5	7.Fl	61.2	0.0		
Campus Point				38.5	0
Genesee				22.9	0
I-5 NB				54.5	0
I-5 SB				60.1	0
5	8.Fl	63.0	0.0		
Campus Point				39.0	0
Genesee				22.9	0
I-5 NB				58.2	0
I-5 SB				61.2	0
5	9.Fl	64.1	0.0		
Campus Point				39.7	0
Genesee				25.3	0
I-5 NB				59.0	0
I-5 SB				62.5	0
5	10.Fl	65.5	0.0		
Campus Point				40.4	0
Genesee				27.7	0
I-5 NB				60.1	0
I-5 SB				64.0	0
6	1.Fl	63.4	0.0		
Campus Point				40.5	0
Genesee				49.0	0
I-5 NB				57.8	0
I-5 SB				61.7	0
7	1.Fl	52.1	0.0		
Campus Point				45.8	0
Genesee				49.8	0
I-5 NB				41.5	0
I-5 SB				41.5	0
8	1.Fl	42.0	0.0		
Campus Point				39.5	0

Genesee				27.5	0
I-5 NB				35.3	0
I-5 SB				34.5	0
9	1.Fl	47.4	0.0		
Campus Point				41.8	0
Genesee				44.7	0
I-5 NB				36.7	0
I-5 SB				37.5	0
10	1.Fl	48.6	0.0		
Campus Point				41.9	0
Genesee				46.8	0
I-5 NB				36.4	0
I-5 SB				36.2	0
11	1.Fl	47.5	0.0		
Campus Point				41.2	0
Genesee				44.0	0
I-5 NB				39.2	0
I-5 SB				39.7	0
12	1.Fl	47.5	0.0		
Campus Point				35.7	0
Genesee				42.4	0
I-5 NB				42.1	0
I-5 SB				42.7	0
12	2.Fl	48.6	0.0		
Campus Point				37.5	0
Genesee				44.0	0
I-5 NB				42.1	0
I-5 SB				44.2	0
12	3.Fl	51.3	0.0		
Campus Point				38.4	0
Genesee				44.8	0
I-5 NB				45.5	0
I-5 SB				47.8	0
13	1.Fl	54.4	0.0		
Campus Point				47.7	0
Genesee				52.7	0
I-5 NB				40.9	0
I-5 SB				42.5	0
13	2.Fl	55.0	0.0		
Campus Point				48.4	0
Genesee				53.0	0
I-5 NB				42.2	0
I-5 SB				44.8	0
13	3.Fl	56.3	0.0		
Campus Point				49.5	0
Genesee				53.1	0
I-5 NB				46.7	0
I-5 SB				49.2	0
14	1.Fl	56.1	0.0		
Campus Point				53.5	0
Genesee				52.4	0
I-5 NB				36.3	0
I-5 SB				36.3	0
14	2.Fl	57.6	0.0		
Campus Point				55.4	0

Genesee				53.3	0
I-5 NB				36.4	0
I-5 SB				37.3	0
14	3.Fl	58.6	0.0		
Campus Point				56.7	0
Genesee				53.8	0
I-5 NB				38.7	0
I-5 SB				39.7	0
15	1.Fl	59.0	0.0		
Campus Point				58.4	0
Genesee				49.9	0
I-5 NB				25.4	0
I-5 SB				25.7	0
15	2.Fl	61.2	0.0		
Campus Point				60.8	0
Genesee				50.3	0
I-5 NB				30.0	0
I-5 SB				30.5	0
15	3.Fl	62.1	0.0		
Campus Point				61.7	0
Genesee				50.6	0
I-5 NB				27.7	0
I-5 SB				28.6	0
16	1.Fl	50.7	0.0		
Campus Point				50.4	0
Genesee				29.1	0
I-5 NB				34.3	0
I-5 SB				34.3	0
16	2.Fl	52.4	0.0		
Campus Point				52.2	0
Genesee				32.5	0
I-5 NB				34.6	0
I-5 SB				35.2	0
16	3.Fl	53.7	0.0		
Campus Point				53.6	0
Genesee				33.2	0
I-5 NB				35.1	0
I-5 SB				35.7	0
17	1.Fl	46.9	0.0		
Campus Point				46.4	0
Genesee				27.0	0
I-5 NB				33.5	0
I-5 SB				33.3	0
17	2.Fl	49.0	0.0		
Campus Point				48.5	0
Genesee				32.1	0
I-5 NB				35.3	0
I-5 SB				35.5	0
17	3.Fl	50.0	0.0		
Campus Point				49.6	0
Genesee				31.6	0
I-5 NB				34.7	0
I-5 SB				35.5	0
18	1.Fl	54.0	0.0		
Campus Point				53.7	0

Genesee				40.8	0
I-5 NB				33.9	0
I-5 SB				34.1	0
18	2.Fl	56.2	0.0		
Campus Point				56.0	0
Genesee				41.4	0
I-5 NB				34.9	0
I-5 SB				35.8	0
19	1.Fl	44.7	0.0		
Campus Point				41.1	0
Genesee				38.6	0
I-5 NB				36.3	0
I-5 SB				36.9	0
19	2.Fl	45.6	0.0		
Campus Point				40.6	0
Genesee				41.3	0
I-5 NB				36.8	0
I-5 SB				37.9	0
20	1.Fl	47.1	0.0		
Campus Point				33.7	0
Genesee				39.0	0
I-5 NB				45.2	0
I-5 SB				38.8	0
20	2.Fl	46.0	0.0		
Campus Point				35.3	0
Genesee				41.9	0
I-5 NB				40.2	0
I-5 SB				40.1	0
21	1.Fl	47.6	0.0		
Campus Point				32.6	0
Genesee				36.8	0
I-5 NB				43.0	0
I-5 SB				44.8	0
21	2.Fl	50.2	0.0		
Campus Point				37.0	0
Genesee				44.3	0
I-5 NB				44.5	0
I-5 SB				46.6	0
22	1.Fl	51.9	0.0		
Campus Point				26.9	0
Genesee				27.5	0
I-5 NB				48.1	0
I-5 SB				49.5	0
22	2.Fl	54.1	0.0		
Campus Point				24.7	0
Genesee				29.3	0
I-5 NB				49.8	0
I-5 SB				52.0	0
23	1.Fl	51.3	0.0		
Campus Point				25.7	0
Genesee				27.5	0
I-5 NB				47.8	0
I-5 SB				48.6	0
23	2.Fl	53.4	0.0		
Campus Point				24.7	0

Genesee				29.3	0
I-5 NB				49.5	0
I-5 SB				51.1	0
24	1.Fl	45.9	0.0		
Campus Point				33.0	0
Genesee				29.6	0
I-5 NB				41.7	0
I-5 SB				43.3	0
24	2.Fl	47.2	0.0		
Campus Point				33.9	0
Genesee				29.5	0
I-5 NB				43.0	0
I-5 SB				44.7	0
25	1.Fl	45.0	0.0		
Campus Point				39.0	0
Genesee				31.2	0
I-5 NB				39.8	0
I-5 SB				41.0	0
25	2.Fl	46.0	0.0		
Campus Point				40.0	0
Genesee				34.8	0
I-5 NB				40.4	0
I-5 SB				42.1	0
26	1.Fl	47.1	0.0		
Campus Point				46.3	0
Genesee				31.2	0
I-5 NB				35.9	0
I-5 SB				35.7	0
26	2.Fl	48.0	0.0		
Campus Point				46.8	0
Genesee				31.3	0
I-5 NB				37.9	0
I-5 SB				38.4	0

ATTACHMENT 3

SoundPLAN Data – On-Site Generated Noise

5230.2 Campus Point
SoundPLAN Data - On-Site Noise Sources

No.	Receiver name	Building side	Floor	Limit L(Aeq1h) dB(A)	Level w/o NP L(Aeq1h) dB(A)	Level w. NP L(Aeq1h) dB(A)	Difference L(Aeq1h) dB(A)	Conflict L(Aeq1h) dB(A)
1	1		GF	-	49.8	0	-49.8	-
2	2		GF	-	53.3	0	-53.3	-
3	3		GF	-	47.8	0	-47.8	-
4	4		GF	-	41.9	0	-41.9	-
5	5		GF	-	41.1	0	-41.1	-
6	6		GF	-	40.7	0	-40.7	-
7	7		GF	-	28.6	0	-28.6	-
8	8		GF	-	26.9	0	-26.9	-
9	9		GF	-	27.6	0	-27.6	-
10	10		GF	-	27.0	0	-27.0	-
11	11		GF	-	27.0	0	-27.0	-
12	12		GF	-	39.9	0	-39.9	-
13	13		GF	-	42.0	0	-42.0	-
14	14		GF	-	30.8	0	-30.8	-
15	15		GF	-	41.1	0	-41.1	-
16	16		GF	-	26.7	0	-26.7	-

APPENDIX K

Waste Management Plan

RECON

Waste Management Plan for the Campus Point Project, San Diego, California

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San Diego, CA 92101
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1.0 Introduction

This Waste Management Plan (WMP) is a requirement for the Campus Point Project (proposed project). The purpose of the WMP is to identify solid waste that would be generated by demolition, grading, construction, and operation of the proposed project and measures to reduce those impacts.

Without implementation of the reduction and diversion measures herein, the estimated solid waste to be generated by the proposed project would exceed the City's Significance Determination Thresholds for the California Environmental Quality Act (CEQA; City of San Diego 2011). The direct impact threshold of significance for projects in the City of San Diego (City) is 1,500 tons of waste per year, and projects that generate more than 60 tons of waste per year would have a significant cumulative impact on solid waste services. The proposed project would generate approximately 150,008 tons of waste (total) during construction, grading, and demolition and 328 tons per year during occupancy. Therefore, preparation of a WMP is required to demonstrate how the proposed project would reduce solid waste impacts to below a level of significance.

The WMP consists of four sections corresponding to the progress of site improvements. These are Demolition, Grading, Construction, and Occupancy (post-construction). Each section addresses the amount of waste that would be generated by project activities, waste reduction goals, and the recommended techniques to achieve the waste reduction goals.

2.0 Background

The California State legislature has enacted several bills intended to promote waste diversion. In 1989, Assembly Bill (AB) 939, the Integrated Waste Management Act—as modified in 2010 by Senate Bill 1016—mandated that all local governments reduce waste disposed of in landfills from generators within their borders by 50 percent by the year 2000 (State of California 1989 and 2010). AB 341, approved October 2011, sets a policy goal of 75 percent waste diversion by the year 2020 (State of California 2011).

All landfills within the San Diego region are approaching capacity and due to close within the next 3 to 20 years. In compliance with the state policies, the City of San Diego Environmental Services Department (ESD) developed the Source Reduction and Recycling Element, which describes local waste management policies and programs. The City's Recycling Ordinance, adopted November 2007, requires on-site recyclables collection for residential and commercial uses (City of San Diego 2007a). The ordinance requires recycling of plastic and glass bottles and jars, paper, newspaper, metal containers, and cardboard. The focus of the ordinance is on education, with responsibility shared between the ESD, haulers, and building owners and managers. On-site technical assistance, educational materials, templates, and service provider lists are provided by the ESD. Property owners and managers provide on-site recycling services and educational materials annually and to new tenants. Strategies for compliance are discussed in Section 6.2, Waste Reduction Measures.

The City's Refuse and Recyclable Materials Storage Regulations, adopted December 2007, indicate the minimum exterior refuse and recyclable material storage areas required at residential and commercial properties (City of San Diego 2007b). These are intended to provide permanent, adequate, and convenient space for the storage and collection of refuse and recyclable materials; encourage recycling of solid waste to reduce the amount of waste material entering landfills; and meet the recycling goals established by the City Council and mandated by the State of California. These regulations are discussed further in Section 6.3, Exterior Storage.

In July 2008, the Construction and Demolition (C&D) Debris Deposit Ordinance was adopted by the City (City of San Diego 2008). The ordinance requires that the majority of construction, demolition, and remodeling projects requiring building, combination, or demolition permits pay a refundable C&D Debris Recycling Deposit and divert at least 50 percent of their waste by recycling, reusing, or donating reusable materials. The required diversion rate is currently proposed for an increase to 65 percent. The ordinance is designed to keep C&D materials out of local landfills. Requirements are discussed further in Section 5.4.4, Contractor Education and Responsibilities.

AB 1826, approved September 2014, will require businesses in California to arrange for recycling services for organic waste including food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste. The law is effective on and after January 1, 2016 for businesses that generate greater than eight cubic yards of organic waste per week; effective January 1, 2017 for businesses that generate greater than four cubic yards of organic waste per week; effective January 1, 2019 for businesses that generate greater than four cubic yards of commercial solid waste per week; and, if a 50 percent statewide reduction in organic waste from 2014 has not yet been achieved, the law will be effective January 1, 2020 for businesses that generate greater than two cubic yards of commercial solid waste per week (State of California 2014). Strategies for compliance are discussed in Section 6.2, Waste Reduction Measures.

3.0 Existing Conditions

The 58.2-acre project site is located at the north end of Campus Point Drive within the University Community Planning Area of San Diego. It currently contains a two-story 463,791-square-foot multi-tenant building used for scientific research (referred to as "CP1") as well as a 267,934-square-foot scientific research building, which is currently undergoing tenant improvements ("CP2"). Both of these existing buildings have associated utility structures, 9,044 square feet and 7,310 square feet, respectively. The utility structures are roofed but are not normally occupied. The project site is bound by Campus Point Drive to the east; open space to the northeast, north, and to the west; and research facilities to the south. Figure 1 shows the regional location of the project. Figure 2 shows an aerial photograph of the project vicinity.

4.0 Proposed Conditions

The proposed project would increase the density of the Campus Point site by adding two buildings (CP3 and CP4), a parking structure, a soccer field, and associated utilities and roadway improvements. CP3 would be six and 12 levels combined with a total of 318,383 square feet of scientific research space plus one 44,000-square-foot subterranean level. CP4, a 10,000-square-foot building east of CP3, would house “AlexHaus”, a brewery with a kitchen and restaurant as well as a retail component on the first floor. The second floor of the AlexHaus building would include a greenhouse, conference room, mechanical/storage space, and a clubhouse. CP3 and CP4 would total 328,383 square feet which counts against the allowable development intensity; however, for the purposes of this WMP, the additional 44,000 square feet of non-occupied subterranean space is included for a grand total of 372,383 square feet of proposed development.

A new six-level plus three subterranean level, 564,471-square-foot parking structure would be constructed along the southern boundary of the project site, which would accommodate a total of 1,455 parking stalls. Other proposed site improvements include a soccer field and a reconfiguration of the main “boulevard,” which provides circulation through the southern portion of the project site. At full buildout, the total habitable building square footage would be 1,060,108 square feet (including the two existing buildings); parking spaces would peak at 2,909 for the site, for an overall parking ratio of 2.74/1,000 square feet.

No existing structures would be demolished, but approximately 761,000 square feet of asphalt and concrete paving would be removed. Note that this WMP pertains only to the sitework and building improvements within the Limits of Disturbance that are subject to site development permit review. Figure 3 shows the proposed site plan for the project.

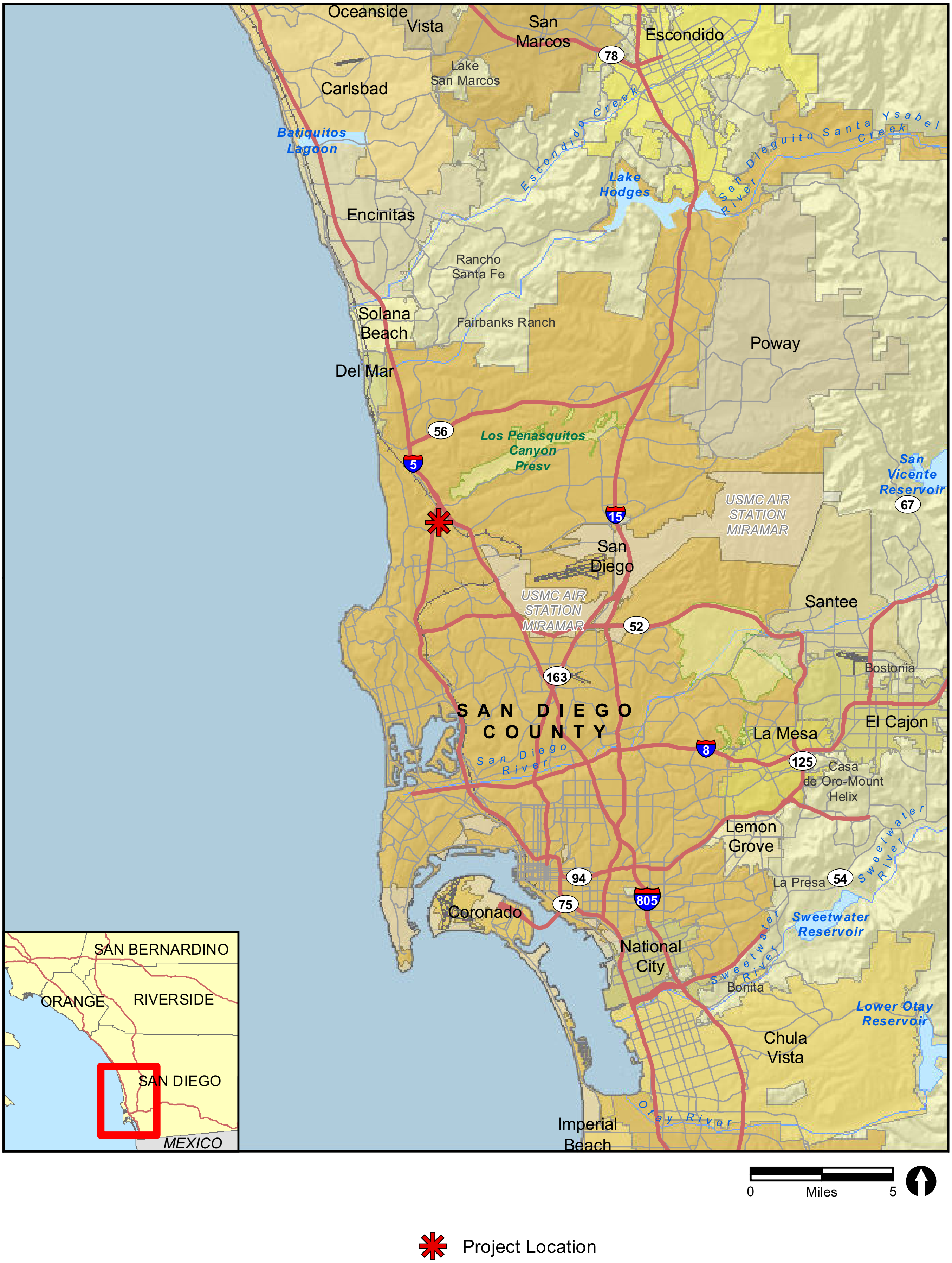

FIGURE 1
Regional Location

RECON

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Image Source: USDA FSA (flown June 2014)

Project Site
Off-site Improvement Area
Limits of Disturbance

0 Feet 400

General Note: This Waste Management Plan pertains only to the sitework and building improvements within the Limits of Disturbance that are subject to site development permit review.

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FIGURE 2

Aerial Photograph of Project Vicinity

Map Source: Carrier Johnson

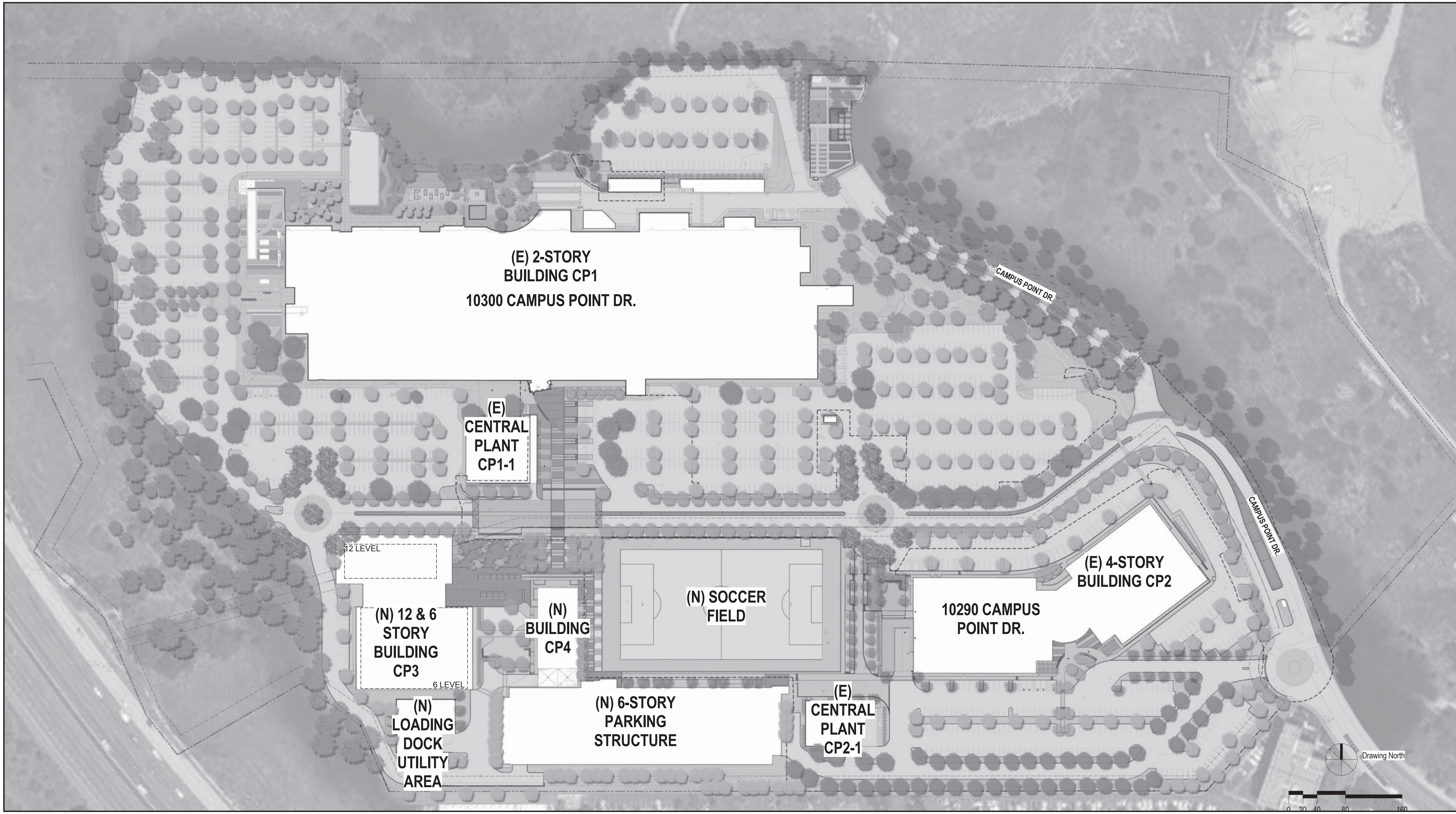

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FIGURE 3

Illustrative Site Plan

5.0 Demolition, Grading, and Construction

According to the Waste Composition Study prepared by the ESD, C&D waste constituted the largest single component of disposed waste in San Diego in 2000 (City of San Diego 2000). Of the almost 590,000 tons of waste disposed of that year, C&D waste composed 34 percent.

5.1 Demolition

Demolition activities would be required to remove approximately 761,000 square feet of asphalt paving, concrete curbs and sidewalks, and landscaped areas estimated to constitute 90 percent, 5 percent, and 5 percent, respectively. Asphalt and concrete paving depth varies by project and soil type, but is typically six inches for surface parking lots. Based on the ESD C&D Debris Conversion Rate Table (Attachment 1), estimated asphalt and concrete to be removed total 9,733 tons. These materials would be entirely diverted for reuse at the appropriate facility as shown in Table 1.

TABLE 1
PROJECTED MATERIALS GENERATED BY DEMOLITION ACTIVITIES

Material	Tons Generated[1]	Percent Diverted	Facility[2]	Tons Diverted	Tons Disposed
Asphalt (broken)	8,887	100	Vulcan Carol Canyon Landfill & Recycling Site	8,887	0
Concrete (broken)	846	100	Vulcan Carol Canyon Landfill & Recycling Site	846	0
Total	**9,733**	**100**		**9,733 (100%)**	**0 (0%)**

Note: Totals may vary due to independent rounding.
[1]ESD C&D Debris Conversion Rate Table (Attachment 1).
[2]City of San Diego ESD 2015 Certified C&D Recycling Facility Directory (Attachment 2).

5.2 Grading

As discussed in Section 3.0, Existing Conditions, the entire site has been previously developed/disturbed (see Figure 2). Following cleanup and demolition activities, implementation of the project would require a net soil export of approximately 106,500 cubic yards. Grading of the site would include 15,400 cubic yards of cut soil and 4,700 cubic yards of fill. Additional cut soil for the proposed structures would total 95,800 cubic yards, including 25,700 for CP3, 900 for CP4, and 69,200 for the parking structure. Based on the ESD Construction and Demolition Debris Conversion Rate Table, grading soil weighs approximately 1.3 tons per cubic yard (Attachment 1). Therefore, project grading would result in an export of 138,450 tons as shown in

Table 2. All exported soil would be recycled using the City of San Diego Clean Fill Dirt Program or an approved clean fill dirt handler listed in Attachment 1 (City of San Diego 2015).

TABLE 2
GRADING WASTE GENERATION, DIVERSION, AND DISPOSAL

Amount of Export (cubic yards)	Generation Rate (tons per cubic yard)[1]	Tons Exported	Percent Diverted	Tons Diverted	Tons Disposed
106,500	1.3	138,450	100%	138,450	0

[1]ESD C&D Debris Conversion Rate Table (Attachment 1).

Any vegetation removed would be taken to the Miramar Greenery facility for 100 percent composting. Diversion goals will be communicated to contractors through contract documents, the CEQA document and corresponding MMRP or permit conditions, and the SWMC for the project.

5.3 Construction

According to a 1998 study by the U.S. Environmental Protection Agency (U.S. EPA), a sample of non-residential construction projects, including office and restaurant space, generated an average of 3.9 pounds of construction waste per square foot (U.S. EPA 1998). Based on this generation rate, the total proposed building construction area of 372,383 square feet (including the subterranean level), and the 564,471square feet of proposed parking structure, it is estimated that 1,825 tons of waste would be generated during construction (see Table 3a).

TABLE 3a
CONSTRUCTION PHASE WASTE GENERATION

Building	Land Use	Amount (square feet)	Generation Rate (pounds per square foot)[1]	Tons Generated
CP3, Research Space	Office/Admin	362,383	3.9	707
CP4, AlexHaus Brewery/Restaurant	Restaurant	10,000	3.9	20
Building Subtotal	–	372,383	–	727
Parking Structure	Parking	564,471	3.9	1,098
Total		**936,854**		**1,825**

Note: Totals may vary due to independent rounding.
sf = square feet
[1]U.S. Environmental Protection Agency 1998

Estimates of material types and portions are based on similar non-residential developments and parking structures. As outlined in Table 3b below, the types of construction waste anticipated to be generated include the following:

- Asphalt and concrete
- Metals

- Brick/masonry/tile
- Clean wood
- Carpet, padding/foam
- Drywall
- Corrugated cardboard
- Trash/garbage

With implementation of the diversion procedures described in Section 5.4, Waste Diversion, and outlined in Table 3b, it is estimated that 76 percent of the waste generated during the construction phase of the proposed project would be diverted to appropriate facilities for reuse. Only 446 tons of trash/garbage would be disposed of in the landfill.

TABLE 3b
CONSTRUCTION WASTE DIVERSION AND DISPOSAL BY MATERIAL TYPE

Material Type	Estimated Waste (tons)[1]	Handling Facility[2]	Estimated Diversion (tons)	Estimated Disposal (tons)
Asphalt and Concrete	326	Vulcan Carol Canyon Landfill & Recycle Site	326	0
Metals	512	Allan Company, Consolidated Way	512	0
Brick/Masonry/Tile	157	Vulcan Carol Canyon Landfill & Recycle Site	157	0
Clean Wood	87	Miramar Greenery	87	0
Carpet, Padding/Foam	59	DFS Flooring	59	0
Drywall	162	EDCO Recovery & Transfer	100	62
Corrugated Cardboard	140	Allan Company, Consolidated Way	119	0
Trash/Garbage	384	Miramar Landfill	0	384
Total	**1,825**		**1,379 (76%)**	**446 (24%)**

Note: Totals may vary due to independent rounding.
[1]Portions of material types based on demolition estimates of similar residential developments and parking structures.
[2]City of San Diego ESD 2015 Certified C&D Recycling Facility Directory (Attachment 2).

5.4 Waste Diversion

Waste diversion would be conducted through source separation rather than mixed debris diversion. With mixed debris diversion, all material waste is disposed of in a single container for transport to a mixed C&D transfer station or facility where 65 percent is diverted for recycling. With source separated diversion, materials are separated on-site before transport to appropriate facilities that accept specific material types and a greater diversion rate is achieved. Recyclable waste materials, outlined in Sections 5.1 and 5.3 above, would be separated on-site into material-specific containers and diverted to an approved recycler selected from ESD's directory of facilities that recycle specific waste materials from construction and demolition (see Tables 1 and 3b; Attachment 2). These facilities achieve a 100 percent diversion rate for most materials and a 62 percent diversion rate for drywall. Given the waste reduction target of 75 percent, the majority of waste must be handled at facilities other than landfills. Currently there is insufficient capacity for organic materials collection, diversion, and processing required by State law under AB 1826 (State of California 2014).

5.4.1 Total Diversion

Table 4 summarizes the amount of waste estimated to be generated and diverted by each phase of the proposed project. Including demolition, grading, and construction, 150,008 tons of waste would be generated, 149,562 tons of which would be diverted, primarily through source separation. This would result in 99.7 percent of waste material diverted from the landfill for reuse. As discussed in Section 5.4.4, a SWMC would be designated and contractor education would occur to ensure that diversion methods are carried out adequately.

TABLE 4
TOTAL WASTE GENERATED, DIVERTED, AND DISPOSED OF BY PHASE

Phase	Tons Generated	Tons Diverted	Tons Disposed
Demolition	9,733	9,733 (100%)	0 (0%)
Grading	138,450	138,450 (100%)	0 (0%)
Construction	1,825	1,379 (76%)	446 (24%)
Total	**150,008**	**149,562 (99.7%)**	**446 (0.30%)**

Note: Totals may vary due to independent rounding.

5.4.2 Contractor Education and Responsibilities

A SWMC for the proposed project would be designated to ensure that all contractors and subcontractors are educated and that procedures for waste reduction and recycling efforts are implemented. Specific responsibilities of the SWMC would include the following:

- Review of the WMP at the preconstruction meeting, including the SWMC responsibilities.
- Distribute the WMP to all contractors when they first begin work on-site and when training workers, subcontractors, and suppliers on proper waste management procedures applicable to the project.
- Work with the contractors to estimate the quantities of each type of material that would be salvaged, recycled, or disposed of as waste, then assist in documentation.
- Use detailed material estimates to reduce risk of unplanned and potentially wasteful material cuts.
- Review and enforce procedures for source separated receptacles. Containers of various sizes shall:
    - Be placed in readily accessible areas that will minimize misuse or contamination.

  - Be clearly labeled with a list of acceptable and unacceptable materials, the same as the materials recycled at the receiving material recovery facility or recycling processor.
  - Contain no more than 10 percent non-recyclable materials, by volume.
  - Be inspected daily to remove contaminants and evaluate discarded material for reuse on-site.
- Review and enforce procedures for transportation of materials to appropriate recipients selected from ESD's directory of facilities that recycle demolition and construction materials (see Tables 1 and 3b; Attachment 2).
- Ensure removal of demolition and construction waste materials from the project site at least once every week to ensure no over-topping of containers. The accumulation and burning of on-site construction, demolition, and land-clearing waste materials will be prohibited.
- Document the return or reuse of excess materials and packaging to enhance the diversion rate.
- Coordinate implementation of a "buy recycled" program for green construction products, including incorporating mulch and compost into the landscaping.
- Coordinate implementation of solid waste mitigation with other requirements such as storm water requirements, which may include specifications such as the placement of bins to minimize the possibility of runoff contamination.

The SWMC would ensure that the proposed project meets the following state law and City Municipal Code requirements. Adjustments would be made as needed to maintain conformance:

- The City's C&D Debris Diversion Deposit Program, which requires a refundable deposit based on the tonnage of the expected recyclable waste materials as part of the building permit requirements (City of San Diego 2008).
- The City's Recycling Ordinance, which requires that collection of recyclable materials be provided (City of San Diego 2007a).
- The City's Storage Ordinance, which requires that areas for recyclable material collection must be provided (City of San Diego 2007b).
- The name and contact information of the waste contractor will be provided to ESD at least 10 days prior to the start of any work and updated within 5 days of any changes.

6.0 Occupancy

6.1 Waste Generation

The estimated annual waste to be generated during occupancy of the proposed project is based on findings from large office buildings reported by the California Environmental Protection Agency (State of California 2006). Table 5 summarizes the estimated occupancy phase waste generation, which amounts to a total of approximately 328 tons of waste per year, based on 328,383 square feet of habitable building space (excluding the 44,000 square feet of non-occupied subterranean space in CP3). As discussed in Section 6.2, Waste Reduction Measures, an ongoing plan to manage waste disposal in order to meet state and City waste reduction goals would be implemented by the applicant (or applicant's successor in interest).

TABLE 5
OCCUPANCY PHASE ANNUAL WASTE GENERATION

Land Use	Amount (sf)	Annual Generation Rate1	Waste Generated (tons)
Office	328,383	1,998 pounds per thousand sf	328
Total			**328**

[1]California Environmental Protection Agency (State of California 2006).
sf = square feet.

6.2 Waste Reduction Measures

Compliance with existing ordinances has been shown to achieve a 40 percent diversion rate. Therefore, waste anticipated to be diverted during the occupancy phase would be approximately 131 tons per year. The remaining 197 tons per year would still exceed the 60 ton-per-year threshold of significance for a cumulative impact on solid waste services in the City (City of San Diego 2011). Therefore, the applicant (or applicant's successor in interest) shall be responsible for implementing a long-term solid waste management plan.

6.3 Exterior Storage

This WMP follows the City of San Diego's Municipal Code on-site refuse and recyclable material storage space requirements (City of San Diego 2007b). Table 6 shows exterior storage area requirements for non-residential developments.

Because the proposed project would include a total of 328,383 habitable square feet of non-residential uses, a minimum of 672 square feet of refuse storage area and a minimum of 672 square feet of recyclable material storage area would be required. The total exterior refuse/recyclable material storage requirement for the proposed project would be 1,344 square feet. Site plans would be modified as needed to comply with this requirement.

TABLE 6
MINIMUM EXTERIOR REFUSE AND RECYCLABLE MATERIAL STORAGE AREAS FOR NON-RESIDENTIAL DEVELOPMENT

Gross Floor Area per Development (square feet)	Minimum Refuse Storage Area per Development (square feet)	Minimum Recyclable Material Storage Area per Development (square feet)	Total Minimum Storage Area per Development (square feet)
0–5,000	12	12	24
5,001–10,000	24	24	48
10,001–25,000	48	48	96
25,001–50,000	96	96	192
50,001–75,000	144	144	288
75,001–100,000	192	192	384
100,000+	192 plus 48 square feet for every 25,000 square feet of building area above 100,001	192 plus 48 square feet for every 25,000 square feet of building area above 100,001	384 plus 96 square feet for every 25,000 square feet of building area above 100,001
Project Total	**672**	**672**	**1,344**

SOURCE: City of San Diego Municipal Code, Article 2, Division 8: Refuse and Recyclable Material Storage Regulations, §142.0830, Table 142-08C; effective, January 2000.

6.4 Organic Waste Recycling

The proposed project would require some landscaping and landscape maintenance. Drought-tolerant plants would be used to reduce the amount of green waste produced. Food scraps and discards would comprise a substantial portion of waste from the AlexHaus restaurant and brewery component. Collection of organic waste and its disposal at recycling centers that accept organic waste further reduce the waste generated by the proposed project during the occupancy phase. As discussed in Section 6.2, Waste Reduction Measures, the ongoing waste management plan would include a means for handling landscaping and other organic waste materials.

7.0 Conclusion

7.1 Demolition, Grading, and Construction

A total of approximately 150,008 tons of waste would be generated during the demolition, grading, and construction of the proposed project (see Table 4). Most would be recycled at source separated facilities that achieve a 100 percent diversion rate. When necessary, mixed debris would be recycled at a lower diversion rate, leaving 446 tons to be disposed of. This amounts to a 99.7 percent reduction in solid waste, which would be diverted from the landfill.

7.2 Occupancy

The proposed project would include 328,383 square feet of habitable building space for non-residential uses, generating approximately 328 tons of waste per year; and would be required to provide a minimum of 672 square feet of exterior refuse area and the same amount of recyclable material storage area (total of 1,344 square feet; see Table 6). The applicant (or applicant's successor in interest) would implement an ongoing waste management plan with measures to ensure that the waste is minimized and the operation of the project complies with City ordinances. Compliance with existing ordinances has been shown to achieve a 40 percent diversion rate. Therefore, approximately 197 tons of waste per year would be generated from the proposed project, exceeding the 60 ton-per-year threshold of significance for having a cumulative impact on solid waste services by 137 tons per year. Thus, a near 100 percent diversion rate during the other phases would be required to offset the impact of the occupancy phase.

7.3 Overall Compliance

With implementation of this WMP, the proposed project would comply with all applicable City ordinances regarding collection, diversion, and disposal of waste generated from C&D, grading, and occupancy. During occupancy, an ongoing waste management plan would include provision of sufficient interior and exterior storage space for refuse and recyclable materials, and a means of handling and recycling landscaping and green waste materials.

This WMP outlines strategies to achieve 99.7 percent of waste being diverted from disposal during C&D and grading of the proposed project. This would reduce the anticipated impact of waste disposal to below the direct impact threshold of significance as well as greatly exceed the state requirement of 50 percent diversion set forth in AB 939 and the AB 341 goal of 75 percent diversion. Although the occupancy phase is anticipated to involve a recurring shortcoming of only 40 percent diversion with implementation of an ongoing waste management plan, this would be compensated for by the near 100 percent diversion rate during the other phases.

8.0 References Cited

California, State of

1989 Assembly Bill 939. Integrated Waste Management Act.

2006 Waste Disposal and Diversion Findings for Selected Industry Groups. California Environmental Protection Agency, Integrated Waste Management Board. June.

2010 Senate Bill 1016. Solid Waste Per Capita Disposal Measurement Act.

2011 Assembly Bill 341. Jobs and Recycling.

2014 Assembly Bill 1826. Solid Waste: Organic Waste.

San Diego, City of

2000 Waste Composition Study 1999-2000. Final Report. San Diego Environmental Services Department. November 2000.

2007a Recycling Ordinance. San Diego Municipal Code Chapter 6, Article 6, Division 7. November 20, 2007.

2007b Refuse and Recyclable Materials Storage Regulations. Municipal Code Chapter 14, Article 2, Division 8. December 9, 2007.

2008 Construction and Demolition Debris Diversion Deposit Program. San Diego Municipal Code Chapter 6, Article 6, Division 6.

2011 Significance Determination Thresholds. California Environmental Quality Act. January.

2015 Clean Fill Dirt Program. San Diego Environmental Services Department. http://www.sandiego.gov/environmental-services/miramar/cfdp.shtml. Accessed online May 20, 2015.

U.S. Environmental Protection Agency (U.S. EPA)

1998 Characterization of Building-Related Construction and Demolition Debris in the United States. Municipal and Industrial Solid Waste Division. Office of Solid Waste. Report No. EPA530-R-98-010. June.

ATTACHMENTS

ATTACHMENT 1

City of San Diego
Construction & Demolition Debris Conversion Rate Table

CITY OF SAN DIEGO
CONSTRUCTION & DEMOLITION (C&D) DEBRIS CONVERSION RATE TABLE

This worksheet lists materials typically generated from a construction or demolition project and provides formulas for converting common units (i.e., cubic yards, square feet, and board feet) to tons. It should be used for preparing your Waste Management Form, which requires that quantities be provided in tons.

Step 1
Enter the estimated quantity for each applicable material in Column I, based on units of cubic yards (cy), square feet (sq ft), or board feet (bd ft).
Step 2
Multiply by Tons/Unit figure listed in Column II. Enter the result for each material in Column III. If using Excel version, column III will automatically calculate tons.
Step 3
Enter quantities for each separated material from Column III on this worksheet into the corresponding section of your Waste Management Form.

For your final calculations, use the actual quantities, based on weight tags, gate receipts, or other documents.

		Column I			Column II		Column III
Category	**Material**	**Volume**	**Unit**		**Tons/Unit**		**Tons**
Asphalt/Concrete	Asphalt (broken)		cy	x	0.70	=	
	Concrete (broken)		cy	x	1.20	=	
	Concrete (solid slab)		cy	x	1.30	=	
Brick/Masonry/Tile	Brick (broken)		cy	x	0.70	=	
	Brick (whole, palletized)		cy	x	1.51	=	
	Masonry Brick (broken)		cy	x	0.60	=	
	Tile		sq ft	x	0.00175	=	
Building Materials (doors, windows, cabinets, etc.)			cy	x	0.15	=	
Cardboard (flat)			cy	x	0.05	=	
Carpet	By square foot		sq ft	x	0.0005	=	
	By cubic yard		cy	x	0.30	=	
Carpet Padding/Foam			sq ft	x	0.000125	=	
Ceiling Tiles	Whole (palletized)		sq ft	x	0.0003	=	
	Loose		cy	x	0.09	=	
Drywall (new or used)	1/2" (by square foot)		sq ft	x	0.0008	=	
	5/8" (by square foot)		sq ft	x	0.00105	=	
	Demo/used (by cubic yd)		cy	x	0.25	=	
Earth	Loose/Dry		cy	x	1.20	=	
	Excavated/Wet		cy	x	1.30	=	
	Sand (loose)		cy	x	1.20	=	
Landscape Debris (brush, trees, etc)			cy	x	0.15	=	
Mixed Debris	Construction		cy	x	0.18	=	
	Demolition		cy	x	1.19	=	
Scrap metal			cy	x	0.51	=	
Shingles, asphalt			cy	x	0.22	=	
Stone (crushed)			cy	x	2.35	=	
Unpainted Wood & Pallets	By board foot		bd ft	x	0.001375	=	
	By cubic yard		cy	x	0.15	=	
Garbage/Trash			cy	x	0.18	=	
Other (estimated weight)			cy	x	estimate	=	
			cy	x	estimate	=	
			cy	x	estimate	=	
			cy	x	estimate	=	

Total All ____________

ATTACHMENT 2

City of San Diego
2015 Certified Construction & Demolition
Recycling Facility Directory

THE CITY OF SAN DIEGO

2015 Certified Construction & Demolition Recycling Facility Directory

These facilities are certified by the City of San Diego to accept materials listed in each category. Hazardous materials are not accepted. The diversion rate for these materials shall be considered 100%, except mixed C&D debris which updates quarterly. The City is not responsible for changes in facility information. Please call ahead to confirm details such as accepted materials, days and hours of operation, limitations on vehicle types, and cost. For more information visit: www.recyclingworks.com.

Please note: In order to receive recycling credit, Mixed C&D Facility and transfer station receipts must: *-be coded as construction & demolition (C&D) debris* *-have project address or permit number on receipt* **Make sure to notify weighmaster that your load is subject to the City of San Diego C&D Ordinance.* ***Note about landfills: Miramar Landfill and other landfills do not recycle mixed C&D debris.***	Mixed C&D Debris	Asphalt /Concrete	Brick/Block/Rock	Building Materials for Reuse	Cardboard	Carpet	Carpet Padding	Ceiling Tile	Ceramic Tile / Porcelain	Clean Fill Dirt	Clean Wood / Green Waste	Drywall	Industrial Plastics	Lamps / Light Fixtures	Metal	Mixed Inerts	Styrofoam Blocks
EDCO Recovery & Transfer 3660 Dalbergia St, San Diego, CA 92113 619-234-7774 | www.edcodisposal.com/public-disposal	65%											●					
EDCO Station Transfer Station & Buy Back Center 8184 Commercial St, La Mesa, CA 91942 619-466-3355 | www.edcodisposal.com/public-disposal	65%				●							●			●		
EDCO CDI Recycling & Buy Back Center 224 S. Las Posas Rd, San Marcos, CA 92078 760-744-2700 | www.edcodisposal.com/public-disposal	89%				●										●		
Escondido Resource Recovery 1044 W. Washington Ave, Escondido 760-745-3203 | www.edcodisposal.com/public-disposal	65%																
Fallbrook Transfer Station & Buy Back Center 550 W. Aviation Rd, Fallbrook, CA 92028 760-728-6114 | www.edcodisposal.com/public-disposal	65%				●										●		
Otay C&D/Inert Debris Processing Facility 1700 Maxwell Rd, Chula Vista, CA 91913 619-421-3773 | www.sd.disposal.com	66%																
Ramona Transfer Station & Buy Back Center 324 Maple St, Ramona, CA 92065 760-789-0516 | www.edcodisposal.com/public-disposal	65%				●										●		
SANCO Resource Recovery & Buy Back Center 6750 Federal Blvd, Lemon Grove, CA 91945 619-287-5696 | www.edcodisposal.com/public-disposal	65%				●										●		
All American Recycling 10805 Kenney St, Santee, CA 92071 619-508-1155 (Must call for appointment)						●											
Allan Company 6733 Consolidated Wy, San Diego, CA 92121 858-578-9300 | www.allancompany.com/facilities.htm					●										●		
Allan Company Miramar Recycling 5165 Convoy St, San Diego, CA 92111 858-268-8971 | www.allancompany.com/facilities.htm					●										●		
Allan Company 8514 Mast Blvd, Santee, CA 92701 619-448-4295 | www.allancompany.com/facilities.htm					●										●		
AMS 4674 Cardin St, San Diego, CA 92111 858-541-1977 | www.a-m-s.com								●									
AMS 1120 West Mission Ave, Escondido, CA 92025 858-541-1977 | www.a-m-s.com								●									
Armstrong World Industries, Inc. 300 S. Myrida St, Pensacola, FL 32505 877-276-7876 (Press 1, Then 8) www.armstrong.com/commceilingsna								●									
Cactus Recycling 8710 Avenida De La Fuente, San Diego, CA 92154 619-661-1283 | www.cactusrecycling.com					●								●		●		●

	Mixed C&D Debris	Asphalt /Concrete	Brick/Block/Rock	Building Materials for Reuse	Cardboard	Carpet	Carpet Padding	Ceiling Tile	Ceramic Tile / Porcelain	Clean Fill Dirt	Clean Wood / Green Waste	Drywall	Industrial Plastics	Lamps / Light Fixtures	Metal	Mixed Inerts	Styrofoam Blocks
DFS Flooring 10178 Willow Creek Road, San Diego, CA 92131 858-630-5200 | www.dfsflooring.com						●	●										
Enniss Incorporated 12421 Vigilante Rd, Lakeside, CA 92040 619-443-9024 | www.enniss.net		●	●						●	●							
Escondido Sand and Gravel 500 N. Tulip St, Escondido, CA 92025 760-432-4690 | www.weirasphalt.com/esg		●															
Habitat for Humanity ReStore 10222 San Diego Mission Rd, San Diego, CA 92108 619-516-5267 | www.sdhfh.org/restore.php				●													
Hanson Aggregates West – Lakeside Plant 12560 Highway 67, Lakeside, CA 92040 858-547-2141		●															
Hanson Aggregates West – Miramar 9229 Harris Plant Rd, San Diego, CA 92126 858-974-3849		●								●							
Hidden Valley Steel & Scrap, Inc. 1342 Simpson Wy, Escondido, CA 92029 760-747-6330															●		
HVAC Exchange 2675 Faivre St, Chula Vista, CA 91911 619-423-1855 | www.thehvacexchange.com															●		
IMS Recycling Services 2740 Boston Ave, San Diego, CA 92113 619-231-2521 | www.imsrecyclingservices.com					●								●				
IMS Recycling Services 2697 Main St, San Diego, CA 92113 619-231-2521 | www.imsrecyclingservices.com													●		●		
Inland Pacific Resource Recovery 12650 Slaughterhouse Canyon Rd, Lakeside, CA 92040 619-390-1418											●						
Lakeside Land Co., Inc. 10101 Riverford Rd, Lakeside, CA 92040 619-449-9083 | www.lakesideland.com		●														●	
Lamp Disposal Solutions 8248 Ronson Ct, San Diego, CA 92111 858-569-1807 | www.lampdisposalsolutions.com														●			
Lights Out Disposal 1097 Palm Ave, Ste 100, El Cajon, CA 92020 619-438-1093 | www.lightsoutdisposal.com														●			
Los Angeles Fiber Company 4920 S. Boyle Ave, Vernon, CA 90058 323-589-5637 | www.lafiber.com						●	●										
Miramar Greenery, City of San Diego 5180 Convoy St, San Diego, CA 92111 858-694-7000 | www.sandiego.gov/environmental-services/miramar/greenery.shtml											●						
Moody's 3210 Oceanside Blvd., Oceanside, CA 92056 760-433-3316		●								●						●	
Otay Valley Rock, LLC 2041 Heritage Rd, Chula Vista, CA 91913 619-591-4717 | www.otayrock.com		●															
Pacific Steel, Inc. 1700 Cleveland Ave, National City, CA 91950 619-474-7081															●		
Reclaimed Aggregates Chula Vista 855 Energy Wy, Chula Vista, CA 91913 619-656-1836		●														●	

	Mixed C&D Debris	Asphalt /Concrete	Brick/Block/Rock	Building Materials for Reuse	Cardboard	Carpet	Carpet Padding	Ceiling Tile	Ceramic Tile / Porcelain	Clean Fill Dirt	Clean Wood / Green Waste	Drywall	Industrial Plastics	Lamps / Light Fixtures	Metal	Mixed Inerts	Styrofoam Blocks
Reconstruction Warehouse 3341 Hancock St., San Diego, CA 92110 619-795-7326 | www.recowarehouse.com				●													
Robertson's Ready Mix 2094 Willow Glen Dr, El Cajon, CA 92019 619-593-1856		●								●						●	
Romero General Construction Corp. 8354 Nelson Wy, Escondido, CA 92026 760-749-9312 | www.romerogc.com/crushing/nelsonway.htm		●															
SA Recycling 3055 Commercial St., San Diego, CA 92113 619-238-6740 | www.sarecycling.com															●		
SA Recycling 1211 S. 32nd St., San Diego, CA 92113 619-234-6691 | www.sarecycling.com															●		
Vulcan Carol Canyon Landfill and Recycle Site 10051 Black Mountain Rd, San Diego, CA 92126 858-530-9465 | www.vulcanmaterials.com/carrollcanyon		●	●							●						●	

APPENDIX L

Sewer Study

Baker

Sewer Study

For

Campus Point SDP

Prepared For:
Alexandria Real Estate Equities
10996 Torreyanna Road, Suite 250
San Diego, CA 92121

City of San Diego
PTS:

MICHAEL BAKER INTERNATIONAL
Global Innovation ... Done Right

Prepared by:
Michael Baker International
9755 Clairemont Mesa Blvd.
San Diego, CA 92124
858.614.5065
Richard S. Tomlinson, Jr. P.E. QSD

RBF Job Number:
149488

Prepared:
September 15, 2014

Revised:
November 25, 2015

Table of Contents

Figures

Appendices

2. Project Description and Study Area

2.1. Project Data

Project Owner:	Alexandria Real Estate Equities 4660 La Jolla Village Drive San Diego, CA 92122
Project Site Address:	10290 Campus Point Drive
Planning Area/ Community Area/ Development Name:	University Towne Center
APN Number(s):	343-230-14-00
Project Location:	Latitude: 32.89335° Longitude: -117.223473°
Project Site Area:	16.52 acres
Adjacent Streets:	North: Roselle Street South: Campus Point Court East: Campus Point Drive West: Interstate 5
Adjacent Land Uses:	North: Open Space South: Commercial East: Open Space West: Interstate Highway and Open Space

2.2. Project Location

The project is located on at 10290 Campus Point Drive in the City and County of San Diego, in the Sorrento Valley Community of the City of San Diego. The project is located just to the east of Interstate 5, west of Interstate 805, and just south of the 5/805 merge. The project is located northerly of Genesee Avenue. Please refer to the figure below for a Vicinity Map.

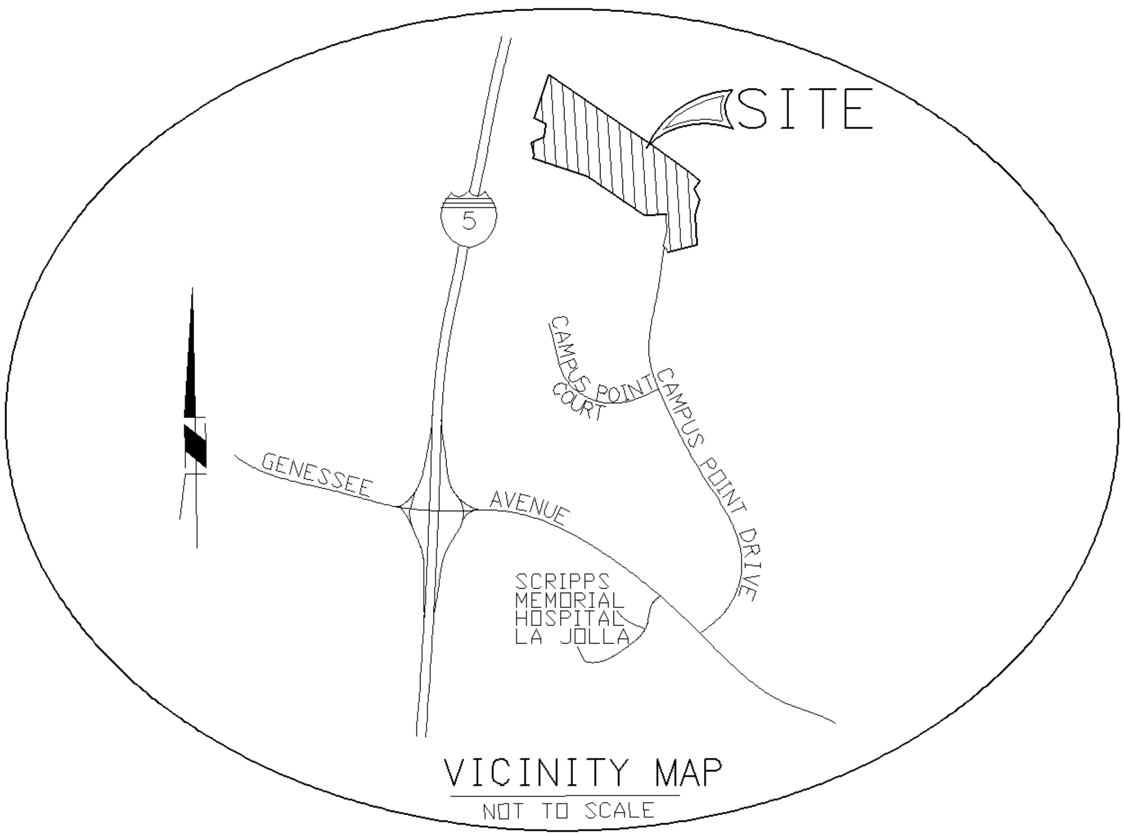

Figure 1 -- Vicinity Map

2.3. PROJECT STUDY AREA

The project proposes the construction of two new buildings and a parking structures on the 16.52 acre site. The project also proposes the construction of new hardscape, landscape and new utilities including sewer, water, and fire service. In addition, underground storm drain, catch basins, curb inlets and bioretention basins are proposed. In order to accomplish the construction, the project proposes the demolition of existing parking, hardscape and landscape.

This report will provide an analysis of the existing Campus Point Development at 10290 Campus Point Drive as well as the addition of two new buildings and the addition of a new Central Plant. The analysis extends to the 12” PVC sewer that extends to the east from Campus Point Drive, down the slope to the truck sewer.

Sewer flows from the existing and proposed development are carried within a single sewer line. The sewer runs along the south side of the lot from west to east. The first segments drain into a proposed lift station that lifts the flows to the existing sewer located along the south side of the existing building. The sewer continues to flow west where it combines with the flows from the existing building and central utility plant for the 10300 Campus Point Drive project.

The two sewers on Campus point drive combine into a single 12” sewer line that flows to the east, down the slope and to the truck sewer.

3. DESIGN CRITERIA

3.1. Methodology

Sewer mains under 15-inches in diameter were evaluated to determine their ability to flow without exceeding 50% capacity during dry weather peak flow conditions. Where feasible, all sewer mains were designed to conform to the 2 fps minimum cleansing velocity, determined through the use of Manning's equation. An "n" value of 0.013 was used as recommended by the Sewer Design Guide. If the minimum cleansing velocity was not reached, then the sewer main was designed to have a minimum grade of 1.0% as required by the Unified Plumbing Code. Calculations used to solve for the aforementioned parameters are included in Appendix C.

Because this project is still within the preliminary design stage, no Fixture Unit Counts were available. Therefore, a planning metric was used for the calculations.

The building square footages were divided by areas (including all floors) and the area was used to determine the equivalent EDU's. Because the large existing building has multiple laterals, square footages from the building were assigned to each of the laterals, whereas each of the four lateral on the north side include 1/4th of the north side of the building whereas the southerly lateral was assumed to pick up the southerly half of the building.

For each of the new buildings, the sewer flows were assumed in the same manner, with each net acre of building generating 43.7 population of flow.

Sewer flow was then calculated using the method indicated in section 1.3.2.2 of the Sewer Design Guide and the given value of 80 gallons/capita/day (see also above). These flow rates were then supplemented by the required peaking factors calculated by the equation listed in Figure 1-1 of the Sewer Design Guide. These values were calculated for each pipeline section based on the cumulative population contributing to each line. Copies of the figures and tables used are included in Appendix B.

The sewer study summary table presented in this report was obtained from Figure 1-2 of the Sewer Design Guide. Sewer location, pipeline numbers, and manhole numbers used for the analysis are shown on Exhibit 2. As shown in the sewer study summary in Table 1, the column labels represent the following:

In-Line DU's is the number of units contributing flow to a particular sewer.

Population Served In-Line is the number of in-line dwelling units multiplied by the population per dwelling unit.

Total Population Served is the cumulative population, both local and upstream, being served by each pipeline reach.

Sewage Per Capita/Day is the sewer flow of 80 gallons/capita/day for the equivalent population

Average Dry Weather Flow is the total flow for the calculated population.

The Peak/Average Ratio is the peaking factor calculated for each pipeline.

The Peak Design Flow is the cumulative total peaked flow at a particular sewer structure.

3.2. POPULATION DETERMINATION

The population for each building was calculated as described above utilizing information provided for the square footage of building using the assumption of 43.7 population per net acre of building.

For the Central Utility plants, the average gallons per minute was used for input into the sewer study. Because this number is based on the peak amount used, no peaking factor was applied. However, a peaking factor was applied to all other flows.

4. CONCLUSIONS

The purpose of this report is to provide an assessment of the site system's capability to convey the proposed projects sewer flow. The results of the analysis indicate that all proposed sewer mains have sufficient capacity for the proposed site. All sewer mains experience a depth to diameter ratio of less than 50%. Sewer mains were designed to meet the 2 fps cleansing velocity minimum or the minimum slope of 1% as recommended by the Sewer Design Guide.

The sewer line at the southeast corner of the building, where flows from 10300 Campus Point Drive enter the system is undersized. Calculations show that a 10" sewer replaced between the point of combination of the two 8" sewers and the existing 12" sewer, then the sewer will flow less than 50% full.

It should be noted that with the design criteria listed above, all sewer mains conform to the City of San Diego's Sewer Design Guide.

Michael Baker
INTERNATIONAL

Appendix A -- Sewer Study Summary Table

Table 1 - Sewer Study Summary

Sewer Line	Upstream Junction	Downstream Junction	Population per DU	In-line DU's	Population Served In-Line	Population Served Total	Sewage Per Capita/Day (gpd)	Avg. Dry Weather Flow (gpd)	Peak/Avg Ratio	Diameter (in)	Central Plant Flow*	Peak Design Flow (gpd)	Peak Design Flow (cfs)	U'stream Invert	D'stream Invert	Pipe Length (ft)	Design Slope %	Depth dn (in)	Depth / Diam Ratio (dn / D)	Velocity (fps)
Reach A																				
1	POC	MH1	3.5	0	13.50	13.50	80.00	1080.00	4.43885	6.00	0.00	4793.96	0.007	295.89	295.35	54.19	1.00%	0.47	8%	0.99
2	POC	MH1	3.5	0	465.00	478.50	80.00	38280.00	2.74993	6.00	0.00	105267.19	0.163	296.24	296.35	89.95	1.00%	2.21	37%	2.48
3	MH1	PS	3.5	0	0.00	478.50	80.00	38280.00	2.74993	8.00	40.00	162867.19	0.252	296.35	292.40	100.05	1.00%	2.48	31%	3.03
4	PS	ANG1	3.5	0	478.50	957.00	80.00	76560.00	2.50566	8.00	40.00	249433.65	0.386	FORCE MAIN						
5	ANG1	ANG2	3.5	0	0.00	957.00	80.00	76560.00	2.50566	8.00	40.00	249433.65	0.386							
6	ANG2	ANG3	3.5	0	0.00	957.00	80.00	76560.00	2.50566	8.00	40.00	249433.65	0.386							
7	ANG3	ANG4	3.5	0	0.00	957.00	80.00	76560.00	2.50566	8.00	40.00	249433.65	0.386							
8	ANG4	ANG 5	3.5	0	0.00	957.00	80.00	76560.00	2.50566	8.00	40.00	249433.65	0.386							
9	ANG 5	ANG6	3.5	0	0.00	957.00	80.00	76560.00	2.50566	8.00	40.00	249433.65	0.386							
10	MH2	MH3	3.5	0	0.00	957.00	80.00	76560.00	2.50566	8.00	80.00	307033.65	0.475	294.65	290.65	386.64	1.03%	3.45	43%	3.29
11	MH3	MH4	3.5	0	0.00	957.00	80.00	76560.00	2.50566	8.00	80.00	307033.65	0.475	290.65	289.88	76.37	1.01%	3.47	43%	3.27
12	MH4	Mh5	3.5	0	269.00	1226.00	80.00	98080.00	2.42374	8.00	80.00	352920.30	0.546	289.88	278.40	236.58	4.85%	2.46	31%	5.99
13	Mh5	MH6	3.5	0	465.00	1691.00	80.00	135280.00	2.32137	10.00	120.00	486834.93	0.753	278.40	278.13	27.94	0.97%	4.08	41%	3.60

*Central Plant Flows are total central plant flows in the segment. No peaking factor is applied.

Appendix B -- Sewer Manhole and Pipe Layout

LEGEND

ITEM	SYMBOL
PIPE SEGMENT	(X)
SEWER MANHOLE	○
PROPOSED SEWER PUMP STATION	◯ (in square)

EXISTING

EXISTING SEWER 8" PVC — blue dashed line

PROPOSED IMPROVEMENTS

PROPOSED SEWER 8" PVC — magenta line

PROPOSED SEWER 8" FORCE MAIN — green line

SEWER DATA			
(X)	LENGTH	SLOPE	TYPE
1	54.19'	1.0%	8" PVC
2	89.95'	1.0%	8" PVC
3	100.05'	1.0%	8" PVC
4	17.57'	FORCE	MAIN
5	68.58'	FORCE	MAIN
6	168.30'	FORCE	MAIN
7	28.36'	FORCE	MAIN
8	259.0'	FORCE	MAIN
9	89.83'	FORCE	MAIN
10	386.64'	1.03%	8" PVC
11	76.37'	1.01%	8" PVC
12	236.58'	4.85%	8" PVC
13	27.94'	0.97%	10" PVC

NOTES:

1. PROPOSED SEWER PUMP STATION
2. EXISTING SEWER MANHOLE (POINT OF CONNECTION)
3. FORCE MAIN ANGLE POINT
4. PROPOSED SEWER MANHOLE

50 0 50 100 150

SCALE: 1"=50'

CAMPUS POINTE

CAMPUS POINT DR
SAN DIEGO, CA

SEWER LAYOUT

11/23/15

Michael Baker
INTERNATIONAL
9755 Clairemont Mesa Boulevard
San Diego, CA 92124
Phone: (858) 614-5000 · MBAKERINTL.COM

Appendix C -- Calculations

Sewer Pipe Calcs Report

Label	Solve For	Friction Method	Roughness Coefficient	Channel Slope (ft/ft)	Normal Depth (in)
Circular Pipe - 1	Normal Depth	Manning Formula	0.013	0.01000	0.47
Circular Pipe 2	Normal Depth	Manning Formula	0.013	0.01000	2.21
Circular Pipe 3	Normal Depth	Manning Formula	0.013	0.01000	2.48
Circular Pipe 10	Normal Depth	Manning Formula	0.013	0.01030	3.45
Circular Pipe 11	Normal Depth	Manning Formula	0.013	0.01010	3.47
Circular Pipe 12	Normal Depth	Manning Formula	0.013	0.04850	2.46
Circular Pipe 13	Normal Depth	Manning Formula	0.013	0.00970	4.08

Diameter (in)	Discharge (ft^3/s)	Flow Area (ft^2)	Wetted Perimeter (ft)	Hydraulic Radius (in)	Top Width (ft)	Critical Depth (ft)
6.00	0.01	0.01	0.28	0.30	0.27	0.04
6.00	0.16	0.07	0.65	1.21	0.48	0.20
8.00	0.25	0.09	0.79	1.40	0.62	0.23
8.00	0.48	0.14	0.96	1.81	0.66	0.32
8.00	0.48	0.15	0.96	1.82	0.66	0.32
8.00	0.55	0.09	0.78	1.40	0.62	0.35
10.00	0.75	0.21	1.15	2.17	0.82	0.38

Sewer Pipe Calcs Report

Percent Full (%)	Critical Slope (ft/ft)	Velocity (ft/s)	Velocity Head (ft)	Specific Energy (ft)	Froude Number	Maximum Discharge (ft³/s)
7.8	0.00882	0.99	0.02	0.05	1.07	0.60
36.9	0.00723	2.48	0.10	0.28	1.18	0.60
31.0	0.00644	2.73	0.12	0.32	1.25	1.30
43.2	0.00693	3.29	0.17	0.46	1.24	1.32
43.4	0.00693	3.27	0.17	0.46	1.23	1.31
30.7	0.00715	5.99	0.56	0.76	2.75	2.86
40.8	0.00632	3.60	0.20	0.54	1.26	2.32

Discharge Full (ft³/s)	Slope Full (ft/ft)	Flow Type	Notes	Messages
0.56	0.00000	SuperCritical		
0.56	0.00084	SuperCritical		
1.21	0.00043	SuperCritical		
1.23	0.00155	SuperCritical		
1.21	0.00155	SuperCritical		
2.66	0.00204	SuperCritical		
2.16	0.00118	SuperCritical		

Appendix D -- City of San Diego References

TABLE 1-1

CITY OF SAN DIEGO
DENSITY CONVERSIONS
(Continued)

Zone	Maximum Density (DU/Net Ac)	Population/(DU)	Equivalent Population (Pop/Net Ac)
RM-3-9	73	2.2	160.6
RM-4-10	109	1.8	196.2
RM-4-11	218	1.5	327.0
Schools/Public	8.9	3.5	31.2
Offices	10.9	3.5	38.2*
Commercial/Hotels	12.5	3.5	43.7*
Industrial	17.9	3.5	62.5*
Hospital	42.9	3.5	150.0*

Definitions:

DU = Dwelling Units
Ac = Acreage
Pop = Population

Net Acreage is the developable lot areas excluding areas that are dedicated as public streets in acres. Gross Area is the entire area in acres of the drainage basin, including lots, streets, etc.

For undeveloped areas, assume Net Acreage = 0.8 x Gross Area in Acres

For developed areas, calculate actual net acreage.

Tabulated figures are for general case. The tabulated figures shall not be used if more accurate figures are available.

Population is based on actual equivalent dwelling units (EDU) or the maximum estimate obtained from zoning.

Figures with asterisk (*) represent equivalent population per floor of the building.

CITY OF SAN DIEGO
METROPOLITAN WASTEWATER DEPARTMENT

PEAKING FACTOR FOR SEWER FLOWS
(Dry Weather)

Ratio of Peak to Average Flow*
Versus Tributary Population

Population	Ratio of Peak to Average Flow	Population	Ratio of Peak to Average Flow
200	4.00	4,800	2.01
500	3.00	5,000	2.00
800	2.75	5,200	1.99
900	2.60	5,500	1.97
1,000	2.50	6,000	1.95
1,100	2.47	6,200	1.94
1,200	2.45	6,400	1.93
1,300	2.43	6,900	1.91
1,400	2.40	7,300	1.90
1,500	2.38	7,500	1.89
1,600	2.36	8,100	1.87
1,700	2.34	8,400	1.86
1,750	2.33	9,100	1.84
1,800	2.32	9,600	1.83
1,850	2.31	10,000	1.82
1,900	2.30	11,500	1.80
2,000	2.29	13,000	1.78
2,150	2.27	14,500	1.76
2,225	2.25	15,000	1.75
2,300	2.24	16,000	1.74
2,375	2.23	16,700	1.73
2,425	2.22	17,400	1.72
2,500	2.21	18,000	1.71
2,600	2.20	18,900	1.70
2,625	2.19	19,800	1.69
2,675	2.18	21,500	1.68
2,775	2.17	22,600	1.67
2,850	2.16	25,000	1.65
3,000	2.14	26,500	1.64
3,100	2.13	28,000	1.63
3,200	2.12	32,000	1.61
3,500	2.10	36,000	1.59
3,600	2.09	38,000	1.58
3,700	2.08	42,000	1.57
3,800	2.07	49,000	1.55
3,900	2.06	54,000	1.54
4,000	2.05	60,000	1.53
4,200	2.04	70,000	1.52
4,400	2.03	90,000	1.51
4,600	2.02	100,000+	1.50

***Based on formula:** **Peak Factor = 6.2945 x (pop)$^{-0.1342}$**
(Holmes & Narver, 1960)

FIGURE 1-1-

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INTERNATIONAL