April 2021 | Initial Study

HEIDEMAN ELEMENTARY SCHOOL JOINT-USE PARK PROJECT

Tustin Unified School District

Prepared for:

Tustin Unified School District
Contact: Tom Rizzuti, Director of Facilities and Planning
1302 Service Road
Tustin, California 92780
714.730.7515

Prepared by:

PlaceWorks
Contact: Dwayne Mears, Principal
3 MacArthur Place, Suite 1100
Santa Ana, California 92707
714.966.9220
info@placeworks.com
www.placeworks.com

PLACEWORKS

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Abbreviations and Acronyms

AAQS	ambient air quality standards
AB	Assembly Bill
ADT	average daily traffic
AQMP	air quality management plan
BMP	best management practices
CAFE	corporate average fuel economy
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards Code
CalRecycle	California Department of Resources, Recycling, and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CDE	California Department of Education
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CGP	Construction General Permit
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
CSO	combined sewer overflows
dB	decibel
dBA	A-weighted decibel
DPM	diesel particulate matter
EPA	United States Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	greenhouse gases
GWP	global warming potential
HCM	Highway Capacity Manual
L_{dn}	day-night noise level
L_{eq}	equivalent continuous noise level
LCFS	low-carbon fuel standard

Abbreviations and Acronyms

LOS	level of service
LRA	local responsibility area
LST	localized significance thresholds
LZ	lighting zone
µg/m^3	microgram per square meter
mgd	million gallons per day
MRZ	mineral resource zone
MT	metric ton
NAHC	Native American Heritage Commission
NO_X	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NRHP	National Register of Historic Places
O_3	ozone
OCFA	Orange County Fire Authority
OCSD	Orange County Sanitation District
OCTA	Orange County Transportation Authority
PM	particulate matter
ppm	parts per million
PPV	peak particle velocity
RCNM	Roadway Construction Noise Model
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SoCAB	South Coast Air Basin
SO_X	sulfur oxides
SRA	state responsibility area
SWPPP	Storm Water Pollution Prevention Plan
TAC	toxic air contaminants
TCR	tribal cultural resource
TPD	Tustin Police Department
TUSD	Tustin Unified School District
USFWS	United States Fish and Wildlife Service

Abbreviations and Acronyms

VdB	velocity decibels
VHFHSZ	very high fire hazard severity zone
VMT	vehicle miles traveled
VOC	volatile organic compound
WQMP	water quality management plan

1. Introduction

Tustin Unified School District (TUSD or District) is proposing to develop a park on the existing grass field of Heideman Elementary School, located at 15571 Williams Street, Tustin, Orange County, California. The proposed park is a joint-use park with the City of Tustin, and students would have exclusive access to the park during school hours. TUSD is the Lead Agency for the proposed project in accordance with the California Environmental Quality Act (CEQA), Section 15051(c). This Initial Study is a preliminary evaluation of the potential environmental consequences associated with the proposed project. As part of the District's approval process, the proposed project is required to undergo an environmental review pursuant to CEQA. The lead agency uses the initial study analysis to determine whether an environmental impact report (EIR) or a negative or mitigated negative declaration is required. If the initial study concludes that the project may have a significant effect on the environment, an EIR must be prepared. Otherwise, a negative declaration or mitigated negative declaration is prepared.

1.1 PROJECT LOCATION

The project site is the existing 8.65-acre Heideman Elementary School at 15571 Williams Street, City of Tustin, in Orange County (Assessor Parcel Numbers 402-021-06 and -07), and the main area of disturbance is the approximately 3.5-acre turf field portion of the Heideman ES. The City of Tustin is located in central Orange County and is intersected by Interstate 5 (I-5) and State Route 55 (SR-55). Adjacent cities include Irvine to the south and east, Santa Ana to the west, and unincorporated County of Orange to the north (See Figure 1, *Regional Location*). Regional access to the project site is from I-5, approximately 0.4 mile to the northeast, and SR-55, approximately 0.4 mile to the west. Local access to the project site is via the existing driveways on Williams Street.

As shown in Figures 2, *Local Vicinity*, and 3, *Aerial Photograph*, the Heideman ES campus has one street frontage, Williams Street to the east, and is generally north of McFadden Avenue, south of East Main Street, and west of South Lyon Street. There are three multifamily residences that border the north, south, and west of the elementary school. The properties that bound the project site to the west are in the City of Santa Ana. The main area of disturbance would be approximately 3.5 acres at the western portion of the school, bounded by residential uses to the north, south, and west and the existing ES campus facilities such as portable school buildings, hardcourts, and daycare center to the east.

1.2 ENVIRONMENTAL SETTING

1.2.1 Existing Land Use

As shown in Figure 3, *Aerial Photograph*, Heideman ES is developed with permanent and portable classroom buildings, administration building, parking lots, hardcourts, playground structure, pedestrian walkways, grass field, and landscaped areas. There are trees along the western, northern, and southern project boundaries, and

chain-link fencing surrounds the project boundaries. Heideman ES is a kindergarten through 5th grade public school with a 2018/2019 enrollment of 627 students, according to the California Department of Education (CDE) (CDE 2019). The Heideman Child Development Center is also located within the school campus. The 3.5-acre area of disturbance is currently a grass field utilized by the school for physical education purposes and school sports programs. This area also contains playground equipment on the eastern boundary adjacent to the hardcourts and at the southeastern corner adjacent to the existing parking lot, the existing basketball courts located adjacent to the playground equipment, and site improvements such as signage and fencing within the school property.

1.2.2 Surrounding Land Use

As shown in Figure 3, the project site is surrounded by multifamily residences on all four sides. Multifamily residences border the project site to the south, and beyond the residences to the south are industrial uses south of McFadden Avenue. Multifamily residences border the project site to the north, and beyond those residences is the Santa Ana Zoo north of Chestnut Avenue. The project site's western property line borders a drainage channel that drains to the Santa Ana Santa Fe Channel, and multifamily residences are west of the drainage channel. OCTA Metrolink railroad track runs along the Santa Ana Santa Fe Channel, approximately 830 feet to the southwest. Williams Street borders the project site to the east, and across Williams Street to the east are multifamily residences.

1.3 PROJECT DESCRIPTION

1.3.1 Proposed Land Use

The District proposes to develop a joint-use park with the City of Tustin on the existing grass field of Heideman ES. The proposed project would be financed through a Proposition 68 grant. During school hours, students would have exclusive access to the park, and the park would be open to the general public and outside groups during weekday evening hours from 6:00 pm to 9:00 pm. On weekends and holidays, the park hours would be 9:00 am to 9:00 pm. The park would be equipped with nighttime lighting for evening use. For security purposes, a City staff member would be on-site during those hours. Use of the proposed field lighting by outside groups would require a Facility Use Permit issued by the City of Tustin and/or TUSD. The proposed project would require site preparation and grading of the existing turf field, trenching for site utilities and irrigation, and light pole installation. The main grading activities would disturb approximately 3.5 acres of the turf field area, and other minor trenching for utilities, fencing, and signages improvements would occur throughout the campus.

Park Amenities

The joint-use park would have amenities, including turf soccer field surrounded by all-weather exercise track, meandering trail, 1,300-square-foot skate pod designed for beginner skaters, tactile experience garden, playgrounds for 5-year-olds and younger, outdoor fitness equipment, shade structures with picnic tables and game tables, two basketball courts, 1,000-square-foot restroom/office building, drinking fountain, gated main entrance, and trees and landscaping. A sixteen-foot-high chain-link fence would be provided to secure the park

amenities, with the main gate at the southeast corner of the project site and two gates providing access to the basketball courts. The soccer field would be equipped with four 70-foot-tall sports lighting poles, and two basketball courts would be equipped with two 40-foot-high sports lighting poles per court. Other areas of the park (e.g., tactile experience garden, skate pod, exercise loop, outdoor fitness equipment area, and playground area) would be lit with area lighting and pathway lighting. The area lighting would allow evening use of the skate pod. The portable building at the southeastern corner adjacent to the playground equipment would be removed to create the main entrance for the proposed project.

The turf athletic field would be approximately 48,600 square feet and would be designed to accommodate both soccer and softball. Fencing would be constructed on both north and south sides of the field for errant soccer balls, and a backstop would be provided on the west side of the midfield. The 1,300-square-foot skate pod would be constructed on the northeastern corner of the project site between the track and turf soccer field. A tactile experience garden would also be developed on the northeastern corner of the project site north of the skate pod, with plants that attract butterflies. The garden would provide walking paths, bench seating, and would also implement water quality control measures. A concrete vehicle access driveway would be provided along the north boundary leading to gated access to the main campus for emergency vehicles.

A playground covered with rubber play surfaces would be on the southern end of the project site between the turf soccer field and the running track. The playground would include group gathering space with picnic tables, game tables, and large shade structure. Outdoor fitness equipment areas with decomposed granite surfacing would be provided to the west of the playground area. A 1,000-square-foot restroom/office building would be placed next the main entrance, along with bike racks, doggie bag dispenser, and drinking fountain. Two existing basketball courts within the hardcourts would be resurfaced and/or painted, and lighting would be installed at both courts to allow for evening use. The City's use of the proposed park would be from 6:00 pm to 9:00 pm, Monday through Friday, and 9:00 am to 9:00 pm on Saturday, Sunday, and holidays.

Sports Lighting

The proposed project involves the installation and operation of four 70-foot-tall light poles along the perimeter of the running track and soccer field. Figure 4, *Conceptual Site Plan*, illustrates the location of the proposed field lighting fixtures on the project site. The closest light pole to the northern boundary of the project site is about 166 feet, from the southern boundary is about 147 feet, and from the western boundary is 37 feet. Uncovered parking spaces and covered carports for the multifamily residential uses border the project site on three edges.

The two light poles on the west side of the field would be mounted with six luminaires—four utilizing 1,200-watt (1.17 kilowatt-hours [kWh]) Musco TLC-LED-1200 lamps at 70 feet high; one utilizing 900-watt (0.89 kWh) Musco TLC-LED-900 lamps at 70 feet high; and one utilizing 575-watt (0.58 kWh) Musco TLC-BT-575 lamps at approximately 15.5 feet high. The two light poles on the eastern end would be mounted with six luminaires—five utilizing 1200-watt (1.17 kWh) Musco TLC-LED-1200 lamps at 70 feet high; and one utilizing 575-watt (0.58 kWh) Musco TLC-BT-575 lamps at approximately 15.5 feet high. The new light poles would provide a specified average of 50 foot-candles across the infield and 30 foot-candles for the outfield. The design of the proposed field lighting was selected in order to minimize spill light onto adjacent uses.

1. Introduction

Two basketball courts would be equipped with two sports light poles per court for a total of four light poles. Figure 4 illustrates the location of the proposed basketball court lighting fixtures on the project site, and the proposed lighting on the basketball courts would be the same for both courts. Each light pole would be mounted with two luminaries, both utilizing 400-watt (0.4 kilowatt-hours [kWh]) Musco TLC-LED-400 lamps at 40 feet high. The new light poles would provide a specified average of 40 fc across the courts.

The proposed sports lighting is equipped with a web-based lighting control system that allows the District to set schedules in advance for light operations. Schedules can be set from any computer with internet access, a smartphone application, or via a phone call. The sports lighting can be programmed to set curfews to ensure the lights turn off at a predetermined/scheduled time so that lights are not left on by accident. The sports lighting system also has dimming capabilities that allow for different lighting modes, maximum average light levels for sporting events, and lower light levels for cleanup and other maintenance activities. The lighting system would be systematically monitored and managed to minimize energy consumption and operating cost.

All sports lighting, area lighting, and pathway lighting would not be used past 9:00 pm, except where minimal lighting is necessary for safety purposes.

Parking and Access

There are two existing parking lots that serve the project site (i.e., eastern/northern and southern).The eastern/northern parking lot along Williams Street provides a student loading zone and 37 parking spaces, and the southern parking lot provides 38 parking spaces, for a combined total of 75 parking spaces. The joint-use park is adjacent to the southern parking lot, and the proposed project would use the existing parking and no change in parking is proposed.

Vehicular access to the project site is provided via two existing driveways along Williams Street. The north driveway is enter-only and the south driveway is exit-only. No change to the existing driveways is proposed, and vehicular access would remain the same.

The main entrance into the joint-use park would be provided from the southern parking lot. It would be gated and allow for police and maintenance vehicle access as well as pedestrian access. Internal emergency vehicle access to the park would be provided at two gated vehicle access points from each parking lot. From the southern parking lot, there is an existing gated vehicular access that leads into the hardcourts area and the basketball courts. From the eastern/northern parking lot, a gated emergency vehicle access is proposed to provide access to the garden and the skate pod area to the north of the project site.

Public access to the park would be via the main entrance at the southeastern corner, and three 10-foot-wide gates that would be provided near the basketball courts to allow for student access during school hours and for the use of the basketball courts by the public.

1.3.2 Project Phasing

The construction is preliminarily scheduled to begin in summer 2023 and last approximately twelve months in one phase. The proposed project is anticipated to open in the summer/fall of 2024.

1.4 EXISTING ZONING AND GENERAL PLAN

The City of Tustin General Plan land use designation of the project site is Public/Institutional (PI (Tustin 2018b)). The project site is zoned as Public and Institutional (P &I) (Tustin 2018a).

1.5 DISTRICT ACTION REQUESTED

- Approve the Proposed Project
- Adopt Mitigated Negative Declaration
- Adopt a Mitigation Monitoring Program

1. Introduction

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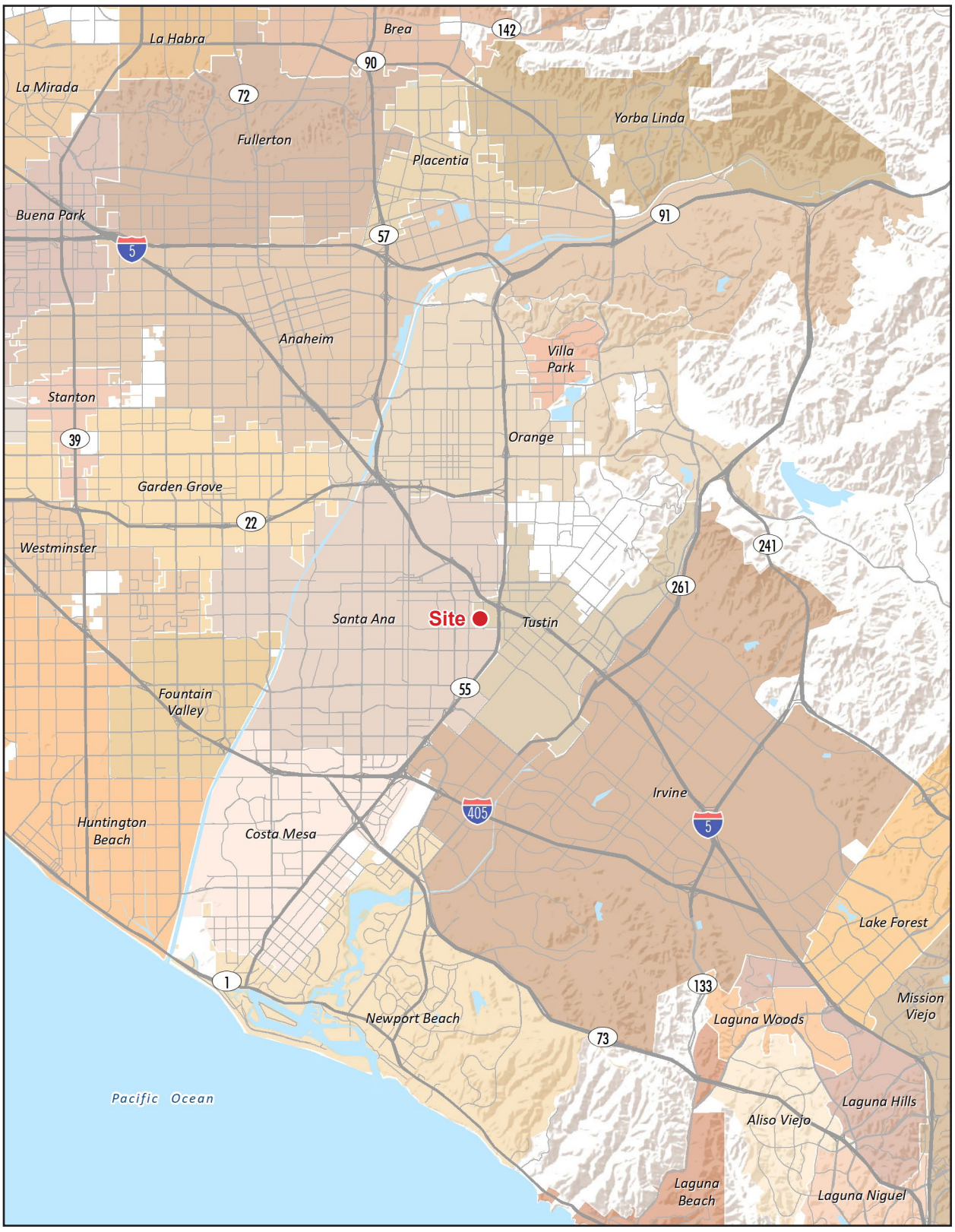
Figure 1 - Regional Location



Note: Unincorporated county areas are shown in white.

0 3
Scale (Miles)

Source: ESRI, 2019

1. Introduction

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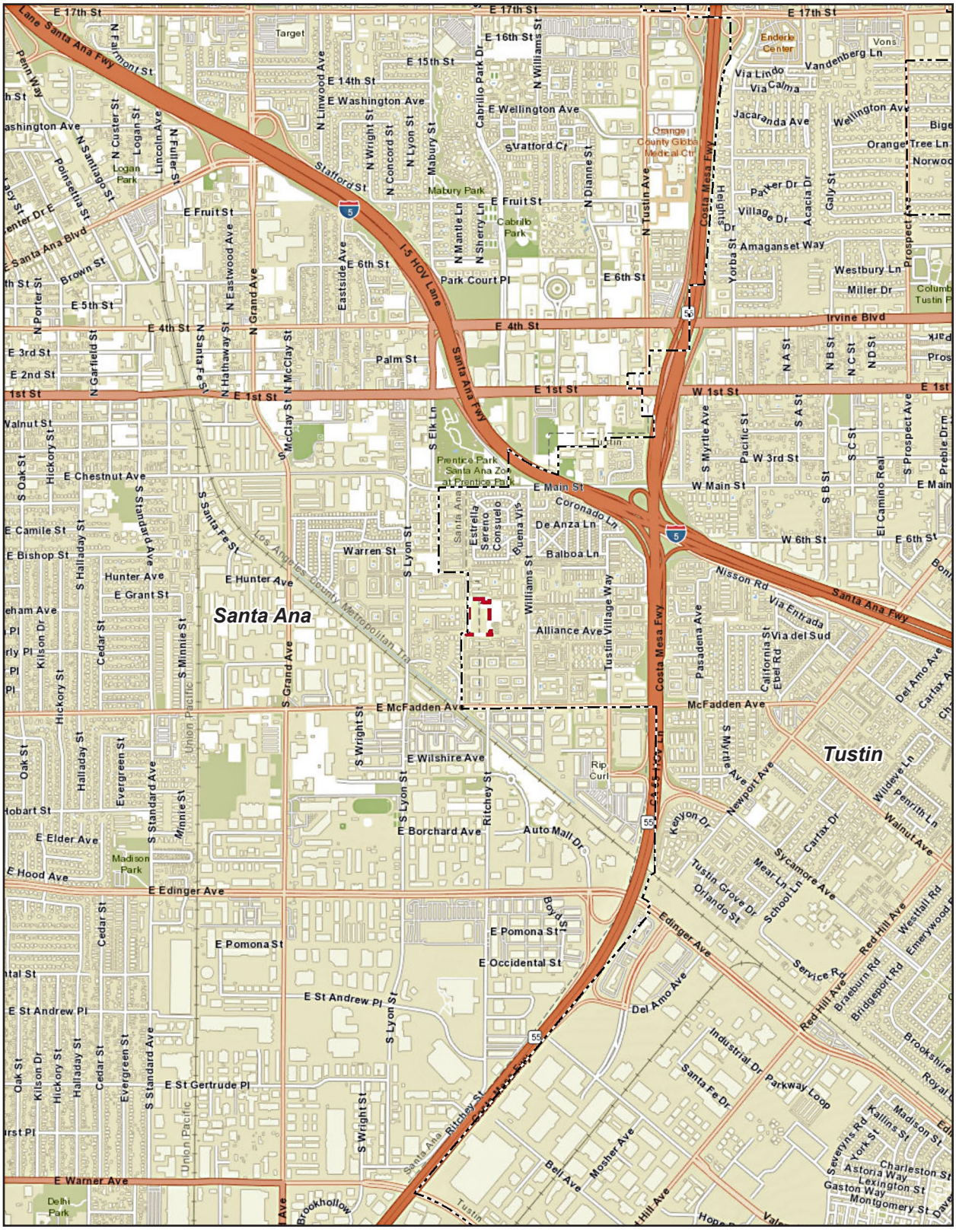
Figure 2 - Local Vicinity



Source: ESRI, 2019

1. Introduction

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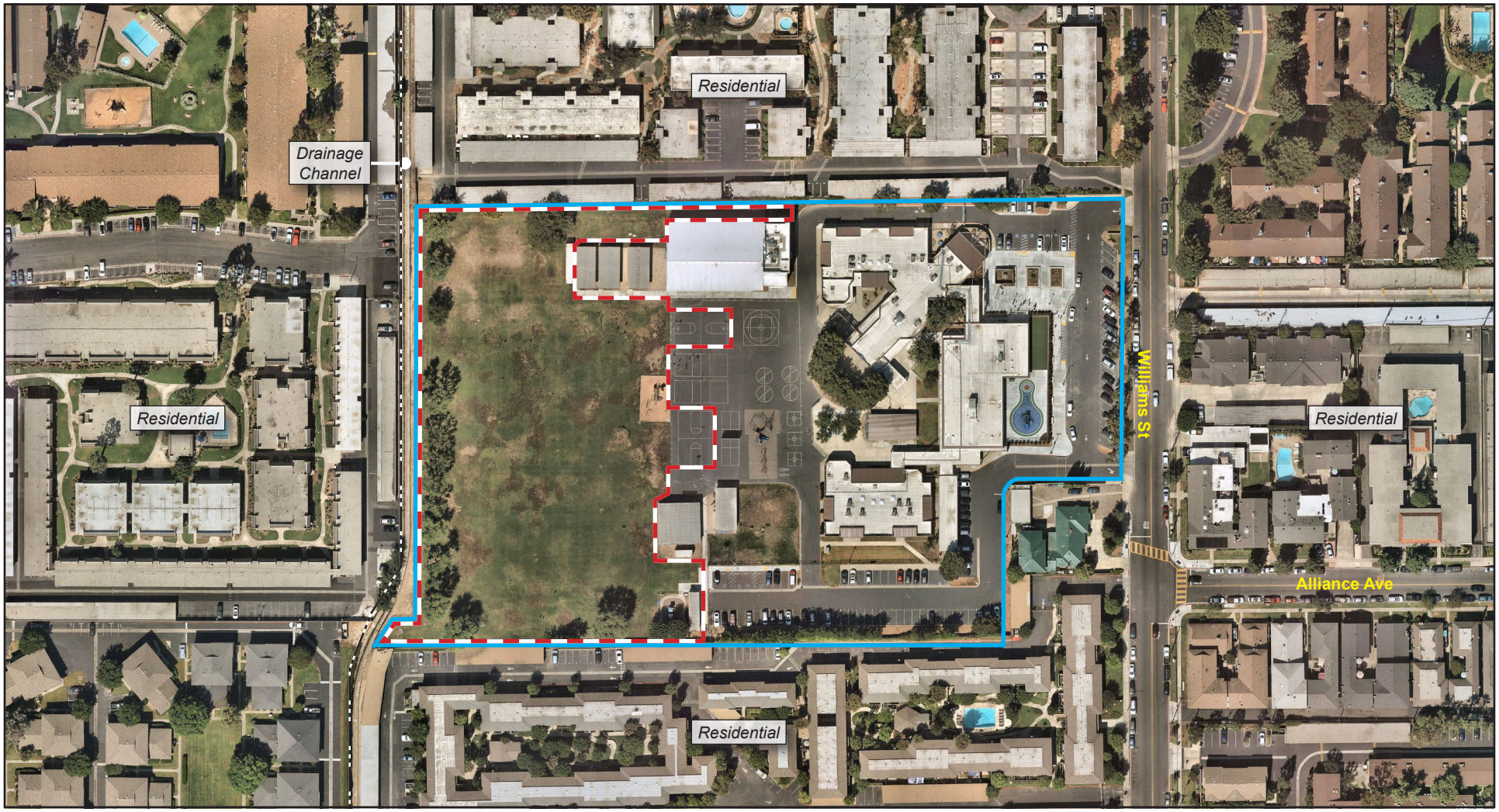
Figure 3 - Aerial Photograph



School Boundary

Project Boundary

0 175

Scale (Feet)

Source: Nearmap, 2019

1. Introduction

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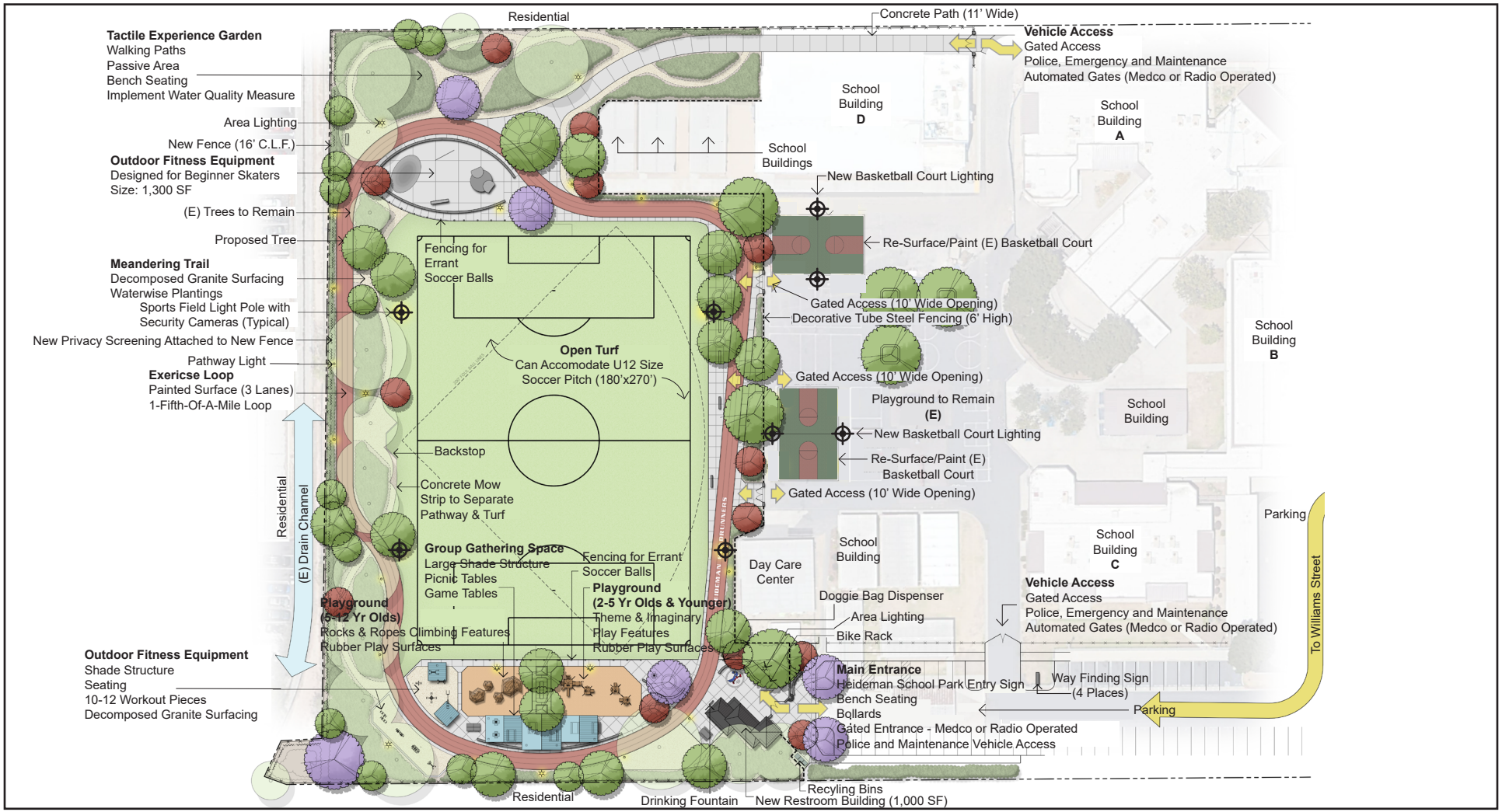
Figure 4 - Conceptual Site Plan



Playing Field/Basketball Court Lighting

0 100
Scale (Feet)

Source: David Volz Design, October, 2020

1. Introduction

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2. Environmental Checklist

2.1 PROJECT INFORMATION

1. **Project Title:** Heideman Elementary School Joint-Use Park Project

2. **Lead Agency Name and Address:**
   Tustin Unified School District
   1302 Service Road
   Tustin, CA 92780

3. **Contact Person and Phone Number:**
   Tom Rizzuti, Director of Facilities and Planning
   714.730.7515

4. **Project Location:** The project site is at 15571 Williams Street, City of Tustin, in Orange County (Assessor Parcel Numbers 402-021-06 and -07). The main area of disturbance would encompass approximately 3.5 acres at the western portion of the campus.

5. **Project Sponsor's Name and Address:**
   Tustin Unified School District
   1302 Service Road
   Tustin, CA 92780

6. **General Plan Designation:** Public/Institutional

7. **Zoning:** Public and Institutional

8. **Description of Project:** Tustin Unified School District (TUSD) proposes to develop a joint-use park with the City of Tustin on the existing grass field of Heideman ES. The proposed project would be financed through a Proposition 68 grant. During school hours, students will have exclusive access to the park. The proposed project would allow for the use of the park by the general public and outside groups during evening hours from 6:00 pm to 9:00 pm on weekdays, and 9:00 am to 9:00 pm on weekends and holidays. Use of the proposed field lighting by outside groups would require a Facility Use Permit issued by the City of Tustin and/or TUSD. The park's features include a grass soccer field, all-weather exercise track, trail, two basketball courts, skate pod, tactile experience garden, playgrounds, fitness equipment, shade structures, and restroom/office building.

9. **Surrounding Land Uses and Setting:** The elementary school campus is surrounded by residential development. Multifamily residences surround all four sides of the campus. To the south and abutting the

project site are multifamily residences with industrial uses beyond; to the north and abutting the project site are multifamily residences with the Santa Ana Zoo beyond; and to the west abutting the project site are a drainage channel and multifamily residences beyond.

10. Other Public Agencies Whose Approval Is Required (e.g., permits, financing approval, or participating agreement):

- Division of State Architect – Site Plan Approval
- Santa Ana Regional Water Quality Control Board–National Pollution Discharge Elimination System Permit; issuance of waste discharge requirements and construction stormwater runoff permits).
- Orange County Fire Authority–Fire and emergency access.

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.94 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

As part of the AB 52 process, Native American tribes must submit a written request to the District (lead agency) to be notified of projects within their traditionally and culturally affiliated area. To those tribal groups, the District must provide written, formal notification within 14 days of deciding to undertake a project. The tribe must respond to the District within 30 days of receiving this notification if they want to engage in consultation on the project, and the District must begin the consultation process within 30 days of receiving the tribe's request. Consultation concludes when either 1): the parties agree to mitigation measures to avoid a significant effect on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort, concludes mutual agreement cannot be reached.

The District has not received a written notification from any Native American tribes requesting to be notified per AB 52. Therefore, the District is in compliance with AB 52 regulations.

2.2 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture / Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use / Planning	☐ Mineral Resources
☐ Noise	☐ Population / Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities / Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

2.3 DETERMINATION (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

_____	_____
Signature	*Date*
_____	_____

2.4 EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors, as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) **Earlier Analyses Used.** Identify and state where they are available for review.

   b) I**mpacts Adequately Addressed.** Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) **Mitigation Measures.** For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and
   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS. Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?		X		
II. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X

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Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X
III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) 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?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?		X		
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	
IV. BIOLOGICAL RESOURCES. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				X
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				X
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?			X	
V. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		X		
c) Disturb any human remains, including those interred outside of dedicated cemeteries?			X	

2. Environmental Checklist

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. ENERGY. Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X	
VII. GEOLOGY AND SOILS. Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		
VIII. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	
IX. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	

2. Environmental Checklist

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			X	
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				X
X. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in a substantial erosion or siltation on- or off-site;			X	
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;		X		
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or		X		
iv) impede or redirect flood flows?				X
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X	
XI. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?				X
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?			X	

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X
XIII. NOISE. Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Generation of excessive groundborne vibration or groundborne noise levels?		X		
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X
XIV. POPULATION AND HOUSING. Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X
XV. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
a) Fire protection?			X	
b) Police protection?			X	
c) Schools?				X
d) Parks?				X
e) Other public facilities?				X
XVI. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X	

2. Environmental Checklist

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION. Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?			X	
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?			X	
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
d) Result in inadequate emergency access?			X	
XVIII. TRIBAL CULTURAL RESOURCES.				
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or				X
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		X		
XIX. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			X	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c) Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				X

Issues	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				X
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				X
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				X
XXI. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X	
b) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?			X	
c) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)			X	
d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

2. Environmental Checklist

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3. Environmental Analysis

Section 2.4 provided a checklist of environmental impacts. This section provides an evaluation of the impact categories and questions contained in the checklist and identifies mitigation measures, if applicable.

3.1 AESTHETICS

Except as provided in Public Resources Code Section 21099, would the project:

a) Have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. For purposes of determining significance under CEQA, a scenic vista is generally considered a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Some scenic vistas are officially designated by public agencies, or informally designated by tourist guides. Vistas provide visual access or panoramic views to a large geographic area and are generally located at a point where surrounding views are greater than one mile away. Panoramic views are usually associated with vantage points over a section of urban or natural areas that provide a geographic orientation not commonly available. Examples of panoramic views might include an urban skyline, valley, mountain range, a large open space area, the ocean, or other water bodies. A substantial adverse effect to a scenic vista is one that degrades the view from such a designated view spot.

As shown in Figure 3, *Aerial Photograph*, the project site and surrounding area are in highly urbanized area of the City. The project site is primarily surrounded by residential uses. The urban landscape character and features of the project site and surrounding area are consistent with and typical of urbanized areas of the City. The project site and surrounding area do not exhibit any significant visual resources or scenic vistas.

Overall site topography can be characterized as relatively flat, with no notable change in elevation. There are no visible landforms (e.g., mountains, hills, creeks) from the project site or surrounding area, and no landforms are on or within proximity of the project site. Also, there are no designated scenic resources on-site or in the vicinity of the project site according to the City of Tustin General Plan (Tustin 2018b). Based on the preceding, impact to scenic vistas would be less than significant and no mitigation measures are necessary.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. A scenic highway is generally considered a stretch of public roadway that is designated as a scenic corridor by a federal, state, or local agency. Caltrans defines a scenic highway as any freeway, highway, road, or other public right-of-way that traverses an area of exceptional scenic quality.

The project site is in a highly urbanized area of the City and is not on or near a state-designated scenic highway, as designated on the California Scenic Highway Mapping System of the California Department of

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Transportation. Additionally, the project site is not visible from the nearest state-designated scenic highway (Riverside Freeway), which is approximately 7.39 miles to the northeast (Caltrans 2017).

Furthermore, the project site does not contain unique or locally important scenic resources or is identified within the scenic highway plan for Orange County (Orange 2005). There are no rock outcroppings, significant vegetation, or historic buildings on-site. As shown in Figure 3, *Aerial Photograph*, the project site is an existing grass field on an elementary school campus with trees along the western and southern border. Therefore, no impact to scenic resources would occur due to project development.

c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less Than Significant Impact. The project site is already developed as an elementary school facility and is in an urbanized area surrounded by multifamily residences. The project site is designated Public/Institutional by the City of Tustin General Plan land use map, and zoned as Public and Institutional (P&I). The P&I zoning permits uses for public, quasi-public and institutional land uses, including public schools, public parks, playgrounds, and recreation centers. The project site is bounded by the R3 (Multiple Family Residential) zoning district to the north and the PC R3 1750 (Planned Community Residential) zoning district to the south. Two-story multifamily residential units are developed in the R3 and PC R3 zoning districts, and immediately abutting the project site are carport structures and parking spaces for these residences. The properties that border the project site to the west are in the City of Santa Ana and are zoned R4 (Suburban Apartment). The proposed park development is consistent with the land uses permitted under the P&I zoning district, and all proposed facilities are compatible with typical park uses. There are no specific building standards that govern scenic quality in P&I zone. Therefore, there are no height restrictions on the light poles. The proposed project would be required to comply with the development standards pursuant to the City of Tustin Building Codes and Construction Regulations, including the 2016 California Building Code (Title 24, Part 2), the 2016 California Energy Code (Title 24, Part 6), the 2016 California Fire Code (Title 24, Part 9), and the 2016 California Green Building Standards Code (Title 24, Part 11). Therefore, the proposed project would not conflict with any applicable zoning and other regulations governing scenic quality, and impacts would be less than significant. No mitigation measures are required.

d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?

Less Than Significant Impact With Mitigation Incorporated. Currently there is no nighttime lighting installed on the field. The proposed project includes lighting for the soccer field and two basketball courts, and lighting along walkways around the project site. All proposed lighting is intended to adequately illuminate the intended playing field and surfaces in a manner that ensures safety for the users (i.e., consistent light levels without noticeable variation) and adequate lighting along the walkways throughout the project site. The proposed lighting would not include excessively bright or blinking lights. Two of the light poles, located on the west side of the field, would be mounted with six luminaires—four utilizing 1,200-watt (1.17 kilowatt-hours

[kWh]) Musco TLC-LED-1200 lamps at 70 feet high; one utilizing 900-watt (0.89 kWh) Musco TLC-LED-900 lamps at 70 feet high; and one utilizing 575-watt (0.58 kWh) Musco TLC-BT-575 lamps at 16 feet high. The two light poles on the east side of the field would be mounted with six luminaires—five utilizing 1200-watt (1.17 kWh) Musco TLC-LED-1200 lamps at 70 feet high, and one utilizing 575-watt (0.58 kWh) Musco TLC-BT-575 lamps at 16 feet high. Lamps would be directed inward and downward to direct light onto the playing field and limit skyglow and spill light. The following terms are used in this discussion:

- **Spill light:** Spill light or light trespass is the light that illuminates surfaces beyond the property boundary. Typically, spill lighting is from a more horizontal source such as streetlights and way-finding/security lighting than sky glow which emanates from a more vertical source into the atmosphere. Spill light can be accurately calculated, and the effects of spill light can be measured for general understanding and comparison.

- **Obtrusive light:** Spill light that causes annoyance, discomfort, distraction, or a reduction in the ability to see essential information such as traffic signals. Light that is considered to be obtrusive is a subject of debate.

- **Sky glow:** Sky glow is the light that illuminates the sky above the horizon and reflects off of moisture and other tiny particles in the atmosphere. Sky glow would be considered a significant impact if it were a permanent addition to the environment. Control features are available on the light sources to reduce sky glow and glare from nighttime lighting. These control features direct light downward, thereby reducing the spill of light that causes sky glow and reducing glare.

- **Glare:** Glare can be described as direct or reflected glare, which can then result in discomfort or impairment of vision experienced when the image is excessively bright in relation to general surroundings.

- **Foot-candle:** The recognized international unit for the measure of light (luminance) falling onto a surface.

Table 1 describes examples of light levels expressed in foot-candles (fc).

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Table 1 General Light Levels Benchmark

Outdoor Light	Foot-candles
Direct Sunlight	10,000
Full Daylight	1,000
Overcast Day	100
Dusk	10
Twilight	1
Deep Twilight	0.1
Full Moon	0.01
Quarter Moon	0.001
Moonless Night	0.0001
Overcast Night	0.00001
Gas station canopies	25–30
Typical neighborhood streetlight	1.0–5.0

Source: NOAO 2016.

As shown in Figure 3, the project site is surrounded by residential development to the north, south, and west, and existing elementary school facilities to the east. The elementary school would not be in use during the evening hours; therefore, no further evaluation is necessary for the spill light impact to the east. Uncovered parking spaces and covered carports for the multifamily residential uses border the project site on three edges. The two-story multifamily residential units are set back approximately 40 to 80 feet from the project site.

The City of Tustin and the City of Santa Ana do not have established thresholds for a spill or obtrusive lighting impact. In an urban environment with moderately high ambient lighting (i.e., LZ3 [lighting zone 3]), light trespass impacts could be considered significant if the vertical illuminance exceeds 0.8 fc. Lighting zones are assigned based on population figures from the 2000 Census, and different lighting standards are set for each lighting zone (LZ). Areas can be designated LZ1 (dark), LZ2 (rural), or LZ3 (urban) (California Code of Regulations, Title 24, parts 1 and 6).

The illuminance level under twilight is about 1 fc, and the deep twilight level is approximately 0.1 fc. The City of Tustin's Municipal Code, Article 8, Building Regulations, requires that open parking lots and carports be illuminated with a maintained minimum of one fc of light on the parking surface during hours of darkness for security purposes in R1 and R2 zones. Although no such requirement exists for an R3 zone, for the purposes of this analysis, it was assumed that horizontal or vertical spill light levels exceeding 1 fc at the residential property line abutting the parking area and 0.8 fc at the dwelling units would be considered a potentially significant impact.

No new light or glare sources visible beyond the project site would be introduced during construction of the project. All construction work would be performed during normal daylight construction hours, eliminating any need for temporary light sources during evening hour work.

A lighting plan was completed by Musco Lighting and is included as Appendix A to the Initial Study. The lighting plan identifies the location of the proposed lighting, specifications, and modeled light levels within the intended field and court areas and along the elementary school boundaries. Figure 5, *Sports Lighting Spill Light Horizontal Photometric Plan,* and Figure 6, *Sports Lighting Spill Light Vertical Photometric Plan*, illustrate light spill onto surrounding areas. As shown in Figures 5 and 6, light from the proposed project would not exceed a maximum of 0.1 horizontal fc along the northern and southern boundaries of the project site, and would not exceed 0.8 fc along the western boundary. For the vertical light levels, the proposed project would not exceed 0.1 fc along the northern boundary, 0.4 fc along the southern boundary, and 0.9 fc along the western boundary. As shown in Figures 5 and 6, there are carports and parking spaces along these borders; therefore, the proposed project would not exceed the significance threshold level of 1 fc at the residential property line abutting the parking area, and impacts would be less than significant.

Due to the urbanized nature of the surrounding area, the project site is characterized as moderately high ambient lighting area (LZ3). There are other lightings sources in the area typical of an urban residential neighborhood such as parking lot lights, street lights, and building lights. The proposed project's sports field lighting and other lights for the park would be typical of an urban park and would not be of high intensity, excessively bright, blinking, or directed upward to create sky glow. The proposed project does not include any buildings or structures with light-reflective materials to create substantial glare in the area. The project site is set back approximately 445 feet from the street, and the proposed sports lighting would be angled downward. Therefore, no glare impacts to vehicles traveling Williams Street or to other sensitive receptors would occur. Additional vehicles would travel to the project site in the evening hours, thereby creating glare impacts from the vehicle headlights. However, the pm peak hour traffic would be increased by about 17 trips, and typical headlights do not cause discomfort or vision impairment. Therefore, glare impacts would be less than significant. Additionally, the proposed park would be closed and gates locked at 9 pm, and all lights would be turned off at that time except for security purposes, if necessary.

Provided that the sports field lights are installed as described in the Section 1.3, *Project Description*, and the spill light levels along the adjacent residential property lines do not exceed 1 fc, as required in Mitigation Measure AE-1, and described in the Lighting Plan in Appendix A of this Initial Study, a less than significant light and glare impact is anticipated.

Mitigation Measure

AE-1 The Tustin Unified School District shall perform field light measurements after the lighting pole installation to demonstrate that actual spill light levels along the adjacent residential properties to the west and south are a close match to the levels indicated in the photometric light levels plans shown on Figure 5, *Sports Lighting Spill Light Horizontal Photometric Plan*, and Figure 6, *Sport Lighting Spill Light Vertical Photometric Plan*. The light levels shall not exceed 1 foot-candle (fc) along the adjoining residential property lines, and 0.8 fc at the habitable residential structure. Luminaire(s) affixed on the pole shall be adjusted so that no direct upward beam is permitted.

3.2 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The project site is identified as Urban and Built-up Land on the California Important Farmland Finder maintained by the Division of Land Resource Protection (DLRP 2016). The project site is already developed with school facilities and no farmland would be converted to nonagricultural use under the proposed project. Therefore, no impact would occur.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

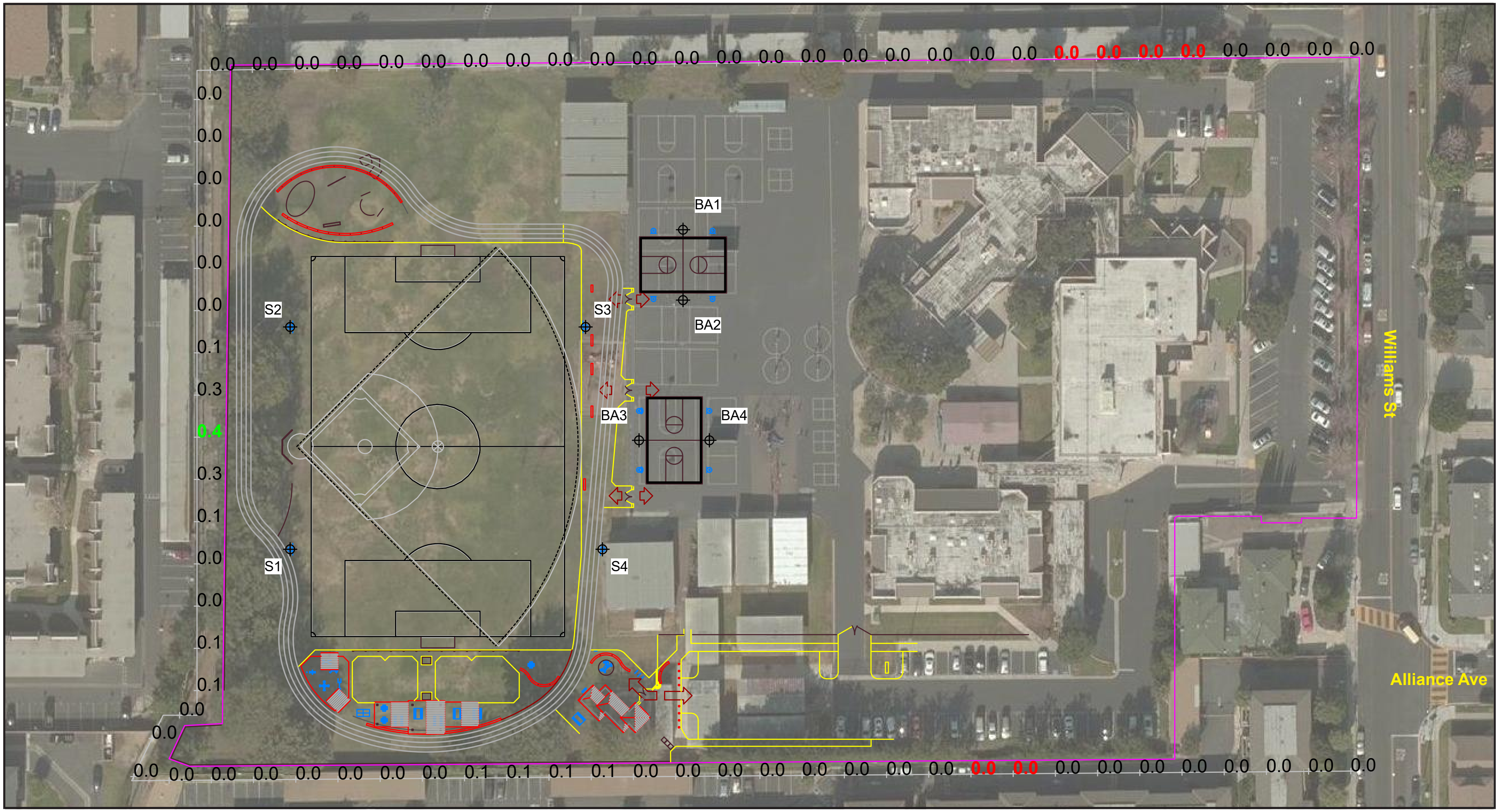
No Impact. The project site is zoned as P&I (Public and Institutional), which does not permit agricultural uses. Additionally, the project site is not subject to a Williamson Act contract. Therefore, implementation of the proposed project would not conflict with zoning for agricultural uses or a Williamson Act contract. Accordingly, no impact would occur.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact. Forest land is defined as "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits" (California Public Resources Code § 12220[g]). Timberland is defined as "land…which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees" (California Public Resources Code § 4526).

As shown in Figure 3, *Aerial Photograph*, the project site is in an urban area of the city and is developed with school facilities with surrounding residential uses. Additionally, the project site is not designated or zoned for forest or timber land or used for forestry. As stated above, the site is zoned Public and Institutional. Therefore, project development would have no impact on forest land or resources.

Figure 5 - Sports Lighting Spill Light Horizontal Photometric Plan



S1 Sports Field Light Pole Location

BA1 Basketball Court Light Pole Location

0,0 Foot-Candle

0 100
Scale (Feet)

Source: Musco, 2019

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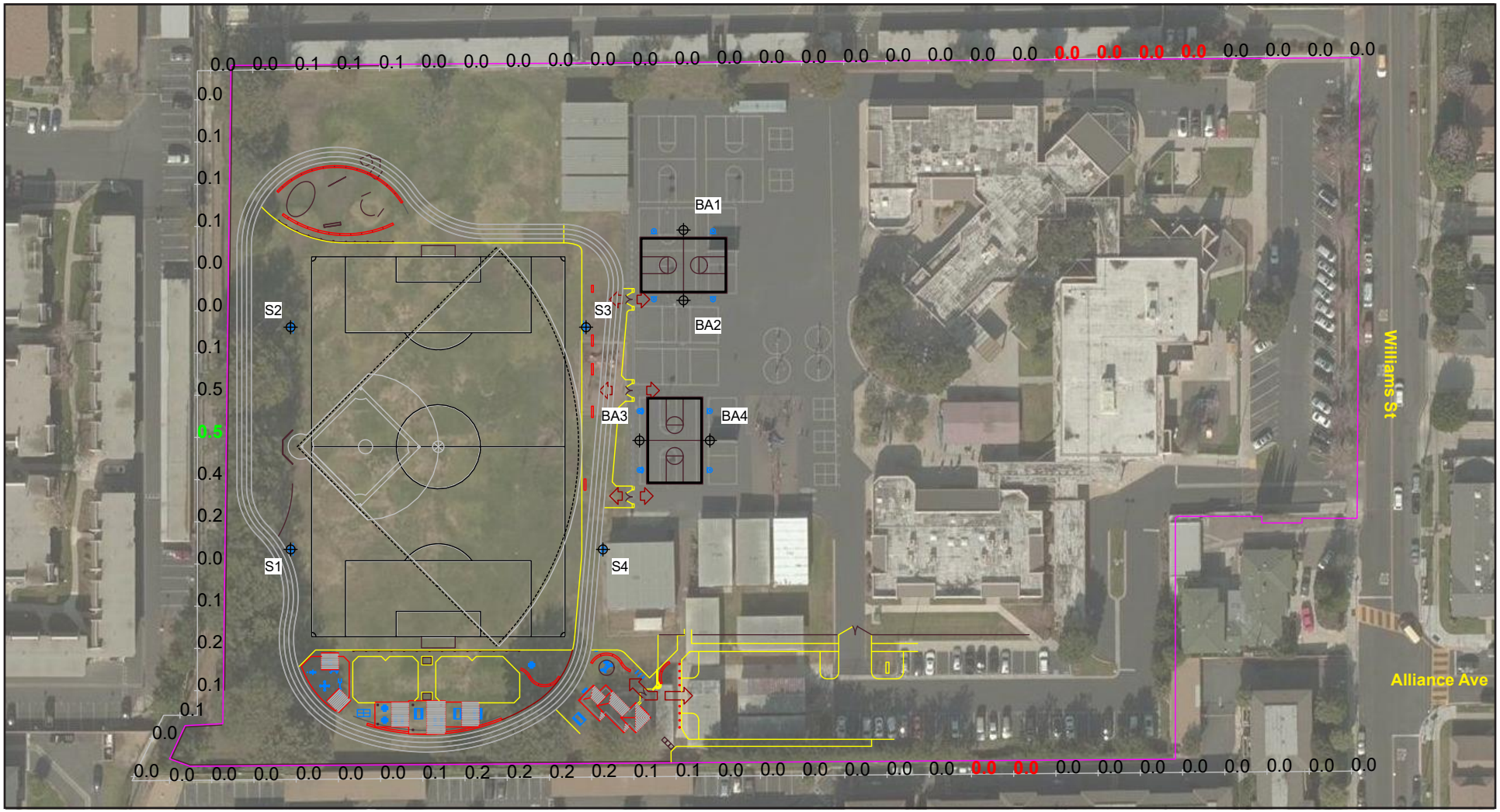
Figure 6 - Sports Lighting Spill Light Vertical Photometric Plan



S1 Sports Field Light Pole Location 0,0 Foot-Candle

BA1 Basketball Court Light Pole Location

0 100
Scale (Feet)

Source: Musco, 2019

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d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. See response to Section 3.2.c. As substantiated in this section, no impact would occur.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. See responses to Sections 3.2.a, b, and c. As substantiated in these sections, no impact would occur.

3.3 AIR QUALITY

This section addresses the impacts of the proposed project on ambient air quality and the exposure of people, especially sensitive individuals, to unhealthful pollutant concentrations. A background discussion on the air quality regulatory setting, meteorological conditions, existing ambient air quality in the vicinity of the project site, and air quality modeling can be found in Appendix B.

The primary air pollutants of concern for which ambient air quality standards (AAQS) have been established are ozone (O_3), carbon monoxide (CO), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and lead (Pb). Areas are classified under the federal and California Clean Air Act as either in attainment or nonattainment for each criteria pollutant based on whether the AAQS have been achieved. The South Coast Air Basin (SoCAB), which is managed by the South Coast Air Quality Management District (South Coast AQMD), is designated nonattainment for O_3, and $PM_{2.5}$ under the California and National AAQS, nonattainment for PM_{10} under the California AAQS, and nonattainment for lead (Los Angeles County only) under the National AAQS (CARB 2017a).

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. South Coast AQMD adopted the 2016 Air Quality Management Plan on March 3, 2017. Regional growth projections are used by South Coast AQMD to forecast future emission levels in the SoCAB. For southern California, these regional growth projections are provided by Southern California Associate of Governments (SCAG) and are partially based on land use designations included in city/county general plans. Typically, only large, regionally significant projects have the potential to affect the regional growth projections. In addition, the consistency analysis is generally only required in connection with the adoption of General Plans, specific plans, and significant projects.

The proposed project would not be considered a regionally significant project that would warrant Intergovernmental Review by SCAG under CEQA Guidelines section 15206. The project site is currently an existing turf field used for outdoor and physical education activities which the proposed project would redevelop into a joint-use park between the school and city. The proposed project would not have the potential to substantially affect the regional growth of the City of Tustin. In addition, operation-phase emissions

associated with the proposed joint-use park would not exceed the South Coast AQMD regional significance thresholds. Thus, implementation of the proposed project would not interfere with or obstruct implementation of the AQMP. Therefore, impacts are less than significant, and no mitigation measures are required.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?

Less Than Significant Impact. The following describes project-related impacts from regional short-term construction activities and regional long-term operation of the proposed project.

Regional Short-Term Construction Impacts

The District would construct a joint-use park on the existing turf field currently utilized by the Heideman ES. The joint-use park would be accessible to the public after school hours and weekends. Construction of the park would take approximately 12 months and it would generate criteria air pollutants associated with construction equipment exhaust and fugitive dusts from various construction activity phases. Construction-related emissions summarized in Table 2, *Maximum Daily Regional Construction*, were quantified using the California Emissions Estimator Model, Version 2016.3.2 (CalEEMod) and are based on the construction schedule and equipment mix based on CalEEMod defaults. As shown, the proposed project is not anticipated to exceed the South Coast AQMD regional construction threshold, and impacts would be less than significant. No mitigation measures are required.

Table 2 Maximum Daily Regional Construction Emissions

Construction Phase	Pollutants (lb/day)[1, 2]					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Year 2020						
Site Preparation	4	43	22	0	10	6
Grading	3	27	17	0	4	3
Building Construction	2	19	17	0	1	1
Paving	1	12	13	0	1	1
Architectural Coating	23	2	2	<1	<1	<1
Landscaping	<1	2	3	<1	<1	<1
Maximum Daily Construction Emissions						
Maximum Daily Emissions	23	42	22	<1	10	6
South Coast AQMD Regional Construction Threshold	**75**	**100**	**550**	**150**	**150**	**55**
Significant?	No	No	No	No	No	No

Note: The maximum daily regional construction emissions in this table were conservatively modeled based on a construction start date of June 2020 and a construction duration of three months. Construction emission rates at later years and longer construction duration generally decrease emissions. Therefore, construction start date of summer of 2023 and 12-month construction duration would result less construction emissions.
Source: CalEEMod Version 2016.3.2
Emissions totals may not equal 100 percent due to rounding.
[1] Based on the preliminary information provided by the District. Where specific information regarding project-related construction activities was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by South Coast AQMD of construction equipment.
[2] Includes implementation of fugitive dust control measures required by South Coast AQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186–compliant sweepers.

Regional Long-Term Operation-Phase Impacts

The proposed project involves redeveloping the existing turf field into a joint-use park. Implementation of the proposed project would result in an increase in mobile source emissions associated with joint-use park events at the field. As shown in Table 3, *Maximum Daily Regional Operation Emissions*, it is anticipated that emissions from operation of the proposed project would be minimal and would not exceed the South Coast AQMD regional operation-phase significance thresholds. Therefore, impacts to the regional air quality associated with operation of the project would be less than significant. No mitigation measures are required.

Table 3 Maximum Daily Regional Operation Emissions

Source	Maximum Daily Emissions (lbs/Day)					
	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.}$
Max Daily Emissions						
Area	<1	<1	<1	<1	<1	<1
Energy[1]	<1	<1	<1	<1	<1	<1
Mobile	<1	2	8	0	3	<1
Total	<1	2	8	0	3	<1
South Coast AQMD Regional Threshold	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Source: CalEEMod Version 2016.3.2. Highest winter or summer emissions shown. Emissions may not total to 100 percent due to rounding.
Notes: lbs: Pounds.

c) Expose sensitive receptors to substantial pollutant concentrations?

Impact With Mitigation Incorporated. The following describes changes in localized impacts from short-term construction activities and long-term operation of the proposed project.

Construction

Localized Construction Impacts

A project could expose sensitive receptors to elevated pollutant concentrations during construction activities if it would cause or contribute significantly to pollutant concentrations levels. Unlike the mass of construction emissions shown in the regional emissions analysis in Table 2, which is described in pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or $\mu g/m^3$) and can be correlated to potential health effects. The screening-level localized significance thresholds (LSTs) are the amount of project-related emissions at which localized concentrations (ppm or $\mu g/m^3$) could exceed the California AAQSs for criteria air pollutants. CARB designates SoCAB as nonattainment for criteria air pollutants. The basis for determining the LSTs is the project site's size and distance to the nearest sensitive receptor. CARB established the California AAQS, which are the most stringent AAQS, to provide a margin of safety in the protection of the public health and welfare. The screening-level LSTs are designed to protect sensitive receptors most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise.

3. Environmental Analysis

Table 4, *Unmitigated Construction Emissions Compared to the Screening-Level LSTs*, shows the maximum daily construction emissions (pounds per day) generated during on-site construction activities compared with South Coast AQMD's screening-level LSTs for sensitive receptors within 82 feet. As shown in the table, construction-related emissions generated would exceed the screening-level LSTs. Thus, project-related construction activities would result in a potentially significant impact.

Table 4 Unmitigated Construction Emissions Compared to the Screening-Level LSTs

	Pollutants(lbs/day)[1]			
Construction Activity	**NO_X**	**CO**	**PM_{10}[2]**	**$PM_{2.5}$[2]**
South Coast AQMD ≤1.00 -acre LST	81	485	4.00	3.00
Paving 2020	12	12	0.65	0.60
Architectural Coatings	2	2	0.11	0.11
Landscaping	2	3	0.12	0.11
Exceeds LST?	No	No	No	No
South Coast AQMD 1.31-Acre LSTs	92	557	4.62	3.31
Building Construction 2020	19	17	1.12	1.05
Exceeds LST?	No	No	No	No
South Coast AQMD 2.50-Acre LSTs	126	805	7.16	4.50
Grading 2020	26	16	4.07	2.61
Exceeds LST?	No	No	No	No
South Coast AQMD 3.50-Acre LSTs	149	984	9.50	5.50
Site Preparation	42	22	**9.92**	**6.27**
Exceeds LST?	No	No	**Yes**	**Yes**

Source: CalEEMod Version 2016.3.2., and South Coast AQMD 2008 and 2011.

Notes: The construction emissions in this table were conservatively modeled based on a construction start date of June 2020 and a construction duration of three months. Construction emission rates at later years and longer construction duration generally decrease emissions. Therefore, construction start date of summer of 2023 and 12-month construction duration would result less construction emissions. Additionally, in accordance with South Coast AQMD methodology, only onsite stationary sources and mobile equipment occurring on the project site are included in the analysis. LSTs are based on receptors within 82 feet (25 meters) of the project site in Source Receptor Area (SRA) 17 for NO_x and CO emissions, PM_{10} and $PM_{2.5}$.

1 Based on information provided by the District. Where specific information regarding project-related construction activities or processes was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by the South Coast AQMD.

2 Includes implementation of fugitive dust control measures required by South Coast AQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186–compliant sweepers.

However, implementation of Mitigation Measure AQ-1 would require that, during site preparation activities, large off-road equipment (i.e., equipment that is 50 horsepower or more) meets the EPA's Tier 4 emissions standards, and implementation of Mitigation Measure AQ-2 would require watering of ground-disturbing activities a minimum of three times daily.

Table 5, *Mitigated Construction Emissions Compared to the Screening-Level LSTs*, shows the mitigated maximum daily construction emissions after implementation of mitigation measures. With implementation of Mitigation Measures AQ-1 and AQ-2, impacts would be reduced to less than significant.

Table 5 Mitigated Construction Emissions Compared to the Screening-Level LSTs

Construction Activity	Pollutants(lbs/day)[1]			
	NO_X	CO	PM_{10}[2]	$PM_{2.5}$[2]
South Coast AQMD 3.50-Acre LSTs	149	984	9.50	5.50
Site Preparation	42	22	6.76	3.74
Exceeds LST?	No	No	No	No

Source: CalEEMod Version 2016.3.2., and South Coast AQMD 2008 and 2011.

Notes: The construction emissions in this table were conservatively modeled based on a construction start date of June 2020 and a construction duration of three months. Construction emission rates at later years and longer construction duration generally decrease emissions. Therefore, construction start date of summer of 2023 and 12-month construction duration would result less construction emissions. Additionally, in accordance with South Coast AQMD methodology, only onsite stationary sources and mobile equipment occurring on the project site are included in the analysis. LSTs are based on receptors within 82 feet (25 meters) of the project site in Source Receptor Area (SRA) 17 for NO_x and CO emissions, PM_{10} and $PM_{2.5}$.

1 Based on information provided by the District. Where specific information regarding project-related construction activities or processes was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by the South Coast AQMD.

2 Includes implementation of fugitive dust control measures required by South Coast AQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186–compliant sweepers. Emissions account for Mitigation Measure AQ-1 and AQ-2, which require use of newer, tier 4 construction equipment and watering three times daily, respectively, to reduce particulate matter emissions.

Health Risk

The South Coast AQMD does not require health risk assessments for short-term emissions from construction equipment, which primarily consist of diesel particulate matter (DPM). Additionally, South Coast AQMD has not developed short-term acute exposure levels for DPM and does not require the evaluation of long-term excess cancer risk or chronic health impacts for a short-term project. The California Office of Environmental Health Hazard Assessment (OEHHA) adopted new guidance for the preparation of health risk assessments in March 2015 and developed a cancer risk factor and noncancer chronic reference exposure level for DPM based on continuous exposure over a 30-year period (OEHHA 2015).

Development of the proposed project would last approximately twelve months. The relatively short duration—when compared to a 30-year period—would limit exposure of on- and off-site receptors to toxic air contaminates (TACs) such as DPMs. In addition, exhaust emissions from off-road vehicles associated with overall project-related construction activities would not exceed the unmitigated PM_{10} and $PM_{2.5}$ screening-level LSTs. For these reasons, the analysis in this document anticipates that construction emissions would not pose a threat to off-site receptors near the proposed project, and project-related construction health impacts would be less than significant.

Carbon Monoxide Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These are areas where vehicles queue for longer periods and travel at reduced speeds, because vehicle combustion produces the greatest quantities of CO that do not readily disperse into the atmosphere. Therefore, in intersections where traffic congestion is highest, a project would have a potentially significant impact if these pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9.0 ppm through the analysis of localized CO concentrations.

3. Environmental Analysis

The SoCAB has been designated attainment under both the national and California AAQS for CO. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited—in order to generate a significant CO impact (BAAQMD 2017). Operation of the proposed project would generate up to 412 PM peak hour trips on Saturdays, which would be minimal compared to the screening levels. Therefore, the proposed project would not have the potential to substantially increase CO hotspots at intersections near the project site, and impacts would be less than significant. No mitigation measures related to CO hotspots are required.

Mitigation Measures

Construction

AQ-1 The Tustin Unified School District (District) shall specify in the construction bid that the construction contractor(s) shall, at minimum, use equipment that meets the United States Environmental Protection Agency's (EPA) Tier 4 Final emissions standards for off-road diesel-powered construction equipment with 50 horsepower or more for site preparation activity. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by Tier 4 Final emissions standards for a similarly sized engine, as defined by the California Air Resources Board's regulations. If it can be demonstrated to the District that such equipment is not available, a Tier 4 Interim shall be used.

Prior to construction, the construction contractor shall ensure that all construction plans clearly show the requirement for EPA Tier 4 Final emissions standards for construction equipment over 50 horsepower for the specific activity stated above. During construction, the construction contractor shall maintain a list of all operating equipment associated with site preparation in use on the site for verification by the District. The construction equipment list shall state the makes, models, Equipment Identification Numbers, and number of construction equipment onsite. Equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations. Construction contractors shall also ensure that all nonessential idling of construction equipment is restricted to 5 minutes or less in compliance with Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9.

AQ-2 The Tustin Unified School District (District) shall specify in the construction bid that the construction contractor(s) shall water exposed ground surfaces and disturbed areas three times per day during site preparation activities to minimize fugitive dust. Prior to construction, the construction contractor(s) shall ensure that all construction plans submitted to the District's Construction Manager, or designee, clearly show the watering requirement to control fugitive dust.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact. The threshold for odor is if a project creates an odor nuisance pursuant to South Coast AQMD Rule 402, Nuisance, which states:

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

The type of facilities that are considered to have objectionable odors include wastewater treatment plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. The proposed project does not fall within these land uses; therefore, this analysis does not anticipate operational odors.

During the development of the proposed project, emissions from construction equipment, such as diesel exhaust, may generate odors. However, these odors would be low in concentration, temporary, and disperse rapidly. Therefore, odors produced during the construction of the proposed project would not be considered significant or highly objectionable. The proposed project would comply with the South Coast AQMD Rule 402, and impacts would be less than significant. No mitigation measures are required.

3.4 BIOLOGICAL RESOURCES

Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

No Impact. Sensitive biological resources are habitats or individual species that have special recognition by federal, state, or local conservation agencies and organizations as endangered, threatened, or rare. As shown in Figure 3, *Aerial Photograph*, the project site is an existing grass field, with trees mostly along the western site boundary and a few on the south. The site is in a highly urbanized area of the City and is surrounded by residential uses.

A review of the California Department of Fish and Wildlife California Natural Biodiversity Database (CNDDB) Bios Viewer for the Tustin Quadrangle indicated that there are seven threatened or endangered species located within the Tustin Quadrangle (CDFW 2019a). These species are the coastal California gnatcatcher, the least Bell's vireo, the California least tern, the light-footed Ridgway's rail, the western yellow-billed cuckoo, the Pacific pocket mouse, and the Gambel's water cress.

3. Environmental Analysis

Based on the existing conditions of the project site and its surroundings and views of the project site and surrounding area from Google Earth maps, proposed project development would not have an impact on the aforementioned species since there is no suitable riparian or native habitat located within or in the vicinity of the project site and no natural biological resources or communities exist on, adjacent to, or near the project site. The aforementioned species typically require wetland or riparian habitat with native vegetation and access to bodies of water. The nearest water body to the project site is the Santa Ana-Santa Fe Channel, approximately 0.2 mile to the south. The waterway consists of concrete bed and banks and does not support wildlife habitat.

Based on the preceding, the proposed project would not result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations. No impact would occur.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

No Impact. Sensitive natural communities are natural communities that are considered rare in the region by regulatory agencies, known to provide habitat for sensitive animal or plant species, or known to be important wildlife corridors. Riparian habitats occur along the banks of rivers and streams. As demonstrated in Sections 3.4.a and 3.4.c, project development would not result in an impact on any riparian habitat or other sensitive natural community. No impact would occur.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. Wetlands are defined under the federal Clean Water Act as land that is flooded or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that normally does support, a prevalence of vegetation adapted to life in saturated soils. Wetlands include areas such as streams, swamps, marshes, and bogs. No wetlands regulated by the US Army Corps of Engineers, US Fish and Wildlife Services (USFWS), California Department of Fish and Wildlife (CDFW), or Santa Ana Regional Water Quality Control Board exist on the project site (USFWS 2019). Therefore, no impact would occur.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less Than Significant Impact. As shown in Figure 3, *Aerial Photograph*, the project site is in a highly urbanized of the City and is surrounded by residential uses. The project site and its surroundings are built out and do not provide habitat for the movement of any native resident or migratory fish or wildlife species. Although the project site may provide some habitat for limited wildlife movement and live-in habitat—particularly for bird species and small to medium mammals that are adapted to urban settings—the project site does not function as and is not designated as a wildlife corridor or nursery site. There are several ornamental trees and other vegetation on-site that may require removal, although some trees would be protected in place, and these may

be used for nesting by migratory birds. When removing trees or vegetation, in compliance with California Fish and Game Code Sections 3503, 3503.5, 3513, and 3800, the proposed project is required to avoid the incidental loss of fertile eggs or nestlings or nest abandonment. Therefore, if removal of the vegetation occurs during nesting season (typically between February 1 and September 1), the District is required to conduct preconstruction nesting bird surveys in accordance with the CDFW requirements prior to removal of the trees. Compliance with the existing regulation would ensure that the proposed project does not interfere substantially with the movement of any native resident or wildlife species or with established native resident or migratory wildlife corridors.

The Migratory Bird Treaty Act (MBTA) (US Code, Title 16, §§ 703–712) governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. It prohibits the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, except under a valid permit or as permitted in the implementing regulations. USFWS administers permits to take migratory birds in accordance with the MBTA. In December 2017, the Department of the Interior issued a memorandum concluding that "consistent with the text, history, and purpose of the MBTA, [the statute's prohibitions on take apply] *only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs*" (emphasis added) (DOI 2017). Therefore, take of a migratory bird or its active nest (i.e., with eggs or young) that is incidental to, and not the purpose of, a lawful activity does not violate the MBTA. To provide guidance in implementing and enforcing this new direction, the USFWS issued a memorandum in April 2018 to clarify what does and does not constitute prohibited take (USFWS 2018).

Compliance with the existing CDFW regulations would ensure that less than significant impacts occur to migratory bird species. No mitigation measures are required.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. As shown in Figure 3, the project site is an existing grass field with trees mostly along the western site boundary and a few on the north and south borders. Project development would provide additional trees surrounding the project site for the proposed park. The City of Tustin provides regulations over trees and shrubs on or over any public parkway street, highway, alley, right-of-way, or city-owned property. The project site is owned by the District, and trees within the project site are not subject to any tree preservation policy or ordinance by the City of Tustin. Implementation of the proposed project would not conflict with any local policies or ordinances protecting biological resources. Therefore, no impact would occur.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Less than Significant Impact. The project site is in a highly urbanized area of the city and surrounded by residential uses. The site is located within the Orange County Transportation Authority Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) (CDFW 2019b). However, the project site is not protected land or identified natural habitat. Project development would not conflict with the adopted conservation plan (OCTA 2016). Therefore, impact would be less than significant, and no mitigation measures are necessary.

3.5 CULTURAL RESOURCES

Would the project:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?

No Impact. Section 15064.5 defines historic resources as resources listed or determined to be eligible for listing by the State Historical Resources Commission, a local register of historical resources, or the lead agency. Generally a resource is considered "historically significant" if it meets one of the following criteria:

i) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

ii) Is associated with the lives of persons important in our past;

iii) Embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of an important creative individual, or possesses high artistic values;

iv) Has yielded, or may be likely to yield, information important in prehistory or history.

The main area to be disturbed by the proposed project is within the Heideman ES that opened in 1980 (CDE 2020). The City of Tustin General Plan's Conservation/Open Space/Recreation Element Figure COSR-3, "Historic Resources," does not identify the project site as a historical resource. The project site is not listed in the Office of Historic Preservation's Listed California Historical Resources and not in the National Register of Historic Places (OHP 2020; NPS 2020). Implementation of the proposed project would not cause a substantial adverse change in the significance of a historical resource. No impact would occur.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Less Than Significant Impact With Mitigation Incorporated. The project site does not contain any known archaeological resources pursuant to CEQA Guidelines Section 15064.5. A records search of files and maps was performed by the South Central Coastal Information Center (SCCIC), and the records search found that there have been 15 cultural resources–related reports and studies within a half-mile radius of the project site, and no archaeological resources were identified. The cultural record search result is included in Appendix C1 to this Initial Study. The only recorded listing found were nine built-environment resources in the California Office of Historic Preservation Built Environment Resources Directory, although the resource locations were not released due to the sensitive nature of cultural resources. Because there are no previous studies within the project site, the SCCIC staff determined that the archaeological sensitivity of the project site is unknown. However, considering that the project site has been disturbed previously, and that there are no recorded archaeological sites within the project area, the potential for discovery of archaeological resources is minimal. Moreover, the proposed project does not involve construction of any habitable structure or other structures that require excavation beyond artificial fill materials. Therefore, provided that customary caution and a halt-work condition are in place for ground-disturbing activities that go beyond artificial fill materials, potential

impacts to archaeological resources would be reduced to a less than significant level. Implementation of Mitigation Measure CUL-1 would ensure that impacts to archaeological resources are less than significant.

Mitigation Measures

CUL-1 Prior to any ground disturbance, Tustin Unified School District shall provide a note on plans indicating that in the event that potential archeological resources are discovered during ground-disturbing activities, all such activity shall cease in the immediate area of the find (within a 50-foot buffer) until a qualified archaeological consultant can assess the find and make recommendations. The archaeological monitor shall determine whether the find constitutes a "historical resource" pursuant to the California Environmental Quality Act (CEQA) Guidelines 15064.5(a) or has a "unique archeological resource" pursuant to the Public Resources Code 21083.2(g). Construction activities may continue in other areas of the project site and for other project elements while the find is evaluated. If the discovery is determined not to be important, work will be permitted to continue in the area. If the discovery is determined to be important, the District shall prepare a formal treatment plan in accordance with CEQA Guidelines Section 15064.5(f) for historical resources and Public Resources Code Sections 21083.2(b) for unique archaeological resources. Preservation in place (i.e., avoidance) is the preferred manner of treatment.

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

Less Than Significant Impact. The park replacement sites have been previously developed, and there are no known human remains on the two replacement park sites. The records search did not identify any uses that could result in discovery of human remains. However, under California Health and Safety Code (CHSC) Section 7050.5, if any human remains are discovered on the project site, disturbance of the site shall halt and remain stopped until the coroner has conducted an investigation into the determination of origin (CHSC 7050.5). If the coroner determines the remains are not under his jurisdiction (prehistoric), they are required to contact the Native American Heritage Commission within 24 hours (CHSC 7050.5). This organization is responsible for determining the most likely descendant for the area. Adherence to the CHSC Section 7050.5 will reduce potential impacts associated with disturbance of human remains to less than significant. No mitigation measures are required.

3.6 ENERGY

Would the project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less Than Significant Impact. Construction of the proposed project would require energy use to power the construction equipment. The energy use would vary during different phases of construction—the majority of construction equipment during demolition and grading would be gas powered or diesel powered, and the later construction phases may require electricity-powered equipment for architectural coatings. The proposed project

is anticipated to take about twelve months, and the construction contractors are anticipated to minimize idling of construction equipment and reduce construction waste by recycling. Construction equipment would be used and maintained in accordance with the manufacturer's specifications by the construction contractor and would not cause potentially significant environmental impacts due to the temporary nature and limited scale of the construction. Implementation of the proposed project is not anticipated to result in a wasteful, inefficient, or unnecessary consumption of energy.

Transportation energy use depends on the type and number of trips, vehicle miles traveled, fuel efficiency of vehicles, and travel mode. Transportation energy use during construction would come from the transport and use of construction equipment, delivery vehicles and haul trucks, and construction employee vehicles that would use diesel fuel and/or gasoline. Impacts related to transportation energy use during construction would be temporary and would not require expanded energy supplies or the construction of new infrastructure.

The replacement parks would serve the existing local residents, and could generate up to 74 daily trips on weekdays and up to 413 vehicle trips on weekends, as discussed in Section 3.17, *Transportation*. Transportation energy consumed by 74 vehicles on weekdays and up to 413 vehicles on weekends by park visitors would not be considered a wasteful and inefficient consumption of transportation energy resources. Additionally, development of additional park facilities in residential neighborhood would allow residents to walk and bike rather than drive to other parks farther away. Impacts would be less than significant.

The proposed project would provide nighttime lighting, including LED sports lighting and other area lighting for the park, consuming approximately 56,000 kwh per year. The proposed project would only use necessary lighting to operate the park, and lights would be turned off at 9 pm, not wasting or using unnecessary energy resources. Impacts would not be significant, and no mitigation measures are required.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less Than Significant Impact. The proposed joint-use park would not involve buildings or structures that consume substantial energy resources other than the nighttime light fixtures and the restroom/office building. The proposed project would be development in accordance with the applicable California Building Energy and Efficiency Standards (Title 24, Part 6) and CALGreen (Title 24, Part 11). The proposed project would not conflict with or obstruct a state or local renewable energy or energy efficiency. Impacts would be less than significant, and no mitigation measures are required.

3.7 GEOLOGY AND SOILS

The analysis in this section is based in part on the following technical studies, included as Appendix D to this Initial Study:

- *Paleontological Records Search for the proposed Heideman Elementary School Joint-Use Park Project, Project # TSD-17.0, in the City of Tustin, Orange County, project area*, Natural History Museum of Los Angeles County, December 2019

Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

No Impact. Fault rupture occurs when an active fault displaces during an earthquake. Fault rupture hazards depend on a property's proximity to an active or potentially active fault and the designation of the site in an Alquist-Priolo Special Study Zone, as defined by the Alquist-Priolo Earthquake Fault Zone Act of 1962. The project site is not located within a fault-rupture hazard zone (DOC 2001). Therefore, project development would not subject people or structures to hazards arising from surface rupture of a known active fault. No impact would occur and no mitigation measures are necessary.

ii) Strong seismic ground shaking?

Less Than Significant Impact. As stated in the City of Tustin General Plan, the primary seismic danger in the City is ground shaking. The intensity of ground shaking on the project site would depend on the magnitude of the earthquake, distance to the epicenter, and the geology of the area between the epicenter and the project site. The proposed project would be designed in accordance with the seismic requirements of the California Building Code (CBC) (California Code of Regulations, Title 24), including a development-specific subsurface exploration and laboratory testing prior to design and construction of any structures, and recommendations contained therein would be implemented as required. Additionally, the proposed project would not include any inhabitable structures other than a restroom/office building. Compliance with the requirements of the CBC for structural safety during a seismic event would reduce hazards from strong seismic ground shaking. Impacts from strong seismic ground shaking would be less than significant and no mitigation measure is necessary.

iii) Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. Liquefaction is a phenomenon that occurs when soil undergoes a transformation from a solid state to a liquified condition. It refers to loose, saturated sand or silt deposits that behave as a liquid and lose their load-supporting capability when strongly shaken. Loose granular soils and silts that are saturated by relatively shallow groundwater are susceptible to liquefaction. When subjected to seismic ground shaking, affected soils los strength during liquefaction and foundation failure can occur.

The project site is not identified as having a high liquefaction potential by the City of Tustin General Plan Conservation/Open Space/Recreation Element (Tustin 2008). However, the project site is located in the liquefaction zone according to the California Department of Conservation (DOC 2001). The proposed project would be subjected to the seismic requirements of the CBC and Division of the State Architect (DSA) standards. A comprehensive geotechnical evaluation, including development-specific subsurface

exploration and laboratory testing, would be required prior to construction. Recommendations contained therein will be implemented as required, and liquefaction and seismic settlement can be mitigated by proper engineering design. Therefore, compliance with the established standards would ensure that impacts from liquefaction are less than significant and no mitigation measures are necessary.

iv) Landslides?

No Impact. Landslides are the downslope movement of geologic materials. Slope failures in the form of landslides are common during strong seismic shaking in areas of steep hills. Landslides are not expected to occur at the project site, since the site and its surroundings are relatively flat and not within a landslide hazard area as identified by the California Geologic Survey (DOC 2001), which are areas having potential for seismic slope instability. Therefore, geologic hazards associated with landslides are not anticipated at the site. No impact would occur, and no mitigation measures are necessary.

b) Result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact. The proposed project would involve minimal grading activities for the proposed park amenities. Such earth-moving activities would temporarily expose soils surfaces to increased wind and water erosion. However, grading activities would be regulated by the Regional Water Quality Control Board requirements to ensure that no significant impacts occur. Because the proposed project involves grading of more than one acre, the District would be required to comply with a National Pollutant Discharge Elimination System permitting regulations, including the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The proposed project's construction contractor would be required to prepare and implement a SWPPP and associated best management practices (BMPs) in compliance with the Construction General Permit during grading and construction. Types of BMPs that are incorporated in SWPPPs and would help minimize impacts from soil erosion include:

- Erosion controls: Cover and/or bind soil surface, to prevent soil particles from being detached and transported by water or wind. Erosion control BMPs include mulch, soil binders, and mats.
- Sediment controls: Filter out soil particles that have been detached and transported in water. Sediment control BMPs include barriers, and cleaning measures such as street sweeping.
- Tracking controls: Tracking control BMPs minimize the tracking of soil off-site by vehicles; for instance, stabilizing construction roadways and entrances/exits.

Adherence to the BMPs in the SWPPP and adherence with local, regional, and state codes and requirements for erosion control and grading during construction would reduce, prevent, or minimize soil erosion from Project-related grading and construction activities.

Additionally, a water quality management plan (WQMP) would be prepared prior to approval of the first grading plan. The WQMP would contain specific source- and treatment-control BMPs that would reduce or eliminate infiltration of pollutants into the stormwater system. BMPs specified for the proposed project in the WQMP, which would minimize sediment pollution of stormwater, include a bioretention facility; common area landscape management; sweeping of streets; and use of efficient irrigation systems and landscape design, water conservation, and smart controllers. Compliance with the standard permitting requirements would ensure that

no significant water quality impact result from the proposed project. Therefore, soil erosion impacts would be less than significant and no mitigation measures are necessary.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less Than Significant Impact. Hazards from liquefaction are addressed above in Section 3.7.a.iii, and landslide hazards are addressed above in Section 3.7.a.iv. The proposed project would be designed in accordance with the requirements of the CBC. A comprehensive geotechnical evaluation, including development-specific subsurface exploration and laboratory testing, would be prepared, and recommendations would be implemented as required. Therefore, impacts associated with lateral spreading, liquefaction, subsidence, and other types of ground failure or collapse would be less than significant and no mitigation measures are necessary.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less Than Significant Impact. Expansive soils shrink or swell as the moisture content decreases or increases; the shrinking or swelling can shift, crack, or break structures built on such soils. As discussed above, the project site be designed in accordance with the requirements of the CBC. A comprehensive geotechnical evaluation, including development-specific subsurface exploration and laboratory testing would be prepared and recommendations contained therein would be implemented as required. Therefore, impacts related to expansive soil would be less than significant, and no mitigation measures are necessary.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The project site is part of an existing elementary school, and the proposed project would connect to the existing sewer main lines and service lines, which are currently available in the surrounding roadways. The proposed project would not involve the use of septic tanks or other alternative wastewater disposal systems. Therefore, no impact would occur and no mitigation measures are necessary.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact With Mitigation Incorporated. Paleontological resources are commonly known as fossils, that is, the recognizable physical remains or evidence of past life forms found on earth in past geological periods. Fossils include bones, shells, leaves, tracks, burrows, and impressions. A paleontological records search was conducted for the project site by the Natural History Museum of Los Angeles County. Results of the record search showed surface sediments for the project site and its surrounding area consist of younger terrestrial Quaternary Alluvium, which typically does not contain significant vertebrate fossils in the uppermost layers. Although deeper excavations could potentially encounter paleontological resources, the proposed project does not involve any habitable structure construction and would not require excavation beyond already disturbed fill materials and the younger terrestrial Quaternary Alluvium. The City of Tustin

General Plan does not identify the project site with a high paleontological sensitivity (Tustin 2018b). Additionally, California Public Resources Code, Chapter 1.7, Section 5097.5, prohibits persons from knowingly and willfully excavating upon or removing, destroying, injuring, or defacing any vertebrate paleontological site, including fossilized footprints or other paleontological feature. Therefore, the potential to uncover paleontological resources in the project site is low. However, in the event that it is determined that deeper excavation is necessary that reaches beyond fill materials and the younger terrestrial Quaternary Alluvium, mitigation will be necessary to reduce potential paleontological resources to a less than significant level.

Mitigation Measure

GEO-1 Prior to the beginning of ground disturbances, the Tustin Unified School District shall verify that the excavation activities will not disturb older terrestrial Quaternary Alluvium. In the event that the excavation goes beyond the artificial fill materials and the younger terrestrial Quaternary Alluvium, the District shall retain a qualified paleontologist to monitor ground-disturbing activities for the area that could encounter older terrestrial Quaternary Alluvium during grading. Before ground-disturbing activities begin, a qualified paleontologist shall prepare a monitoring plan specifying the frequency, duration, and methods of monitoring. Sediment samples shall be collected in the deposits and processed to determine the small-fossil potential in the project site, and any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution.

3.8 GREENHOUSE GAS EMISSIONS

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as greenhouse gases (GHGs), into the atmosphere. The primary source of these GHGs is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHGs—water vapor, carbon dioxide (CO_2), methane (CH_4), and O_3—that are the likely cause of an increase in global average temperatures observed in the 20th and 21st centuries. Other GHGs identified by the IPCC that contribute to global warming to a lesser extent are nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons.[1, 2]

This section analyzes the proposed project's contribution to global climate change impacts in California through an analysis of project-related GHG emissions. Information on manufacture of cement, steel, and other "life

[1] Water vapor (H_2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant, but part of the feedback loop rather than a primary cause of change.

[2] Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of PM emitted from burning fuels. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2017a). However, state and national GHG inventories do not yet include black carbon due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

cycle" emissions that would occur because of the project are not applicable and are not included in the analysis.[3] Black carbon emissions are not included in the GHG analysis because the California Air Resources Board (CARB) does not include this short-lived climate pollutant in the state's Assembly Bill (AB) 32 inventory but treats it separately (CARB 2017a).[4] Appendix B to this Initial Study provides a background discussion on the GHG regulatory setting and GHG modeling.

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact. Global climate change is not confined to a particular project area and is generally accepted as the consequence of global industrialization over the last 200 years. A typical project, even a very large one, does not generate enough GHG emissions on its own to influence global climate change significantly; hence, the issue of global climate change is, by definition, a cumulative environmental impact.

Table 6, *Project-Related Operation GHG Emissions*, shows project-related construction and operation-phase GHG emissions. As shown in the table, the proposed project would generate GHG emissions from vehicle trips generated by the proposed project (e.g., park visitors), energy use (indirectly from purchased electricity use for park lighting), area sources (e.g., landscaping equipment used on-site, consumer products, coatings), water/wastewater generation associated with the restroom/office, and waste disposal. The analysis amortizes annual average construction emissions over 30 years and includes one-time GHG emissions from the construction phase of the proposed project in the emissions inventory. Overall, development and operation of the proposed project would not generate net annual emissions that exceed the South Coast AQMD bright-line threshold of 3,000 metric tons of carbon dioxide equivalence ($MTCO_{2e}$) per year (South Coast AQMD 2010). Therefore, the proposed project's cumulative contribution to GHG emissions would be less than significant, and no mitigation measures are required.

[3] Life cycle emissions include indirect emissions associated with materials manufacture. However, these indirect emissions involve numerous parties, each of which is responsible for GHG emissions of their particular activity. The California Resources Agency, in adopting the CEQA Guidelines Amendments on GHG emissions found that lifecycle analyses was not warranted for project-specific CEQA analysis in most situations, for a variety of reasons, including lack of control over some sources, and the possibility of double-counting emissions (see Final Statement of Reasons for Regulatory Action, December 2009). Because the amount of materials consumed during the operation or construction of the proposed project is not known, the origin of the raw materials purchased is not known, and manufacturing information for those raw materials are also not known, calculation of life cycle emissions would be speculative. A life-cycle analysis is not warranted (OPR 2008).

[4] Particulate matter emissions, which include black carbon, are analyzed in Section 3.3, *Air Quality*. Black carbon emissions have sharply declined due to efforts to reduce on-road and off-road vehicle emissions, especially diesel particulate matter. The State's existing air quality policies will virtually eliminate black carbon emissions from on-road diesel engines within 10 years (CARB 2017a).

3. Environmental Analysis

Table 6 Project-Related Operation GHG Emissions

Source	GHG ($MTCO_2e$/Year)
Area	<1
Energy	2
Mobile (Vehicle Trips)	193
Solid Waste	<1
Water	<1
Lighting	13
Amortized Construction Emissions[1]	8
Total	**216**
Proposed South Coast AQMD Bright-Line Threshold	3,000 $MTCO_2e$/Year
Exceeds Bright-Line Threshold?	**No**

Source: CalEEMod, Version 2016.3.2. Totals may not equal to the sum of the values as shown due to rounding
Notes: MTons: metric tons; $MTCO_2e$: metric ton of carbon dioxide equivalent
[1] Total construction emission are amortized over 30 years per South Coast AQMD methodology. The construction GHG emissions modeling was performed using three months of construction. However, because the duration was later modified to 12 months, the amortized construction emissions were multiplied by 4 to reflect the increased construction duration.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact. Applicable plans adopted for reducing GHG emissions include the CARB Scoping Plan and SCAG's Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Below is a consistency analysis between the proposed project and these plans.

CARB Scoping Plan

CARB's Scoping Plan is California's GHG reduction strategy to achieve the state's GHG emissions reduction targets established by AB 32, which is to return to 1990 emission levels by year 2020, and Senate Bill (SB) 32, which is to reduce emissions 40 percent below 1990 levels by 2030. The CARB Scoping Plan is applicable to state agencies and is not directly applicable to cities/counties and individual projects. Nonetheless, the Scoping Plan has been the primary tool used to develop performance-based and efficiency-based CEQA criteria and GHG reduction targets for climate action planning.

Since adoption of the 2008 Scoping Plan, state agencies have adopted programs in the plan, and the legislature has passed additional legislation to achieve the GHG reduction targets. Statewide strategies to reduce GHG emissions include the Low Carbon Fuel Standard (LCFS), California Appliance Energy Efficiency regulations, California Renewable Energy Portfolio standard, changes in the Corporate Average Fuel Economy (CAFE) standards, and other early action measures as necessary to ensure the state is on target to achieve the GHG emissions reduction goals of AB 32. In addition, new buildings are required to comply with the latest applicable Building Energy Efficiency Standards and California Green Building Standards Code (CALGreen). While measures in the Scoping Plan would generally apply to state agencies and not the proposed project, compliance with these statewide measures adopted since AB 32 and SB 32 would reduce the proposed project's GHG

emissions. Therefore, the proposed project would not obstruct implementation of the CARB Scoping Plan and impacts would be less than significant.

SCAG's Regional Transportation Plan/Sustainable Communities Strategy

The SCAG Regional Council adopted SCAG's 2016-2040 RTP/SCS on April 7, 2016 (SCAG 2016). SCAG released a draft of the 2020-2045 RTP/SCS (Connect SoCal) on November 7, 2019 (SCAG 2019). The RTP/SCS identifies multimodal transportation investments, including bus rapid transit, light rail transit, heavy rail transit, commuter rail, high-speed rail, active transportation strategies (e.g., bike ways and sidewalks), transportation demand management strategies, transportation systems management, highway improvements (interchange improvements, high-occupancy vehicle lanes, high-occupancy toll lanes), arterial improvements, goods movement strategies, aviation and airport ground access improvements, and operations and maintenance to the existing multimodal transportation system.

The RTP/SCS identifies that land use strategies that focus on new housing and job growth in areas served by high quality transit and other opportunity areas would be consistent with a land use development pattern that supports and complements the proposed regional transportation network from the RTP/SCS. The overarching strategy in the 2016-2040 RTP/SCS is to provide a plan that allows the southern California region to grow in more compact communities in existing urban areas; provide neighborhoods with efficient and plentiful public transit, abundant and safe opportunities to walk, bike and pursue other forms of active transportation; and preserve more of the region's remaining natural lands (SCAG 2016). The 2016-2040 RTP/SCS has transportation projects that help distribute population, housing, and employment growth more efficiently, and it forecasts development that is generally consistent with regional-level general plan data. The projected regional development, when integrated with the proposed regional transportation network from the RTP/SCS, would reduce per capita vehicular travel-related GHG emissions and achieve the GHG reduction per capita targets for the SCAG region.

The RTP/SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS, but offers governments and developers incentives for consistency. The proposed project is a joint-use park within the existing Heideman ES in a residential community and would provide a recreation service to the surrounding community that can be accessed by walking and biking. Consequently, the proposed project is consistent with the overall objectives of SCAG's RTP/SCS. The proposed project would not interfere with SCAG's ability to implement the regional strategies outlined in the RTP/SCS, and impacts would be less than significant. No mitigation measures are required.

3.9 HAZARDS AND HAZARDOUS MATERIALS

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?

Less Than Significant Impact. Construction activities would involve use of hazardous materials including cleansers and degreasers; fluids used in routine maintenance and operation of construction equipment, such as

oil and lubricants; fertilizers; pesticides; and architectural coatings including paints. However, the materials used would not be in such quantities or stored in such a manner as to pose a significant safety hazard. These activities would also be short term or one time in nature and would cease upon completion of the construction phase. Project construction workers would also be trained in safe handling and hazardous materials use.

Operation of the proposed park would not involve the use of unusually hazardous materials that could impact surrounding land uses. Project operation would involve the use of small amounts of hazardous materials, such as cleansers, paints, degreasers, adhesive, sealers, fertilizers, and pesticides for cleaning and maintenance purposes. There would be no storage of hazardous waste on the park site.

Furthermore, the use, storage, transport, and disposal of hazardous materials during both construction and operational phases would be governed by existing regulations of several agencies, including the US Environmental Protection Agency, US Department of Transportation, California Division of Occupational Safety and Health, Orange County Health Care Agency, and Orange County Fire Authority (OCFA). Compliance with applicable laws and regulations governing the use, storage, transportation, and disposal of hazardous materials would ensure that all potentially hazardous materials are used and handled in an appropriate manner and would minimize the potential for safety impacts.

Therefore, substantial hazards to the public or the environment arising from the routine use, storage, transport, and disposal of hazardous materials would be less than significant and no mitigation measures are necessary.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant Impact. As discussed in Section 3.9.(a), hazards to the public or the environment arising from the routine use of hazardous materials during operation and construction phases would be less than significant. There are no known hazardous materials on the project site other than typical custodial and landscaping related materials, and no known previous site uses that would indicate the presence of hazardous materials. It is not anticipated that construction and operation of the proposed project would create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment. Compliance with existing regulations would ensure that construction workers and the general public are not exposed to any unusual or excessive risks related to hazardous materials. Therefore, impacts would be less than significant and no mitigation measures are necessary.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact. The project site is located on an existing Heideman Elementary School campus. The next closest school to the project site the Saint Jeanne De Lestonnac School, located approximately 0.45 mile from the project site. As discussed in Section 3.9.a and b, hazardous materials used for the proposed project would not create significant hazards to the public or environment. All hazardous materials and substances used would comply with federal, state, and local health and safety regulations. Therefore, impacts related the emission or handling of hazardous or acutely hazardous materials, substances, or wastes within 0.25 mile of an existing or proposed school would be less than significant and no mitigation measures are necessary.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less Than Significant Impact. California Government Code Section 65962.5 requires the compiling of lists of the following types of hazardous materials sites: hazardous waste facilities subject to corrective action; hazardous waste discharges for which the State Water Quality Control Board has issued certain types of orders; public drinking water wells containing detectable levels of organic contaminants; underground storage tanks with reported unauthorized releases; and solid waste disposal facilities from which hazardous waste has migrated. The following databases were reviewed for hazardous material site listings on-site or within 0.25 mile of the project site:

- GeoTracker, State Water Resources Control Board (SWRCB 2015)
- EnviroStor, Department of Toxic Substances Control (DTSC 2019)
- EnviroMapper, US Environmental Protection Agency (USEPA 2019)
- EJScreen, US Environmental Protection Agency (USEPA 2018)
- Solid Waste Information System, California Department of Resource Recovery and Recycling (CalRecycle 2019)

As shown in Table 7, *Hazardous Material Site On-Site or within 0.25 Mile of the Project Site*, no hazardous materials sites were listed within the project site. Although there are sites within the project vicinity, project development would be confined to the existing school campus. Therefore, impact to the public or to the environment would be less than significant and no mitigation measures are necessary.

Table 7 Hazardous Material Site On-Site or within 0.25 Mile of the Project Site

Site Name & Address	Database	Identifier	Cleanup Status	Proximity to Site
Station Liquor – 16471 McFadden Avenue	GeoTracker	Leaking Underground Storage Tank (LUST)	Open - Site Assessment As Of 3/15/1999	0.24 miles southeast
Advantage Environmental SVC – 1780 E McFadden Avenue Suite 116	EnviroMapper	Transporter	N/A	0.22 miles south
AAMCO Trans #23502 – 1900 E McFadden Avenue	EnviroMapper	Transporter	N/A	0.25 miles southeast

Source: SWRCB 2015; USEPA 2019.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles or a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The project site is not within an airport land use plan, and there are no public airports or private airstrips within two miles of the site. The nearest airport is the John Wayne Airport, approximately 4.4 miles southwest. According to Land Use Plan for John Wayne Airport, the project site is not within the Airport Impact Zone (ALUC 2008). Therefore, no impact would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. The project site is within the existing Heideman ES campus, and the joint-use park would be used exclusively by the students during school hours and open to public during after school hours from 6:00 pm to 9:00 pm and 9:00 am to 9:00 pm on weekends and holidays. There would be no offsite access improvements to affect any adopted emergency response plan or emergency evacuation plan. There are two existing gated emergency access points that serve the existing school, one from the southern parking lot and one from the norther/eastern parking lot. These two internal emergency access points would continue to serve the school and the joint-use park. As discussed in Section 3.17, *Transportation*, the proposed project is anticipated to generate 74 daily evening trips during weekdays and up to 413 trips on weekends. The proposed joint-use park would not increase the existing school enrollment capacity to affect area traffic during school hours to physically interfere with any adopted emergency response plan, and the evening use of the joint-use park during evening hours (generally from 6 pm to 9 pm), and weekends could be accommodated by the roadway system and existing school facilities that currently accommodate 627 students at the existing school. Therefore, project impacts would be less than significant, and no mitigation measures are required.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact. A wildland fire hazard area is typically characterized by areas with limited access, rugged terrain, limited water supply, and combustible vegetation. As shown in Figure 3, *Aerial Photograph*, the project site is in an urbanizing area of the City and is primarily surrounded by residential uses. There is no combustible wildland vegetation on or near the site. The project site is also not located in or next to a Fire Hazard Severity Zone mapped by the California Department of Forestry and Fire Prevention (FRAP 2019b). Therefore, project development would not introduce people or structures to substantial hazards from wildland fires. No impact would occur.

3.10 HYDROLOGY AND WATER QUALITY

Would the project:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact. Water quality in Tustin is regulated by the Santa Ana Regional Water Quality Control Board and its Water Quality Control Plan (Santa Ana River Basin Plan), which contains water quality standards and identifies beneficial uses for receiving waters along with water quality criteria and standards necessary to support these uses consistent with federal and state water quality laws. As shown in Figure 3, *Aerial Photograph*, the project site is an existing elementary school, and the 3.5-acre main area of disturbance is pervious grass field. Impacts to water quality from receiving waters generally range over three different phases of a development project:

- During the earthwork and construction phase, when the potential for erosion, siltation, and sedimentation would be the greatest.
- Following construction and before the establishment of ground cover, when the erosion potential may remain relatively high.
- Following project completion, impacts related to sedimentation would decrease markedly, but those associated with urban runoff would increase.

Following is a discussion of the potential water quality impacts resulting from urban runoff that would be generated during the construction and operational phases of the proposed project.

Project Construction

Construction-related runoff pollutants are typically generated from waste and hazardous materials handling or storage areas, outdoor work areas, material storage areas, and general maintenance areas (e.g., vehicle or equipment fueling and maintenance, including washing). The proposed project's construction phase may cause deterioration in the quality of downstream receiving waters if construction-related sediments or pollutants wash into the existing storm drain system and facilities in the area.

Construction-related activities that are primarily responsible for sediment releases are related to exposing previously stabilized soils to potential mobilization by rainfall/runoff and wind. Such activities include removing vegetation from the site, grading, and trenching for infrastructure improvements. Environmental factors that affect erosion include topographic, soil, wind, and rainfall characteristics. Non-sediment-related pollutants that are also of concern during construction relate to non-stormwater flows and generally include construction materials (e.g., paint and stucco); chemicals, liquid products, and petroleum products used in building construction or the maintenance of heavy equipment; and concrete and related cutting or curing residues. Construction-related activities of the proposed project would generate pollutants that could adversely affect the water quality of downstream receiving waters if appropriate and effective stormwater and non-stormwater management measures are not used to keep pollutants out of and remove pollutants from urban runoff.

Construction projects of one acre or more are regulated under the statewide Construction General Permit (CGP), Order No. 2012-0006-DWQ, issued by the State Water Resources Control Board. Projects obtain coverage by developing and implementing a Stormwater Pollution Prevention Plan (SWPPP) estimating sediment risk from construction activities to receiving waters and specifying best management practices (BMPs) that would be implemented as a part of the project to minimize pollution of stormwater. Categories of BMPs used in SWPPPs are described in Table 8, *Construction Best Management Practices*.

3. Environmental Analysis

Table 8 Construction Best Management Practices

Category	Purpose	Examples
Erosion Controls and Wind Erosion Controls	Cover and/or bind soil surface, to prevent soil particles from being detached and transported by water or wind	Mulch, geotextiles, mats, hydroseeding, earth dikes, swales
Sediment Controls	Filter out soil particles that have been detached and transported in water.	Barriers such as straw bales, sandbags, fiber rolls, and gravel bag berms; desilting basin; cleaning measures such as street sweeping
Tracking Controls	Minimize the tracking of soil offsite by vehicles	Stabilized construction roadways and construction entrances/exits; entrance/outlet tire wash.
Non-Storm Water Management Controls	Prohibit discharge of materials other than stormwater, such as discharges from the cleaning, maintenance, and fueling of vehicles and equipment. Conduct various construction operations, including paving, grinding, and concrete curing and finishing, in ways that minimize non-stormwater discharges and contamination of any such discharges.	BMPs specifying methods for: paving and grinding operations; cleaning, fueling, and maintenance of vehicles and equipment; concrete curing; concrete finishing.
Waste Management and Controls (i.e., good housekeeping practices)	Management of materials and wastes to avoid contamination of stormwater.	Spill prevention and control, stockpile management, and management of solid wastes and hazardous wastes.

Source: CASQA 2015.

The District's construction contractor is required to prepare and implement an SWPPP and associated BMPs in compliance with the CGP during grading and construction. The SWPPP would specify BMPs, such as those outlined in Table 8, that the construction contractor would implement to protect water quality by eliminating and/or minimizing stormwater pollution prior to and during grading and construction and show the placement of those BMPs. Additional construction BMPs that would be incorporated into the proposed project's SWPPP and implemented during the construction phase include but are not limited to:

- Perimeter control with silt fences and perimeter sandbags and/or gravel bags.
- Stabilized construction exit with rumble strip(s)/plate(s).
- Installation of storm drain inlet protection on affected onsite drains and within roadways.
- Installation of silt fences around stockpile and covering of stockpiles.
- Use of secondary containment around barrels, containers and storage materials that may impact water quality.
- Stabilization of disturbed areas where construction ceases for a determined period of time (e.g., one week) with erosion controls.
- Installation of temporary sanitary facilities and dumpsters.

Adherence to the BMPs in the SWPPP would reduce, prevent, minimize, and/or treat pollutants and prevent degradation of downstream receiving waters. BMPs identified in the SWPPP would reduce or avoid

contamination of stormwater with sediment and other pollutants such as trash and debris; oil, grease, fuels, and other toxic chemicals; paint, concrete, asphalt, bituminous[5] materials, etc.; and nutrients. Based on the preceding, water quality and waste-discharge impacts from proposed project's grading and construction activities would be less than significant, and no mitigation measures are necessary.

Project Operation

Operational-related activities of the proposed project (group gathering space, playgrounds, soccer field, all-weather exercise track, skate pod, etc.) would increase impervious surfaces and generate increase pollutants that could affect the water quality of downstream receiving waters if effective measures are not used to keep pollutants out of and remove pollutants from urban runoff. Requirements for waste discharges to stormwater from operation of developed land uses are set forth in the Municipal Stormwater Permit (MS4 Permit), Order No. R8-2009-0030 as amended by Order R8-2010-0062, issued by the Santa Ana Regional Water Quality Control Board (RWQCB). The proposed project is required to prepare and implement a WQMP pursuant to the MS4 Permit, specifying BMPs to be used during project design and operation to minimize stormwater pollution. The WQMP is required to be prepared in accordance with the Model Water Quality Management Plan and Technical Guidance Document. In compliance with the MS4 Permit, specific nonstructural (e.g., education for staff and visitors, activity restrictions, landscape management, BMP maintenance, litter/debris control, catch basin inspection, street sweeping of driveways and parking lots) and structural source control BMPs (e.g., use efficient irrigation systems and landscape design, water conservation, smart controllers, and source control) would be incorporated into the proposed project. The project site is already developed as an elementary school, and the proposed joint-use park amenities would not involve land uses that could have substantial adverse impacts on the existing water quality. It is anticipated that project conformance with the required BMPs in the WQMP and compliance with applicable local, state, and federal water quality regulations would reduce potential water quality impacts during operation to less than significant level. No mitigation measures are required.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less Than Significant Impact. According to the 2015 Urban Water Management Plan for Tustin, the City will receive approximately 95 percent of its water from groundwater from the Orange County Groundwater Basin (OC Basin) and the rest from the purchased or imported water from the Municipal Water District of Orange County through the East Orange County Water District by 2020. The OC Basin is managed by the Orange County Water District (OCWD). It underlies the northern half of Orange County beneath broad lowlands and covers approximately 350 square miles, bordered by the Coyote and Chino Hills to the north, the Santa Ana Mountains to the northeast, and the Pacific Ocean to the southwest. The City has eight untreated groundwater wells that pump directly into the distribution system and two treatment facilities that treat groundwater from five additional wells. Pumping from the OC Basin is managed through a process that uses financial incentives to encourage groundwater producers to pump a sustainable amount of water. The framework for the financial incentives is based on establishing the basin production percentage, that is, the

[5] Bituminous = resembling or containing bitumen; bitumen = any of various viscous or solid impure mixtures of hydrocarbons that occur naturally in asphalt, tar, mineral waxes, etc.; used as a road surfacing and roofing material.

percentage of each producer's total water supply that comes from groundwater pumped from the OC Basin. Groundwater production at or below this percentage is assessed a Replenishment Assessment. The proposed project would include a 1,000-square-foot restroom/office facility, and it would not lead to an increase in groundwater pumping. The project site is already developed as an existing elementary school campus, and the proposed project would serve the existing and future Tustin residents who are already accounted for in the 2015 Urban Water Management Plan. Although the proposed project would increase the impervious surfaces at the project site, the project site does not contain any groundwater wells and does not represent a substantial recharge area. No water features (e.g., streams or creeks) that serve the purpose of groundwater recharge for the area are in the project vicinity. OCWD's groundwater is recharged primarily through artificial replenishment, not natural recharge. Therefore, the proposed project would not substantially interfere with groundwater supplies or recharge. Impacts to groundwater supplies would be less than significant and no mitigation measures are necessary.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) Result in a substantial erosion or siltation on- or off-site?

Less Than Significant Impact. See Section 3.10(a). As stated above, the construction contractor would be responsible for preparation and implementation of a SWPPP as defined in the CGP, which includes maintenance of erosion and sediment control during construction. Compliance with NPDES permit and implementation of the SWPPP would ensure that the construction of the proposed project would not result in adverse water quality impacts. Implementation of BMPs identified in the SWPPP would minimize soil erosion impact. Therefore, impacts would be less than significant, and no mitigation measures are necessary.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

Less Than Significant Impact With Mitigation Incorporated. The project site is already developed as an elementary school and the existing runoff sheet flows to the existing turf field. There are no inlets or other local drainage facilities which the existing school connects to (OCFCD 2008). The proposed project would not substantially alter the existing drainage pattern of the project site, and maintain the existing pattern on-site to the maximum extent feasible. However, the proposed project would increase the impervious surfaces at the project site through provision of various park amenities (e.g., skate area, all-weather track, fitness equipment area), therefore, would be required to implement low impact development features to retain storm water runoff on-site through landscaping and the tactile experience garden feature so that the post-project runoff does not exceed the existing conditions or overflow to the adjacent areas. Provided that adequate LID feature is incorporated to control runoff, impacts would be reduced to a less than significant level.

Mitigation Measure

HYD-1 The Tustin Unified School District shall prepare and implement a water quality management plan in accordance with the Orange County Model Water Quality Management Plan and Technical Guidance Document and demonstrate that the post-development runoff flow rate and volume do not exceed the existing runoff flow rate and volume. The final site plans shall include on-site drainage system and low impact development (LID) treatment design requirements to control and retain on-site stormwater runoff so that post-development storm water runoff conditions do not exceed pre-development conditions.

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less Than Significant Impact With Mitigation Incorporated. See Section 3.10(c)(i). Grading and drainage improvement plans would be prepared for the proposed project, consistent with local, state, and federal water quality requirements. The proposed project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. All drainage improvements proposed would be in conformance with the grading and drainage improvement plans approved by the Santa Ana RWQCB to reduce potential water quality impacts during construction and operation to less than significant. The proposed project would not connect to the City's existing stormwater infrastructure and it would not increase in rate or amount as compared to existing conditions with implementation of Mitigation Measure HYD-1.

Mitigation Measure

See Mitigation Measure HYD-1.

iv) Impede or redirect flood flows?

No Impact. According to the Federal Emergency Management Agency (FEMA), the project site is not located within flood hazard area. The project site is identified as Zone X, which is defined as areas with minimal flood hazard (FEMA 2009). The proposed project would not construct any large structures or change topography that could impede or redirect flood flows. Therefore, the proposed project would not impede or redirect flood flows and no mitigation measures are necessary.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. As discussed above, the project site is not located within a flood hazard zone. A seiche is an oscillating surface wave in a restricted or enclosed body of water, generated by ground motion, usually during an earthquake. Seiches are of concern for water storage facilities, because inundation from a seiche can occur if the wave overflows a containment wall, such as the wall of a reservoir, water storage tank, dam, or other artificial body of water. There are no adjacent or nearby bodies of water that would pose a flood hazard to the site due to a seiche. Therefore, the project site is not at risk of inundation by seiche.

Tsunamis are a type of earthquake-induced flooding produced by large-scale sudden disturbances of the sea floor. Tsunami waves interact with the shallow sea floor when approaching a landmass, resulting in an increase in wave height and a destructive wave surge into low-lying coastal areas. The project site is approximately 11 miles inland from the Pacific Ocean. Therefore, the site is outside the tsunami hazard zone and would not be affected by a tsunami.

Based on the preceding, the proposed project would not release pollutants as the result of floods, tsunami, or seiche. Therefore, no impact would occur and no mitigation measures are necessary.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant Impact. Water quality in the City of Tustin is regulated by Santa Ana Regional Water Quality Control Board and its Basin Plan. The basin plan contains water quality standards and identifies beneficial uses (wildlife habitat, agricultural supply, fishing, etc.) for receiving waters along with water quality criteria and standards necessary to support these uses consistent with federal and state water quality laws. As discussed in Section 3.10.a, above, the project would not violate any water quality standards and would therefore not obstruct the implementation of the Basin Plan. Additionally, the project site is in the Coastal Plain of the Orange County Basin. The basin has a Groundwater Management Plan. As discussed in Sections 3.10.a and b, above, the proposed project would not violate any water quality standards and would not decrease groundwater supplies or interfere substantially with groundwater recharge. Therefore, impacts would be less than significant, and no mitigation measures are necessary.

3.11 LAND USE AND PLANNING

Would the project:

a) Physically divide an established community?

No Impact. The proposed project would occur entirely on an existing school campus and would not divide an established residential community. It is anticipated that all proposed improvements would occur within the existing school boundary, and that no off-site improvements (e.g. construction of new roadways) would be required. Therefore, no impacts would occur and no mitigation measures are necessary.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less Than Significant Impact. The project site is zoned P&I (Public and Institutional) and no changes to the existing land use designation would occur. A public park use is a permitted use in the P&I zoning designation. The proposed project involves development of a join-use park on the existing Heideman ES athletic field. The proposed project would construct a lighted soccer/softball turf field and other various park amenities, which would be used exclusively for the elementary school during school hours. The proposed park would be used by the public in the evening hours and weekends, and would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project. The proposed project would

not conflict with the existing use of the project site as an elementary school or with surrounding residential land uses. Therefore, no substantial changes in land use would occur, and impacts would be less than significant. No mitigation measures are necessary.

3.12 MINERAL RESOURCES

Would the project:

a) Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?

No Impact. According to the California Geological Survey, the project site is located in mineral resource zone 3 (MRZ-3), which is defined as areas with mineral occurrences of undetermined mineral resource significance (CGS 1981). According to the City of Tustin General Plan, the only mineral resource identified within the City is the mercury-barite deposit in Red Hill (Tustin 2018b). The project site does not contain known mineral resources of value to the region and the residents of the state. Additionally, the nearest mines to the project site mapped on the Office of Mine Reclamation's Mines Online website are two sand and gravel mines, the R.J. Noble Company Mine and the Irvine Mine, both about 6.09 miles northwest and 8.23 miles northeast of the sites, respectively (OMR 2019). Implementation of the proposed project would not cause a loss of availability of known mineral resources. No impact would occur, and no mitigations measures are required.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. According to the City of Tustin General Plan, there are no designated mining sites in the vicinity of the project site. The project site is surrounded by residential uses that would be incompatible with mining. Therefore, project implementation would have no impact on a mineral resource recovery site, and no mitigation measures are required.

3.13 NOISE

Noise is defined as unwanted sound and is known to have several adverse effects on people, including hearing loss, speech and sleep interference, physiological responses, and annoyance. Based on these known adverse effects of noise, the federal, state, and city governments have established criteria to protect public health and safety and to prevent the disruption of certain human activities, such as classroom instruction, communication, or sleep. Fundamentals of noise and vibration, additional local regulatory background information, and construction noise modeling worksheets are included in Appendix E.

Environmental Setting

The noise environment surrounding the project site is influenced primarily by existing school activities, rail noise, and traffic noise from local roadways and nearby highways (i.e., SR-55 and I-5). Baseline noise contours from Tustin's General Plan Noise Element show the project outside the 65 dBA CNEL noise contour.

3. Environmental Analysis

Sensitive Receptors

Certain land uses are particularly sensitive to noise and vibration. These uses include residences, schools, hospital facilities, houses of worship, and open space/recreation areas where quiet environments are necessary for the enjoyment, public health, and safety of the community. The proposed project is in the City of Tustin and borders the City of Santa Ana to the west. The nearest sensitive receptors are the surrounding residences adjacent to the project site in both cities. In addition to residential sensitive receptors, the students at Heideman ES would be considered on-site sensitive receptors when school is in session.

Ambient Noise Measurements

To determine baseline noise levels within the project vicinity, ambient noise monitoring was conducted by PlaceWorks staff on Wednesday, January 15, 2020. Measurements were made in the evening hours (between 8:00 PM and 9:30 PM) at three short-term (15-minute) measurement locations.

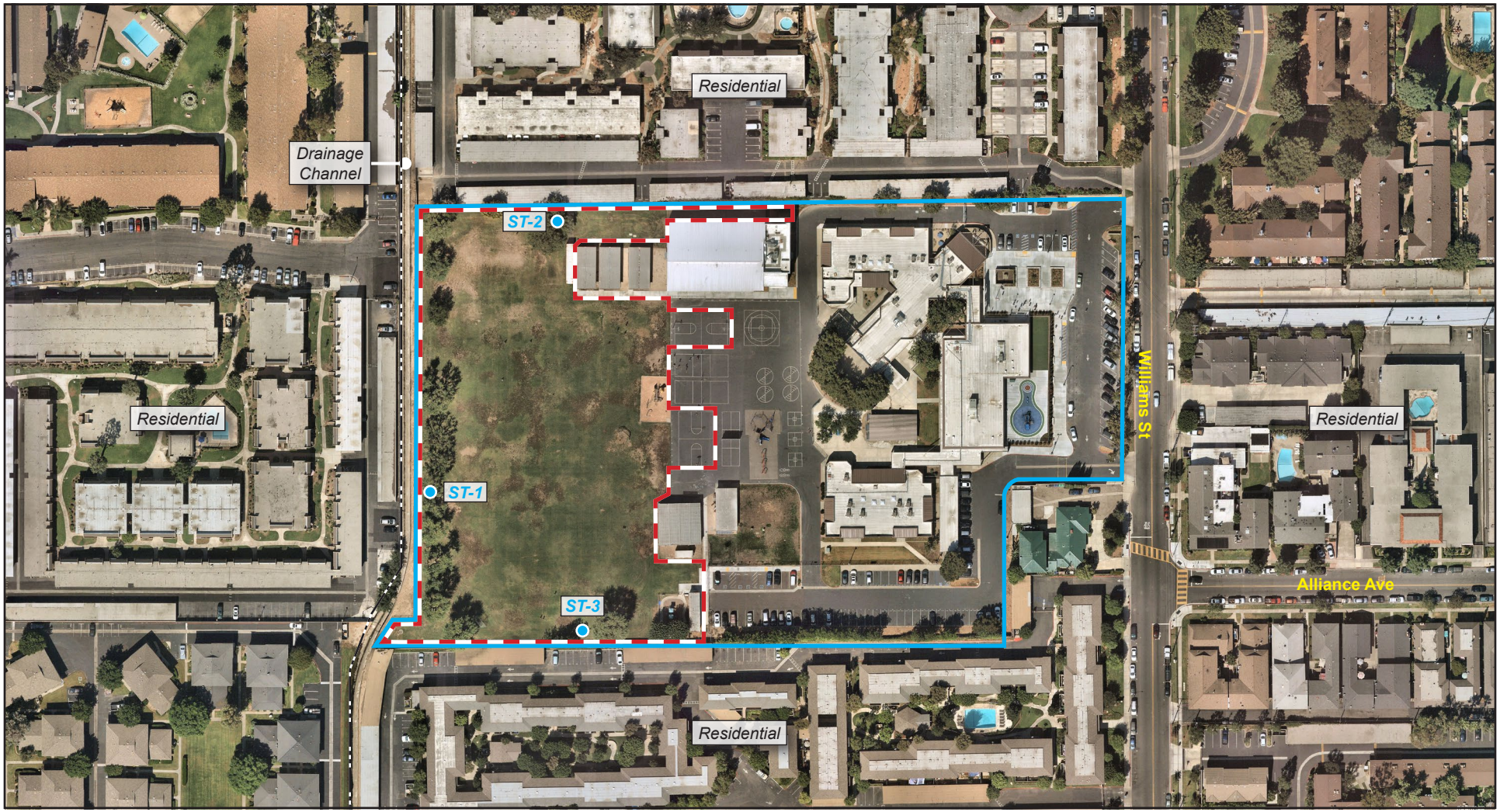
The primary noise source during measurements was traffic noise. Secondary noise sources included birds, train horns, and aircraft overflights. Meteorological conditions during the measurement period were favorable for outdoor noise monitoring and were representative of the typical conditions for the season. Generally, conditions included mostly clear skies with evening temperatures of 49 degrees Fahrenheit (°F), and average wind speeds of 1 mile per hour (mph). The sound level meter was equipped with a windscreen during all sound measurements.

The Larson Davis LxT sound level meter used for noise monitoring satisfies the American National Standards Institute (ANSI) standard for Type 1 instrumentation. The sound level meter was set to "slow" response and "A" weighting (dBA). The meter was calibrated prior to and after the noise monitoring period. All measurements were at least five feet above the ground and away from reflective surfaces. Noise measurement locations are described below and shown in Figure 7, *Approximate Noise Monitoring Locations*.

- Short-Term Location 1 (ST-1) was near the western edge of the project site abutting the Village Meadows Santa Ana Apartments (Santa Ana). A 15-minute noise measurement was conducted, beginning at 8:29 PM on Wednesday, January 15, 2020. The noise environment of this site is characterized primarily by traffic noise from I-5 and SR-55. Secondary noise sources included train horns and aircraft overflights. Noise levels generally ranged from 51 dBA to 66 dBA.

- Short-Term Location 2 (ST-2) was near the northern edge of the project site abutting the Monterey Pines Apartments (Tustin). A 15-minute noise measurement was conducted, beginning at 8:47 PM on Wednesday, January 15, 2020. The noise environment of this site is characterized primarily by traffic noise from I-5 and SR-55. Secondary noise sources included train horns and aircraft overflights. Noise levels generally ranged from 53 dBA to 65 dBA.

Figure 7 - Approximate Noise Monitoring Locations



Source: Nearmap, 2019

3. Environmental Analysis

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- Short-Term Location 3 (ST-3) was near the southern edge of the project site abutting the Stonebrook Apartments (Tustin). A 15-minute noise measurement was conducted, beginning at 8:12 PM on Wednesday, January 15, 2020. The noise environment of this site is characterized primarily by traffic noise from I-5 and SR-55. Secondary noise sources include birds and aircraft overflights. Noise levels generally ranged from 46 dBA to 61 dBA.

During noise measurements it was observed that the northern and western adjacent properties do not have existing walls. The southern property line of the project site has a wall, with a portion approximately 10 feet high, and the rest approximately 6 feet high.

Ambient Noise Monitoring Results

The short-term measurement results are summarized in Table 9, *Short-Term Noise Measurements Summary*.

Table 9 Short-Term Noise Measurements Summary

Monitoring Location	Description	15-minute Noise Level in dBA[1]			
		L_{eq}	L_{max}	L_{min}	L_{50}
ST-1	Heideman ES: Western edge of project site – 8:29 PM, 1/15/2020	54.7	66.8	51.0	53.1
ST-2	Heideman ES: Northern edge of project site – 8:47 PM, 1/15/2020	55.8	65.1	52.5	55.6
ST-3	Heideman ES: Southern edge of project site – 8:12 PM, 1/15/2020	50.7	61.7	46.6	49.9

[1] dBA = A-weighted sound levels

City of Tustin Standards

The City of Tustin's noise standards are set forth in its Municipal Code Chapter 6, Noise Control. Table 10, *City of Tustin Exterior Noise Limits*, summarizes exterior noise standards by zone and time of day. In addition to exterior noise standards, applicable exceptions, exemptions, and prohibited noise sources and activities are also provided.

Table 10 City of Tustin Exterior Noise Limits

Zone	Time Period	Allowable Noise Level, dBA
Residential	7:00 AM to 10:00 PM	55
	10:00 PM to 7:00 AM	50
Commercial	Anytime	60
Industrial	Anytime	70
All special properties such as hospitals, convalescent homes, public and institutional schools, libraries and churches.	7:00 AM to 10:00 PM	55
	10:00 PM to 7:00 AM	50
All Mixed-Use Properties	Anytime	60

Source: City of Tustin Municipal Code, Chapter 6, Noise Control.
Notes:
Exterior noise standards may not be exceeded for a cumulative period of more than 30 minutes in any hour (L_{50})
Exterior noise standards may not be exceeded by 5 dBA for a cumulative period of more than 15 minutes in any hour (L_{25})
Exterior noise standards may not be exceeded by 10 dBA for a cumulative period of more than 5 minutes in any hour (L_8)
Exterior noise standards may not be exceeded by 15 dBA for a cumulative period of more than 1 minutes in any hour (L_2)
Exterior noise standards may not be exceeded by 20 dBA for less than 1 minute (L_{max}).
In the event the ambient noise level exceeds either of the first four noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level.

3. Environmental Analysis

Prohibited

Construction of any building or site is prohibited between the hours of 6:00 PM and 7:00 AM, Monday through Friday, and between 5:00 PM and 9:00 AM on Saturdays. Construction is prohibited Sundays and City-observed federal holidays. Construction vehicles, trucks, and equipment involved with material deliveries, loading, transfer of materials, equipment service, and maintenance of any devices shall not be operated or adjacent to the project site outside of the allowable construction hours.

Ongoing maintenance for the joint-use park would be subject to the City's property maintenance equipment hours of operation of 7:00 am to 10:00 pm, Monday through Friday and 9:00 am to 10:00 pm on Saturdays. Unusually loud maintenance activity is prohibited on Sundays and City-observed federal holidays.

Exemptions

The following are exempt from the Tustin Municipal Code noise standards under Chapter 6-4617, Exemptions:

- Noise from activates conducted on the public or private schools that include nursery, elementary, intermediate, secondary, and college.
- Noise from activities conducted on any park or playground provided such park or playground is owned and operated by a public entity.
- Construction noise is exempt between the hours of 7:00 AM to 6:00 PM Monday through Friday and 9:00 AM to 5:00 PM Saturdays.

City of Santa Ana Standards

The project site is adjacent to residential uses in Santa Ana. The City of Santa Ana standards are shown in Table 11, *City of Santa Ana Exterior Noise Limits*, and would apply to project noise affecting residences in Santa Ana.

Table 11 City of Santa Ana Exterior Noise Limits

Zone	Time Period	Allowable Noise Level, dBA
All Residential	7:00 AM to 10:00 PM	55
	10:00 PM to 7:00 AM	50

Source: City of Santa Ana Municipal Code.
Notes:
Exterior noise standards may not be exceeded for a cumulative period of more than 30 minutes in any hour (L_{50})
Exterior noise standards may not be exceeded by 5 dBA for a cumulative period of more than 15 minutes in any hour (L_{25})
Exterior noise standards may not be exceeded by 10 dBA for a cumulative period of more than 5 minutes in any hour (L_8)
Exterior noise standards may not be exceeded by 15 dBA for a cumulative period of more than 1 minutes in any hour (L_2)
Exterior noise standards may not be exceeded by 20 dBA for less than 1 minute (L_{max}).
In the event the ambient noise level exceeds any of the first four noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level.

Exemptions

In addition to exterior noise standards, the following are exempt from the Santa Ana Municipal Code noise standards under Section 18-314, Special Provisions:

- Activities conducted on the grounds of any public or private nursery, elementary, intermediate or secondary school or college.
- Activities conducted on any park or playground, provided such park or playground is owned and operated by a public entity.
- Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 PM and 7:00 AM on weekdays including Saturday, or any time on Sunday or federal holidays.
- Noise sources associated with the maintenance of real property during the hours of 7:00 AM and 8:00 PM Monday through Saturday and 9:00 AM to 8:00 PM on Sundays and federal holidays.

Would the project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact.

Construction

Two types of short-term noise impacts could occur during construction: (1) mobile-source noise from transport of workers, material deliveries, and debris and soil haul and (2) stationary-source noise from use of construction equipment. Construction activity is anticipated to begin in the summer of 2020 and last 12 months.

Construction Vehicles

The transport of workers and materials to and from the construction site would incrementally increase noise levels along site access roadways. Individual construction vehicle pass-bys may create momentary noise levels of up to approximately 85 dBA L_{max} at 50 feet from the worker and vendor vehicles. However, these occurrences would generally be infrequent and short-lived. No soil import or export is anticipated for the proposed project; therefore, no haul trips are assumed.

Worker and vendor trips are anticipated to total a maximum of 20 daily trips. When compared to existing average daily volumes in the vicinity of the project site (see Table 13, *Estimated Project Traffic Noise Increase*), this would result in a noise increase of less than 0.1 dBA CNEL, which is a negligible increase. Temporary noise impacts associated with construction vehicles would be less than significant.

3. Environmental Analysis

Construction Equipment

Noise generated by on-site construction equipment is based on the type of equipment used, its location relative to sensitive receptors, and the timing and duration of noise-generating activities. Each stage of construction involves different kinds of equipment and has distinct noise characteristics. Noise levels from construction activities are typically dominated by the loudest equipment. The dominant equipment noise source is typically the engine, although work-piece noise (such as dropping of materials) can also be noticeable.

The noise produced at each construction stage is determined by combining the L_{eq} contributions from each piece of equipment used at a given time, while accounting for the ongoing time-variations of noise emissions. Heavy equipment, such as a dozer or a loader, can have maximum, short-duration noise levels of up to 85 dBA at 50 feet. However, overall noise emissions vary considerably, depending on the specific activity performed at any given moment. Noise attenuation due to distance, the number and type of equipment, and the load and power requirements to accomplish tasks at each construction phase would result in different noise levels from construction activities at a given receptor. Since noise from construction equipment is intermittent and diminishes at a rate of at least 6 dBA per doubling of distance (conservatively ignoring other attenuation effects from air absorption, ground effects, and shielding effects), the average noise levels at noise-sensitive receptors could vary considerably, because mobile construction equipment would move around the site with different loads and power requirements. Noise levels from project-related construction activities were calculated from the simultaneous use of the three loudest pieces of construction equipment at spatially averaged distances (i.e., from the acoustical center of the general construction site) to the property line of the nearest receptors. Although construction may occur across the entire phase area, the area around the center of construction activities best represents the potential average construction-related noise levels at the various sensitive receptors.

The expected construction equipment mix was categorized by construction activity using the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM). The associated, aggregate sound levels—grouped by construction activity—are summarized in Table 12, *Project-Related Construction Noise*. RCNM modeling input and output worksheets are included in Appendix E.

Table 12 Project-Related Construction Noise

Construction Activity Phase1	Nearest off-site Sensitive Receptors	
	Residential 150 feet – in Santa Ana[1] (dBA L_{eq})	Residential 250 feet – in Tustin (dBA L_{eq})
Demolition	75.0	70.6
Site Preparation	73.3	78.9
Grading	73.6	69.2
Park Construction	72.9	68.5
Architectural Coating	64.1	59.7
Landscaping	67.2	62.8

Notes: Calculations performed with the FHWA's RCNM software are included in Appendix E.
Measurements are estimated using Google Earth and measured from the acoustical center of the proposed project construction site.
[1] Same distance and results as nearest on-site sensitive receptor – Daycare Center.

Off-Site Receptors

Neither the City of Tustin nor the bordering City of Santa Ana has construction noise thresholds. Therefore, the Federal Transit Administration (FTA) criterion of 80 dBA L_{eq} (8hr) is used to determine significance. As shown in Table 12 above, the nearest sensitive receptor is approximately 150 feet to the west in the City of Santa Ana. To the north and south are residential uses in Tustin (Monterey Pines Apartments and Stonebrook Apartments) at approximately 250 feet. Noise levels could reach up to 75 dBA L_{eq} on average at the nearest residents and would diminish with distance. Construction noise due to implementation of the proposed project is not estimated to exceed the threshold of 80 dBA L_{eq} (8hr) and, therefore, would be less than significant.

On-Site School Receptors

On-site school buildings or interior spaces are considered noise-sensitive receptors if used as a learning environment such as classrooms (i.e., not administration offices). Because construction is expected to last 12 months, construction is anticipated to overlap with school operations. Under the California Green Building Standards Code (CALGreen) performance method for nonresidential uses, a project must demonstrate that interior noise levels do not exceed 50 dBA L_{eq} (1hr). While this criterion is intended for use during the design-build portion of a new project and not necessarily for the effect of project construction on sensitive receptors, an interior noise threshold of 50 dBA L_{eq} (1hr) is reasonable to assess the potential impact to the on-site learning environment in terms of possible speech interference.

The nearest on-site receptor is the daycare center, which could experience exterior noise levels of up to 75 dBA on average (see Table 12 notes). Typical interior-to-exterior noise attenuation is 25 dBA with windows closed. Interior noise levels would, therefore, be 50 dBA L_{eq} (1hr) or less on average. Therefore, construction noise impacts to on-site students would be less than significant.

Mobile Noise

The proposed project would generate weekday and weekend trips. The projected traffic noise increase is determined by comparing the project's daily trip generation to existing average daily traffic volumes (ADT). The project is estimated to generate up to 74 weekday daily trips and up to 413 on weekend trips. Table 13, *Estimated Project Traffic Noise Increase*, shows the existing ADT for roadway segments in the vicinity of the project site and the associated traffic noise increase using the worst-case scenario of 413 weekend trips. This conservatively assumes that all trips would occur on a given roadway.

Table 13 Estimated Project Traffic Noise Increase

Roadway Segment	ADT	Noise Increase, dBA CNEL
Williams St. – McFadden Ave. to Main St.	7,700	0.2
Tustin Village Way – North of McFadden Ave.	6,500	0.3
McFadden Ave. – West of Williams St.	26,600	0.1
McFadden Ave. – East of Williams St.	25,200	0.1
Main St. – Williams St. to Pacific St.	11,900	0.2

Source: Tustin 2018c.

3. Environmental Analysis

A significant impact could occur if an increase of 3 dBA CNEL or higher would result due to project-related traffic. As shown in Table 13, the estimated traffic noise increase due to the project would be 0.3 dBA CNEL or less, and this impact would be less than significant. No mitigation measures are required.

Stationary Noise

The proposed park would be developed on an existing turf field of Heideman ES and would be a joint-use park with the City of Tustin. The park would be exclusive to Heideman ES students during school hours and would be open to the public on weekends and holidays (9:00 am to 9:00 pm) and during the evening hours of 6:00 pm to 9:00 pm on weekdays. The project site is an existing turf field used for physical education and other outdoor school activities. The project site also has existing playground equipment, hardcourts, and basketball courts around the turf field.

The proposed joint-use park would have a turf soccer/softball field surrounded by all-weather exercise track, meandering trail, a 1,300-square-foot skate pod, tactile experience garden, a playground, outdoor fitness equipment area, picnic tables and game tables, and two basketball courts. The two basketball courts would be resurfaced and repainted and not newly constructed. The skate pod would be on the northwest corner within the bounds of the proposed track. The tactile experience garden would also be on the northwest corner, outside the bounds of the proposed track. On the south end of the proposed park there would be playgrounds and group gathering space within the bounds of the proposed track. Some of the fitness equipment is proposed within the track and outside the track loop.

The proposed joint-use park would not result in an increase of students or staff, and the space is already utilized by the school during school hours. The proposed joint-use park would be open to the public in the evening hours until 9:00 pm, which is compatible with daytime hours (7:00 am to 10:00 pm) per the Tustin and Santa Ana municipal codes. The proposed project does not include any amplified sound such as a PA system or bleachers for spectators, and the skate pod would be designed for beginner skaters.

Noise measurements taken at a local skate park (Harvard Skate Park in Irvine) indicate that typical skate park evening noise levels are approximately 54 dBA L_{50} at 25 feet from the edge of the skate area. The nearest residences to the proposed skate area are approximately 50 feet or more to the north and west. At this distance, skate park noise is anticipated to be approximately 48 dBA L_{50}. This is a conservative estimate because the local skate park where the measurements were taken is a larger facility with more skaters. Though public and school parks are exempt from the exterior noise standards by the Tustin and Santa Ana municipal codes, future evening noise levels are not anticipated to exceed the standard of 55 dBA L_{50} of both Tustin and Santa Ana. Noise from the proposed turf field is not expected to be substantial since no spectator bleachers are proposed and there would be no PA system. Residences south of the proposed turf field and play structures would be benefited by the existing 6- to 10-foot wall along the southern property line. Noise related to the proposed park activities would be less than significant, and no mitigation measures are required.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact With Mitigation Incorporated.

Construction Vibration

Construction operations can generate varying degrees of ground vibration, depending on the construction procedures and equipment. Operation of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. The effect on buildings in the vicinity of the construction site varies depending on soil type, ground strata, and receptor-building construction. The effects from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Vibration from construction activities rarely reaches the levels that can damage structures.

For reference, a vibration level of 0.2 inches per second (in/sec) peak particle velocity (PPV) is used as the limit for nonengineered timber and masonry buildings (which would apply to the surrounding residential structures) and 0.3 in/sec PPV for engineered concrete and masonry (no plaster), which would apply to the surrounding car ports (FTA 2018). Table 14, *Vibration Levels for Typical Construction Equipment*, summarizes vibration levels for typical construction equipment at the nearest sensitive receptors. To determine a significance impact, distances are measured from the edge of the construction site to the nearest structure.

Table 14 Vibration Levels for Typical Construction Equipment

Equipment	PPV (in/sec) at 25 feet	PPV (in/sec) at 40 feet	PPV (in/sec) at 12 feet
Large Bulldozer	0.089	0.04	0.27
Loaded Trucks	0.079	0.04	0.23
Jackhammer	0.035	0.02	0.11
Small Bulldozer	0.003	<0.01	0.01

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual,* September 2018.

The nearest residential structure are the residential structures to the south at approximately 40 feet. As shown in Table 14, at a distance of 40 feet, vibration levels would be less than 0.2 in/sec PPV and, therefore, would be less than significant.

The nearest car port structures are adjacent to the north, south and west of the project site. As shown in Table 14, vibration levels could exceed 0.3 in/sec PPV if large bulldozers operate at distances less than 12 feet. Therefore, this impact is considered potentially significant. Mitigation Measure N-1 would reduce this impact to a level of less than significant.

Operational Vibration

The operation of the proposed project would not include any substantial long-term vibration sources such as rail or subways. Therefore, no significant vibration effects from operations sources would occur.

Mitigation Measure

Construction Vibration

N-1 Grading and earthwork activities within 12 feet of adjacent car ports shall be conducted with off-road equipment that is limited to 100 horsepower or less (e.g., a small bulldozer).

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The nearest airport to the project site is the John Wayne Airport, approximately four miles south. The latest 2018 annual noise contour map shows the project site outside the 60 dBA CNEL noise contour. Therefore, the project would not expose people residing or working in the project area to excessive noise levels. There would be no impact.

3.14 POPULATION AND HOUSING

Would the project:

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact. The proposed project does not include the development of new homes or businesses that could potentially induce population in the area and would not extend off-site infrastructure to indirectly cause population growth. The proposed project would continue to serve the existing and future students at Heideman ES, while meeting the recreational demands of the existing and future residents in the area. The proposed project is not a growth-inducing project, and no impact to population and housing would occur. No mitigation measures are necessary.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. As shown in Figure 3, *Aerial Photograph*, the project site consists of a grass field for the elementary school, and no housing exists on-site. Therefore, project development would not displace housing or people. No impact would occur, and no mitigation measures are necessary.

3.15 PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

a) Fire protection?

Less Than Significant Impact. Fire protection and emergency medical services are provided to the City by the Orange County Fire Authority. The City is served by three fire stations, and the nearest station to the project site is Station 72 at 1668 East 4th Street, approximately 0.74 mile northwest of the project site.

Project implementation could result in a slight increase in calls for fire protection and emergency medical service. However, the proposed project would mainly serve the existing community, already served by OCFA, and would not increase the overall population of the city.

The joint-use park would be served by two on-site emergency access points, one from the north boundary and one from the main entrance of the joint-use park. All site improvements, including emergency vehicle access proposed as a part of the project, would be subject to review and approval by DSA and OCFA.

Furthermore, development of the proposed project is required to comply with the most current adopted fire codes, building codes, and nationally recognized fire and life safety standards, which impose design standards and requirements that seek to minimize and mitigate fire risk. The proposed project is not a growth-inducing project, and it would not adversely affect OCFAs ability to provide adequate service and would not require new or expanded fire facilities that could result in adverse environmental impacts. Therefore, impacts would be less than significant, and no mitigation measures are necessary.

b) Police protection?

Less Than Significant Impact. The Tustin Police Department (TPD) provides police protection to the City of Tustin and is headquartered at 300 Centennial Way, approximately 1.6 driving miles northeast of the project site. The project site is in the South Area Command. TPD has 100 sworn officers, 48 civilian employees, a fully equipped SWAT team, a gang reduction team, a community engagement team, and other specialized units/equipment (including bicycles) that would assist in suppressing crime and keeping the users of the park safe.

Driving time from TPD headquarters is between 4 and 12 minutes, depending on the time of day, and approximately 10 and 20 minutes from other patrol areas of the City, depending on the time of day. Because TPD officers already patrol the area around Heideman ES regularly, the officers assigned to that area would be able to respond in a timely manner (TPD 2019).

The calls from a park would involve dogs off leash, transient problems, medical aids, use of park after hours, illegal fireworks, and various disturbances. However, the TPD does not anticipate a substantial increase in service calls from the proposed joint use park. The TPD indicated that the proposed project would not have a significant impact on the TPD's ability to provide police services to the area surrounding the project site or any other locations in the city. TPD also has appropriate emergency vehicle access on both sides of the park, which is vital for the safety and security of the park and its users. Although the proposed project could slightly increase the number of calls, the current TPD staffing has the ability to provide the appropriate response while maintaining the high standards for response time. Based on the preceding, the proposed project would not adversely affect TPD's ability to provide adequate service and would not require new or expanded police

facilities that could result in adverse environmental impacts. Impacts would be less than significant, and no mitigation measures are necessary.

c) Schools?

No Impact. Demand for schools in an area is usually determined by the area's population. The proposed project does not include the development of new homes, which lead to an increase in student generation and the need for additional school facilities. The proposed project would not induce population growth in the area, either directly or indirectly. Project implementation would result in an improvement to the existing Heideman ES facilities, and would therefore be beneficial for existing and future elementary school students and staff. Therefore, no impact would occur, and no mitigation measures are necessary.

d) Parks?

No Impact. See response to Section 3.16.a, below. As substantiated in that section, no impact would occur, and no mitigation measures are necessary.

e) Other public facilities?

No Impact. The need for new or the expansion of existing library services and facilities is tied to population growth. No residential development is proposed as a part of the proposed project, and project development is not expected to generate a need for new or additional library service or facilities. The proposed project involves the development of a joint-use park on an existing elementary school campus. Therefore, no impact to library services and facilities would occur and no mitigation measures are necessary.

3.16 RECREATION

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. Demand for parks and recreational facilities in an area are usually determined by the area's population. The proposed project does not include the development of new homes, which lead to an increase in population and the need for additional park and recreation facilities. The proposed project would provide additional recreational amenities for the Heideman ES students and local residents. Therefore, the proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities. The proposed project would be beneficial for the existing neighborhood recreational facilities by increasing park supplies in the area. No impact to park and recreational facilities would occur, and no mitigation measures are necessary.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

Less Than Significant Impact. As discussed above, the proposed project involves the development of a new joint-use park. Physical impacts associated with construction of the proposed project are evaluated throughout

this initial study. The proposed project would not result in physical environmental impacts to other area recreational facilities. Therefore, impacts would be less than significant, and no mitigation measures are necessary.

3.17 TRANSPORTATION

Would the project:

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less Than Significant Impact.

Impact to Roadway Facilities

Surrounding Street System

Roadways in the project vicinity include Williams Street and East Main Street.

Williams Street is a 2-lane road with a speed limit of 30 miles per hour and is classified as a Secondary Arterial in the City of Tustin General Plan (Tustin 2008). Curbside parking is allowed on both sides of the roadway. On Thursdays, parking restrictions are in place 7 to 11 AM on the eastern side and on Fridays 7 to 11 AM on the western side for street sweeping. In the study area the intersections along the street are stop-controlled. At the Williams Street and Alliance Avenue intersection there are two school yellow pedestrian crossings.

East Main Street is a 2-lane road with two-way left-turn-lane median and speed limit of 35 miles per hour. It is classified as a Divided Collector in the City of Tustin General Plan (Tustin 2008). Curbside parking is allowed on both sides of the roadway. In the study area the intersections along the street are signal-controlled.

Existing Traffic Conditions

Existing access to the school is through the driveway on Williams Street, which also leads to the school's parking lot and student drop-off/pick-up zone. The project site is currently only accessible by students and staff and not open to the public. Usage of the project site is only during school hours.

Project Traffic Impacts

Roadway capacity is generally limited by the ability to move vehicles through intersections. A level of service (LOS) is a standard performance measurement to describe the operating characteristics of a street system in terms of the level of congestion or delay experienced by motorists. Service levels range from A through F, which relate to traffic conditions from best (uncongested, free-flowing conditions) to worst (total breakdown with stop-and-go operation). The methodology used to assess the operation of a signalized intersection is based on the Highway Capacity Manual (HCM). The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions. The peak hours selected for analysis are the highest volumes that occur in four consecutive 15-minute periods from 7:00 am to 9:00 am and from 2:00 pm to 4:00 pm on weekdays. The HCM signalized intersection methodology presents LOS in terms of control delay (in seconds

per vehicle). Table 15, *Intersection Level of Service Descriptions,* describes the level of service concept and the operating conditions expected under each level of service for signalized and unsignalized intersections. According to the City of Tustin Circulation Element, Table C-2, LOS D is considered acceptable at all roadways, except for facilities in the congestion management network, where LOS E is acceptable.

Table 15 Intersection Level of Service Descriptions

LOS	Description	Average Delay Per Vehicle (seconds)	
		Signalized	Unsignalized
A	Level of Service A occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0 to 10.00	0 to 10.00
B	Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average total delay.	10.01 to 20.00	10.01 to 15.00
C	Level of Service C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	20.01 to 35.00	15.01 to 25.00
D	Level of Service D generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	35.01 to 55.00	25.01 to 35.00
E	Level of Service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.	55.01 to 80.00	35.01 to 50.00
F	Level of Service F is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	80.01 and up	50.01 and up

Source: Highway Capacity Manual, Transportation Research Board.

As discussed in Section 1.3.1.1, proposed project would result in the development of joint-use park with a grass soccer field and several park features—including an exercise track, playgrounds, a skate pod, and lighting of two existing basketball courts—that would be available for public use. The soccer field would not include bleachers. The proposed project would not increase the school's student capacity but is expected to increase traffic and parking demand around the project site due to the expanded public usage on weekday evenings and weekends. The trip generation was calculated based on rates in the ITE Trip Generation Manual (10th edition) for public parks and soccer fields. Table 16, *Proposed Trip Generation Summary,* shows the trip generation rates applicable to the proposed project. Trip rates for public parks include features such as soccer fields, hard courts, picnic areas, playground equipment, skate pods, and other recreational uses that are typical park features, and so are accounted for in the trip generation estimates. The skate pod is small, with an area of 1,300 square feet, and designed for beginner skaters. For these reasons, it is not anticipated to be a regional draw for skaters but

is considered a park feature, with its trips already accounted for under the "public park" trip rates. Although trip rates for public parks include features such as soccer fields, to be conservative, the turf field area for soccer games was estimated separately using the rates for a soccer field, which are higher compared to rates for a typical public park. The rates assumed that it would host soccer games and practices for soccer leagues.

Table 16, *Proposed Trip Generation Summary*, shows the project trip generation for the weekday, Saturday, and Sunday on a daily basis and during the peak hours. As shown in the table, the proposed project is expected to generate 74 average daily trips and 19 trips during the PM peak hour on weekdays. On Saturdays and Sundays, the proposed project is expected to generate up to 413 average daily trips. The park and soccer field users would use the same access driveways and parking lot; no changes to the circulation system would occur with the proposed project. According to the City of Tustin traffic counts database, the existing daily traffic volume on Williams Street is 7,700 (Tustin 2020). The proposed project would add up to 74 daily trips, which is an 0.96 percent increase. During the PM peak hour the number of trips would be 19, which is negligible. Although weekend daily trips volumes are not available, it should be noted that weekend traffic volumes on roads are generally less than the weekday volume since there is no school traffic and commuter traffic. Addition of up to 413 trips on weekends on Williams Street, which handles 7,700 trips on weekdays, would not be considered a significant impact. The number of project trips generated are small in comparison to the existing traffic and would not cause a significant impact at any facility. Based on the preceding, the proposed project would not result in a conflict with a program, plan, ordinance, or policy addressing the roadway facilities, and impacts would be less than significant.

Table 16 Proposed Trip Generation Summary

Land Use	Unit	Daily	Weekday PM Peak			Saturday[4]		Sunday[5]	
			In	Out	Total	Daily	Total Peak	Daily	Peak Total
Trip Generation Rates									
Soccer Field[1]	Field	71.33	10.84	5.59	16.43	404.88	40.1	N/A	28.78
Public Park[2]	Acre	0.78	0.06	0.05	0.11	1.96	0.28	2.19	0.31
Proposed Trip Generation[3]									
Joint-Use Soccer Field	1 Field	71	11	6	17	405	40	405	29
Joint-Use Park	3.5 Acre[4]	3	1	1	2	7	1	8	1
Total		74	12	7	19	412	41	413	30

[1] ITE Code 488, Soccer Complex
[2] ITE Code 411, Public Park
[3] Trip generation rates for peak hour of adjacent streets, per the ITE Trip Generation Manual 10th Edition.
[4] Since there is no assumption for Sunday trip generation for soccer complex, for the purpose of this project, Sunday trip generation is assumed to be the same as Saturday.
[5] Weekend peak hour occurs midday generally between 11 am to 1 pm.

Pedestrian and Bicycle Facilities

As shown in Figure 4, *Conceptual Site Plan*, pedestrian access to the project site would be via the existing sidewalks and internal walkways that would connect to the new proposed park. Under the proposed project, the existing access driveway would remain the same and no closure to public sidewalk would be required.

3. Environmental Analysis

Additionally, there is no bicycle lane or facility along Williams Street and there are none within proximity of the project site. Project implementation would remain within the current fence line of the project site. The proposed project would provide bike racks near the main entrance to the project site. Therefore, no impacts to bicycle facilities are anticipated.

Orange County Transportation Authority (OCTA) operates public transit bus routes in the City of Tustin. Route 66 is the closest route to the project site; buses along this route travel east-west along McFadden Avenue. The closest bus stop for this route is approximately 0.21 mile south of the project site at the McFadden Avenue and Williams Street intersection. The proposed project would not displace any existing or future bus stop or degrade transit service in the area.

The project site is an existing elementary school currently serving 627 students. Public use of the joint-use park would not coincide with the operation of the existing elementary school, and the proposed project would not involve any design feature that would adversely affect off-site circulation for cyclists and pedestrians in the area. Although the proposed project would increase traffic during after-school hours and on weekends, provided that the existing roadway system is adequate to serve the existing elementary school, it is anticipated that the increase in pedestrian and bicycle traffic from the proposed project could also be accommodated by the existing sidewalks and circulation system in the area. Therefore, impacts would be less than significant, and no mitigation measures are necessary.

b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?

Less Than Significant Impact. On September 27, 2013, SB 743 was signed into law, starting a process that could fundamentally change transportation impact analysis as part of CEQA compliance. These changes include the elimination of auto delay, level of service, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts. As part of the updated CEQA Guidelines, the new criteria "shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses" (Public Resources Code Section 21099(b)(1)). On January 20, 2016, OPR released revisions to its proposed CEQA guidelines for the implementation of SB 743. Final review and rulemaking for the new guidelines were completed on December 28, 2018, when the California Natural Resource Agency certified and adopted the CEQA Guidelines update package, including guidelines implementing SB743. OPR allows agencies an opt-in period to adopt the guidelines; they become mandatory on July 1, 2020. Vehicle miles traveled (VMT) is an indicator of the travel levels on the roadway system by motor vehicles. It corresponds to the number of vehicles multiplied by the distance traveled in a given period over a geographical area. In other words, VMT is a function of (1) number of daily trips and (2) the average trip length (VMT= daily trips x average trip length). The City of Tustin has not implemented VMT metrics yet and currently uses the established LOS criteria.

The proposed project would only be open for student access during school hours; therefore, the proposed project would not lead to an increase in VMT during those hours. The proposed park would be open during weekday evenings and weekends for public usage, generating vehicle trips by the park users. However, since the joint-use park is intended to serve local residents that currently drive to other parks in the area, the proposed project would result in a shift in travel patterns among local streets rather than an overall increase in trips

compared to existing traffic levels and the increase in VMT is anticipated to be minimal. The closest public park to the project site is Peppertree Park, approximately 0.9 mile to the northeast, and Frontier Park, approximately 1.2 miles to the east. Both parks feature similar amenities under the proposed project. Additionally, the closest park with a skate park is located at Pine Tree Park, approximately 1.74 miles to the northeast. Therefore, the proposed project would not result in a conflict with CEQA Guidelines Section 15064.3 (b). Impacts would be less than significant, and no mitigation measures are necessary.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant Impact. The increased levels of traffic during construction and the increased number of pedestrians and bicycles at the site during operation could result in an increased number of traffic conflicts and a corresponding increase in the probability of an accident occurring. However, there are no sharp curves or dangerous intersections, or incompatible uses adjacent to the project site. And there are existing sidewalks along the project frontage and crossing striping for the elementary school.

As shown in Figure 4, no off-site improvements are proposed or required to implement the proposed project. The main access points to the project site would be from the existing driveways on Williams Street. A new access entry for emergency vehicles would be provided for the joint-use park area at the northeastern corner of the project site. As shown in Figure 4, emergency vehicles would enter through an existing gated access located near School Building C to reach the new access entry. The design of the emergency access driveways would be required to adhere to the DSA and OCFA design standards during the plan review and approval process. Compliance with these established design standards would ensure that hazards due to design features would not occur. Additionally, the proposed project would not change the existing land use of the site, as the property currently is developed as a public elementary school with turf play field. Therefore, impacts resulting from hazards due to design features or incompatible uses would be less than significant, and no additional mitigation measures are necessary.

d) Result in inadequate emergency access?

Less Than Significant Impact. The proposed project is an existing elementary school with one street frontage on Williams Street. There are two driveways on Williams Street for site access, and no changes to these access points would occur. As shown in Figure 4, the joint-use park would have two on-site emergency access on the northeast and southeast corner of the project site. To address emergency and fire access needs, the improvements would be required to be designed in accordance with all applicable DSA and OCFA design standards for emergency access (e.g., minimum lane width and turning radius). The proposed project would not increase the existing school's capacity or expand boundaries; and furthermore, implementation of the proposed project would not require major road closures or otherwise impact the functionality of Williams Street as a public safety access route. Therefore, impact to emergency access would be less than significant, and no mitigation measures are necessary.

3.18 TRIBAL CULTURAL RESOURCES

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

No Impact. The project site is currently developed with the existing Heideman ES facilities and the majority of soil disturbance and excavation would occur within the limits of the turf athletic field area. The project site does not contain any structures that are eligible or listed in the National Register of Historic Places (NRHP), the California Register of Historical Resources, or other local register of historical resources (Public Resources Code Section 21074) (NPS 2020; OHP 2019). Implementation of the proposed project would not result in any substantial adverse change in a tribal cultural resource (TCR) defined pursuant to Public Resources Code Sections 5024.1 or 5020.1(k). No impact is anticipated, and no mitigation measures are required.

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less Than Significant Impact With Mitigation Incorporated. Public Resources Code Section 5024.1(c) indicates that a resource may be listed as an historical resource in the California Register if it meets any of the listed NRHP criteria. The project site does not contain any historical resources that meets the NRHP criteria and is not listed in the Sacred Lands File by the Native American Heritage Commission. AB 52 requires meaningful consultation with California Native American tribes on potential impacts to tribal cultural resources, as defined in Public Resources Code Section 21074. Tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either eligible or listed in the California Register or local register of historical resources.

As part of the AB 52 process, Native American tribes must submit a written request to the District (lead agency) to be notified of projects within their traditionally and culturally affiliated area. To those tribal groups, the District must provide written, formal notification within 14 days of deciding to undertake a project. The tribe must respond to the District within 30 days of receiving this notification if they want to engage in consultation on the project, and the District must begin the consultation process within 30 days of receiving the tribe's request. Consultation concludes when either 1): the parties agree to mitigation measures to avoid a significant effect on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort, concludes mutual agreement cannot be reached.

The District has not received a written notification from any Native American tribes requesting to be notified per AB 52. Therefore, the District is in compliance with AB 52 regulations. Considering the disturbed nature of the project site and the limited grading and excavation required for the proposed project, the potential for discovery of tribal cultural resources is minimal. However, in the event that future excavation goes beyond artificial fill materials, mitigation will be required to reduce any impacts associated with tribal cultural resources. A mitigation measure has been incorporated to reduce potential impacts to a less than significant level.

Mitigation Measure

TCR-1 During grading, if the professional archaeologist implementing Mitigation Measure CUL-1 believes that a cultural resource encountered on-site is of "tribal cultural resources" pursuant to Public Resources Code Section 21074, the archaeologist shall notify representatives of Native American tribes with traditional territories in the project region. If requested by the Native American tribe(s), the archaeologist on call shall, in good faith, consult on the discovery and its disposition (e.g., avoidance, preservation, return of artifacts to tribe). If the resources are Native American in origin, a tribal monitor from the consulting tribe shall be present during the remaining site-grading activities.

3.19 UTILITIES AND SERVICE SYSTEMS

Would the project:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less Than Significant Impact.

Water Supply Facilities

Domestic water for the project site is provided by the Water Operation Division of the Tustin Public Works. The City receives approximately 74 percent of its water from underlying groundwater in the Lower Santa Ana Groundwater Basin and the remaining 26 percent is imported water purchased from East Orange County Water District (Tustin 2016). According to the City's Urban Water Management Plan, factor affect water demand include local climate, demographics, and land use. Land use categories defined under the Urban Water Management Plan include single-family residential, multifamily residential, commercial, and institutional/government. Implementation of the proposed project would continue to be under institutional/government and would not lead to a change in land use assumptions. The proposed project includes a restroom/office, drinking fountain, turf sports field, and landscaping and garden, which would lead to a slight increase in water demand. However, this increase would have minimal impact on the overall water demand or on the City's ability to supply water. Therefore, the proposed project would not result in the construction of new or expanded of water supply facilities. Impact would be less than significant, and no mitigation measures are necessary.

3. Environmental Analysis

Stormwater Drainage Facilities

As substantiated in *Hydrology and Water Quality*, Section 3.10.c.iii, impacts would be less than significant, and no mitigation measures are necessary.

Wastewater Treatment Facilities

Wastewater generated by land uses in the City is collected by the East Orange County Water District and treated by the County of Orange Sanitation District (OCSD). Wastewater generated on-site would be collected and conveyed to OCSD's Wastewater Treatment Plant via the City's existing local sewer system. OCSD currently has two facilities: Reclamation Plant No. 1 in Fountain Valley with a 120 million gallons per day (mgd) average daily flow, and Treatment Plant No. 2 with a 65 mgd average daily flow (OCSD 2019). The proposed project would result in a slight increase to wastewater generation, but it would not involve any activities that would adversely affect the OCSD's treatment capacity or require the construction of new or expanded wastewater treatment facilities. Therefore, impacts would be less than significant, and no mitigation measures are necessary.

Electricity Facilities

Electrical needs to the project site would be provided by Southern California Edison via existing infrastructure in the immediate area of the project site. The proposed project would result in a slight increase in electricity consumption that would be adequately served by the existing infrastructure. Therefore, the proposed project would not require the construction of new or expanded electricity facilities. Impacts would be less than significant, and no mitigation measures are necessary.

Natural Gas and Telecommunication Facilities

The proposed project would not require natural gas or telecommunication facilities. Therefore, no impact would occur, and no mitigation measures are necessary.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less Than Significant Impact. As substantiated above in Section 3.19.a., the proposed project would result in a minimal increase in water demand that would be adequately served by City of Tustin's current water supplies. Moreover, as stated in the City's Urban Water Management Plan, there is available water supply to meet the projected demand during normal, dry and multiple dry years due to diversified supply and conservation measures (Tustin 2016). Therefore, the proposed project would not require new or expanded water supplies. Impacts would be less than significant, and no mitigation measures are necessary.

c) Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less Than Significant Impact. As substantiated above in Section 3.19.a, the proposed project would result in a slight increase in sewer demand, but no new or expanded sewer capacities would be necessary to

accommodate the proposed project. Project development would not require the construction of new or expanded wastewater treatment facilities. Therefore, impacts would be less than significant, and no mitigation measures are necessary.

d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact. Solid waste generated from the proposed project would be collected by the CR&R Waste and Recycling, who is contracted by the City, and hauled to the Olinda Alpha Landfill at 1942 North Valencia Avenue in the City of Brea. The average disposal rate at Olinda Alpha Landfill is approximately 7,000 tons per day, and it is permitted for up to 8000 tons per day. Under existing conditions, the landfill is projected to have enough capacity until 2030. The California Integrated Waste Management Act of 1989 (AB 939) required city and county jurisdictions to identify an implementation schedule to divert 50 percent of the total waste stream from landfill disposal by the year 2000 and 70 percent by the year 2020. During the construction phase, waste generated would be on a short-term basis and would be recycled and hauled to the authorized construction disposal facility. During operation, the proposed project would result in a minimal increase in solid waste from the restroom/office facilities, minor landscaping cuttings, and residents using the proposed park during weekday evenings and weekends. Given the current capacity and daily disposal rate of the Olinda Alpha Landfill, the proposed project would not generate solid waste in excess of state or local standards or the capacity of local infrastructures.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact. The following federal and state laws and regulations govern solid waste disposal. The EPA administers the Resource Conservation and Recovery Act of 1976 and the Solid Waste Disposal Act of 1965, which govern solid waste disposal. In the State of California, AB 939 (Integrated Solid Waste Management Act of 1989; PRC 40050 et seq.) required every California city and county to divert 50 percent of its waste from landfills by the year 2000 by such means as recycling, source reduction, and composting. In addition, AB 939 requires each county to prepare a countywide siting element specifying areas for transformation or disposal sites to provide capacity for solid waste generated in the county that cannot be reduced or recycled for a 15-year period.

AB 1327, the California Solid Waste Reuse and Recycling Access Act of 1991, requires local agencies to adopt ordinances mandating the use of recyclable materials in development projects. The proposed project would comply with all laws and regulations governing solid waste and the county's strategies for waste reduction. Additionally, to reduce the amount of waste going into local landfills from schools, the state passed the School Diversion and Environmental Education Law, Senate Bill 373, which required CalRecycle to develop school waste reduction tools. In compliance with this law, CalRecycle encourages school districts to establish and maintain a paper recycling program in all classrooms, administrative offices, and other areas owned and leased by the school district. Participation in this and other such programs would further reduce solid waste generated from the proposed project and assist in the county's compliance with AB 939. AB 341 also requires businesses generating four cubic yards a week of waste, including school districts, to recycle and compost to meet the

statewide 75 percent waste recycling goal. The proposed project would comply with all federal, state, and local statutes and regulations related to solid waste. Therefore, no impact would occur, and no mitigation measures are necessary.

3.20 WILDFIRE

Wildland fire protection in California is the responsibility of either the local government, state, or the federal government. The project site is not in or near the state responsibility areas (SRA) for wildland fire protection. The project site is in the local responsibility areas (LRA) of the OCFA. Fire Hazard Severity Zones are identified by Very High Fire Hazard Severity Zone (VHFHSZ) and Non-VHFHSZ in an LRA, and the project site and its one-mile radius area are designated Non-VHFHSZ (FRAP 2020).

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact. The project site is not in or near an SRA or lands classified as VHFHSZ. Therefore, no impact would occur.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact. The project site is not in or near an SRA or lands classified as VHFHSZ. Therefore, no impact would occur.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact. The project site is not in or near an SRA or lands classified as VHFHSZ. Therefore, no impact would occur.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. The project site is not in or near an SRA or lands classified as VHFHSZ. Therefore, no impact would occur.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially

reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant Impact. Implementation the proposed project would not substantially reduce the quality of biological resources or any sensitive habitats. The joint-use park site is currently developed as an elementary school and are surrounded by residential uses. There are no protected biological resources except for trees, which would be surveyed prior to removal, if removal of the vegetation occurs during nesting season (typically between February 1 and September 1), in compliance with the applicable California Fish and Game Code. In addition, as discussed in Section 3.5, *Cultural Resources*, the project site does do not contain any examples of the major periods of California history or prehistory, and potential impacts to the discovery of subsurface cultural resources would be reduced to a less than significant level by incorporating mitigation measures CUL-1 and TCR-1. Therefore, no further mitigation is necessary, and impacts would be less than significant.

b) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?

Less Than Significant Impact. The proposed project would serve the surrounding residential community by meeting the recreational demands without having to drive farther away to other park facilities. As discussed throughout the Initial Study, both temporary construction impacts and long-term operational impacts would be less than significant, with and without mitigation measures. Therefore, the proposed project would not result disadvantage of short or long-term goals.

c) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less Than Significant Impact. As discussed throughout the Initial Study, implementation of the proposed project would result in individually limited environmental impacts that would be reduced to a less than significant level. Considering the small size and scale of the proposed joint-use park, and temporary nature of construction, which would only occur for about two to three month, cumulatively considerable impacts are not anticipated.

d) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant Impact. As discussed through the Initial Study, all environmental topics evaluated were determined to have less than significant impacts with and without mitigation. Therefore, the proposed project would not cause direct or indirect substantial adverse effect on human beings. Impacts would be less than significant.

3. Environmental Analysis

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5. List of Preparers

TUSTIN UNIFIED SCHOOL DISTRICT

Tom Rizzuti, Director of Facilities and Planning

CITY OF TUSTIN

Clad Clanton, Deputy Director, Parks and Recreation

PLACEWORKS

Dwayne Mears, AICP, Principal, Environmental Services

Elizabeth Kim, Senior Associate

Tracy Chu, Associate

John Vang, Senior Associate

Josh Carman, Senior Planner

Izzy Garcia, Associate

Cary Nakama, Graphic Designer

5. List of Preparers

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Appendix A Lighting Plan

Appendix

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Appendix B Air Quality/GHG Data

Appendix

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Appendix C1 Cultural Resources Data

Appendix

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Appendix C2 Native American Heritage Commission Letter

Appendix

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Appendix D Paleontological Data

Appendix

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Appendix E Noise Data

Appendix

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Appendix A Lighting Plan

Appendix

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Heideman Elementary School Park

Tustin, CA

Lighting System

Pole / Fixture Summary

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
BA1-BA2	40'	40'	2	TLC-LED-400	0.80 kW	B
BA3-BA4	40'	40'	2	TLC-LED-400	0.80 kW	C
S1-S2	70'	70'	4	TLC-LED-1200	4.68 kW	A
		70'	1	TLC-LED-900	0.89 kW	A
		16'	1	TLC-BT-575	0.58 kW	A
S3-S4	70'	70'	5	TLC-LED-1200	5.85 kW	A
		16'	1	TLC-BT-575	0.58 kW	A
8			***32***		***28.34 kW***	

Circuit Summary

Circuit	Description	Load	Fixture Qty
A	Multipurpose	25.14 kW	24
B	Basketball 1	1.6 kW	4
C	Basketball 2	1.6 kW	4

Fixture Type Summary

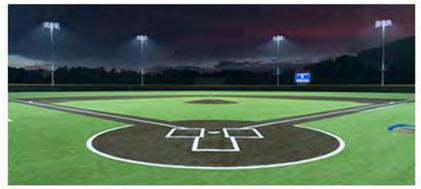
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-1200	LED 5700K - 75 CRI	1170W	136,000	>81,000	>81,000	>81,000	18
TLC-LED-400	LED 5700K - 75 CRI	400W	46,500	>81,000	>81,000	>81,000	8
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>81,000	>81,000	>81,000	4
TLC-LED-900	LED 5700K - 75 CRI	890W	89,600	>81,000	>81,000	>81,000	2

Light Level Summary

Calculation Grid Summary

Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Baseball (Infield)	Horizontal Illuminance	50.4	38	64	1.70	1.33	A	24
Baseball (Outfield)	Horizontal Illuminance	36.3	23	48	2.11	1.58	A	24
Basketball 1	Horizontal Illuminance	45.7	37	60	1.60	1.23	B	4
Basketball 2	Horizontal Illuminance	45.7	37	60	1.60	1.23	C	4
Property Spill	Horizontal	0.03	0	0.41	0.00		A,B,C	32
Property Spill	Max Candela (by Fixture)	933	0	4769	0.00		A,B,C	32
Property Spill	Max Vertical Illuminance Metric	0.05	0	0.51	0.00		A,B,C	32
Soccer	Horizontal Illuminance	39.2	26	63	2.40	1.51	A	24

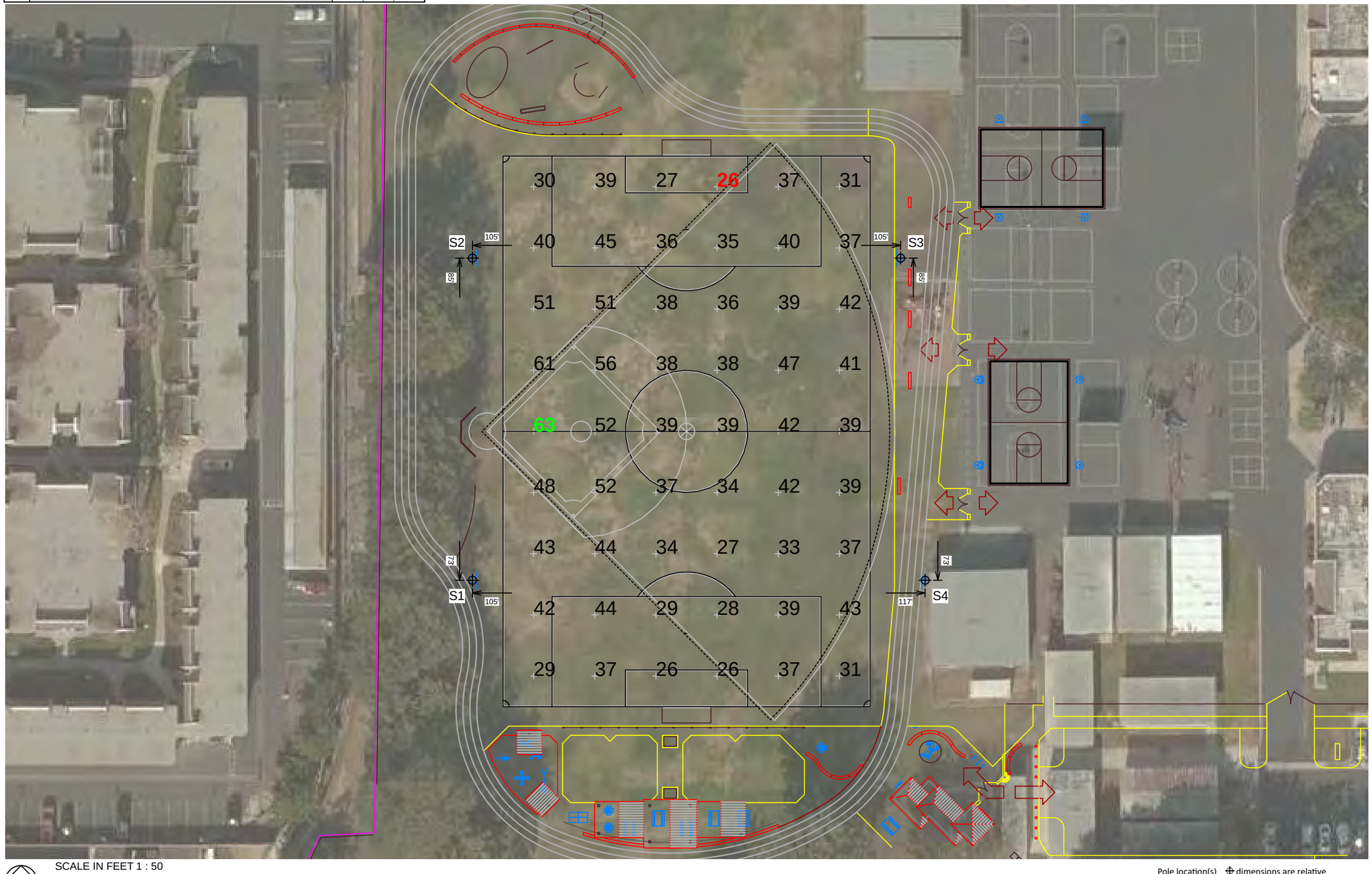
From Hometown to Professional



We Make It Happen.

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	70'	-	70'	TLC-LED-900	1	1	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
2	S3-S4	70'	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	5	5	0
4	TOTALS					24	24	0



SCALE IN FEET 1 : 50

0' 50' 100'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: Vashon Alexander • File #199944B • 13-Dec-19

Heideman Elementary School Park

Tustin, CA

GRID SUMMARY

Name:	**Soccer**
Size:	270' x 180'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**30**
Scan Average:	39.21
Maximum:	63
Minimum:	26
Avg / Min:	1.49
Guaranteed Max / Min:	**2.5**
Max / Min:	2.40
UG (adjacent pts):	1.52
CU:	0.69
No. of Points:	54

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	136,000 / 52,000 / 89,600 lumens
No. of Luminaires:	**24**
Total Load:	25.14 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

musco Lighting
We Make It Happen.

Heideman Elementary School Park

Tustin, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	70'	-	70'	TLC-LED-900	1	1	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
2	S3-S4	70'	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	5	5	0
4	TOTALS					24	24	0

SCALE IN FEET 1 : 50

0' 50' 100'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

GRID SUMMARY

Name:	**Baseball**
Size:	200'/200'/200' - basepath 60'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Infield	Outfield
Guaranteed Average:	**50**	**30**
Scan Average:	50.36	36.27
Maximum:	64	48
Minimum:	38	23
Avg / Min:	1.34	1.58
Guaranteed Max / Min:	**2**	**2.5**
Max / Min:	1.70	2.11
UG (adjacent pts):	1.27	1.55
CU:	0.57	
No. of Points:	25	73

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	136,000 / 52,000 / 89,600 lumens
No. of Luminaires:	**24**
Total Load:	25.14 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

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Heideman Elementary School Park

Tustin, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	BA1, BA2	40'	-	40'	TLC-LED-400	2	2	0
2	TOTALS					4	4	0

SCALE IN FEET 1 : 10

0' 20' 40'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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GRID SUMMARY

Name:	**Basketball 1**
Size:	60' x 38'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**40**
Scan Average:	45.67
Maximum:	60
Minimum:	37
Avg / Min:	1.22
Guaranteed Max / Min:	**2**
Max / Min:	1.60
UG (adjacent pts):	1.47
CU:	0.60
No. of Points:	24

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	46,500 lumens
No. of Luminaires:	**4**
Total Load:	1.6 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-400	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	BA3, BA4	40'	-	40'	TLC-LED-400	2	2	0
2	TOTALS					4	4	0

SCALE IN FEET 1 : 10

0' 20' 40'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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GRID SUMMARY

Name:	**Basketball 2**
Size:	38' x 60'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**40**
Scan Average:	45.67
Maximum:	60
Minimum:	37
Avg / Min:	1.22
Guaranteed Max / Min:	**2**
Max / Min:	1.60
UG (adjacent pts):	1.47
CU:	0.60
No. of Points:	24

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	46,500 / 89,600 lumens
No. of Luminaires:	**4**
Total Load:	1.6 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-400	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

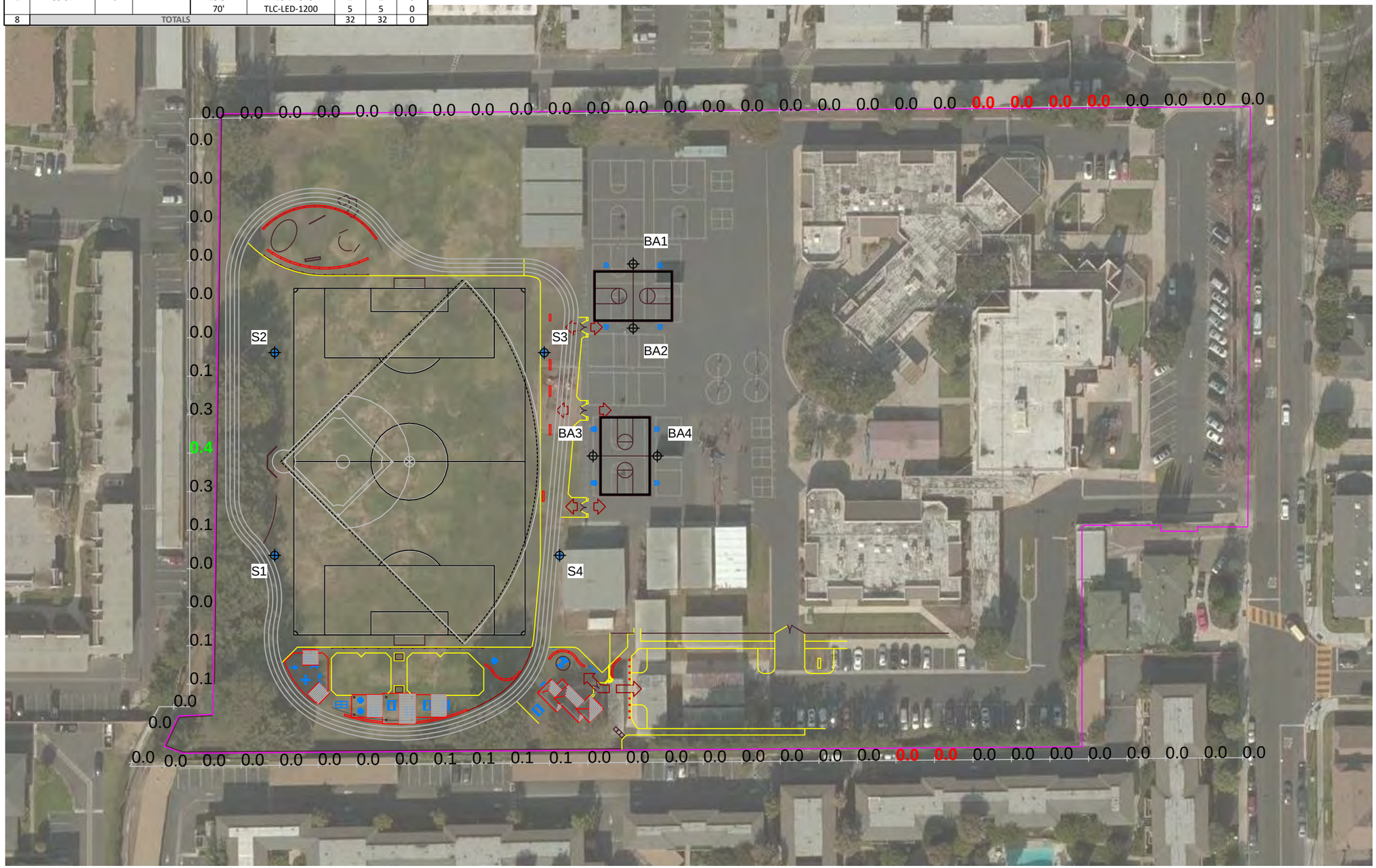
Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	BA1, BA2 BA3, BA4	40'	-	40'	TLC-LED-400	2	2	0
2	S1-S2	70'	-	70'	TLC-LED-900	1	1	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
2	S3-S4	70'	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	5	5	0
8	TOTALS					32	32	0



SCALE IN FEET 1 : 80

0' 80' 160'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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Heideman Elementary School Park

Tustin, CA

GRID SUMMARY

Name:	**Property Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.0292**
Maximum:	0.41
Minimum:	0.00
No. of Points:	75

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	136,000 / 46,500 / 52,000 / 89,600 lumens
No. of Luminaires:	**32**
Total Load:	28.34 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

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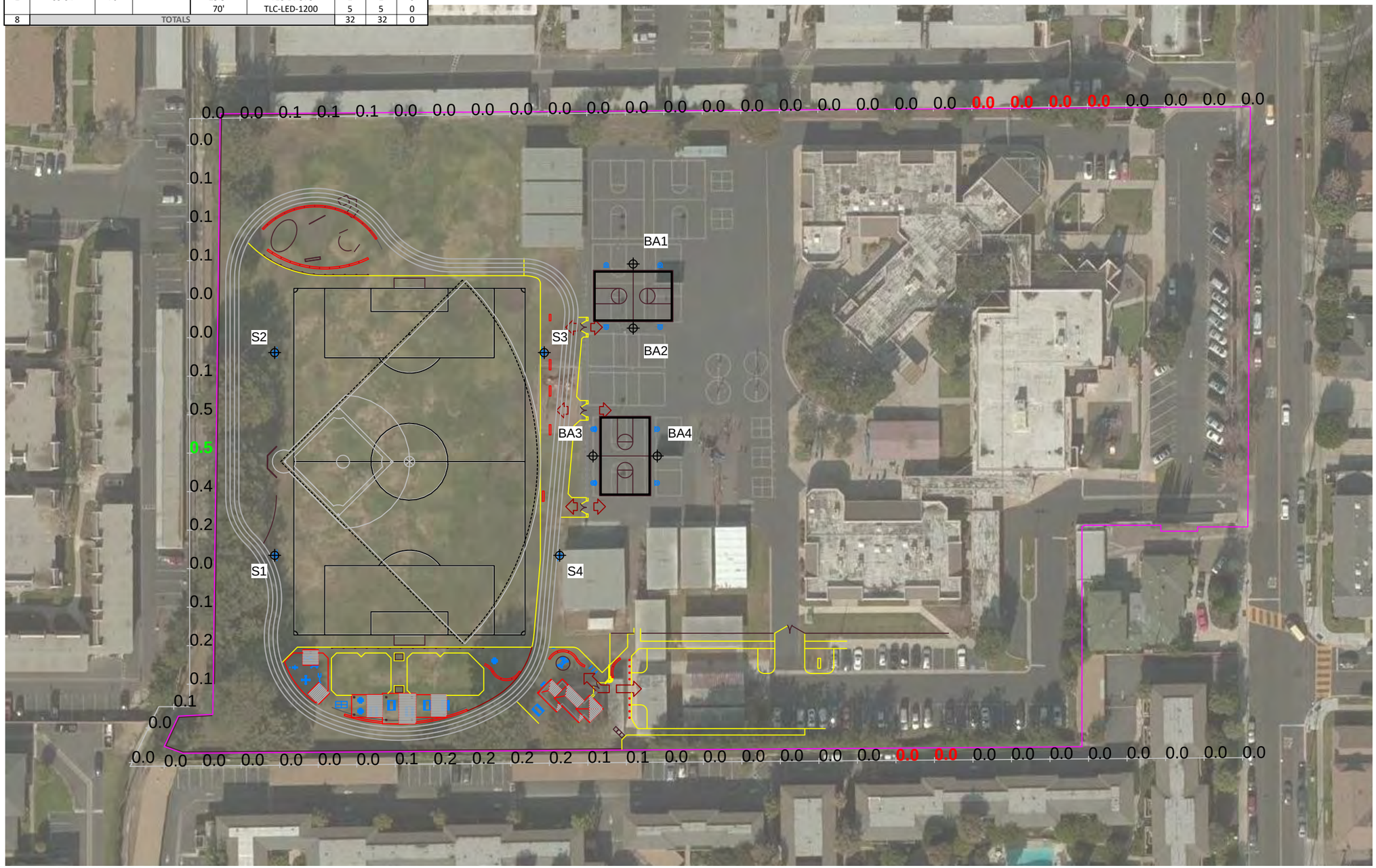
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	BA1, BA2 BA3, BA4	40'	-	40'	TLC-LED-400	2	2	0
2	S1-S2	70'	-	70'	TLC-LED-900	1	1	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
2	S3-S4	70'	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	5	5	0
8	TOTALS					32	32	0



SCALE IN FEET 1 : 80

0' 80' 160'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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Heideman Elementary School Park

Tustin, CA

GRID SUMMARY

Name:	**Property Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAX VERTICAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.0544**
Maximum:	0.51
Minimum:	0.00
No. of Points:	75

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	136,000 / 46,500 / 52,000 / 89,600 lumens
No. of Luminaires:	**32**
Total Load:	28.34 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

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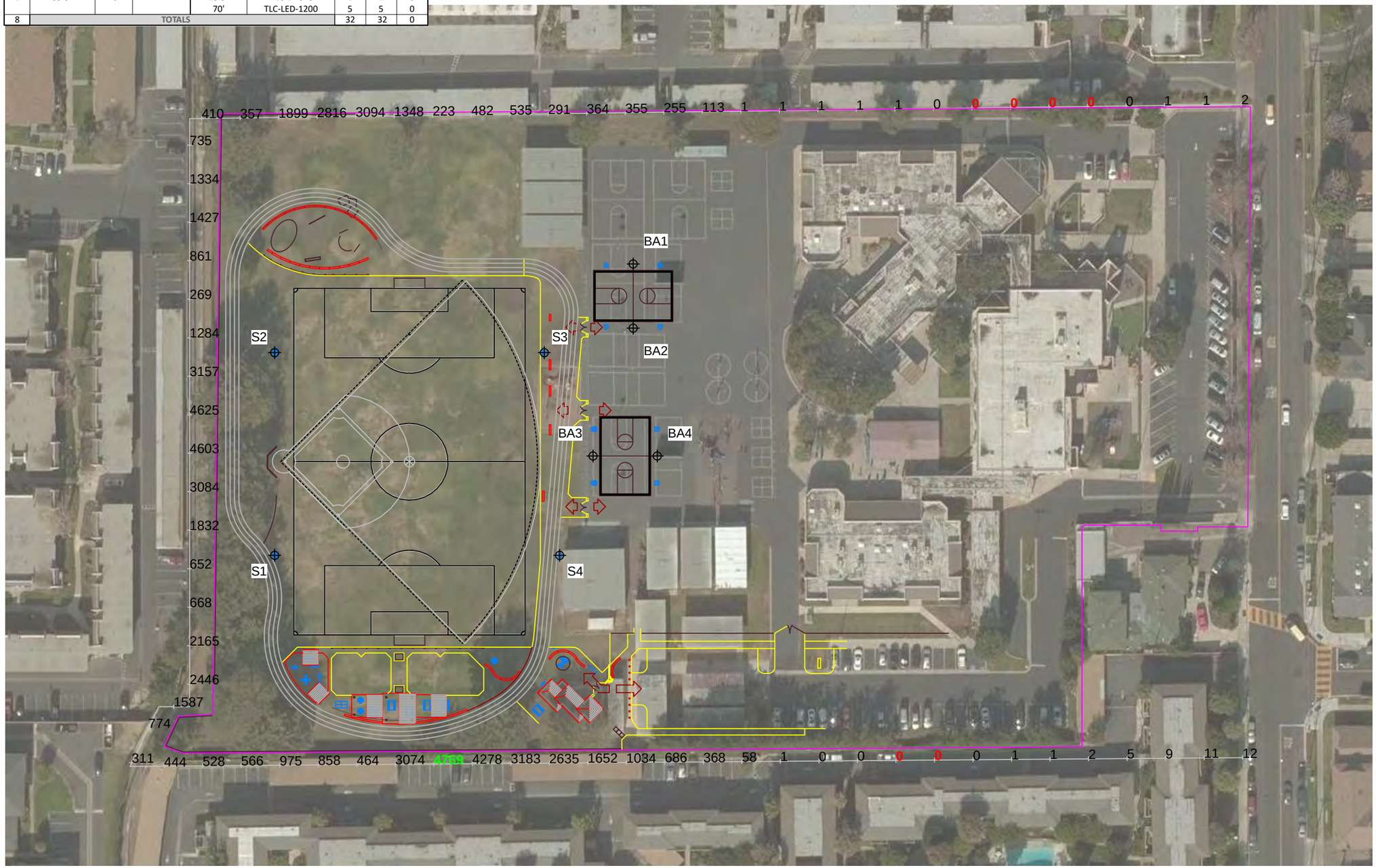
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	BA1, BA2 BA3, BA4	40'	-	40'	TLC-LED-400	2	2	0
2	S1-S2	70'	-	70'	TLC-LED-900	1	1	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
2	S3-S4	70'	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	5	5	0
8	TOTALS					32	32	0



SCALE IN FEET 1 : 80

0' 80' 160'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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Heideman Elementary School Park

Tustin, CA

GRID SUMMARY

Name:	**Property Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

CANDELA (PER FIXTURE)

	Entire Grid
Scan Average:	**933.0376**
Maximum:	4768.77
Minimum:	0.00
No. of Points:	75

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	136,000 / 46,500 / 52,000 / 89,600 lumens
No. of Luminaires:	**32**
Total Load:	28.34 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

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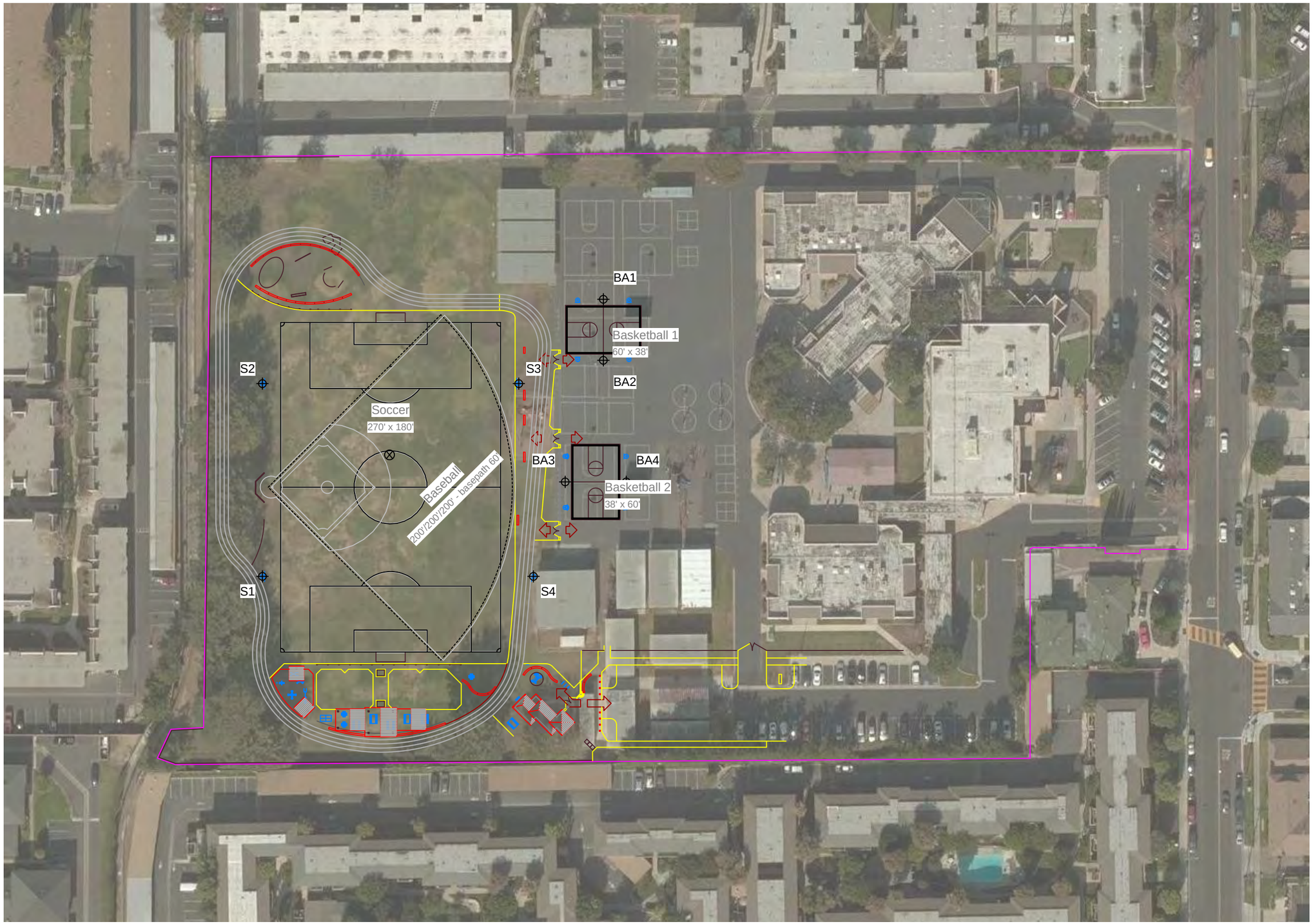

Heideman Elementary School Park

Tustin, CA

EQUIPMENT LAYOUT

INCLUDES:

- Baseball
- Basketball 1
- Basketball 2
- Soccer

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

	Pole			Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
4	BA1, BA2 BA3, BA4	40'	-	40'	TLC-LED-400	2
2	S1-S2	70'	-	70' 15.5' 70'	TLC-LED-900 TLC-BT-575 TLC-LED-1200	1 1 4
2	S3-S4	70'	-	15.5' 70'	TLC-BT-575 TLC-LED-1200	1 5
8	TOTALS					32

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-1200	7.0	6.6	6.1	5.2	4.2	4.0	3.0
TLC-LED-400	2.3	2.2	2.0	1.7	1.4	1.3	1.0
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-900	5.3	5.0	4.6	4.0	3.2	2.9	2.3

SCALE IN FEET 1 : 80

0' 80' 160'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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Appendix B Air Quality/GHG Data

Appendix

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Air Quality and Greenhouse Gas Background and Modeling Data

AIR QUALITY

Climate/Meteorology

SOUTH COAST AIR BASIN

The project site lies in the South Coast Air Basin (SoCAB), which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The SoCAB is in a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds (South Coast AQMD 2005).

Temperature and Precipitation

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station nearest to the project site with temperature data is the Santa Ana Fire Station, California Monitoring Station (ID No. 047888). The lowest average temperature is reported at 43.1°F in January, and the highest average temperature is 84.7°F in August (WRCC 2020).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from October through April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains. Rainfall historically averages 13.69 inches per year in the project area (WRCC 2020).

Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog, especially along the coast, are frequent. Low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SoCAB (South Coast AQMD 2005).

Wind

Wind patterns across the south coastal region are characterized by westerly or southwesterly onshore winds during the day and by easterly or northeasterly breezes at night. Wind speed is somewhat greater during the dry summer months than during the rainy winter season.

Between periods of wind, periods of air stagnation may occur, both in the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the SoCAB, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the transport and diffusion of pollutants by inhibiting their eastward transport. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions (South Coast AQMD 2005).

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These are the marine/subsidence inversion and the radiation inversion. The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter in the project area (South Coast AQMD 2005).

Air Quality Regulations

The proposed project has the potential to release gaseous emissions of criteria pollutants and dust into the ambient air; therefore, it falls under the ambient air quality standards promulgated at the local, state, and federal levels. The project site is in the SoCAB and is subject to the rules and regulations imposed by the South Coast Air Quality Management District (South Coast AQMD). However, South Coast AQMD reports to California Air Resources board (CARB), and all criteria emissions are also governed by the California and national Ambient Air Quality Standards (AAQS). Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized below.

AMBIENT AIR QUALITY STANDARDS

The Clean Air Act (CAA) was passed in 1963 by the US Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The CAA allows states to adopt more stringent standards or to include other pollution species. The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the state to achieve

and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS, based on even greater health and welfare concerns.

These National AAQS and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect "sensitive receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants. As shown in Table 1, these pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Ozone (O_3)[3]	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm	
Respirable Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m^3	150 µg/m^3	
Respirable Fine Particulate Matter ($PM_{2.5}$)[4]	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m^3	

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Lead (Pb)	30-Day Average	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m^3	
	Rolling 3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)[5]	24 hours	25 µg/m^3	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hours	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2016.

Notes: ppm: parts per million; µg/m^3: micrograms per cubic meter

* Standard has not been established for this pollutant/duration by this entity.

1 California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and 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 O_3, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 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.

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

4 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 standard 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.

5 On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. 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.

California has also adopted a host of other regulations that reduce criteria pollutant emissions, including:

- AB 1493: Pavley Fuel Efficiency Standards
- Title 20 California Code of Regulations (CCR): Appliance Energy Efficiency Standards
- Title 24, Part 6, CCR: Building and Energy Efficiency Standards

- Title 24, Part 11, CCR: Green Building Standards Code

CRITERIA AIR POLLUTANTS

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. Air pollutants are categorized as primary or secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are "criteria air pollutants," which means that ambient air quality standards (AAQS) have been established for them. VOC and oxides of nitrogen (NO_x) are air pollutant precursors that form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and NO_2 are the principal secondary pollutants. A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below.

Carbon Monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion, engines and motor vehicles operating at slow speeds are the primary source of CO in the SoCAB. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (South Coast AQMD 2005; USEPA 2019a). The SoCAB is designated under the California and National AAQS as being in attainment of CO criteria levels (CARB 2017b).

Nitrogen Oxides (NO_x) are a byproduct of fuel combustion and contribute to the formation of O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_x are nitric oxide (NO) and nitrogen dioxide (NO_2). The principal form of NO_2 produced by combustion is NO, but NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 part per million (ppm). NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure (South Coast AQMD 2005; USEPA 2019a). The SoCAB is designated as an attainment area for NO_2 under the National AAQS California AAQS (CARB 2017b).

Ozone (O_3) is commonly referred to as "smog" and is a gas that is formed when VOCs and NO_x, both by-products of internal combustion engine exhaust, undergo photochemical reactions in the presence of sunlight. O_3 is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for the formation of this pollutant. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O_3 can trigger a variety of health problems, including chest pain, coughing, throat irritation,

and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O_3 also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O_3 also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O_3 harms sensitive vegetation during the growing season (South Coast AQMD 2005; USEPA 2019a). The SoCAB is designated as extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2017b).

Sulfur Dioxide (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and from chemical processes at chemical plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2 (South Coast AQMD 2005; USEPA 2019a). When sulfur dioxide forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_X). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. The SoCAB is designated as attainment under the California and National AAQS (CARB 2017b).

Suspended Particulate Matter (PM_{10} and $PM_{2.5}$) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM_{10}, include the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004 inch) or less. Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns (i.e., 2.5 millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind action on arid landscapes also contributes substantially to local particulate loading (i.e., fugitive dust). Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems (South Coast AQMD 2005).

The US Environmental Protection Agency's (EPA) scientific review concluded that $PM_{2.5}$, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to health effects and at concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms (South Coast AQMD 2005). There has been emerging evidence that even smaller particulates with an aerodynamic diameter of <0.1 microns or less (i.e., ≤ 0.1 millionths of a meter or <0.000004 inch), known as ultrafine particulates (UFPs), have human health implications, because UFPs toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs (South Coast AQMD 2013). However, the EPA or CARB have yet to adopt AAQS to regulate these particulates. Diesel particulate matter (DPM) is classified by the CARB as a carcinogen (CARB 1998). Particulate matter can also cause environmental

effects such as visibility impairment,[1] environmental damage,[2] and aesthetic damage[3] (South Coast AQMD 2005; USEPA 2019a). The SoCAB is a nonattainment area for $PM_{2.5}$ under California and National AAQS and a nonattainment area for PM_{10} under the California AAQS (CARB 2017b).[4]

Volatile Organic Compounds (VOC) are compounds composed primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of VOCs include evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. There are no ambient air quality standards established for VOCs. However, because they contribute to the formation of ozone (O_3), South Coast AQMD has established a significance threshold for this pollutant (South Coast AQMD 2005).

Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The effects of lead most commonly encountered in current populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ (South Coast AQMD 2005; USEPA 2019a). The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. However, in 2008 the EPA and CARB adopted stricter lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new state and federal standards.[5] As a result of these violations, the Los Angeles County portion of the SoCAB is designated nonattainment under the National AAQS for lead (South Coast AQMD 2012; CARB 2017b). Because emissions of lead are found only in projects that are permitted by South Coast AQMD, lead is not a pollutant of concern for the project.

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1 $PM_{2.5}$ is the main cause of reduced visibility (haze) in parts of the United States.

2 Particulate matter can be carried over long distances by wind and then settle on ground or water, making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.

3 Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.

4 CARB approved the South Coast AQMD's request to redesignate the SoCAB from serious nonattainment for PM_{10} to attainment for PM_{10} under the National AAQS on March 25, 2010, because the SoCAB has not violated federal 24-hour PM_{10} standards during the period from 2004 to 2007. In June 2013, the EPA approved the State of California's request to redesignate the PM_{10} nonattainment area to attainment of the PM_{10} National AAQS, effective on July 26, 2013.

5 Source-oriented monitors record concentrations of lead at lead-related industrial facilities in the SoCAB, which include Exide Technologies in the City of Commerce; Quemetco, Inc., in the City of Industry; Trojan Battery Company in Santa Fe Springs; and Exide Technologies in Vernon. Monitoring conducted between 2004 through 2007 showed that the Trojan Battery Company and Exide Technologies exceed the federal standards (South Coast AQMD 2012).

TOXIC AIR CONTAMINANTS

The public's exposure to air pollutants classified as toxic air contaminants (TACs) is a significant environmental health issue in California. 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. The California Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant (HAP) pursuant to Section 112(b) of the federal Clean Air Act (42 United States Code §7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency (Cal/EPA), acting through CARB, is authorized to identify a substance as a TAC if it determines that the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions. To date, CARB has established formal control measures for 11 TACs, all of which are identified as having no safe threshold.

Air toxics from stationary sources are also regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs (CARB 1999). Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

Diesel Particulate Matter

In 1998, CARB identified particulate emissions from diesel-fueled engines (diesel PM) as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

CARB has promulgated the following specific rules to limit TAC emissions:

- 13 CCR Chapter 10, Section 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

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

Community Risk

In addition, to reduce exposure to TACs, CARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) to provide guidance regarding the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. This guidance document was developed to assess compatibility and associated health risks when placing sensitive receptors near existing pollution sources. CARB's recommendations on the siting of new sensitive land uses were based on a compilation of recent studies that evaluated data on the adverse health effects from proximity to air pollution sources. The key observation in these studies is that proximity to air pollution sources substantially increases exposure and the potential for adverse health effects. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risks from motor vehicle traffic, DPM from trucks, and benzene and 1,3-butadiene from passenger vehicles. CARB recommendations are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

Multiple Airborne Toxics Exposure Study (MATES)

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on ambient concentrations of TACs and estimated the potential health risks from air toxics in the SoCAB. In 2008, South Coast AQMD conducted its third update to the MATES study (MATES III). The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,200 in a million. The largest contributor to this risk was diesel exhaust, accounting for 84 percent of the cancer risk (South Coast AQMD 2008b).

South Coast AQMD recently released the fourth update (MATES IV). The results showed that the overall monitored risk for excess cancer from a lifetime exposure to ambient levels of air toxics decreased to approximately 418 in one million. Compared to the 2008 MATES III, monitored excess cancer risks decreased by approximately 65 percent. Approximately 90 percent of the risk is attributed to mobile sources while 10 percent is attributed to TACs from stationary sources, such as refineries, metal processing facilities, gas stations, and chrome plating facilities. The largest contributor to this risk was diesel exhaust, accounting for approximately 68 percent of the air toxics risk. Compared to MATES III, MATES IV found substantial improvement in air quality and associated decrease in air toxics exposure. As a result, the estimated basin-wide population-weighted risk decreased by approximately 57 percent compared to the analysis done for the MATES III time period (South Coast AQMD 2015a).

The Office of Environmental Health Hazard Assessment (OEHHA) updated the guidelines for estimating cancer risks on March 6, 2015. The new method utilizes higher estimates of cancer potency during early life exposures, which result in a higher calculation of risk. There are also differences in the assumptions on

breathing rates and length of residential exposures. When combined together, South Coast AQMD estimates that risks for a given inhalation exposure level will be about 2.7 times higher using the proposed updated methods identified in MATES IV (e.g., 2.7 times higher than 418 in one million overall excess cancer risk) (South Coast AQMD 2015a).

Air Quality Management Planning

South Coast AQMD is the agency responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared.

2016 AQMP

On March 3, 2017, South Coast AQMD adopted the 2016 AQMP as an update to the 2012 AQMP. The 2016 AQMP addresses strategies and measures to attain the following National AAQS:

- 2008 National 8-hour ozone standard by 2031,
- 2012 National annual $PM_{2.5}$ standard by 2025[6],
- 2006 National 24-hour $PM_{2.5}$ standard by 2019,
- 1997 National 8-hour ozone standard by 2023, and the
- 1979 National 1-hour ozone standard by year 2022.

It is projected that total NO_X emissions in the SoCAB would need to be reduced to 150 tons per day (tpd) by year 2023 and to 100 tpd in year 2031 to meet the 1997 and 2008 federal 8-hour ozone standards. The strategy to meet the 1997 federal 8-hour ozone standard would also lead to attaining the 1979 federal 1-hour ozone standard by year 2022 (South Coast AQMD 2017), which requires reducing NO_X emissions in the SoCAB to 250 tpd. This is approximately 45 percent additional reductions above existing regulations for the 2023 ozone standard and 55 percent additional reductions above existing regulations to meet the 2031 ozone standard.

Reducing NO_X emissions would also reduce $PM_{2.5}$ concentrations in the SoCAB. However, as the goal is to meet the 2012 federal annual $PM_{2.5}$ standard no later than year 2025, South Coast AQMD is seeking to reclassify the SoCAB from "moderate" to "serious" nonattainment under this federal standard. A "moderate" non-attainment would require meeting the 2012 federal standard by no later than 2021.

Overall, the 2016 AQMP is composed of stationary and mobile-source emission reductions from regulatory control measures, incentive-based programs, co-benefits from climate programs, mobile-source strategies, and reductions from federal sources such as aircrafts, locomotives, and ocean-going vessels. Strategies outlined in the 2016 AQMP would be implemented in collaboration between CARB and the EPA (South Coast AQMD 2017).

[6] The 2016 AQMP requests a reclassification from moderate to serious non-attainment for the 2012 National $PM_{2.5}$ standard.

LEAD STATE IMPLEMENTATION PLAN

In 2008 EPA designated the Los Angeles County portion of the SoCAB nonattainment under the federal lead (Pb) classification due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding the new standard. The rest of the SoCAB, outside the Los Angeles County nonattainment area remains in attainment of the new standard. On May 24, 2012, CARB approved the SIP revision for the federal lead standard, which the EPA revised in 2008. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. The SIP revision was submitted to EPA for approval.

AREA DESIGNATIONS

The AQMP provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards through the State Implementation Plan (SIP). Areas are classified as attainment or nonattainment areas for particular pollutants, depending on whether they meet ambient air quality standards. Severity classifications for ozone nonattainment range in magnitude from marginal, moderate, and serious to severe and extreme.

- **Unclassified:** a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

- **Attainment:** a pollutant is in attainment if the CAAQS for that pollutant was not violated at any site in the area during a three-year period.

- **Nonattainment:** a pollutant is in nonattainment if there was at least one violation of a state AAQS for that pollutant in the area.

- **Nonattainment/Transitional:** a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

The attainment status for the SoCAB is shown in Table 2. The SoCAB is designated in attainment of the California AAQS for sulfates. The SoCAB is designated as nonattainment for lead (Los Angeles County only) under the National AAQS.

Table 2 Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Extreme Nonattainment
PM_{10}	Serious Nonattainment	Attainment/Maintenance
$PM_{2.5}$	Nonattainment	Nonattainment[1]
CO	Attainment	Attainment
NO_2	Attainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only)[2]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2017b.

[1] South Coast AQMD is seeking to reclassify the SoCAB from "moderate" to "serious" nonattainment under federal $PM_{2.5}$ standard.

[2] In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new federal and existing state AAQS as a result of large industrial emitters. Remaining areas in the SoCAB are unclassified.

Existing Ambient Air Quality

Existing levels of ambient air quality and historical trends and projections in the vicinity of the project site are best documented by measurements taken by the South Coast AQMD. The project site is located within Source Receptor Area (SRA) 17 – Central Orange County. The air quality monitoring station closest to the project site is the Costa Mesa – Mesa Verde Drive Monitoring Station, and Anaheim – Pampas Lane which monitors O_3, NO_x, and $PM_{2.5}$ and PM_{10}. The most current five years of data from these monitoring stations are included in Table 3, *Ambient Air Quality Monitoring Summary*. The data show regular violations of the state and federal O_3, state PM_{10}, and federal $PM_{2.5}$ standards in the last five years.

Table 3 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2014	2015	2016	2017	2018
Ozone (O_3)					
Federal 8-Hour > 0.07 ppm (days exceed threshold)	6	2	0	4	*
State 8-hour ≥ 0.07 ppm (days exceed threshold)	6	2	0	5	*
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	1	1	0	0	*
Max. 1-Hour Conc. (ppm)	0.096	0.099	0.09	0.088	*
Max. 8-Hour Conc. (ppm)	0.079	0.079	0.069	0.080	*
Fine Particulates ($PM_{2.5}$)					
Federal 24-Hour > 35 µg/m^3 (days exceed threshold)	4	3	1	7	7
Max. 24-Hour Conc. (µg/m^3)	45.0	45.8	44.4	53.9	63.1
Coarse Particulates (PM_{10})					
Federal 1-Hour ≥ 0.100 ppm (days exceed threshold)	0	0	0	0	0
State 24-Hour > 50 µg/m^3 (days exceed threshold)	2	2	3	5	2
Max. 24-Hour Conc. (µg/m^3)	85.0	59.0	74.0	95.7	94.6
Nitrogen Dioxide (NO_2)					
State 1-Hour ≥ 0.18 ppm (days exceed threshold)	0	0	0	0	*
Federal 1-Hour ≥ 0.100 ppm (days exceed threshold)	0	0	0	0	*
Max. 1-Hour Conc. (ppb)	60.6	52.4	59.8	45.3	*

Source: CARB 2020d.
ppm: parts per million; parts per billion, µg/m^3: micrograms per cubic meter
Notes: * Data not available.
Data obtained from the Anaheim – Pampas Lane Monitoring Station and Costa Mesa – Mesa Verde Drive Monitoring Station.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases.

Residential areas are also considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Schools are also considered sensitive receptors, as children are present for extended durations and engage in regular outdoor activities. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public. The nearest sensitive receptors to the proposed project site are the Stonebrook Apartments, Monterey Pine Apartments, and the Village Meadows apartments. All three residential uses are adjacent to the project site.

Methodology

Projected construction-related air pollutant emissions are calculated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. CalEEMod compiles an emissions inventory of construction (fugitive dust, off-gas emissions, on-road emissions, and off-road emissions), area sources, indirect emissions from energy use, mobile sources, indirect emissions from waste disposal (annual only), and indirect emissions from water/wastewater (annual only) use. The calculated emissions of the project are compared to thresholds of significance for individual projects using the South Coast AQMD's *CEQA Air Quality Analysis Guidance Handbook*.

Thresholds of Significance

The analysis of the proposed project's air quality impacts follows the guidance and methodologies recommended in South Coast AQMD's *CEQA Air Quality Handbook* and the significance thresholds on South Coast AQMD's website (South Coast AQMD 1993). CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. South Coast AQMD has established thresholds of significance for regional air quality emissions for construction activities and project operation. In addition to the daily thresholds listed above, projects are also subject to the AAQS. These are addressed though an analysis of localized CO impacts and localized significance thresholds (LSTs).

REGIONAL SIGNIFICANCE THRESHOLDS

South Coast AQMD has adopted regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SoCAB. Table 4 lists South Coast AQMD's regional significance thresholds that are applicable for all projects uniformly regardless of size or scope. There is growing evidence that although ultrafine particulates contribute a very small portion of the overall atmospheric mass concentration, they represent a greater proportion of the health risk from PM. However, the EPA or CARB have not yet adopted AAQS to regulate ultrafine particulates; therefore, South Coast AQMD has not developed thresholds for them.

Table 4 South Coast AQMD Significance Thresholds

Air Pollutant	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/ Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Nitrogen Oxides (NO_X)	100 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Sulfur Oxides (SO_X)	150 lbs/day	150 lbs/day
Particulates (PM_{10})	150 lbs/day	150 lbs/day
Particulates ($PM_{2.5}$)	55 lbs/day	55 lbs/day

Source: South Coast AQMD 2019.

Projects that exceed the regional significance threshold contribute to the nonattainment designation of the SoCAB. The attainment designations are based on the AAQS, which are set at levels of exposure that are determined to not result in adverse health. Exposure to fine particulate pollution and ozone causes myriad health impacts, particularly to the respiratory and cardiovascular systems:

- Linked to increased cancer risk ($PM_{2.5}$, TACs)
- Aggravates respiratory disease (O_3, $PM_{2.5}$)
- Increases bronchitis (O_3, $PM_{2.5}$)
- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O_3)
- Reduces resistance to infections and increases fatigue (O_3)
- Reduces lung growth in children ($PM_{2.5}$)
- Contributes to heart disease and heart attacks ($PM_{2.5}$)
- Contributes to premature death (O_3, $PM_{2.5}$)
- Linked to lower birth weight in newborns ($PM_{2.5}$) (South Coast AQMD 2015b)

Exposure to fine particulates and ozone aggravates asthma attacks and can amplify other lung ailments such as emphysema and chronic obstructive pulmonary disease. Exposure to current levels of $PM_{2.5}$ is responsible for an estimated 4,300 cardiopulmonary-related deaths per year in the SoCAB. In addition, University of Southern California scientists responsible for a landmark children's health study found that lung growth improved as air pollution declined for children aged 11 to 15 in five communities in the SoCAB (South Coast AQMD 2015c).

Mass emissions in Table 4 are not correlated with concentrations of air pollutants but contribute to the cumulative air quality impacts in the SoCAB. Therefore, regional emissions from a single project do not single-handedly trigger a regional health impact. South Coast AQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of air quality in the SoCAB. To achieve the health-based standards established by the EPA, South Coast AQMD prepares an AQMP that details regional programs to attain the AAQS.

CO HOTSPOTS

Areas of vehicle congestion have the potential to create pockets of CO called hot spots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. Because

CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hot spots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the SoCAB and in the state have steadily declined.

In 2007, the SoCAB was designated in attainment for CO under both the California AAQS and National AAQS. The CO hot spot analysis conducted for the attainment by South Coast AQMD for busiest intersections in Los Angeles during the peak morning and afternoon periods plan did not predict a violation of CO standards.[7] As identified in South Coast AQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SoCAB in previous years, prior to redesignation, were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection (South Coast AQMD 1992; South Coast AQMD 2003). Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (BAAQMD 2017).

LOCALIZED SIGNIFICANCE THRESHOLDS

South Coast AQMD developed LSTs for emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at the project site (offsite mobile-source emissions are not included in the LST analysis). LSTs represent the maximum emissions at a project site that are not expected to cause or contribute to an exceedance of the most stringent federal or state AAQS and are shown in Table 5.

Table 5 South Coast AQMD Localized Significance Thresholds

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO_2 Standard (CAAQS)	0.18 ppm
Annual NO_2 Standard (CAAQS)	0.03 ppm
24-Hour PM_{10} Standard – Construction (South Coast AQMD)[1]	10.4 µg/m^3
24-Hour $PM_{2.5}$ Standard – Construction (South Coast AQMD)[1]	10.4 µg/m^3
24-Hour PM_{10} Standard – Operation (South Coast AQMD)[1]	2.5 µg/m^3
24-Hour $PM_{2.5}$ Standard – Operation (South Coast AQMD)[1]	2.5 µg/m^3

Source: South Coast AQMD 2019.
ppm – parts per million; µg/m^3 – micrograms per cubic meter
[1] Threshold is based on South Coast AQMD Rule 403. Since the SoCAB is in nonattainment for PM_{10} and $PM_{2.5}$, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

[7] The four intersections were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning peak hour and LOS F in the evening peak hour.

To assist lead agencies, South Coast AQMD developed screening-level LSTs to back-calculate the mass amount (lbs. per day) of emissions generated onsite that would trigger the levels shown in Table 5 for projects under 5-acres. These "screening-level" LSTs tables are the localized significance thresholds for all projects of five acres and less; however, it can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required to compare concentrations of air pollutants generated by the project to the localized concentrations shown in Table 5.

In accordance with South Coast AQMD's LST methodology, the screening-level construction LSTs are based on the acreage disturbed per day based on equipment use. The screening-level construction LSTs for the project site in SRA 17 are shown in Table 6, *South Coast AQMD Screening-Level Construction Localized Significance Thresholds,* for receptors within 82 feet (25 meters).

Table 6 South Coast AQMD Screening-Level Construction Localized Significance Thresholds

	Threshold (lbs/day)[1]			
Acreage Disturbed	Nitrogen Oxides (NO_X)	Carbon Monoxide (CO)	Coarse Particulates (PM_{10})	Fine Particulates ($PM_{2.5}$)
≤1.00 Acre Disturbed Per Day	81	485	4.00	3.00
1.31 Acres Disturbed Per Day	92	557	4.62	3.31
2.5 Acres Disturbed Per Day	126	805	7.16	4.50
3.50 Acres Disturbed Per Day	149	984	9.50	5.50

Source: South Coast AQMD 2008a and 2011.
[1] The screening-level LSTs are based on receptors within 82 feet (25 meters) in SRA 17.

Because the project is not an industrial project that has the potential to emit substantial sources of stationary emissions, operational LSTs are not an air quality impact of concern associated with the project.

Health Risk

Whenever a project would require use of chemical compounds that have been identified in South Coast AQMD Rule 1401, placed on CARB's air toxics list pursuant to AB 1807, or placed on the EPA's National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by the South Coast AQMD. Table 7, *Toxic Air Contaminants Incremental Risk Thresholds*, lists the TAC incremental risk thresholds for operation of a project. The purpose of this environmental evaluation is to identify the significant effects of the proposed project on the environment, not the significant effects of the environment on the proposed project. (*California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal.4th 369 (Case No. S213478)*). CEQA does not require CEQA-level environmental document to analyze the environmental effects of attracting development and people to an area. However, the environmental document must analyze the impacts of environmental hazards on future users, when a proposed project exacerbates an existing environmental hazard or condition. Residential, commercial, and office uses do not use substantial quantities of TACs and typically do not exacerbate existing hazards, so these thresholds are typically applied to new industrial projects.

Table 7 South Coast AQMD Toxic Air Contaminants Incremental Risk Thresholds

Maximum Incremental Cancer Risk	≥ 10 in 1 million
Hazard Index (project increment)	≥ 1.0
Cancer Burden in areas ≥ 1 in 1 million	> 0.5 excess cancer cases

Source: South Coast AQMD 2019.

GREENHOUSE GAS EMISSIONS

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHG, to the atmosphere. Climate change is the variation of Earth's climate over time, whether due to natural variability or as a result of human activities. The primary source of these GHG is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHG—water vapor,[8] carbon dioxide (CO_2), methane (CH_4), and ozone (O_3)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHG identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).[9] The major GHG are briefly described below.

- **Carbon dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g. manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.

- **Nitrous oxide (N_2O)** is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.

- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are

[8] Water vapor (H_2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant, but part of the feedback loop rather than a primary cause of change.

[9] Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2017b). However, state and national GHG inventories do not yet include black carbon due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high global-warming-potential (GWP) gases.

- ***Chlorofluorocarbons (CFCs***) are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are also ozone-depleting gases and are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.

- ***Perfluorocarbons (PFCs)*** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF_4] and perfluoroethane [C_2F_6]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.

- ***Sulfur Hexafluoride (SF$_6$)*** is a colorless gas soluble in alcohol and ether, slightly soluble in water. SF_6 is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.

- ***Hydrochlorofluorocarbons (HCFCs)*** contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent at destroying stratospheric ozone than CFCs. They have been introduced as temporary replacements for CFCs and are also GHGs.

- ***Hydrofluorocarbons (HFCs)*** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs (IPCC 2001; USEPA 2019b).

GHGs are dependent on the lifetime or persistence of the gas molecule in the atmosphere. Some GHGs have stronger greenhouse effects than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 8. The GWP is used to convert GHGs to CO_2-equivalence (CO_2e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC's Fourth Assessment Report (AR4) GWP values for CH_4, a project that generates 10 metric tons (MT) of CH_4 would be equivalent to 250 MT of CO_2.[10]

Table 8 GHG Emissions and Their Relative Global Warming Potential Compared to CO_2

GHGs	Second Assessment Report Global Warming Potential Relative to CO_2[1]	Fourth Assessment Report Global Warming Potential Relative to CO_2[1]	Fifth Assessment Report Global Warming Potential Relative to CO_2[1]
Carbon Dioxide (CO_2)	1	1	1
Methane[2] (CH_4)	21	25	28
Nitrous Oxide (N_2O)	310	298	265

Source: IPCC 1995, 2007, 2013.
Notes: South Coast AQMD uses the AR4 GWP values to maintain consistency in statewide GHG emissions modeling. In addition, the 2017 Scoping Plan Update was based on the AR4 GWP values.
1 Based on 100-year time horizon of the GWP of the air pollutant compared to CO_2.
2 The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.

California's Greenhouse Gas Sources and Relative Contribution

In 2019, the statewide GHG emissions inventory was updated for 2000 to 2017 emissions using the GWPs in IPCC's AR4.[11] Based on these GWPs, California produced 424.10 $MMTCO_2e$ GHG emissions in 2017. California's transportation sector was the single largest generator of GHG emissions, producing 40.1 percent of the state's total emissions. Industrial sector emissions made up 21.1 percent, and electric power generation made up 14.7 percent of the state's emissions inventory. Other major sectors of GHG emissions include commercial and residential (9.7 percent), agriculture and forestry (7.6 percent) high GWP (4.7 percent), and recycling and waste (2.1 percent) (CARB 2019a).

California's GHG emissions have followed a declining trend since 2007. In 2017, emissions from routine GHG emitting activities statewide were 424 $MMTCO_2e$, 5 $MMTCO_2e$ lower than 2016 levels. This represents an overall decrease of 14 percent since peak levels in 2004 and 7 $MMTCO_2e$ below the 1990 level and the state's 2020 GHG target. During the 2000 to 2017 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 14.0 $MTCO_2e$ per capita to 10.7 $MTCO_2e$ per capita in 2017, a 24 percent decrease. Overall trends in the inventory also demonstrate that the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product (GDP)) is declining, representing a 41 percent decline since the 2001 peak, while the state's GDP has grown 52 percent during this period. For the first time since California started to track GHG emissions, California uses more electricity from zero-GHG sources (hydro, solar, wind, and nuclear energy). (CARB 2019b).

Regulatory Settings

REGULATION OF GHG EMISSIONS ON A NATIONAL LEVEL

The EPA announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings do not in and of themselves impose any emission reduction

11 Methodology for determining the statewide GHG inventory is not the same as the methodology used to determine statewide GHG emissions under Assembly Bill 32 (2006).

requirements but allow the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation (USEPA 2009).

To regulate GHGs from passenger vehicles, EPA was required to issue an endangerment finding. The finding identifies emissions of six key GHGs—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the project's GHG emissions inventory because they constitute the majority of GHG emissions and, per South Coast AQMD guidance, are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory.

US Mandatory Report Rule for GHGs (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 MT or more of CO_2 per year are required to submit an annual report.

Update to Corporate Average Fuel Economy Standards (2010/2012)

The current Corporate Average Fuel Economy standards (for model years 2011 to 2016) incorporate stricter fuel economy requirements promulgated by the federal government and California into one uniform standard. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25 percent by 2016 (resulting in a fleet average of 35.5 miles per gallon by 2016). Rulemaking to adopt these new standards was completed in 2010. California agreed to allow automakers who show compliance with the national program to also be deemed in compliance with state requirements. The federal government issued new standards in 2012 for model years 2017–2025 that will require a fleet average of 54.5 miles per gallon in 2025.

While the EPA is reexamining the 2017–2025 emissions and CAFE standards, a consortium of automakers and California have agreed on a voluntary framework to reduce emissions that can serve as an alternative path forward for clean vehicle standards nationwide. Automakers who agreed to the framework are Ford, Honda, BMW of North America and Volkswagen Group of America. The framework supports continued annual reductions of vehicle greenhouse gas emissions through the 2026 model year, encourages innovation to accelerate the transition to electric vehicles, and provides industry the certainty needed to make investments and create jobs. This commitment means that the auto companies party to the voluntary agreement will only sell cars in the United States that meet these standards (CARB 2019c).

EPA Regulation of Stationary Sources under the Clean Air Act (Ongoing)

Pursuant to its authority under the Clean Air Act, the EPA has been developing regulations for new, large, stationary sources of emissions, such as power plants and refineries. Under former President Obama's 2013 Climate Action Plan, the EPA was directed to develop regulations for existing stationary sources as well. On June 19, 2019, the EPA issued the final Affordable Clean Energy (ACE) rule which became effective on August 19, 2019. The ACE rule was crafted under the direction of President Trump's Energy Independence Executive Order. It officially rescinds the Clean Power Plan rule issued during the Obama Administration and sets emissions guidelines for states in developing plans to limit CO_2 emissions from coal-fired power plants.

REGULATION OF GHG EMISSIONS ON A STATE LEVEL

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Executive Order S-3-05, Executive Order B-30-15, Assembly Bill 32 (AB 32), Senate Bill 32 (SB 32) and Senate Bill 375 (SB 375).

Executive Order S-3-05

Executive Order S-3-05, signed June 1, 2005. Executive Order S-3-05 set the following GHG reduction targets for the State:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

Assembly Bill 32, the Global Warming Solutions Act (2006)

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in AB 32. AB 32 was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in Executive Order S-03-05.

CARB 2008 Scoping Plan

The final Scoping Plan was adopted by CARB on December 11, 2008. The *2008 Scoping Plan* identified that GHG emissions in California are anticipated to be approximately 596 $MMTCO_2e$ in 2020. In December 2007, CARB approved a 2020 emissions limit of 427 $MMTCO_2e$ (471 million tons) for the state (CARB 2008). In order to effectively implement the emissions cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor GHG emissions levels for large stationary sources that generate more than 25,000 $MTCO_2e$ per year, prepare a plan demonstrating how the 2020 deadline can be met, and develop appropriate regulations and programs to implement the plan by 2012.

First Update to the Scoping Plan

CARB completed a five-year update to the 2008 Scoping Plan, as required by AB 32. The First Update to the Scoping Plan was adopted at the May 22, 2014, board hearing. The update highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals defined in the original 2008 Scoping Plan. As part of the update, CARB recalculated the 1990 GHG emission levels with the updated AR4 GWPs, and the 427 $MMTCO_2e$ 1990 emissions level and 2020 GHG emissions limit, established in response to AB 32, is slightly higher at 431 $MMTCO_2e$ (CARB 2014).

As identified in the Update to the Scoping Plan, California is on track to meeting the goals of AB 32. However, the update also addresses the state's longer-term GHG goals within a post-2020 element. The post-2020 element provides a high-level view of a long-term strategy for meeting the 2050 GHG goals, including a recommendation for the state to adopt a midterm target. According to the Update to the Scoping Plan, local

government reduction targets should chart a reduction trajectory that is consistent with or exceeds the trajectory created by statewide goals (CARB 2014). CARB identified that reducing emissions to 80 percent below 1990 levels will require a fundamental shift to efficient, clean energy in every sector of the economy. Progressing toward California's 2050 climate targets will require significant acceleration of GHG reduction rates. Emissions from 2020 to 2050 will have to decline several times faster than the rate needed to reach the 2020 emissions limit (CARB 2014).

Executive Order B-30-15

Executive Order B-30-15, signed April 29, 2015, sets a goal of reducing GHG emissions in the state to 40 percent of 1990 levels by year 2030. Executive Order B-30-15 also directs CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the state and requires state agencies to implement measures to meet the interim 2030 goal as well as the long-term goal for 2050 in Executive Order S-03-05. It also requires the Natural Resources Agency to conduct triennial updates of the California adaption strategy, Safeguarding California, in order to ensure climate change is accounted for in state planning and investment decisions.

Senate Bill 32 and Assembly Bill 197

In September 2016, Governor Brown signed SB 32 and AB 197 into law, making the Executive Order goal for year 2030 into a statewide mandated legislative target. AB 197 established a joint legislative committee on climate change policies and requires the CARB to prioritize direction emissions reductions rather than the market-based cap-and-trade program for large stationary, mobile, and other sources.

2017 Climate Change Scoping Plan Update

Executive Order B-30-15 and SB 32 required CARB to prepare another update to the Scoping Plan to address the 2030 target for the state. On December 24, 2017, CARB adopted the 2017 Climate Change Scoping Plan Update, which outlines potential regulations and programs, including strategies consistent with AB 197 requirements, to achieve the 2030 target. The 2017 Scoping Plan establishes a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030 (CARB 2017c).

California's climate strategy will require contributions from all sectors of the economy, including enhanced focus on zero- and near-zero emission (ZE/NZE) vehicle technologies; continued investment in renewables, such as solar roofs, wind, and other types of distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (methane, black carbon, and fluorinated gases); and an increased focus on integrated land use planning, to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for GHG reductions at stationary sources complement local air pollution control efforts by the local air districts to tighten criteria air pollutants and TACs emissions limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks;
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).

- Implementation of SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydrofluorocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- Continued implementation of SB 375.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

In addition to the statewide strategies listed above, the 2017 Climate Change Scoping Plan also identified local governments as essential partners in achieving the State's long-term GHG reduction goals and identified local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends statewide targets of no more than 6 $MTCO_2e$ or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. CARB recommends that local governments evaluate and adopt robust and quantitative locally appropriate goals that align with the statewide per capita targets and the State's sustainable development objectives and develop plans to achieve the local goals. The statewide per capita goals were developed by applying the percent reductions necessary to reach the 2030 and 2050 climate goals (i.e., 40 percent and 80 percent, respectively) to the State's 1990 emissions limit established under AB 32. For CEQA projects, CARB states that lead agencies have discretion to develop evidenced-based numeric thresholds (mass emissions, per capita, or per service population)—consistent with the Scoping Plan and the state's long-term GHG goals. To the degree a project relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from VMT, and direct investments in GHG reductions within the project's region that contribute potential air quality, health, and economic co-benefits. Where further project design or regional investments are infeasible or not proven to be effective, CARB recommends mitigating potential GHG impacts through purchasing and retiring carbon credits.

The Scoping Plan scenario is set against what is called the business-as-usual (BAU) yardstick—that is, what would the GHG emissions look like if the State did nothing at all beyond the existing policies that are required and already in place to achieve the 2020 limit, as shown in Table 9. It includes the existing renewables requirements, advanced clean cars, the "10 percent" Low Carbon Fuel Standard (LCFS), and the SB 375 program for more vibrant communities, among others. However, it does not include a range of new policies or measures that have been developed or put into statute over the past two years. Also shown in the table, the known commitments are expected to result in emissions that are 60 $MMTCO_2e$ above the target in 2030. If the estimated GHG reductions from the known commitments are not realized due to delays in implementation

or technology deployment, the post-2020 Cap-and-Trade Program would deliver the additional GHG reductions in the sectors it covers to ensure the 2030 target is achieved.

Table 9 2017 Climate Change Scoping Plan Emissions Reductions Gap

Modeling Scenario	2030 GHG Emissions $MMTCO_2e$
Reference Scenario (Business-as-Usual)	389
With Known Commitments	320
2030 GHG Target	**260**
Gap to 2030 Target	**60**

Source: CARB 2017c.

Table 10 provides estimated GHG emissions by sector, compared to 1990 levels, and the range of GHG emissions for each sector estimated for 2030.

Table 10 2017 Climate Change Scoping Plan Emissions Change by Sector

Scoping Plan Sector	1990 $MMTCO_2e$	2030 Proposed Plan Ranges $MMTCO_2e$	% Change from 1990
Agricultural	26	24-25	-8% to -4%
Residential and Commercial	44	38-40	-14% to -9%
Electric Power	108	30-53	-72% to -51%
High GWP	3	8-11	267% to 367%
Industrial	98	83-90	-15% to -8%
Recycling and Waste	7	8-9	14% to 29%
Transportation (including TCU)	152	103-111	-32% to -27%
Net Sink[1]	-7	TBD	TBD
Sub Total	431	294-339	-32% to -21%
Cap-and-Trade Program	NA	24-79	NA
Total	**431**	**260**	**-40%**

Source: CARB 2017c.
Notes: TCU = Transportation, Communications, and Utilities; TBD: To Be Determined.
[1] Work is underway through 2017 to estimate the range of potential sequestration benefits from the natural and working lands sector.

Senate Bill 1383

On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and CH_4. Black carbon is the light-absorbing component of fine particulate matter produced during incomplete combustion of fuels. SB 1383 requires the state board, no later than January 1, 2018, to approve and begin implementing that comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030, as specified. The bill also establishes targets for reducing organic waste in landfill. On March 14, 2017, CARB adopted the "Final Proposed Short-Lived Climate Pollutant Reduction Strategy," which

identifies the state's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower than in the early 1960s despite the tripling of diesel fuel use (CARB 2017a). In-use on-road rules are expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020. South Coast AQMD is one of the air districts that requires air pollution control technologies for chain-driven broilers, which reduces particulate emissions from these char broilers by over 80 percent (CARB 2017a). Additionally, South Coast AQMD Rule 445 limits installation of new fireplaces in the SoCAB.

Senate Bill 375

In 2008, SB 375, the Sustainable Communities and Climate Protection Act, was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations (MPOs). The Southern California Association of Governments (SCAG) is the MPO for the Southern California region, which includes the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial.

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035 (CARB 2010). The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 has been defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's transportation network. The targets would result in 3 $MMTCO_2e$ of reductions by 2020 and 15 $MMTCO_2e$ of reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met (CARB 2010).

2017 Update to the SB 375 Targets

CARB is required to update the targets for the MPOs every eight years. In June 2017, CARB released updated targets and technical methodology and recently released another update in February 2018. The updated targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update, while balancing the need for additional and more flexible revenue sources to incentivize positive planning and action toward sustainable communities. Like the 2010 targets, the updated SB 375 targets are in units of percent per capita reduction in GHG emissions from automobiles and light trucks relative to 2005. This excludes reductions anticipated from implementation of state technology and fuels strategies and any potential future state strategies such as statewide road user pricing. The proposed targets call for greater per capita GHG emission reductions from SB 375 than are currently in place, which for 2035, translate into proposed targets that either match or exceed the emission reduction levels in the MPOs' currently adopted SCSs. As proposed, CARB staff's

proposed targets would result in an additional reduction of over 8 $MMTCO_2e$ in 2035 compared to the current targets. For the next round of SCS updates, CARB's updated targets for the SCAG region are an 8 percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent) (CARB 2018). CARB adopted the updated targets and methodology on March 22, 2018. All SCSs adopted after October 1, 2018 are subject to these new targets.

SCAG's 2016-2040 RTP/SCS

SB 375 requires each MPO to prepare an SCS in their regional transportation plan. For the SCAG region, the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) was adopted on April 7, 2016, and is an update to the 2012 RTP/SCS (SCAG 2016). In general, the SCS outlines a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce vehicle miles traveled from automobiles and light duty trucks and thereby reduce GHG emissions from these sources.

The 2016-2040 RTP/SCS projects that the SCAG region will meet or exceed the passenger per capita targets set in 2010 by CARB. It is projected that VMT per capita in the region for year 2040 would be reduced by 7.4 percent with implementation of the 2016-2040 RTP/SCS compared to a no-plan year 2040 scenario. Under the 2016-2040 RTP/SCS, SCAG anticipates lowering GHG emissions 8 percent below 2005 levels by 2020, 18 percent by 2035, and 21 percent by 2040. The 18 percent reduction by 2035 over 2005 levels represents a 2 percent increase in reduction compared to the 2012 RTP/SCS projection. Overall, the SCS is meant to provide growth strategies that will achieve the aforementioned regional GHG emissions reduction targets. Land use strategies to achieve the region's targets include planning for new growth around high quality transit areas and livable corridors and creating neighborhood mobility areas to integrate land use and transportation and plan for more active lifestyles (SCAG 2016). However, the SCS does not require that local general plans, specific plans, or zoning be consistent with the SCS; instead, it provides incentives to governments and developers for consistency.

Draft SCAG 2020-2045 RTP/SCS (Connect SoCal)

On November 7, 2019, SCAG released the Draft 2020-2045 RTP/SCS (Connect SoCal), which serves as an update to the 2016-2040 RTP/SCS. The Draft 2020-2045 RTP/SCS focuses on the continued efforts of the previous RTP/SCS plans for an integrated approach in transportation and land uses strategies in development of the SCAG region through horizon year 2045. Per the Draft, it projects that the SCAG region will meet the GHG per capita reduction targets established for the SCAG region of 8 percent by 2020 and 19 percent by 2035. Additionally, it is also projected that implementation of the plan would reduce VMT per capita for year 2045 by 4.1 percent compared to baseline condition for the year. Rooted in the 2008 and 2012 RTP/SCs plans, the Draft 2020-2045 RTP/SCS includes "Core Vision" that centers on maintaining and better managing the transportation network for moving people and goods while expanding mobility choices by locating housing, jobs, and transit closer together, and increasing investments in transit and complete streets (SCAG 2019).

Assembly Bill 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and was anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model year 2017 through 2025 light-duty vehicles (see also the discussion on the update to the Corporate Average Fuel Economy standards under *Federal Laws*, above). In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025, new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.

Executive Order S-01-07

On January 18, 2007, the state set a new LCFS for transportation fuels sold in the state. Executive Order S-01-07 sets a declining standard for GHG emissions measured in carbon dioxide equivalent gram per unit of fuel energy sold in California. The LCFS requires a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applies to refiners, blenders, producers, and importers of transportation fuels, and would use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods.

Senate Bills 1078, 107, X1-2, and Executive Order S-14-08

A major component of California's Renewable Energy Program is the RPS established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. Executive Order S-14-08 was signed in November 2008, which expanded the state's Renewable Energy Standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects, because electricity production from renewable sources is generally considered carbon neutral.

Senate Bill 350

Senate Bill 350 (de Leon), was signed into law in September 2015. SB 350 establishes tiered increases to the RPS of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

Senate Bill 100

On September 10, 2018, Governor Brown signed SB 100, which replaces the SB 350 requirement of 45 percent renewable energy by 2027 with the requirement of 50 percent by 2026 and also raises California's RPS requirements for 2050 from 50 percent to 60 percent. SB 100 also establishes RPS requirements for publicly owned utilities that consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. Furthermore, the bill also establishes an overall state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under the bill, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Executive Order B-55-18

Executive Order B-55-18, signed September 10, 2018, sets a goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." Executive Order B-55-18 directs CARB to work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions be offset by equivalent net removals of CO_2e from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

Executive Order B-16-2012

On March 23, 2012, the state identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate zero-emissions vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). The executive order also directs the number of zero-emission vehicles in California's state vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are zero-emission by 2015 and at least 25 percent by 2020. The executive order also establishes a target for the transportation sector of reducing GHG emissions from the transportation sector 80 percent below 1990 levels.

California Building Code: Building Energy Efficiency Standards

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2016 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On May 9, 2018, the CEC adopted the 2019 Building and Energy Efficiency Standards, which took effect on January 1, 2020.

The 2019 standards move towards cutting energy use in new homes by more than 50 percent and will require installation of solar photovoltaic systems for single-family homes and multi-family buildings of 3 stories and less. Four key areas the 2019 standards will focus on include 1) smart residential photovoltaic systems; 2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements (CEC 2018a). Under the 2019 standards, nonresidential buildings will be 30 percent more energy efficient compared to the 2016 standards while single-family homes will be 7 percent more energy efficient (CEC 2018b). When accounting for the electricity generated by the solar photovoltaic system, single-family homes would use 53 percent less energy compared to homes built to the 2016 standards (CEC 2018b).

California Building Code: CALGreen

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[12] The mandatory provisions of CALGreen became effective January 1, 2011, and were last updated in 2019. The 2019 CALGreen amendments became effective on January 1, 2020.

2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (20 CCR §§ 1601–1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances. Though these regulations are now often viewed as "business as usual," they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand.

Solid Waste Regulations

California's Integrated Waste Management Act of 1989 (AB 939; Public Resources Code §§ 40050 et seq.) set a requirement for cities and counties throughout the state to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, the act requires that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

AB 341 (Chapter 476, Statutes of 2011) increased the statewide goal for waste diversion to 75 percent by 2020 and requires recycling of waste from commercial and multifamily residential land uses.

The California Solid Waste Reuse and Recycling Access Act (AB 1327; Public Resources Code §§ 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. The act required the California Integrated Waste Management Board to develop a model ordinance for adoption by any

[12] The green building standards became mandatory in the 2010 edition of the code.

local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

Section 5.408 of the 2016 and 2019 CALGreen also requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

In October of 2014 Governor Brown signed AB 1826, requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste.

Water Efficiency Regulations

The 20x2020 Water Conservation Plan was issued by the Department of Water Resources (DWR) in 2010 pursuant to Senate Bill 7, which was adopted during the 7th Extraordinary Session of 2009–2010 and therefore dubbed "SBX7-7." SBX7-7 mandated urban water conservation and authorized the DWR to prepare a plan implementing urban water conservation requirements (20x2020 Water Conservation Plan). In addition, it required agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 requires urban water providers to adopt a water conservation target of 20 percent reduction in urban per capita water use by 2020 compared to 2005 baseline use.

The Water Conservation in Landscaping Act of 2006 (AB 1881) requires local agencies to adopt the updated DWR model ordinance or equivalent. AB 1881 also requires the CEC to consult with the DWR to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

Thresholds of Significance

The CEQA Guidelines recommend that a lead agency consider the following when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase (or reduce) GHG emissions as compared to the existing environmental setting;

2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;

3. The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions.[13]

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, South Coast AQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting (Meeting No. 15) held in September 2010, South Coast AQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where South Coast AQMD is not the lead agency (South Coast AQMD 2010):

- **Tier 1.** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.

- **Tier 2.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.

- **Tier 3.** If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.

  For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, South Coast AQMD requires an assessment of GHG emissions. South Coast AQMD is proposing a screening-level threshold of 3,000 $MTCO_2e$ annually for all land use types or the following land-use-specific thresholds: 1,400 $MTCO_2e$ for commercial projects, 3,500 $MTCO_2e$ for residential projects, or 3,000 $MTCO_2e$ for mixed-use projects. These bright-line thresholds are based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal, and therefore, less than cumulatively considerable impact on GHG emissions:

- **Tier 4.** If emissions exceed the screening threshold, a more detailed review of the project's GHG emissions is warranted.

  The South Coast AQMD Working Group has identified an efficiency target for projects that exceed the screening threshold of 4.8 $MTCO_2e$ per year per service population ($MTCO_2e$/year/SP) for project-level analyses and 6.6 $MTCO_2e$/year/SP for plan level projects (e.g., program-level projects such as general

[13] The Governor's Office of Planning and Research recommendations include a requirement that such a plan must be adopted through a public review process and include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable, notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

plans) for the year 2020.[14] The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB's 2008 Scoping Plan.[15]

For purposes of this analysis, because the proposed project has an anticipated opening year post-2020 (year 2023), the bright-line screening-level criterion of 3,000 $MTCO_2e$/yr is used as the significance threshold for this project. Therefore, if the project operation-phase emissions exceed the 3,000 $MTCO_2e$/yr threshold, GHG emissions would be considered potentially significant in the absence of mitigation measures.

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[14] It should be noted that the Working Group also considered efficiency targets for 2035 for the first time in this Working Group meeting.

[15] South Coast AQMD took the 2020 statewide GHG reduction target for land use only GHG emissions sectors and divided it by the 2020 statewide employment for the land use sectors to derive a per capita GHG efficiency metric that coincides with the GHG reduction targets of AB 32 for year 2020.

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Regional Construction Criteria Air Pollutants

3.2 Site Preparation - 2020

Mitigated Construction On-Site

Category lb/day	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Fugitive Dust					8	4
Off-Road	4	42	22	0	2	2
Hauling	0	0	0	0	0	0
Vendor	0	0	0	0	0	0
Worker	0	0	1	0	0	0
Total	4	43	22	0	10	6

3.3 Grading - 2020

Mitigated Construction On-Site

Category lb/day	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Fugitive Dus P					3	1
Off-Road	2	26	16	0	1	1
Hauling	0	0	0	0	0	0
Vendor	0	0	0	0	0	0
Worker	0	0	0	0	0	0
Total	3	27	17	0	4	3

Regional Construction Criteria Air Pollutants

3.4 Building Construction - 2020

Mitigated Construction On-Site

Category lb/day	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Off-Road	2	19	17	0	1	1
Hauling	0	0	0	0	0	0
Vendor	0	0	0	0	0	0
Worker	0	0	0	0	0	0
Total	2	19	17	0	1	1

3.5 Paving - 2020

Mitigated Construction On-Site

Category lb/day	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Off-Road	1	12	12	0	1	1
Paving	0				0	0
Hauling	0	0	0	0	0	0
Vendor	0	0	0	0	0	0
Worker	0	0	1	0	0	0
Total	1	12	13	0	1	1

Regional Construction Criteria Air Pollutants

3.6 Architectural Coating - 2020

Mitigated Construction On-Site

Category lb/day	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Archit. Coating	22				0	0
Off-Road	0	2	2	0	0	0
Hauling	0	0	0	0	0	0
Vendor	0	0	0	0	0	0
Worker	0	0	0	0	0	0
Total	23	2	2	0	0	0

3.7 Landscaping - 2020

Mitigated Construction On-Site

Category lb/day	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Off-Road	0	2	3	0	0	0
Hauling	0	0	0	0	0	0
Vendor	0	0	0	0	0	0
Worker	0	0	0	0	0	0
Total	0	2	3	0	0	0
Max Daily	**23**	**43**	**22**	**0**	**10**	**6**
Regional Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	**No**	**No**	**No**	**No**	**No**	**No**

Operational Criteria Air Pollutants

Summer

Mitigated Operational

Category lb/day	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Area	0.0	0.0	0.0	0.0	0.0	0.0
Energy	0.0	0.0	0.0	0.0	0.0	0.0
Mobile	0.6	2.4	7.8	0.0	2.5	0.7
Total	0.6	2.4	7.8	0.0	2.5	0.7

Winter

Mitigated Operational

Category lb/day	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Area	0.0	0.0	0.0	0.0	0.0	0.0
Energy	0.0	0.0	0.0	0.0	0.0	0.0
Mobile	0.6	2.4	7.5	0.0	2.5	0.7
Total	0.6	2.4	7.5	0.0	2.5	0.7

Maximum

Mitigated Operational

Category lb/day	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Area	0.0	0.0	0.0	0.0	0.0	0.0
Energy	0.0	0.0	0.0	0.0	0.0	0.0
Mobile	0.6	2.4	7.8	0.0	2.5	0.7
Max Daily	0.6	2.4	7.8	0.0	2.5	0.7
Regional Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	**No**	**No**	**No**	**No**	**No**	**No**

Localized Construction Criteria Air Pollutants

3.2 Site Preparation - 2020

Mitigated Construction On-Site

	NOx	CO	PM10 Total	PM2.5 Total
Category lb/day				
Fugitive Dust			7.72	4.25
Off-Road	42	22	2.20	2.02
Total	42	22	**9.92**	**6.27**
3.5 acres LSTs	149	984	9.50	5.50
Exceeds	No	No	**YES**	**YES**

3.3 Grading - 2020

Mitigated Construction On-Site

	NOx	CO	PM10 Total	PM2.5 Total
Category lb/day				
Fugitive Dust			2.80	1.44
Off-Road	26	16	1.27	1.17
Total	26	16	4.07	2.61
2.5 acres LSTs	126	805	7.16	4.50
Exceeds	No	No	No	No

3.4 Building Construction - 2020

Mitigated Construction On-Site

	NOx	CO	PM10 Total	PM2.5 Total
Category lb/day				
Off-Road	19	17	1.12	1.05
Total	19	17	1.12	1.05
1.31 acres LSTs	92	557	4.62	3.31
Exceeds	No	No	No	No

Localized Construction Criteria Air Pollutants

3.5 Paving - 2020

Mitigated Construction On-Site

	NOx	CO	PM10 Total	PM2.5 Total
Category lb/day				
Off-Road	12	12	0.65	0.60
Paving			0.00	0.00
Total	12	12	0.65	0.60
<1 acres LSTs	81	485	4.00	3.00
Exceeds	**No**	**No**	**No**	**No**

3.7 Architectural Coating - 2020

Mitigated Construction On-Site

	NOx	CO	PM10 Total	PM2.5 Total
Category lb/day				
Archit. Coating			0.00	0.00
Off-Road	2	2	0.11	0.11
Total	2	2	0.11	0.11
<1 acres LSTs	81	485	4.00	3.00
Exceeds	No	No	No	No

3.8 Landscaping - 2020

Mitigated Construction On-Site

	NOx	CO	PM10 Total	PM2.5 Total
Category lb/day				
Off-Road	2	3	0.12	0.11
Total	2	3	0.12	0.11
<1 acres LSTs	81	485	4.00	3.00
Exceeds	No	No	No	No

Localized Construction Criteria Air Pollutants - Mitigated (Tier 4)

3.2 Site Preparation - 2020

Mitigated Construction On-Site

	NOx	CO	PM10 Total	PM2.5 Total
Category lb/day				
Fugitive Dust			6.69	3.68
Off-Road	12	23	0.06	0.06
Total	12	23	6.76	3.74
3.5 acres LSTs	149	984	9.50	5.50
Exceeds	No	No	No	No

Localized Construction Criteria Air Pollutants - Mitigated (Tier 4)

CalEEMod Inputs - Heideman Park Development, Construction

Name:	Heideman Park Development
Project Number:	TSD-17
Project Location:	15571 Williams St, Tustin
County:	Orange County
Source Receptor Area (SRA):	17- Central Orange County
Climate Zone:	8
Land Use Setting:	Urban
Operational Year:	2021
Utility Company:	Southern California Edison
Air Basin:	South Coast Air Basin
Air District:	South Coast Air Quality Management District (South Coast AQMD)

Proiect Site Acreage	3.50	
Disturbed Site Acreage	3.50	The project would not require demolition or soil haul.

Project Components	SQFT	Acres
Soccer Fields, Landscaping, Non-asphalt and concrete surfaces	150,510	3.46
Skate Pad	1,300	0.03
Bathrooms	650	0.01
Total	152,460	3.50000
Basketball Court Painting	9,040	0.21

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Building Square Feet
Recreational	City Park	3.455	acres	3.46	0
Parking	Other Nonasphalt Surface	1.300	TSF	0.03	1,300
Recreational	Health Club	0.650	TSF	0.01	650
				3.50	

Architectural Coating

Percentage of Proposed Buildings' Interior Painted:	100%	
Percentage of Proposed Buildings' Exterior Painted:	100%	

Rule 1113

Interior Paint VOC content:	50	grams per liter
Exterior Paing VOC content:	50	grams per liter

CalEEMod Inputs - Heideman Park Development, Construction

Name:	Heideman Park Development
Project Number:	TSD-17
Project Location:	15571 Williams St, Tustin
County:	Orange County
Source Receptor Area (SRA):	17- Central Orange County
Climate Zone:	8
Land Use Setting:	Urban
Operational Year:	2021
Utility Company:	Southern California Edison
Air Basin:	South Coast Air Basin
Air District:	South Coast Air Quality Management District (South Coast AQMD)

Structures	Land Use Square Feet	CalEEMod Factor[2]	Total Paintable Surface Area	Paintable Interior Area[1]	Paintable Exterior Area[1]
Restroom	650	2.0	1,300	975	325
Skate Pad	1,300	NOT PAINTED		0	0
Basketball Court Painting	9,040	2.0	18,080	0	18,080
			19,380	**975**	**18,080**

[1]CalEEMod methodology calculates the paintable interior and exterior areas by multiplying the total paintable surface area by 75 and 25 percent, respectively. Basketball courts are 100% exterior. Concrete would not be painted.

[2] The program assumes the total surface for painting equals 2.7 times the floor square footage for residential and 2 times that for nonresidential square footage defined by the user. Architectural coatings for the parking lot is based on CalEEMod methodology applied to a surface parking lot (i.e., striping), in which 6% of surface area is painted.

Construction PPPs and Mitigation

South Coast AQMD Rule 403

Replace Ground Cover	PM10:	5	% Reduction
Replace Ground Cover	PM2.5:	5	% Reduction
	PM25:	5	% Reduction
Water Exposed Area	Frequency:	2	per day
	PM10:	55	% Reduction
	PM25:	55	% Reduction

2 vendor truck trips are added to the demolition, site preparation, and grading phases to account water of exposed surfaces 2 times daily.

Unpaved Roads	Vehicle Speed:	15	mph

South Coast AQMD Rule 1186

	Clean Paved Road	9	% PM Reduction

CalEEMod Inputs - Heideman Park Development, Construction

Name:	Heideman Park Development
Project Number:	TSD-17
Project Location:	15571 Williams St, Tustin
County:	Orange County
Source Receptor Area (SRA):	17- Central Orange County
Climate Zone:	8
Land Use Setting:	Urban
Operational Year:	2021
Utility Company:	Southern California Edison
Air Basin:	South Coast Air Basin
Air District:	South Coast Air Quality Management District (South Coast AQMD)

Project Site Acreage	3.50
Disturbed Site Acreage	3.50

CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Building Square Feet
Recreational	City Park	3.46	acres	3.46	0
Parking	Other Nonasphalt Surface	1.30	TSF	0.03	1,300
Recreational	Health Club	0.650	TSF	0.01	650
				3.50	

Land Use Type	Weekday Average Daily Trips	CalEEMod Weekday Trip Rate	Saturday Trips	CalEEMod Saturday Trip Rate	Sunday Trips	CalEEMod Sunday Trip Rate
City Park	74	**21.42**	412	**119.24**	413	**119.53**

Source: *Section 3.17, Transportation.*

Water Use CalEEMod Defaults:

Land Use	Indoor (gal/yr)	Outdoor (gal/yr)	Total (gal/yr)	notes
City Park	0	0	0	The existing fields are currently irrigated. No increase in outdoor water use
Health Club	38,443	0	38,443	Based on default indoor rate. No exterior water use.
TOTAL	**38,443**	**0**	**38,443**	

*Assumes 100% aerobic treatment.

CalEEMod Inputs - Heideman Park Development, Construction

Name:	Heideman Park Development
Project Number:	TSD-17
Project Location:	15571 Williams St, Tustin
County:	Orange County
Source Receptor Area (SRA):	17- Central Orange County
Climate Zone:	8
Land Use Setting:	Urban
Operational Year:	2021
Utility Company:	Southern California Edison
Air Basin:	South Coast Air Basin
Air District:	South Coast Air Quality Management District (South Coast AQMD)

Solid Waste CalEEMod Defaults*

Land Use	Total Solid Waste (tons/yr)	notes
City Park	0.3	
Health Club	0.0	*Zeroed Out because this is the bathroom for the park and waste is included in the park CalEEMod default.*
TOTAL	**0.30**	

Architectural Coating *see Construction Assumptions*

Electricity (Buildings)

Project Energy

Modeling is conservative because the carbon intensity of electricity does not account for additional reductions from the 33% RPS and 50% RPS under SB 350.

Buildings constructed after January 1, 2020 are required to meet the 2019 Building and Energy Efficiency Standards. The 2019 Standards are 30% more energy efficient for non-residential buildings and 7% more energy efficient for single family residential buildings than the 2016 Building and Energy Efficiency Standards.

Non-Residential Exceed Title 24	**30%**	Improvement over 2016

Sources:

1 *California Energy Commission (CEC). 2018. 2019 Building Energy and Efficiency Standards Frequently Asked Questions. Accessed on April 3, 2019. http://www.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf*

Southern California Edison Carbon Intensity Factors

CO_2:[1,2]	504.43634	pounds per megawatt hour
CH_4:[3]	0.029	pound per megawatt hour
N_2O:[3]	0.00617	pound per megawatt hour

Source:

[1] Based on CO2e intensity factor of 507 pounds per megawatt hour; Southern California Edison. 2019, May. 2018 Sustainability Report. https://www.edison.com/content/dam/eix/documents/sustainability/eix-2018-

[2] Based on Intergovernmental Panel on Climate Change Fourth Assessment Report global warming potentials for CH4 and N2O; Intergovernmental Panel on Climate Change (IPCC). 2007. Fourth Assessment Report:

[3] CalEEMod default values.

Construction Activities and Schedule Assumptions: Heideman Joint Use Park Development

* CalEEMod defaults, normalized to fit a 3 month duration in Summer 2020

7/1/2020 10/1/2020

CalEEMod Defaults

		Construction Schedule		
Construction Activities	**Phase Type**	**Start Date**	**End Date**	**CalEEMod Duration (Workday)**
Demolition	Demolition	6/1/2020	6/26/2020	20
Site Prep	Site Prep	6/27/2020	7/3/2020	5
Grading	Grading	7/4/2020	7/15/2020	8
Building Construction	Buiding Construction	7/16/2020	6/2/2021	230
Paving	Paving	6/3/2021	6/28/2021	18
Architectural Coating	Architectural Coating	6/29/2021	7/22/2021	18
			Total Days	279

CalEEMod Normalized

		Construction Schedule		
Construction Activities	**Phase Type**	**Start Date**	**End Date**	**CalEEMod Duration**
Site Prep	Site Prep	6/1/2020	6/1/2020	1
Grading	Grading	6/2/2020	6/3/2020	2
Building Construction	Buiding Construction	6/4/2020	8/4/2020	44
Paving	Paving	8/5/2020	8/10/2020	4
Architectural Coating	Architectural Coating	8/11/2020	8/14/2020	4
Landscaping	Trenching	8/17/2020	8/28/2020	10
			Total Days	65

Lighting Assumptions

Use	Total Days	Hours Light on	Average Hours per day*	Total Hours (Annual)
Soccer Field and Basketball Courts	365	4:30 PM to 10 PM	5.5	2,008

Total Load kW[(1)]	Total Hours	Total Kwh Hours	Total MWH
28.34	2,008	56,893	57

Source 1: Musco Project Lighting Plan

Southern California Edison Carbon Intensity Factors

	pounds per megawatt hour (MWH)	Fourth Assessment Report (AR4) Global Warming Potential (GWP)	Fifth Assessment Report (AR5) Global Warming Potential (GWP)
CO_2:[1,2]	504.43634	1	1
CH_4:[3]	0.029	25	28
N_2O:[3]	0.00617	298	265
CO_2e[1]:	507	NA	NA

Source:

[1] Based on CO2e intensity factor of 507 pounds per megawatt hour; Southern California Edison. 2019, May. 2018 Sustainability Report. https://www.edison.com/content/dam/eix/documents/sustainability/eix-2018

[2] Based on Intergovernmental Panel on Climate Change Fourth Assessment Report global warming potentials for CH4 and N2O; Intergovernmental Panel on Climate Change (IPCC). 2007. Fourth Assessment Report:

[3] CalEEMod default values.

GHGs from Lighting

Use	SCE Carbon Intensity lbs/MWH	Annual Project Lighting (Mwh)	GHGs (MTCO2e/Yr) from Lighting
Various Park Areas Lighting	**507**	**57**	**13**

Conversion Factors

lbs to MT	0.000453592

GHG Emissions Worksheet

Mitigated Operational

	Metric Tons (MT) Per Year			
	CO2	CH4	N2O	CO2e
Area	0	0	0	0
Energy	2	0	0	2
Mobile	193	0	0	193
Waste	0	0	0	0
Water	0	0	0	0
Lighting				13
Construction[1]				2
Total	**196**	**0**	**0**	**210**
Threshold ($MTCO_2/Yr$)[2]				**3,000**
Exceeds?				**No**

Notes:

1 *Construction amortized by dividing by 30 years per SCAQMD methodology

2 Source: SCAQMD. 2009, November 19. Greenhouse Gases (GHG) CEQA Significance Thresholds Working Group Meeting 14. http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-14/ghg-meeting-14-main-presentation.pdf?sfvrsn=2.

Heideman Park Development - Orange County, Annual

Heideman Park Development

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.30	1000sqft	0.03	1,300.00	0
City Park	3.46	Acre	3.46	0.00	0
Health Club	0.65	1000sqft	0.01	650.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	504.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Assumptions

Land Use - No building, just grading.

Construction Phase - See Assumptions File

Off-road Equipment -

Grading -

Architectural Coating - See Assumptions File.

Vehicle Trips - See Assumptions File.

Water And Wastewater - See Assumptions

Construction Off-road Equipment Mitigation - SCAQMD Rules 403 and 1186

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	78.00	18,080.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	5.00	1.00
tblConstructionPhase	NumDays	8.00	2.00
tblConstructionPhase	NumDays	230.00	44.00
tblConstructionPhase	NumDays	18.00	4.00
tblConstructionPhase	NumDays	18.00	4.00
tblLandUse	LandUseSquareFeet	150,717.60	0.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	504.44
tblSolidWaste	SolidWasteGenerationRate	3.71	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TTP	64.10	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TTP	16.90	0.00
tblVehicleTrips	DV_TP	39.00	0.00
tblVehicleTrips	PB_TP	9.00	0.00
tblVehicleTrips	PR_TP	52.00	0.00
tblVehicleTrips	ST_TR	22.75	119.24
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	SU_TR	16.74	119.53
tblVehicleTrips	SU_TR	26.73	0.00

tblVehicleTrips	WD_TR	1.89	21.42
tblVehicleTrips	WD_TR	32.93	0.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	OutdoorWaterUseRate	4,122,525.47	0.00
tblWater	OutdoorWaterUseRate	23,561.87	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

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	tons/yr										MT/yr					
2020	0.1005	0.5093	0.4453	7.2000e-004	0.0167	0.0291	0.0458	8.6300e-003	0.0273	0.0359	0.0000	62.3179	62.3179	0.0156	0.0000	62.7090
Maximum	**0.1005**	**0.5093**	**0.4453**	**7.2000e-004**	**0.0167**	**0.0291**	**0.0458**	**8.6300e-003**	**0.0273**	**0.0359**	**0.0000**	**62.3179**	**62.3179**	**0.0156**	**0.0000**	**62.7090**

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	tons/yr										MT/yr					
2020	0.1005	0.5093	0.4453	7.2000e-004	7.7000e-003	0.0291	0.0368	3.8400e-003	0.0273	0.0311	0.0000	62.3178	62.3178	0.0156	0.0000	62.7089

Maximum	**0.1005**	**0.5093**	**0.4453**	**7.2000e-004**	**7.7000e-003**	**0.0291**	**0.0368**	**3.8400e-003**	**0.0273**	**0.0311**	**0.0000**	**62.3178**	**62.3178**	**0.0156**	**0.0000**	**62.7089**

	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**	**53.92**	**0.00**	**19.68**	**55.50**	**0.00**	**13.35**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**6-1-2020**	**8-31-2020**	0.5838	0.5838
		Highest	0.5838	0.5838

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	tons/yr										MT/yr					
Area	2.7600e-003	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3000e-004	1.3000e-004	0.0000	0.0000	1.4000e-004
Energy	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	1.9817	1.9817	9.0000e-005	3.0000e-005	1.9923
Mobile	0.0438	0.1849	0.5687	2.0900e-003	0.1866	1.5600e-003	0.1881	0.0500	1.4500e-003	0.0514	0.0000	192.5966	192.5966	8.1600e-003	0.0000	192.8006
Waste						0.0000	0.0000		0.0000	0.0000	0.0609	0.0000	0.0609	3.6000e-003	0.0000	0.1509
Water						0.0000	0.0000		0.0000	0.0000	0.0136	0.1145	0.1281	5.0000e-005	3.0000e-005	0.1387
Total	**0.0466**	**0.1856**	**0.5694**	**2.0900e-003**	**0.1866**	**1.6100e-003**	**0.1882**	**0.0500**	**1.5000e-003**	**0.0515**	**0.0745**	**194.6930**	**194.7675**	**0.0119**	**6.0000e-005**	**195.0826**

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	tons/yr										MT/yr					
Area	2.7600e-003	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3000e-004	1.3000e-004	0.0000	0.0000	1.4000e-004
Energy	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	1.9817	1.9817	9.0000e-005	3.0000e-005	1.9923
Mobile	0.0438	0.1849	0.5687	2.0900e-003	0.1866	1.5600e-003	0.1881	0.0500	1.4500e-003	0.0514	0.0000	192.5966	192.5966	8.1600e-003	0.0000	192.8006
Waste						0.0000	0.0000		0.0000	0.0000	0.0609	0.0000	0.0609	3.6000e-003	0.0000	0.1509
Water						0.0000	0.0000		0.0000	0.0000	0.0109	0.0916	0.1025	4.0000e-005	2.0000e-005	0.1110
Total	**0.0466**	**0.1856**	**0.5694**	**2.0900e-003**	**0.1866**	**1.6100e-003**	**0.1882**	**0.0500**	**1.5000e-003**	**0.0515**	**0.0718**	**194.6701**	**194.7419**	**0.0119**	**5.0000e-005**	**195.0548**

	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**	**3.65**	**0.01**	**0.01**	**0.08**	**16.67**	**0.01**

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	6/1/2020	6/1/2020	5	1	
2	Grading	Grading	6/2/2020	6/3/2020	5	2	
3	Building Construction	Building Construction	6/4/2020	8/4/2020	5	44	
4	Paving	Paving	8/5/2020	8/10/2020	5	4	
5	Architectural Coating	Architectural Coating	8/11/2020	8/14/2020	5	4	
6	Landscaping	Trenching	8/17/2020	8/28/2020	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1

Acres of Paving: 0.03

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 975; Non-Residential Outdoor: 325; Striped Parking Area: 18,080

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Landscaping	Excavators	1	8.00	158	0.38

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	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Landscaping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2020

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	tons/yr										MT/yr					
Fugitive Dust					9.0300e-003	0.0000	9.0300e-003	4.9700e-003	0.0000	4.9700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0400e-003	0.0212	0.0108	2.0000e-005		1.1000e-003	1.1000e-003		1.0100e-003	1.0100e-003	0.0000	1.6715	1.6715	5.4000e-004	0.0000	1.6851
Total	**2.0400e-003**	**0.0212**	**0.0108**	**2.0000e-005**	**9.0300e-003**	**1.1000e-003**	**0.0101**	**4.9700e-003**	**1.0100e-003**	**5.9800e-003**	**0.0000**	**1.6715**	**1.6715**	**5.4000e-004**	**0.0000**	**1.6851**

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	tons/yr										MT/yr					
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	0.0000	0.0000
Vendor	0.0000	1.1000e-004	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0243	0.0243	0.0000	0.0000	0.0244

Worker	4.0000e-005	2.0000e-005	2.8000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0855	0.0855	0.0000	0.0000	0.0856
Total	**4.0000e-005**	**1.3000e-004**	**3.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1099**	**0.1099**	**0.0000**	**0.0000**	**0.1100**

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	tons/yr										MT/yr					
Fugitive Dust					3.8600e-003	0.0000	3.8600e-003	2.1200e-003	0.0000	2.1200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0400e-003	0.0212	0.0108	2.0000e-005		1.1000e-003	1.1000e-003		1.0100e-003	1.0100e-003	0.0000	1.6715	1.6715	5.4000e-004	0.0000	1.6851
Total	**2.0400e-003**	**0.0212**	**0.0108**	**2.0000e-005**	**3.8600e-003**	**1.1000e-003**	**4.9600e-003**	**2.1200e-003**	**1.0100e-003**	**3.1300e-003**	**0.0000**	**1.6715**	**1.6715**	**5.4000e-004**	**0.0000**	**1.6851**

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	tons/yr										MT/yr					
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	0.0000	0.0000
Vendor	0.0000	1.1000e-004	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0243	0.0243	0.0000	0.0000	0.0244
Worker	4.0000e-005	2.0000e-005	2.8000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0855	0.0855	0.0000	0.0000	0.0856
Total	**4.0000e-005**	**1.3000e-004**	**3.1000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.1099**	**0.1099**	**0.0000**	**0.0000**	**0.1100**

3.3 Grading - 2020

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	tons/yr										MT/yr					
Fugitive Dust					6.5500e-003	0.0000	6.5500e-003	3.3700e-003	0.0000	3.3700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4300e-003	0.0264	0.0161	3.0000e-005		1.2700e-003	1.2700e-003		1.1700e-003	1.1700e-003	0.0000	2.6059	2.6059	8.4000e-004	0.0000	2.6269
Total	**2.4300e-003**	**0.0264**	**0.0161**	**3.0000e-005**	**6.5500e-003**	**1.2700e-003**	**7.8200e-003**	**3.3700e-003**	**1.1700e-003**	**4.5400e-003**	**0.0000**	**2.6059**	**2.6059**	**8.4000e-004**	**0.0000**	**2.6269**

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	tons/yr										MT/yr					
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	0.0000	0.0000
Vendor	1.0000e-005	2.1000e-004	6.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0487	0.0487	0.0000	0.0000	0.0488
Worker	6.0000e-005	4.0000e-005	4.6000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1425	0.1425	0.0000	0.0000	0.1426
Total	**7.0000e-005**	**2.5000e-004**	**5.2000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1912**	**0.1912**	**0.0000**	**0.0000**	**0.1914**

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	tons/yr										MT/yr					

Fugitive Dust					2.8000e-003	0.0000	2.8000e-003	1.4400e-003	0.0000	1.4400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4300e-003	0.0264	0.0161	3.0000e-005		1.2700e-003	1.2700e-003		1.1700e-003	1.1700e-003	0.0000	2.6059	2.6059	8.4000e-004	0.0000	2.6269
Total	**2.4300e-003**	**0.0264**	**0.0161**	**3.0000e-005**	**2.8000e-003**	**1.2700e-003**	**4.0700e-003**	**1.4400e-003**	**1.1700e-003**	**2.6100e-003**	**0.0000**	**2.6059**	**2.6059**	**8.4000e-004**	**0.0000**	**2.6269**

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	tons/yr										MT/yr					
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	0.0000	0.0000
Vendor	1.0000e-005	2.1000e-004	6.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0487	0.0487	0.0000	0.0000	0.0488
Worker	6.0000e-005	4.0000e-005	4.6000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1425	0.1425	0.0000	0.0000	0.1426
Total	**7.0000e-005**	**2.5000e-004**	**5.2000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1912**	**0.1912**	**0.0000**	**0.0000**	**0.1914**

3.4 Building Construction - 2020

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	tons/yr										MT/yr					
Off-Road	0.0466	0.4221	0.3707	5.9000e-004		0.0246	0.0246		0.0231	0.0231	0.0000	50.9542	50.9542	0.0124	0.0000	51.2650
Total	**0.0466**	**0.4221**	**0.3707**	**5.9000e-004**		**0.0246**	**0.0246**		**0.0231**	**0.0231**	**0.0000**	**50.9542**	**50.9542**	**0.0124**	**0.0000**	**51.2650**

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	tons/yr										MT/yr					
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	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	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.8000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	7.0000e-005	0.0000	0.2090	0.2090	0.0000	0.0000	0.2092
Total	**9.0000e-005**	**6.0000e-005**	**6.8000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2090**	**0.2090**	**0.0000**	**0.0000**	**0.2092**

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	tons/yr										MT/yr					
Off-Road	0.0466	0.4221	0.3707	5.9000e-004		0.0246	0.0246		0.0231	0.0231	0.0000	50.9541	50.9541	0.0124	0.0000	51.2649
Total	**0.0466**	**0.4221**	**0.3707**	**5.9000e-004**		**0.0246**	**0.0246**		**0.0231**	**0.0231**	**0.0000**	**50.9541**	**50.9541**	**0.0124**	**0.0000**	**51.2649**

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	tons/yr										MT/yr					
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	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	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.8000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2090	0.2090	0.0000	0.0000	0.2092
Total	**9.0000e-005**	**6.0000e-005**	**6.8000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2090**	**0.2090**	**0.0000**	**0.0000**	**0.2092**

3.5 Paving - 2020

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	tons/yr										MT/yr					
Off-Road	2.3700e-003	0.0236	0.0246	4.0000e-005		1.3000e-003	1.3000e-003		1.2000e-003	1.2000e-003	0.0000	3.2744	3.2744	1.0300e-003	0.0000	3.3001
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.3700e-003**	**0.0236**	**0.0246**	**4.0000e-005**		**1.3000e-003**	**1.3000e-003**		**1.2000e-003**	**1.2000e-003**	**0.0000**	**3.2744**	**3.2744**	**1.0300e-003**	**0.0000**	**3.3001**

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	tons/yr										MT/yr					
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	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	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.2400e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3801	0.3801	1.0000e-005	0.0000	0.3803

Total	**1.6000e-004**	**1.1000e-004**	**1.2400e-003**	**0.0000**	**4.4000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3801**	**0.3801**	**1.0000e-005**	**0.0000**	**0.3803**

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	tons/yr										MT/yr					
Off-Road	2.3700e-003	0.0236	0.0246	4.0000e-005		1.3000e-003	1.3000e-003		1.2000e-003	1.2000e-003	0.0000	3.2744	3.2744	1.0300e-003	0.0000	3.3001
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.3700e-003**	**0.0236**	**0.0246**	**4.0000e-005**		**1.3000e-003**	**1.3000e-003**		**1.2000e-003**	**1.2000e-003**	**0.0000**	**3.2744**	**3.2744**	**1.0300e-003**	**0.0000**	**3.3001**

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	tons/yr										MT/yr					
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	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	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.2400e-003	0.0000	4.0000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3801	0.3801	1.0000e-005	0.0000	0.3803
Total	**1.6000e-004**	**1.1000e-004**	**1.2400e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3801**	**0.3801**	**1.0000e-005**	**0.0000**	**0.3803**

3.6 Architectural Coating - 2020

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	tons/yr										MT/yr					
Archit. Coating	0.0449					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	3.3700e-003	3.6600e-003	1.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	0.5107	0.5107	4.0000e-005	0.0000	0.5116
Total	**0.0454**	**3.3700e-003**	**3.6600e-003**	**1.0000e-005**		**2.2000e-004**	**2.2000e-004**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.5107**	**0.5107**	**4.0000e-005**	**0.0000**	**0.5116**

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	tons/yr										MT/yr					
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	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	0.0000	0.0000
Worker	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	0.0000	0.0000
Total	**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**	**0.0000**	**0.0000**

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	tons/yr										MT/yr					

Archit. Coating	0.0449					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	3.3700e-003	3.6600e-003	1.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	0.5107	0.5107	4.0000e-005	0.0000	0.5116
Total	**0.0454**	**3.3700e-003**	**3.6600e-003**	**1.0000e-005**		**2.2000e-004**	**2.2000e-004**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.5107**	**0.5107**	**4.0000e-005**	**0.0000**	**0.5116**

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	tons/yr										MT/yr					
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	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	0.0000	0.0000
Worker	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	0.0000	0.0000
Total	**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**	**0.0000**	**0.0000**

3.7 Landscaping - 2020

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	tons/yr										MT/yr					
Off-Road	1.2200e-003	0.0121	0.0163	3.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.2685	2.2685	7.3000e-004	0.0000	2.2868
Total	**1.2200e-003**	**0.0121**	**0.0163**	**3.0000e-005**		**5.8000e-004**	**5.8000e-004**		**5.4000e-004**	**5.4000e-004**	**0.0000**	**2.2685**	**2.2685**	**7.3000e-004**	**0.0000**	**2.2868**

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	tons/yr										MT/yr					
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	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	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.6000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1425	0.1425	0.0000	0.0000	0.1426
Total	**6.0000e-005**	**4.0000e-005**	**4.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1425**	**0.1425**	**0.0000**	**0.0000**	**0.1426**

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	tons/yr										MT/yr					
Off-Road	1.2200e-003	0.0121	0.0163	3.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	2.2685	2.2685	7.3000e-004	0.0000	2.2868
Total	**1.2200e-003**	**0.0121**	**0.0163**	**3.0000e-005**		**5.8000e-004**	**5.8000e-004**		**5.4000e-004**	**5.4000e-004**	**0.0000**	**2.2685**	**2.2685**	**7.3000e-004**	**0.0000**	**2.2868**

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	tons/yr										MT/yr					
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	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	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.6000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1425	0.1425	0.0000	0.0000	0.1426
Total	**6.0000e-005**	**4.0000e-005**	**4.6000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1425**	**0.1425**	**0.0000**	**0.0000**	**0.1426**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	tons/yr										MT/yr					
Mitigated	0.0438	0.1849	0.5687	2.0900e-003	0.1866	1.5600e-003	0.1881	0.0500	1.4500e-003	0.0514	0.0000	192.5966	192.5966	8.1600e-003	0.0000	192.8006
Unmitigated	0.0438	0.1849	0.5687	2.0900e-003	0.1866	1.5600e-003	0.1881	0.0500	1.4500e-003	0.0514	0.0000	192.5966	192.5966	8.1600e-003	0.0000	192.8006

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	74.11	412.57	413.57	491,940	491,940
Health Club	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	74.11	412.57	413.57	491,940	491,940

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
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.000590	0.000966
Health Club	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.000590	0.000966
Other Non-Asphalt Surfaces	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.000590	0.000966

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1.2567	1.2567	7.0000e-005	1.0000e-005	1.2630
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1.2567	1.2567	7.0000e-005	1.0000e-005	1.2630
NaturalGas Mitigated	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7250	0.7250	1.0000e-005	1.0000e-005	0.7293
NaturalGas Unmitigated	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7250	0.7250	1.0000e-005	1.0000e-005	0.7293

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	tons/yr										MT/yr					
City Park	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	0.0000
Health Club	13585	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7250	0.7250	1.0000e-005	1.0000e-005	0.7293
Other Non-Asphalt Surfaces	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	0.0000
Total		**7.0000e-005**	**6.7000e-004**	**5.6000e-004**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.7250**	**0.7250**	**1.0000e-005**	**1.0000e-005**	**0.7293**

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	tons/yr										MT/yr					
City Park	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	0.0000
Health Club	13585	7.0000e-005	6.7000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7250	0.7250	1.0000e-005	1.0000e-005	0.7293
Other Non-Asphalt Surfaces	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	0.0000
Total		**7.0000e-005**	**6.7000e-004**	**5.6000e-004**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.7250**	**0.7250**	**1.0000e-005**	**1.0000e-005**	**0.7293**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Health Club	5492.5	1.2567	7.0000e-005	1.0000e-005	1.2630
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**1.2567**	**7.0000e-005**	**1.0000e-005**	**1.2630**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Health Club	5492.5	1.2567	7.0000e-005	1.0000e-005	1.2630
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**1.2567**	**7.0000e-005**	**1.0000e-005**	**1.2630**

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	tons/yr										MT/yr					
Mitigated	2.7600e-003	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3000e-004	1.3000e-004	0.0000	0.0000	1.4000e-004
Unmitigated	2.7600e-003	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3000e-004	1.3000e-004	0.0000	0.0000	1.4000e-004

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	tons/yr										MT/yr					
Architectural Coating	3.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.4300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3000e-004	1.3000e-004	0.0000	0.0000	1.4000e-004
Total	**2.7600e-003**	**0.0000**	**7.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.0000**	**1.4000e-004**

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	tons/yr										MT/yr					
Architectural Coating	3.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.4300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Landscaping	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3000e-004	1.3000e-004	0.0000	0.0000	1.4000e-004
Total	**2.7600e-003**	**0.0000**	**7.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.0000**	**1.4000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.1025	4.0000e-005	2.0000e-005	0.1110
Unmitigated	0.1281	5.0000e-005	3.0000e-005	0.1387

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0.038443 / 0	0.1281	5.0000e-005	3.0000e-005	0.1387
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.1281**	**5.0000e-005**	**3.0000e-005**	**0.1387**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Health Club	0.0307544 / 0	0.1025	4.0000e-005	2.0000e-005	0.1110
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.1025**	**4.0000e-005**	**2.0000e-005**	**0.1110**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Mitigated	0.0609	3.6000e-003	0.0000	0.1509
Unmitigated	0.0609	3.6000e-003	0.0000	0.1509

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.3	0.0609	3.6000e-003	0.0000	0.1509
Health Club	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0609**	**3.6000e-003**	**0.0000**	**0.1509**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.3	0.0609	3.6000e-003	0.0000	0.1509
Health Club	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0609**	**3.6000e-003**	**0.0000**	**0.1509**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Heideman Park Development

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.30	1000sqft	0.03	1,300.00	0
City Park	3.46	Acre	3.46	0.00	0
Health Club	0.65	1000sqft	0.01	650.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	504.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Assumptions

Land Use - No building, just grading.

Construction Phase - See Assumptions File

Off-road Equipment -

Grading -

Architectural Coating - See Assumptions File.

Vehicle Trips - See Assumptions File.

Water And Wastewater - See Assumptions

Construction Off-road Equipment Mitigation - SCAQMD Rules 403 and 1186

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	78.00	18,080.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	5.00	1.00
tblConstructionPhase	NumDays	8.00	2.00
tblConstructionPhase	NumDays	230.00	44.00
tblConstructionPhase	NumDays	18.00	4.00
tblConstructionPhase	NumDays	18.00	4.00
tblLandUse	LandUseSquareFeet	150,717.60	0.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	504.44
tblSolidWaste	SolidWasteGenerationRate	3.71	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TTP	64.10	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TTP	16.90	0.00
tblVehicleTrips	DV_TP	39.00	0.00
tblVehicleTrips	PB_TP	9.00	0.00
tblVehicleTrips	PR_TP	52.00	0.00
tblVehicleTrips	ST_TR	22.75	119.24
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	SU_TR	16.74	119.53
tblVehicleTrips	SU_TR	26.73	0.00

tblVehicleTrips	WD_TR	1.89	21.42
tblVehicleTrips	WD_TR	32.93	0.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	OutdoorWaterUseRate	4,122,525.47	0.00
tblWater	OutdoorWaterUseRate	23,561.87	0.00
tblWater	SepticTankPercent	10.33	0.00

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					
2020	22.6988	42.6693	22.1578	0.0405	18.2802	2.1998	20.4801	9.9877	2.0239	12.0116	0.0000	3,935.5352	3,935.5352	1.2007	0.0000	3,965.5526
Maximum	**22.6988**	**42.6693**	**22.1578**	**0.0405**	**18.2802**	**2.1998**	**20.4801**	**9.9877**	**2.0239**	**12.0116**	**0.0000**	**3,935.5352**	**3,935.5352**	**1.2007**	**0.0000**	**3,965.5526**

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					
2020	22.6988	42.6693	22.1578	0.0405	7.9208	2.1998	10.1206	4.2983	2.0239	6.3222	0.0000	3,935.5352	3,935.5352	1.2007	0.0000	3,965.5526

Maximum	**22.6988**	**42.6693**	**22.1578**	**0.0405**	**7.9208**	**2.1998**	**10.1206**	**4.2983**	**2.0239**	**6.3222**	**0.0000**	**3,935.5352**	**3,935.5352**	**1.2007**	**0.0000**	**3,965.5526**

	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**	**56.67**	**0.00**	**50.58**	**56.96**	**0.00**	**47.37**	**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	0.0151	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Energy	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048
Mobile	0.6101	2.3526	7.7710	0.0288	2.5243	0.0207	2.5450	0.6750	0.0193	0.6943		2,917.3532	2,917.3532	0.1202		2,920.3568
Total	**0.6256**	**2.3563**	**7.7746**	**0.0288**	**2.5243**	**0.0210**	**2.5453**	**0.6750**	**0.0196**	**0.6946**		**2,921.7331**	**2,921.7331**	**0.1202**	**8.0000e-005**	**2,924.7629**

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	0.0151	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Energy	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048

Mobile	0.6101	2.3526	7.7710	0.0288	2.5243	0.0207	2.5450	0.6750	0.0193	0.6943		2,917.3532	2,917.3532	0.1202		2,920.3568
Total	**0.6256**	**2.3563**	**7.7746**	**0.0288**	**2.5243**	**0.0210**	**2.5453**	**0.6750**	**0.0196**	**0.6946**		**2,921.7331**	**2,921.7331**	**0.1202**	**8.0000e-005**	**2,924.7629**

	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**

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	6/1/2020	6/1/2020	5	1	
2	Grading	Grading	6/2/2020	6/3/2020	5	2	
3	Building Construction	Building Construction	6/4/2020	8/4/2020	5	44	
4	Paving	Paving	8/5/2020	8/10/2020	5	4	
5	Architectural Coating	Architectural Coating	8/11/2020	8/14/2020	5	4	
6	Landscaping	Trenching	8/17/2020	8/28/2020	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1

Acres of Paving: 0.03

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 975; Non-Residential Outdoor: 325; Striped Parking Area: 18,080

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40

Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Landscaping	Excavators	1	8.00	158	0.38

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	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2020

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	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	6.3900e-003	0.2084	0.0550	5.0000e-004	0.0128	1.0900e-003	0.0139	3.6800e-003	1.0400e-003	4.7200e-003		54.2258	54.2258	4.3900e-003		54.3354
Worker	0.0692	0.0436	0.5892	1.9700e-003	0.2012	1.3300e-003	0.2025	0.0534	1.2300e-003	0.0546		196.2079	196.2079	4.4700e-003		196.3197
Total	**0.0756**	**0.2519**	**0.6442**	**2.4700e-003**	**0.2140**	**2.4200e-003**	**0.2164**	**0.0570**	**2.2700e-003**	**0.0593**		**250.4336**	**250.4336**	**8.8600e-003**		**250.6551**

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					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.7233**	**2.1974**	**9.9207**	**4.2454**	**2.0216**	**6.2670**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	6.3900e-003	0.2084	0.0550	5.0000e-004	0.0120	1.0900e-003	0.0130	3.4800e-003	1.0400e-003	4.5200e-003		54.2258	54.2258	4.3900e-003		54.3354
Worker	0.0692	0.0436	0.5892	1.9700e-003	0.1855	1.3300e-003	0.1868	0.0495	1.2300e-003	0.0507		196.2079	196.2079	4.4700e-003		196.3197
Total	**0.0756**	**0.2519**	**0.6442**	**2.4700e-003**	**0.1974**	**2.4200e-003**	**0.1998**	**0.0530**	**2.2700e-003**	**0.0552**		**250.4336**	**250.4336**	**8.8600e-003**		**250.6551**

3.3 Grading - 2020

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					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106

Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.5523**	**1.2734**	**7.8258**	**3.3675**	**1.1716**	**4.5390**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

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	6.3900e-003	0.2084	0.0550	5.0000e-004	0.0128	1.0900e-003	0.0139	3.6800e-003	1.0400e-003	4.7200e-003		54.2258	54.2258	4.3900e-003		54.3354
Worker	0.0576	0.0363	0.4910	1.6400e-003	0.1677	1.1100e-003	0.1688	0.0445	1.0200e-003	0.0455		163.5065	163.5065	3.7300e-003		163.5997
Total	**0.0640**	**0.2447**	**0.5460**	**2.1400e-003**	**0.1804**	**2.2000e-003**	**0.1826**	**0.0482**	**2.0600e-003**	**0.0502**		**217.7323**	**217.7323**	**8.1200e-003**		**217.9352**

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					2.8011	0.0000	2.8011	1.4396	0.0000	1.4396			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**2.8011**	**1.2734**	**4.0746**	**1.4396**	**1.1716**	**2.6112**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

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	6.3900e-003	0.2084	0.0550	5.0000e-004	0.0120	1.0900e-003	0.0130	3.4800e-003	1.0400e-003	4.5200e-003		54.2258	54.2258	4.3900e-003		54.3354
Worker	0.0576	0.0363	0.4910	1.6400e-003	0.1546	1.1100e-003	0.1557	0.0413	1.0200e-003	0.0423		163.5065	163.5065	3.7300e-003		163.5997
Total	**0.0640**	**0.2447**	**0.5460**	**2.1400e-003**	**0.1665**	**2.2000e-003**	**0.1687**	**0.0447**	**2.0600e-003**	**0.0468**		**217.7323**	**217.7323**	**8.1200e-003**		**217.9352**

3.4 Building Construction - 2020

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

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	3.8400e-003	2.4200e-003	0.0327	1.1000e-004	0.0112	7.0000e-005	0.0113	2.9600e-003	7.0000e-005	3.0300e-003		10.9004	10.9004	2.5000e-004		10.9067
Total	**3.8400e-003**	**2.4200e-003**	**0.0327**	**1.1000e-004**	**0.0112**	**7.0000e-005**	**0.0113**	**2.9600e-003**	**7.0000e-005**	**3.0300e-003**		**10.9004**	**10.9004**	**2.5000e-004**		**10.9067**

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

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	3.8400e-003	2.4200e-003	0.0327	1.1000e-004	0.0103	7.0000e-005	0.0104	2.7500e-003	7.0000e-005	2.8200e-003		10.9004	10.9004	2.5000e-004		10.9067
Total	**3.8400e-003**	**2.4200e-003**	**0.0327**	**1.1000e-004**	**0.0103**	**7.0000e-005**	**0.0104**	**2.7500e-003**	**7.0000e-005**	**2.8200e-003**		**10.9004**	**10.9004**	**2.5000e-004**		**10.9067**

3.5 Paving - 2020

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	1.1837	11.8015	12.2823	0.0189		0.6509	0.6509		0.6005	0.6005		1,804.7070	1,804.7070	0.5670		1,818.8830
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1837**	**11.8015**	**12.2823**	**0.0189**		**0.6509**	**0.6509**		**0.6005**	**0.6005**		**1,804.7070**	**1,804.7070**	**0.5670**		**1,818.8830**

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	0.0769	0.0484	0.6547	2.1900e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		218.0087	218.0087	4.9700e-003		218.1330
Total	**0.0769**	**0.0484**	**0.6547**	**2.1900e-003**	**0.2236**	**1.4800e-003**	**0.2250**	**0.0593**	**1.3600e-003**	**0.0607**		**218.0087**	**218.0087**	**4.9700e-003**		**218.1330**

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	1.1837	11.8015	12.2823	0.0189		0.6509	0.6509		0.6005	0.6005	0.0000	1,804.7070	1,804.7070	0.5670		1,818.8830
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1837**	**11.8015**	**12.2823**	**0.0189**		**0.6509**	**0.6509**		**0.6005**	**0.6005**	**0.0000**	**1,804.7070**	**1,804.7070**	**0.5670**		**1,818.8830**

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	0.0769	0.0484	0.6547	2.1900e-003	0.2061	1.4800e-003	0.2075	0.0550	1.3600e-003	0.0564		218.0087	218.0087	4.9700e-003		218.1330
Total	**0.0769**	**0.0484**	**0.6547**	**2.1900e-003**	**0.2061**	**1.4800e-003**	**0.2075**	**0.0550**	**1.3600e-003**	**0.0564**		**218.0087**	**218.0087**	**4.9700e-003**		**218.1330**

3.6 Architectural Coating - 2020

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	22.4566					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**22.6988**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.0000	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
Total	**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**

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	22.4566					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**22.6988**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.0000	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
Total	**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**

3.7 Landscaping - 2020

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	0.2450	2.4126	3.2678	5.1700e-003		0.1169	0.1169		0.1075	0.1075		500.1184	500.1184	0.1618		504.1621
Total	**0.2450**	**2.4126**	**3.2678**	**5.1700e-003**		**0.1169**	**0.1169**		**0.1075**	**0.1075**		**500.1184**	**500.1184**	**0.1618**		**504.1621**

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	0.0115	7.2600e-003	0.0982	3.3000e-004	0.0335	2.2000e-004	0.0338	8.8900e-003	2.0000e-004	9.1000e-003		32.7013	32.7013	7.5000e-004		32.7199
Total	**0.0115**	**7.2600e-003**	**0.0982**	**3.3000e-004**	**0.0335**	**2.2000e-004**	**0.0338**	**8.8900e-003**	**2.0000e-004**	**9.1000e-003**		**32.7013**	**32.7013**	**7.5000e-004**		**32.7199**

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	0.2450	2.4126	3.2678	5.1700e-003		0.1169	0.1169		0.1075	0.1075	0.0000	500.1184	500.1184	0.1618		504.1621
Total	**0.2450**	**2.4126**	**3.2678**	**5.1700e-003**		**0.1169**	**0.1169**		**0.1075**	**0.1075**	**0.0000**	**500.1184**	**500.1184**	**0.1618**		**504.1621**

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	0.0115	7.2600e-003	0.0982	3.3000e-004	0.0309	2.2000e-004	0.0311	8.2500e-003	2.0000e-004	8.4500e-003		32.7013	32.7013	7.5000e-004		32.7199
Total	**0.0115**	**7.2600e-003**	**0.0982**	**3.3000e-004**	**0.0309**	**2.2000e-004**	**0.0311**	**8.2500e-003**	**2.0000e-004**	**8.4500e-003**		**32.7013**	**32.7013**	**7.5000e-004**		**32.7199**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	0.6101	2.3526	7.7710	0.0288	2.5243	0.0207	2.5450	0.6750	0.0193	0.6943		2,917.3532	2,917.3532	0.1202		2,920.3568
Unmitigated	0.6101	2.3526	7.7710	0.0288	2.5243	0.0207	2.5450	0.6750	0.0193	0.6943		2,917.3532	2,917.3532	0.1202		2,920.3568

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	74.11	412.57	413.57	491,940	491,940
Health Club	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	74.11	412.57	413.57	491,940	491,940

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
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.000590	0.000966
Health Club	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.000590	0.000966
Other Non-Asphalt Surfaces	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.000590	0.000966

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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					
NaturalGas Mitigated	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048
NaturalGas Unmitigated	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048

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					
City Park	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

Health Club	37.2192	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048
Other Non-Asphalt Surfaces	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
Total		**4.0000e-004**	**3.6500e-003**	**3.0700e-003**	**2.0000e-005**		**2.8000e-004**	**2.8000e-004**		**2.8000e-004**	**2.8000e-004**		**4.3787**	**4.3787**	**8.0000e-005**	**8.0000e-005**	**4.4048**

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					
City Park	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
Health Club	0.0372192	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048
Other Non-Asphalt Surfaces	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
Total		**4.0000e-004**	**3.6500e-003**	**3.0700e-003**	**2.0000e-005**		**2.8000e-004**	**2.8000e-004**		**2.8000e-004**	**2.8000e-004**		**4.3787**	**4.3787**	**8.0000e-005**	**8.0000e-005**	**4.4048**

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	0.0151	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003

Unmitigated	0.0151	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003

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	1.7500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0133					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Total	**0.0151**	**1.0000e-005**	**5.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1800e-003**	**1.1800e-003**	**0.0000**		**1.2600e-003**

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	1.7500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0133					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Total	**0.0151**	**1.0000e-005**	**5.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1800e-003**	**1.1800e-003**	**0.0000**		**1.2600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

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 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Heideman Park Development - Orange County, Winter

Heideman Park Development

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.30	1000sqft	0.03	1,300.00	0
City Park	3.46	Acre	3.46	0.00	0
Health Club	0.65	1000sqft	0.01	650.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	504.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Assumptions

Land Use - No building, just grading.

Construction Phase - See Assumptions File

Off-road Equipment -

Grading -

Architectural Coating - See Assumptions File.

Vehicle Trips - See Assumptions File.

Water And Wastewater - See Assumptions

Construction Off-road Equipment Mitigation - SCAQMD Rules 403 and 1186

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	78.00	18,080.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	5.00	1.00
tblConstructionPhase	NumDays	8.00	2.00
tblConstructionPhase	NumDays	230.00	44.00
tblConstructionPhase	NumDays	18.00	4.00
tblConstructionPhase	NumDays	18.00	4.00
tblLandUse	LandUseSquareFeet	150,717.60	0.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	504.44
tblSolidWaste	SolidWasteGenerationRate	3.71	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TTP	64.10	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TTP	16.90	0.00
tblVehicleTrips	DV_TP	39.00	0.00
tblVehicleTrips	PB_TP	9.00	0.00
tblVehicleTrips	PR_TP	52.00	0.00
tblVehicleTrips	ST_TR	22.75	119.24
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	SU_TR	16.74	119.53
tblVehicleTrips	SU_TR	26.73	0.00

tblVehicleTrips	WD_TR	1.89	21.42
tblVehicleTrips	WD_TR	32.93	0.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	OutdoorWaterUseRate	4,122,525.47	0.00
tblWater	OutdoorWaterUseRate	23,561.87	0.00
tblWater	SepticTankPercent	10.33	0.00

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					
2020	22.6988	42.6735	22.1185	0.0404	18.2802	2.1999	20.4801	9.9877	2.0239	12.0116	0.0000	3,923.6866	3,923.6866	1.2007	0.0000	3,953.7036
Maximum	**22.6988**	**42.6735**	**22.1185**	**0.0404**	**18.2802**	**2.1999**	**20.4801**	**9.9877**	**2.0239**	**12.0116**	**0.0000**	**3,923.6866**	**3,923.6866**	**1.2007**	**0.0000**	**3,953.7036**

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					
2020	22.6988	42.6735	22.1185	0.0404	7.9208	2.1999	10.1206	4.2983	2.0239	6.3222	0.0000	3,923.6866	3,923.6866	1.2007	0.0000	3,953.7036

Maximum	**22.6988**	**42.6735**	**22.1185**	**0.0404**	**7.9208**	**2.1999**	**10.1206**	**4.2983**	**2.0239**	**6.3222**	**0.0000**	**3,923.6866**	**3,923.6866**	**1.2007**	**0.0000**	**3,953.7036**

	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**	**56.67**	**0.00**	**50.58**	**56.96**	**0.00**	**47.37**	**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	0.0151	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Energy	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048
Mobile	0.6003	2.4170	7.4680	0.0275	2.5243	0.0208	2.5452	0.6750	0.0194	0.6944		2,787.3155	2,787.3155	0.1200		2,790.3145
Total	**0.6158**	**2.4206**	**7.4716**	**0.0275**	**2.5243**	**0.0211**	**2.5454**	**0.6750**	**0.0197**	**0.6947**		**2,791.6954**	**2,791.6954**	**0.1200**	**8.0000e-005**	**2,794.7206**

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	0.0151	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Energy	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048

Mobile	0.6003	2.4170	7.4680	0.0275	2.5243	0.0208	2.5452	0.6750	0.0194	0.6944		2,787.3155	2,787.3155	0.1200		2,790.3145
Total	**0.6158**	**2.4206**	**7.4716**	**0.0275**	**2.5243**	**0.0211**	**2.5454**	**0.6750**	**0.0197**	**0.6947**		**2,791.6954**	**2,791.6954**	**0.1200**	**8.0000e-005**	**2,794.7206**

	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**

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	6/1/2020	6/1/2020	5	1	
2	Grading	Grading	6/2/2020	6/3/2020	5	2	
3	Building Construction	Building Construction	6/4/2020	8/4/2020	5	44	
4	Paving	Paving	8/5/2020	8/10/2020	5	4	
5	Architectural Coating	Architectural Coating	8/11/2020	8/14/2020	5	4	
6	Landscaping	Trenching	8/17/2020	8/28/2020	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1

Acres of Paving: 0.03

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 975; Non-Residential Outdoor: 325; Striped Parking Area: 18,080

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40

Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Landscaping	Excavators	1	8.00	158	0.38

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	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2020

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	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	6.6700e-003	0.2083	0.0603	4.9000e-004	0.0128	1.1100e-003	0.0139	3.6800e-003	1.0600e-003	4.7400e-003		52.8932	52.8932	4.6100e-003		53.0084
Worker	0.0782	0.0479	0.5446	1.8600e-003	0.2012	1.3300e-003	0.2025	0.0534	1.2300e-003	0.0546		185.6918	185.6918	4.2400e-003		185.7977
Total	**0.0848**	**0.2562**	**0.6049**	**2.3500e-003**	**0.2140**	**2.4400e-003**	**0.2164**	**0.0570**	**2.2900e-003**	**0.0593**		**238.5850**	**238.5850**	**8.8500e-003**		**238.8061**

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					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.7233**	**2.1974**	**9.9207**	**4.2454**	**2.0216**	**6.2670**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	6.6700e-003	0.2083	0.0603	4.9000e-004	0.0120	1.1100e-003	0.0131	3.4800e-003	1.0600e-003	4.5300e-003		52.8932	52.8932	4.6100e-003		53.0084
Worker	0.0782	0.0479	0.5446	1.8600e-003	0.1855	1.3300e-003	0.1868	0.0495	1.2300e-003	0.0507		185.6918	185.6918	4.2400e-003		185.7977
Total	**0.0848**	**0.2562**	**0.6049**	**2.3500e-003**	**0.1974**	**2.4400e-003**	**0.1999**	**0.0530**	**2.2900e-003**	**0.0553**		**238.5850**	**238.5850**	**8.8500e-003**		**238.8061**

3.3 Grading - 2020

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					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106

Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.5523**	**1.2734**	**7.8258**	**3.3675**	**1.1716**	**4.5390**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

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	6.6700e-003	0.2083	0.0603	4.9000e-004	0.0128	1.1100e-003	0.0139	3.6800e-003	1.0600e-003	4.7400e-003		52.8932	52.8932	4.6100e-003		53.0084
Worker	0.0651	0.0399	0.4538	1.5500e-003	0.1677	1.1100e-003	0.1688	0.0445	1.0200e-003	0.0455		154.7432	154.7432	3.5300e-003		154.8314
Total	**0.0718**	**0.2482**	**0.5141**	**2.0400e-003**	**0.1804**	**2.2200e-003**	**0.1827**	**0.0482**	**2.0800e-003**	**0.0502**		**207.6364**	**207.6364**	**8.1400e-003**		**207.8398**

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					2.8011	0.0000	2.8011	1.4396	0.0000	1.4396			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**2.8011**	**1.2734**	**4.0746**	**1.4396**	**1.1716**	**2.6112**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

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	6.6700e-003	0.2083	0.0603	4.9000e-004	0.0120	1.1100e-003	0.0131	3.4800e-003	1.0600e-003	4.5300e-003		52.8932	52.8932	4.6100e-003		53.0084
Worker	0.0651	0.0399	0.4538	1.5500e-003	0.1546	1.1100e-003	0.1557	0.0413	1.0200e-003	0.0423		154.7432	154.7432	3.5300e-003		154.8314
Total	**0.0718**	**0.2482**	**0.5141**	**2.0400e-003**	**0.1665**	**2.2200e-003**	**0.1687**	**0.0447**	**2.0800e-003**	**0.0468**		**207.6364**	**207.6364**	**8.1400e-003**		**207.8398**

3.4 Building Construction - 2020

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

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	4.3400e-003	2.6600e-003	0.0303	1.0000e-004	0.0112	7.0000e-005	0.0113	2.9600e-003	7.0000e-005	3.0300e-003		10.3162	10.3162	2.4000e-004		10.3221
Total	**4.3400e-003**	**2.6600e-003**	**0.0303**	**1.0000e-004**	**0.0112**	**7.0000e-005**	**0.0113**	**2.9600e-003**	**7.0000e-005**	**3.0300e-003**		**10.3162**	**10.3162**	**2.4000e-004**		**10.3221**

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

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	4.3400e-003	2.6600e-003	0.0303	1.0000e-004	0.0103	7.0000e-005	0.0104	2.7500e-003	7.0000e-005	2.8200e-003		10.3162	10.3162	2.4000e-004		10.3221
Total	**4.3400e-003**	**2.6600e-003**	**0.0303**	**1.0000e-004**	**0.0103**	**7.0000e-005**	**0.0104**	**2.7500e-003**	**7.0000e-005**	**2.8200e-003**		**10.3162**	**10.3162**	**2.4000e-004**		**10.3221**

3.5 Paving - 2020

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	1.1837	11.8015	12.2823	0.0189		0.6509	0.6509		0.6005	0.6005		1,804.7070	1,804.7070	0.5670		1,818.8830
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1837**	**11.8015**	**12.2823**	**0.0189**		**0.6509**	**0.6509**		**0.6005**	**0.6005**		**1,804.7070**	**1,804.7070**	**0.5670**		**1,818.8830**

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	0.0869	0.0532	0.6051	2.0700e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		206.3242	206.3242	4.7100e-003		206.4419
Total	**0.0869**	**0.0532**	**0.6051**	**2.0700e-003**	**0.2236**	**1.4800e-003**	**0.2250**	**0.0593**	**1.3600e-003**	**0.0607**		**206.3242**	**206.3242**	**4.7100e-003**		**206.4419**

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	1.1837	11.8015	12.2823	0.0189		0.6509	0.6509		0.6005	0.6005	0.0000	1,804.7070	1,804.7070	0.5670		1,818.8830
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1837**	**11.8015**	**12.2823**	**0.0189**		**0.6509**	**0.6509**		**0.6005**	**0.6005**	**0.0000**	**1,804.7070**	**1,804.7070**	**0.5670**		**1,818.8830**

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	0.0869	0.0532	0.6051	2.0700e-003	0.2061	1.4800e-003	0.2075	0.0550	1.3600e-003	0.0564		206.3242	206.3242	4.7100e-003		206.4419
Total	**0.0869**	**0.0532**	**0.6051**	**2.0700e-003**	**0.2061**	**1.4800e-003**	**0.2075**	**0.0550**	**1.3600e-003**	**0.0564**		**206.3242**	**206.3242**	**4.7100e-003**		**206.4419**

3.6 Architectural Coating - 2020

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	22.4566					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**22.6988**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.0000	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
Total	**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**

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	22.4566					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**22.6988**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.0000	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
Total	**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**

3.7 Landscaping - 2020

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	0.2450	2.4126	3.2678	5.1700e-003		0.1169	0.1169		0.1075	0.1075		500.1184	500.1184	0.1618		504.1621
Total	**0.2450**	**2.4126**	**3.2678**	**5.1700e-003**		**0.1169**	**0.1169**		**0.1075**	**0.1075**		**500.1184**	**500.1184**	**0.1618**		**504.1621**

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	0.0130	7.9800e-003	0.0908	3.1000e-004	0.0335	2.2000e-004	0.0338	8.8900e-003	2.0000e-004	9.1000e-003		30.9486	30.9486	7.1000e-004		30.9663
Total	**0.0130**	**7.9800e-003**	**0.0908**	**3.1000e-004**	**0.0335**	**2.2000e-004**	**0.0338**	**8.8900e-003**	**2.0000e-004**	**9.1000e-003**		**30.9486**	**30.9486**	**7.1000e-004**		**30.9663**

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	0.2450	2.4126	3.2678	5.1700e-003		0.1169	0.1169		0.1075	0.1075	0.0000	500.1184	500.1184	0.1618		504.1621
Total	**0.2450**	**2.4126**	**3.2678**	**5.1700e-003**		**0.1169**	**0.1169**		**0.1075**	**0.1075**	**0.0000**	**500.1184**	**500.1184**	**0.1618**		**504.1621**

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	0.0130	7.9800e-003	0.0908	3.1000e-004	0.0309	2.2000e-004	0.0311	8.2500e-003	2.0000e-004	8.4500e-003		30.9486	30.9486	7.1000e-004		30.9663
Total	**0.0130**	**7.9800e-003**	**0.0908**	**3.1000e-004**	**0.0309**	**2.2000e-004**	**0.0311**	**8.2500e-003**	**2.0000e-004**	**8.4500e-003**		**30.9486**	**30.9486**	**7.1000e-004**		**30.9663**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	0.6003	2.4170	7.4680	0.0275	2.5243	0.0208	2.5452	0.6750	0.0194	0.6944		2,787.3155	2,787.3155	0.1200		2,790.3145
Unmitigated	0.6003	2.4170	7.4680	0.0275	2.5243	0.0208	2.5452	0.6750	0.0194	0.6944		2,787.3155	2,787.3155	0.1200		2,790.3145

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	74.11	412.57	413.57	491,940	491,940
Health Club	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	74.11	412.57	413.57	491,940	491,940

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
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.000590	0.000966
Health Club	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.000590	0.000966
Other Non-Asphalt Surfaces	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.000590	0.000966

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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					
NaturalGas Mitigated	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048
NaturalGas Unmitigated	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048

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					
City Park	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

Health Club	37.2192	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048
Other Non-Asphalt Surfaces	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
Total		**4.0000e-004**	**3.6500e-003**	**3.0700e-003**	**2.0000e-005**		**2.8000e-004**	**2.8000e-004**		**2.8000e-004**	**2.8000e-004**		**4.3787**	**4.3787**	**8.0000e-005**	**8.0000e-005**	**4.4048**

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					
City Park	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
Health Club	0.0372192	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048
Other Non-Asphalt Surfaces	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
Total		**4.0000e-004**	**3.6500e-003**	**3.0700e-003**	**2.0000e-005**		**2.8000e-004**	**2.8000e-004**		**2.8000e-004**	**2.8000e-004**		**4.3787**	**4.3787**	**8.0000e-005**	**8.0000e-005**	**4.4048**

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	0.0151	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003

Unmitigated	0.0151	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003

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	1.7500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0133					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Total	**0.0151**	**1.0000e-005**	**5.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1800e-003**	**1.1800e-003**	**0.0000**		**1.2600e-003**

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	1.7500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0133					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Total	**0.0151**	**1.0000e-005**	**5.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1800e-003**	**1.1800e-003**	**0.0000**		**1.2600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

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 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Heideman Park Development - Orange County, Winter

Heideman Park Development Mitigated

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	1.30	1000sqft	0.03	1,300.00	0
City Park	3.46	Acre	3.46	0.00	0
Health Club	0.65	1000sqft	0.01	650.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	504.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Assumptions

Land Use - No building, just grading.

Construction Phase - See Assumptions File

Off-road Equipment -

Grading -

Architectural Coating - See Assumptions File.

Vehicle Trips - See Assumptions File.

Water And Wastewater - See Assumptions

Construction Off-road Equipment Mitigation - SCAQMD Rules 403 and 1186

Tier 4 Mitigation

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	78.00	18,080.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	5.00	1.00
tblConstructionPhase	NumDays	8.00	2.00
tblConstructionPhase	NumDays	230.00	44.00
tblConstructionPhase	NumDays	18.00	4.00
tblConstructionPhase	NumDays	18.00	4.00
tblLandUse	LandUseSquareFeet	150,717.60	0.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	504.44
tblSolidWaste	SolidWasteGenerationRate	3.71	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	CC_TL	8.40	0.00
tblVehicleTrips	CC_TTP	64.10	0.00
tblVehicleTrips	CNW_TL	6.90	0.00
tblVehicleTrips	CNW_TTP	19.00	0.00
tblVehicleTrips	CW_TL	16.60	0.00
tblVehicleTrips	CW_TTP	16.90	0.00
tblVehicleTrips	DV_TP	39.00	0.00
tblVehicleTrips	PB_TP	9.00	0.00
tblVehicleTrips	PR_TP	52.00	0.00

tblVehicleTrips	ST_TR	22.75	119.24
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	SU_TR	16.74	119.53
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	WD_TR	1.89	21.42
tblVehicleTrips	WD_TR	32.93	0.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	OutdoorWaterUseRate	4,122,525.47	0.00
tblWater	OutdoorWaterUseRate	23,561.87	0.00
tblWater	SepticTankPercent	10.33	0.00

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					
2020	22.6988	42.6735	22.1185	0.0404	18.2802	2.1999	20.4801	9.9877	2.0239	12.0116	0.0000	3,923.6866	3,923.6866	1.2007	0.0000	3,953.7036
Maximum	**22.6988**	**42.6735**	**22.1185**	**0.0404**	**18.2802**	**2.1999**	**20.4801**	**9.9877**	**2.0239**	**12.0116**	**0.0000**	**3,923.6866**	**3,923.6866**	**1.2007**	**0.0000**	**3,953.7036**

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					
2020	22.6988	17.2185	23.5649	0.0404	6.8910	0.7810	6.9555	3.7323	0.7422	3.7967	0.0000	3,923.6866	3,923.6866	1.2007	0.0000	3,953.7036
Maximum	**22.6988**	**17.2185**	**23.5649**	**0.0404**	**6.8910**	**0.7810**	**6.9555**	**3.7323**	**0.7422**	**3.7967**	**0.0000**	**3,923.6866**	**3,923.6866**	**1.2007**	**0.0000**	**3,953.7036**

	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**	**59.65**	**-6.54**	**0.00**	**62.30**	**64.50**	**66.04**	**62.63**	**63.33**	**68.39**	**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	0.0151	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Energy	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048
Mobile	0.6003	2.4170	7.4680	0.0275	2.5243	0.0208	2.5452	0.6750	0.0194	0.6944		2,787.3155	2,787.3155	0.1200		2,790.3145
Total	**0.6158**	**2.4206**	**7.4716**	**0.0275**	**2.5243**	**0.0211**	**2.5454**	**0.6750**	**0.0197**	**0.6947**		**2,791.6954**	**2,791.6954**	**0.1200**	**8.0000e-005**	**2,794.7206**

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	0.0151	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Energy	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048
Mobile	0.6003	2.4170	7.4680	0.0275	2.5243	0.0208	2.5452	0.6750	0.0194	0.6944		2,787.3155	2,787.3155	0.1200		2,790.3145
Total	**0.6158**	**2.4206**	**7.4716**	**0.0275**	**2.5243**	**0.0211**	**2.5454**	**0.6750**	**0.0197**	**0.6947**		**2,791.6954**	**2,791.6954**	**0.1200**	**8.0000e-005**	**2,794.7206**

	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**

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	6/1/2020	6/1/2020	5	1	
2	Grading	Grading	6/2/2020	6/3/2020	5	2	
3	Building Construction	Building Construction	6/4/2020	8/4/2020	5	44	
4	Paving	Paving	8/5/2020	8/10/2020	5	4	
5	Architectural Coating	Architectural Coating	8/11/2020	8/14/2020	5	4	
6	Landscaping	Trenching	8/17/2020	8/28/2020	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1

Acres of Paving: 0.03

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 975; Non-Residential Outdoor: 325; Striped Parking Area: 18,080

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40

Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Landscaping	Excavators	1	8.00	158	0.38

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	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2020

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	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	6.6700e-003	0.2083	0.0603	4.9000e-004	0.0128	1.1100e-003	0.0139	3.6800e-003	1.0600e-003	4.7400e-003		52.8932	52.8932	4.6100e-003		53.0084
Worker	0.0782	0.0479	0.5446	1.8600e-003	0.2012	1.3300e-003	0.2025	0.0534	1.2300e-003	0.0546		185.6918	185.6918	4.2400e-003		185.7977
Total	**0.0848**	**0.2562**	**0.6049**	**2.3500e-003**	**0.2140**	**2.4400e-003**	**0.2164**	**0.0570**	**2.2900e-003**	**0.0593**		**238.5850**	**238.5850**	**8.8500e-003**		**238.8061**

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					6.6936	0.0000	6.6936	3.6793	0.0000	3.6793			0.0000			0.0000
Off-Road	0.6967	12.1620	22.9600	0.0380		0.0621	0.0621		0.0621	0.0621	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**0.6967**	**12.1620**	**22.9600**	**0.0380**	**6.6936**	**0.0621**	**6.7556**	**3.6793**	**0.0621**	**3.7414**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

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	6.6700e-003	0.2083	0.0603	4.9000e-004	0.0120	1.1100e-003	0.0131	3.4800e-003	1.0600e-003	4.5300e-003		52.8932	52.8932	4.6100e-003		53.0084
Worker	0.0782	0.0479	0.5446	1.8600e-003	0.1855	1.3300e-003	0.1868	0.0495	1.2300e-003	0.0507		185.6918	185.6918	4.2400e-003		185.7977
Total	**0.0848**	**0.2562**	**0.6049**	**2.3500e-003**	**0.1974**	**2.4400e-003**	**0.1999**	**0.0530**	**2.2900e-003**	**0.0553**		**238.5850**	**238.5850**	**8.8500e-003**		**238.8061**

3.3 Grading - 2020

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					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.5523**	**1.2734**	**7.8258**	**3.3675**	**1.1716**	**4.5390**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

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	6.6700e-003	0.2083	0.0603	4.9000e-004	0.0128	1.1100e-003	0.0139	3.6800e-003	1.0600e-003	4.7400e-003		52.8932	52.8932	4.6100e-003		53.0084
Worker	0.0651	0.0399	0.4538	1.5500e-003	0.1677	1.1100e-003	0.1688	0.0445	1.0200e-003	0.0455		154.7432	154.7432	3.5300e-003		154.8314
Total	**0.0718**	**0.2482**	**0.5141**	**2.0400e-003**	**0.1804**	**2.2200e-003**	**0.1827**	**0.0482**	**2.0800e-003**	**0.0502**		**207.6364**	**207.6364**	**8.1400e-003**		**207.8398**

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					2.4276	0.0000	2.4276	1.2477	0.0000	1.2477			0.0000			0.0000
Off-Road	1.0691	15.0499	16.6391	0.0297		0.3482	0.3482		0.3227	0.3227	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106

Total	**1.0691**	**15.0499**	**16.6391**	**0.0297**	**2.4276**	**0.3482**	**2.7759**	**1.2477**	**0.3227**	**1.5703**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

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	6.6700e-003	0.2083	0.0603	4.9000e-004	0.0120	1.1100e-003	0.0131	3.4800e-003	1.0600e-003	4.5300e-003		52.8932	52.8932	4.6100e-003		53.0084
Worker	0.0651	0.0399	0.4538	1.5500e-003	0.1546	1.1100e-003	0.1557	0.0413	1.0200e-003	0.0423		154.7432	154.7432	3.5300e-003		154.8314
Total	**0.0718**	**0.2482**	**0.5141**	**2.0400e-003**	**0.1665**	**2.2200e-003**	**0.1687**	**0.0447**	**2.0800e-003**	**0.0468**		**207.6364**	**207.6364**	**8.1400e-003**		**207.8398**

3.4 Building Construction - 2020

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

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	4.3400e-003	2.6600e-003	0.0303	1.0000e-004	0.0112	7.0000e-005	0.0113	2.9600e-003	7.0000e-005	3.0300e-003		10.3162	10.3162	2.4000e-004		10.3221
Total	**4.3400e-003**	**2.6600e-003**	**0.0303**	**1.0000e-004**	**0.0112**	**7.0000e-005**	**0.0113**	**2.9600e-003**	**7.0000e-005**	**3.0300e-003**		**10.3162**	**10.3162**	**2.4000e-004**		**10.3221**

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	1.7527	17.2159	17.0122	0.0269		0.7809	0.7809		0.7421	0.7421	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**1.7527**	**17.2159**	**17.0122**	**0.0269**		**0.7809**	**0.7809**		**0.7421**	**0.7421**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

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	4.3400e-003	2.6600e-003	0.0303	1.0000e-004	0.0103	7.0000e-005	0.0104	2.7500e-003	7.0000e-005	2.8200e-003		10.3162	10.3162	2.4000e-004		10.3221
Total	**4.3400e-003**	**2.6600e-003**	**0.0303**	**1.0000e-004**	**0.0103**	**7.0000e-005**	**0.0104**	**2.7500e-003**	**7.0000e-005**	**2.8200e-003**		**10.3162**	**10.3162**	**2.4000e-004**		**10.3221**

3.5 Paving - 2020

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	1.1837	11.8015	12.2823	0.0189		0.6509	0.6509		0.6005	0.6005		1,804.7070	1,804.7070	0.5670		1,818.8830
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1837**	**11.8015**	**12.2823**	**0.0189**		**0.6509**	**0.6509**		**0.6005**	**0.6005**		**1,804.7070**	**1,804.7070**	**0.5670**		**1,818.8830**

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	0.0869	0.0532	0.6051	2.0700e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		206.3242	206.3242	4.7100e-003		206.4419
Total	**0.0869**	**0.0532**	**0.6051**	**2.0700e-003**	**0.2236**	**1.4800e-003**	**0.2250**	**0.0593**	**1.3600e-003**	**0.0607**		**206.3242**	**206.3242**	**4.7100e-003**		**206.4419**

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	1.0438	11.0509	12.3447	0.0189		0.5228	0.5228		0.4831	0.4831	0.0000	1,804.7070	1,804.7070	0.5670		1,818.8830
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0438**	**11.0509**	**12.3447**	**0.0189**		**0.5228**	**0.5228**		**0.4831**	**0.4831**	**0.0000**	**1,804.7070**	**1,804.7070**	**0.5670**		**1,818.8830**

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	0.0869	0.0532	0.6051	2.0700e-003	0.2061	1.4800e-003	0.2075	0.0550	1.3600e-003	0.0564		206.3242	206.3242	4.7100e-003		206.4419
Total	**0.0869**	**0.0532**	**0.6051**	**2.0700e-003**	**0.2061**	**1.4800e-003**	**0.2075**	**0.0550**	**1.3600e-003**	**0.0564**		**206.3242**	**206.3242**	**4.7100e-003**		**206.4419**

3.6 Architectural Coating - 2020

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	22.4566					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**22.6988**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.0000	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
Total	**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**

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	22.4566					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**22.6988**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

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	0.0000	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
Total	**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**

3.7 Landscaping - 2020

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	0.2450	2.4126	3.2678	5.1700e-003		0.1169	0.1169		0.1075	0.1075		500.1184	500.1184	0.1618		504.1621
Total	**0.2450**	**2.4126**	**3.2678**	**5.1700e-003**		**0.1169**	**0.1169**		**0.1075**	**0.1075**		**500.1184**	**500.1184**	**0.1618**		**504.1621**

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	0.0130	7.9800e-003	0.0908	3.1000e-004	0.0335	2.2000e-004	0.0338	8.8900e-003	2.0000e-004	9.1000e-003		30.9486	30.9486	7.1000e-004		30.9663
Total	**0.0130**	**7.9800e-003**	**0.0908**	**3.1000e-004**	**0.0335**	**2.2000e-004**	**0.0338**	**8.8900e-003**	**2.0000e-004**	**9.1000e-003**		**30.9486**	**30.9486**	**7.1000e-004**		**30.9663**

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	0.2450	2.4126	3.2678	5.1700e-003		0.1169	0.1169		0.1075	0.1075	0.0000	500.1184	500.1184	0.1618		504.1621
Total	**0.2450**	**2.4126**	**3.2678**	**5.1700e-003**		**0.1169**	**0.1169**		**0.1075**	**0.1075**	**0.0000**	**500.1184**	**500.1184**	**0.1618**		**504.1621**

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	0.0130	7.9800e-003	0.0908	3.1000e-004	0.0309	2.2000e-004	0.0311	8.2500e-003	2.0000e-004	8.4500e-003		30.9486	30.9486	7.1000e-004		30.9663
Total	**0.0130**	**7.9800e-003**	**0.0908**	**3.1000e-004**	**0.0309**	**2.2000e-004**	**0.0311**	**8.2500e-003**	**2.0000e-004**	**8.4500e-003**		**30.9486**	**30.9486**	**7.1000e-004**		**30.9663**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	0.6003	2.4170	7.4680	0.0275	2.5243	0.0208	2.5452	0.6750	0.0194	0.6944		2,787.3155	2,787.3155	0.1200		2,790.3145
Unmitigated	0.6003	2.4170	7.4680	0.0275	2.5243	0.0208	2.5452	0.6750	0.0194	0.6944		2,787.3155	2,787.3155	0.1200		2,790.3145

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	74.11	412.57	413.57	491,940	491,940
Health Club	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	74.11	412.57	413.57	491,940	491,940

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Health Club	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.000590	0.000966
Health Club	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.000590	0.000966
Other Non-Asphalt Surfaces	0.558976	0.043534	0.209821	0.113949	0.016111	0.005791	0.025447	0.016654	0.001713	0.001553	0.004896	0.000590	0.000966

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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					
NaturalGas Mitigated	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048
NaturalGas Unmitigated	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048

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					
City Park	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
Health Club	37.2192	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048
Other Non-Asphalt Surfaces	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
Total		**4.0000e-004**	**3.6500e-003**	**3.0700e-003**	**2.0000e-005**		**2.8000e-004**	**2.8000e-004**		**2.8000e-004**	**2.8000e-004**		**4.3787**	**4.3787**	**8.0000e-005**	**8.0000e-005**	**4.4048**

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					
City Park	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
Health Club	0.0372192	4.0000e-004	3.6500e-003	3.0700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3787	4.3787	8.0000e-005	8.0000e-005	4.4048
Other Non-Asphalt Surfaces	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
Total		**4.0000e-004**	**3.6500e-003**	**3.0700e-003**	**2.0000e-005**		**2.8000e-004**	**2.8000e-004**		**2.8000e-004**	**2.8000e-004**		**4.3787**	**4.3787**	**8.0000e-005**	**8.0000e-005**	**4.4048**

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	0.0151	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Unmitigated	0.0151	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003

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	1.7500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0133					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Total	**0.0151**	**1.0000e-005**	**5.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1800e-003**	**1.1800e-003**	**0.0000**		**1.2600e-003**

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	1.7500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0133					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Landscaping	5.0000e-005	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.1800e-003	1.1800e-003	0.0000		1.2600e-003
Total	**0.0151**	**1.0000e-005**	**5.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1800e-003**	**1.1800e-003**	**0.0000**		**1.2600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

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 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Construction Localized Significance Thresholds: Building Construction

SRA No.	Acres Disturbed	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Construction / Project Site Size (Acres)
17	1.31	25	82	3.50

Source Receptor	Central Orange County	Equipment	Acres/8-hr Day	Acres/1-hr	Equipment Used	Daily Hours	Acres
Distance (meters)	25	Tractors	0.5	0.0625	3	7	1.3125
NOx	**92**	Graders	0.5	0.0625			0
CO	**557**	Dozers	0.5	0.0625			0
PM10	**4.62**	Scrapers	1	0.125			0
PM2.5	**3.31**					**Acres**	1.31

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	81	83	98	123	192
	2	115	114	125	148	205
		92	93	106	131	196
CO	1	485	753	1128	2109	6841
	2	715	1041	1547	2685	7493
		557	843	1259	2289	7045
PM10	1	4	12	28	60	158
	2	6	19	35	68	166
		5	14	30	63	161
PM2.5	1	3	4	9	22	85
	2	4	6	11	25	92
		3	5	10	23	87

Central Orange County

1.31 Acres

	25	**50**	**100**	**200**	**500**
NOx	92	93	106	131	196
CO	557	843	1259	2289	7045
PM10	5	14	30	63	161
PM2.5	3	5	10	23	87

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
17	1	17	2
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Grading

SRA No.	Acres Disturbed	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Construction / Project Site Size (Acres)
17	2.50	25	82	3.50

Source Receptor	Central Orange County	Equipment	Acres/8-hr Day	Acres/1-hr	Equipment Used	Daily Hours	Acres
Distance (meters)	25	Tractors	0.5	0.0625	3	8	1.5
NOx	**126**	Graders	0.5	0.0625	1	8	0.5
CO	**805**	Dozers	0.5	0.0625	1	8	0.5
PM10	**7.16**	Scrapers	1	0.125			0
PM2.5	**4.50**					**Acres**	2.50

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	2	115	114	125	148	205
	3	138	132	143	166	218
		126	123	134	157	212
CO	2	715	1041	1547	2685	7493
	3	894	1272	1864	3129	8107
		805	1157	1706	2907	7800
PM10	2	6	19	35	68	166
	3	8	26	42	75	173
		7	22	38	71	170
PM2.5	2	4	6	11	25	92
	3	5	7	12	27	98
		5	7	12	26	95

Central Orange County

2.50 Acres

	25	**50**	**100**	**200**	**500**
NOx	126	123	134	157	212
CO	805	1157	1706	2907	7800
PM10	7	22	38	71	170
PM2.5	5	7	12	26	95

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
17	2	17	3
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Paving

SRA No.	Acres Disturbed	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Construction / Project Site Size (Acres)
17	0.50	25	82	3.50

Source Receptor Distance (meters)	Central Orange County 25
NOx	**81**
CO	**485**
PM10	**4.00**
PM2.5	**3.00**

Equipment	Acres/8-hr Day	Acres/1-hr	Equipment Used	Daily Hours	Acres
Tractors	0.5	0.0625	1	8	0.5
Graders	0.5	0.0625			0
Dozers	0.5	0.0625			0
Scrapers	1	0.125		**Acres**	0
					0.50

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	1	81	83	98	123	192
	1	81	83	98	123	192
		81	83	98	123	192
CO	1	485	753	1128	2109	6841
	1	485	753	1128	2109	6841
		485	753	1128	2109	6841
PM10	1	4	12	28	60	158
	1	4	12	28	60	158
		4	12	28	60	158
PM2.5	1	3	4	9	22	85
	1	3	4	9	22	85
		3	4	9	22	85

Central Orange County

0.50 Acres

	25	**50**	**100**	**200**	**500**
NOx	81	83	98	123	192
CO	485	753	1128	2109	6841
PM10	4	12	28	60	158
PM2.5	3	4	9	22	85

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
17	1	17	1
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Construction Localized Significance Thresholds: Site Preparation

SRA No.	Acres Disturbed	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Construction / Project Site Size (Acres)
17	3.50	25	82	3.50

Source Receptor	Central Orange County	Equipment	Acres/8-hr Day	Acres/1-hr	Equipment Used	Daily Hours	Acres
Distance (meters)	25	Tractors	0.5	0.0625	4	8	2
NOx	**149**	Graders	0.5	0.0625			0
CO	**984**	Dozers	0.5	0.0625	3	8	1.5
PM10	**9.50**	Scrapers	1	0.125			0
PM2.5	**5.50**					**Acres**	3.50

	Acres	**25**	**50**	**100**	**200**	**500**
NOx	3	138	132	143	166	218
	4	160	149	162	184	232
		149	141	153	175	225
CO	3	894	1272	1864	3129	8107
	4	1074	1503	2181	3574	8722
		984	1388	2023	3352	8415
PM10	3	8	26	42	75	173
	4	11	32	48	81	181
		10	29	45	78	177
PM2.5	3	5	7	12	27	98
	4	6	8	14	30	103
		6	8	13	29	101

Central Orange County

3.50 Acres

	25	**50**	**100**	**200**	**500**
NOx	149	141	153	175	225
CO	984	1388	2023	3352	8415
PM10	10	29	45	78	177
PM2.5	6	8	13	29	101

Acre Below		**Acre Above**	
SRA No.	Acres	SRA No.	Acres
17	3	17	4
Distance Increment Below			
25			
Distance Increment Above			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

Appendix C1 Cultural Resources Data

Appendix

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South Central Coastal Information Center
California State University, Fullerton
Department of Anthropology MH-426
800 North State College Boulevard
Fullerton, CA 92834-6846
657.278.5395
California Historical Resources Information System
Los Angeles, Orange, Ventura and San Bernardino Counties
sccic@fullerton.edu

1/9/2020 SCCIC File #: 20937.6968

Elizabeth Kim
Placeworks
3 MacArthur Place, Suite 1100
Santa Ana, CA 92727

Re: Record Search Results for the Heideman Elementary School Joint-Use Park Project

The South Central Coastal Information Center received your records search request for the project area referenced above, located on the Tustin, CA USGS 7.5' quadrangle. The following summary reflects the results of the records search for the project area and a ½-mile radius. The search includes a review of all recorded archaeological and built-environment resources as well as a review of cultural resource reports on file. In addition, the California Points of Historical Interest (SPHI), the California Historical Landmarks (SHL), the California Register of Historical Resources (CAL REG), the National Register of Historic Places (NRHP), and the California State Built Environment Resources Directory (BERD) listings were reviewed for the above referenced project site and a ½-mile radius. Due to the sensitive nature of cultural resources, archaeological site locations are not released.

RECORDS SEARCH RESULTS SUMMARY

Archaeological Resources* (*see Recommendations section)	Within project area: 0 Within ½-mile radius: 0
Built-Environment Resources	Within project area: 0 Within ½-mile radius: 2
Reports and Studies	Within project area: 0 Within ½-mile radius: 15
OHP Built Environment Resources Directory (BERD) 2019	Within project area: 0 Within ½-mile radius: 9
California Points of Historical Interest (SPHI) 2019	Within project area: 0 Within ½-mile radius: 0
California Historical Landmarks (SHL) 2019	Within project area: 0 Within ½-mile radius: 0
California Register of Historical Resources (CAL REG) 2019	Within project area: 0 Within ½-mile radius: 0
National Register of Historic Places (NRHP) 2019	Within project area: 0 Within ½-mile radius: 0

HISTORIC MAP REVIEW – Santa Ana, CA (1896, 1901) 15' USGS historic maps indicate that in 1896 there was no visible development within the project area. The Atchison Topeka and Santa Fe R. R. (Los Angeles and San Diego Branch) ran through the southwestern portion of the project search radius. Also of note were several roads and buildings. In 1901, there was little to no visible change and all previously mentioned features still remained.

RECOMMENDATIONS

**When we report that no archaeological resources are recorded in your project area or within a specified radius around the project area; that does not necessarily mean that nothing is there. It may simply mean that the area has not been studied and/or that no information regarding the archaeological sensitivity of the property has been filed at this office. The reported records search result does not preclude the possibility that surface or buried artifacts might be found during a survey of the property or ground-disturbing activities.*

The archaeological sensitivity of the project location is unknown because there are no previous studies for the subject property. While there are currently no recorded archaeological sites within the project area, buried resources could potentially be unearthed during project activities. Therefore, customary caution and a halt-work condition should be in place for all ground-disturbing activities. In the event that any evidence of cultural resources is discovered, all work within the vicinity of the find should stop until a qualified archaeological consultant can assess the find and make recommendations. Excavation of potential cultural resources should not be attempted by project personnel. It is also recommended that the Native American Heritage Commission be consulted to identify if any additional traditional cultural properties or other sacred sites are known to be in the area. The NAHC may also refer you to local tribes with particular knowledge of potential sensitivity. The NAHC and local tribes may offer additional recommendations to what is provided here and may request an archaeological monitor. Finally, if any built-environment resources on the property are 45 years or older, a qualified architectural historian should be retained to study the property and make recommendations regarding those structures.

For your convenience, you may find a professional consultant**at www.chrisinfo.org. Any resulting reports by the qualified consultant should be submitted to the South Central Coastal Information Center as soon as possible.

**The SCCIC does not endorse any particular consultant and makes no claims about the qualifications of any person listed. Each consultant on this list self-reports that they meet current professional standards.

If you have any questions regarding the results presented herein, please contact the office at 657.278.5395 Monday through Thursday 9:00 am to 3:30 pm. Should you require any additional information for the above referenced project, reference the SCCIC number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System,

Stacy St. James Digitally signed by Stacy St. James Date: 2020.01.28 11:51:40 -08'00'

Stacy St. James
Coordinator

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the California Historical Resources Information System (CHRIS) Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System's (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State Historic Preservation Officer in carrying out the OHP's regulatory authority under federal and state law.

Appendix C2 Native American Heritage Commission Letter

Appendix

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NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

January 15, 2020

Elizabeth Kim
Tustin Unified School District

Via Email to: ekim@placeworks.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Heideman Elementary School Joint-Use Park Project, Orange County

Dear Ms. Kim:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;

- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

- Any report that may contain site forms, site significance, and suggested mitigation measures.

  All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: steven.quinn@nahc.ca.gov.

Sincerely,

Steven Quinn
Associate Governmental Program Analyst

Attachment

Appendix D Paleontological Data

Appendix

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Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

NATURAL HISTORY MUSEUM
LOS ANGELES COUNTY

Vertebrate Paleontology Section
Telephone: (213) 763-3325

e-mail: smcleod@nhm.org

3 December 2019

PlaceWorks, Inc.
3 MacArthur Place, Suite 1100
Santa Ana, CA 92707

Attn: Elizabeth Kim, Senior Associate

re: Paleontological Records Search for the proposed Heideman Elementary School Joint-Use Park Project, Project # TSD-17.0, in the City of Tustin, Orange County, project area

Dear Kim:

I have conducted a thorough search of our Vertebrate Paleontology records for the proposed Heideman Elementary School Joint-Use Park Project, Project # TSD-17.0, in the City of Tustin, Orange County, project area as outlined on the portion of the Tustin USGS topographic quadrangle map that Tracy Chu sent to me via e-mail on 19 November 2019. We do not have any vertebrate fossil localities that lie within the proposed project area boundaries, but we do have localities somewhat nearby from the same sedimentary deposits that occur in the proposed project area, either at the surface or at depth.

Surface sediments throughout the entire proposed project area and in the surrounding vicinity consist of younger terrestrial Quaternary Alluvium, derived primarily as alluvial fan deposits from the hills of the Santa Ana Mountains to the east. These younger Quaternary deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, but are underlain by older Quaternary deposits at varying depths that do contain significant vertebrate fossils. North-northwest of the proposed project area, along Rio Vista Avenue south of Lincoln Avenue, we have a vertebrate fossil locality, LACM 1652, that produced a fossil specimen of sheep, *Ovis*. Our closest fossil locality in older Quaternary sediments is LACM 4943, also situated north-northwest of the proposed project area almost due east of locality LACM 1652 along Fletcher Avenue east of Glassell Street east of the Santa Ana River, that

produced a specimen of fossil horse, *Equus*, at a depth of 8-10 feet below the surface. Southeast of the proposed project area, in what is now the Orange County Great Park near the intersection of C Street and 5th Street, our older Quaternary locality LACM 7867 produced fossil specimens of pocket gopher, *Thomomys*, at a depth of 25 feet below the surface.

Shallow excavations in the uppermost few feet of the younger Quaternary alluvial sediments exposed throughout the entire proposed project area are unlikely to uncover significant fossil vertebrate remains. Deeper excavations in the proposed project area that extend down into older Quaternary sediments, however, may well encounter significant vertebrate fossils. Any substantial excavations below the uppermost layers in the proposed project area, therefore, should be closely monitored to quickly and professionally collect any specimens without impeding development. Sediment samples should also be collected and processed to determine the small fossil potential in the proposed project area. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

Samuel A. McLeod

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice

Appendix E Noise Data

Appendix

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Fundamentals of Noise

NOISE

Noise is most often defined as unwanted sound; whether it is loud, unpleasant, unexpected, or otherwise undesirable. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness."

Noise Descriptors

The following are brief definitions of terminology used in this chapter:

- **Sound.** A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

- **Decibel (dB).** A unitless measure of sound, expressed on a logarithmic scale and with respect to a defined reference sound pressure. The standard reference pressure is 20 micropascals (20 μPa).

- **Vibration Decibel (VdB).** A unitless measure of vibration, expressed on a logarithmic scale and with respect to a defined reference vibration velocity. In the U.S., the standard reference velocity is 1 micro-inch per second ($1x10^{-6}$ in/sec).

- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

- **Equivalent Continuous Noise Level (L_{eq}); also called the Energy-Equivalent Noise Level.** The value of an equivalent, steady sound level which, in a stated time period (often over an hour) and at a stated location, has the same A-weighted sound energy as the time-varying sound. Thus, the L_{eq} metric is a single numerical value that represents the equivalent amount of variable sound energy received by a receptor over the specified duration.

- **Statistical Sound Level (L_n).** The sound level that is exceeded "n" percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the "median sound level." The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."

- **Day-Night Sound Level (L_{dn} or DNL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.

- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added from 7:00 PM to 10:00 PM and 10 dB from 10:00 PM to 7:00 AM. NOTE: For general community/environmental noise, CNEL and L_{dn} values rarely differ by more than 1 dB (with the CNEL being only slightly more restrictive – that is, higher than the L_{dn} value). As a matter of practice, L_{dn} and CNEL values are interchangeable and are treated as equivalent in this assessment.

- **Sensitive Receptor.** Noise- and vibration-sensitive receptors include land uses where quiet environments are necessary for enjoyment and public health and safety. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, and nursing homes are examples.

Characteristics of Sound

When an object vibrates, it radiates part of its energy in the form of a pressure wave. Sound is that pressure wave transmitted through the air. Technically, airborne sound is a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure that creates sound waves.

Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). Loudness or amplitude is measured in dB, frequency or pitch is measured in Hertz [Hz] or cycles per second, and duration or time variations is measured in seconds or minutes.

Amplitude

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale. Because of the physical characteristics of noise transmission and perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 1 presents the subjective effect of changes in sound pressure levels. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud). Changes of 1 to 3 dB are detectable under quiet, controlled conditions, and changes of less than 1 dB are usually not discernible (even under ideal conditions). A 3 dB change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dB is readily discernible to most people in an exterior environment, and a 10 dB change is perceived as a doubling (or halving) of the sound.

Table 1 Noise Perceptibility

Change in dB	Noise Level
± 3 dB	Threshold of human perceptibility
± 5 dB	Clearly noticeable change in noise level
± 10 dB	Half or twice as loud
± 20 dB	Much quieter or louder

Source: Bies, David A. and Colin H. Hansen. 2009. *Engineering Noise Control: Theory and Practice*. 4th ed. New York: Spon Press.

Frequency

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all, but are "felt" more as a vibration. Similarly, though people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz.

When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to approximate the response of the human ear. The A-weighted noise level has been found to correlate well with people's judgments of the "noisiness" of different sounds and has been used for many years as a measure of community and industrial noise. Although the A-weighted scale and the energy-equivalent metric are commonly used to quantify the range of human response to individual events or general community sound levels, the degree of annoyance or other response also depends on several other perceptibility factors, including:

- Ambient (background) sound level
- General nature of the existing conditions (e.g., quiet rural or busy urban)
- Difference between the magnitude of the sound event level and the ambient condition
- Duration of the sound event
- Number of event occurrences and their repetitiveness
- Time of day that the event occurs

Duration

Time variation in noise exposure is typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called L_{eq}), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time; half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_2, L_8 and L_{25} values represent the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour, respectively. These "n" values are typically used to demonstrate compliance for stationary noise sources with many cities' noise ordinances. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period, respectively.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law and many local jurisdictions use an adjusted 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (L_{dn}). The CNEL descriptor requires that an artificial increment (or "penalty") of 5 dBA be added to the actual noise level for the hours from 7:00 PM to 10:00 PM and 10 dBA for the hours from 10:00 PM to 7:00 AM. The L_{dn} descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 PM and 10:00 PM. Both descriptors give roughly the same 24-hour level, with the CNEL being only slightly more restrictive (i.e., higher). The CNEL or L_{dn} metrics are commonly applied to the assessment of roadway and airport-related noise sources.

Sound Propagation

Sound dissipates exponentially with distance from the noise source. This phenomenon is known as "spreading loss." For a single-point source, sound levels decrease by approximately 6 dB for each doubling of distance from the source (conservatively neglecting ground attenuation effects, air absorption factors, and barrier shielding). For example, if a backhoe at 50 feet generates 84 dBA, at 100 feet the noise level would be 79 dBA, and at 200 feet it would be 73 dBA. This drop-off rate is appropriate for noise generated by on-site operations from stationary equipment or activity at a project site. If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dB for each doubling of distance over a reflective ("hard site") surface such as concrete or asphalt. Line source noise in a relatively flat environment with ground-level absorptive vegetation decreases by an additional 1.5 dB for each doubling of distance.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. Extended periods of noise exposure above 90 dBA results in permanent cell damage, which is the main driver for employee hearing protection regulations in the workplace. For community environments, the ambient or background noise problem is widespread, through generally worse in urban areas than in outlying, less-developed areas. Elevated ambient noise levels can result in noise interference (e.g., speech interruption/masking, sleep disturbance, disturbance of concentration) and cause annoyance. Since most people do not routinely work with decibels or A-weighted sound levels, it is often difficult to appreciate what a given sound pressure level number means. To help relate noise level values to common experience, Table 2 shows typical noise levels from familiar sources.

Table 2 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Onset of physical discomfort	120+	
	110	Rock Band (near amplification system)
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at three feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: California Department of Transportation (Caltrans). 2009, November. Technical Noise Supplement ("TeNS"). Prepared by ICF International.

Vibration Fundamentals

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities stemming from operations of railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. As with noise, vibration can be described by both its amplitude and frequency. Vibration displacement is the distance that a point on a surface moves away from its original static position; velocity is the instantaneous speed that a point on a surface moves; and acceleration is the rate of change of the speed. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure.

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the root mean square (RMS) velocity. PPV is the maximum instantaneous peak of the vibration signal and RMS is the

square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage and RMS is typically more suitable for evaluating human response.

As with airborne sound, annoyance with vibrational energy is a subjective measure, depending on the level of activity and the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Persons accustomed to elevated ambient vibration levels, such as in an urban environment, may tolerate higher vibration levels. Table 3 displays the human response and the effects on buildings resulting from continuous vibration (in terms of various levels of PPV).

Table 3 Human Reaction to Typical Vibration Levels

Vibration Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e. not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to "architectural" damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: California Department of Transportation (Caltrans). 2004, June. Transportation- and Construction-Induced Vibration Guidance Manual. Prepared by ICF International.

LOCAL REGULATIONS

NOISE ELEMENT

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INTRODUCTION TO THE ELEMENT

The control of noise is an essential part of preserving the quality of a community. The development of effective strategies to reduce excessive noise in the community resulting from mobile sources such as traffic, aircraft, rail, and stationary sources, such as construction activity, music and air conditioners is essential to creating a safe and compatible living and working environment. Since 1971, the noise element has been mandatory in a California general plan. Due to California's rapid growth, a noise element is required by the state to enable communities to limit exposure to excessive noise levels. The Noise Element Technical Memorandum provides the necessary background information and supporting documentation for this element.

PURPOSE OF THE NOISE ELEMENT

The Noise Element of a General Plan is a comprehensive approach for including noise control in the planning process. It is a tool for achieving and maintaining environmental noise levels compatible with land use. The Noise Element identifies noise sensitive land uses and noise sources, and defines areas of noise impact. The element establishes goals, policies, and programs to ensure that Tustin residents will be protected from excessive noise.

RELATED PLANS AND PROGRAMS

There are several existing plans and programs that are directly applicable to the aims and objectives of this Element. These plans and programs have been enacted through State and local legislation and are administered by agencies that are delegated with powers to enforce State and local laws.

California Environmental Quality Act Law and Guidelines

The State legislature adopted the California Environmental Quality Act (CEQA) in response to a public mandate that called for a thorough environmental analysis of those projects that might adversely affect the environment. The CEQA law and guidelines describe the provisions of the law, the review procedure, and any subsequent analysis that is required. CEQA recognizes that excessive noise

associated with certain types of public and private projects represents an environmental impact that must be avoided or reduced. CEQA will continue to be instrumental in ensuring that City officials and the general public assess the potentially significant noise impacts of development projects.

California Noise Insulation Standards (Title 24)

The California Commission of Housing and Community Development officially adopted the noise insulation standards in 1974 and they became effective on August 22, 1974. On November 14, 1988, the Building Standards Commission approved revisions to these standards (Title 24, Part 2, California Code of Regulations). The revisions state that "Interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric shall be either . . . Ldn or . . . CNEL, consistent with the noise element of the local general plan." Additionally, the commission specifies that residential buildings or structures to be located within exterior CNEL (or Ldn) contours of 60 dB or greater of an existing or adopted freeway, expressway, parkway, major street, thoroughfare, rail line, rapid transit line, or industrial noise source shall require an acoustical analysis showing that the building has been designed to limit intruding noise to an interior CNEL (or Ldn) of 45 dB.

City of Tustin Noise Ordinance/Conditions of Approval

The City's noise ordinance, permitted by the State of California Health and Safety Code, provides a basis for controlling excessive and annoying noise from stationary sources such as construction activity, industrial plants, pumps, compressors, refrigeration units, etc. The ordinance provides specific noise standards to be applied for various land uses for both daytime and nighttime hours, prohibits certain noise sources, and describes the manner in which the noise standards are to be enforced.

Where applicable, the City routinely applies several noise-related conditions of approval to a development before issuing building permits. These conditions identify the proposed project as located in a noise impact area and require that mitigation be provided as necessary to ensure compliance with the City's noise exposure standards.

SCOPE AND CONTENT OF THE ELEMENT

The Noise Element follows the State guidelines prepared by the Office of Noise Control, State Department of Health as a result of Senate Bill 860(A) (effective January 1, 1976). The element quantifies the community noise environment in terms of noise exposure contours for both near- and long-term levels of growth and noise-generating activity. The information is a guideline for the development of goals and policies to achieve noise compatible land uses. In addition to the Introduction, the Element is divided into four sections: Summary of Issues, Needs, Opportunities, and Constraints; Goals and Policies; the Noise Plan, and the Implementation Program.

RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

The Tustin General Plan consists of seven different elements. All of the elements – Land Use, Circulation, Housing, Conservation/Open – are related to the Noise Element.

When integrated with the Noise Element, the Land Use Element will show land uses in relation to existing and projected noise contours. In this way, compatible and incompatible land uses may be identified. The Noise Element relates to the Circulation Element since the circulation system is the primary source of noise throughout the planning area. Noise exposure will be a factor in the location and design of new arterials, and the mitigation of noise from existing arterials in relation to existing and planned land uses.

Since residential land use is noise sensitive, the information provided in the Noise Element will need to be considered in the planning of future housing developments, as discussed in the Housing Element. The Noise Element also relates to the Open Space/Conservation/ Recreation Element since excessive noise can have a detrimental impact on the enjoyment of open spaces. Therefore, the information provided in the Noise Element needs to be considered in planning for this type of land use. In addition, open space areas can be used as a buffer to mitigate noise levels at more noise-sensitive residential areas.

Excessive noise can also be detrimental to a person's health or cause hearing loss over long periods of time. Therefore, the Noise Element

will need to be considered in the Public Safety Element when assessing occupational environments, and the noise exposure levels at noise-sensitive areas (residential, parks, schools, libraries, and hospitals).

Finally, growth within the planning area will result in increased housing, increased use of the circulation system and increased noise levels. The Noise Element will need to be considered in the Growth Management Element when planning future developments.

SUMMARY OF ISSUES, NEEDS, OPPORTUNITIES AND CONSTRAINTS

This section summarizes the noise-related issues, needs, opportunities, and constraints for the Tustin Planning Area. These will form the basis for the Noise Element goals and policies.

TRANSPORTATION NOISE CONTROL

- The City of Tustin can exercise little control over flight operations at John Wayne Airport.
- Noise from John Wayne Airport, while generally below accepted CNEL guidelines for residential uses, produces annoyance among Tustin residents due to repetitive occurrence.
- The activities and opportunities at John Wayne Airport should be monitored as needed to protect the planning area from unwanted aircraft noise.
- Citizen involvement in committees that will influence future aircraft operations at John Wayne Airport needs to be encouraged.
- Outside agencies exercise responsibility for noise associated with the freeways and railroads.
- Many residential neighborhoods are located next to heavily traveled arterials, some of which are exposed to "unacceptable" ambient noise levels as defined by the State Office of Noise Control.
- The Tustin Planning Area is bisected by two major freeway corridors - the I-5 and SR-55 - resulting in significant traffic noise levels.
- Increases in traffic volumes will increase noise levels throughout Tustin.

- Noise from train movements and whistles on the Southern California Rail Authority (SCRRA) rail line significantly affects nearby residences.

NOISE AND LAND USE PLANNING INTEGRATION

- Availability of manpower and expertise needed to perform noise measurements and to identify noise control measures in the enforcement of city, state and federal laws is limited.

- Noise control measures and noise-related compatibility considerations need to be included in all new land use developments.

- Enforcement of city, state and federal requirements regarding noise control is necessary, specifically: The City's noise ordinance regarding intrusive noise, the state vehicle code and provisions regarding mufflers and excessively loud radios, the state noise insulation standards for multifamily developments, and the federal and state requirements regarding noise control in work places.

- Many commercial and residential uses in Tustin are located near one another, creating potential noise conflicts between these uses.

- Trucking operations and mechanical equipment associated with commercial/industrial activities impact nearby residences.

- The introduction of mixed-use zones that integrate residences above ground floor commercial uses presents potential noise conflicts from both traffic noise generated from the frontage street and noise generated from ground floor commercial activity.

- The noise impact of construction activity adversely affects residences when carried on for long periods of time, and on the weekends and in the evenings.

- As in most urban settings, Tustin's residents are subject to noise from nuisances such as lawn mowers, leaf blowers, radios, parties and sporting events.

NOISE ELEMENT GOALS AND POLICIES

A substantial portion of the City is affected by various sources of noise. The following goals and policies are intended to address identified noise issues in the community.

TRANSPORTATION NOISE CONTROL

Transportation-related activities are primary sources of noise affecting the quality of life in Tustin. Effective reduction of noise associated with transportation is necessary to ensure protection from the detrimental effects of excessive noise.

GOAL 1: Use noise control measures to reduce the impact from transportation noise sources.

Policy 1.1: Pursue construction of new barriers, or the augmentation of existing barriers, to reduce noise impacts along the Route 5 and Route 55 freeways along segments directly next to residential areas.

Policy 1.2: Intentionally omitted

Policy 1.3: Encourage John Wayne Airport to set up noise control procedures and to consider methods to reduce and minimize noise exposure due to aircraft flyovers within the Tustin Planning Area.

Policy 1.4: Continue to monitor all John Wayne Airport activities to minimize noise impacts within the Tustin Planning Area resulting from airport operations, and oppose legislation promulgated by the FAA that could eliminate local flight restrictions.

Policy 1.5: Work to reduce risks and noise impacts resulting from aircraft operations by (a) participating in and monitoring the planning process for John Wayne Airport and (b)continuing to discourage commercial or general aviation activities which increase noise exposure.

Policy 1.6: Encourage Tustin citizen participation and City involvement on committees that would influence future aircraft operations in Orange County.

Policy 1.7: Encourage construction of noise barriers by the Public Utilities Commission, Southern California Regional Rail Authority, Amtrak, and Orange County Transportation Authority along the Atchison, Topeka and Santa Fe rail line where residences exist next to the tracks.

Policy 1.8: Encourage the Public Utilities Commission, Southern California Regional Rail Authority, Amtrak, and the Orange County Transportation Authority to minimize the level of noise produced by train movements and whistle noise within the Planning Area by reducing speeds, improving vehicle system technology and developing improved procedures for train engineer whistle blowing.

Policy 1.9: Encourage, where feasible, noise mitigation measures, such as noise barriers and realignments, in the design and construction of new roadway projects in the Tustin Planning Area.

Policy 1.10: Enforce the State's Vehicle Code noise standards within the City.

Policy 1.11: Consider noise impacts to residential neighborhoods when designating truck routes and major circulation corridors.

Policy 1.12: Work with the Orange County Transportation Agency to establish bus routes that meet public transportation needs and minimize noise impacts in residential areas.

NOISE AND LAND USE PLANNING INTEGRATION

Consideration of the effects of noise early in the land use planning process can minimize or avoid detrimental impacts.

GOAL 2: Incorporate noise considerations into land use planning decisions.

Policy 2.1: Adopt planning guidelines that establish acceptable noise standards for various land uses throughout the Tustin Planning Area.

Policy 2.2: Apply the state's noise insulation standards to the conversion of existing apartments into condominiums wherever feasible.

Policy 2.3: Use noise/land use compatibility standards as a guide for future planning and development.

Policy 2.4: Review proposed projects in terms of compatibility with nearby noise-sensitive land uses with the intent of reducing noise impacts.

Policy 2.5: Require new residential developments located in proximity to existing commercial/industrial operations to control residential interior noise levels as a condition of approval.

Policy 2.6: Require that commercial uses developed as part of a mixed-use project (with residential) not be noise intensive. Design mixed-use structures to prevent transfer of noise from the commercial to the residential use.

Policy 2.7: Require new commercial/industrial operations located in proximity to existing or proposed residential areas to incorporate noise mitigation into project design.

Policy 2.8: Replace a significant noise source with non-noise generating land uses when plans for future use of areas are developed.

NON-TRANSPORTATION NOISE CONTROL

Sources of noise that are not related to transportation can be controlled to avoid exposure to excessive noise levels.

GOAL 3: Develop measures to control non-transportation noise impacts.

Policy 3.1: Implement a review process of Tustin's noise ordinance, and City policies and regulations affecting noise.

Policy 3.2: Minimize the impacts of construction noise on adjacent land uses through limiting the permitted hours of activity.

Policy 3.3: Require City departments to observe state and federal occupational safety and health noise standards.

Policy 3.4: Require new equipment and vehicles purchased by the City to comply with noise performance standards consistent with available noise reduction technology.

RELATED GOALS AND POLICIES

Goals and policies of the other General Plan Elements also relate to issues addressed in the Noise Element. To ensure internal consistency, Table N-1 lists each element, noise issues, and the goals and policies that relate to both.

TABLE N-1
NOISE RELATED GOALS AND POLICIES BY ELEMENT

Noise Issue Area	Land Use	Housing	Circulation	Noise	Conservation/ Open Space/ Recreation	Public Safety	Growth Manage-ment
Transportation Noise Control			3.2				
Noise and Land Use Planning Integration	13.1		1.13				
Non-Transportation Noise Control							

THE NOISE PLAN

To achieve the goals and objectives of the Noise Element, an effective Noise Plan implementation program developed within the constraints of the City's financial and staffing capabilities is necessary. The purpose is to reduce the number of people exposed to excessive noise and to minimize the future effect of noise in the City.

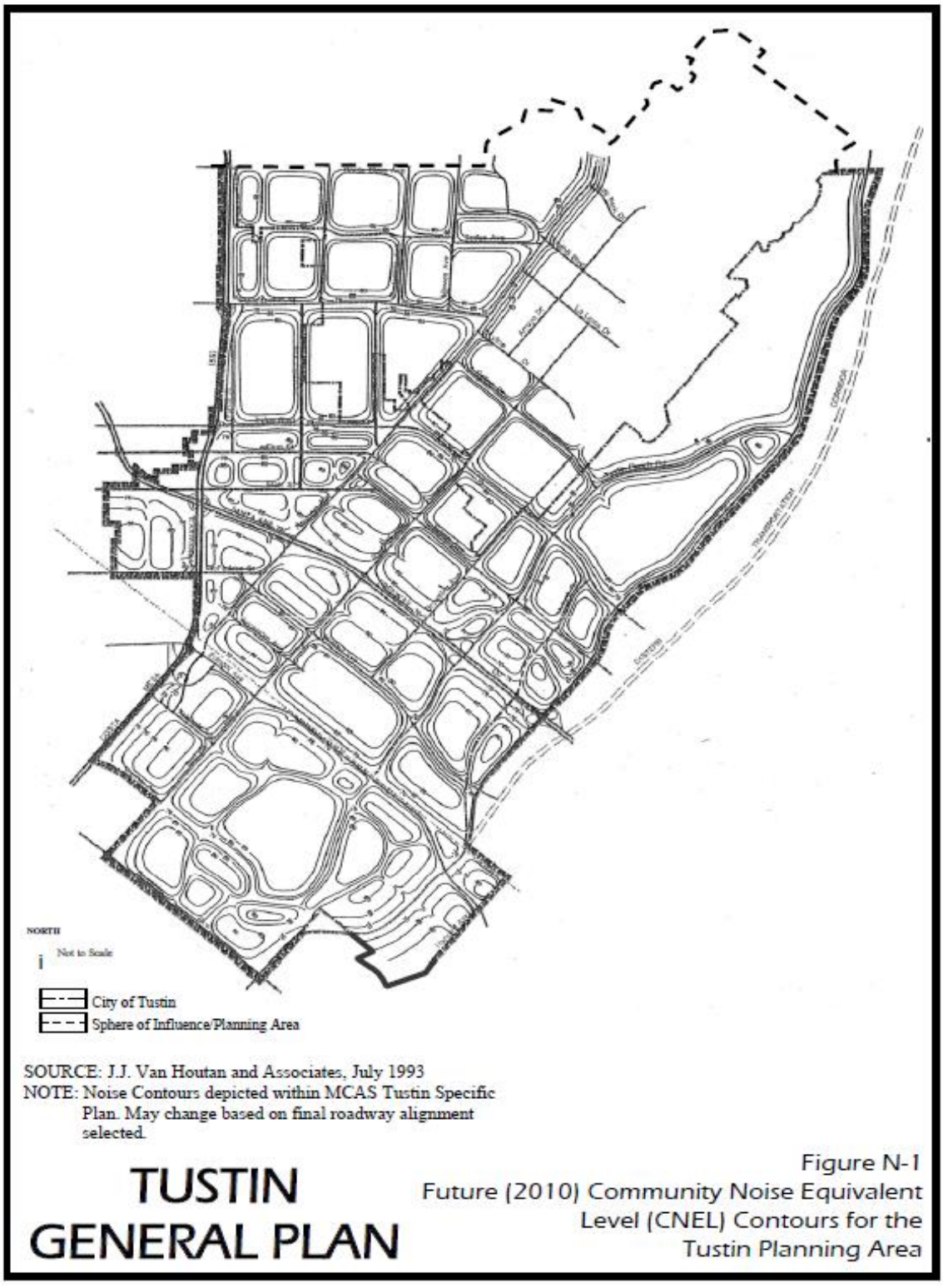
COMMUNITY NOISE CONTOURS

The noise environment for the Tustin Planning Area can be described using noise contours developed for the major noise sources within the area. Noise contours represent lines of equal noise exposure. Figure N-1 presents the noise contours for the Tustin Planning Area for Land Use Policy Map buildout conditions. The contours shown on the maps range from a CNEL of 60 dB to 80 dB for aircraft, train, and traffic noise. Full size exhibits (scale: 1"=800') are available for inspection at the Community Development Department.

The noise contours for the Tustin Planning Area were developed based upon existing and future traffic conditions, train operations and environmental conditions. The assumptions and methods used to develop the contours are explained in detail in the Technical Memorandum.

Noise Impact Areas

The noise contours are used as a guide for planning. The 60 dB CNEL contour defines the noise impact area. Any proposed new noise sensitive land use (i.e., residential, hospitals, schools and churches) within this area shall be evaluated on a project specific basis to meet City or State (Title 24) standards. An acoustical analysis prepared by a qualified acoustical engineer, should be required in these Noise Impact Areas for all noise sensitive land uses verifying that the structure has been designed or mitigation measures proposed to limit intruding noise to the prescribed allowable levels.



SOURCE: J.J. Van Houtan and Associates, July 1993
NOTE: Noise Contours depicted within MCAS Tustin Specific Plan. May change based on final roadway alignment selected.

TUSTIN GENERAL PLAN

Figure N-1
Future (2010) Community Noise Equivalent Level (CNEL) Contours for the Tustin Planning Area

Areas of Special Concern

Areas of special concern within the Noise Impact Area are near the I-5 and SR-55 freeways. At these locations the existing CNEL ranges from 70 to 80dB. Caltrans constructed sound walls along these freeways as part of the freeway widening projects. These walls reduce the CNEL at the adjacent residences.

Residences next to a number of major and secondary arterials in the Tustin Planning Area are also exposed to a CNEL over 65 dB. These arterials include:

- Bryan Avenue
- Fairhaven Avenue
- Newport Avenue
- Yorba Street
- Browning Avenue
- El Camino Real
- Walnut Avenue
- Edinger Street
- Irvine Boulevard
- Red Hill Avenue
- Prospect Avenue
- 17th Street
- McFadden Street
- Sycamore Avenue

Measurements have shown that residences located next to the Southern California Regional Rail Authority (SCRRA) rail line are were exposed to a CNEL of about 70 dB and maximum noise levels of 78 dB(A). By the year 2010, the CNEL at the adjacent residences will increase by as much as 6 dB due to increased rail activity related to commuter rail activities along the SCRRA/OCTA railway (Metrolink). The primary source of annoyance at these locations will be afternoon and early morning peak hour train passes.

LAND USE COMPATIBILITY GUIDELINES AND STANDARDS

Table N-2 provides guidance for the acceptability of certain development projects within specific CNEL contours and will act as a set of criteria for assessing the compatibility of proposed land uses within the noise environment.

Land Use Compatibility Guidelines are the basis for development of the specific noise standards presented in table N-3 which should be utilized as city policy related to new land uses and acceptable noise levels development.

For the City to achieve noise and land use compatibility it is imperative that mitigation measures be imposed during site planning to mitigate anticipated noise impacts on affected noise sensitive land uses. The submittal of an acoustical analysis report in noise impact levels is one mechanism to evaluate proposed projects. The incorporation of mitigation measures as described in this Noise Plan and other action may enable a project to comply with exterior and interior noise compatibility guidelines and standards.

Construction Standards

The provisions of the State of California Noise Insulation Standards (California Administrative Code, Title 24) specifying that the indoor noise levels for multifamily residential living spaces shall not exceed 45 dB CNEL (or Ldn) due to the combined effect of all noise sources will be enforced. The State requires implementation of this standard when the outdoor noise levels exceed 60 dB CNEL (or Ldn). The noise contour maps can be used to decide when this standard needs to be addressed. The code requires that this standard be applied to all new hotels, motels, apartment houses and dwellings, other than detached single family dwellings. The City will also, as a matter of policy, apply this standard to new single family developments and condominium conversion projects where feasible.

The noise levels presented in Table N-2 represent exterior noise levels. The primary purpose of the noise compatibility matrix is to identify potential conflicts between proposed land uses and the noise environment. The matrix is usually used at the General Plan or zoning level of approvals. If a project falls within Zone A or Zone B the project is considered compatible with the noise environment. Zone A implies that no mitigation will be needed. Zone B implies that minor soundproofing of the structure may be needed and should be engineered before issuance of building permits. Zone C shows that substantial noise mitigation will be necessary, such as construction of noise barriers and substantial building sound insulation. However, projects in Zone C can be successfully mitigated. The project may be approved for land use and then is mitigated as necessary to achieve City standards (Table N-3) before issuance of building permits or other appropriate milestones.

TRANSPORTATION NOISE CONTROL

The most efficient and effective means of controlling noise from transportation systems is to reduce noise at the source.

However, since the City has little direct control over source noise levels because of state and federal preemption (i.e., State motor vehicle noise standards and Federal air regulations), programs should be focused on reducing the impact of the noise on the community. Cooperative efforts with state and federal offices are essential.

Within the Tustin Planning Area are several transportation related noise sources including train tracks, two freeways, major arterials, collector roadways, and a commercial airport. Although MCAS Tustin closed in 1999, blimp flight operations may occur as an interim use. These sources are the major contributors of noise in Tustin. Cost effective strategies to reduce their influence on the community noise environment are an essential part of the Noise Element.

TABLE N-2
LAND USE NOISE COMPATIBILITY MATRIX

LAND USE CATEGORIES		COMMUNITY NOISE EQUIVALENT LEVEL CNEL						
CATEGORIES	USES	<55	60	65	70	75	80>	
RESIDENTIAL	Single Family, Duplex, Multiple Family	A	A	B	C	C	D	D
RESIDENTIAL	Mobile Home	A	A	B	C	C	D	D
COMMERCIAL Regional, District	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
COMMERCIAL Regional, Village District, Special	Commercial Retail, Bank, Restaurant, Movie Theater	A	A	A	A	B	B	C
COMMERCIAL INDUSTRIAL INSTITUTIONAL	Office Building, Research and Development, Professional Offices, City Office Building	A	A	A	B	B	C	D
COMMERCIAL Recreation INSTITUTIONAL Civic Center	Amphitheater, Concert Hall Auditorium, Meeting Hall	B	B	C	C	D	D	D
COMMERCIAL Recreation	Children's Amusement Park, Miniature Golf Course, Go-cart Track, Equestrian Center, Sports Club	A	A	A	B	B	D	D
COMMERCIAL General, Special INDUSTRIAL, INSTITUTIONAL	Automobile Service Station, Auto Dealership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
INSTITUTIONAL General	Hospital, Church, Library, Schools' Classroom	A	A	B	C	C	D	D
OPEN SPACE	Parks	A	A	A	B	C	D	D
OPEN SPACE	Golf Course, Cemeteries, Nature Centers Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
AGRICULTURE	Agriculture	A	A	A	A	A	A	A

INTERPRETATION	
ZONE A CLEARLY COMPATIBLE	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
ZONE B NORMALLY COMPATIBLE	New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.
ZONE C NORMALLY INCOMPATIBLE	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design
ZONE D CLEARLY INCOMPATIBLE	New construction or development should generally not be undertaken.

Source: J.J. Van Houten & Associates

TABLE N-3
INTERIOR AND EXTERIOR NOISE STANDARDS

Land Use	Noise Standards[1]	
	Interior[2,3]	Exterior
Residential - Single family, multifamily, duplex, mobile home	CNEL 45 dB	CNEL 65 dB[4]
Residential - Transient lodging, hotels, motels, nursing homes, hospitals	CNEL 45 dB	CNEL 65 dB[4]
Private offices, church sanctuaries, libraries, board rooms, conference rooms, theaters, auditoriums, concert halls, meeting halls, etc.	Leq(12) 45 dB(A)	-
Schools	Leq(12) 45 dB(A)	Leq(12) 67 dB(A)[5]
General offices, reception, clerical, etc.	Leq(12) 50 dB(A)	-
Bank lobby, retail store, restaurant, typing pool, etc.	Leq(12) 55 dB(A)	-
Manufacturing, kitchen, warehousing, etc.	Leq(12) 65 dB(A)	-
Parks, playgrounds	-	CNEL 65 dB[5]
Golf courses, outdoor spectator sports, amusement parks	-	CNEL 70 dB[5]

NOTES

1. CNEL: Community Noise Equivalent Level.
   Leq(12): The A-weighted equivalent sound level averaged over a 12-hour period (usually the hours of operation).
2. Noise standard with windows closed. Mechanical ventilation shall be provided per UBC requirements to provide a habitable environment.
3. Indoor environment excluding bathrooms, toilets, closets and corridors.
4. Outdoor environment limited to rear yard of single family homes, multifamily patios and balconies (with a depth of 6' or more) and common recreation areas.
5. Outdoor environment limited to playground areas, picnic areas, and other areas of frequent human use.

Noise Barriers

The most effective method for mitigating transportation noise is through reducing the impact of the noise onto the community by utilizing the site design review process and the California Environmental Quality Act. Mitigation through site planning, landscaping, as well as topography, and the design and construction of a noise barrier (wall, berms, or combination wall/berms) are the most common ways of alleviating traffic noise impacts in existing urban environments. Setbacks can also be used to provide partial mitigation or full mitigation where a small noise reduction is needed.

Noise attenuating barriers are commonly incorporated into projects and can be extremely effective in reducing noise levels. The effectiveness of the barrier depends on the relative height and materials of the barrier, the noise source, the affected area, the horizontal distance between the source and the barrier, and between the barrier and the affected area. Although noise barriers can be extremely effective, their aesthetic effect on a neighborhood should be considered.

Noise mitigation measures should be included in the design of roadway improvement projects consistent with funding capability. Efforts by the California Department of Transportation, the Orange County Transportation Agency and others to provide for acoustical protection of existing noise sensitive land uses affected by these projects will be supported by the City, and consideration of soundwalls will be requested to mitigate significant adverse impacts as part of any Caltrans and OCTA roadway projects. The Route 5 and 55 freeways, and the proposed Eastern Transportation Corridor are primary candidate projects for the inclusion of barriers to reduce noise impact.

The use of walls and berms in the design of new residential and other noise sensitive land uses that are next to major roads, rail lines, commercial, or industrial areas may be extremely helpful in mitigating noise impacts. The City will also encourage the reduction of train noise by requesting that the Southern California Regional Rail Authority, OCTA and Amtrak reduce speed and use welded track in good repair throughout the Planning Area.

Noise Control At The Source

The California Vehicle Code contains noise limits applicable to new vehicles at the time of manufacture and noise regulations pertaining to the operation of all vehicles on public roads.

The City will provide for continued evaluation and enforcement of truck and bus movements and routes to minimize noise at the source for sensitive land uses. Regulation of traffic flow can also significantly minimize noise impacts. The State Motor Vehicle noise standards for cars, trucks, and motorcycles will be enforced through coordination with the California Highway Patrol and the Tustin Police.

The City and its citizens will also participate in the planning process for John Wayne Airport. Any changes in operations or land uses within the facility that will increase noise exposures in the Planning Area will be opposed. The City will encourage implementation of procedures that will reduce noise levels in the area and will minimize the number of aircraft overflights.

NON-TRANSPORTATOIN NOISE CONTROL

People, and noise sensitive areas, must be protected from excessive noise generated by non-transportation sources including commercial and industrial centers. These impacts are most effectively controlled through the environmental and site plan review process by imposition of mitigation measures and the application of a City Noise Ordinance.

Typical Mitigation for Industrial and Commercial Uses

Consideration should be given to the control of noise in new commercial and industrial developments when noise levels would otherwise be generated that would exceed the noise level for the district in which they are located and that would adversely affect nearby projects. The following mitigation measures could be applied when reviewing these new projects:

- **Furnaces** - Acoustically treat natural draft and/or forced draft units and combustion air intake plena. Insulation of firing walls and damped and lined ducting are but a few of the treatments that could be considered.

- **Fans** - Air cooled heat exchangers can be provided with silencers where effective (i.e., primarily on small, high-speed

air fans). For larger coolers, quieter equipment can be installed.

- **Motors** - Quiet-design motors can be employed and located to minimize impacts on nearby properties.

- **Centrifugal Compressors** - Centrifugal compressors can be equipped with inlet and discharge silencers. Acoustical enclosures may also be considered.

- **Centrifugal Pumps** - Centrifugal pumps may be equipped with suction and discharge piping that has been acoustically treated. Acoustical enclosures may be considered.

- **Steam and Gas Generators** - Acoustical enclosures for turbines may be effective in reducing noise. Inlet and discharge piping may be acoustically treated and expansion joints added or comparable attenuative modifications made to minimize structure-borne vibrations.

- **Control Valves** - Quiet valves should be used whenever available. In other circumstances, in-line silencers can be employed.

- **Atmospheric Vents, Exhaust and Intakes** - Noisy vents should be equipped with silencers. Where safety is not an overriding concern, vents should be positioned close to the ground or below grade.

- **Paging Systems** - Loudspeaker paging systems shall be regulated pursuant to the City's noise ordinance. Whenever possible suitable alternatives such as radio or visual paging systems should be utilized.

- **Delivery/Loading Areas** - Limit delivery hours for stores with loading areas or docks fronting, bordering, or gaining access in driveways next to noise sensitive uses.

Noise Ordinance

The City's noise ordinance will be reviewed periodically for adequacy and changes implemented as needed to address the City's current needs. The noise ordinance will continue to be enforced to ensure that adjacent properties are not exposed to excessive noise levels from stationary sources. The ordinance protects people from non-transportation related noise sources such as music, construction activity, machinery and pumps, air conditioners, and truck traffic on private property. The Community Development Department will act as noise control coordinator. This will ensure the continued operation of noise enforcement efforts of the City.

Application of the provisions of the Noise Ordinance will include: (a) requiring that any proposed development projects show compliance with the City's Noise Element and Ordinance; (b) requiring construction activity to comply with limits established in the City's Noise Ordinance; and (c) requiring all City departments to comply with the state and federal OSHA noise standards, and any new equipment or vehicle purchases to comply with city, state, and federal noise standards.

NOISE ELEMENT IMPLEMENTATION PROGRAM

The City's Noise Element provides information that is important for maintaining environmental noise levels that area compatible with existing and planned land uses. The Element addresses three primary areas: noise from transportation services, such as aircraft, freeways and major roadways; integration of information about the existing and forecasted noise environment into land use planning decisions; and noise from non-transportation sources such as commercial, industrial, and construction activities.

The City Council, by incorporating the Implementation Program into the General Plan, recognizes the importance of long-range planning considerations in day-to-day decision-making, subject to funding constraints.

TRANSPORTATION NOISE CONTROL

1. Roadway Improvement Projects: The principal method of protecting sensitive land uses from traffic noise is the construction of noise barriers in concert with road improvement projects. The City will request, where necessary to mitigate identified adverse significant noise impacts, the inclusion of soundwalls, earthern berms, or other acoustical barriers as part of any Caltrans or OCTA roadway project.

Responsible Agency/Department: Community Development, Public Works/Engineering Division

Funding Source: Various Proposition 111, Measure M, Santa Ana/Tustin TSIA, Redevelopment Agency

Time Frame: Ongoing

Related Noise Element Policies: 1.1, 1.2, 1.9, 1.12

2. Rail Line Noise Control: The principal methods of protecting sensitive land uses from rail vehicle noise are the construction of noise barriers, reduction of vehicle speed, the use of well-maintained welded track, rubberized crossings and whistle blowing procedures. The City will seek assistance from the Public Utilities Commission, Southern California Regional Rail Authority, OCTA, and Amtrak in

achieving these methods of noise protection for residential and other sensitive uses.

Responsible Agency/Department: Community Development, Public Works/Engineering

Funding Source: Public Utilities Commission, Southern California Regional Rail Authority, OCTA, Amtrak, Redevelopment Agency

Time Frame: Ongoing

Related Noise Element Policies: 1.7, 1.8

3. Vehicle Noise Control: To minimize or reduce noise impacts on residential and other sensitive land uses, the City will: 1) enforce and periodically evaluate truck and bus movements and routes to reduce impacts on sensitive areas; and 2) promote coordination between City Police and the California Highway Patrol to enforce the State Motor Vehicle noise standards.

Responsible Agency/Department: Community Development, Public Works/Engineering, Police Dept., CHP

Funding Source: City General Fund

Time Frame: Ongoing

Related Noise Element Policies: 1.1, 1.2, 1.9-1.12

4. Aviation Noise: Work to reduce noise impacts resulting from aircraft operations at John Wayne Airport by: (a) participating and monitoring the planning process for John Wayne Airport; (b) continuing to discourage general and commercial aviation activities which increase noise exposure to sensitive land uses.

Responsible Agency/Department: Community Development

Funding Source: City General Fund

Time Frame: Ongoing

Related Noise Element Policies: 1.3-1.6

5. Aviation Monitoring: The City shall continue to review and report on the noise reports received concerning John Wayne Airport to identify any of the areas of the City where negative impacts exist in order to implement mitigation efforts, which could include lobbying of the FAA and related agencies for tighter restrictions on aircraft types.

Responsible Agency/Department: Community Development

Funding Source: City General Fund

Time Frame: Ongoing

Related Noise Element Policies: 1.3-1.6

NOISE AND LAND USE PLANNING INTEGRATION

6. Compatibility Standards Application: Through the Design Review process Noise Element Standards of compatibility described in Tables N-2 and N-3 of the Element will be applied to new development proposals and methods to mitigate anticipated impacts, such as building orientation and acoustical barriers, shall be applied to meet the standards.

Responsible Agency/Department: Community Development

Funding Source: Development fees

Time Frame: Ongoing

Related Noise Element Policies: 2.1, 2.3-2.8

7. Noise Insulation: Interior and exterior noise levels for proposed new development shall be required to meet the California Noise Insulation Standards (Title 24 of the California Administrative Code). These standards shall also be applied to all single family developments and condominium conversion projects where feasible.

Responsible Agency/Department: Community Development

Funding Source: Development fees

Time Frame: Ongoing

Related Noise Element Policies: 2.1, 2.2, 2.5, 2.6

8. Acoustical Analysis: Acoustical analysis reports prepared by a qualified acoustical engineer will be required for new sensitive land uses within Noise Impact Areas identified in the Noise Plan.

Responsible Agency/Department: Community Development

Funding Source: Developer

Time Frame: Ongoing

Related Noise Element Policies: 2.4, 2.7

NON-TRANSPORTATION NOISE CONTROL

9. Noise Ordinance Enforcement: The City will enforce its Noise Ordinance to reduce excessive noise from site-specific sources, such as construction activity mechanical equipment, landscaping maintenance, loud music, truck traffic, loading and unloading activities, and other sources.

Responsible Agency/Department: Community Development, Police Department

Funding Source: City General Fund

Time Frame: Ongoing

Related Noise Element Policies: 3.1, 3.2, 3.3

10. Noise Ordinance Review: The City shall periodically review its Noise Ordinance, policies and regulations affecting noise sources in order to conform with changes in legislation and/or technologies.

Responsible Agency/Department: Community Development

Funding Source: City General Funds

Time Frame: At least once every five years

Related Noise Element Policies: 3.1

11. Occupational Safety and Health Noise Standards: City departments will comply with all state and federal OSHA noise standards and all new equipment purchases shall comply with state and federal noise standards.

Responsible Agency/Department: City Manager

Funding Source: City General Fund

Time Frame: Ongoing

Related Noise Element Policies: 3.3, 3.4

CHAPTER 6 - NOISE CONTROL

EDITOR'S NOTE: Ord. No. 828, Sec. 1, adopted July 21, 1980, amended Ch. 6 of Art. 4 to read as herein set out. Prior to amendment, Ch. 6 pertained to similar subject matter, consisted of Section 4611, derived from Ord. No. 9; Ord. No. 239; Ord. No. 450, Secs. 1—3; and Ord. No. 469.

4611 - DECLARATION OF POLICY

In order to control unnecessary, excessive and annoying sounds emanating from incorporated areas of the city, it is hereby declared to be the policy of the City to prohibit such sounds generated from all sources as specified in this chapter.

It is determined that certain noise levels are detrimental to the public health, welfare and safety and contrary to public interest, therefore, the City Council does ordain and declare that creating, maintaining, causing or allowing to create, maintain or cause any noise in a manner prohibited by or not in conformity with the provisions of this chapter, is a public nuisance and shall be punishable as such.

(Ord. No. 828, Sec. 1, 7-21-80)

4612 - DEFINITIONS

The following words, phrases and terms as used in this chapter shall have the meaning as indicated below:

(1) "Ambient noise level." The all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

(2) "A-weighted sound level" (dB(A)). A quantity in decibels, read from a standard sound-level meter that is switched to the weighting network labeled "A." The A-weighted network discriminates against the lower frequencies according to a relationship approximating the auditory sensitivity of the human ear at moderate sound levels.

(3) "Commercial property." A parcel of real property which is developed and zoned either in part or in whole for commercial purposes, including, but not limited to retail and wholesale businesses, and professional offices, but excluding home occupation uses as authorized by Ordinance No. 330.

(4) "CNEL" (community noise equivalent level). A cumulative measure of community noise exposure for a twenty-four-hour day, using the A-weighting sound level and expressed in logarithmic units. This CNEL scale takes into account the single event sound level, single event duration, single event occurrence frequency, and the time of the

occurrence of the noise source. Additionally, it applies weighting factors which place greater significance on noise events occurring in the nighttime (10:00 p.m. to 7:00 a.m.) than on those during the evening (7:00 p.m. to 10:00 p.m.) or daytime (7:00 a.m. to 7:00 p.m.), respectively.

(5) "Cumulative period." An additive period of time composed of individual time segments which may be continuous or interrupted.

(6) "Decibel" (dB). A unit which denotes the ratio between two (2) quantities which are proportional to power: The number of decibels corresponding to the ratio of two (2) amounts of power is ten (10) times the logarithm to the base ten (10) of this ratio.

(7) "Dwelling unit." A single unit providing complete, independent living facilities for one (1) or more persons including permanent provisions for living, sleeping, eating, cooking and sanitation.

(8) "Emergency machinery," "vehicle," or "work." Any machinery, vehicle or work used, employed or performed in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

(9) "Fixed noise source." A stationary device which creates sounds while fixed or motionless including, but not limited to, industrial and commercial machinery and equipment, pumps, fans, compressors, generators, air conditioners and refrigeration equipment.

(10) "Grading." Any excavating or filling of earth material, or any combination thereof, conducted at a site to prepare said site for construction or other improvements thereon.

(11) "Impact noise." The noise produced by the collision of one (1) mass in motion with a second mass which may be either in motion or at rest.

(12) "Industrial property." A parcel of real property which is developed and zoned either in part or in whole for manufacturing purposes, including research and development uses, but excluding home occupation cases as authorized by Ordinance No. 330.

(13) "Mixed use property." A parcel of real property which is developed or used for residential purposes and/or commercial purposes (including retail and wholesale businesses and professional offices) and/or manufacturing purposes (including research and development uses).

(14) "Mobile noise source." Any noise source other than a fixed noise source.

(15) "Noise level." The "A" weighted sound pressure level in decibels obtained by using a sound level meter at slow response with a reference pressure of twenty (20) micropascals per square meter. The unit of measurement shall be designated as dB(A).

(16) "Noise variance board." An administrative board of five (5) members appointed by the Board of Supervisors of the County of Orange, per Title 4, Division 6, Article 1 of the

Codified Ordinances of the County of Orange.

(17) "Person." A person, firm, association, copartnership, joint venture, corporation or any entity, public or private in nature.

(18) "Property maintenance equipment." A mechanical blower, leafblower, lawn vacuum or parking lot sweeper which produces a current of air by mechanical, electrical, or other means to push, propel, or blow dirt, dust, leaves, grass clippings, trimmings, cuttings, refuse, and/or debris or any other appliance intended for the maintenance of landscaping on private property.

(19) "Residential property." A parcel of real property which is developed and zoned either in part or in whole for residential purposes, other than transient uses such as hotels and motels.

(20) "Simple tone noise." A noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished.

(21) "Sound level meter." An instrument meeting American National Standard Institute's Standard S1.4-1971 for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

(22) "Sound pressure level" of a sound, in decibels, shall mean twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound to a reference pressure, which reference pressure shall be explicitly stated.

(Ord. No. 828, Sec. 1, 7-21-80; Ord. No. 845, Secs. 1—3, 5-18-81; Ord. No. 1156, Sec. 1, 10-16-95; Ord. No. 1277, Sec. 2, 7-7-03)

4613 - DESIGNATED NOISE ZONES

The properties hereinafter described are hereby assigned the following noise zones:

(a) Noise Zone 1: All residential properties.

(b) Noise Zone 2: All commercial properties.

(c) Noise Zone 3: All industrial properties.

(d) Noise Zone 4: All special properties such as hospitals, convalescent homes, public and institutional schools, libraries and churches.

(e) Noise Zone 5: All mixed use properties.

(Ord. No. 828, Sec. 1, 7-21-80; Ord. No. 1277, Sec. 3, 7-7-03)

4614 - EXTERIOR NOISE STANDARDS

(a) The following noise standards, unless otherwise specifically indicated, shall apply to all

property within a designated noise zone:

EXTERIOR NOISE STANDARDS

Noise Zone	Noise Level	Time period
1	55 dB(A)	7:00 a.m.—10:00 p.m.
	50 dB(A)	10:00 p.m.— 7:00 a.m.
2	60 dB(A)	any time
3	70 dB(A)	any time
4	55 dB(A)	any time
5	60 dB(A)	any time

In the event the alleged offensive noise consists of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB(A).

(b) It shall be unlawful for any person at any location within the incorporated area of the City to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other property to exceed:

(1) The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or

(2) The noise standard plus five (5) db(A) for a cumulative period of more than fifteen (15) minutes in any hour; or

(3) The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or

(4) The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or

(5) The noise standard plus twenty (20) dB(A) for any period of time.

(c) In the event the ambient noise level exceeds any of the first four (4) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said

ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

(Ord. No. 828, Sec. 1, 7-21-80; Ord. No. 845, Secs. 4, 5, 5-18-81; Ord. No. 1277, Sec. 4, 7-7-03)

4615 - INTERIOR NOISE STANDARDS

(a) The following interior noise standards, unless otherwise specifically indicated, shall apply to all property within a designated noise zone:

INTERIOR NOISE STANDARDS

Noise Zone	Noise Level	Time Period
1	55 dB(A)	7:00 a.m.—10:00 p.m.
	45 dB(A)	10:00 p.m.— 7:00 a.m.
5 (residential uses only)	55 dB(A)	7:00 a.m.—10:00 p.m.
	45 dB(A)	10:00 p.m.—7:00 a.m.

In the event the alleged offensive noise consists of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB(A).

(b) It shall be unlawful for any person at any location within the incorporated area of the city to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured within any other dwelling unit on any residential property or mixed use property, to exceed:

(1) The interior noise standard for a cumulative period of more than five (5) minutes in any hour; or

(2) The interior noise plus five (5) dB(A) for a cumulative period of more than one (1) minute in any hour; or

(3) The interior noise standard plus ten (10) dB(A) for any period of time.

(c) In the event the ambient noise level exceeds either of the first two (2) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said

ambient noise level. In the event the ambient noise level exceeds the third noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

(Ord. No. 828, Sec. 1, 7-21-80; Ord. No. 845, Sec. 6, 5-18-81; Ord. No. 1277, Sec. 5, 7-7-03)

4616 - SPECIFIC DISTURBING NOISES PROHIBITED

It shall be unlawful for any person to make, continue, cause to allow to be made or continued for any amount of time the following acts and things which are hereby declared to be unnecessary, excessive and annoying in violation of this article:

(1) Loudspeakers, amplifiers used for advertising. The using, operating or permitting to be played, used, or operated of any radio receiving set, musical instrument, phonograph, loudspeaker, sound amplifier, or other machine or device for the producing or reproducing of sound in excess of the levels described in sections 4614 and 4615 which sound is cast upon the public streets for the purpose of commercial advertising or attracting the attention of the public to any commercial building or structure.

(2) Construction, repairing, remodeling or demolition and grading. The erection, demolition, alteration, repair, excavation, grading, paving or construction of any building or site is prohibited between the hours of 6:00 p.m. and 7:00 a.m., Monday through Friday and 5:00 p.m. and 9:00 a.m. on Saturdays and during all hours Sundays and city observed federal holidays. Trucks, vehicles and equipment that are making or are involved with material deliveries, loading or transfer of materials, equipment service, maintenance of any devices or appurtenances to any construction project in the City shall not be operated on or adjacent to said sites outside of the approved hours for construction activity.

Exception: Construction activities may be permitted outside of those limitations identified in this subsection in the case of urgent necessity or upon a finding that such approval will not adversely impact adjacent properties and the health, safety and welfare of the community if a temporary exception is granted in writing by the Building Official for private property or by the Director of Public Works for public properties or their authorized representatives. All temporary waiver requests shall be made in writing and shall include the specific times, dates and locations requested and a description of the type of activity that is proposed. In granting a temporary exception, conditions may be imposed on construction activities to protect the health, safety and welfare of the community. Any approval granted may be summarily revoked by the Building Official or Director of Public Works at the sole discretion of each official. Notice of such revocation shall be provided to the requestor, Police Department and project file.

(3) Pile drivers, hammers, etc., the operation of a pile driver, power shovel, pneumatic

hammer, grading and excavating machinery, paving equipment, or other appliance, the use of which is attended by loud or unusual noise is prohibited between any and all hours on Sundays and city observed federal holidays, between the hours of 6:00 p.m. and 7:00 a.m., Monday through Friday, and between 5:00 p.m. and 9:00 a.m. on Saturdays.

Exception: In the case of urgent necessity and upon a finding that such approval will not adversely impact adjacent properties and the public health, safety and welfare of the community, the above regulations may be modified in writing by the Public Works Director for public property and by the Building Official for private property or their respective authorized representatives. All temporary waiver requests shall be made in writing and shall include the specific times, dates and locations requested and a description of the type of activity that is proposed. In granting a temporary exception, conditions may be imposed on construction activities to protect the health, safety and welfare of the community. Any approval granted may be summarily revoked by the Building Official or Director of Public Works at the sole discretion of each official. Notice of such revocation shall be provided to the requestor, Police Department and project file.

(4) Property maintenance equipment. The use and operation of property maintenance equipment, the use of which is attended by loud or unusual noise, is prohibited in residentially zoned areas any and all hours on Sundays and city observed federal holidays, before 7:00 a.m. and after 6:00 p.m. Monday through Friday, and before 9:00 a.m. and after 5:00 p.m. on Saturdays. In commercial and industrially zoned areas, the use of property maintenance equipment is prohibited any and all hours on Sundays and city observed federal holidays, before 7:00 a.m. and after 10:00 p.m. Monday through Friday, and before 9:00 a.m. and after 10:00 p.m. on Saturdays. No property owner, lessee, gardener, property maintenance service, contractor, subcontractor, or employer shall permit or allow any person working at their direction to operate property maintenance equipment in violation of the provisions of this section. All debris generated by the use of property maintenance equipment shall be cleaned up and disposed of in accordance with section 4421 of this Code.

Exceptions:

a. Public property maintenance is exempt from the provisions of this subsection (4).

b. The use of property maintenance equipment may be permitted outside of those limitations identified in subsection 4616 (4) in the case of necessity or upon a finding that such approval will not adversely impact adjacent properties and the health, safety, and welfare of the community if a temporary exception is granted in writing by the Building Official or the Building Official's authorized representatives.

All temporary exception requests shall be made in writing and shall include the specific times and dates and locations requested and a description of the activity that is proposed. In granting a temporary exception, conditions may be imposed on the use of property maintenance equipment to protect the public health and safety. Any approval granted may be summarily revoked by the Building Official at the sole discretion of the Building Official. Notice of such revocation shall be provided to the requestor, Police Department and project file.

(Ord. No. 828, Sec. 1, 7-21-80; Ord. No. 845, Sec. 7, 5-18-81; Ord. No. 1083, Sec. 1, 4-21-92; Ord. No. 1143, Sec. 1, 2-21-95; Ord. No. 1156, Sec. 2, 10-16-95; Ord. No. 1197, Sec. 3, 3-16-98)

4617 - EXEMPTIONS

The following activities shall be exempted from the provisions of this chapter:

(a) Activities conducted on the grounds of any public or private nursery, elementary, intermediate or secondary school or college, public agency, and public utility.

(b) Outdoor gatherings, public dances, shows and sporting and entertainment events provided said events are conducted pursuant to a permit (license/permit) issued by the City pursuant to Article 3, Chapter 2 of the Tustin City Code relative to the staging of said events.

(c) Activities conducted on any park or playground provided such park or playground is owned and operated by a public entity.

(d) Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work.

(e) Noise sources associated with construction, repair, remodeling, or grading of any real property between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday and the hours of 9:00 a.m. and 5:00 p.m. on Saturdays, excluding city observed federal holidays.

(f) All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions.

(g) Mobile noise sources associated with agricultural operations provided such operations do not take place between the hours of 6:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or any time on Sunday or a city observed federal holiday.

(h) Mobile noise sources associated with agricultural pest control through pesticide application provided that the application is made in accordance with restricted material permits issued by or regulations enforced by the Agricultural Commissioner.

(i) Noise sources associated with maintenance of real property provided said activities take place between the hours of 7:00 a.m. and 6:00 p.m. on any day except Sunday or city

observed federal holidays, or between the hours of 9:00 a.m. and 6:00 p.m. on Sunday or city observed federal holidays.

(j) Any activity to the extent regulation thereof has been preempted by state or federal law.

(k) Noise sources associated with the maintenance, repair, remodeling, grading and landscaping of residential real property performed by the owner, provided such activity does take place between the hours of 7:00 a.m. and 9:00 p.m. This section does not authorize noise sources performed by independent building trades contractors.

(l) Noise sources associated with the maintenance and repair of personal property performed by the owner on the owner's residential property, provided such activity takes place between the hours of 7:00 a.m. and 9:00 p.m. This section does not authorize noise sources by independent repairmen or technicians.

(Ord. No. 828, Sec. 1, 7-21-80; Ord. No. 1143, Sec. 2, 2-21-95; Ord. No. 1156, Sec. 3, 10-16-95; Ord. No. 1197, Sec. 4, 3-16-98)

4618 - SCHOOLS, HOSPITALS, COURTS AND CHURCHES

It shall be unlawful for any person to create any noise which causes the noise level at any school, hospital, court, or church while the same is in use, to exceed the noise limits as specified in section 4614 prescribed for the assigned noise zone in which the school, hospital, or church is located, or which noise level unreasonably interferes with the use of such institutions or which unreasonably disturbs or annoys patients in the hospital, provided conspicuous signs are displayed in three (3) separate locations within one-tenth of a mile of the institution indicating the presence of a school, church, court, or hospital.

(Ord. No. 828, Sec. 1, 7-21-80)

4619 - AIR CONDITIONING AND REFRIGERATION

During a one-year period following the effective date of Ordinance No. 828 the noise level standards as specified in Sections 4614 and 4615 shall be increased by eight (8) dB(A) where the alleged noise source is an air-conditioning apparatus or refrigeration system, which was installed prior to the effective date of said Ordinance.

(Ord. No. 828, Sec. 1, 7-21-80)

4620 - NOISE LEVEL MEASUREMENT CRITERIA

Any noise level measurements made pursuant to the provisions of this Chapter shall be performed using a sound level meter as defined in Section 4612. The location selected for measuring exterior noise levels shall be at any point on the affected property. Interior noise measurements shall be made within the

dwelling unit affected by exterior noise. The measurement shall be made at a point at least four (4) feet from the wall, ceiling, or floor nearest the alleged offensive noise source and may be made with the windows of the affected unit open.

(Ord. No. 828, Sec. 1, 7-21-80)

4621 - RESERVED

Editor's note— Section 11 of Ord. No. 1366, adopted Nov. 11, 2009, repealed Section 4621, which pertained to the manner of enforcement; adoption of Title 4, Division 6, Codified Ordinances of Orange County, and derived from Ord. No. 828, adopted July 21, 1980; and Ord. No. 845, adopted May 18, 1981.

4622 - RESERVED

Editor's note— Section 11 of Ord. No. 1366, adopted Nov. 11, 2009, repealed Section 4622, which pertained to variance procedure, and derived from Ord. No. 828, adopted July 21, 1980.

4623 - RESERVED

Editor's note— Section 11 of Ord. No. 1366, adopted Nov. 11, 2009, repealed Section 4623, which pertained to the noise variance board, and derived from Ord. No. 828, adopted July 21, 1980.

4624 - RESERVED

Editor's note— Section 11 of Ord. No. 1366, adopted Nov. 11, 2009, repealed Section 4624, which pertained to appeals and derived from Ord. No. 828, adopted July 21, 1980.

4625 - VIOLATIONS; MISDEMEANORS

Any person violating any of the provisions of this Chapter shall be deemed guilty of a misdemeanor. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such. The provisions of this Chapter shall not be construed as permitting conduct not prescribed herein and shall not affect the enforceability of any other applicable provisions of law.

(Ord. No. 828, Sec. 1, 7-21-80; Ord. No. 845, Sec. 9, 5-18-81)

ARTICLE VI. - NOISE CONTROL

Footnotes:
*--- (**6**) ---*
***Editor's note—** Ord. No. NS-1441, § 1, enacted Aug. 21, 1978, amended Art. VI to read as set out in §§ 18-308—18-321. Formerly Art. VI, pertaining to noise, was derived from Code 1952, §§ 4270, 4270.1, 6390.9, and Ord. No. 1334, adopted Jan. 19, 1953.*

Sec. 18-308. - Declaration of policy.

In order to control unnecessary, excessive and annoying sounds emanating from areas of the city, it is hereby declared to be the policy of the city to prohibit such sounds generated from all sources as specified in this article.

It is determined that certain sound levels are detrimental to the public health, welfare and safety, and contrary to public interest.

(Ord. No. NS-1441, 1, 8-21-78)

Sec. 18-309. - Definitions.

The following words, phrases and terms as used in this article shall have the meaning as indicated below:

Ambient noise level shall mean the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

Cumulative period shall mean an additive period of time composed of individual time segments which may be continuous or interrupted.

Decibel (dB) shall mean a unit which denotes the ratio between two (2) quantities which are proportional to power: The number of decibels corresponding to the ratio of two (2) amounts of power is ten (10) times the logarithm to the base ten (10) of this ratio.

Dwelling unit shall mean a single unit providing complete, independent living facilities for one or more persons including permanent provisions for living, sleeping, eating, cooking and sanitation.

Emergency machinery, vehicle or work shall mean any machinery, vehicle or work used, employed or performed in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

Fixed noise source shall mean a stationary device which creates sounds while fixed or motionless, including, but not limited to, industrial and commercial machinery and equipment, pumps, fans, compressors, generators, air conditioners and refrigeration equipment.

Grading shall mean any excavating or filling of earth material, or any combination thereof, conducted at a site to prepare said site for construction or other improvements thereon.

Impact noise shall mean the noise produced by the collision of one mass which may be either in motion or at rest.

Mobile noise source shall mean any noise source other than a fixed noise source.

Noise level shall mean the "A" weighted sound pressure level in decibels obtained by using a sound level meter at slow response with a reference pressure of twenty (20) micronewtons per square meter. The unit of measurement shall be designated as dB (A).

Person shall mean a person, firm, association, copartnership, joint venture, corporation or any entity, public or private in nature.

Residential property shall mean a parcel of real property which is developed and used either in part or in whole for residential purposes, other than transient uses such as hotels and motels.

Simple tone noise shall mean a noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished.

Sound level meter shall mean an instrument meeting American National Standard Institute's Standard S1.4-1971 for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

Sound pressure level of a sound, in decibels, shall mean twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound to a reference pressure, which reference pressure shall be explicitly stated.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-310. - Noise level measurement criteria.

Any noise level measurements made pursuant to the provisions of this article shall be performed using a sound level meter as defined in section 18-309.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-311. - Designated noise zone.

The entire City of Santa Ana is hereby designated as "Noise Zone 1."

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-312. - Exterior noise standards.

(a) The following noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

NOISE STANDARDS

Noise Zone	Noise Level	Time Period
1	55 dB(A)	7:00 a.m.—10:00 p.m.
	50 dB(A)	10:00 p.m.— 7:00 a.m.

In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB (A).

(b) It shall be unlawful for any person at any location within the City of Santa Ana to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property, to exceed:

(1) The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or

(2) The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or

(3) The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or

(4) The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one minute in any hour; or

(5) The noise standard plus twenty (20) dB(A) for any period of time.

(c) In the event the ambient noise level exceeds any of the first four (4) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit

category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-313. - Interior noise standards.

(a) The following interior noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

INTERIOR NOISE STANDARDS

Noise Zone	Noise Level	Time Period
1	55 dB(A)	7:00 a.m.—10:00 p.m.
	45 dB(A)	10:00 p.m.—7:00 a.m.

In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB(A).

(b) It shall be unlawful for any person at any location within the City of Santa Ana to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured within any other dwelling unit on any residential property, to exceed:

(1) The interior noise standard for a cumulative period of more than five (5) minutes in any hour; or

(2) The interior noise standard plus five (5) dB(A) for a cumulative period of more than one minute in any hour; or

(3) The interior noise standard plus ten (10) dB(A) for any period of time.

(c) In the event the ambient noise level exceeds either of the first two (2) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the third noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-314. - Special provisions.

The following activities shall be exempted from the provisions of this article:

(a) Activities conducted on the grounds of any public or private nursery, elementary, intermediate or secondary school or college.

(b) Outdoor gatherings, public dances and shows, provided said events are conducted pursuant to a license issued by the City of Santa Ana.

(c) Activities conducted on any park or playground, provided such park or playground is owned and operated by a public entity.

(d) Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work.

(e) Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or any time on Sunday or a federal holiday.

(f) All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions.

(g) Mobile noise sources associated with agricultural operations, provided such operations do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

(h) Mobile noise sources associated with agricultural pest control through pesticide application, provided that the application is made in accordance with restricted material permits issued by or regulations enforced by the agricultural commissioner.

(i) Noise sources associated with the maintenance of real property, provided said activities take place between 7:00 a.m. and 8:00 p.m. on any day except Sunday or a federal holiday, or between the hours of 9:00 a.m. and 8:00 p.m. on Sunday or a federal holiday.

(j) Any activity to the extent regulation thereof has been preempted by state or federal law.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-315. - Schools, hospitals and churches; special provisions.

It shall be unlawful for any person to create any noise which causes the noise level at any school, hospital or church while the same is in use to exceed the noise limits as specified in section 18-312 prescribed for the assigned noise zone in which the school, hospital or church is located, or which noise

level unreasonably interferes with the use of such institutions or which unreasonably disturbs or annoys patients in the hospital, provided conspicuous signs are displayed in three (3) separate locations within one-tenth (1/10) of a mile of the institution indicating the presence of a school, church or hospital.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-316. - Air conditioning and refrigeration; special provisions.

During the five-year period following the effective date of this article, the noise standards enumerated in sections 18-312 and 18-313 shall be increased eight (8) dB(A) where the alleged offensive noise source is an air conditioning or refrigeration system or associated equipment which was installed prior to the effective date of this article.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-317. - Noise level measurement.

The location selected for measuring exterior noise levels shall be at any point on the affected property. Interior noise measurements shall be made within the affected dwelling unit. The measurement shall be made at a point at least four (4) feet from the wall, ceiling, or floor nearest the alleged offensive noise source and may be made with the windows of the affected unit open.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-318. - Manner of enforcement.

The chief of police, the Orange County health officer and their duly authorized representatives are directed to enforce the provisions of this article. The chief of police, the Orange County health officer and their duly authorized representatives are authorized, pursuant to Penal Code Section 836.5, to arrest any person without a warrant when they have reasonable cause to believe that such person has committed a misdemeanor in their presence.

No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this article while such person is engaged in the performance of his duty.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-319. - Variance procedure.

The owner or operator of a noise source which violates any of the provisions of this article may file an application with the Orange County health officer for a variance from the provisions thereof wherein said owner or operator shall set forth all actions taken to comply with said provisions, the reasons why immediate compliance cannot be achieved, a proposed method of achieving compliance, and a proposed

time schedule for its accomplishment. Said application shall be accompanied by a fee as established by resolution of the city council. A separate application shall be filed for each noise source; provided however, that several mobile sources under common ownership, or several fixed sources on a single property may be combined into one application. Upon receipt of said application and fee, the health officer shall refer it with his recommendation thereon within thirty (30) days to the Orange County Noise Variance Board for action thereon in accordance with the provisions of applicable law.

An applicant for a variance shall remain subject to prosecution under the terms of this article until a variance is granted.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-320. - Appeals.

Within fifteen (15) days following the decision of the Orange County Variance Board on an application, the applicant, the health officer, or any member of the city council, may appeal the decision to the city council by filing a notice of appeal with the secretary of the Orange County Variance Board. In the case of an appeal by the applicant for a variance, the notice of appeal shall be accompanied by a fee to be computed by the secretary of the Orange County Variance Board on the basis of the estimated cost of preparing the materials required to be forwarded to the city council as discussed hereafter. If the actual cost of such preparation differs from the estimated cost appropriate payments shall be made either to or by the secretary of the Orange County Variance Board.

Within fifteen (15) days following receipt of a notice of appeal and the appeal fee, the secretary of the Variance Board shall forward to the city council copies of the application for variance; the recommendation of the health officer; the notice of appeal; all evidence concerning said application received by the variance board and its decision thereon. In addition, any person may file with the clerk of the city council written arguments supporting or attacking said decision and the city council may in its discretion hear oral arguments thereon. The clerk of the city council shall mail to the applicant a notice of the date set for hearing of the appeal. The notice shall be mailed at least ten (10) days prior to the hearing date.

Within sixty (60) days following its receipt of the notice of appeal, the city council shall either affirm, modify or reverse the decision, of the variance board. Such decision shall be based upon the city council's evaluation of the matters submitted to the city council in light of the powers conferred on the variance board and the factors to be considered, both as enumerated in section 18-319 and Orange County Ordinance section 4-6-13.

As part of its decision, the city council may direct the variance board to conduct further proceedings on said application. Failure of the city council to affirm, modify or reverse the decision of the variance board within said sixty-day period shall constitute an affirmance of the decision.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-321. - Violations; misdemeanors.

Any person violating any or the provisions of this article shall be deemed guilty of a misdemeanor. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such. The provisions of this article shall not be construed as permitting conduct not prescribed herein and shall not affect the enforceability of any other applicable provisions of law.

(Ord. No. NS-1441, § 1, 8-21-78)

Secs. 18-322—18-350. - Reserved.

CONSTRUCTION DATA

Architectural Coating
Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/31/2020
Case Description: TSD-17

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Architectural Coating	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	150.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Compressor (air)	68.1	64.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	68.1	64.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/29/2020
Case Description: TSD-17

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Building Construction	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Crane	No	16		80.6	150.0	0.0
Generator	No	50		80.6	150.0	0.0
Tractor	No	40	84.0		150.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	71.0	63.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	71.1	68.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	74.5	70.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	74.5	72.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/29/2020
Case Description: TSD-17

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Demolition	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Concrete Saw	No	20	89.6	150.0		0.0
Excavator	No	40	80.7	150.0		0.0
Dozer	No	40	81.7	150.0		0.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Concrete Saw	80.0	73.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	71.2	67.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	72.1	68.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	80.0	75.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/29/2020
Case Description: TSD-17

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Grading	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Excavator	No	40		80.7	150.0	0.0
Dozer	No	40		81.7	150.0	0.0
Tractor	No	40	84.0		150.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	71.2	67.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	72.1	68.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	74.5	70.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	74.5	73.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/25/2020
Case Description: TSD-17

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Landscaping	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Excavator	No	40	80.7	150.0	0.0	

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	71.2	67.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	71.2	67.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 01/29/2020
Case Description: TSD-17

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Site Prep	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	150.0	0.0
Tractor	No	40	84.0		150.0	0.0
Front End Loader	No	40		79.1	150.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	72.1	68.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	74.5	70.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	69.6	65.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	74.5	73.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Attenuation Calculation				
	Residential Santa Ana		Residential Tustin	
Phase	dBA Leq	distance (ft)	dBA Leq	distance (ft)
Demolition	75	150	70.6	250
Site Preparation	73.3		68.9	
Grading	73.6		69.2	
Building Construction (pa	72.9		68.5	
Architectural Coating	64.1		59.7	
Landscaping	67.2		62.8	

Attenuation calculated through Inverse Square Law: Ln = 20Log(R2/R1)